Rules and Regulations

Federal Register
Vol. 64, No. 109
Tuesday, June 8, 1999

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98–ANE–48–AD; Amendment 39–11187; AD 99–12–03]

RIN 2120–AA64

Airworthiness Directives; Pratt & Whitney JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Pratt & Whitney JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR series turbofan engines, that requires revisions to the engine manufacturer's Time Limits Section (TLS) of the JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR Turbofan Engines Manual to include 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 that 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 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 July 8, 1999.

FOR FURTHER INFORMATION CONTACT: Christopher Spinney, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (781) 238–7175, fax (781) 238–7199.

SUPPLEMENTARY INFORMATION: A proposal to amend pat 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to Pratt & Whitney (PW) PW JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR series turbofan engines was published in the **Federal Register** on July 28, 1998 (64 FR 40226). That action proposed to require, within the next 30 days after the effective date of this AD, revisions to the Time Limits Section (TLS) of the JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR Turbofan Engines Manual, and, for air carriers, the approved continuous airworthiness maintenance program. The manufacturer of JT8D series turbofan engines has provided the Federal Aviation Administration (FAA) with a detailed proposal that identifies and prioritizes the critical life-limited rotating engine parts with the highest potential to hazard the airplane in the event of failure, along with instructions for enhanced, focused inspection methods. The enhanced inspections resulting from this AD will be conducted at piece-part opportunity, as defined in this AD, rather than specific inspection intervals.

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 supports the measures outlined in the proposed rule.

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. Two commenters believe that paragraph (e) of the proposed rule is unclear and suggests that certain preamble language be added to it for clarity and 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 this AD to clarify record keeping aspects of the new mandatory inspections.

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. The 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. The FAA wants the manufacturers to have flexibility in managing how their manuals are structured within Air Transport Association code requirement.

One commenter requests that the FAA link the conduct of mandatory inspections on whether the subject part was removed from an engine while the engine was installed on the airplane or while the engine was removed and in an overhaul shop. The commenter wishes to exempt those parts that are removed

from installed engines from the focused inspections. The FAA does not concur. The mandatory inspections are based on a single trigger. The trigger is a part being completely disassembled using the engine manual instructions (piece-part opportunity), and is not dependent on whether an engine is installed on the airplane. This final rule mandates that the definition of piece-part opportunity appears in the mandatory section of each affected engine manual. This final rule 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 in service 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). The 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, the 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 the 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 ADs in the future. Such a notice, however, is beyond the scope of this AD and may well cause additional confusion rather than clarify the present situation.

One commenter states that the proposed rule should be revised to allow use of Foerster Defectometer eddy current instrument for Insp–02, as it is currently approved for use in Insp–03. 72–33–31 Insp–02 currently only requires that a certain probe and sensitivity standard be used to accomplish the inspection. The eddy current instrument to be used for 72–33–31 Insp–02 is specified in the PW Standard Practices manual, 70–37–02. The requirement for the Eddy Current signal instrument is that it be equivalent in performance to a Foerster Defectometer Model H 2.835. An eddy current signal instrument needs to be deemed equivalent to the Defectometer Model H 2.835 in order to be acceptable for 72–33–31 Insp–02. Therefore no changes are necessary to the AD.

One commenter states that AD 95–10–10 compliance requirements relative to the JT8D Engine Manual, P/N 481672, 72–33–31 Insp-03, as specified in the proposed rule should be clarified. The FAA does not concur that a change needs to be made to the AD, but offers the following explanation for clarification purposes. AD 95–10–10 is applicable to certain serial number fan hubs installed on JT8D engines. While the inspections required are similar to this AD, 95–10–10 also contains other overhaul requirements and very specific inspection intervals. This AD is intended to inspect all JT8D first and second stage compressor disks at every piece-part opportunity. The requirements of both ADs must be met regardless of the overlapping requirements.

One commenter states that ''XX'' in the inspection column of the Table in the Compliance Section under paragraph B needs clarification. The FAA concurs. At the time the proposed rule was published Insp-04 was not available. Chapter 5 of the Engine Manual was revised August 1, 1998, to include Insp-04. Inspection –XX has been changed to inspection number –04 for first stage compressor disks.

One commenter states that stage 2 compressor disks in the Table should be repositioned for clarity and Insp-02 should be included. The FAA concurs. Inspection number –XX has been replaced with inspection number –02 for second stage compressor disks.

One commenter states that the reference to Chapter 05–11–00 in Note 3 of the Compliance Section is incorrect. The FAA concurs. This final rule has been revised to reference Chapter 05–10–00.

No comments were received on the economic analysis contained in the proposed rule. Based on that analysis, the FAA has determined that the annual per engine cost of $420 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 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.

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, 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.

§ 39.13 [Amended]

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

99–12–03 Pratt & Whitney: Amendment 39–11187, Docket 98–ANE–48–AD.

Applicability: Pratt & Whitney (PW) JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR series turbofan engines, installed on but not limited to Boeing 727 and 737 series and McDonnell Douglas DC–9 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 Time Limits Section (TLS) of the Pratt & Whitney (PW) JT8D–1, –1A, –1B, –7, –7A, –7B, –9, –9A, –11, –15, –15A, –17, –17A, –17R, and –17AR Turbofan Engines Engine Manual (EM), part number 481672, and for air carrier operations revise the approved continuous airworthiness maintenance program, by adding the following:

''5. Critical Life Limited Part Inspection

A. Inspection Requirements:

(1) This section has the definitions for individual engine piece parts and the inspection procedures which are necessary when these parts are removed from the engine.

