

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2012-1069; Directorate Identifier 2012-NM-044-AD; Amendment 39-17692; AD 2013-24-15]

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 superseding Airworthiness Directive (AD) 2007-11-08 for all The Boeing Company Model 727 airplanes. AD 2007-11-08 required repetitive inspections of the in-tank fuel boost pump wiring, installation of sleeving over the in-tank fuel boost pump wires, repetitive inspections of a certain electrical wire, sleeve, and conduit, and applicable investigative and corrective actions; and repetitive engine fuel suction feed operational tests. This new AD also requires replacement of the wire bundles for the wing and center fuel boost pumps, installation of convoluted liners, and related investigative and corrective actions if necessary. This new AD also requires replacement of the fuel quantity indicating system (FQIS) wires, a low-frequency eddy current inspection for cracking, and repair if necessary. This new AD also requires revising the maintenance program to incorporate changes to the airworthiness limitations section. This AD was prompted by a report of damage found to the sleeve, jacket, and insulation on an electrical wire during a repetitive inspection. We are issuing this AD to prevent chafing of the fuel boost pump electrical wiring and leakage of fuel into the conduit, and to prevent electrical arcing between the wiring and the surrounding conduit, which could result in arc-through of the conduit, and consequent fire or explosion of the fuel tank.

**DATES:** This AD is effective January 8, 2014.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of January 8, 2014.

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of June 6, 2007 (72 FR 28594, May 22, 2007).

**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.

### 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:** Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: rebel.nichols@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR Part 39 to supersede AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007). AD 2007-11-08 applied to the specified products. The SNPRM published in the Federal Register on August 13, 2013 (78 FR 49217). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on October 11, 2012 (77 FR 61731). The NPRM (77 FR 61731, October 11, 2012) proposed to continue to require repetitive inspections of the in-tank fuel boost pump wiring, installation of sleeving over the in-tank fuel boost pump wires, repetitive inspections of a certain electrical wire, sleeve, and conduit, and applicable investigative and corrective actions; and repetitive engine fuel suction feed operational tests. The NPRM also proposed to require replacement of the wire bundles for the wing and center fuel boost pumps, installation of convoluted liners, and related investigative and corrective actions if necessary. The NPRM also proposed to require replacement of the FQIS wires; a low-frequency eddy current inspection for cracking; and repair if necessary. The NPRM also proposed to require revising the maintenance program to incorporate changes to the airworthiness limitations section. The SNPRM proposed to revise certain compliance times, specify a terminating action, and add a requirement to incorporate another change to the airworthiness limitations section.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We have considered the comment received. The Boeing Company stated that it supports the SNPRM (78 FR 49217, August 13, 2013).

### **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the SNPRM (78 FR 49217, August 13, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM (78 FR 49217, August 13, 2013).

### **Costs of Compliance**

We estimate that this AD affects 569 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	Number of U.S. airplanes	Cost on U.S. operators
Inspection, test, and corrective actions [retained actions from AD 2007-11-08, Amendment 39-15065 ( <a href="#">72 FR 28594</a> , May 22, 2007)]	10 work-hours × \$85 per hour = \$850	\$0	\$850	260	\$221,000.
Replacement (new action)	185 work-hours × \$85 per hour = \$15,725	\$28,771	\$44,496	569	\$25,318,224.
Revise maintenance program (new action)	1 work-hour × \$85 per hour = \$85	\$0	\$85	569	\$48,365.
Concurrent FQIS wire replacement (new action)	Up to 248 work-hours × \$85 per hour = \$21,080	Up to \$34,865	Up to \$55,945	569	Up to \$31,832,705.
Concurrent low frequency eddy current (LFEC) inspection (new action)	2 work-hours × \$85 per hour = \$170	\$0	\$170	569	\$96,730.

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

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 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 removing Airworthiness Directive (AD) 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007), and adding the following new AD:



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**2013-24-15 The Boeing Company:** Amendment 39-17692; Docket No. FAA-2012-1069; Directorate Identifier 2012-NM-044-AD.

**(a) Effective Date**

This AD is effective January 8, 2014.

**(b) Affected ADs**

This AD supersedes AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007).

**(c) Applicability**

(1) This AD applies to all The Boeing Company Model 727, 727C, 727-100, 727-100C, 727-200, and 727-200F series airplanes, certificated in any category.

(2) This AD requires revisions to certain operator maintenance documents to include new actions (e.g., inspections) and/or Critical Design Configuration Control Limitations (CDCCLs). Compliance with these actions and/or CDCCLs 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 (p) of this AD. The request should include a description of changes to the required actions that will ensure the continued operational safety of the airplane.

