

**DEPARTMENT OF TRANSPORTATION****Federal Aviation Administration****14 CFR Part 39**

[Docket No. FAA-2018-0510; Product Identifier 2017-NM-115-AD; Amendment 39-19483; AD 2018-22-10]

RIN 2120-AA64

**Airworthiness Directives; The Boeing Company Airplanes**

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

**ACTION:** Final rule.

**SUMMARY:** We are superseding Airworthiness Directive (AD) 2016-04-16, which applied to all The Boeing Company Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes. AD 2016-04-16 required adding design features to detect electrical faults and to detect a pump running in an empty fuel tank. This AD continues to require adding design features to detect electrical faults and to detect a pump running in an empty fuel tank. This AD also provides optional terminating action for certain requirements. This AD was prompted by a fuel system review conducted by the manufacturer. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective December 12, 2018.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of December 12, 2018.

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of April 15, 2016 (81 FR 12806, March 11, 2016).

**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-2018-0510.

**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-2018-0510; 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:** 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](mailto:serj.harutunian@faa.gov).

**SUPPLEMENTARY INFORMATION:****Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016) (“AD 2016-04-16”). AD 2016-04-16 applied to all The Boeing Company Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, DC-10-40F, MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes. The NPRM published in the **Federal Register** on June 14, 2018 (83 FR 27718). The NPRM was prompted by a fuel system review conducted by the manufacturer and a determination that accomplishing new service information in conjunction with certain service information specified in AD 2016-04-16 would terminate certain actions in related ADs. The NPRM proposed to continue to require adding design features to detect electrical faults and to detect a pump running in an empty fuel tank. The NPRM also proposed to provide optional terminating action for certain requirements. We are 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**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA’s response to each comment.

**Support for the NPRM**

FedEx Express (FedEx) and Air Line Pilots Association, International (ALPA) provided their concurrence with the NPRM. FedEx also pointed out that the NPRM affects 39 Model MD-10 airplanes and 57 Model MD-11 airplanes in the FedEx fleet.

**Request To Clarify the Terminating Action Specified in Paragraph (k) of the Proposed AD**

Boeing requested that we clarify the terminating action specified in paragraph (k) of the proposed AD. Boeing agreed that the repetitive inspections and tests may be terminated upon installation of the new connector design per the Boeing service bulletins cited in paragraph (k) of the proposed AD (Boeing Service Bulletin DC10-28-264, dated May 15, 2015; and Boeing Service Bulletin MD11-28-146, dated May 15, 2015). Boeing noted that those service bulletins were approved by the Manager, Los Angeles ACO Branch. Boeing added that those service bulletins also specify an additional condition for the terminating actions: the fault current detectors cited in paragraphs (h)(1)(ii) and (h)(2)(ii) of the proposed AD must also be installed before the repetitive actions are terminated. Boeing recommended that paragraph (k) of the proposed AD be revised to clarify that the fault current detectors must be installed per paragraphs (h)(1)(ii) and (h)(2)(ii) of the proposed AD in order to accomplish the terminating action per the Boeing service bulletins cited in paragraph (k) of the proposed AD.

We agree with the commenter’s request. Paragraph F., “Approval,” of Boeing Service Bulletin DC10-28-264, dated May 15, 2015; and Boeing Service Bulletin MD11-28-146, dated May 15, 2015, specifies that the actions in those service bulletins as well as the service bulletins specified in paragraphs (h)(1)(ii) and (h)(2)(ii) of this AD terminate the actions required by paragraph (a) of AD 2002-13-10, Amendment 39-12798 (67 FR 45053, July 8, 2002) (“AD 2002-13-10”), paragraph (a) of AD 2003-07-14, Amendment 39-13110 (68 FR 17544, April 10, 2003) (“AD 2003-07-14”), and paragraph (j) of AD 2011-11-05, Amendment 39-16704 (76 FR 31462, June 1, 2011) (“AD 2011-11-05”). We have revised paragraph (k) of this AD accordingly.

