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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98-ANE-66-AD; Amendment 39-14402; AD 2005-25-09]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) for Pratt & Whitney (PW) PW4000 series turbofan engines. That AD currently requires revisions to the engine manufacturer's time limits section (TLS) to include enhanced inspection of selected critical life-limited parts at each piece-part opportunity. This AD modifies the airworthiness limitations section of the manufacturer's manuals and an air carrier's approved continuous airworthiness maintenance program by adding eddy current inspections for front compressor hubs installed in PW 4000-94" engine models. This AD also adds the PW4062A engine to the applicability. An FAA study of in-service events involving uncontained failures of critical rotating engine parts has indicated the need for mandatory inspections. The mandatory inspections are needed to identify those critical rotating parts with conditions, which if allowed to continue in service, could result in uncontained failures. We are issuing this AD to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

DATES: This AD becomes effective June 12, 2006.

ADDRESSES: You may examine the AD docket at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

FOR FURTHER INFORMATION CONTACT: Barbara Caufield, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7146, fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a new AD, applicable to (PW) PW4000 series turbofan engines. We published the proposed AD in the Federal Register on August 18, 2004 (69 FR 51200). We proposed to modify the airworthiness limitations section of the manufacturer's manuals and an air carrier's approved continuous

airworthiness maintenance program to add eddy current inspections for front compressor hubs installed in PW 4000-94" engine models (Engine Manuals 50A443, 50A605, and 50A22). We also proposed to add the PW4062A engine to the applicability.

Examining the AD Docket

You may examine the AD Docket (including any comments and service information), by appointment, between 8:00 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for the location.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

Request To Change Costs of Compliance

Four commenters request we change the costs of compliance to include the investment they have to make in equipment, to perform these inspections. We do not agree. This AD does not require operators to invest in equipment or to hire more personnel to comply with the AD. The AD requires revisions to the engine manufacturer's TLS to include enhanced inspection of selected critical life-limited parts at each piece-part opportunity. Operators can choose to buy equipment to perform the inspections or send the parts to an approved service provider for inspection.

Request for Lead Time To Purchase Eddy Current Inspection Equipment

Three commenters request lead time of an additional 6-to-8 months, as they want to purchase eddy current inspection equipment. We agree. We changed the effective date of the AD to be 180 days after the date of publication.

Request for Special Eddy Current Inspection Instructions

Two commenters request we provide special eddy current inspection instructions in the AD, as equipment sensitivity to surface finish, and to worn or previously repaired parts may cause "liftoff" resulting in false indications. We do not agree. The AD does not contain specific inspection instructions. The AD requires revisions to the engine manufacturer's TLS to include enhanced inspection of selected critical life-limited parts at each piece-part opportunity. The engine manufacturer and the suppliers of the eddy current inspection equipment provide the special inspection procedures and requirements.

Request To Allow Use of Equivalent Inspection Equipment

One commenter requests we allow use of equivalent inspection equipment to perform the eddy current inspections, as some operators have already invested in equivalent eddy current inspection equipment. Using the single-source equipment specified by the engine manufacturer will cause an undue cost burden. We do not agree. The AD does not specify only one source of equipment for the inspections. The engine manufacturer developed validated inspection procedures using specific equipment that provides acceptable inspection methods. However, operators can seek approval to use equivalent equipment, using the Alternative Methods of Compliance procedures referenced in paragraph (h) of this AD or, they can send the part to an approved service provider for inspection.

Conclusion

We carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

About 2,625 Pratt & Whitney PW4000 series turbofan engines of the affected design are in the worldwide fleet. We estimate 600 engines installed on airplanes of U.S. registry will be affected by this AD. We also estimate it will take about 10 work hours per engine to perform the inspections, and the average labor rate is \$65 per work hour. Since this is an added inspection requirement, included as part of the normal maintenance cycle, no additional part costs are involved. Based on these figures, the total additional cost per engine per shop visit is estimated to be \$650. Based on the current PW4000 engine shop visit rate, the total additional cost for the PW4000 fleet is estimated to be \$123,000 per year.

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

We determined that 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); 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.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 98-ANE-66-AD" in your request.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration 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 removing Amendment 39-12649, (67 FR 7061, June 4, 2002) and by adding a new airworthiness directive, Amendment 39-14402, to read as follows:

AIRWORTHINESS DIRECTIVE



Aircraft Certification Service
Washington, DC

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

We post ADs on the internet at www.faa.gov/aircraft/safety/alerts/

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) 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 14 CFR part 39, subpart 39.3).

