



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-1114; Directorate Identifier 2012-NE-21-AD; Amendment 39-17511; AD 2013-14-06]**

**RIN 2120-AA64**

**Airworthiness Directives; CFM International, S. A. Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain CFM International, S. A. (CFM) model CFM56-5 and CFM56-5B series turbofan engines. This AD was prompted by corrosion of the delta-P valve in the hydro-mechanical unit (HMU) fuel control caused by exposure to type TS-1 fuel. This AD requires cleaning, inspection, and repair of affected HMUs. We are issuing this AD to prevent seizure of the HMU, leading to failure of one or more engines and damage to the airplane.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** 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 service information identified in this AD, contact CFM International Inc., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; International phone: 513-552-3272; USA phone: 877-432-3272; International fax:

513-552-3329; USA fax: 877-432-3329; email: [geae.aoc@ge.com](mailto:geae.aoc@ge.com); or CFM International SA, Customer Support Center, International phone: 33 1 64 14 88 66; fax: 33 1 64 79 85 55; email: [snecma.csc@snecma.fr](mailto:snecma.csc@snecma.fr). You may view this service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility 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 address for the Docket Office (phone: 800-647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Martin Adler, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7157; fax: 781-238-7199; email: [martin.adler@faa.gov](mailto:martin.adler@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. The NPRM was published in the Federal Register on January 14, 2013 (78 FR 2644). The NPRM proposed to require cleaning, inspection, and repair of the affected HMUs.

#### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment.

### **Agreement with the Proposed AD**

American Airlines supports the NPRM (78 FR 2644, January 14, 2013) and does not foresee being impacted by this AD now or in the future.

### **Request to Include Minimum Threshold for TS-1 Fuel Usage**

Seven commenters requested that the NPRM (78 FR 2644, January 14, 2013) be modified to include a minimum threshold for TS-1 fuel usage similar to the service bulletins (SBs). The reason for this request is that the NPRM differs from the service information. The data does not support the more restrictive applicability called for by the NPRM. The European Aviation Safety Agency (EASA) AD 2012-0123, dated July 9, 2012, is less restrictive as well. There have been no events since implementation of the EASA AD and since the latest versions of the CFM SBs. Several carriers questioned whether the data supports having no threshold and if in-flight shutdown events truly apply to the worldwide fleet.

We partially agree with including a minimum usage threshold. We have no technical objections to the usage threshold utilized in the CFM SBs. However, since there are no U.S. operators using TS-1 fuel, there is no benefit to increasing the complexity of the AD. We did not change the AD.

### **Request to Reduce Applicability to Match EASA AD**

Five commenters requested that the NPRM (78 FR 2644, January 14, 2013) be modified to reduce the applicability to match the EASA AD. The reason for this request is that the data does not support the more restrictive applicability called for by the NPRM. The EASA AD applicability is less restrictive. There have been no events since implementation of the EASA AD and the latest versions of the CFM SBs.

We do not agree. No U.S. operators use TS-1 fuel. Therefore, there is no benefit to increasing the complexity of the AD. We did not change the AD.

### **Request to Eliminate TS-1 Fuel Usage Recording**

Five air carriers requested that the NPRM (78 FR 2644, January 14, 2013) be modified to eliminate TS-1 fuel usage recording. The reason for this request is that the additional record keeping will add cost and complexity. This will be a burden to the operators.

We do not agree. TS-1 fuel usage records are required for enforcement of the AD. In addition, many operators already track fuel usage for business purposes. The creation and retention of TS-1 fuel records required by this AD is not considered an undue burden. We did not change the AD.

### **Request to Delay Issuance of AD**

CFM and Airbus requested that we delay issuing the AD until mid-2013. The reason for this request is that CFM is conducting additional testing and analysis to further validate the usage threshold called out in the SBs.

We do not agree. We have no technical objections to the usage threshold utilized in the CFM SBs. However, since there are no U.S. operators using TS-1 fuel, there is no benefit to increasing the complexity of the AD. We did not change the AD.

### **Request Clarification of Differences Between NPRM and EASA AD**

Lufthansa Technik noted that there are significant differences between the NPRM (78 FR 2644, January 14, 2013) and the EASA AD. Lufthansa Technik questioned whether the agencies have differing opinions of the technical issue.

We do not agree. The technical understanding of the issue is consistent, but differences in procedure and policy result in the differences between the NPRM (78 FR 2644, January 14, 2013) and the EASA AD.