**Request To Withdraw the NPRM**

United Parcel Service (UPS) requested that we withdraw the NPRM. UPS pointed out that the NPRM includes no

new requirements or information. UPS indicated that no new requirements or actions would create an undue burden on operators because existing internal paperwork and records must then be revised to provide proof of compliance.

We acknowledge the commenter's concerns; however, we disagree with the request to withdraw the NPRM. AD 2003-07-14 was affected by AD 2016-04-16 but was inadvertently left out of AD 2016-04-16. This AD corrects that oversight and includes AD 2003-07-14 as an affected AD. Additionally, this AD provides new optional terminating actions that affect AD 2003-07-14 as well as AD 2002-13-10 and AD 2011-11-05.

**Request To Include Updated Service Information**

UPS requested that we revise the NPRM to include a later revision of Boeing Trijet Special Compliance Item Report MDC-02K1003. UPS pointed out that the new fuel pump housing assembly that is created by installation of the new connectors was not added until Revision N of Boeing Trijet Special Compliance Item Report MDC-02K1003. Additionally, UPS mentioned that Revision R of Boeing Trijet Special Compliance Item Report MDC-02K1003 was in the approval process at the time the comment was submitted.

We agree with the request to include the latest published version of Boeing Trijet Special Compliance Item Report MDC-02K1003. We referred to Boeing Trijet Special Compliance Item Report MDC-02K1003, Revision M, including Appendices A through D, dated July 25, 2014, as an appropriate source of service information in the NPRM. Revision R of Boeing Trijet Special Compliance Item Report MDC-02K1003, including Appendices A through D, dated May 9, 2018, includes new part numbers for Critical Design Configuration Control Limitation (CDCCL) 28-2 and updates certain special compliance items to

include additional procedures for airplanes with a certain configuration. We have added paragraph (l) to this AD to include Revision R of Boeing Trijet Special Compliance Item Report MDC-02K1003, including Appendices B through D, dated May 9, 2018, as an optional revision to paragraph (h)(3) of this AD, and we have redesignated subsequent paragraphs accordingly. We are considering further rulemaking to require revising the maintenance or inspection program to include Revision R of Boeing Trijet Special Compliance Item Report MDC-02K1003, including Appendices B through D, dated May 9, 2018.

**Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes 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 AD.

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

We reviewed the following Boeing service information.

- Boeing Alert Service Bulletin DC10-28A253, dated June 5, 2014; and Boeing Alert Service Bulletin MD11-28A133, dated June 5, 2014. This service information describes procedures for replacing the fuel pump control relays with fault current detectors and changing the fuel tank boost/transfer pump wire termination. These documents are distinct since they apply to different airplane models.

- Boeing Service Bulletin DC10-28-256, dated June 24, 2014; and Boeing Service Bulletin MD11-28-137, dated June 24, 2014. This service information describes procedures for changing the fuel pump control and indication system wiring. These documents are distinct since they apply to different airplane models.

- Boeing Trijet Special Compliance Item Report MDC-02K1003, Revision M, including Appendices A through D, dated July 25, 2014; and Boeing Trijet Special Compliance Item Report MDC-02K1003, Revision R, including Appendices A through D, dated May 9, 2018; which include CDCCLs, ALIs, and short-term extensions in Appendices B, C, and D, respectively. This service information describes fuel ALIs that address ignition sources. These documents are distinct since Revision R includes additional requirements.

- Boeing Service Bulletin DC10-28-264, dated May 15, 2015, and Boeing Service Bulletin MD11-28-146, dated May 15, 2015. This service information describes procedures for replacement of the fuel pump housing electrical connector, associated wires, fuel tank feed-through components, and installing sealed terminal lugs on the fuel pump wiring, or replacement of the fuel pump housing, associated wires, fuel tank feed-through components, and installing sealed terminal lugs on the fuel pump. These documents are distinct since they apply to different airplane models.

