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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0326; Product Identifier 2018-NM-166-AD; Amendment 39-19808; AD 2019-23-14]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. This AD was prompted by significant changes made to the airworthiness limitations (AWLs) related to fuel tank ignition prevention and the nitrogen generation system. This AD requires revising the existing maintenance or inspection program, as applicable, to include new or revised AWLs. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective January 21, 2020.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of January 21, 2020.

ADDRESSES: For service information identified in this final rule, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; phone: 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 https://www.regulations.gov by searching for and locating Docket No. FAA-2019-0326.

Examining the AD Docket

You may examine the AD docket on the internet at https://www.regulations.gov by searching for and locating Docket No. FAA-2019-0326; 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 is 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: Serj Harutunian, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes. The NPRM published in the Federal Register on June 10, 2019 (84 FR 26778). The NPRM was prompted by significant changes made to the AWLs related to fuel tank ignition prevention and the nitrogen generation system. The NPRM proposed to require revising the existing maintenance or inspection program, as applicable, to include new or revised AWLs.

The FAA is issuing this AD to address the potential of ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

Air Line Pilots Association, International (ALPA) agreed with the intent of the NPRM.

Effect of Winglets on Accomplishment of the Proposed Actions

Aviation Partners Boeing stated that the installation of winglets per Supplemental Type Certificate (STC) ST01219SE does not affect the accomplishment of the manufacturer's service instructions.

The FAA agrees with the commenter that STC ST01219SE does not affect the accomplishment of the manufacturer's service instructions. Therefore, the installation of STC ST01219SE does not affect the ability to accomplish the actions required by this AD. The FAA has not changed this AD in this regard.

Request for Additional Affected AD

Boeing requested that the FAA include AD 2018-04-12, Amendment 39-19208 (83 FR 9178, March 5, 2018) (“AD 2018-04-12”), as an affected AD in the proposed AD. Boeing pointed out that AD 2018-04-12 requires operators to incorporate certain AWLs included in certain previous revisions of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-38278-CMR. Boeing explained that the specific AWLs referenced by AD 2018-04-12 are still present in the latest revision mandated by this AD, but are at a later revision, and as such, should be considered terminating action for the requirements of paragraph (h) of AD 2018-04-12. Boeing noted that AD 2013-13-15, Amendment 39-17503 (78 FR 42415, July 16, 2013) (“AD 2013-13-15”), has similar requirements to those in AD 2018-04-12, and that those similar requirements in AD 2013-13-15 are terminated as specified in paragraph (j)(3) of the proposed AD.

The FAA agrees with the commenter's request for the reasons provided. The FAA has added paragraph (b)(7) to this AD to specify that AD 2018-04-12 is affected by this AD, and paragraph (j)(7) to this AD to specify that the requirements of paragraph (h) of AD 2018-04-12 are terminated by the revision required by paragraph (g) of this AD.

Clarification That Previous Alternative Methods of Compliance (AMOCs) Are Not Approved For This AD

The regulatory text of the NPRM did not include a paragraph specifying that AMOCs previously approved for the ADs specified in paragraph (j) of this AD are approved for the corresponding requirements of this AD. For clarity, the FAA has added paragraph (k)(4) to this AD to specify that AMOCs that were previously approved for the ADs specified in paragraph (j) of this AD are not approved as AMOCs for this AD.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. The FAA has 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.

The FAA 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

The FAA reviewed Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-38278-CMR, dated March 2019. This service information describes AWLs that include airworthiness limitation instructions (ALI) and critical design configuration control limitations (CDCCL) tasks related to fuel tank ignition prevention and the nitrogen generation system. 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

The FAA estimates that this AD affects 381 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

The FAA has determined that revising the existing maintenance or inspection program takes an average of 90 work-hours per operator, although the FAA recognizes that this number may vary from operator to operator. In the past, the FAA has estimated that this action takes 1 work-hour per airplane. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), the FAA has determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, the FAA estimates 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.

The FAA is 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) Will not affect intrastate aviation in Alaska, 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.

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):

2019-23-14 The Boeing Company: Amendment 39-19808; Docket No. FAA-2019-0326; Product Identifier 2018-NM-166-AD.

(a) Effective Date

This AD is effective January 21, 2020.

(b) Affected ADs

This AD affects the ADs specified in paragraphs (b)(1) through (7) of this AD.

(1) AD 2008-10-09 R1, Amendment 39-16148 (74 FR 69264, December 31, 2009) ("AD 2008-10-09 R1").

