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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2006-24452; Directorate Identifier 2006-NE-11-AD; Amendment 39-14893; AD 2007-02-06]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW2000 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Pratt & Whitney PW2000 series turbofan engines. This AD requires a onetime focused visual and fluorescent penetrant inspection (FPI) of 21 suspect PW2000 8th stage high pressure compressor (HPC) drum rotor disk assemblies. This AD results from a PW2037 8th stage HPC drum rotor disk assembly failure event caused by tooling damage that occurred during disk assembly manufacture. We are issuing this AD to prevent 8th stage HPC drum rotor disk assembly failure that could result in an uncontained engine failure and damage to the airplane.

DATES: This AD becomes effective February 28, 2007. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of February 28, 2007.

ADDRESSES: You can get the service information identified in this AD from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-8770; fax (860) 565-4503.

You may examine the AD docket on the Internet at <http://dms.dot.gov> or in Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC.

FOR FURTHER INFORMATION CONTACT: Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7758; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with a proposed AD. The proposed AD applies to Pratt & Whitney PW2000 series turbofan engines. We published the proposed AD in the Federal Register on August 3, 2006 (71 FR 43997). That action proposed to require a onetime focused visual and FPI of 21 suspect PW2000 8th stage HPC drum rotor disk assemblies.

Examining the AD Docket

You may examine the docket that contains the AD, any comments received, and any final disposition in person at the Docket Management Facility Docket Office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Office (telephone (800) 647-5227) is located on the plaza level of the Department of Transportation Nassif Building at the street address stated in ADDRESSES. Comments will be available in the AD docket shortly after the DMS receives them.

Comments

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

Claim That AD Action Is Redundant

Northwest Airlines and Air Transport Association claim that the proposed AD is redundant to existing requirements in the engine manual, and would only put an additional administrative burden on the operators. They further state that existing AD 2005-18-03 (enhanced inspection of critical rotating parts) already requires a focused FPI of the drum rotor disk and includes the area of question on the 8th stage disk. The commenters point out that the visual inspection referenced in Pratt & Whitney Alert Service Bulletin (ASB) No. PW2000 A72-706, dated February 17, 2006 requires that any disk damage be within the limits in the engine manual visual inspection.

We do not agree. The intent of this AD is to require inspection of the HPC 8th stage disk when the HPC rotor assembly is exposed but with compressor blades installed. The requirements in this AD are more restrictive than the requirements of AD 2005-18-03, which only requires inspection when the HPC rotor is removed from the HPC module and disassembled to the piece-part level with compressor blades removed.

For clarification, we revised the AD compliance section to state that the 8th stage HPC drum rotor disk assembly is a rotor with compressor blades installed.

Proposed AD Not Clear if the Nondestructive Inspection Procedures (NDIPs) Are Mandatory

Northwest Airlines and Air Transport Association state that the proposed AD is not clear if the NDIPs referenced in the Pratt & Whitney ASB No. PW2000 A72-706, dated February 17, 2006, are mandatory.

We agree. We clarified the AD by splitting up the information needed in paragraph (f), into subparagraphs. We also clarified the AD by specifying to use paragraphs 3., 3.A., and 3.B., of the Accomplishment Instructions of Pratt & Whitney ASB No. PW2000 A72-706, dated February 17, 2006, to use NDIP 1096, dated January 19, 2006, and to use NDIP 1095, dated January 12, 2006.

Claim That AD Is Not Required

Northwest Airlines states that the AD is not required, since all affected parts will be scrapped at exposure. The commenter states that since most of the affected parts in the field are likely to have very few cycles remaining, the parts will be retired upon their next disassembly.

We do not agree. The estimated number of cycles on the affected 8th stage disks currently in service ranges from about 13,500 cycles to 19,000 cycles. The current life limit of the 8th stage disk is 20,000 cycles. Therefore, some of the affected 8th stage disks probably will be returned to service after a shop visit. Affected parts with very few cycles remaining and voluntarily removed from service, will not require inspection or incur any inspection cost.

Recommend Compliance Time Be Reduced

The National Transportation Safety Board (NTSB) supports the need for a onetime focused visual and FPI inspection of the HPC 8th stage disk. However, the NTSB recommends that the compliance time be reduced due to unknown factors from the disk failure investigation (failure location striation count) and the disk's demonstrated lack of damage tolerance.

We do not agree. The finite element structural analysis performed by Pratt & Whitney for the 8th stage disk failure (PW2037 engine uncontained 8th stage HPC drum rotor disk assembly failure event, March 10, 2005,) correlate well with results from the Materials & Processes Engineering Lab measurements. The Lab measurements were of the fatigue striation counts from the failed disk. Based on the failure analysis and the manufacturing records review of the 8th stage disk, a risk analysis determined that an acceptable level of safety will be maintained for the compliance described in the AD.

