[Federal Register Volume 86, Number 84 (Tuesday, May 4, 2021)]
[Rules and Regulations]
[Pages 23599-23602]
From the Federal Register Online via the Government Publishing Office [www.gpo.gov]
[FR Doc No: 2021-09507]

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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2021-0346; Project Identifier AD-2021-00465-E; Amendment 39-21539; AD 2021-10-06]**

**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:** The FAA is adopting a new airworthiness directive (AD) for certain CFM International, S.A. (CFM) LEAP-1B model turbofan engines. This AD was prompted by multiple reports of pressure sub-system (PSS) unit faults due to pressure transducer corrosion following extended storage periods. For an engine in service, this AD requires checks for engine maintenance messages related to the pressure transducer and, depending on the results of the check, replacement of the PSS unit before further flight. The AD requires this repetitive check for faults prior to each flight until the PSS has accumulated at least 15 hours of electrical power. For an engine not in service, this AD requires applying electrical power to the PSS unit before further flight. The FAA is issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective May 10, 2021.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 10, 2021.

The FAA must receive comments on this AD by June 18, 2021.

**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 https://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.

For service information identified in this final rule, contact CFM International, S.A., 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, Airworthiness Products Section, Operational Safety 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 at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0346.

**Examining the AD Docket**

You may examine the AD docket at https://www.regulations.gov by searching for and locating Docket No. FAA-2021-0346; 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 street address for the Docket Operations is listed above.

**FOR FURTHER INFORMATION CONTACT:** Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7743; fax: (781) 238-7199; email: Mehdi.Lamnyi@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Background**

In April 2021, the FAA received a report from CFM, the engine manufacturer, of numerous instances of PSS unit faults. The manufacturer reported these faults have been occurring since October 2020 and are a result of pressure transducer corrosion following extended storage periods. The manufacturer's investigation found that certain PSS units, identified by serial number, have been exposed to conditions that make pressure transducers in these units susceptible to an increased rate of faults. These conditions are moisture ingress from long-term on-wing storage, coupled with certain manufacturing processes of the affected pressure transducers. Together these conditions can cause corrosion and subsequent electrical shorting of the pins in the pressure transducer. This short can result in transmittal of erroneous pressure sensor signals to the electronic engine control. Erroneous pressure input from the pressure transducers in the PSS unit has the potential to prevent engine control from meeting thrust demand, thereby resulting in the loss of engine thrust control. Further, the engine manufacturer found that if transmission of erroneous pressure sensor signals were to occur, it would occur within the first 15 hours of electrical power to the PSS unit after the extended storage period is completed. Therefore, the manufacturer recommended that, for engines with fewer than 15 hours of electrical power applied to the PSS unit within the past 90 days, operators either perform a check for engine maintenance messages related to the pressure transducer prior to each flight or apply electrical power to the PSS unit until the PSS unit has accumulated 15 hours or more of electrical power. The FAA is mandating these recommendations in this AD.

This condition, if not addressed, could result in loss of engine thrust control and reduced control of the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

**FAA's Determination**

The FAA is issuing this AD because the agency has determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

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

The FAA reviewed CFM Service Bulletin (SB) LEAP-1B-73-00-0038-01A-930A-D, Issue 002-00, dated 2021-04-25, excluding FADEC Alliance SB LEAP-1B/73-012, Issue 001, dated 2021-04-23 (which is attached to the CFM SB). This SB identifies PSS units with susceptible pressure transducers. This SB also specifies procedures for checking the engine maintenance messages related to the pressure transducer and applying electrical power to the PSS unit. 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 ADDRESSES.

**AD Requirements**

For an engine in service, this AD requires checks for engine maintenance messages related to the pressure transducer and, depending on the results of the checks, replacement of the PSS unit before further flight. This AD requires this repetitive check for faults prior to each flight until the PSS unit has accumulated at least 15 hours of electrical power. For an engine not in service, this AD requires applying electrical power to the PSS unit prior to returning the engine to service.

**Interim Action**

The FAA considers this AD to be an interim action. This unsafe condition is still under investigation by the manufacturer and, depending on the results of that investigation, the FAA may consider further rulemaking action.

**Justification for Immediate Adoption and Determination of the Effective Date**

Section 553(b)(3)(B) of the Administrative Procedure Act (APA) (5 U.S.C. 551 et seq.) authorizes agencies to dispense with notice and comment procedures for rules when the agency, for "good cause," finds that those procedures are "impracticable, unnecessary, or contrary to the public interest." Under this section, an agency, upon finding good cause, may issue a final rule without providing notice and seeking comment prior to issuance. Further, section 553(d) of the APA authorizes agencies to make rules effective in less than thirty days, upon a finding of good cause.

