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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0380; Product Identifier 2018-NE-14-AD; Amendment 39-19267; AD 2018-09-10]

RIN 2120-AA64

Airworthiness Directives; CFM International S.A. Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: We are adopting a new airworthiness directive (AD) for all CFM International S.A. (CFM) Model CFM56-7B engines. This AD requires initial and repetitive inspections of the concave and convex sides of the fan blade dovetail to detect cracking and replacement of any blades found cracked. This AD was prompted by a recent engine failure due to a fractured fan blade, that resulted in the engine inlet cowl disintegrating and debris penetrating the fuselage, causing a loss of pressurization, and prompting an emergency descent. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 14, 2018.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 14, 2018.

We must receive comments on this AD by June 18, 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. 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-2018-0380.

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-2018-0380; 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.

SUPPLEMENTARY INFORMATION:

Discussion

A recent event involving an engine failure due to a fractured fan blade resulted in 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. In response to this event, the FAA issued Emergency AD 2018-09-51 (“AD 2018-09-51”), to address certain high-time CFM56-7B engines, specifically including those with 30,000 or more total accumulated flight cycles since new. AD 2018-09-51 requires a one-time ultrasonic inspection (USI) of the concave and convex sides of the fan blade dovetail.

Since the issuance of AD 2018-09-51, the FAA has been working closely with CFM to develop an additional compliance plan to address the risk of fan blade failure for the entire CFM56-7B fleet. This AD addresses the unsafe condition affecting CFM56-7B engines by requiring initial and repetitive inspections of fan blades based on accumulated fan blade cycles. This condition, if not addressed, could result in fan blade failure due to cracking, which could lead to in an engine in-flight shutdown (IFSD), uncontained release of debris, damage to the airplane, and possible airplane decompression. We are issuing this AD to address the unsafe condition on these products.

Related Service Information Under 1 CFR part 51

We reviewed CFM Service Bulletin (SB) CFM56-7B S/B 72-1033, dated April 20, 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 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 eddy current inspection (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

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

Other Related Rulemaking

The FAA previously issued a Notice of Proposed Rulemaking (see Docket No. FAA-2017-0313 at <http://www.regulations.gov>), to address an unsafe condition based on a similar event that occurred in 2016. We will be withdrawing that proposal because this new action represents a more comprehensive corrective action plan than previously proposed.

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 initial and repetitive USIs or ECIs 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 because certain fan blades must be inspected, and, if needed, replaced before further flight. Failure to inspect and replace these parts within the required compliance times could lead to failure of the fan blades, engine IFSD, uncontained release of debris, damage to the airplane, and possible airplane decompression. 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-2018-0380 and Product Identifier 2018-NE-14-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 3,716 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
Inspect engine fan blade	2 work-hours × \$85 per hour = \$170	\$0	\$170	\$631,720

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements:

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Replace fan blade	1 work-hour × \$85 per hour = \$85	\$8,500	\$8,585

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/
www.gpoaccess.gov/fr/advanced.html

2018-09-10 CFM International S.A.: Amendment 39-19267; Docket No. FAA-2018-0380; Product Identifier 2018-NE-14-AD.

(a) Effective Date

This AD is effective May 14, 2018.

(b) Affected ADs

None.

(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 a recent engine failure due to a fan blade fracture that resulted in the engine inlet cowl disintegrating and debris penetrating the fuselage, causing a loss of pressurization, and prompting an emergency descent. We are issuing this AD 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) Perform an initial inspection on each fan blade before the fan blade accumulates 20,000 cycles since new, or within 113 days from the effective date of this AD, whichever occurs later.

(ii) If cycles since new on a fan blade is unknown, perform an initial inspection within 113 days from the effective date of this AD.

(iii) Thereafter, repeat this inspection no later than 3,000 cycles since the last inspection.

(iv) Use the Accomplishment Instructions, paragraphs 3.A.(3)(a) through (i), of CFM Service Bulletin (SB) CFM56-7B S/B 72-1033, dated April 20, 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, 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 within the last 300 cycles 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

(1) You may take credit for the USI required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using CFM SB CFM56-7B S/B 72-1019, dated March 24, 2017; or Revision 1, dated June 13, 2017; or CFM SB CFM56-7B S/B 72-1024, dated July 26, 2017; or General Electric Field Support Technology procedure 2370, dated December 9, 2016.

(2) You may take credit for the ECI required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using the instructions in subtask 72-21-01-220-091, of task 72-21-01-200-001, from CFM56-7B Engine Shop Manual, 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.

(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.

(i) CFM International, S.A. (CFM) Service Bulletin CFM56-7B S/B 72-1033, dated April 20, 2018.

(ii) 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.

(3) 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.

(4) You may view this service information at the FAA, Engine and Propeller Standards Branch, Policy and Innovation Division, 1200 District Avenue, Burlington, MA. 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, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Burlington, Massachusetts, on April 27, 2018.

Robert J. Ganley,
Manager, Engine & Propeller Standards Branch,
Aircraft Certification Service.