

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-1353; Directorate Identifier 2008-NE-46-AD; Amendment 39-16279; AD 2010-09-14]

RIN 2120-AA64

Airworthiness Directives; CFM International, S.A. CFM56-5B1/P, -5B2/P, -5B3/P, -5B3/P1, -5B4/P, -5B5/P, -5B6/P, -5B7/P, -5B8/P, -5B9/P, -5B1/2P, -5B2/2P, -5B3/2P, -5B3/2P1, -5B4/2P, -5B4/P1, -5B6/2P, -5B4/2P1, and -5B9/2P Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for CFM International, S.A. CFM56-5B series turbofan engines. That AD requires reviewing exhaust gas temperature (EGT) monitoring records to determine EGT margin deterioration, and for airplanes where both engines have greater than 80 °centigrade (C) of EGT margin deterioration, borescope-inspecting the high-pressure compressor (HPC) of both engines. That AD also requires removing from service any engine that does not pass the borescope inspection and, if both engines pass, replacing one of the engines with an engine that has 80 °C or less of EGT margin deterioration. That AD also requires continuous monitoring of EGT margin deterioration on engines in service to prevent two engines on an airplane from having greater than 80 °C of EGT margin deterioration. This AD:

- Reduces the number of engine models affected;
- Continues to monitor EGT margin deterioration;
- Lowers the EGT margin threshold from 80 °C to 75 °C;
- Removes FADEC software version 5.B.Q and earlier versions from the engine as mandatory terminating action to the continuous EGT margin deterioration monitoring, for certain engine models;
- Removes the requirement to borescope inspect; and
- Removes the requirement to replace one of the engines with an engine that has 80 °C or less deterioration of EGT margin as a corrective action.

This AD results from a reduction of the affected engine models listed in AD 2009-01-01 from 25 to 19, a reduction in the engine EGT margin deterioration threshold from 80 °C to 75 °C, the introduction of terminating action to the continuous EGT monitoring for certain engines, and a change to the removal plan for the remaining engines if the EGT margin deterioration is greater than

75 °C. We are issuing this AD to prevent HPC stalls, which could prevent continued safe flight or landing.

DATES: This AD becomes effective June 8, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of June 8, 2010.

ADDRESSES: You can get the service information identified in this AD from CFM International, S.A., Technical Customer Support, 1 Neumann Way, Cincinnati, OH 45215; telephone (513) 552-3272; fax (513) 552-3329, Web address <http://customer.geae.com>.

The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue, SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

FOR FURTHER INFORMATION CONTACT: Wayne Maguire, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: wayne.maguire@faa.gov; telephone (781) 238-7778; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 by superseding AD 2009-01-01, Amendment 39-15779 (73 FR 80296, December 31, 2008), with a proposed AD. The proposed AD applies to CFM International, S.A. CFM56-5B series turbofan engines. We published the proposed AD in the Federal Register on December 21, 2009 (74 FR 67834). That action proposed to require continuous monitoring of EGT margin deterioration, removing FADEC software version 5.B.Q and earlier versions from the engine as mandatory terminating action to the repetitive recalculating and EGT monitoring for certain engine models, and removing other certain engine models from service if the EGT margin deterioration is greater than 75 °C.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (telephone (800) 647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request To Clarify Engine Replacement Requirements

One commenter, CFM International, S.A., requests that we change the proposed AD to state, in part: "For airplanes where both engines indicate more than 75 °C EGT margin deterioration, within 150 CIS either remove one engine and replace it with an engine indicating less than 75 °C EGT margin."

We do not agree. When both installed engines have greater than 75 °C EGT margin deterioration, the proposed AD no longer allows replacing one of the engines with an engine that has 75 °C or less of EGT margin deterioration as a corrective action. We do not agree with the commenter's requested change, but we see an opportunity to clarify that the terminating action for

this AD for certain engine models, is to remove FADEC software version 5.B.Q and earlier. For other engine models, the corrective action is to remove those engines from service that have greater than 75 °C of EGT margin deterioration. We added this clarification to the Summary of this AD. We kept the same engine replacement requirements in this AD, as those in the proposed AD.

Request To Reference the Latest Version of Software

CFM International, S.A. requests that we reference the latest version of software to be installed, which is version 5.B.R.

We do not agree. We intentionally referenced the software versions needing to be removed but not the version to be installed, as that version could become superseded in the future. We did not change the AD.

Request To Correct the Service Information Reference

CFM International, S.A. requests that we correct the service information reference in paragraph (k) to read "CFM International, S.A. Alert Service Bulletin No. CFM56-5B S/B 72-A0722, Revision 1, dated March 20, 2009."

We agree. We changed the AD to reflect the new service information reference throughout the compliance section.

Request To Indent Sub-Paragraphs

CFM International, S.A. requests that we indent the proposed AD numbered sub-paragraphs, as this further distinguishes the unique terminating actions for each group of identified CFM56 engine models.

We do not agree. Rulemaking procedures require that we do not indent sub-paragraphs. We did not change the AD.

Request To Alleviate

Two private commenters request that the prohibition against using engine control software version 5.B.Q or earlier versions, be alleviated for the CFM56-5B/2P (dual annular combustor) family of engine models. One other commenter requests that we move the contents of paragraph (h) to paragraph (f). The commenters state that the currently available engine control software version for those engines is earlier than version 5.B.Q.