2005-25-09 Pratt & Whitney: Amendment 39-14402. Docket No. 98-ANE-66-AD.

Effective Date

- (a) This AD becomes effective June 12, 2006.

Affected ADs

- (b) This AD supersedes AD 2002-03-08.

Applicability

(c) This AD applies to Pratt & Whitney (PW) Models PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, PW4650, PW4164, PW4168, PW4168A, PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090-3, PW4090D, and PW4098 turbofan engines. These engines are installed on but not limited to, Airbus A300, A310, and A330 series, Boeing 747, 767, and 777 series, and McDonnell Douglas MD-11 series airplanes.

Unsafe Condition

(d) This AD results from the need to add additional inspection requirements for PW4000-94" engine models only, and to add the PW4062A engine to the applicability. We are issuing this AD to prevent critical life-limited rotating engine part failure, which could result in an uncontained engine failure and damage to the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

(f) Within the next 60 days after the effective date of this AD, revise the Time Limits Section (TLS) of the Engine Manuals (EMs), part numbers 50A443, 50A605, 50A822, 51A342, 51A345, and 51A751, as applicable, for PW Models PW4050, PW4052, PW4056, PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4152, PW4156, PW4156A, PW4158, PW4160, PW4460, PW4462, PW4650, PW4164, PW4168, PW4168A, PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090-3, PW4090D, and PW4098 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 PW4000 series Engine Cleaning, Inspection and Repair (CIR) Manuals:

For Engine Manuals 50A443, 50A605, and 50A822, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Hub, Front Compressor	ALL	72-31-07	Insp/Check-02	51A357
Hub, Turbine, Front Assy (Stage 1)	ALL	72-52-05	Insp/Check-02	51A357
Hub, Turbine, Intermediate Rear (Stage 2)	ALL	72-52-06	Insp/Check-02	51A357

For Engine Manual 51A342, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Hub, LPC Assembly	ALL	72-31-07	Insp/Check-02	51A357
Hub, Turbine, Front Assembly (Stage 1)	ALL	72-52-05	Insp/Check-02	51A357
Seal—Air, HPT Stage 2	ALL	72-52-22	Insp/Check-02	51A357
Hub, Turbine, Rear (Stage 2)	ALL	72-52-06	Insp/Check-02	51A357

For Engine Manuals 51A345 and 51A751, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Hub, LPC Assembly	ALL	72-31-07	Insp/Check-02	51A750
Seal—Air, HPT Stage 1	ALL	72-52-19	Insp/Check-02	51A750
Hub, Turbine, Front Assembly (Stage 1)	ALL	72-52-05	Insp/Check-02	51A750
Seal—Air, HPT Stage 2 Assembly	ALL	72-52-22	Insp/Check-02	51A750
Hub, Turbine Rear Assembly (Stage 2)	ALL	72-52-06	Insp/Check-02	51A750

For Engine Manuals 50A443, 50A605, and 50A822, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
HPC Stage 5 Disk	ALL	72-35-06	Insp/Check-02	51A357
HPC Front Drum Rotor	ALL	72-35-07	Insp/Check-02	51A357
HPC Rear Drum Rotor	ALL	72-35-08	Insp/Check-02	51A357
HPC Rear Drum Rotor	ALL	72-35-10	Insp/Check-02	51A357

For Engine Manual 51A342, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
HPC Stage 5 Disk	ALL	72-35-06	Insp/Check-02	51A357
HPC Front Drum Rotor	ALL	72-35-07	Insp/Check-02	51A357
HPC Rear Drum Rotor	ALL	72-35-10	Insp/Check-02	51A357

For Engine Manuals 51A345 and 51A751, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
HPC Stage 5 Disk	ALL	72-35-06	Insp/Check-02	51A750
HPC Front Drum Rotor	ALL	72-35-07	Insp/Check-02	51A750
HPC Rear Drum Rotor	ALL	72-35-10	Insp/Check-02	51A750
HPC Stage 15 Disk	ALL	72-35-92	Insp/Check-02	51A750
HPT Stage 1 Airseal	ALL	72-52-19	Insp/Check-02	51A750
HPT Front Hub	ALL	72-52-05	Insp/Check-02	51A750
HPT Stage 2 Airseal	ALL	72-52-22	Insp/Check-02	51A750
HPT Rear Hub	ALL	72-52-06	Insp/Check-02	51A750

