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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2022-0290; Project Identifier AD-2021-01266-T; Amendment 39-22109; AD 2022-14-04]**

**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 certain The Boeing Company Model 787-8, 787-9, and 787-10 airplanes. This AD was prompted by a report from Boeing that Rolls-Royce Deutschland Ltd & Co KG (RRD) discovered a design issue in the engine fuel feed system, which could result in fuel flow restrictions to both engines when ice that has accumulated in the airplane fuel feed system suddenly releases into the engines. This AD requires revising the existing airplane flight manual (AFM) to update the limitations on minimum fuel temperatures. The FAA is issuing this AD to address the unsafe condition on these products.

#### **DATES:**

This AD is effective October 6, 2022.

#### **ADDRESSES:**

**Examining the AD Docket**

You may examine the AD docket at [www.regulations.gov](http://www.regulations.gov) by searching for and locating Docket No. FAA-2022-0290; 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, 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:**

Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: [Takahisa.Kobayashi@faa.gov](mailto:Takahisa.Kobayashi@faa.gov).

#### **SUPPLEMENTARY INFORMATION:**

##### **Background**

The FAA 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 787-8, 787-9, and 787-10 airplanes. The NPRM published in the **Federal Register** on April 14, 2022 ([87 FR 22158](#)). The NPRM was prompted by a report from Boeing that RRD discovered a design issue in the engine fuel feed system, which could result in fuel flow restrictions to both engines when ice that has accumulated in the airplane fuel feed system suddenly releases into the engines. In the NPRM, the FAA proposed to require revising the existing AFM to update the limitations on minimum fuel temperatures. The FAA is issuing this AD to address possible fuel flow restrictions to both engines, which could result in loss of dual engine thrust control and reduced controllability of the airplane.

##### **Discussion of Final Airworthiness Directive**

##### **Comments**

The FAA received no comments on the NPRM or on the determination of the cost to the public.

##### **Conclusion**

The FAA reviewed the relevant data and determined that air safety requires adopting this AD as proposed. Except for minor editorial changes, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

##### **Interim Action**

The FAA considers this AD interim action. Boeing is currently working with RRD to develop updated electronic engine control (EEC) software, which will change the engine oil temperature amber line indicated in the engine indication and crew alerting system (EICAS). This change will ensure that, before takeoff, the engine oil temperature would be warm enough to operate the engine with cold fuel. The updated EEC software combined with the action required by this AD will address the unsafe condition identified in this AD. Once this software is developed, approved, and available, the FAA might consider additional rulemaking.

## Costs of Compliance

The FAA estimates that this AD affects 14 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Revising the existing AFM	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$1,190

## 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.

## 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

## 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:

**2022-14-04 The Boeing Company:** Amendment 39-22109; Docket No. FAA-2022-0290; Project Identifier AD-2021-01266-T.

#### (a) Effective Date

This airworthiness directive (AD) is effective October 6, 2022.

#### (b) Affected ADs

None.

#### (c) Applicability

This AD applies to The Boeing Company Model 787-8, 787-9, and 787-10 airplanes, certificated in any category, with Rolls-Royce Deutschland Ltd & Co KG Model Trent 1000-A (including -A/01 and -A/01A), Trent 1000-A2, Trent 1000-AE (including -AE/01A), Trent 1000-AE2, Trent 1000-AE3, Trent 1000-C (including -C/01 and -C/01A), Trent 1000-C2, Trent 1000-CE (including -CE/01A), Trent 1000-CE2, Trent 1000-CE3, Trent 1000-D (including -D/01 and -D/01A), Trent 1000-D2, Trent 1000-D3, Trent 1000-E (including -E/01 and -E/01A), Trent 1000-E2, Trent 1000-G (including -G/01 and -G/01A), Trent 1000-G2, Trent 1000-G3, Trent 1000-H (including -H/01 and -H/01A), Trent 1000-H2, Trent 1000-H3, Trent 1000-J2, Trent 1000-J3, Trent 1000-K2, Trent 1000-K3, Trent 1000-L2, Trent 1000-L3, Trent 1000-M3, Trent 1000-N3, Trent 1000-P3, Trent 1000-Q3, or Trent 1000-R3 engines installed.

#### (d) Subject

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

#### (e) Unsafe Condition

This AD was prompted by a report from Boeing that Rolls-Royce Deutschland Ltd & Co KG discovered a design issue in the engine fuel feed system, which could result in fuel flow restrictions to both engines when ice that has accumulated in the airplane fuel feed system suddenly releases into the engines. The sudden release of accumulated ice into the engine fuel feed system, in combination with

low fuel temperatures, could cause freezing temperatures at the inlet of certain engine fuel feed system components. The FAA is issuing this AD to address possible fuel flow restrictions to both engines, which could result in loss of dual engine thrust control and reduced controllability of the airplane.

#### **(f) Compliance**

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

#### **(g) Airplane Flight Manual (AFM) Revision**

Within 30 days after the effective date of this AD, revise the existing AFM to incorporate the information specified in figure 1 to paragraph (g) of this AD into the “Certificate Limitations” chapter of the applicable Engine Appendix of the existing AFM.

##### **Figure 1 to paragraph (g) – Fuel System – Minimum Tank Fuel Temperature**

**FUEL SYSTEM**

**(REQUIRED BY AD 2022-14-04)**

The fuel tank temperature limits below must be followed, even when using fuel system icing inhibitor:

- Prior to takeoff, the tank fuel temperature must be at -28 °C or warmer.
- In-flight, the tank fuel temperature must be maintained at -28 °C or warmer, as well as 3 °C above the freezing point of the fuel being used.

#### **(h) 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 responsible Flight Standards 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 (i) of this AD. Information may be emailed to: [9-ANMSeattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANMSeattle-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 responsible Flight Standards 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, 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.

#### **(i) Related Information**

For more information about this AD, contact Tak Kobayashi, Aerospace Engineer, Propulsion Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3553; email: [Takahisa.Kobayashi@faa.gov](mailto:Takahisa.Kobayashi@faa.gov).

**(j) Material Incorporated by Reference**

None.

Issued on June 24, 2022.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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