

[4910-13-U]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [64 FR 17954 NO. 70 04/13/99]

[Docket No. 98-ANE-47-AD; Amendment 39-11118; AD 99-08-12]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney JT9D Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), that requires revisions to the Engine Time Limits section in the Engine Manual (EM) for Pratt & Whitney (PW) JT9D series turbofan engines to include required enhanced inspection of selected critical life-limited parts at each piece-part exposure. This amendment will also require an air carrier's approved continuous airworthiness maintenance program to incorporate these inspection procedures. This amendment is prompted by a Federal Aviation Administration (FAA) study of in-service events involving uncontained failures of critical rotating engine parts which indicated the need for improved inspections. The improved inspections are needed to identify those critical rotating parts with conditions, that if allowed to continue in service, could result in uncontained failures. The actions specified by this proposed AD are intended to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

DATES: Effective May 13, 1999.

ADDRESSES: The information referenced in this AD may be examined at the Federal Aviation Administration (FAA), New England Region, Office of the Regional 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.

FOR FURTHER INFORMATION CONTACT: Tara Goodman, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7130, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to Pratt & Whitney JT9D series turbofan engines was published in the Federal Register on July 28, 1998 (63 FR 40220). That action proposed to require revisions to the Engine Time Limits section in the Engine Manual (EM) for Pratt & Whitney JT9D series turbofan engines to include required enhanced inspection of selected critical life-limited

parts at each piece-part exposure. That action also proposed to require an air carrier's approved continuous airworthiness maintenance program to incorporate these inspection procedures.

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 notes that the JT9D manual used by the operator [part number (P/N) 770407] to maintain JT9D-7A and -7J engines is not included in paragraph (a), which lists the JT9D manuals which require revisions to the Engine Time Limits Section by P/N. The FAA concurs. Several engine manuals applicable to certain JT9D-7 models are customized for operators. Part numbers for these engine manuals were inadvertently omitted from the proposed rule. Corrections for the engine manual referenced by the commenter and for other engine manuals have been included in this AD.

Several commenters suggested that the tables used to specify those parts requiring mandatory inspections be given standardized formats and that the parts be identified by "all" rather than by specific part number. The FAA does not concur. FAA intentionally allowed each manufacturer to choose a format that fits their products manual. Identification of parts requiring mandatory inspections has been accomplished by either part number identification or use of the word "all". Part number identification was chosen by some manufacturers since the processes and procedures needed to conduct new inspections were not yet developed for all parts of a certain type, i.e., fan disks/hubs. FAA wants the manufacturers to have flexibility in managing how their manuals are structured within Air Transport Association code requirement and does not consider mandating matters of format appropriate.

Several commenters ask that the FAA clarify the record keeping aspects of the mandatory inspections resulting from the required changes to the Original Equipment Manufacturer's manual and operator's continuous airworthiness maintenance program. One commenter believes that paragraph (e) of the NPRM is unclear and suggests that it be revised by eliminating the word "or" from the first sentence and beginning a second sentence with "In lieu of the record..." Two commenters state that the AD should be revised to clearly specify which types of maintenance records must be retained (i.e., inspection results, defect reporting requirements, date of performed maintenance, signature of the person performing the maintenance). These commenters believe that these revisions are necessary in order to avoid potential differences in interpretation between the air carriers and the FAA. And, one commenter states that the AD should clarify that there is no need for a special form to comply with the AD record keeping requirements. The FAA concurs in part. Generally, record keeping requirements are addressed in other regulations and this AD does not change those requirements. In order to allow flexibility from operator to operator, the FAA does not concur that the AD itself specify the precise nature of the records that will result from the required changes to the manufacturer's manual and operator's maintenance program. The FAA has, however, revised Paragraph (e) of the final rule to clarify record keeping aspects of the new mandatory inspections.