We partially agree. We clarified paragraph (h) to apply to only those engine models where terminating action includes engine control software. We also added a second prohibition paragraph to apply to only those engines listed in paragraph (g). However, we did not move the contents of paragraph (h) to paragraph (f).

Conclusion

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that this AD will affect 397 engines installed on airplanes of U.S. registry. We also estimate that it will take about one work-hour to install FADEC software. The average labor rate is

\$80 per work-hour. There are no required parts costs. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$31,760.

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.

Regulatory Findings

We have determined that 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); and
- (3) 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary at the address listed under ADDRESSES.

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 Federal Aviation Administration 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 removing Amendment 39-15779 (73 FR 80296, December 31, 2008) and by adding a new airworthiness directive, Amendment 39-16279, to read as follows:



2010-09-14 CFM International, S.A.: Amendment 39-16279. Docket No. FAA-2008-1353; Directorate Identifier 2008-NE-46-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective June 8, 2010.

Affected ADs

- (b) This AD supersedes AD 2009-01-01, Amendment 39-15779.

Applicability

(c) This AD applies to CFM International, S.A. CFM56-5B1/P, -5B2/P, -5B3/P, -5B3/P1, -5B4/P, -5B5/P, -5B6/P, -5B7/P, -5B8/P, -5B9/P, -5B1/2P, -5B2/2P, -5B3/2P, -5B3/2P1, -5B4/2P, -5B4/P1, -5B6/2P, -5B4/2P1, and -5B9/2P turbofan engines. These engines are installed on, but not limited to, Airbus A318, A319, A320, and A321 series airplanes.

Unsafe Condition

(d) This AD results from a reduction of the affected engine models listed in AD 2009-01-01 from 25 to 19, a reduction in the engine exhaust gas temperature (EGT) margin deterioration threshold from 80 °C to 75 °C, the introduction of terminating action to the continuous EGT monitoring for certain engines, and a change to the removal plan for the remaining engines if the EGT margin deterioration is greater than 75 °C. We are issuing this AD to prevent high-pressure compressor stalls, which could prevent continued safe flight or landing.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

(f) On the effective date of this AD, and at any time after the effective date of this AD, for CFM International, S.A. CFM56-5B1/P, -5B2/P, -5B3/P, -5B3/P1, -5B4/P, -5B4/P1, -5B5/P, -5B6/P, -5B7/P, -5B8/P and -5B9/P turbofan engines:

(1) Monitor and calculate engine EGT margin deterioration. Use paragraphs 3.A.(2) and 3.A.(3) of the Accomplishment Instructions and Appendix A of CFM International, S.A. Alert Service Bulletin (ASB) No. CFM56-5B S/B 72-A0722, Revision 1, dated March 20, 2009, to do the monitoring and calculating.

(2) As mandatory terminating action to the repetitive recalculating and monitoring of EGT margin deterioration, remove FADEC software version 5.B.Q and earlier versions from engines that have greater than 75 °C of EGT margin deterioration within 150 additional cycles-in-service (CIS).

(3) As mandatory terminating action to the repetitive recalculating and monitoring of EGT margin deterioration, remove FADEC software version 5.B.Q and earlier versions from engines that have less than or equal to 75 °C of EGT margin deterioration within 900 additional CIS.

(g) On the effective date of this AD, and at any time after the effective date of this AD, for CFM International, S.A. CFM56-5B1/2P, -5B2/2P, -5B3/2P, -5B3/2P1, -5B4/2P, -5B4/2P1, -5B6/2P and -5B9/2P turbofan engines:

(1) Monitor and calculate engine EGT margin deterioration. Use paragraphs 3.A.(2) and 3.A.(3) of the Accomplishment Instructions and Appendix A of CFM International, S.A. ASB No. CFM56-5B S/B 72-A0722, Revision 1, dated March 20, 2009, to do the monitoring and calculating.

(2) Remove engines from service that have greater than 75 °C of EGT margin deterioration within 150 additional CIS.

Installation Prohibitions

(h) For engines listed in paragraph (f) of this AD, after the effective date of this AD, do not install FADEC software version 5.B.Q or any earlier software versions.

(i) For engines listed in paragraph (g) of this AD, after the effective date of this AD, do not install an engine that has greater than 75 °C of EGT margin deterioration.

Interim Actions

(j) These actions are interim actions and we anticipate further rulemaking actions in the future, including further action to address the remaining engines in service that are above 75 °C deterioration of EGT margin.

Alternative Methods of Compliance (AMOCs)

(k) The Manager, Engine Certification Office, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

Related Information

(l) Refer to European Aviation Safety Agency Airworthiness Directive 2009-0088, Revision 1, dated April 28, 2009, for related information.

(m) Contact Wayne Maguire, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; e-mail: wayne.maguire@faa.gov; telephone (781) 238-7778; fax (781) 238-7199, for more information about this AD.

Material Incorporated by Reference

(n) You must use CFM International, S. A. Alert Service Bulletin No. CFM56-5B S/B 72-A0722, Revision 1, dated March 20, 2009, to perform the EGT calculating and monitoring required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact CFM International, S.A., Technical Customer Support, 1 Neumann Way, Cincinnati, OH 45215; telephone (513) 552-3272; fax (513) 552-3329, Web address <http://customer.geae.com>, for a copy of this service information. You may review copies at the FAA, New England Region, 12 New England Executive Park, Burlington, MA; or 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 23, 2010.
Peter A. White,
Assistant Manager, Engine and Propeller Directorate,
Aircraft Certification Service.