

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2009-1222; Directorate Identifier 2009-NM-153-AD; Amendment 39-16160; AD 2008-10-06 R1]**

**RIN 2120-AA64**

### **Airworthiness Directives; The Boeing Company Model 747-400, -400D, and -400F Series Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), Department of Transportation (DOT).

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is revising an existing airworthiness directive (AD), which applies to certain Model 747-400, -400D, and -400F series airplanes. That AD currently requires revising the FAA-approved maintenance program by incorporating new airworthiness limitations (AWLs) for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. That AD also requires phasing in certain repetitive AWL inspections, and repair if necessary. This AD clarifies the intended effect of the AD on spare and on-airplane fuel tank system components. This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

**DATES:** This AD is effective January 22, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of January 22, 2010.

On June 12, 2008 (73 FR 25990, May 8, 2008), the Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD.

We must receive any comments on this AD by February 22, 2010.

**ADDRESSES:** You may send comments 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: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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

## **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 street address for the Docket Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Judy Coyle, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6497; fax (425) 917-6590.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On April 28, 2008, we issued AD 2008-10-16, Amendment 39-15512 (73 FR 25990, May 8, 2008). That AD applied to certain Model 747-400, -400D, and -400F series airplanes. That AD required revising the FAA-approved maintenance program by incorporating new airworthiness limitations (AWLs) for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. That AD also required the phasing in of certain repetitive AWL inspections, and repair if necessary. That AD resulted from a design review of the fuel tank systems. The actions specified in that AD are intended to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

Critical design configuration control limitations (CDCCLs) are limitation requirements to preserve a critical ignition source prevention feature of the fuel tank system design that is necessary to prevent the occurrence of an unsafe condition. The purpose of a CDCCL is to provide instruction to retain the critical ignition source prevention feature during configuration change that may be caused by alterations, repairs, or maintenance actions. A CDCCL is not a periodic inspection.

### **Actions Since AD Was Issued**

Since we issued that AD, we have determined that it is necessary to clarify the AD's intended effect on spare and on-airplane fuel tank system components, regarding the use of maintenance manuals and instructions for continued airworthiness.

Section 91.403(c) of the Federal Aviation Regulations (14 CFR 91.403(c)) specifies the following:

No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitation section unless the mandatory \* \* \* procedures \* \* \* have been complied with.

Some operators have questioned whether existing components affected by the new CDCCLs must be reworked. We did not intend for the AD to retroactively require rework of components that had been maintained using acceptable methods before the effective date of the AD. Owners and operators of the affected airplanes therefore are not required to rework affected components identified as airworthy or installed on the affected airplanes before the required revisions of the FAA-approved maintenance program. But once the CDCCLs are incorporated into the FAA-approved maintenance program, future maintenance actions on components must be done in accordance with those CDCCLs.

### **Relevant Service Information**

AD 2008-10-06 cites Boeing Temporary Revision 09-010, dated March 2008, to the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9. Since we issued that AD, Boeing has revised the referenced service information. We have reviewed Revisions April 2008, and March 2009, to Section 9 of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9. The revised MPDs add no new procedures, and revise certain others.

### **FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other airplanes of the same type design. For this reason, we are issuing this AD to revise AD 2008-10-06. This new AD retains the requirements of the existing AD, and adds a new note to clarify the intended effect of the AD on spare and on-airplane fuel tank system components.

### **Explanation of Additional Changes to AD**

AD 2008-10-06 allowed the use of later revisions of the FAA-approved maintenance program. That provision has been removed from this AD. Allowing the use of "a later revision" of specific service documents violates Office of the Federal Register regulations for approving materials that are incorporated by reference. Affected operators, however, may request approval to use a later revision of the referenced service documents as an alternative method of compliance, under the provisions of paragraph (l) of this AD.

We have revised this AD to identify the legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

### **Costs of Compliance**

This revision imposes no additional economic burden. The current costs for this AD are repeated for the convenience of affected operators, as follows:

We estimate that this AD affects 596 airplanes of U.S. registry. We also estimate that it takes about 48 work-hours per product to comply with this AD. The average labor rate is \$80 per work-hour. Based on these figures, we estimate the cost of this AD to the U.S. operators to be \$2,288,640, or \$3,840 per product.

