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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [64 FR 17949 NO. 70 04/13/99]

[Docket No. 98-ANE-61-AD; Amendment 39-11120; AD 99-08-14]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW2000 Series Turbofan Engines

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to Pratt & Whitney (PW) PW2000 series turbofan engines, that requires revisions to the engine manufacturers time limits section (TLS) 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 May 13, 1999.

ADDRESSES: The information contained in this AD may be examined at the 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: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7128, 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 PW PW2000 series turbofan engines was published in the Federal Register on August 31, 1998 (63 FR 46202). 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 Engine Manuals, and, for air carriers, the approved continuous airworthiness maintenance program. The manufacturer of PW2000 series turbofan engines has provided the 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.

One commenter states that the manual references are not specific enough and requests that the manual references include the specific task or subtask that is to be performed. The FAA partially concurs. The reference method in this ad will not be changed. The FAA agrees that there is a benefit to using the tasks and subtasks. However, in the case of this AD, the FAA believes that the manner of referencing is arbitrary since either the reference method employed within this AD, or the task and subtask codes method will direct the reader to the desired inspection in the engine manual.

One commenter states that paragraph (a) (2) (ii) is confusing as to inspection requirements for damaged parts and wants the piece part language used to trigger inspections modified. The FAA does not concur. Standardized language to define the piece-part condition and trigger focused inspection is required for uniform application of these new requirements across all operators. The language contained in the proposed rule has been developed by and agreed to by a broad group of FAA and Industry members. Therefore, the piece-part definition will not be changed.

One commenter asks that each referenced manual section for the required inspections should also clearly state whether miscellaneous parts are to be removed or left in place. The FAA concurs. This AD has been reviewed relative to this suggestion. There are two areas on the PW2000 disks that are not typically disassembled, and after review, are not required to be disassembled to meet the intent of the proposed inspection. One of these areas is the tie-rod bolthole that, in some cases, has a repair bushing installed. The removal of these bushings would likely introduce more problems than they would solve, and a crack or failure in this region, at the disk outside diameter (OD), would not result in an uncontained failure. The other area is the spinner flange flared nuts. These are captive nuts and must be drilled or machined to be removed. Again, their removal or replacement would likely introduce more problems than would be solved, and cracking or failure in this region would also not result in an uncontained failure.

One commenter believes that the FAA should urge the original equipment manufacturers (OEM's) to agree on universal precleaning and fluorescent penetrant inspection (FPI) procedures and to call them out in their service documents. The commenter believes that there is a lack of uniform cleaning procedures that are employed by the industry before conducting FPI inspections. The FAA partially concurs. The FAA recognizes the need for, and is currently engaged in, several other initiatives that will provide standardized guidance on precleaning and several other procedural aspects of FPI. The FAA will take action on standardized procedures when standardized procedures are developed and consensus is reached in the industry. No changes will be made to this AD.

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 proposed rule 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 this AD to clarify record keeping aspects of the new mandatory inspections.

Two commenters point out that inspection 06 referred to in the NPRM does not exist in the present manual. Inspection 06 is the inspection that is being mandated by this proposed AD. The FAA concurs. PW will include inspection 06 in the next manual revision.

Several commenters ask that the disks be identified by using the term "all" instead of identifying the disks by specific part numbers. The commenters believe that using the term "all" to identify the disks will eliminate the need for issuing a future AD every time a new P/N is added. The FAA partially concurs. Using the reference "all" instead of specific P/N's is preferable in some aspects. Using "all" eliminates the possibility of omitting parts that exists whenever using specific P/N's. However, P&W has initiated the manual changes, they are accurate, and will not be changed at this time. Future parts will be addressed by introduction into the service documentation instead of future AD's. These inspections will be incorporated into the maintenance plan and documentation for new parts from the beginning. This AD deals only with parts that are already in service. This proposed AD will not be changed to use "all."

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 \$223 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.

Sec. 39.13 [Amended]

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

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



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).

99-08-14 Pratt & Whitney: Amendment 39-11120. Docket 98-ANE-61-AD.

Applicability: Pratt & Whitney (PW) PW2037, PW2040, PW2037M, PW2240, PW2337, PW2043, PW2643, and PW2143, series turbofan engines installed on but not limited to Boeing 757 series and Ilyushin IL-96T 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 manufacturer's Time Limits section (TLS) of the manufacturer's engine manual, Part Numbers (P/N's) 1A6231 and 1B2412, as appropriate for the PW PW2037, PW2040, PW2037M, PW2240, PW2337, PW2043, PW2643, and PW2143 series turbofan engines, and for air carriers 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 PW2000 series Engine Manuals:

Part Nomenclature	Part number (P/N)	Manual Section	Inspection
Hub, 1st Stg Comp.	1A9001 (Assy P/N 1A9021)	72-31-04	Inspection - 06

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

(i) The part is considered completely disassembled when done in accordance with the disassembly instructions in the manufacturer's engine manual to either part number level 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 Federal Aviation Regulations (14 CFR 43.16), these enhanced inspections shall be performed only in accordance with the TLS of the appropriate PW2000 series engine manuals.

(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 Manager, 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 Manager, 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 aircraft 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 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: Peter White, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7128, fax (781) 238-7199.

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