



適航指令發布單

Airworthiness Directive Issuance Form

民航局 AD 編號 AD number	CAA-2019-06-010	發布日期 Date issued	2019/6/25
適用之航空產品 Applied to (models, serial numbers or part numbers, as applicable)	<p>This AD applies to: (1) CFM International S.A. (CFM) CFM56-5B1, -5B2, -5B4, -5B5, -5B6, -5B7, -5B1/P, -5B2/P, -5B3/P, -5B4/P, -5B5/P, -5B6/P, -5B7/P, -5B8/P, -5B9/P, -5B3/P1, -5B4/P1, -5B1/2P, -5B2/2P, -5B3/2P, -5B4/2P, -5B6/2P, -5B9/2P, -5B3/2P1, -5B4/2P1, -7B20, -7B22, -7B24, -7B26, -7B27, -7B22/B1, -7B24/B1, -7B26/B1, -7B26/B2, -7B27/B1, -7B27/B3, -7B20/2, -7B22/2, -7B24/2, -7B26/2, -7B27/2, -7B27A model turbofan engines with a: (i) rotating air high-pressure turbine (HPT) front seal: (A) with part number (P/N) 1795M36P01 or P/N 1795M36P02 and serial numbers (S/Ns) GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed; (B) that has been removed from the original HPT disk and re-assembled to a different HPT disk; and (C) that has 6,001 or more cycles since being reconfigured. (ii) [Reserved]</p> <p>(2) CFM CFM56-5C2, -5C2/4, -5C2/F, -5C2/F4, -5C2/G, -5C2/G4, -5C2/P, -5C3/F, -5C3/F4, -5C3/G, -5C3/G4, -5C3/P, -5C4, -5C4/1, -5C4/P, -5C4/1P model turbofan engines with a: (i) rotating air HPT front seal: (A) with P/N 1795M36P01 or P/N 1795M36P02 and S/Ns GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed; (B) that has been removed from the original HPT disk and re-assembled to a different HPT disk; and (C) that has 3,751 or more cycles since being reconfigured.</p>		
主旨摘要	This AD requires replacement of the affected rotating air HPT front seal because of cracks has been found.		
民航局 CAA <input type="checkbox"/> 本國產品 Native products <input type="checkbox"/> 其他個案 Other	設計國民航主管機構 Original Authorities <input checked="" type="checkbox"/> FAA <input type="checkbox"/> EASA <input type="checkbox"/> Brazil <input type="checkbox"/> Transport Canada Civil Aviation <input type="checkbox"/> DGAC <input type="checkbox"/> Germany LBA <input type="checkbox"/> CAA-NL <input type="checkbox"/> UK CAA <input type="checkbox"/> Japan CAB <input type="checkbox"/> CAA of Israel <input type="checkbox"/> Other _____		
	設計國 AD 編號 Original AD number	2019-12-05	

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[Rules and Regulations]

[Pages 28717-28719]

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0212; Product Identifier 2019-NE-05-AD; Amendment 39-19660; AD 2019-12-05]

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 adopting a new airworthiness directive (AD) for certain CFM International S.A. (CFM) CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines with a certain rotating air high-pressure turbine (HPT) front seal. This AD requires replacement of the affected rotating air HPT front seal with a part eligible for installation. This AD was prompted by cracks found in the rotating air HPT front seal. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective July 5, 2019.

The FAA must receive comments on this AD by August 5, 2019.

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-2019-0212.

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-2019-0212; 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 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 received reports that cracks were found in the rotating air HPT front seal on CFM56-5B model turbofan engines during a scheduled shop visit. After further analysis, CFM determined that when a single rotating air HPT front seal is mated to more than one HPT disk some seals develop microcracks. These cracks resulted from variations in the geometry of the parts being mated.