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

**ESTIMATED COSTS FOR REQUIRED ACTIONS**

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Installing design features using a method approved by the FAA (retained actions from AD 2016-04-16).	152 work-hours × \$85 per hour = \$12,920 ....	\$137,500	\$150,420	\$51,293,220.
Installing design features using service information (retained optional actions from AD 2016-04-16).	98 work-hours × \$85 per hour = \$8,330 .....	109,000	117,330	40,009,530.

ESTIMATED COSTS FOR OPTIONAL TERMINATING ACTIONS

Action	Labor cost	Parts cost	Cost per product
Option 1: Replace connectors for Model DC-10 and MD-10 (122 airplanes).	68 work-hours × \$85 per hour = \$5,780	\$54,842 .....	\$60,622.
Option 1: Replace connectors for Model MD-11 (124 airplanes).	59 work-hours × \$85 per hour = \$5,015	\$67,031 .....	\$72,046.
Option 2: Replace fuel pump housings for Model DC-10 and MD-10 (122 airplanes).	Up to 81 work-hours × \$85 per hour = \$6,885.	Up to \$54,842 .....	Up to \$61,727.
Option 2: Replace fuel pump housings for Model MD-11 (124 airplanes).	Up to 77 work-hours × \$85 per hour = \$6,545.	Up to \$67,031 .....	Up to \$73,576.

We have received no definitive data that would enable us to provide cost estimates 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.

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**

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) 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016), and adding the following new AD:

**2018-22-10 The Boeing Company:**  
 Amendment 39-19483; Docket No. FAA-2018-0510; Product Identifier 2017-NM-115-AD.

**(a) Effective Date**

This AD is effective December 12, 2018.

**(b) Affected ADs**

- (1) This AD replaces AD 2016-04-16, Amendment 39-18410 (81 FR 12806, March 11, 2016) (“AD 2016-04-16”).
- (2) This AD affects AD 2002-13-10, Amendment 39-12798 (67 FR 45053, July 8, 2002) (“AD 2002-13-10”).
- (3) This AD affects AD 2003-07-14, Amendment 39-13110 (68 FR 17544, April 10, 2003) (“AD 2003-07-14”).

(4) This AD affects AD 2008-06-21 R1, Amendment 39-16100 (74 FR 61504, November 25, 2009) (“AD 2008-06-21 R1”).

(5) This AD affects AD 2011-11-05, Amendment 39-16704 (76 FR 31462, June 1, 2011) (“AD 2011-11-05”).

**(c) Applicability**

This AD applies to all The Boeing Company airplanes identified in paragraphs (c)(1) and (c)(2) of this AD, certificated in any category.

(1) Model DC-10-10, DC-10-10F, DC-10-15, DC-10-30, DC-10-30F (KC-10A and KDC-10), DC-10-40, and DC-10-40F airplanes.

(2) Model MD-10-10F, MD-10-30F, MD-11, and MD-11F airplanes.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by a fuel system review conducted by the manufacturer. We are 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) Restatement of Paragraph (g) of AD 2016-04-16, With No Changes**

This paragraph restates the requirements of paragraph (g) of AD 2016-04-16, with no changes. Except as provided by paragraph (h) of this AD: As of 48 months after April 15, 2016 (the effective date of AD 2016-04-16), no person may operate any airplane affected by this AD unless an amended type certificate or supplemental type certificate that incorporates the design features and requirements described in paragraphs (g)(1) through (g)(4) of this AD has been approved by the Manager, Los Angeles ACO Branch, FAA, and those design features are installed on the airplane to meet the criteria specified in section 25.981(a) and (d) of the Federal Aviation Regulations (14 CFR 25.981(a) and (d), at Amendment 25-125 ([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgFAR.nsf/0/339DAEE3E0A6379D862574CF00641951?OpenDocument](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgFAR.nsf/0/339DAEE3E0A6379D862574CF00641951?OpenDocument))). For airplanes on which Boeing-installed auxiliary fuel tanks are

removed, the actions specified in this AD for the auxiliary fuel tanks are not required.