(2) It is necessary to do the inspection procedures of the piece parts in paragraph B when:

(a) The part is removed from the engine and disassembled to the level specified in paragraph B and

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

(3) The inspections specified in this paragraph do not replace or make not necessary other recommended inspections for these parts or other parts.

B. Parts Requiring Inspection

Note: Piece part is defined as any of the listed parts with all the blades removed.

Engine manual description	Section	Inspection
Hub (Disk), 1st Stage Compressor:		
491201	72–33–31	–04,–02,–03
496501	72–33–31	–04,–02,–03
504101	72–33–31	–04,–02,–03
515201	72–33–31	–04,–02,–03
594301	72–33–31	–04,–02,–03
640501	72–33–31	–04,–02,–03
640601	72–33–31	–04,–02,–03
743301	72–33–31	–04,–02,–03
749701	72–33–31	–04,–02,–03
749801	72–33–31	–04,–02,–03
750001	72–33–31	–04,–02,–03
750101	72–33–31	–04,–02,–03
778901	72–33–31	–04,–02,–03
791401	72–33–31	–04,–02,–03
791501	72–33–31	–04,–02,–03
791601	72–33–31	–04,–02,–03
791701	72–33–31	–04,–02,–03
791801	72–33–31	–04,–02,–03
806001	72–33–31	–04,–02,–03
806101	72–33–31	–04,–02,–03
817401	72–33–31	–04,–02,–03
844401	72–33–31	–04,–02,–03
845401	72–33–31	–04,–02,–03
848001	72–33–31	–04,–02,–03
848101	72–33–31	–04,–02,–03
Disk, 2nd Stage Compressor:		
482502	72–33–33	–02
502502	72–33–33	–02
520602	72–33–33	–02
570302	72–33–33	–02
570402	72–33–33	–02
678202	72–33–33	–02
730202	72–33–33	–02
730302	72–33–33	–02
730402	72–33–33	–02
740502	72–33–33	–02
745702	72–33–33	–02
745902	72–33–33	–02
746002	72–33–33	–02
746802	72–33–33	–02
760402	72–33–33	–02
760502	72–33–33	–02
807502	72–33–33	–02
5002402–01	72–33–33	–02
790832 (Disk assembly).	72–33–33	–02

(b) Except as provided in paragraph (c) of this AD, and notwithstanding contrary provisions in section 43.16 of the Federal Aviation Regulations (14 CFR 43.16), these mandatory inspections shall be performed only in accordance with the Time Limits section in the 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 used in accordance with § 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 requirement 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 § 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 Time Limits section of the Instructions for Continuous Airworthiness (ICA) and the air carrier's continuous airworthiness program. Alternatively, 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 alternative method in the air carrier's maintenance manual required by § 121.369(c) of the Federal Aviation Regulations [14 CFR 121.369(c)]; however, the alternative 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 § 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 July 8, 1999.

Issued in Burlington, Massachusetts, on June 1, 1999.

Mark C. Fulmer,

Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.

[FR Doc. 99–14446 Filed 6–7–99; 8:45 am]

BILLING CODE 4910–13–M

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket 98–ANE–43–AD; Amendment 39–11188; Ad 99–12–04]

RIN 2120–AA64

Airworthiness Directives; Pratt & Whitney JT8D–200 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Pratt & Whitney JT8D–200 series turbofan engines, that requires revisions to the engine manufacturer's Time Limits Section (TLS) of the JT8D–200 Turbofan Engine Manual to include 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 that 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 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 July 8, 1999.

FOR FURTHER INFORMATION CONTACT: Christopher Spinney, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803–5299; telephone (781) 238–7175, 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 (PW) JT8D–200 series turbofan engines was published in the **Federal Register** on July 28, 1998 (63 FR 40216). That action proposed to require, within the next 30 days after the effective date of this AD, revisions to the Time Limits Section (TLS) of the PW JT8D–200 Turbofan Engine Manual, and, for air carriers, the approved continuous airworthiness maintenance program. The manufacturer of JT8D–200 series turbofan engines has provided the Federal Aviation Administration (FAA) with a detailed proposal that identifies and prioritizes the critical life-limited rotating engine parts with the highest potential to hazard the airplane in the event of failure, along with instructions for enhanced, focused inspection methods. The enhanced inspections resulting from this AD will be conducted at piece-part opportunity, as defined in this AD, rather than specific inspection intervals.

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 supports the measures outlined in the proposed rule.

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. Two commenters believe that paragraph (e) of the proposed rule is unclear and suggests that certain preamble language be added to it for clarity and 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 this AD to clarify record keeping aspects of the new mandatory inspections.

One commenter requests that the FAA link the conduct of mandatory inspections on whether the subject part was removed from an engine while the engine was installed on the airplane or while the engine was removed and in an overhaul shop. The commenter wishes to exempt those parts that are removed from installed engines from the focused inspections. The FAA does not concur. The mandatory inspections are based on a single trigger. The trigger is a part being completely disassembled using the engine manual instructions (piece-part opportunity), and is not dependent on whether an engine is installed on the airplane. This final rule mandates that the definition of piece-part opportunity appears in the mandatory section of each affected engine manual. This final rule further mandates that an operator's continuous airworthiness maintenance program be modified to capture those engine manual changes.

One commenter suggests 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 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 time-since-new (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