

[Federal Register Volume 83, Number 196 (Wednesday, October 10, 2018)]  
[Rules and Regulations]  
[Pages 50818-50820]  
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]  
[FR Doc No: 2018-21508]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2018-0855; Product Identifier 2018-NE-31-AD; Amendment 39-19416; AD 2018-19-16]**

**RIN 2120-AA64**

#### **Airworthiness Directives; CFM International S.A. Turbofan Engines**

**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 CFM International S.A. (CFM) LEAP-1A23, -1A24, -1A24E1, -1A26, -1A26E1, -1A26CJ, -1A29, -1A29CJ, -1A30, -1A32, -1A33, -1A33B2, and -1A35A turbofan engines with certain full authority digital engine control (FADEC) and prognostic health monitoring (PHM) software installed. This AD requires removing certain FADEC and PHM software and installing versions eligible for installation. This AD was prompted by aborted takeoffs after engines did not advance to the desired takeoff fan speed due to icing in the pressure sensor line. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective October 25, 2018.

We must receive comments on this AD by November 26, 2018.

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

For service information identified in this final rule, contact CFM International Inc., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; phone: 877-432-3272;

fax: 877-432-3329; email: aviation.fleetsupport@ge.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-2018-0855.

### **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-2018-0855; 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 the Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Christopher McGuire, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7120; fax: 781-238-7199; email: [chris.mcguire@faa.gov](mailto:chris.mcguire@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We received reports of six aborted takeoffs that occurred after engines did not advance to the desired takeoff fan speed. The aborted takeoffs happened on the first takeoff of the day after the airplane was exposed to sub-freezing temperatures for more than six hours. After further investigation, the operator found water and ice in the pressure sensor lines, which prevented the pressure sensor from accurately measuring the pressure. As a result, CFM improved the FADEC and PHM software to detect and accommodate pressure sensor line freezing. This condition, if not addressed, could result in icing in the pressure sensor lines and inaccurate pressure sensor readings, failure of one or more engines, loss of thrust control, and loss of the airplane. We are issuing this AD to address the unsafe condition on these products.

#### **Related Service Information**

We reviewed CFM Service Bulletin (SB) LEAP-1A-73-00-0027-01A-930A-D, Issue 001, dated July 30, 2018. The SB introduces new FADEC and PHM software and describes procedures for replacing the software.

#### **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 removing certain FADEC and PHM software and installing software that is eligible for installation.

## Differences Between the AD and the Service Information

CFM SB LEAP-1A-73-00-0027-01A-930A-D, Issue 001, dated July 30, 2018, recommends that you install the new FADEC and PHM software. This AD requires that you install the new FADEC and PHM software, and prohibits the use of earlier FADEC and PHM software versions.

## Interim Action

We consider this AD interim action. CFM is developing a modification that will address the unsafe condition identified in this AD. Once this modification is developed, approved, and available, we might consider additional rulemaking.

## FAA's Justification and Determination of the Effective Date

An unsafe condition exists that requires the immediate adoption of this AD without providing an opportunity for public comments prior to adoption. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because the compliance time for the required action is shorter than the time necessary for the public to comment and for us to publish the final rule. The software must be removed and replaced within 90 days to ensure that icing does not develop in the pressure sensor lines on the affected engines. Therefore, we find good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reasons 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-2018-0855 and Product Identifier 2018-NE-31-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 82 engines installed on airplanes of U.S. registry.  
We estimate the following costs to comply with this AD:

### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Software installation	1 work-hour × \$85 per hour = \$85	\$0	\$85	\$6,970

## **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 engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation 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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**2018-19-16 CFM International S.A.:** Amendment 39-19416; Docket No. FAA-2018-0855; Product Identifier 2018-NE-31-AD.

**(a) Effective Date**

This AD is effective October 25, 2018.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to all CFM LEAP-1A23, -1A24, -1A24E1, -1A26, -1A26E1, -1A26CJ, -1A29, -1A29CJ, -1A30, -1A32, -1A33, -1A33B2, and -1A35A turbofan engines with full authority digital engine control (FADEC) software, part number (P/N) 2590M00P07, version L1A0510, or earlier, installed; and prognostic health monitoring (PHM) software, P/N 2784M64P01, version PL1A0510, or earlier, installed.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 7600, Engine Controls.

**(e) Unsafe Condition**

This AD was prompted by aborted takeoffs after engines did not advance to the desired takeoff fan speed due to icing in the pressure sensor line. We are issuing this AD to prevent icing in the pressure sensor lines and inaccurate pressure sensor readings. The unsafe condition, if not addressed, could result failure of one or more engines, loss of thrust control, and loss of the airplane.

**(f) Compliance**

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

**(g) Required Actions**

(1) Within 90 days after the effective date of this AD, remove FADEC software, P/N 2590M00P07, version L1A0510, or earlier; and PHM software, P/N 2784M64P01, version PL1A0510, or earlier, from the engine.

(2) Before further flight after the removal of the FADEC and PHM software required by paragraph (g)(1), install FADEC and PHM software that is eligible for installation.

**(h) Installation Prohibition**

After 90 days from the effective date of this AD, do not operate any engine with FADEC software, P/N 2590M00P07, version L1A0510, or earlier, installed; and PHM software, P/N 2784M64P01, version PL1A0510, or earlier, installed.

**(i) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO 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. You may email your request to: ANE-AD-AMOC@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 Christopher McGuire, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7120; fax: 781-238-7199; email: chris.mcguire@faa.gov.

**(k) Material Incorporated by Reference**

None.

Issued in Burlington, Massachusetts, on September 27, 2018.  
Robert J. Ganley,  
Manager, Engine and Propeller Standards Branch,  
Aircraft Certification Service.