(1) For all airplanes: Each electrically powered alternating current (AC) fuel pump installed in any fuel tank that normally empties during flight and each pump that is partially covered by a lowering fuel level—such as main tanks, center wing tanks, auxiliary fuel tanks installed by the airplane manufacturer, and tail tanks—must have a protective device installed to detect electrical faults that can cause arcing and burn through of the fuel pump housing and pump electrical connector. The same device must shut off the pump by automatically removing electrical power from the pump when such faults are detected. When a fuel pump is shut off resulting from detection of an electrical fault, the device must stay latched off, until the fault is cleared through maintenance action and the pump is verified safe for operation.

(2) For airplanes with a 2-person flightcrew: Additional design features, if not originally installed by the airplane manufacturer, must be installed to meet 3 criteria: To detect a running fuel pump in a tank that is normally emptied during flight, to provide an indication to the flightcrew that the tank is empty, and to automatically shut off that fuel pump. The prospective pump indication and shutoff system must automatically shut off each pump in case the flightcrew does not shut off a pump running dry in an empty tank within 60 seconds after each fuel tank is emptied. An airplane flight manual supplement (AFMS) that includes flightcrew manual pump shutoff procedures in the Limitations section of the AFMS must be submitted to the Los Angeles ACO Branch, FAA, for approval.

(3) For airplanes with a 3-person flightcrew: Additional design features, if not originally installed by the airplane manufacturer, must be installed to detect when a fuel pump in a tank that is normally emptied during flight is running in an empty fuel tank, and to provide an indication to the flightcrew that the tank is empty. The flight engineer must manually shut off each pump running dry in an empty tank within 60 seconds after the tank is emptied. The AFMS Limitations section must be revised to specify that this pump shutoff must be done by the flight engineer.

(4) For all airplanes with tanks that normally empty during flight: Separate means must be provided to detect and shut off a pump that was previously commanded to be shut off automatically or manually but remained running in an empty tank during flight.

**(h) Restatement of Paragraph (h) of AD 2016–04–16, With No Changes**

This paragraph restates the provisions of paragraph (h) of AD 2016–04–16, with no changes. In lieu of doing the requirements of paragraph (g) of this AD, do the applicable actions specified in paragraphs (h)(1), (h)(2), and (h)(3) of this AD.

(1) For MD–11 and MD–11F airplanes: Do the actions specified in paragraphs (h)(1)(i) and (h)(1)(ii) of this AD.

(i) As of 48 months after April 15, 2016 (the effective date of AD 2016–04–16),

change the fuel pump control and indication system wiring, in accordance with the Accomplishment Instructions of Boeing Service Bulletin MD11–28–137, dated June 24, 2014.

(ii) Prior to or concurrently with accomplishing the actions specified in paragraph (h)(1)(i) of this AD: Replace the fuel pump control relays with fault current detectors, and change the fuel tank boost/transfer pump wire termination, in accordance with Accomplishment Instructions of Boeing Alert Service Bulletin MD11–28A133, dated June 5, 2014.

(2) For Model DC–10–10, DC–10–10F, DC–10–15, DC–10–30, DC–10–30F (KC–10A and KDC–10), DC–10–40, DC–10–40F, MD–10–10F, and MD–10–30F airplanes: Do the actions specified in paragraphs (h)(2)(i) and (h)(2)(ii) of this AD.

(i) As of 48 months after April 15, 2016 (the effective date of AD 2016–04–16), change the fuel pump control and indication system wiring, in accordance with the Accomplishment Instructions of Boeing Service Bulletin DC10–28–256, dated June 24, 2014.

