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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-0733; Directorate Identifier 2010-NE-36-AD; Amendment 39-16885; AD 2011-25-09]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Division (PW) PW4000 Series Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain PW4000 turbofan engines. This AD was prompted by an updated low-cycle fatigue (LCF) life analysis performed by PW. This AD requires removing certain part number (P/N) high-pressure turbine (HPT) stage 1 and HPT stage 2 airseals and HPT stage 1 airseal rings before their published life limit and establishes a new lower life limit for these parts. We are issuing this AD to prevent failure of these parts, which could lead to an uncontained engine failure and damage to the airplane.

DATES: This AD is effective January 10, 2012.

ADDRESSES: For service information identified in this AD, contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108; phone: (860) 565-1605. You may review copies of the referenced service information at the FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803. For information on the availability of this material at the FAA, call (781) 238-7125.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: (800) 647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

FOR FURTHER INFORMATION CONTACT: James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park; phone: (781) 238-7742; fax: (781) 238-7199; email: james.e.gray@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM published in the Federal Register on July 14, 2011 (76 FR 41430). That NPRM proposed to require removing certain P/N HPT stage 1 and HPT stage 2 airseals and HPT stage 1 airseal rings before their published life limit, and establishes a new lower life limit for these parts.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment.

Request To Publish Date When Chapter 5 Will Be Revised

One commenter, Lufthansa Technik AG (Lufthansa), requested that we note in the AD that Chapter 5 will be revised and indicate when it will occur. Lufthansa believes this knowledge will help optimize planning for removal of parts that will be close to their reduced life limits when Chapter 5 is revised.

We do not agree. Although Chapter 5 may be revised in the future, we do not know when. If Chapter 5 is revised in the future, we will publish an NPRM that will allow the public an opportunity to comment. We did not change the AD as a result of this comment.

Request To Indicate How To Perform Pro-Rata Calculation

One commenter, SR Technics, requested that the AD define how to perform the pro-rata calculation of the parts' life limit after the effective date of the AD for parts that have been installed on engines with different thrust loads.

We do not agree. Information on how to track part life for parts that have been installed on engines with different thrust loads can be found in the relevant engine manual. We did not change the AD as a result of this comment.

Request for Industry Support Program

One commenter, FedEx Express (FedEx), indicated that the proposed AD would affect 174 engines in its fleet and cost FedEx \$8,149,290. FedEx requested that Pratt & Whitney, therefore, provide an industry support program to help alleviate this financial burden.

We do not agree. We do not have the authority to require a design approval holder to offer such a program. We did not change the AD as a result of this comment.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD as proposed except for minor editorial changes to the Unsafe Condition paragraph made for clarification.

We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (76 FR 41430, July 14, 2011) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (76 FR 41430, July 14, 2011).

Costs of Compliance

We estimate that this AD will affect 869 engines installed on airplanes of U.S. registry. We also estimate that, because the removals will be performed at piece-part level, no additional work-hours will be required. Prorated life for the HPT is about \$46,835 per engine. Based on these figures, we estimate the total cost of this AD to U.S. operators is \$40,699,615.

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

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),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

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 FAA 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 (AD):



2011-25-09 Pratt & Whitney Division: Amendment 39-16885; Docket No. FAA-2011-0733; Directorate Identifier 2010-NE-36-AD.

(a) Effective Date

This AD is effective January 10, 2012.

(b) Affected ADs

None.

(c) Applicability

This AD applies to the following Pratt & Whitney Division (PW) turbofan engines, with high-pressure turbine (HPT) stage 1 airseal, part number (P/N) 50L879; HPT stage 2 airseal, P/N 53L030; or HPT stage 1 airseal ring, P/N 50L664, installed:

(1) PW4000-100" Engines

PW4000-100" engine models PW4164, PW4164C, PW4164C/B, PW4168, and PW4168A.

(2) PW4000-94" Engines

(i) PW4000-94" engine models PW4060, PW4060A, PW4060C, PW4062, PW4062A, PW4156A, PW4158, PW4160, PW4460, and PW4462 that have incorporated either Engineering Change Numbers EC92KK322G, H, I, J, and K, or one of the following PW Service Bulletins (SBs): PW4ENG 72-490, PW4ENG 72-504, PW4ENG 72-512, PW4ENG 72-572, PW4ENG 72-588, PW4ENG 73-150; as indicated with a (-3), (-3A), or (-3B) suffix on the engine data plate.

