

Airworthiness Directive

Federal Register Information

Header Information

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [61 FR 68570 NO. 251 12/30/96]

[Docket No. 95-ANE-47; Amendment 39-9854; AD 96-25-11]

RIN 2120-AA64

Airworthiness Directives; CFM International Model CFM56-3C-1 and CFM56-3B-2
Turbofan Engines

PDF Copy (If Available):

Preamble Information

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to all CFM International (CFMI) CFM56-3C-1 and certain CFM56-3B-2 engines, that currently requires the removal from service of certain fan disk and fan blade hardware, and limits the use of CFM56-3C-1 thrust levels. This amendment requires removal of additional fan blade hardware, requires an Airplane Flight Manual (AFM) revision to impose thrust level limitations for airplanes equipped with affected engines, and requires the installation of redesigned fan blades as a terminating action to the thrust level limitations of this AD. The existing AD requirements for certain CFM56-3B-2 engines are unchanged and carried over into this final rule AD. This amendment is prompted by the availability of redesigned fan blades that are not subject to the thrust level limitations, and the need to clarify the AD requirements by deleting references to specific AFMs. The actions specified by this AD are intended to prevent a fan blade failure that can result in complete loss of engine power.

DATES: Effective January 29, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of January 29, 1997.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing
Commercial Airplanes, Publications Department, P.O. Box 3707, Seattle, WA 98124-2207;

telephone (206) 544-9058, fax (206) 544-9178; and CFM International, Technical Publications Department, 1 Neumann Way, Cincinnati, OH 45215; telephone (513) 552-2981, fax (513) 552-2816. This information may be examined at the Federal Aviation Administration (FAA), New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA 01803-5299; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Glorianne Messemer, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (617) 238-7132, fax (617) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD **89-13-51**, Amendment 39-6425 (55 FR 1401, January 16, 1990), which is applicable to all CFM International (CFMI) CFM56-3C-1 and certain CFM56-3B-2 model turbofan engines, was published in the Federal Register on October 16, 1995 (60 FR 53550). That action proposed to require removal of additional fan blade hardware, thrust level limitations for airplanes equipped with affected engines, and the installation of redesigned fan blades as a terminating action to the thrust level limitations of this AD. The existing AD requirements for certain CFM56-3B-2 engines are unchanged and carried over into this final rule AD. The actions are required to be accomplished in accordance with Boeing Service Bulletin (SB) No. 737-71-1203, Revision 10, dated July 21, 1994, and CFMI CFM56-3/-3B/-3C SB No. 72-543, Revision 4, dated July 29, 1992.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

One commenter states that incorrect fan blade part numbers, 7M99P08, 9527M99P09, 9527M99P10, 9527M99P11, and 1285M39P01 were added to compliance paragraph (c). The FAA concurs and has revised this final rule accordingly.

Two comments support the rule as proposed.

Although no comments were received regarding the compliance end-date noted in compliance paragraph (c), the FAA has replaced June 30, 1996, with August 30, 1997, based on the anticipated effective date of this AD.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD. There are approximately 289 CFMI CFM56-3C-1 and CFM56-3B-2 series engines of the affected design in the worldwide fleet. The FAA has been advised by the manufacturer that there are no engines on U.S. registered aircraft that are affected by this AD. Therefore, there is no associated cost impact on U.S. operators as a result of this AD. The regulations adopted herein will not have substantial direct effects 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. For the reasons discussed above, I certify that this action (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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption

"ADDRESSES." List of Subjects in 14 CFR Part 39

Air Transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration 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 USC 106(g), 40113, 44701. §39.13 - [AMENDED]

2. Section 39.13 is amended by removing Amendment 39-6425 (55 FR 1401, January 16, 1990) and by adding a new airworthiness directive, Amendment 39-9854, to read as follows:

Regulatory Information

96-25-11 CFM International: Amendment 39-9854. Docket 95-ANE-47. Supersedes AD 89-13- 51, Amendment 39-6425.

Applicability: CFM International (CFMI) CFM56-3B-2 and CFM56-3C-1 model turbofan engines installed on but not limited to Boeing 737 series aircraft.

Note 1: This airworthiness directive (AD) applies to each engine identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For engines that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (g) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent fan blade failure that may result in complete loss of power, accomplish the following:

(a) For CFM56-3C-1 model turbofan engines:

(1) Prior to further flight, remove from service stage 1 fan disk Part Number (P/N) 335-014-511-0 that have operated at unrestricted CFM56-3C-1 thrust levels with fan blade P/N's 9527M99P08, 9527M99P09, 9527M99P10, 9527M99P11, or 1285M39P01 and replace with a serviceable fan disk.

(2) Prior to further flight, remove from service stage 1 fan blade P/N's 9527M99P08,

9527M99P09, 9527M99P10, 9527M99P11, and 1285M39P01 that have operated at unrestricted CFM56-3C-1 thrust levels and replace with a serviceable fan blade.