(2) AD 2011-12-09, Amendment 39-16716 (76 FR 33988, June 10, 2011) ("AD 2011-12-09").

(3) AD 2013-13-15, Amendment 39-17503 (78 FR 42415, July 16, 2013) ("AD 2013-13-15").

(4) AD 2013-25-05, Amendment 39-17701 (78 FR 78701, December 27, 2013) ("AD 2013-25-05").

(5) AD 2016-18-16, Amendment 39-18647 (81 FR 65864, September 26, 2016) ("AD 2016-18-16").

(6) AD 2017-17-09, Amendment 39-18999 (82 FR 40477, August 25, 2017) ("AD 2017-17-09").

(7) AD 2018-04-12, Amendment 39-19208 (83 FR 9178, March 5, 2018) ("AD 2018-04-12").

(c) Applicability

This AD applies to all The Boeing Company Model 737-100, -200, -200C, -300, -400, and -500 series airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 28, Fuel; 47, Nitrogen Generation System.

(e) Unsafe Condition

This AD was prompted by a determination that new or revised airworthiness limitations (AWLs) are necessary related to fuel tank ignition prevention and the nitrogen generation system. The FAA is issuing this AD to address the potential of ignition sources inside fuel tanks, 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

(1) For The Boeing Company Model 737-100, -200, and -200C series airplanes: Within 60 days after the effective date of this AD, revise the existing maintenance or inspection program, as applicable, to incorporate the information specified in Section C, including Subsections C.1, C.2, and C.3 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-38278-CMR, dated March 2019, except as provided in paragraph (h) of this AD. The initial compliance time for the ALI tasks are within the applicable compliance times specified in paragraphs (g)(1)(i) through (x) of this AD.

(i) For AWL No. 28-AWL-01, "External Wires Over Center Fuel Tank": Within 120 months after the most recent inspection was performed as specified in AWL No. 28-AWL-01, or within 12 months after the effective date of this AD if no initial inspection has been performed.

(ii) For AWL No. 28-AWL-03, "Fuel Quantity Indicating System (FQIS)–Out Tank Wiring Lightning Shield to Ground Termination": Within 120 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1178, or within 120 months after the most recent inspection was performed as specified in AWL No. 28-AWL-03, whichever is later.

(iii) For AWL No. 28-AWL-21, "Center Tank Fuel Boost Pump Automatic Shutoff System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1228, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-21, whichever is later.

(iv) For AWL No. 28-AWL-22, "Auxiliary Tank Fuel Boost Pump Automatic Shutoff System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1228, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-22, whichever is later.

(v) For AWL No. 28-AWL-23, "Over-Current and Arcing Protection Electrical Design Features Operation–Boost Pump Ground Fault Interrupter (GFI)": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1212, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-23, whichever is later.

(vi) For AWL No. 28-AWL-24, "Center Tank Fuel Boost Pump Power Failed On Protection System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1227, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-24, whichever is later.

(vii) For AWL No. 28-AWL-25, "Auxiliary Fuel Tank Boost Pump Power Failed On Protection System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1227, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-25, whichever is later.

(viii) For AWL No. 28-AWL-29, "AC Fuel Boost Pump Installation": Within 72 months after the most recent inspection was performed as specified in AWL No. 28-AWL-29, or within 12 months after the effective date of this AD if no inspection has been performed in the last 72 months.

(ix) For AWL No. 47-AWL-04, "Nitrogen Generation System (NGS)–Thermal Switch": Within 22,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1005; within 22,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1008; or within 22,500 flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-04; whichever is latest.

(x) For AWL No. 47-AWL-05, "Nitrogen Generation System (NGS)–Nitrogen Enriched Air (NEA) Distribution Ducting Integrity": Within 14,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1005; within 14,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1008; or within 14,500 flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-05; whichever is latest.

(2) For The Boeing Company Model 737-300, -400, and -500 series airplanes: Within 60 days after the effective date of this AD, revise the existing maintenance or inspection program, as

applicable, to incorporate the information specified in Section C, including Subsections C.1, C.2, and C.3 of Boeing 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-38278-CMR, dated March 2019; except as provided in paragraph (h) of this AD. The initial compliance time for the ALI tasks are within the applicable compliance times specified in paragraphs (g)(2)(i) through (xi) of this AD.

(i) For AWL No. 28-AWL-01, "External Wires Over Center Fuel Tank": Within 120 months after the most recent inspection was performed as specified in AWL No. 28-AWL-01, or within 12 months after the effective date of this AD if no initial inspection has been performed.

