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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2018-0902; Product Identifier 2018-NM-047-AD; Amendment 39-19543; AD 2019-01-04]**

**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 all The Boeing Company Model 787 series airplanes. This AD was prompted by a report of an uncommanded descent and turn that occurred after an inflight switch to the spare flight management function (FMF). This AD requires an inspection of the flight management system (FMS) to determine if certain operational program software (OPS) is installed and installation of new FMS OPS and a software check if necessary. For certain airplanes, this AD also requires concurrent actions. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective March 22, 2019.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of March 22, 2019.

**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-2018-0902.

#### **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-2018-0902; 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 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:** Nelson Sanchez, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3543; email: nelson.sanchez@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 all The Boeing Company Model 787 series airplanes. The NPRM published in the Federal Register on October 23, 2018 (83 FR 53404). The NPRM was prompted by a report of an uncommanded descent and turn that occurred after an inflight switch to the spare FMF. The NPRM proposed to require an inspection of the FMS to determine if certain OPS is installed and installation of new FMS OPS and a software check if necessary. For certain airplanes, it also proposed to require concurrent actions.

We are issuing this AD to address the retention of stale flight data in the spare FMF, which, if not addressed, could result in controlled flight into terrain or a mid-air collision.

### **Comments**

We gave the public the opportunity to participate in developing this final rule. We have considered the comments received. Boeing, Delta Air Lines, and B McCann indicated their support for the NPRM.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule as proposed, except for 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.

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

We reviewed Boeing Alert Requirements Bulletin B787-81205-SB340038-00 RB, Issue 001, dated November 16, 2017. The service information describes procedures for installing FMS OPS Block Point 3B (BP3B) and performing a software check.

We also reviewed Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016. The service information describes procedures for installing FMS OPS Block Point 3 (BP3) and performing a software check. 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 144 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
Records check or inspection	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$12,240.
Software installation	4 work-hours × \$85 per hour = \$340	0	340	Up to \$48,960.
Concurrent actions	4 work-hours × \$85 per hour = \$340	0	340	Up to \$48,960.

## 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):



**2019-01-04 The Boeing Company:** Amendment 39-19543; Docket No. FAA-2018-0902; Product Identifier 2018-NM-047-AD.

**(a) Effective Date**

This AD is effective March 22, 2019.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all The Boeing Company Model 787 series airplanes, certificated in any category.

**(d) Subject**

Air Transport Association (ATA) of America Code 34, Navigation.

**(e) Unsafe Condition**

This AD was prompted by a report of an uncommanded descent and turn that occurred after an inflight switch to the spare flight management function (FMF), due to the retention of stale flight data in the spare FMF. We are issuing this AD to address the retention of stale flight data in the spare FMF, which, if not addressed, could result in controlled flight into terrain or a mid-air collision.

**(f) Compliance**

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

**(g) Required Actions**

(1) For Boeing Model 787 series airplanes that have an original certificate of airworthiness or export certificate of airworthiness issued on or before the effective date of this AD: Within 12 months after the effective date of this AD, inspect the flight management system (FMS) to determine if operational program software (OPS) part number (P/N) HNP5F-AL11-5010 or HNP58-AL11-5006 is installed. A review of airplane maintenance records is acceptable in lieu of this inspection if the part number of the FMS OPS can be conclusively determined from that review.

(2) If, during any inspection or records review required by paragraph (g)(1) of this AD, FMS OPS P/N HNP5F-AL11-5010 or HNP58-AL11-5006 is found: Within 12 months after the effective date of this AD, do all applicable actions identified in, and in accordance with, the Accomplishment Instructions of Boeing Alert Requirements Bulletin B787-81205-SB340038-00 RB, Issue 001, dated November 16, 2017; except where Boeing Alert Requirements Bulletin B787-81205-SB340038-00

RB, Issue 001, dated November 16, 2017, specifies installing 34 FMS OPS Block Point 3B, P/N HNP5E-AL11-5011, this AD requires installing P/N HNP5E-AL11-5011 or later-approved software versions. Later-approved software versions are only those Boeing software versions that are approved as a replacement for the applicable software, and are approved as part of the type design by the FAA or the Boeing Commercial Airplanes Organization Designation Authorization (ODA) after issuance of Boeing Alert Requirements Bulletin B787-81205-SB340038-00 RB, Issue 001, dated November 16, 2017.

Note 1 to paragraph (g) of this AD: Guidance for accomplishing the actions required by paragraph (g) of this AD can be found in Boeing Alert Service Bulletin B787-81205-SB340038-00, Issue 001, dated November 16, 2017, which is referred to in Boeing Alert Requirements Bulletin B787-81205-SB340038-00 RB, Issue 001, dated November 16, 2017.

#### **(h) Concurrent Requirements**

For airplanes identified in Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016: Prior to or concurrently with the action required by paragraph (g) of this AD, install FMS, Thrust Management System (TMS), and Communication Management Function (CMF) software identified in Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016, and do a software check, in accordance with the Accomplishment Instructions of Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016; except where Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016, specifies installing software, this AD requires installing that software or later-approved software versions. Later-approved software versions are only those Boeing software versions that are approved as a replacement for the applicable software, and are approved as part of the type design by the FAA or the Boeing Commercial Airplanes ODA after issuance of Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016. If the software check fails, before further flight, accomplish corrective actions and repeat the software check and applicable corrective actions until the software check is passed.

#### **(i) Parts Installation Prohibition**

As of the effective date of this AD, installation on any airplane of FMS OPS version HNP5F-AL11-5010 or HNP58-AL11-5006 is prohibited, except as required by paragraph (h) of this AD.

#### **(j) Credit for Previous Actions**

This paragraph provides credit for the actions specified in paragraph (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin B787-81205-SB340013-00, Issue 001, dated December 23, 2015.

#### **(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)(1) 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 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**

(1) For more information about this AD, contact Nelson Sanchez, Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3543; email: nelson.sanchez@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (m)(4) of this AD.

**(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 Alert Requirements Bulletin B787-81205-SB340038-00 RB, Issue 001, dated November 16, 2017.

(ii) Boeing Service Bulletin B787-81205-SB340013-00, Issue 002, dated May 6, 2016.

(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 January 10, 2019.

Jeffrey E. Duven,  
Director, System Oversight Division,  
Aircraft Certification Service.