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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2018-0960; Product Identifier 2018-NM-151-AD; Amendment 39-19512; AD 2018-23-51]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

Editorial Note: Rule document 2018-26365 was originally published on pages 62697 through 62700 in the issue of Thursday, December 6, 2018. In that publication, on page 62700, in Figure 2 to paragraph (h), the last sentence in the table was inadvertently truncated. The corrected document is published here in its entirety.

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

**ACTION:** Final rule; request for comments.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for all The Boeing Company Model 737-8 and -9 airplanes. This emergency AD was sent previously to all known U.S. owners and operators of these airplanes. This AD requires revising certificate limitations and operating procedures of the airplane flight manual (AFM) to provide the flight crew with runaway horizontal stabilizer trim procedures to follow under certain conditions. This AD was prompted by analysis performed by the manufacturer showing that if an erroneously high single angle of attack (AOA) sensor input is received by the flight control system, there is a potential for repeated nose-down trim commands of the horizontal stabilizer. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective December 21, 2018 to all persons except those persons to whom it was made immediately effective by Emergency AD 2018-23-51, issued on November 7, 2018, which contained the requirements of this amendment.

We must receive comments on this AD by January 22, 2019.

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.
- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

### **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-2018-0960; 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 street address for Docket Operations (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Douglas Tsuji, Senior Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3548; email: Douglas.Tsuji@faa.gov.

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

On November 7, 2018, we issued Emergency AD 2018-23-51, which requires revising certificate limitations and operating procedures of the AFM to provide the flight crew with runaway horizontal stabilizer trim procedures to follow under certain conditions. This emergency AD was sent previously to all known U.S. owners and operators of these airplanes. This action was prompted by analysis performed by the manufacturer showing that if an erroneously high single AOA sensor input is received by the flight control system, there is a potential for repeated nose-down trim commands of the horizontal stabilizer. This condition, if not addressed, could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain.

#### **FAA's Determination**

We are issuing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

#### **AD Requirements**

This AD requires revising certificate limitations and operating procedures of the AFM to provide the flight crew with runaway horizontal stabilizer trim procedures to follow under certain conditions.

#### **Interim Action**

We consider this AD interim action. If final action is later identified, we might consider further rulemaking then.

#### **FAA's Determination of the Effective Date**

An unsafe condition exists that requires the immediate adoption of Emergency AD 2018-23-51, issued on November 7, 2018, to all known U.S. owners and operators of these airplanes. The FAA

found that the risk to the flying public justified waiving notice and comment prior to adoption of this rule because an erroneously high single AOA sensor input received by the flight control system can result in a potential for repeated nose-down trim commands of the horizontal stabilizer, which could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain. These conditions still exist and the AD is hereby published in the Federal Register as an amendment to section 39.13 of the Federal Aviation Regulations (14 CFR 39.13) to make it effective to all persons.

Therefore, we find good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reason(s) stated above, we find that good cause exists for making this amendment effective in less than 30 days.

**Comments Invited**

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment. However, we invite you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under the ADDRESSES section. Include the docket number FAA-2018-0960 and Product Identifier 2018-NM-151-AD at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. We will consider all comments received by the closing date and may amend this final rule because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this final rule.

**Costs of Compliance**

We estimate that this AD affects 45 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
Revising the AFM	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$3,825

**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):



**FAA**  
**Aviation Safety**

## **AIRWORTHINESS DIRECTIVE**

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

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**2018-23-51 The Boeing Company:** Amendment 39-19512; Docket No. FAA-2018-0960; Product Identifier 2018-NM-151-AD.

### **(a) Effective Date**

This AD is effective December 21, 2018 to all persons except those persons to whom it was made immediately effective by Emergency AD 2018-23-51, issued on November 7, 2018, which contained the requirements of this amendment.

### **(b) Affected ADs**

None.

### **(c) Applicability**

This AD applies to all The Boeing Company Model 737-8 and -9 airplanes, certificated in any category.