(ii) Prior to or concurrently with accomplishing the actions specified in paragraph (h)(2)(i) of this AD: Replace the fuel pump control relays with fault current detectors, and change the fuel tank boost/transfer pump wire termination, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin DC10–28A253, dated June 5, 2014.

(3) For all airplanes: Within 30 days after accomplishing the actions required by paragraph (h)(1) or (h)(2) of this AD, or within 30 days after April 15, 2016 (the effective date of AD 2016–04–16), whichever occurs later, revise the maintenance or inspection program, as applicable, to incorporate the Critical Design Configuration Control Limitations (CDCCLs), Airworthiness Limitation Instructions (ALIs), and short-term extensions specified in Appendices B, C, and D of Boeing Trijet Special Compliance Item (SCI) Report MDC–02K1003, Revision M, dated July 25, 2014. The initial compliance time for accomplishing the actions specified in the ALIs is at the later of the times specified in paragraphs (h)(3)(i) and (h)(3)(ii) of this AD. Revising the maintenance or inspection program required by this paragraph terminates the requirements in paragraphs (g) and (h) of AD 2008–06–21 R1.

(i) At the applicable time specified in Appendix C of Boeing Trijet SCI Report MDC–02K1003, Revision M, dated July 25, 2014, except as provided by Appendix D of Boeing Trijet SCI Report MDC–02K1003, Revision M, dated July 25, 2014.

(ii) Within 30 days after accomplishing the actions required by paragraph (h)(1) or (h)(2) of this AD, as applicable; or within 30 days after April 15, 2016 (the effective date of AD 2016–04–16); whichever occurs later.

**(i) Restatement of Paragraph (i) of AD 2016–04–16, With No Changes**

This paragraph restates the requirements of paragraph (i) of AD 2016–04–16, with no changes. If the option in paragraph (h)(3) of this AD is accomplished: After the

maintenance or inspection program has been revised as provided by paragraph (h)(3) of this AD, no alternative actions (e.g., inspections), intervals, or CDCCLs may be used unless the actions, intervals, or CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (m) of this AD.

**(j) Restatement of Paragraph (j) of AD 2016–04–16, With Additional AD Reference and Clarification of Provisions**

This paragraph restates the provisions of paragraph (j) of AD 2016–04–16, with an additional AD reference and clarification of the provisions. Accomplishment of the actions specified in paragraphs (h)(1), (h)(2), and (h)(3) of this AD, as applicable, extends the 18-month interval for the repetitive inspections and tests required by paragraph (a) of AD 2002–13–10; the 18-month interval for the repetitive inspections required by paragraph (a) of AD 2003–07–14; and the 18-month interval for the repetitive inspections required by paragraph (j) of AD 2011–11–05; to 24-month intervals for pumps affected by those ADs, regardless if the pump is installed in a tank that normally empties, provided the remaining actions required by those three ADs have been accomplished.

**(k) New Provision of This AD: Optional Terminating Action**

For airplanes on which the actions specified in paragraph (h)(1)(ii) or (h)(2)(ii) have been done: Replacing the electrical connectors or fuel pump housing in accordance with the Accomplishment Instructions of Boeing Service Bulletin DC10–28–264, dated May 15, 2015; or Boeing Service Bulletin MD11–28–146, dated May 15, 2015, as applicable; terminates the repetitive inspections and tests required by paragraph (a) of AD 2002–13–10, paragraph (a) of AD 2003–07–14, and paragraph (j) of AD 2011–11–05.

**(l) New Provision of This AD: Optional Revision**

(1) In lieu of accomplishing the revision specified in paragraph (h)(3) of this AD: Within the compliance time specified in paragraph (h)(3) of this AD, operators may revise the maintenance or inspection program, as applicable, to incorporate the CDCCLs, ALIs, and short-term extensions specified in Appendices B, C, and D of Boeing Trijet Special Compliance Item Report MDC–02K1003, Revision R, dated May 9, 2018. The initial compliance time for accomplishing the actions specified in the ALIs is at the later of the times specified in paragraphs (l)(1)(i) and (l)(1)(ii) of this AD. Revising the maintenance or inspection program specified in this paragraph terminates the requirements in paragraphs (g) and (h) of AD 2008–06–21 R1.