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 foregoing notice and comment prior to adoption of this rule. As previously noted, there have been numerous instances of PSS units faulting in the last few months. These PSS unit failures can impact the capability of the engine control to meet commanded thrust and may lead to a loss of engine thrust control and reduced control of the airplane. Therefore, the risk created by this unsafe condition requires prompt action, and the FAA is mandating the compliance time for the required action as before further flight. Accordingly, notice and opportunity for prior public comment are impracticable and contrary to the public interest pursuant to 5 U.S.C. 553(b)(3)(B).

In addition, the FAA finds that good cause exists pursuant to 5 U.S.C. 553(d) for making this amendment effective in less than 30 days, for the same reasons the FAA found good cause to forego notice and comment. Because of the need for operators to begin the required checks prior to each flight or application of electrical power to the PSS unit, the FAA has made this AD effective 5 days after the date of publication.

**Comments Invited**

The FAA invites you to send any written data, views, or arguments about this final rule. Send your comments to an address listed under ADDRESSES. Include "Docket No. FAA-2021-0346 and Project Identifier AD-2021- 00465-E" at the beginning of your comments. The most helpful

comments reference a specific portion of the final rule, explain the reason for any recommended change, and include supporting data. The FAA will consider all comments received by the closing date and may amend this final rule because of those comments.

Except for Confidential Business Information (CBI) as described in the following paragraph, and other information as described in 14 CFR 11.35, the FAA will post all comments received, without change, to https://www.regulations.gov, including any personal information you provide. The agency will also post a report summarizing each substantive verbal contact received about this final rule.

**Confidential Business Information**

CBI is commercial or financial information that is both customarily and actually treated as private by its owner. Under the Freedom of Information Act (FOIA) (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this AD contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this AD, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this AD. Submissions containing CBI should be sent to Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

**Regulatory Flexibility Act**

The requirements of the Regulatory Flexibility Act (RFA) do not apply when an agency finds good cause pursuant to 5 U.S.C. 553 to adopt a rule without prior notice and comment. Because FAA has determined that it has good cause to adopt this rule without prior notice and comment, RFA analysis is not required.

**Costs of Compliance**

The FAA estimates that this AD affects 158 engines installed on 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 |
|---|---|---|---|---|
| Check for engine maintenance messages | 0.5 work-hours × $85 per hour = $42.50 | $0 | $42.50 | $6,715 |
| Apply electrical power to PSS unit | 15 work-hours × $85 per hour = $1,275 | $0 | $1,275 | $201,450 |

The FAA estimates the following costs to do any necessary replacement that would be required based on the results of the check for engine maintenance messages related to the pressure transducer. The agency has no way of determining the number of aircraft that might need this replacement:

**On-Condition Costs**

| Action | Labor cost | Parts cost | Cost per product |
|---|---|---|---|
| Replace PSS unit | 1 work-hour × $85 per hour = $85 | $159,657 | $159,742 |

**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, and

(2) Will not affect intrastate aviation in Alaska.

**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:

**2021-10-06 CFM International, S.A.:** Amendment 39-21539; Docket No. FAA-2021-0346; Project Identifier AD-2021-00465-E.

**(a) Effective Date**

This airworthiness directive (AD) is effective May 10, 2021.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to CFM International S.A. (CFM) LEAP-1B21, -1B23, -1B25, -1B27, -1B28, -1B28B1, -1B28B2, -1B28B3, -1B28B2C, -1B28BBJ1, and -1B28BBJ2 model turbofan engines with a pressure sub-system (PSS) unit with a serial number (S/N) listed in Additional Information, Paragraph 6.A. Table 1 of CFM Service Bulletin (SB) LEAP-1B-73-00-0038-01A-930A-D, Issue 002-00, dated 2021-04-25 (SB LEAP-1B-73-0038), installed.

**(d) Subject**

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

**(e) Unsafe Condition**

This AD was prompted by multiple reports of PSS unit faults due to pressure transducer corrosion following extended storage periods. The FAA is issuing this AD to prevent erroneous pressure sensor signals that can impact engine thrust control. The unsafe condition, if not addressed, could result in loss of engine thrust control and reduced control of the airplane.

**(f) Compliance**

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

**(g) Required Actions**

(1) For an engine in service on the effective date of this AD that has accumulated fewer than 15 hours of electrical power applied to the PSS unit within the past 90 days, perform one of the following actions:

(i) Prior to each flight, perform a check for the engine maintenance messages listed in the Accomplishment Instructions, paragraph 5.B.(2)(a)2, of SB LEAP-1B-73-0038, related to the pressure transducer, until the PSS unit has accumulated 15 hours or more of electrical power within the previous 90 days; or

(ii) Before further flight, apply electrical power to the PSS unit in accordance with the Accomplishment Instructions, paragraph 5.A.(3)(a)1, of SB LEAP-1B-73-0038, until the PSS unit has accumulated 15 hours or more of electrical power within the past 90 days.

