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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2003-NE-40-AD; Amendment 39-13357; AD 2003-22-09]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090D, PW4090-3, and PW4098 Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule; request for comments.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090D, PW4090-3, and PW4098 turbofan engines. This AD requires borescope inspection of the No. 3 bearing weep tube, on engines with high oil consumption that troubleshooting procedures fail to determine the source of oil loss. This AD also requires for all engines, initial and repetitive visual inspections of the turbine exhaust case (TEC) in the vicinity of the No 3 bearing oil vent tube for evidence of oil wetting or staining. If the vent tube borescope inspection is unsuccessful due to tube blockage, this AD also requires borescope inspections of the high pressure turbine (HPT) assembly for oil wetting or staining. This AD also requires removal of the HPT assembly and replacement of any heat distressed HPT assembly hardware if oil wetting or staining is found. This AD is prompted by reports of engine HPT assembly hardware being damaged as a result of thermal distress from oil igniting after leaking from the No. 3 bearing compartment. We are issuing this AD to prevent thermal distressed HPT assembly hardware from remaining in service, which could result in a cracked HPT stage 1 disk or HPT stage 1-2 air seal and an uncontained engine failure.

DATES: Effective December 3, 2003. The Director of the Federal Register approved the incorporation by reference of certain publications listed in the regulations as of December 3, 2003. We must receive any comments on this AD by January 2, 2004.

ADDRESSES: Use one of the following addresses to submit comments on this AD:

- By mail: The Federal Aviation Administration (FAA), New England Region, Office of the Regional Counsel, Attention: Rules Docket No. 2003-NE-40-AD, 12 New England Executive Park, Burlington, MA 01803-5299.
- By fax: (781) 238-7055.
- By e-mail: 9-ane-adcomment@faa.gov.

You can get the service information referenced in this AD from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-7700; fax (860) 565-1605.

You may examine the AD docket, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA. You may examine the service information, by appointment, 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: Keith Lardie, Aerospace Engineer, Engine Certification Office, FAA, Engine and Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803-5299; telephone (781) 238-7189; fax (781) 238-7199.

SUPPLEMENTARY INFORMATION: The FAA is aware of seven reports of Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090D, PW4090-3, and PW4098 turbofan engines with HPT thermal distress caused by ignition of oil in cavities of the HPT assembly. This oil ignition was the result of oil leaking from the No. 3 bearing compartment. Five of those engines were approaching or exceeded high oil consumption limits. Four of the engines had distress resulting in significant damage to the HPT assembly. Over time, the increased temperatures from oil ignition can cause cracking of the HPT stage 1 disk anti-rotation lugs and HPT stage 1-2 air seal that may result in an uncontained engine failure. The root cause of the oil leakage is currently unknown. The manufacturer suspects the following three causes:

- Clogging of the oil passages on the No. 3 seal plates.
- Wear on the anti-rotation slots on the No. 3 carbon seal carriers.
- Loose stack of the No. 3 bearing compartment.

Relevant Service Information

We have reviewed and approved the technical contents of Pratt & Whitney Alert Service Bulletin (ASB) No. PW4G-112-A72-257, Revision 1, dated August 22, 2003, that describes procedures for:

- Borescope inspection of the No. 3 bearing weep tube, on engines with high oil consumption that troubleshooting procedures fail to determine the source of oil loss.
- For all engines, initial and repetitive visual inspections of the TEC, in the vicinity of the No. 3 bearing oil vent tube assembly and borescope inspections of the No. 3 bearing oil vent tube assembly, for evidence of oil wetting or staining.
- Borescope inspection of the HPT assembly for evidence of oil wetting or staining if the borescope inspection of the No. 3 bearing oil vent tube assembly is unsuccessful due to blockage.
- Removal of the engine if oil wetting or staining is found.

Differences Between This AD and the Service Information

Although ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003, requires removal of the engine from service if oil wetting or staining is found, this AD requires removal of the HPT assembly and replacement of any heat distressed HPT assembly hardware if oil wetting or staining is found.

FAA's Determination and Requirements of This AD

The unsafe condition described previously is likely to exist or develop on other Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090D, PW4090-3, and PW4098 turbofan engines of the same type design. We are issuing this AD to prevent thermal distressed HPT assembly hardware to remain in service, which could result in a cracked HPT stage 1 disk or HPT stage 1-2 air seal and an uncontained engine failure. This AD requires:

- Borescope inspection of the No. 3 bearing weep tube on engines with high oil consumption that troubleshooting procedures fail to determine the source of oil loss.
- For all engines, initial and repetitive visual inspections of the TEC, in the vicinity of the No. 3 bearing oil vent tube assembly and borescope inspections of the No. 3 bearing oil vent tube assembly, for evidence of oil wetting or staining.
- Borescope inspections of the HPT assembly for oil wetting or staining, if the vent tube borescope inspection is unsuccessful due to tube blockage.
- Removal of the HPT assembly and replacement of any heat distressed HPT assembly hardware if oil wetting or staining is found.