For Engine Manuals 50A443, 50A605 and 50A822, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Stage 3 LPT Disk	ALL	72-53-13	Insp/Check-02	51A357
Stage 4 LPT Disk	ALL	72-53-14	Insp/Check-02	51A357
Stage 5 LPT Disk	ALL	72-53-15	Insp/Check-02	51A357
Stage 6 LPT Disk	ALL	72-53-16	Insp/Check-02	51A357

For Engine Manual 51A342, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Stage 3 LPT Disk	ALL	72-53-13	Insp/Check-02	51A357
Stage 4 LPT Disk	ALL	72-53-14	Insp/Check-02	51A357
Stage 5 LPT Disk	ALL	72-53-15	-02	51A357
Stage 6 LPT Disk	ALL	72-53-16	Insp/Check-02	51A357
Stage 7 LPT Disk	ALL	72-53-61	Insp/Check-02	51A357

For Engine Manual 51A345, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Stage 3 LPT Disk	ALL	72-53-13	Insp/Check-02, Config-1	51A750
Stage 4 LPT Disk	ALL	72-53-14	Insp/Check-02	51A750
Stage 5 LPT Disk	ALL	72-53-60	Insp/Check-02	51A750
Stage 6 LPT Disk	ALL	72-53-16	Insp/Check-02, Config-1	51A750
Stage 7 LPT Disk	ALL	72-53-72	Insp/Check-02	51A750
Stage 8 LPT Disk	ALL	72-53-62	Insp/Check-02, Config-1	51A750
Stage 9 LPT Disk	ALL	72-53-63	Insp/Check-02	51A750

For Engine Manual 51A751, add the following table data:

Part nomenclature	Part number	CIR manual section	CIR manual inspection	CIR manual
Stage 3 LPT Disk	ALL	72-53-13	Insp/Check-02, Config-2. See Note (1).	51A750
Stage 4 LPT Disk	ALL	72-53-14	Insp/Check-02	51A750
Stage 5 LPT Disk	ALL	72-53-60	Insp/Check-02	51A750
Stage 6 LPT Disk	ALL	72-53-16	Insp/Check-02, Config-2. See Note (1).	51A750
Stage 7 LPT Disk	ALL	72-53-72	Insp/Check-02	51A750
Stage 8 LPT Disk	ALL	72-53-62	Insp/Check-02, Config-2. See Note (1).	51A750
Stage 9 LPT Disk	ALL	72-53-63	Insp/Check-02	51A750

(1) FPI method only.

(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."

Alternative Methods of Compliance

(g) You must perform these mandatory inspections using the TLS and the applicable Engine Manual unless you receive approval to use an alternative method of compliance under paragraph (h) of this AD. Section 43.16 of the Federal Aviation Regulations (14 CFR 43.16) may not be used to approve alternative methods of compliance or adjustments to the times in which these inspections must be performed.

(h) The Manager, Engine Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

Maintaining Records of the Mandatory Inspections

(i) You have met the requirements of this AD by using a TLS of the manufacturer's engine manual changed as specified in paragraph (f) of this AD, and, for air carriers operating under part 121 of the Federal Aviation Regulations (14 CFR part 121), by modifying your continuous airworthiness maintenance plan to reflect those changes. You must maintain records of the mandatory inspections that result from those changes to the TLS according to the regulations governing your operation. You do not need to record each piece-part inspection as compliance to this AD. For air carriers operating under part 121, you may use either the system established to comply with section 121.369 or use an alternative system that your principal maintenance inspector has accepted if that alternative system:

- (1) Includes a method for preserving and retrieving the records of the inspections resulting from this AD; and
- (2) Meets the requirements of section 121.369(c); and
- (3) Maintains the records either indefinitely or until the work is repeated.

(j) These record keeping requirements apply only to the records used to document the mandatory inspections required as a result of revising the TLS as specified in paragraph (f) of this AD, and do not alter or amend the record keeping requirements for any other AD or regulatory requirement.

Related Information

(k) None.

Issued in Burlington, Massachusetts, on December 5, 2005.

Carlos Pestana,

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

[FR Doc. 05-23828 Filed 12-9-05; 8:45 am]

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