### **(d) Subject**

Air Transport Association (ATA) of America Code 27, Flight controls.

### **(e) Unsafe Condition**

This AD was prompted by analysis performed by the manufacturer showing that if an erroneously high single angle of attack (AOA) sensor input is received by the flight control system, there is a potential for repeated nose-down trim commands of the horizontal stabilizer. We are issuing this AD to address this potential resulting nose-down trim, which could cause the flight crew to have difficulty controlling the airplane, and lead to excessive nose-down attitude, significant altitude loss, and possible impact with terrain.

### **(f) Compliance**

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

### **(g) Revision of Airplane Flight Manual (AFM): Certificate Limitations**

Within 3 days after the effective date of this AD, revise the Certificate Limitations chapter of the applicable AFM to include the information in figure 1 to paragraph (g) of this AD.

**Figure 1 to paragraph (g) of this AD – Certificate Limitations**

**Required by AD 2018-23-51**

**Runaway Stabilizer**

In the event of an uncommanded horizontal stabilizer trim movement, combined with any of the following potential effects or indications resulting from an erroneous Angle of Attack (AOA) input, the flight crew must comply with the Runaway Stabilizer procedure in the Operating Procedures chapter of this manual:

- Continuous or intermittent stick shaker on the affected side only.
- Minimum speed bar (red and black) on the affected side only.
- Increasing nose down control forces.
- IAS DISAGREE alert.
- ALT DISAGREE alert.
- AOA DISAGREE alert (if the option is installed).
- FEEL DIFF PRESS light.
- Autopilot may disengage.
- Inability to engage autopilot.

**(h) AFM Revision: Operating Procedures**

Within 3 days after the effective date of this AD, revise the Operating Procedures chapter of the applicable AFM to include the information in figure 2 to paragraph (h) of this AD.

**Required by AD 2018-23-51**

**Runaway Stabilizer**

Disengage autopilot and control airplane pitch attitude with control column and main electric trim as required. If relaxing the column causes the trim to move, set stabilizer trim switches to CUTOOUT. If runaway continues, hold the stabilizer trim wheel against rotation and trim the airplane manually.

Note: The 737-8/-9 uses a Flight Control Computer command of pitch trim to improve longitudinal handling characteristics. In the event of erroneous Angle of Attack (AOA) input, the pitch trim system can trim the stabilizer nose down in increments lasting up to 10 seconds.

In the event an uncommanded nose down stabilizer trim is experienced on the 737-8/-9, in conjunction with one or more of the indications or effects listed below, do the existing AFM Runaway Stabilizer procedure above, ensuring that the STAB TRIM CUTOOUT switches are set to CUTOOUT and stay in the CUTOOUT position for the remainder of the flight.

An erroneous AOA input can cause some or all of the following indications and effects:

- Continuous or intermittent stick shaker on the affected side only.
- Minimum speed bar (red and black) on the affected side only.
- Increasing nose down control forces.
- IAS DISAGREE alert.
- ALT DISAGREE alert.
- AOA DISAGREE alert (if the option is installed).
- FEEL DIFF PRESS light.
- Autopilot may disengage.
- Inability to engage autopilot.

Initially, higher control forces may be needed to overcome any stabilizer nose down trim already applied. Electric stabilizer trim can be used to neutralize control column pitch forces before moving the STAB TRIM CUTOOUT switches to CUTOOUT. Manual stabilizer trim can be used before and after the STAB TRIM CUTOOUT switches are moved to CUTOOUT.

**(i) 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 (j) 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.

**(j) Related Information**

For more information about this AD, contact Douglas Tsuji, Senior Aerospace Engineer, Systems and Equipment Section, FAA, Seattle ACO Branch, 2200 South 216th St., Des Moines, WA 98198; phone and fax: 206-231-3548; email: Douglas.Tsuji@faa.gov.

**(k) Material Incorporated by Reference**

None.

Issued in Des Moines, Washington, on November 21, 2018.  
Michael Kaszycki,  
Acting Director, System Oversight Division,  
Aircraft Certification Service.