Service Documents Should Be Incorporated by Reference

Modification and Replacement Parts Association (MARPA) states that the Pratt & Whitney service information referenced in the proposed AD should be incorporated by reference for the AD to be considered legal.

We agree. Paragraph (i) of this AD incorporates by reference the necessary service information. The proposed AD did not contain the incorporation by reference paragraph (i), because it is only a notice of proposed rulemaking.

Service Documents Should Be Published in the Docket Management System (DMS)

MARPA states that the Pratt & Whitney service information to be incorporated by reference in the AD, should be published in the DMS, as it is part of the AD.

We partially agree. We are currently reviewing issues surrounding the posting of service information on the DMS as part of an AD Docket. Once we thoroughly examine all aspects of this issue and make a final determination, we will consider if our current practice needs revising.

Conclusion

We have 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 have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Costs of Compliance

We estimate that this AD will affect 15 engines installed on airplanes of U.S. registry. We also estimate that it will take about 70 work-hours per engine to perform the actions, and that the average labor rate is \$80 per work-hour. We do not expect that parts will be required. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$84,000 for the inspection.

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 have 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 at the address listed under ADDRESSES.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, 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 adding the following new airworthiness directive:



2007-02-06 Pratt & Whitney: Amendment 39-14893. Docket No. FAA-2006-24452; Directorate Identifier 2006-NE-11-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective February 28, 2007.

Affected ADs

- (b) None.

Applicability

- (c) This AD applies to Pratt & Whitney PW2037, PW2040, and PW2037M turbofan engines. These engines are installed on, but not limited to Boeing 757 airplanes.

Unsafe Condition

- (d) This AD results from a Pratt & Whitney PW2037 8th stage high-pressure compressor (HPC) drum rotor disk assembly failure event caused by tooling damage that occurred during disk assembly manufacture. We are issuing this AD to prevent 8th stage HPC drum rotor disk assembly failure that 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 at the next shop visit, not to exceed an additional 6,000 engine cycles, after the effective date of this AD, when the 8th stage HPC drum rotor disk assembly (compressor blades installed) is exposed and removed from the HPC module, unless the actions have already been done.

Inspect the 8th Stage Drum Rotor Disk

- (f) Inspect the 8th stage drum rotor disks listed by part numbers and serial numbers in Table 1 of the Accomplishment Instructions of Pratt & Whitney Alert Service Bulletin No. PW2000 A72-706, dated February 17, 2006, as follows:

(1) Do a onetime focused visual and fluorescent penetrant inspection (FPI) of suspect 8th stage HPC drum rotor disk assemblies that may have been damaged during manufacture.

(2) Use paragraphs 3., 3.A., and 3.B. of the Accomplishment Instructions of Pratt & Whitney Alert Service Bulletin No. PW2000 A72-706, dated February 17, 2006, Nondestructive Inspection Procedure (NDIP) 1096, dated January 19, 2006, and NDIP 1095, dated January 12, 2006, to do the inspections.

(3) Any 8th stage disk damage that exceeds the serviceable limits specified in Pratt & Whitney PW2000 Engine Manual, Part Number 1A6231, Chapter/Section 72-35-03, Inspection/Check-01/-04, can not be returned to service.

(g) After the effective date of this AD, do not install any uninspected 8th stage drum rotor disk assemblies listed in Table 1 of the Accomplishment Instructions of Pratt & Whitney Alert Service Bulletin No. PW2000 A72-706, dated February 17, 2006, in any engine.

Alternative Methods of Compliance

(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.

Material Incorporated by Reference

(i) You must use the Pratt & Whitney service information specified in Table 1 to perform the actions required by this AD. The Director of the Federal Register approved the incorporation by reference of the documents listed in Table 1 of this AD in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-8770; fax (860) 565-4503, for a copy of this service information. You may review copies at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Table 1 – Incorporation by Reference

Pratt & Whitney Service Information	Page	Revision	Date
Alert Service Bulletin No. PW2000 A72-706 Total Pages: 11	All	Original	February 17, 2006
Nondestructive Inspection Procedure 1095 Total Pages: 18	All	Original	January 12, 2006
Nondestructive Inspection Procedure 1096 Total Pages: 18	All	Original	January 19, 2006

Relate Information

(j) Contact Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; telephone (781) 238-7758; fax (781) 238-7199, e-mail: mark.riley@faa.gov for more information about this AD.

Issued in Burlington, Massachusetts, on January 12, 2007.
Francis A. Favara,
Manager, Engine and Propeller Directorate, Aircraft Certification Service.
[FR Doc. E7-686 Filed 1-23-07; 8:45 am]