(ii) PW4000-94" engine models PW4050, PW4052, PW4056, PW4152, PW4156, and PW4650 that have incorporated either Engineering Change Numbers EC92KK322G, H, I, J, and K, or one of the following PW SBs: PW SB PW4ENG 72-490, PW4ENG 72-504, PW4ENG 72-512, PW4ENG 72-572, PW4ENG 72-588, PW4ENG 73-150; as indicated with a (-3), (-3A), or (-3B) suffix on the engine data plate.

(d) Unsafe Condition

This AD was prompted by an updated low-cycle fatigue (LCF) life analysis performed by PW. We are issuing this AD to prevent failure of these parts, which could lead to an uncontained engine failure and damage to the airplane.

(e) Compliance

Comply with this AD within the compliance times specified, unless already done.

(f) Removing From Service, the Stage 1 HPT Airseal, P/N 50L879

Remove the stage 1 HPT airseal, P/N 50L879, at the next piece-part exposure after the effective date of this AD or before accumulating the number of cycles listed in Table 1 of this AD, whichever occurs later.

Table 1–Removal of Stage 1 HPT Airseals, P/N 50L879, by Cycles-Since-New (CSN)

For engine model	Remove stage 1 HPT airseal by
(1) Listed in paragraph (c)(1) of the Applicability Section of this AD	12,600 CSN.
(2) Listed in paragraph (c)(2)(i) of the Applicability Section of this AD	13,900 CSN.
(3) Listed in paragraph (c)(2)(ii) of the Applicability Section of this AD	18,900 CSN.

(g) Removing From Service, the Stage 2 HPT Airseal, P/N 53L030

Remove the stage 2 HPT airseal, P/N 53L030, at the next piece-part exposure after the effective date of this AD or before accumulating the number of cycles listed in Table 2 of this AD, whichever occurs later.

Table 2–Removal of Stage 2 HPT Airseals, P/N 53L030, by CSN

For engine model	Remove stage 2 HPT airseal by
(1) Listed in paragraph (c)(1) of the Applicability Section of this AD	13,900 CSN.
(2) Listed in paragraph (c)(2)(i) of the Applicability Section of this AD	13,800 CSN.
(3) Listed in paragraph (c)(2)(ii) of the Applicability Section of this AD	15,900 CSN.

(h) Removing From Service, the Stage 1 HPT Airseal Ring, P/N 50L664

Remove the stage 1 HPT airseal ring, P/N 50L664, at the next piece-part exposure after the effective date of this AD or before accumulating the number of cycles listed in Table 3 of this AD, whichever occurs later.

Table 3–Removal of Stage 1 HPT Airseal Ring, P/N 50L664, by CSN

For engine model	Remove stage 1 HPT airseal ring by
(1) Listed in paragraph (c)(2)(i) of the Applicability Section of this AD	14,800 CSN.
(2) Listed in paragraph (c)(2)(ii) of the Applicability Section of this AD	16,800 CSN.

(i) Installation Prohibition

After the effective date of this AD, do not install any stage 1 HPT airseal, P/N 50L879, stage 2 HPT airseal, P/N 53L030, or stage 1 HPT airseal ring, P/N 50L664, that is at piece-part exposure and exceeds the new life limit listed in Table 1, Table 2, or Table 3 of this AD.

(j) Definitions

For the purpose of this AD, piece-part exposure means that the part is completely disassembled and removed from the engine.

(k) Alternative Methods of Compliance (AMOCs)

The Manager, Engine Certification Office, FAA, may approve AMOCs for this AD. Use the procedures found in 14 CFR 39.19 to make your request.

(l) Related Information

For more information about this AD, contact James Gray, Aerospace Engineer, Engine Certification Office, FAA, 12 New England Executive Park, Burlington, MA 01803; phone: (781) 238-7742; fax: (781) 238-7199; email: james.e.gray@faa.gov.

(m) Material Incorporated by Reference

None.

Issued in Burlington, MA, on November 30, 2011.
Peter A. White,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.