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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2018-0031; Product Identifier 2017-NM-127-AD; Amendment 39-19374; AD 2018-17-20]**

**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 727 airplanes. This AD was prompted by significant changes made to the airworthiness limitations (AWLs) related to fuel tank ignition prevention. This AD requires revising the maintenance or inspection program, as applicable, to incorporate the latest revision of the AWLs. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective October 4, 2018.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of October 4, 2018.

**ADDRESSES:** For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0031.

#### **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-2018-0031; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is Docket Operations, 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:** Christopher Baker, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3552; email: christopher.r.baker@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 727 airplanes. The NPRM published in the Federal Register on February 8, 2018 (83 FR 5576). The NPRM was prompted by significant changes made to the AWLs related to fuel tank ignition prevention. The NPRM proposed to require revising the maintenance or inspection program, as applicable, to incorporate the latest revision of the AWLs.

We are issuing this AD to address 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 fuel tank explosions and consequent loss of the airplane.

### **Comments**

We gave the public the opportunity to participate in developing this final rule. We have considered the comment received. Boeing supported the NPRM.

### **Clarification of Affected Airplanes in Paragraph (g)(4)(ii) of This AD**

The phrase “as of the effective date of this AD” was inadvertently not included in the description of affected airplanes in paragraph (g)(4)(ii) of the proposed AD. We have revised paragraph (g)(4)(ii) of this AD accordingly.

### **Clarification of Alternative Wire Types and Sleeving**

Paragraph (h) of this AD allows operators to revise AWL No. 28-AWL-03 to identify certain alternative wire types and sleeving materials. AWL No. 28-AWL-03 was originally mandated by AD 2008-04-10 R1, Amendment 39-16121 (74 FR 66227, December 15, 2009) (“AD 2008-04-10 R1”). Since the issuance of AD 2008-04-10 R1, which will be terminated by this AD, we received numerous requests for approval of alternative methods of compliance (AMOCs) from operators and supplemental type certificate (STC) holders (or applicants) to allow the installation of the alternative wire types and sleeving identified in paragraphs (h)(1) and (h)(2) of this AD. We evaluated certain attributes of those alternative wire types and sleeving for each installation, and issued numerous AMOC approvals based on our determination that the installation of those wire types and sleeving would provide an acceptable level of safety. Although paragraph (h) of this AD provides certain allowances, it does not provide approval of alternative wire types and sleeving that are installed as part of an aircraft design change. Each applicant for any design change is still responsible to show that the installation of alternative wire types and sleeving identified in paragraphs (h)(1) and (h)(2) of this AD complies with all applicable regulatory requirements. This responsibility includes, but is not limited to, substantiation of compliance with flammability requirements, and substantiation to show that sleeve installation, including the selection of sleeve thickness, is adequate to protect wires from chafing for the life of installation. If such an installation is found to be compliant with all applicable regulatory requirements, revision of AWL No. 28-AWL-03 in accordance with paragraph (h) of this AD would allow the installation of the alternative wire types and sleeving.

## **Conclusion**

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this final rule 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 NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

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

## **Related Service Information Under 1 CFR Part 51**

We reviewed Boeing 727-100/200 Airworthiness Limitations (AWLs) D6-8766-AWL, Revision December 2016. This service information describes AWL tasks that include airworthiness limitation instructions (ALIs) and critical design configuration control limitations (CDCCLs) related to fuel tank ignition prevention. 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.

## **Costs of Compliance**

We estimate that this AD affects 20 airplanes of U.S. registry. We estimate the following costs to comply with this AD:

We have determined that revising the maintenance or inspection program takes an average of 90 work-hours per operator, although we recognize that this number may vary from operator to operator. In the past, we have estimated that this action takes 1 work-hour per airplane. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), we have determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, we estimate the total cost per operator to be \$7,650 (90 work-hours x \$85 per work-hour).

## **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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

## **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):



**2018-17-20 The Boeing Company:** Amendment 39-19374; Docket No. FAA-2018-0031; Product Identifier 2017-NM-127-AD.

**(a) Effective Date**

This AD is effective October 4, 2018.

**(b) Affected ADs**

This AD affects the ADs specified in paragraphs (b)(1) through (b)(5) of this AD.

(1) AD 2008-04-10 R1, Amendment 39-16121 (74 FR 66227, December 15, 2009) (“AD 2008-04-10 R1”).

(2) AD 2009-05-03, Amendment 39-15827 (74 FR 8851, February 27, 2009) (“AD 2009-05-03”).

(3) AD 2011-12-05, Amendment 39-16712 (76 FR 33991, June 10, 2011) (“AD 2011-12-05”).

(4) AD 2013-22-03, Amendment 39-17635 (78 FR 65193, October 31, 2013) (“AD 2013-22-03”).

(5) AD 2013-24-15, Amendment 39-17692 (78 FR 72791, December 4, 2013) (“AD 2013-24-15”).

**(c) Applicability**

This AD applies to The Boeing Company Model 727, 727C, 727-100, 727-100C, 727-200, and 727-200F series airplanes, certificated in any category, with an original certificate of airworthiness or original export certificate of airworthiness issued on or before the effective date of this AD.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by significant changes made to the airworthiness limitations (AWLs) related to fuel tank ignition prevention. 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 fuel tank explosions and consequent loss of the airplane.

**(f) Compliance**

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

## **(g) Maintenance or Inspection Program Revision**

Within 60 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to incorporate all information in Section A, including Subsections A.1 and A.2, of Boeing 727-100/200 Airworthiness Limitations (AWLs) D6-8766-AWL, Revision December 2016. The initial compliance times for the airworthiness limitation instruction (ALI) items are within the applicable compliance times specified in paragraphs (g)(1) through (g)(6) of this AD.