### **Request to Define Parameters for Recording TS-1 Fuel Usage**

Lufthansa Technik pointed out that the specific parameters to record TS-1 fuel usage are not well defined and asked if it is the intention to track fuel volume or the

number of fuel uploads. The reason for this request is to clarify units to be measured for TS-1 fuel usage.

We do not agree. The actions are required regardless of the amount of TS-1 exposure. The intent is to track if an HMU has been exposed to TS-1 fuel. We did not change the AD.

#### **Request to Allow Earlier Versions of the SB to be Used**

Lufthansa Technik and Virgin America Airlines requested that use of earlier revisions of the SBs be allowed. Earlier revisions of the SB allow cleaning or replacement of the delta-P valve. The latest revisions only allow replacement of the delta-P valve. Cleaning has proven effective at eliminating the issue, so replacement in all cases is not required. Also, the general inspection procedure has not changed from the initial release of the SBs to the one called out by the AD.

We agree. Cleaning of the HMU delta-P valve is effective at mitigating the risk of this issue and should be allowed. We changed this AD to reference the following service information to do the inspection: paragraph 3.A(2) of CFM SB CFM56-5 S/B 73-0182, Revision 6, dated March 8, 2012; or CFM SB CFM56-5B S/B 73-0122, Revision 8, dated March 8, 2012.

#### **Request to Clarify Reporting Requirements**

TAP Portugal asks if the AD includes a usage threshold calculation, would time spent in storage be discounted from the calculation? The reason for this request is to seek clarification on threshold calculation.

We do not agree. The AD does not include a usage threshold. We did not change the AD.

### **Request Change to Applicability**

TAP Portugal requested that the AD also apply to the CFM56-5C engine. The reason for this request is that there are many interchangeable parts between CFM56-5C and the affected engines.

We do not agree. The data received for HMU corrosion and subsequent engine shutdown have all come from CFM56-5A and CFM56-5B engines, which are used on a different family of airplanes than CFM56-5C. At this time, there is insufficient data to support adding the CFM56-5C to the Applicability paragraph. We did not change the AD.

### **Request Clarification for the Definition of Overhaul**

Air France requested that we clarify the definition of overhaul. HMU overhaul is defined in the Component Maintenance Manual as specific maintenance which may or may not align with the maintenance required by this AD. This could cause conflicts and confusion when attempting to comply with the AD.

We agree. The intent of the AD when referring to overhaul is anytime the HMU delta-P valve is inspected, cleaned, or replaced. We added the following definition to the AD: "For the purposes of this AD, overhaul is defined as HMU maintenance, which includes inspection, cleaning, or replacement of the HMU delta-P valve."

### **Request Increase in Compliance Time**

Rossiia Airlines requested an increase in initial compliance time for an HMU with more than 8,000 hours to be 24 months or 4,200 hours. The utilization rate of Rossiia Airlines is above 3,800 hours per year. The current compliance equates to less than one year in which to fully comply with the AD. The reason for this request is that the number of spare and rotatable engines does not support the compliance time rate requirement.

We partially agree with increasing the initial compliance time. The intent of the initial compliance time was to allow sufficient time for all of the high-time impacted HMUs to be replaced. The 2,000-hour allowance did not take into account the high-time utilization rates of some operators. The initial inspection compliance times are revised to allow up to 4,000 hours from the effective date of the AD. We disagree with increasing the initial inspection compliance times to 4,200 hours because that does not mitigate the unsafe condition.

#### **Request to Delete Initial Cleaning Requirement**

Lufthansa Technik noted that the lack of records for prior TS-1 fuel usage will make determination of usage extremely difficult. In addition, this determination will need to be made for all engines and HMUs worldwide. The reason for this request is that lease components, lease engines, and component pools transferred between operators might have exposed an HMU to TS-1 fuel. The exposed HMU might then get transferred to a region where TS-1 fuel is not used, such as the United States.

We do not agree. An initial inspection of the HMU is required unless it can be shown that the HMU has never been exposed to TS-1 fuel. We did not change the AD.

#### **Request for Consideration of Costs to Worldwide Fleet**

Air France requested that we include consideration for the costs to the worldwide fleet. The NPRM (78 FR 2644, January 14, 2013) stated that there is no impact to U.S. operators; however, European operators would be impacted. The reason for this request is to expand cost considerations to include the worldwide fleet.

We do not agree. The AD only applies to U.S.-registered aircraft. Foreign operators must comply with the regulations of their local authority. The cost considerations listed in the AD reflect the impact to U.S. operators only. We did not change the AD.