**(d) Subject**

Air Transport Association (ATA) of America Code 28, Fuel.

**(e) Unsafe Condition**

This AD was prompted by a report of damage found to the sleeve, jacket, and insulation on an electrical wire during a repetitive inspection. We are issuing this AD to prevent chafing of the fuel boost pump electrical wiring and leakage of fuel into the conduit, and to prevent electrical arcing between the wiring and the surrounding conduit, which could result in arc-through of the conduit, and consequent fire or explosion of the fuel tank.

**(f) Compliance**

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

**(g) Retained Compliance Times**

This paragraph restates the requirements of paragraphs (f), (g), and (h) of AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007).

(1) For airplanes with 50,000 or more total flight hours as of June 28, 1999 (the effective date of AD 99-12-52, Amendment 39-11199 (64 FR 33394, June 23, 1999)): Within 20 days after June 28, 1999, accomplish the requirements of paragraph (h) of this AD.

(2) For airplanes with less than 50,000 total flight hours, but more than 30,000 total flight hours, as of June 28, 1999 (the effective date of AD 99-12-52, Amendment 39-11199 (64 FR 33394, June 23, 1999)): Within 30 days after June 28, 1999, accomplish the requirements of paragraph (h) of this AD.

(3) For airplanes with 30,000 total flight hours or less as of June 28, 1999 (the effective date of AD 99-12-52, Amendment 39-11199 (64 FR 33394, June 23, 1999)): Within 90 days after June 28, 1999, accomplish the requirements of paragraph (h) of this AD.

#### **(h) Retained Detailed Inspection, Corrective Action, and Installation**

This paragraph restates the requirements of paragraph (i) of AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007).

(1) Perform a detailed inspection of the in-tank fuel boost pump wire bundles, and applicable corrective actions; and, except as provided by paragraph (i) of this AD, install sleeving over the wire bundles; in accordance with Boeing Alert Service Bulletin 727-28A0126, dated May 24, 1999; Boeing Service Bulletin 727-28A0126, Revision 1, dated May 18, 2000; or Boeing Alert Service Bulletin 727-28A0132, dated February 22, 2007.

(2) 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.

#### **(i) Retained Installation: Possible Deferral**

This paragraph restates the optional actions of paragraph (j) of AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007). Installation of sleeving over the wire bundles, as required by paragraph (h) of this AD, may be deferred if, within 18 months or 6,000 flight hours, whichever occurs first, after accomplishment of the inspection and applicable corrective actions required by paragraph (h) of this AD, the following actions are accomplished: Perform a detailed inspection of the in-tank fuel boost pump wire bundles, and applicable corrective actions; and install sleeving over the wire bundles; in accordance with Boeing Alert Service Bulletin 727-28A0126, dated May 24, 1999; Boeing Service Bulletin 727-28A0126, Revision 1, dated May 18, 2000; or Boeing Alert Service Bulletin 727-28A0132, dated February 22, 2007.

#### **(j) Retained Repetitive Inspections and Corrective Actions**

This paragraph restates the requirements of paragraph (k) of AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007). Repeat the detailed inspection and applicable corrective actions required by paragraphs (h) and (i) of this AD, as applicable, at intervals not to exceed 30,000 flight hours, until the initial inspection, applicable corrective actions, and engine fuel suction feed operational test required by paragraph (k) of this AD have been done.

#### **(k) Retained Inspection, Test, and Related Investigative and Corrective Actions**

This paragraph restates the requirements of paragraph (l) of AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007). For all airplanes: Within 120 days after June 6, 2007 (the effective date of AD 2007-11-08), or 5,000 flight hours after the last inspection or corrective action done before June 6, 2007, as required by paragraph (h), (i), or (j), as applicable, of this AD, whichever occurs later, do a detailed inspection for damage of the sleeve and electrical wire of the fuel boost pump, and do an engine fuel suction feed operational test; and, before further flight, do related investigative and corrective actions, as applicable; by doing all applicable actions in and in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 727-28A0132, dated February 22, 2007. Repeat the detailed inspection and engine fuel suction feed operational test thereafter at intervals not to exceed 15,000 flight cycles. Accomplishment of the initial inspection, applicable corrective actions, and engine fuel suction feed operational test of this paragraph terminates the requirements of paragraphs (h), (i), and (j) of this AD.