(1) For AWL No. 28-AWL-01, “External Wires Over Center Fuel Tank (Tank No. 2)”: At the applicable time specified in paragraph (g)(1)(i) or (g)(1)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-01 as of the effective date of this AD: Conduct the inspection within 120 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-01 as of the effective date of this AD: Conduct the inspection within 12 months after the effective date of this AD.

(2) For AWL No. 28-AWL-16, “Over-Current and Arcing Protection Electrical Design Features Operation–Boost Pump Ground Fault Interrupter (GFI)”: At the applicable time specified in paragraph (g)(2)(i) or (g)(2)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-16 as of the effective date of this AD: Conduct the inspection within 12 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-16 as of the effective date of this AD: Conduct the inspection within 90 days after the effective date of this AD.

(3) For AWL No. 28-AWL-17, “Auxiliary Tank Fuel Boost Pump Power Failed On Protection System”: At the applicable time specified in paragraph (g)(3)(i) or (g)(3)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-17 as of the effective date of this AD: Conduct the inspection within 12 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-17 as of the effective date of this AD: Conduct the inspection within 90 days after the effective date of this AD.

(4) For AWL No. 28-AWL-18, “Fuel Quantity Indicating System (FQIS)–Out-Tank Wiring Lightning Shield to Ground Termination and Joint Resistance for the Volumetric Top-Off (VTO) Unit (If Installed)”: At the applicable time specified in paragraph (g)(4)(i) or (g)(4)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-18 as of the effective date of this AD: Conduct the inspection within 120 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-18 as of the effective date of this AD: Conduct the inspection within 12 months after the effective date of this AD.

(5) For AWL No. 28-AWL-22, “AC Fuel Boost Pump Bonding Installation”: At the applicable time specified in paragraph (g)(5)(i) or (g)(5)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-22 as of the effective date of this AD: Conduct the inspection within 72 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-22 as of the effective date of this AD: Conduct the inspection within 12 months after the effective date of this AD.

(6) For AWL No. 28-AWL-24, “Motor Operated Valve Bonding Jumper Installation–Fault Current Protection”: At the applicable time specified in paragraph (g)(6)(i) or (g)(6)(ii) of this AD.

(i) For airplanes that have been previously inspected as specified in 28-AWL-24 as of the effective date of this AD: Conduct the inspection within 60 months after the most recent inspection.

(ii) For airplanes that have not been inspected as specified in 28-AWL-24 as of the effective date of this AD: Conduct the inspection within 12 months after the effective date of this AD.

## **(h) Additional Acceptable Wire Types and Sleeving**

As an option, when accomplishing the actions required by paragraph (g) of this AD, the changes specified in paragraphs (h)(1) and (h)(2) of this AD can be made to AWL No. 28-AWL-03.

(1) Where AWL No. 28-AWL-03 identifies wire types BMS 13-48, BMS 13-58, and BMS 13-60, add the following acceptable wire types: MIL-W-22759/16, SAE AS22759/16 (M22759/16),

MIL-W-22759/32, SAE AS22759/32 (M22759/32), MIL-W-22759/34, SAE AS22759/34 (M22759/34), MIL-W-22759/41, SAE AS22759/41 (M22759/41), MIL-W-22759/86, SAE AS22759/86 (M22759/86), MIL-W-22759/87, SAE AS22759/87 (M22759/87), MIL-W-22759/92 and SAE AS22759/92 (M22759/92); and MIL-C-27500 and NEMA WC 27500 cables constructed from these military or SAE specification wire types identified above.

(2) Where AWL No. 28-AWL-03 identifies TFE-2X Standard wall for wire sleeving, add the following acceptable sleeving materials: Roundit 2000NX and Varglas Type HO, HP, or HM.

#### **(i) No Alternative Actions, Intervals, and Critical Design Configuration Control Limitations (CDCCLs)**

After the maintenance or inspection program, as applicable, has been revised as required by paragraph (g) of this AD, no alternative actions (e.g., inspections), intervals, and CDCCLs may be used unless the actions, intervals, and CDCCLs are approved as an alternative method of compliance (AMOC), in accordance with the procedures specified in paragraph (k) of this AD.

#### **(j) Terminating Actions**

Accomplishment of the maintenance or inspection program revision required by paragraph (g) of this AD terminates the actions specified in paragraphs (j)(1) through (j)(5) of this AD.

- (1) The revision required by paragraph (g) of AD 2008-04-10 R1.
- (2) The revision required by paragraph (h) of AD 2009-05-03.
- (3) The revision required by paragraph (j) of AD 2011-12-05.
- (4) The revision required by paragraph (h) of AD 2013-22-03.
- (5) The revision required by paragraphs (n)(1) and (n)(2) of AD 2013-24-15.

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

(1) The Manager, Seattle ACO Branch, 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 certification office, send it to the attention of the person identified in paragraph (l) 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, modification, or alteration 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 Branch, FAA, to make those findings. To be approved, the repair method, modification deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

#### **(l) Related Information**

For more information about this AD, contact Christopher Baker, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3552; email: christopher.r.baker@faa.gov.

**(m) 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 727-100/200 Airworthiness Limitations (AWLs) D6-8766-AWL, Revision December 2016.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminister Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; internet <https://www.myboeingfleet.com>.

(4) You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(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 Des Moines, Washington, on August 17, 2018.

Michael Kaszycki,  
Acting Director, System Oversight Division,  
Aircraft Certification Service.