### **FAA's Justification and Determination of the Effective Date**

This revision merely clarifies the intended effect on spare and on-airplane fuel tank system components, and makes no substantive change to the AD's requirements. For this reason, it is found that notice and opportunity for prior public comment for this action are unnecessary, and good cause exists for making this amendment effective in less than 30 days.

## **Comments Invited**

This AD is a final rule that involves requirements affecting flight safety, and we did not provide you with notice and an opportunity to provide your comments before it becomes effective. However, we invite you to send any written data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2009-1222; Directorate Identifier 2009-NM-153-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this 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 AD.

## **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 have determined that 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 the 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); and
3. 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

## **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 part 39 of the Federal Aviation Regulations (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 removing amendment 39-15512 (73 FR 25990, May 8, 2008) and adding the following new AD:



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**2008-10-06 R1 The Boeing Company:** Amendment 39-16160. Docket No. FAA-2009-1222; Directorate Identifier 2009-NM-153-AD.

## Effective Date

- (a) This airworthiness directive (AD) is effective January 22, 2010.

## Affected ADs

- (b) This AD revises AD 2008-10-06, Amendment 39-15512.

## Applicability

(c) This AD applies to The Boeing Company Model 747-400, -400D, and -400F series airplanes, certificated in any category; with an original standard airworthiness certificate or original export certificate of airworthiness issued before April 12, 2006.

Note 1: Airplanes with an original standard airworthiness certificate or original export certificate of airworthiness issued on or after April 12, 2006, must be already in compliance with the airworthiness limitations specified in this AD because those limitations were applicable as part of the airworthiness certification of those airplanes.

Note 2: This AD requires revisions to certain operator maintenance documents to include new inspections. Compliance with these inspections is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by these inspections, the operator may not be able to accomplish the inspections 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 (AMOC) 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.

## Unsafe Condition

(d) This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

## Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

## **Service Information Reference**

(f) The term "Revision March 2008 of the MPD," as used in this AD, means Boeing Temporary Revision (TR) 09-010, dated March 2008. Boeing TR 09-010 is published as Section 9 of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9, Revision March 2008.

## **Restatement of AD 2008-10-06, With Revised Compliance Method**

### **Maintenance Program Revision**

(g) Before December 16, 2008, revise the FAA-approved maintenance program by incorporating the information in the subsections specified in paragraphs (g)(1), (g)(2), and (g)(3) of this AD; except that the initial inspections specified in Table 1 of this AD must be done at the compliance times specified in Table 1.

(1) Subsection B, "AIRWORTHINESS LIMITATIONS (AWLs)–SYSTEMS," of Boeing TR 09-010, dated March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9.

(2) Subsection C, "PAGE FORMAT: FUEL SYSTEMS AIRWORTHINESS LIMITATIONS," of Boeing TR 09-010, dated March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 MPD, Document, D621U400-9.

(3) Subsection D, "AIRWORTHINESS LIMITATIONS–FUEL SYSTEMS," AWLs No. 28-AWL-01 through No. 28-AWL-23 inclusive, of Boeing TR 09-010, dated March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 MPD Document, D621U400-9. As an optional action, AWLs No. 28-AWL-24 through No. 28-AWL-29 inclusive, as identified in Subsection D of Boeing TR 09-010, Revision March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 MPD Document, D621U400-9; also may be incorporated into the FAA-approved maintenance program.

### **Initial Inspections and Repair if Necessary**

(h) Do the inspections specified in Table 1 of this AD at the compliance time specified in Table 1 of this AD, and repair any discrepancy, in accordance with Subsection D of Boeing TR 09-010 dated March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 MPD Document, D621U400-9. The repair must be done before further flight. Accomplishing the inspections identified in Table 1 of this AD as part of an FAA-approved maintenance program before the applicable compliance time specified in Table 1 of this AD constitutes compliance with the requirements of this paragraph.