(b) For CFM56-3C-1 model turbofan engines equipped with fan blade P/N's 9527M99P08, 9527M99P09, 9527M99P10, 9527M99P11, or 1285M39P01:

(1) Prior to further flight, for aircraft that have not already complied with any of the revision levels 3 through 10 of Boeing Service Bulletin (SB) No. 737-71-1203, incorporate the provisions of Boeing SB No. 737-71-1203, Revision 10, dated July 21, 1994, as described in item III titled, "Accomplishment Instructions", part V, "Airplane Wiring Modification for Operation at 22,000 Pounds Thrust Levels with two CFM56-3C-1 Engines Installed."

(2) Prior to further flight, revise the engine limitations section of the Boeing 737-400 series Airplane Flight Manuals (AFM) by adding the operational restrictions contained in Appendix I. This may be accomplished by inserting a copy of Appendix I of this AD in the AFM.

(3) Operate engines at or below CFM56-3B-2 thrust levels, or in accordance with the limitations contained in Appendix I of this AD.

(c) For CFM56-3C-1 model turbofan engines equipped with fan blade P/N's 9527M99P08, 9527M99P09, 9527M99P10, 9527M99P11, or 1285M39P01, install fan blade P/N's 1590M21P01, 1663M24P01, 1663M24P02, 1663M24P03, 1663M24P04, or 1663M24P05 in accordance with CFMI CFM56-3/-3B/-3C SB No. 72-543, Revision 4, dated July 29, 1992, prior to August 30, 1997. The installation of new fan blades in accordance with this paragraph constitutes terminating action to the thrust level limitations required by paragraph (b) of this AD.

(d) For CFM56-3B-2 model turbofan engines, Serial Number (S/N) 725101, 725102, 725103, 725104, 725105, 725107, 725108, 725141, and 725142:

(1) Prior to further flight, remove from service stage 1 fan disk P/N 335-014-511-0 that have operated at unrestricted CFM56-3C-1 thrust levels with fan blade P/N's 9527M99P08, 9527M99P09, 9527M99P10, 9527M99P11, or 1285M39P01 and replace with a serviceable fan disk.

(2) Prior to further flight, remove from service stage 1 fan blade P/N's 9527M99P08, 9527M99P09, 9527M99P10, 9527M99P11, and 1285M39P01 that have operated at unrestricted CFM56-3C-1 thrust levels and replace with a serviceable fan blade.

Note 2: Ground running for maintenance purposes should be conducted in accordance with CFM56-3B-2 rating limitations.

(e) Fan disk removal, fan blade removal, and airplane wiring modifications done in accordance with AD [89-13-51](#) satisfies the corresponding requirements of paragraphs (a), (b), and (d) of this AD.

(f) For the purpose of this AD, unrestricted CFM56-3C-1 thrust levels include operation at either of the following:

(1) More than CFM56-3B-2 maximum take-off thrust above 5,000 feet pressure altitude.

(2) More than CFM56-3B-2 maximum continuous or maximum climb thrust above 10,000 feet pressure altitude.

(g) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Engine Certification Office. The request should be forwarded through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the

Manager, Engine Certification Office.

Note 3: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Engine Certification Office.

(h) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the aircraft to a location where the requirements of this AD can be accomplished.

(i) The actions required by this AD shall be done in accordance with the following SBs:

Document No.	Pages	Revision	Date
Boeing SB No. 737-71-1203	1-35	10	July 21, 1994
Total pages: 35.			
CFMI CFM56-3/-3B/-3C SB No. 72-543	1-26	4	July 29, 1992
Total pages: 26.			

This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplanes, Publications Department, P.O. Box 3707, Seattle, WA 98124-2207; telephone (206) 544- 9058, fax (206) 544-9178; and CFM International, Technical Publications Department, 1 Neumann Way, Cincinnati, OH 45215; telephone (513) 552-2981, fax (513) 552-2816. Copies may be inspected at the FAA, New England Region, Office of the Assistant Chief Counsel, 12 New England Executive Park, Burlington, MA; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(j) This amendment becomes effective on January 29, 1997.

APPENDIX I

Operational Restrictions Referenced in Paragraphs (b)(2) and (b)(3)

(a) Use of fan speed (N1) values for take-off and maximum continuous thrust levels at CFM56-3C-1 (23.5K) thrust levels are restricted.

(b) The following limitations must be observed for all CFM56-3C-1 (23.5K) operations:

(1) Airport pressure altitude must be 2,500 feet or less for take-off.

(2) The auto-throttle must be OFF and the thrust must be set manually for take-off.

(3) Both power management controls (PMCs) must be operative for airplane dispatch.

(4) Maximum take-off thrust for CFM56-3C-1 (23.5K) rating must not be used above 5,000 feet pressure altitude, or the 5 minute time limit, whichever occurs first.

(5) Maximum continuous or maximum climb thrust for CFM56-3C-1 (23.5K) rating must not be used above 10,000 feet pressure altitude.

(6) LANDING

(i) For landing at destination airport or for less than maximum landing weight the CFM56-3B-2 (22K) go-around rating should be used.

(ii) Go-around at CFM56-3C-1 (23.5K) rating should be used when returning to departure airport or diverting in an emergency situation providing airport pressure altitude is 2,500 feet or less and the landing weight is greater than maximum landing

weight.
End of Appendix I