One commenter requested that the FAA link the conduct of mandatory inspections with the subject part's removal from an engine either on-wing or in an overhaul shop. The FAA does not concur. Mandatory inspections are based on a single trigger, which is a part being completely disassembled per the engine manual instructions (piece-part opportunity), and are not dependent on an engine's state of installation. This AD mandates that the definition

of piece-part opportunity appear in the mandatory section of each affected engine manual. This AD further mandates that an operator's continuous airworthiness maintenance program be modified to capture those engine manual changes.

Several commenters suggest that the 100 cycle inservice inspection waiver provided in the piece-part opportunity definition was too low and could not be justified from a crack growth standpoint or that language be added to the requirements adding a minimum cycles in service threshold after which mandatory inspections would be applicable. The FAA does not concur. The 100 cycle waiver is intended to allow short term alleviation from mandatory inspections for a part recently inspected in accordance with the engine manual requirements. It was specifically aimed at disassembled parts removed from an engine following a test cell reject or some other occurrence that caused the parts removal shortly after successful completion of mandatory inspections. Waiver of mandatory inspections in this instance also requires that the part was not damaged or related to the cause for its removal from the engine. Mandatory inspections are also required on fully disassembled parts regardless of time-since-new (TSN). FAA is aware that cracks can be missed during part inspections and that each time a part is processed through an inspection line, the probability of detecting a crack is increased. Commonly used on-condition maintenance plans make it likely that a given part could be returned to service for thousands of cycles without the need for additional focused inspection. Recognizing two opposing aspects of part removal and inspection, i.e., a need for a brief exemption period following conduct of mandatory inspections and the benefits of increased frequency of inspection, FAA established the 100 cycle threshold. No consideration for crack growth time was given in the choice of this number nor was TSN considered as a possible reason for exempting parts from focused inspection. It is based strictly on keeping the frequency of mandatory inspection as high as practical and therefore increasing the probability of crack detection while providing a brief window of exemption from mandatory inspection if certain conditions are met. Therefore, the 100 cycle limit will remain in the compliance section of the AD and no exemption will be allowed for low TSN parts.

One commenter states that the mandatory manual chapters were modified to require new inspection requirements prior to issuance of the final rule AD and that FAA should provide written notification to Flight Standards Offices that the inspections proposed in the proposed rule are not mandatory until the establishment of an effectivity date in a published final rule AD. Some confusion between Operators, Manufacturers and Principal Maintenance Inspectors was created when the mandatory manual sections were modified prior to the release of a final rule AD. The FAA concurs in part. The manuals were modified prior to issuance of the final rule to minimize implementation delays from lengthy original equipment manufacturer EM revision cycles. FAA will attempt a higher level of coordination of timing the manual revisions so that the revisions follow final rule AD's in the future. However, to avoid additional confusion with the currently proposed changes, FAA will not issue written notice to the Flight Standards Offices.

No comments were received on the economic analysis contained in the proposed rules. Based on that analysis, the FAA has determined that the annual per engine cost of \$284 does not create a significant economic impact on small entities.

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 as proposed.

The regulations proposed herein would 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 proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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 copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air Transportation, Aircraft, Aviation safety, 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 U.S.C. 106(g), 40113, 44701.

Sec. 39.13 [Amended]

2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

REGULATORY SUPPORT DIVISION
P.O. BOX 26460
OKLAHOMA CITY, OKLAHOMA 73125-0460

U.S. Department
of Transportation
**Federal Aviation
Administration**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference FAR Subpart 39.3).

99-08-12 Pratt & Whitney: Amendment 39-11118. Docket 98-ANE-47-AD.

Applicability: Applicability: Pratt & Whitney (PW) JT9D-3A, -7, -7H, -7A, -7AH, -7F, -7J, -20J, -59A, -70A, -7Q, -7Q3, -7R4D, -7R4D1, -7R4E, -7R4E1, -7R4G2, -7R4H1, -and 7R4E4 series turbofan engines installed on but not limited to Boeing 747 and 767 series, McDonnell Douglas DC-10 series, and Airbus A300 and A310 series airplanes.