Note 3: For the purposes of this AD, a detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

Note 4: For the purposes of this AD, a special detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. The examination is likely to make extensive use of specialized inspection techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required."

**Table 1 – Initial Inspections**

AWL No.	Description	Compliance Time (whichever occurs later)	
		Threshold	Grace Period
28-AWL-01	A detailed inspection of external wires over the center fuel tank for damaged or loose clamps, wire chafing, and wire bundles in contact with the surface of the center fuel tank	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 72 months after June 12, 2008 (the effective date of AD 2008-10-06)
28-AWL-03	A special detailed inspection of the lightning shield to ground termination on the out-of-tank fuel quantity indicating system to verify functional integrity	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 24 months after June 12, 2008 (the effective date of AD 2008-10-06)
28-AWL-10	A special detailed inspection of the fault current bond of the fueling shutoff valve actuator of the center wing tank to verify electrical bond	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 60 months after June 12, 2008 (the effective date of AD 2008-10-06)

### **Incorporation of Additional AWLs for Certain Airplanes**

(i) For Model 747-400 series airplanes equipped with an auxiliary fuel tank: Before December 16, 2008, revise the FAA-approved maintenance program by incorporating AWLs No. 28-AWL-30, No. 28-AWL-31, and No. 28-AWL-32 of Subsection D of Boeing TR 09-010, dated March 2008; or Section 9, Revision April 2008, or March 2009, of the Boeing 747-400 MPD Document, D621U400-9.

### **No Alternative Inspections, Inspection Intervals, or Critical Design Configuration Control Limitations (CDCCLs)**

(j) After accomplishing the applicable actions specified in paragraphs (g), (h), and (i) of this AD, no alternative inspections, inspection intervals, or CDCCLs may be used unless the inspections, intervals, or CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (l) of this AD.

### **Credit for Actions Done According to Previous Revisions of the MPD**

(k) Actions done before June 12, 2008, in accordance with Section 9 of the Boeing 747-400 MPD Document, D621U400-9, Revision 23, dated March 2006; Revision 24, dated June 2006; Revision November 2006; Revision December 2006; Revision December 2006 R1; Revision May 2007; Revision October 2007; or Revision November 2007; are acceptable for compliance with the corresponding requirements of paragraphs (g) and (h) of this AD.



## **New Information**

### **Explanation of CDCCL Requirements**

Note 5: Notwithstanding any other maintenance or operational requirements, components that have been identified as airworthy or installed on the affected airplanes before the revision of the FAA-approved maintenance program, as required by paragraph (g) of this AD, do not need to be reworked in accordance with the CDCCLs. However, once the FAA-approved maintenance program has been revised, future maintenance actions on these components must be done in accordance with the CDCCLs.

### **Alternative Methods of Compliance (AMOCs)**

(1)(1) The Manager, Seattle Aircraft Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information to ATTN: Judy Coyle, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6497; fax (425) 917-6590. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

(3) AMOCs approved previously in accordance with AD 2008-10-06, are approved as AMOCs for the corresponding provisions of this AD.

### **Material Incorporated by Reference**

(m) You must use Boeing Temporary Revision 09-010, dated March 2008, to the Boeing 747-400 Maintenance Planning Data (MPD) Document D621U400-9; Section 9, Revision April 2008, of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9; or Section 9, Revision March 2009, of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9; to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of Section 9, Revision April 2008, of the Boeing 747-400 Maintenance Planning Data (MPD) Document D62U400-9; and Section 9, Revision March 2009, of the Boeing 747-400 Maintenance Planning Data (MPD) Document, D621U400-9; under 5 U.S.C. 522(a) and 1 CFR part 51.

(2) The Director of the Federal Register previously approved the incorporation by reference of Boeing Temporary Revision 09-010, dated March 2008, to the Boeing 747-400 MPD Document D621U400-9, on June 12, 2008 (73 FR 25990, May 8, 2008).

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

(4) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221 or 425-227-1152.

(5) You may also review copies of the 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on December 21, 2009.  
Ali Bahrami,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.