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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0785; Product Identifier 2018-NE-14-AD; Amendment 39-19380; AD 2018-18-01]

RIN 2120-AA64

Airworthiness Directives; CFM International S.A. Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is superseding Airworthiness Directive (AD) 2018-10-11 for all CFM International S.A. (CFM) Model CFM56-7B engines. AD 2018-10-11 required initial and repetitive inspections of certain fan blades and, if they fail the inspection, their replacement with parts eligible for installation. This superseding AD requires the same initial and repetitive inspections but revises the compliance time for the repetitive inspections. This AD was prompted by further analysis by the manufacturer that indicated a need to reduce the repetitive fan blade inspection interval based on ongoing root cause investigation of an April 2018 engine failure. The agency is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective October 16, 2018.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of October 16, 2018.

The Director of the Federal Register approved the incorporation by reference of a certain other publication listed in this AD as of May 14, 2018 (83 FR 19176, May 2, 2018).

The FAA must receive any comments on this AD by November 15, 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-2018-0785.

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-2018-0785; 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 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.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued AD 2018-10-11, Amendment 39-19286 (83 FR 22836, May 17, 2018), (“AD 2018-10-11”), for all CFM model CFM56-7B engines. AD 2018-10-11 required initial and repetitive ultrasonic inspections (USI) or eddy current inspection (ECI) of certain fan blades and, if they fail the inspection, their replacement with parts eligible for installation. AD 2018-10-11 resulted from an April 2018 event involving an engine failure due to a fractured fan blade leading to the engine inlet cowl disintegrating and debris penetrating the fuselage, causing a loss of pressurization and prompting an emergency descent. One passenger fatality occurred as a result. The agency issued AD 2018-10-11 to prevent failure of the fan blade due to cracking, which could lead to an engine in-flight shutdown, uncontained release of debris, damage to the airplane, and possible airplane decompression.

Actions Since AD 2018-10-11 Was Issued

Since the FAA issued AD 2018-10-11, CFM gained a better understanding of the fan blade failures based on the inspections and further analysis of the detected cracks and the April 2018 event. As a result, CFM reduced the repetitive inspection interval to prevent a fan blade failure. CFM has published Service Bulletin (SB) CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018, to reduce the repetitive inspection interval from 3,000 cycles to 1,600 cycles. The FAA expects that all affected engines will have completed the initial inspection based on the previously issued ADs.

The FAA is issuing this AD to address the unsafe condition on these products.

Revision to Cost Estimate

The FAA has determined that, in AD 2018-10-11, it underestimated the cost per fan blade to be \$8,500. However, based on CFM SB CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018, and

earlier versions the estimated cost per fan blade should be \$51,400. The FAA erroneously assumed the cost in the service bulletin represented the cost for a set of 24 fan blades when it actually represented the cost for two fan blades. In this final rule, the agency has updated the on-condition costs to reflect the correct cost of the fan blade.

Related Service Information Under 1 CFR Part 51

The FAA reviewed CFM SB CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018, and Subtask 72-21-01-220-091, of Task 72-21-01-200-001, from the CFM56-7B Engine Shop Manual (ESM), Revision 57, dated January 15, 2018. CFM SB CFM56-7B S/B 72-1033, Revision 2, describes procedures for performing a USI of the affected fan blades. Subtask 72-21-01-220-091, of Task 72-21-01-200-001, from the CFM56-7B ESM, describes procedures for performing an ECI of the affected fan blades. 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.

Other Related Service Information

The FAA also reviewed CFM SB CFM56-7B S/B 72-1019, dated March 24, 2017, CFM SB CFM56-7B S/B 72-1019, Revision 1, dated June 13, 2017, CFM SB CFM56-7B S/B 72-1024, dated July 26, 2017, CFM SB CFM56-7B S/B 72-1033, dated April 20, 2018, and General Electric Field Support Technology (FST) Procedure 2370, dated December 9, 2016. These SBs and the FST provide information on performing the USI.