You must use the service information described previously to perform the actions required by this AD.

FAA's Determination of the Effective Date

Since an unsafe condition exists that requires the immediate adoption of this AD, we have found that notice and opportunity for public comment before issuing this AD are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

Changes to 14 CFR Part 39—Effect on the AD

On July 10, 2002, we issued a new version of 14 CFR part 39 (67 FR 47998, July 22, 2002), which governs our AD system. This regulation now includes material that relates to special flight permits, alternative methods of compliance, and altered products. This material previously was included in each individual AD. Since this material is included in 14 CFR part 39, we will not include it in future AD actions.

Interim Action

These actions are interim actions and we may take further rulemaking actions in the future, when the manufacturer's investigation is completed.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any written relevant data, views, or arguments regarding this AD. Send your comments to an address listed under ADDRESSES. Include "AD Docket No. 2003-NE-40-AD" in the subject line of your comments. If you want us to acknowledge receipt of your mailed comments, send us a self-addressed, stamped postcard with the docket number written on it; we will date-stamp your postcard and mail it back to you. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify it. If a person contacts us verbally, and

that contact relates to a substantive part of this AD, we will summarize the contact and place the summary in the docket. We will consider all comments received by the closing date and may amend the AD in light of those comments.

We are reviewing the writing style we currently use in regulatory documents. We are interested in your comments on whether the style of this document is clear, and your suggestions to improve the clarity of our communications with you. You may get more information about plain language at <http://www.faa.gov/language> and <http://www.plainlanguage.gov>.

Examining the AD Docket

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

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 the 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. 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. 2003-NE-40-AD" in your request.

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 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. The FAA amends § 39.13 by adding the following new airworthiness directive:

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"

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).

2003-22-09 Pratt & Whitney: Amendment 39-13357. Docket No. 2003-NE-40-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective December 3, 2003.

Affected ADs

- (b) None.

Applicability

(c) This AD applies to Pratt & Whitney PW4074, PW4074D, PW4077, PW4077D, PW4084, PW4084D, PW4090, PW4090D, PW4090-3, and PW4098 turboprop engines. These engines are installed on, but not limited to, Boeing 777 series airplanes.

Unsafe Condition

(d) This AD is prompted by reports of engine high pressure turbine (HPT) assembly hardware being damaged as a result of thermal distress from oil igniting after leaking from the No. 3 bearing compartment. We are issuing this AD to prevent thermally distressed HPT assembly hardware from remaining in service, which could result in a cracked HPT stage 1 disk and HPT stage 1-2 air seal and an uncontained engine failure.

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.

Credit for Previous Inspections

(f) Inspections performed before the effective date of this AD, using Pratt & Whitney Alert Service Bulletin (ASB) No. PW4G-112-A72-257, dated June 30, 2003, may be counted toward satisfying the initial and repetitive inspection requirements of paragraphs (g) through (k) of this AD.

Borescope Inspection of Engines With High Oil Consumption

(g) For engines with high oil consumption that troubleshooting procedures fail to determine the source of oil loss, borescope-inspect No. 3 bearing oil vent tube assembly and or HPT assembly

within 100 cycles-in-service (CIS) of the high oil consumption event, using paragraphs (g)(1) through (g)(2) of this AD. Information on troubleshooting engines with high oil consumption can be found in Boeing 777 Fault Isolation Manual (FIM), section 71-05, Task 830, dated January 5, 2003. See paragraph (1) of this AD for a definition of high oil consumption.

(1) Borescope-inspect the No. 3 bearing oil vent tube assembly for evidence of oil wetting or staining. Follow Step 3, paragraphs 1. through 1.A.(8)(a) of Accomplishment Instructions of Pratt & Whitney ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(2) If the No. 3 bearing oil vent tube is blocked and attempts to clear it are unsuccessful, borescope-inspect the HPT assembly, following Step 4, paragraphs 1. through 1.B(14) of Accomplishment Instructions of ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(3) Remove the HPT assembly within 100 CIS of the high oil consumption event if evidence of oil wetting or staining is found in the No. 3 bearing oil vent tube or on the HPT first stage disk.

