



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2008-0620; Directorate Identifier 2007-NM-357-AD; Amendment 39-17499; AD 2013-13-11]**

**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 747-400, -400D, and -400F series airplanes. This AD was prompted by reports of two in-service occurrences on Model 737-400 airplanes of total loss of boost pump pressure of the fuel feed system, followed by loss of fuel system suction feed capability on one engine, and in-flight shutdown of the engine. This AD requires repetitive operational tests of the engine fuel suction feed of the fuel system, and other related testing and corrective actions if necessary. We are issuing this AD to detect and correct loss of the engine fuel suction feed capability of the fuel system, which, in the event of total loss of the fuel boost pumps, could result in multi-engine flameout, inability to restart the engines, and consequent forced landing of the airplane.

**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 the 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 review copies of the referenced 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.

### **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:** Sue Lucier, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6438; fax: 425-917-6590; email: [suzanne.lucier@faa.gov](mailto:suzanne.lucier@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to the specified products. That SNPRM published in the Federal Register on July 9, 2012 (77 FR 40307). The original NPRM (73 FR 32248, June 6, 2008) proposed to require repetitive operational tests of the engine fuel suction feed of the fuel system, and other related testing if necessary. The SNPRM proposed to require repetitive operational tests 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 40307, July 9, 2012) and the FAA's response to each comment. Boeing reviewed the SNPRM and concurs with the content.

### **Request to Change the Compliance Time for the Operational Tests**

United Airlines (UAL) asked that we change the compliance times for the operational test in the SNPRM (77 FR 40307, July 9, 2012) from 30,000 flight hours after the effective date of the AD to "within 30,000 flight hours or 72 months after the effective date of the proposed AD, whichever is later." UAL also asked that the repetitive interval be changed to "intervals not to exceed 30,000 flight hours or 72 months." UAL stated that, "... Boeing 747-400 MRB No. 28-022-04 requires the initial and repeat operational tests be performed at 1D [maintenance] interval." UAL added that the suggested change would provide an acceptable level of safety and provide operators some degree of flexibility in scheduling the required task.

We do not agree with the request to change the compliance time proposed in the SNPRM (77 FR 40307, July 9, 2012). Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012, has been revised to change the compliance time and clarify certain procedures in the Work Instructions. We reviewed Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012, and we are not mandating the newly recommended compliance time in this AD; however, we are including Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012, in paragraph (g) of this AD as an option to using the original issue of this service information for procedures to accomplish the required actions.

We partially agree with including a compliance time for low-utilization airplanes; however, adding a calendar time of 72 months would constitute a more

restrictive compliance time and would necessitate issuing another supplemental NPRM, which would delay issuance of this final rule. We determined that the compliance time of “within 30,000 flight hours or 6 years, whichever is first,” as stated in Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012, was changed to address low-utilization airplanes and will adequately address the unsafe condition identified. Therefore, we have not changed the AD in this regard.

#### **Request to Correct Errors in Service Information**

UAL asked that a service bulletin information notice (IN) be issued to address two errors in Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012. UAL noted that the first error is the reserve tank identifications, and the second error is an airplane maintenance manual (AMM) procedure referred to in the Work Instructions that is not identified in UAL’s AMM. UAL stated that issuing an IN would prevent alternative method of compliance (AMOC) requests from operators.

We acknowledge and agree with the commenter’s concern. As noted previously, we reviewed Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012, which clarifies the reserve tank identifications. We have added this service information as an option for accomplishing the actions required by paragraph (g) of this AD. However, the second error identified by UAL involves the instructions in operator-customized maintenance manuals published by Boeing. Therefore, UAL should contact Boeing for resolution of the missing procedure in its AMM. Operators need not request AMOC approvals to use Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012, with regard to these errors since compliance is not affected.

#### **Request to Allow Alternative Procedures for Performing Operational Test**

UAL asked that paragraph (g) of the SNPRM (77 FR 40307, July 9, 2012) be changed to allow alternative procedures for performing the operational test instead of using the procedures provided in Boeing Alert Service Bulletin 747-28A2330, dated

April 2, 2012. UAL stated that an alternative test is specified in the Boeing Model 747-400 AMM 28-22-00, Task 28-22-00-710-801, titled “Engine Fuel Suction Feed – Operational Test.” UAL also asked that the procedure specified in AMM Task 28-22-07-706-200, titled “Engine Fuel Feed Manifold Air Pressure Leak Check,” be included as an alternative procedure.