FAA's Determination

The FAA is issuing this AD because the agency has 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 initial and repetitive USI or ECI of certain fan blades and, if they fail the inspection, their replacement with parts eligible for installation.

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. Due to the reduction in the repetitive inspection interval, some fan blades have reached or exceeded the revised repetitive inspection threshold. Because of this, the compliance time for the required action is shorter than the time necessary for the public to comment and for the FAA to issue the final rule to ensure the unsafe condition is addressed. Therefore, the agency finds good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reasons stated in this paragraph, the FAA finds 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 the FAA did not provide you with notice and an opportunity to provide your comments before it becomes effective. However, the agency invites 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-2018-0785 and product identifier 2018-NE-14-AD at the beginning of your comments. The agency specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. The agency will consider all comments received by the closing date and may amend this final rule because of those comments.

The FAA will post all comments it receives, without change, to <http://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact the agency receives about this final rule.

Costs of Compliance

The FAA estimates that this AD affects 3,716 engines installed on 1,858 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this AD:

Estimated Inspection Costs

Action	Labor cost	Parts cost	Cost per inspection	Cost on U.S. operators
Inspect engine fan blade	2 work-hours × \$85 per hour = \$170	\$0	\$170	\$631,720

The FAA estimates the following costs to complete any necessary replacement of a single fan blade that would be required based on the results of the inspection. The agency has no way of determining the number of engines that might need fan blades to be replaced:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replace fan blade	1 work-hour × \$85 per hour = \$85	\$51,400	\$51,485

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.

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 within the Aircraft Certification Service, 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 part 39 of the Federal Aviation Regulations (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 removing Airworthiness Directive (AD) 2018-10-11, Amendment 39-19286 (83 FR 22836, May 17, 2018) and adding the following new AD:



FAA
Aviation Safety

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2018-18-01 CFM International S.A.: Amendment 39-19380; Docket No. FAA-2018-0785; Product Identifier 2018-NE-14-AD.

(a) Effective Date

This AD is effective October 16, 2018.

(b) Affected ADs

This AD replaces AD 2018-10-11, Amendment 39-19286 (83 FR 22836, May 17, 2018).

(c) Applicability

This AD applies to CFM International S.A.(CFM) CFM56-7B20, CFM56-7B22, CFM56-7B22/B1, CFM56-7B24, CFM56-7B24/B1, CFM56-7B26, CFM56-7B26/B2, CFM56-7B27, CFM56-7B27A, CFM56-7B26/B1, CFM56-7B27/B1, CFM56-7B27/B3, CFM56-7B20/2, CFM56-7B22/2, CFM56-7B24/2, CFM56-7B26/2, CFM56-7B27/2, CFM56-7B20/3, CFM56-7B22/3, CFM56-7B22/3B1, CFM56-7B24/3, CFM56-7B24/3B1, CFM56-7B26/3, CFM56-7B26/3B1, CFM56-7B26/3B2, CFM56-7B27/3, CFM56-7B27/3B1, CFM56-7B27/3B3, CFM56-7B27A/3, CFM56-7B26/3F, CFM56-7B26/3B2F, CFM56-7B27/3F, CFM56-7B27/3B1F, CFM56-7B20E, CFM56-7B22E, CFM56-7B22E/B1, CFM56-7B24E, CFM56-7B24E/B1, CFM56-7B26E, CFM56-7B26E/B1, CFM56-7B26E/B2, CFM56-7B27AE, CFM56-7B27E, CFM56-7B27E/B1, CFM56-7B27E/B3, CFM56-7B26E/F, CFM56-7B26E/B2F, CFM56-7B27E/F, and CFM56-7B27E/B1F engine models.

(d) Subject

Joint Aircraft System Component (JASC) Code 7230, Turbine Engine Compressor Section.