(4) Replace any heat distressed HPT assembly hardware if oil wetting or staining is found.

Turbine Exhaust Case (TEC) Inspections Of All Engines

(h) Inspect the TEC of all engines, within 500 hours-in-service (HIS) after the effective date of this AD as follows:

(1) Visually inspect the TEC in the vicinity of the No. 3 bearing oil vent tube assembly for evidence of oil wetting or staining, using Figure 2 of Pratt & Whitney ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003, for location of inspection.

(2) If evidence of oil wetting or staining is found at the TEC, borescope-inspect the No. 3 bearing oil vent tube assembly within 100 additional CIS, to confirm the oil is from the vent tube. Follow Step 1, paragraphs 1.B. through 1.D.(8)(a) of Accomplishment Instructions of Pratt & Whitney ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(3) If the No. 3 bearing oil vent tube is blocked and attempts to clear it are unsuccessful, borescope-inspect the HPT assembly following Step 4, paragraphs 1. through 1.B.(14) of Accomplishment Instructions of ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(4) Remove the HPT assembly within 100 CIS since performing the visual inspection of the TEC specified in paragraph (h)(1) of this AD, if evidence of oil wetting or staining is found in the No. 3 bearing oil vent tube or found on the HPT first stage disk.

(5) Replace any heat distressed HPT assembly hardware if oil wetting or staining is found.

Borescope Inspections of All Engines

(i) Borescope-inspect the No. 3 bearing oil vent tube assembly of all engines at or before accumulating 600 CIS or 2,000 HIS, whichever occurs first, after the effective date of this AD, as follows:

(1) Borescope-inspect the No. 3 bearing oil vent tube assembly for evidence of oil wetting or staining. Follow Step 2, paragraphs 1. through 1.A.(8) of Accomplishment Instructions of Pratt & Whitney ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(2) If the No. 3 bearing oil vent tube is blocked and attempts to clear it are unsuccessful, borescope-inspect the HPT assembly following Step 4, paragraphs 1. through 1.B.(14) of Accomplishment Instructions of ASB No. PW4G-112-A72-257, Revision 1, dated August 22, 2003.

(3) Remove the HPT assembly within 100 CIS since performing the visual inspection of the TEC specified in paragraph (h)(1) of this AD, if evidence of oil wetting or staining is found in the No. 3 bearing oil vent tube or found on the HPT first stage disk.

(4) Replace any heat distressed HPT assembly hardware if oil wetting or staining is found.

Repetitive Inspections of All Engines

(j) Repeat the inspections of the TEC of all engines by following paragraphs (h)(1) through (h)(3) of this AD, at intervals not to exceed 500 HIS since last visual check of the TEC, and disposition the engine as specified in paragraphs (h)(4) through (h)(5) of this AD.

(k) Repeat borescope inspections of all engines by following paragraphs (i)(1) through (i)(2) of this AD, at intervals not to exceed 600 CIS or 2,000 HIS since last borescope inspection of the No. 3 oil vent tube, and disposition the engine as specified in paragraphs (i)(3) through (i)(4) of this AD.

Definition

(l) For the purposes of this AD, high oil consumption is defined as an engine consuming more than 0.5 quarts of oil per hour, as provided in the Boeing 777 FIM.

Alternative Methods of Compliance

(m) 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

(n) You must follow Pratt & Whitney Alert Service Bulletin specified in Table 1 to perform the inspections required by this AD. The Director of the Federal Register approved the incorporation by reference of this service bulletin in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. You can get a copy from Pratt & Whitney, 400 Main St., East Hartford, CT 06108; telephone (860) 565-7700; fax (860) 565-1605. You may review copies 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.

TABLE 1.—INCORPORATION BY REFERENCE

Alert service bulletin No.	Page Nos.	Revision	Date
PW4G-112-A72-257	1-5	1	August 22, 2003.
	6-7	Original	June 30, 2003.
	8	1	August 22, 2003.
	9	Original	June 30, 2003.
	10	1	August 22, 2003.
	11	Original	June 30, 2003.
	12	1	August 22, 2003.
	Total pages: 22	13-22	Original

Related Information

(o) Boeing 777 Fault Isolation Manual, section 71-05, Task 830, dated January 5, 2003, pertains to high oil consumption troubleshooting procedures referred to in this AD.

Issued in Burlington, Massachusetts, on October 24, 2003.

Peter A. White,

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

[FR Doc. 03-27327 Filed 10-31-03; 8:45 am]

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