### **(l) New Installation**

Within 60 months after the effective date of this AD: Install new shielded wire bundles in convoluted liners in the wing and center fuel tank conduits and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 727-28A0133, dated October 5, 2011. Related investigative and corrective actions must be done before further flight. Doing the actions specified in paragraphs (l) and (m) of this AD terminates the requirements of paragraphs (g), (h), (i), (j), and (k) of this AD.

### **(m) New Concurrent Requirement**

Before or concurrently with accomplishing the requirements of paragraph (l) of this AD, replace the fuel quantity indicating system (FQIS) wire bundles and do a low frequency eddy current inspection for cracking, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 727-28-0131, dated August 18, 2010. If any cracking is found during the inspection, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (p) of this AD.

### **(n) New Maintenance Program Revision**

(1) Within 60 days after the effective date of this AD: Revise the maintenance program to incorporate Airworthiness Limitation Instruction (ALI) Task 28-AWL-18, "Fuel Quantity Indicating System (FQIS)–Out-Tank Wiring Lightning Shield to Ground Termination"; and CDCCL Task 28-AWL-19, "Fuel Quantity Indicating System (FQIS)–Out-Tank Wiring Lightning Shield to Ground Termination," of Section D., "Airworthiness Limitations–Fuel Systems," of Boeing 727-100/200 Airworthiness Limitations (AWLs), D6-8766-AWL, Revision August 2010. The initial compliance time for the inspections is within 120 months after accomplishing the actions required by paragraph (m) of this AD.

(2) Within 60 days after the effective date of this AD: Revise the maintenance program to incorporate Airworthiness Limitation Instruction (ALI) Task 28-AWL-20, "Fuel Boost Pump Wires in Conduit Installation–In Fuel Tank"; and CDCCL Task 28-AWL-21, "Fuel Boost Pump Wires in Conduit Installation–In Fuel Tank," of Section D., "Airworthiness Limitations–Fuel Systems," of Boeing 727-100/200 Airworthiness Limitations (AWLs), D6-8766-AWL, Revision August 2010. The initial compliance time for the inspections is within 72 months after accomplishing the actions required by paragraph (l) of this AD.

### **(o) No Alternative Actions, Intervals, and/or CDCCLs**

After accomplishing the revisions required by paragraphs (n)(1) and (n)(2) of this AD, no alternative actions (e.g., inspections), intervals, and/or CDCCLs may be used unless the actions, intervals, and/or CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (p) of this AD.

### **(p) 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 (q) 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.

(4) AMOCs approved previously for AD 2007-11-08, Amendment 39-15065 (72 FR 28594, May 22, 2007), are approved as AMOCs for the corresponding provisions of this AD.

## **(q) Related Information**

For more information about this AD, contact Rebel Nichols, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6509; fax: 425-917-6590; email: rebel.nichols@faa.gov.

## **(r) 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.

(3) The following service information was approved for IBR on January 8, 2014.

(i) Boeing Alert Service Bulletin 727-28A0133, dated October 5, 2011.

(ii) Boeing Service Bulletin 727-28-0131, dated August 18, 2010.

(iii) Boeing 727-100/200 Airworthiness Limitations (AWLs), D6-8766-AWL, Revision August 2010:

(A) Airworthiness Limitation Instruction (ALI) Task 28-AWL-18, "Fuel Quantity Indicating System (FQIS)–Out-Tank Wiring Lightning Shield to Ground Termination," of Section D., "Airworthiness Limitations–Fuel Systems."

(B) Critical Design Configuration Control Limitations (CDCCL) Task 28-AWL-19, "Fuel Quantity Indicating System (FQIS)–Out-Tank Wiring Lightning Shield to Ground Termination," of Section D., "Airworthiness Limitations–Fuel Systems."

(C) ALI Task 28-AWL-20, "Fuel Boost Pump Wires in Conduit Installation–In Fuel Tank," of Section D., "Airworthiness Limitations–Fuel Systems."

(D) CDCCL Task 28-AWL-21, "Fuel Boost Pump Wires in Conduit Installation–In Fuel Tank," of Section D., "Airworthiness Limitations–Fuel Systems."

(4) The following service information was approved for IBR on June 6, 2007 (72 FR 28594, May 22, 2007).

(i) Boeing Alert Service Bulletin 727-28A0126, dated May 24, 1999.

(ii) Boeing Alert Service Bulletin 727-28A0132, dated February 22, 2007.

(iii) Boeing Service Bulletin 727-28A0126, Revision 1, dated May 18, 2000.

(5) 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>.

(6) 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.

(7) 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 November 15, 2013.

Jeffrey E. Duven,  
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Aircraft Certification Service.