(i) At the applicable time specified in Appendix C of Boeing Trijet Special Compliance Item Report MDC–02K1003, Revision R, dated May 9, 2018, except as provided by Appendix D of Boeing Trijet Special Compliance Item Report MDC–02K1003, Revision R, dated May 9, 2018.

(ii) Within 30 days after accomplishing the actions required by paragraph (h)(1) or (h)(2)

of this AD, as applicable; or within 30 days after the effective date of this AD; whichever occurs later.

(2) If the optional revision specified in paragraph (l)(1) of this AD is accomplished: After the maintenance or inspection program has been revised as provided by paragraph (1)(1) of this AD, no alternative actions (e.g., inspections), intervals, or CDCCLs may be used unless the actions, intervals, or CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (m) of this AD.

#### (m) 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 (n) of this AD. Information may be emailed to: [9-ANM-LAACO-AMOC-Requests@faa.gov](mailto: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 Commercial Airplanes 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) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (m)(4)(i) and (m)(4)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled "RC Exempt," then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

#### (n) 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](mailto:serj.harutunian@faa.gov).

#### (o) 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 December 12, 2018.

(i) Boeing Service Bulletin DC10-28-264, dated May 15, 2015.

(ii) Boeing Service Bulletin MD11-28-146, dated May 15, 2015.

(iii) Boeing Trijet Special Compliance Item Report MDC-02K1003, Revision R, including Appendices A through D, dated May 9, 2018.

(4) The following service information was approved for IBR on April 15, 2016 (81 FR 12806, March 11, 2016).

(i) Boeing Alert Service Bulletin DC10-28A253, dated June 5, 2014.

(ii) Boeing Service Bulletin DC10-28-256, dated June 24, 2014.

(iii) Boeing Alert Service Bulletin MD11-28A133, dated June 5, 2014.

(iv) Boeing Service Bulletin MD11-28-137, dated June 24, 2014.

(v) Boeing Trijet Special Compliance Item Report MDC-02K1003, Revision M, including Appendices A through D, dated July 25, 2014.

(5) 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>.

(6) 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.

(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 Des Moines, Washington, on October 24, 2018.

**Michael Kaszycki,**

*Acting Director, System Oversight Division, Aircraft Certification Service.*

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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2018-0404; Product Identifier 2018-NE-15-AD; Amendment 39-19468; AD 2018-21-10]

RIN 2120-AA64

#### Airworthiness Directives; International Aero Engines (IAE) Turbofan Engines

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

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for all International Aero Engines (IAE) PW1133G-JM, PW1133GA-JM, PW1130G-JM, PW1127G-JM, PW1127GA-JM, PW1127G1-JM, PW1124G-JM, PW1124G1-JM, and PW1122G-JM turbofan engines. This AD was prompted by reports of in-flight engine shutdowns and aborted take-offs as the result of certain parts affecting the durability of the rear high-pressure compressor (HPC) rotor hub knife edge seal. This AD requires replacing the diffuser case air seal assembly, the high-pressure turbine (HPT) 2nd-stage vane assembly, and the HPT 2nd-stage borescope stator vane assembly with parts eligible for installation. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective December 12, 2018.

**ADDRESSES:** For service information identified in this final rule, contact International Aero Engines, 400 Main Street, East Hartford, CT, 06118; phone: 800-565-0140; email: [help24@pw.utc.com](mailto:help24@pw.utc.com); internet: <http://fleetcare.pw.utc.com>. You may view this service information at the FAA, Engine and Propeller Standards Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call 781-238-7759. It is also available on the internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2018-0404.

#### 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-2018-0404; 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