## **Conclusion**

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

## **Costs of Compliance**

We estimate that this AD will not affect any products of U.S. registry. Based on these figures, we estimate this AD to have no cost impact to U.S. operators.

## **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**

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 to the extent that it justifies making a regulatory distinction, 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):

**2013-14-06 CFM International, S. A.:** Amendment 39-17511; Docket No. FAA-2012-1114; Directorate Identifier 2012-NE-21-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to CFM International S.A. (CFM) model CFM56-5 and CFM56-5B series turbofan engines with any of the hydro-mechanical unit (HMU) fuel control part numbers (P/Ns) in paragraphs (c)(1) and (c)(2) of this AD, installed:

(1) CFM56-5: CFM P/Ns 1348M79P02; 1348M79P03; 1348M79P04; 1348M79P06; 1348M79P07; 1348M79P08; 1348M79P09; 1348M79P10; 1348M79P11; 1348M79P12; 1348M79P13; and 1348M79P14.

(2) CFM56-5B: CFM P/Ns: 1348M79P08; 1348M79P09; 1348M79P10; 1348M79P11; 1348M79P12; 1348M79P13; and 1348M79P14.

**(d) Unsafe Condition**

This AD was prompted by corrosion of the delta-P valve in the HMU fuel control caused by exposure to type TS-1 fuel. We are issuing this AD to prevent seizure of the HMU, leading to failure of one or more engines, and damage to the airplane.

**(e) Compliance**

Unless already done, do the following:

**(f) Record Type TS-1 Fuel Usage**

- (1) From the effective date of this AD, record all TS-1 fuel usage.
- (2) If the HMU never uses TS-1 fuel, no further action is required.

**(g) Initial Inspection**

If the HMU has operated on TS-1 fuel, inspect the HMU for corrosion as follows:

(1) For an HMU that has operated for fewer than 6,000 hours since new (HSN) or hours since last overhaul, inspect the HMU before 10,000 HSN or hours since last overhaul, whichever comes later.

(2) For an HMU that has operated for 6,000 or more HSN or hours since last overhaul, inspect the HMU within 24 months or 4,000 hours after the effective date of this AD, whichever comes first.

(3) Use paragraph 3.A(2) of CFM Service Bulletin (SB) No. CFM56-5 S/B 73-0182, Revision 6, dated March 8, 2012, or CFM SB No. CFM56-5B S/B 73-0122, Revision 8, dated March 8, 2012, to do the inspection.

**(h) Repetitive Inspections**

Repeat the inspection required in paragraph (g)(3) of this AD before 10,000 hours since last overhaul if, after last overhaul, the HMU is exposed to TS-1 fuel.

**(i) Credit for Previous Actions**

If the HMU has not been exposed to TS-1 fuel since the last overhaul, then the initial inspection in paragraph (g) of this AD is not required.

**(j) Definitions**

For the purposes of this AD, overhaul is defined as HMU maintenance, which includes inspection, cleaning, or replacement of the HMU delta-P valve.

**(k) Paperwork Reduction Act Burden Statement**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

**(l) Alternative Methods of Compliance (AMOCs)**

The Manager, Engine Certification Office, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

**(m) Related Information**

(1) For more information about this AD, contact Martin Adler, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7157; fax: 781-238-7199; email: [martin.adler@faa.gov](mailto:martin.adler@faa.gov).

(2) Refer to European Aviation Safety Agency, AD 2012-0123, dated July 9, 2012, for more information. You may examine this AD on the Internet at <http://www.regulations.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 International, S. A. (CFM) Service Bulletin No. CFM56-5 S/B 73-0182, Revision 6, dated March 8, 2012.

(ii) CFM Service Bulletin No. CFM56-5B S/B 73-0122, Revision 8, dated March 8, 2012.

(3) For CFM International, S. A. service information identified in this AD, contact CFM International Inc., Aviation Operations Center, 1 Neumann Way, M/D Room 285, Cincinnati, OH 45125; International phone: 513-552-3272; USA phone: 877-432-3272; International fax: 513-552-3329; USA fax: 877-432-3329; email: [geae.aoc@ge.com](mailto:geae.aoc@ge.com); or

CFM International SA, Customer Support Center, International phone: 33 1 64 14 88 66;  
International fax: 33 1 64 79 85 55; email: [snecma.csc@snecma.fr](mailto:snecma.csc@snecma.fr).

(4) You may view this service information at FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(5) You may view this service information 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 July 9, 2013.

Robert J. Ganley,  
Acting Assistant Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.

[FR Doc. 2013-17296 Filed 07/29/2013 at 8:45 am; Publication Date: 07/30/2013]