(ii) For AWL No. 28-AWL-03, "Fuel Quantity Indicating System (FQIS)–Out Tank Wiring Lightning Shield to Ground Termination": Within 120 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1175; within 120 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1183; within 120 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1186; or within 120 months after the most recent inspection was performed as specified in AWL No. 28-AWL-03; whichever is latest.

(iii) For AWL No. 28-AWL-20, "Center Tank Fuel Boost Pump Automatic Shutoff System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1216, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-20, whichever is later.

(iv) For AWL No. 28-AWL-21, "Auxiliary Tank Fuel Boost Pump Automatic Shutoff System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1216, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-21, whichever is later.

(v) For AWL No. 28-AWL-22, "Over-Current and Arcing Protection Electrical Design Features Operation–Boost Pump Ground Fault Interrupter (GFI)": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1212, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-22, whichever is later.

(vi) For AWL No. 28-AWL-23, "Center Tank Fuel Boost Pump Power Failed On Protection System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1227, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-23, whichever is later.

(vii) For AWL No. 28-AWL-24, "Auxiliary Fuel Tank Boost Pump Power Failed On Protection System": Within 12 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1227, or within 12 months after the most recent inspection was performed as specified in AWL No. 28-AWL-24, whichever is later.

(viii) For AWL No. 28-AWL-27, "AC Fuel Boost Pump Installation": Within 72 months after the most recent inspection was performed as specified in AWL No. 28-AWL-27, or within 12 months after the effective date of this AD if no inspection has been performed in the last 72 months.

(ix) For AWL No. 28-AWL-31, "Cushion Clamps and Teflon Sleeving Installed on Out-of-Tank Wire Bundles Installed on Brackets that are Mounted Directly on the Fuel Tanks": Within 144 months after accomplishment of the actions specified in Boeing Service Bulletin 737-28A1228.

(x) For AWL No. 47-AWL-04, "Nitrogen Generation System (NGS)–Thermal Switch": Within 22,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1005; within 22,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1008; or within 22,500 flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-04; whichever is latest.

(xi) For AWL No. 47-AWL-05, "Nitrogen Generation System (NGS)–Nitrogen Enriched Air (NEA) Distribution Ducting Integrity": Within 14,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1005; within 14,500 flight hours after accomplishment of the actions specified in Boeing Service Bulletin 737-47-1008; or within 14,500 flight hours after the most recent inspection was performed as specified in AWL No. 47-AWL-05; whichever is latest.

(h) Additional Acceptable Wire Types and Sleeving

As an option to accomplishing the actions required by paragraph (g) of this AD, the changes specified in paragraphs (h)(1) and (2) of this AD are acceptable.

(1) Where AWL No. 28-AWL-05 identifies wire types BMS 13-48, BMS 13-58, and BMS 13-60, the following wire types are acceptable: 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, as applicable.

(2) Where AWL No. 28-AWL-05 identifies TFE-2X Standard wall for wire sleeving, the following sleeving materials are acceptable: Roundit 2000NX and Varglas Type HO, HP, or HM.

(i) No Alternative Actions, Intervals, or Critical Design Configuration Control Limitations (CDCCLs)

After the existing maintenance or inspection program has been revised as required by paragraph (g) of this AD, no alternative actions (e.g., inspections), intervals, or 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 for Certain AD Requirements

Accomplishment of the revision required by paragraph (g) of this AD terminates the requirements specified in paragraphs (j)(1) through (7) of this AD for that airplane:

(1) All requirements of AD 2008-10-09 R1.

(2) The revision required by paragraph (l) of AD 2011-12-09.

(3) The revision required by paragraph (h) of AD 2013-13-15.

(4) The revision required by paragraph (j) of AD 2013-25-05.

(5) The revisions required by paragraphs (l) and (n) of AD 2016-18-16.

(6) The revision required by paragraph (h) of AD 2017-17-09.

(7) The revision required by paragraph (h) of AD 2018-04-12.

(k) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles 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-LAACO-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 Company Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles 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.

(4) AMOCs that were previously approved for the ADs specified in paragraph (j) of this AD are not approved as AMOCs for this AD.

(l) Related Information

For more information about this AD, contact Serj Harutunian, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5254; fax: 562-627-5210; email: serj.harutunian@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 737-100/200/200C/300/400/500 Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-38278-CMR, dated March 2019.

(ii) [Reserved]

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; phone: 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, email fedreg.legal@nara.gov, or go to: https://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued in Des Moines, Washington, on November 20, 2019.
Dorr Anderson,
Acting Director, System Oversight Division,
Aircraft Certification Service.