(2) For an engine in service on the effective date of this AD that has accumulated 15 hours or more of electrical power applied to the PSS unit within the previous 90 days, within 5 flight cycles of the effective date of this AD, perform a one-time check for the maintenance messages listed in the Accomplishment Instructions, paragraph 5.B.(2)(a)2, of SB LEAP-1B-73-0038, related to the pressure transducer.

(3) For an engine not in service on the effective date of this AD that has accumulated fewer than 15 hours of electrical power applied to the PSS unit within the past 90 days, before further flight, apply electrical power to the PSS unit in accordance with the Accomplishment Instructions, paragraph 5.A.(3)(a)1, of SB LEAP-1B-73-0038, until the PSS unit has accumulated 15 hours or more of electrical power within the previous 90 days.

(4) For an engine not in service on the effective date of this AD that has accumulated 15 hours or more of electrical power applied to the PSS unit within the previous 90 days, before further flight, perform a check for the engine maintenance messages using the Accomplishment Instructions, paragraphs 5.A.(3)(b)1 through 5, of SB LEAP-1B-73-0038, related to the pressure transducer.

(5) After accumulating 15 hours of electrical power on the PSS unit as required by paragraph (g)(1)(ii) or (g)(3) of this AD, before further flight, perform a check for the engine maintenance messages using the Accomplishment Instructions, paragraphs 5.A.(3)(b)1 through 5, of SB LEAP-1B-73-0038, related to the pressure transducer.

(6) If any engine maintenance messages are found by the checks required by paragraph (g)(1)(i), (2), (4), or (5) of this AD, before further flight, replace the PSS unit with a PSS unit eligible for installation.

**(h) Definitions**

(1) For the purpose of this AD, an "in service" engine is any of the following:

(i) An engine installed on an airplane that was delivered prior to November 18, 2020, that, as of the effective date of this AD, has completed the Operational Readiness Flight in accordance with paragraph (m) of FAA AD 2020-24-02 (85 FR 74560, November 20, 2020); or

(ii) An engine installed on an airplane delivered after November 18, 2020.

(2) For the purpose of this AD, hours of electrical power on the PSS unit is the total amount of time that voltage was applied to the PSS unit either on-wing or on a bench in segments of no less than 15 minutes. If the voltage-time is not available, use the run time of the engine on which the PSS unit is installed.

(3) For the purpose of this AD, a "PSS unit eligible for installation" is any of the following:

(i) A PSS unit that is cleared in accordance with the criteria in the Accomplishment Instructions, paragraph 5.B.(3), of SB LEAP-1B-73-0038; or

(ii) A PSS unit with an S/N not listed in Additional Information, Paragraph 6.A. Table 1 of SB LEAP-1B-73-0038.

**(i) Installation Prohibition**

After the effective date of this AD, do not install on any engine a PSS unit unless it is a PSS unit eligible for installation as defined in paragraph (h)(3) of this AD.

**(j) Credit for Previous Actions**

You may take credit for the actions required by paragraphs (g)(1)(ii) and (g)(2) through (6) of this AD if you performed these actions before the effective date of this AD using CFM SB LEAP-1B-73-00-0038-01A-930A-D, Issue 001, dated 2021-04-23.

**(k) Special Flight Permit**

A special flight permit may be issued in accordance with 14 CFR 21.197 and 21.199 to operate the airplane for up to 5 flight cycles prior to accomplishing paragraph (g)(3) of this AD provided engine maintenance messages are checked prior to each flight using the Accomplishment Instructions, paragraphs 5.A.(3)(b)1-5, of SB LEAP-1B 73-0038, and no engine maintenance messages listed in the Accomplishment Instructions, paragraph 5.A.(3)(b)5, of SB LEAP-1B-73-0038, are detected. For all other requirements, special flight permits are prohibited.

**(l) 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 Related Information. 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.

**(m) Related Information**

For more information about this AD, contact Mehdi Lamnyi, Aviation Safety Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA 01803; phone: (781) 238-7743; fax: (781) 238-7199; email: Mehdi.Lamnyi@faa.gov.

**(n) 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) CFM Service Bulletin (SB) LEAP-1B-73-00-0038-01A-930A-D, Issue 002-00, dated 2021-04-25, excluding FADEC Alliance SB LEAP-1B/73-012, Issue 001, dated 2021-04-23 (which is attached to this CFM SB).

(ii) [Reserved]

(3) For CFM International, S.A. service information identified in this AD, contact CFM International, S.A., 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.

(4) You may view this service information at FAA, Airworthiness Products Section, Operational Safety Branch, 1200 District Avenue, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7759.

(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, email: fedreg.legal@nara.gov, or go to: https://www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on April 28, 2021.

Gaetano A. Sciortino,

Deputy Director for Strategic Initiatives, Compliance & Airworthiness Division, Aircraft Certification Service.

[FR Doc. 2021-09507 Filed 4-30-21; 4:15 pm]