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 (c) 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 critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane, accomplish the following:

(a) Within the next 30 days after the effective date of this AD, revise the Engine Time Limits Section (TLS) of the manufacturer's Engine Manual (EM), JT9D Part Numbers 646028, 754459, 770407, 770408, 777210, 785059, 785058, 789328, as appropriate, and for air carrier operations revise the approved continuous airworthiness maintenance program, by adding the following:

"MANDATORY INSPECTIONS

(1) Perform inspections of the following parts at each piece-part opportunity in accordance with the instructions provided in the applicable manual provisions:

Part Nomenclature	Part Number (P/N)	Inspect per Manual Section	Part Inspection
Fan hub (Assy. P/N 648621)	648501	72-31-04	Inspection -02
Fan hub (Assy. P/N 665321)	648501	72-31-04	Inspection -02
Fan hub (Assy. P/N 665321,719127, 778621)	666101	72-31-04	Inspection -02
Fan hub (Assy. P/N 678541,726641, 778631)	690501	72-31-04	Inspection -02
Fan hub (Assy. P/N 726941)	734901	72-31-04	Inspection -02
Fan hub (Assy. P/N 732721)	745401	72-31-00	Heavy Maintenance - Check
Fan hub (Assy. P/N 804221)	745401	72-31-00	Heavy Maintenance - Check
Fan hub (Assy. P/N 5001331-01)	5001701-01	72-31-00	Inspection -03

(2) For the purposes of these mandatory inspections, piece-part opportunity means:

(i) The part is considered completely disassembled when accomplished in accordance with the disassembly instructions in the manufacturers engine manual to either part number listed in the table above; and

(ii) The part has accumulated more than 100 cycles in service since the last piece-part opportunity inspection, provided that the part was not damaged or related to the cause for its removal from the engine."

(b) Except as provided in paragraph (c) of this AD, and notwithstanding contrary provisions in Sec. 43.16 of the Federal Aviation Regulations (14 CFR 43.16), these mandatory inspections shall be performed only in accordance with the Engine TLS of the PW JT9D EM.

(c) 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 Engine Certification

Office. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector (PMI), who may add comments and then send it to the Engine Certification Office.

Note 2: Information concerning the existence of approved alternative methods of compliance with this airworthiness directive, if any, may be obtained from the Engine Certification Office.

(d) 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 airplane to a location where the requirements of this AD can be accomplished.

(e) FAA-certificated air carriers that have an approved continuous airworthiness maintenance program in accordance with the record keeping requirement of Sec. 121.369 (c) of the Federal Aviation Regulations [14 CFR 121.369 (c)] of this chapter must maintain records of the mandatory inspections that result from revising the Engine Time Limits section of the Instructions for Continuous Airworthiness (ICA) and the air carrier's continuous airworthiness program. Alternately, certificated air carriers may establish an approved system of record retention that provides a method for preservation and retrieval of the maintenance records that include the inspections resulting from this AD, and include the policy and procedures for implementing this alternate method in the air carrier's maintenance manual required by Sec. 121.369 (c) of the Federal Aviation Regulations [14 CFR 121.369 (c)]; however, the alternate system must be accepted by the appropriate PMI and require the maintenance records be maintained either indefinitely or until the work is repeated. Records of the piece-part inspections are not required under Sec. 121.380 (a) (2) (vi) of the Federal Aviation Regulations [14 CFR 121.380 (a) (2) (vi)]. All other Operators must maintain the records of mandatory inspections required by the applicable regulations governing their operations.

Note 3: The requirements of this AD have been met when the engine manual changes are made and air carriers have modified their continuous airworthiness maintenance plans to reflect the requirements in the engine manuals.

(f) This amendment becomes effective on May 13, 1999.

FOR FURTHER INFORMATION CONTACT: Tara Goodman, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7130, fax (781) 238-7199.