(e) Unsafe Condition

This AD was prompted by further analysis by the manufacturer that indicated a need to reduce the repetitive fan blade inspection interval based on ongoing root cause investigation of an April 2018 engine failure that resulted in one fatality. The FAA is issuing this AD to reduce the repetitive fan blade inspection interval to prevent failure of the fan blade. The unsafe condition, if not addressed, could result in failure of the fan blade, the engine inlet cowl disintegrating and debris penetrating the fuselage, causing a loss of pressurization, and prompting an emergency descent.

(f) Compliance

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

(g) Required Actions

(1) Perform an ultrasonic inspection (USI) or eddy current inspection (ECI) of the concave and convex sides of the fan blade dovetail as follows:

(i) Before further flight, perform an initial inspection of the fan blade using the criteria in Planning Information, either paragraph 1.C.(2)(a), 1.C.(2)(b), or 1.C.(2)(c), of CFM Service Bulletin (SB) CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018.

(ii) For all fan blades not inspected in accordance with (g)(1)(i) of this AD, perform an initial inspection prior to accumulating 20,000 flight cycles on the fan blade or before further flight, whichever occurs later.

(iii) Thereafter, repeat this inspection no later than 1,600 cycles since the last inspection or within 450 cycles after the effective date of this AD, whichever occurs later.

(iv) Use the Accomplishment Instructions, paragraphs 3.A.(3)(a) through (i), of CFM SB CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018, to perform a USI or use the instructions in subtask 72-21-01-220-091, of task 72-21-01-200-001, from CFM CFM56-7B Engine Shop Manual (ESM), Revision 57, dated January 15, 2018, to perform an ECI.

(2) If any unserviceable indication, as specified in the applicable service information in paragraph (g)(1)(iv) of this AD, is found during the inspections required by paragraph (g) of this AD, replace the fan blade before further flight with a part eligible for installation.

(h) Installation Prohibition

Do not install any replacement fan blade unless it meets one of the following criteria:

(1) The replacement fan blade has fewer than 20,000 cycles since new, or;

(2) The replacement fan blade has been inspected in accordance with paragraph (g) of this AD.

(i) Definition

For the purpose of this AD, a “replacement fan blade” is a fan blade that is being installed into an engine from which it was not previously removed. Removing and reinstalling a fan blade for the purpose of relubrication is not subject to the Installation Prohibition of this AD.

(j) Credit for Previous Actions

You may take credit for the actions that are required by paragraph (g) of this AD if you performed the actions before the effective date of this AD using CFM SB CFM56-7B S/B 72-1019, dated March 24, 2017; CFM SB CFM56-7B S/B 72-1019, Revision 1, dated June 13, 2017; CFM SB CFM56-7B S/B 72-1024, dated July 26, 2017; CFM SB CFM56-7B S/B 72-1033, dated April 20, 2018; CFM SB CFM56-7B S/B 72-1033, Revision 1, dated May 9, 2018; or an ECI using the instructions in task 72-21-01-200-001, subtask 72-21-01-220-091 of CFM56-7B ESM, earlier than Revision 57, dated January 15, 2018.

(k) 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 (l) 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.

(3) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (k)(3)(i) and (k)(3)(ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(4) AMOCs approved previously for AD 2018-10-11 (83 FR 22836, May 17, 2018) are approved as AMOCs for the corresponding provisions of this AD.

(l) 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.

(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.

(3) The following service information was approved for IBR on October 16, 2018.

(i) CFM International S.A. (CFM) Service Bulletin CFM56-7B S/B 72-1033, Revision 2, dated July 27, 2018.

(ii) Reserved.

(4) The following service information was approved for IBR on May 14, 2018 (83 FR 19176, May 2, 2018).

(i) Subtask 72-21-01-220-091, of Task 72-21-01-200-001, from the CFM CFM56-7B Engine Shop Manual, Revision 57, dated January 15, 2018.

(ii) Reserved.

(5) For CFM service information identified in this AD, 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.

(6) 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.

(7) 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 Burlington, Massachusetts, on September 26, 2018.

Karen M. Grant,
Acting Manager, Engine & Propeller Standards Branch,
Aircraft Certification Service.