This AD pertains to the highest risk engines and therefore addresses certain CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines with an affected rotating air HPT front seal that has a specified number of cycles since being reconfigured. The FAA expects to propose future rulemaking for additional CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines with this same rotating air HPT front seal that have fewer cycles since being reconfigured. These engines have the same unsafe condition as the engines affected by this AD but represent a lower safety risk due to the lower number of cycles since being reconfigured on the affected rotating air HPT front seal.

This condition, if not addressed, could result in the uncontained release of the rotating air HPT front seal, damage to the engine, and damage to the airplane. The FAA is issuing this AD to address the unsafe condition on these products.

Related Service Information

The FAA reviewed CFM Service Bulletin (SB) CFM56-5B S/B 72-1074, Revision 01, dated December 5, 2018; CFM SB CFM56-5C S/B 72-0794, Revision 01, dated January 2, 2019; and CFM SB CFM56-7B S/B 72-1042, Revision 01, dated January 2, 2019. CFM SB CFM56-5B S/B 72-1074, Revision 01, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-5B turbofan engines. CFM SB CFM56-5C S/B 72-0794, Revision 01, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-5C turbofan engines. CFM SB CFM56-7B S/B 72-1042, Revision 01, describes procedures for replacement of the affected rotating air HPT front seal on CFM CFM56-7B turbofan engines.

FAA's Determination

The FAA is issuing this AD because it 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 replacement of the affected rotating air HPT front seal with a part eligible for installation.

FAA's Justification and Determination of the Effective Date

No domestic operators use the affected higher risk CFM CFM56-5B, CFM56-5C, and CFM56-7B model turbofan engines. Therefore, the FAA finds good cause that notice and opportunity for prior public comment are impracticable. In addition, for the reason stated above, 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 was not preceded by notice and an opportunity for public comment. However, the FAA 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-2019-0212 and Product Identifier 2019-NE-05-AD at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this final rule. The FAA 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 received, 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 received about this final rule.

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 the FAA has determined that it has good cause to adopt this rule without notice and comment, RFA analysis is not required.

Costs of Compliance

The FAA estimates that this AD affects no 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
Replace the rotating air HPT front seal	1 work-hour × \$85 per hour = \$85	\$344,600	\$344,685	\$0

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, 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, 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.

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):



2019-12-05 CFM International S.A.: Amendment 39-19660; Docket No. FAA-2019-0212; Product Identifier 2019-NE-05-AD.

(a) Effective Date

This AD is effective July 5, 2019.

(b) Affected ADs

None.

(c) Applicability

This AD applies to:

(1) CFM International S.A. (CFM) CFM56-5B1, -5B2, -5B4, -5B5, -5B6, -5B7, -5B1/P, -5B2/P, -5B3/P, -5B4/P, -5B5/P, -5B6/P, -5B7/P, -5B8/P, -5B9/P, -5B3/P1, -5B4/P1, -5B1/2P, -5B2/2P, -5B3/2P, -5B4/2P, -5B6/2P, -5B9/2P, -5B3/2P1, -5B4/2P1, -7B20, -7B22, -7B24, -7B26, -7B27, -7B22/B1, -7B24/B1, -7B26/B1, -7B26/B2, -7B27/B1, -7B27/B3, -7B20/2, -7B22/2, -7B24/2, -7B26/2, -7B27/2, -7B27A model turbofan engines with a:

(i) rotating air high-pressure turbine (HPT) front seal:

(A) with part number (P/N) 1795M36P01 or P/N 1795M36P02 and serial numbers (S/Ns) GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed;

(B) that has been removed from the original HPT disk and re-assembled to a different HPT disk; and

(C) that has 6,001 or more cycles since being reconfigured.