We do not agree with the commenter’s request, but provide the following clarification. The manifold leak test is not equivalent to the operational test for the purposes of this AD action. The positive internal fuel line pressure applied during the manifold test does not simulate the same conditions encountered during fuel suction feed (i.e., vacuum), and might mask a failure. The action mandated by this AD is necessary in order to screen for system deterioration under suction feed conditions. Based on current requirements, a fuel suction feed test is required after reconnecting the fuel line to the manifold to verify final system integrity. Therefore, we have not changed the AD in this regard.

#### **Request for Additional Step in Operational Test**

UPS asked that we add a tolerance to the operational test for Steps 10.a and 10.c for the N1, N2, and “Fuel Flow Decrease Monitoring.” (UPS stated that this follows the procedures in the referenced service information.) UPS is concerned that the engine parameters monitored using Step 10 might have slight (normal) fluctuations due to external effects, such as wind gusts, which could lead to a false test failure.

We do not agree with the commenter’s request. These defined criteria were taken directly from approved AMMs that describe similar testing. These criteria have been used for a very long time with no negative feedback or requests for a similar (wider) tolerance band. In light of these facts, we have made no change to the AD in this regard.

### **Request to Provide Credit for Previously Accomplished Operational Tests**

UAL asked that the SNPRM (77 FR 40307, July 9, 2012) be changed to provide credit for operational tests of the engine fuel suction system previously accomplished as specified in MRB Task 28-022-04, titled “Operational Check of the Engine Fuel Suction Feed System.” UAL stated that it has incorporated this MRB task into its maintenance program at the MRB recommended level. UAL inferred that other operators of Model 747-400 airplanes have done the same.

We agree that credit might be appropriate for operator equivalent procedures; however, we do not agree with defining this credit within the AD. Affected operators may request approval of an AMOC under the provisions of paragraph (h) of this AD by submitting data substantiating that the equivalent procedures would provide an acceptable level of safety. We have not changed the AD in this regard.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the change described previously– and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM (77 FR 40307, July 9, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM (77 FR 40307, July 9, 2012).

We also determined that this change 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 79 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

### Estimated costs

Action	Labor cost	Cost per product	Cost on U.S. operators
Operational Test	3 work-hours X \$85 per hour = \$255 per engine, per test	\$1,020, per test	\$80,580, per test

We have received no definitive data that would enable us to provide a cost estimate for the on-condition actions specified in 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

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):

2013-13-11 **The Boeing Company:** Amendment 39-17499; Docket No. FAA-2008-0620; Directorate Identifier 2007-NM-357-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 747-400, -400D, and -400F series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 2800, Aircraft Fuel System.

**(e) Unsafe Condition**

This AD was prompted by reports of two in-service occurrences on Model 737-400 airplanes of total loss of boost pump pressure of the fuel feed system, followed by loss of fuel system suction feed capability on one engine, and in-flight shutdown of the engine. We are issuing this AD to detect and correct loss of the engine fuel suction feed capability of the fuel system, which, in the event of total loss of the fuel boost pumps, could result in multi-engine flameout, inability to restart the engines, and consequent forced landing of the airplane.

**(f) Compliance**

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

**(g) Operational Test and Corrective Actions**

Within 30,000 flight hours after the effective date of this AD: Perform an operational test of the engine fuel suction feed of the fuel system, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012; or Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012. Do all applicable corrective actions before further flight. Repeat the operational test thereafter at intervals not to

exceed 30,000 flight hours. Thereafter, except as provided in paragraph (h) of this AD, no alternative procedures or repetitive test intervals will be allowed.

**(h) 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](mailto: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.

**(i) Related Information**

For more information about this AD, contact Sue Lucier, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6438; fax: 425-917-6590; email: [suzanne.lucier@faa.gov](mailto:suzanne.lucier@faa.gov).

**(j) 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 to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Alert Service Bulletin 747-28A2330, dated April 2, 2012.

(ii) Boeing Service Bulletin 747-28A2330, Revision 1, dated November 30, 2012.

(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 review copies of the referenced 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.

(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, June 13, 2013.

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

[FR Doc. 2013-15692 Filed 07/01/2013 at 8:45 am; Publication Date: 07/02/2013]