(ii) [Reserved]

(2) CFM CFM56-5C2, -5C2/4, -5C2/F, -5C2/F4, -5C2/G, -5C2/G4, -5C2/P, -5C3/F, -5C3/F4, -5C3/G, -5C3/G4, -5C3/P, -5C4, -5C4/1, -5C4/P, -5C4/1P model turbofan engines with a:

(i) rotating air HPT front seal:

(A) with P/N 1795M36P01 or P/N 1795M36P02 and S/Ns GWNDN949 through GWNSE969 or S/Ns GWN000CE through GWN0990L, not including S/Ns GWN08ND7, GWN0923A, GWN0971E, GWN098A1, GWN098W6, GWN098W8, GWN098WA, and GWN0990G, installed;

(B) that has been removed from the original HPT disk and re-assembled to a different HPT disk; and

(C) that has 3,751 or more cycles since being reconfigured.

(ii) [Reserved]

(d) Subject

Joint Aircraft System Component (JASC) Code 7250, Turbine Section.

(e) Unsafe Condition

This AD was prompted by cracks found in the rotating air HPT front seal. The FAA is issuing this AD to prevent failure of the rotating air HPT front seal. The unsafe condition, if not addressed, could result in the uncontained release of the rotating air HPT front seal, damage to the engine, and damage to the airplane.

(f) Compliance

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

(g) Required Actions

(1) For all affected CFM CFM56-5B and CFM56-7B model turbofan engines:

(i) If, on the effective date of this AD, the rotating air HPT front seal has 7,000 cycles or greater since being reconfigured, remove the part from service within 50 cycles after the effective date of this AD and replace with a part eligible for installation.

(ii) If, on the effective date of this AD, the rotating air HPT front seal has between 6,001 and 6,999 cycles, inclusive, since being reconfigured, remove the part from service within 500 cycles after the effective date of this AD, but not to exceed 7,050 cycles since being reconfigured, and replace with a part eligible for installation.

(2) For all affected CFM CFM56-5C model turbofan engines:

(i) If, on the effective date of this AD, the rotating air HPT front seal has 4,250 cycles or greater since being reconfigured, remove the part from service within 25 cycles after the effective date of this AD, or within 1,500 cycles since the last fluorescent penetrant inspection (FPI) of the rotating air HPT front seal, whichever occurs later, and replace with a part eligible for installation.

(ii) If, on the effective date of this AD, the rotating air HPT front seal has between 3,751 and 4,249 cycles, inclusive, since being reconfigured, remove the part from service within 250 cycles after the effective date of this AD, before accumulating 4,275 cycles since being reconfigured, or within 1,500 cycles since the last FPI of the rotating air HPT front seal, whichever occurs later, and replace with a part eligible for installation.

(h) Definition

For the purpose of this AD, reconfigured is when a rotating air HPT front seal has been removed from the original HPT disk and re-assembled to a different HPT disk.

(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 June 14, 2019.
Karen M. Grant,
Acting Manager, Engine and Propeller Standards Branch,
Aircraft Certification Service.

	<p>1. 直接採用原 AD 之內容?(Is the original AD directly adopted?) <input checked="" type="checkbox"/>是(Yes) <input type="checkbox"/>否(No) _</p> <p>a. 生效日期另訂為(Re-specify the effective date as) : _____</p> <p>b. 執行時限另訂為(Re-specify the compliance time or period as) : _____</p> <p>2. 使用人是否需要將 AD 執行結果向民航局提出報告?(Do Users need to report the status of compliance to the CAA?) <input type="checkbox"/>是(Yes) <input checked="" type="checkbox"/>否(No)</p>
<p>備註 Note</p>	<p>None.</p>
<p>註： 1. AD 內容後附。 2. 航空器產品使用人得向民航局提出豁免、替代符合方法、執行時限之展延之申請。 3. 如有任何問題，請聯絡交通部民用航空局初始適航科。Tel：(02)2349-6331~3, Fax：(02)2545-8464, e-mail： adcaa@mail.caa.gov.tw</p> <p>Note： 1. The AD text is enclosed. 2. Exemption, an alternative method of compliance or adjustment of the compliance time may be proposed to the CAA for approval. 3. For further information, please contact Civil Aeronautics Administration on Tel:(02)2349-6331~3, Fax:(02)2545-8464, e-mail： adcaa@mail.caa.gov.tw</p>	