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**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2013-0740; Directorate Identifier 2013-NE-24-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; Pratt & Whitney Turbofan Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to supersede Airworthiness Directive (AD) 2014-05-32, which applies to all Pratt & Whitney (PW) PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2643, and F117-PW-100 turbofan engines. AD 2014-05-32 currently requires one-time eddy current inspection (ECI) of affected engines with certain diffuser and HPT cases installed. AD 2014-05-32 also requires a fluorescent-penetrant inspection (FPI) of the diffuser case rear flange and the HPT case front flange. Since we issued AD 2014-05-32, the manufacturer determined through analysis that the inspections required by AD 2014-05-32 are not adequate to maintain safety. This proposed AD would add additional repetitive, on-wing ECI inspections. We are proposing this AD to correct the unsafe condition on these products.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

• Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.

• Fax: 202-493-2251.

• Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

• Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Pratt & Whitney, 400 Main St., East Hartford, CT 06108; phone: 860-565-8770; fax: 860-565-4503. You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. 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 by searching for and locating Docket No. FAA-2013-0740; 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Brian Kierstead, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; email: brian.kierstead@faa.gov.

**SUPPLEMENTARY INFORMATION:**

**Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposed AD. Send your comments to an address listed under the ADDRESSES section.

Include “Docket No. FAA-2013-0740; Directorate Identifier 2013-NE-24-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

**Discussion**

On March 6, 2014, we issued AD 2014-05-32, Amendment 39-17804 (79 FR 17856, March 31, 2014), (“AD 2014-05-32”), for all PW PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2643, and F117-PW-100 turbofan engines. AD 2014-05-32 requires a one-time ECI of affected engines with certain diffuser and HPT cases installed. AD 2014-05-32 also requires an FPI of the diffuser case rear flange and HPT case front flange. AD 2014-05-32 resulted from a rupture of the diffuser-to-HPT case flange. We issued AD 2014-05-32 to prevent failure of the diffuser-to-HPT case flange, which could lead to uncontained engine failure and damage to the airplane.

**Actions Since AD 2014-05-32 Was Issued**

Since we issued AD 2014-05-32, the manufacturer identified a subpopulation of diffuser cases installed on the affected engines with a repaired flange that has a lower fatigue capability. The repaired flange cannot be distinguished from non-repaired flanges on diffuser cases installed on the affected engines. We determined, therefore, that the inspections required by AD 2014-05-32 are not adequate to maintain safety. To correct this unsafe condition, we are now proposing additional, repetitive ECI inspections.

**Related Service Information under 1 CFR part 51**

We reviewed PW Service Bulletin No. PW2000 72-763, Revision No. 1, dated August 30, 2013; and PW Alert Service Bulletin No. PW2000 A72-765, Revision No. 1, dated July 13, 2016. This service information describes procedures for a one-time ECI inspection of the engine diffuser case and the HPT case, and repetitive on-wing ECIs of the engine diffuser case assembly, respectively. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

**FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

**Proposed AD Requirements**

This proposed AD would retain the requirements of AD 2014-05-32 except it would eliminate the Prohibition Statement. We determined that this statement is unnecessary for compliance with the AD. In addition, this proposed AD would require repetitive, on-wing ECI inspections. This proposed AD would also remove the PW2240 and PW2337 engines from the applicability section since these engines were removed from PW Type Certificate Number E17NE.

**Costs of Compliance**

We estimate that this proposed AD will affect 910 engines installed on airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

**Estimated costs**

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|---|---|---|---|---|
| On-wing/module ECI Inspection | 8 work-hours x $85 per hour = $680 | $0 | $680 | $230,520 per inspection cycle |
| FPI Inspection | 3 work-hours x $85 per hour = $255 | $20 | $275 per inspection cycle | $250,250 per inspection cycle |

**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 proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 proposed 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),

(3) Will not affect intrastate aviation in Alaska to the extent that it justifies making a regulatory distinction, 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.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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 Airworthiness Directive (AD) 2014-05-32, Amendment 39-17804 (79 FR 17856, March 31, 2014), and adding the following new AD:

**Pratt & Whitney**: Docket No. FAA-2013-0740; Directorate Identifier 2013-NE-24-AD.

**(a) Comments Due Date**

The FAA must receive comments on this AD action by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces AD 2014-05-32, Amendment 39-17804 (79 FR 17856, March 31, 2014).

**(c) Applicability**

This AD applies to all Pratt & Whitney (PW) PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2643, and F117-PW-100 turbofan engines.

**(d) Subject**

Joint Aircraft System Component (JASC) Code 72, Turbine/Turboprop Engine.

**(e) Unsafe Condition**

This AD was prompted by a rupture of the diffuser-to-high-pressure turbine (HPT) case flange. We are issuing this AD to prevent failure of the diffuser-to-HPT case flange, which could lead to uncontained engine failure and damage to the airplane.

**(f) Compliance**

Unless already done, comply with this AD within the compliance times specified.

(1) For diffuser case, part number (P/N) 1B7461, serial numbers (S/Ns) DGGUAK1306 and DGGUAK1308, and HPT case, P/N 1B2440, S/N DKLBCS1032:

(i) Within 100 flight cycles or 30 days after May 5, 2014, whichever is later, eddy current inspect the diffuser case and the HPT case M-flange. Use PW Service Bulletin (SB) No. PW2000 72-763, Revision No. 1, dated August 30, 2013, to do the inspection.

(ii) Reserved.

(2) For all diffuser and HPT cases, at the next piece-part opportunity and every piece-part opportunity thereafter, perform a high sensitivity fluorescent-penetrant inspection (FPI) of the entire diffuser case rear flange (M-flange) and bolt holes, and the entire HPT case forward flange (M-flange) and bolt holes.

(3) For diffuser cases that have not incorporated PW SB PW2000-72-364 or have incorporated either PW SB PW2000-72-700 or PW2000 Series Engine Manual, Repair-28, Task 72−41−01−300−028 (M-flange replacement), perform initial and repetitive eddy current inspections (ECIs) of the M-flange of the diffuser case in accordance with paragraph (f)(4) of this AD.

(4) Use, as applicable, either the Accomplishment Instructions, "For Engines Installed on the Aircraft," paragraphs 3.(I) through 3.(J), or the Accomplishment Instructions, "For Engines Removed from the Aircraft," paragraphs 3.(D) through 3.(E), of PW Alert Service Bulletin (ASB) No. PW2000 A72-765, Revision No. 1, dated July 13, 2016, to do the ECI as follows:

(i) Perform an initial inspection within the following period, whichever occurs later:

(A) Within 5,500 cycles since new or since M-flange replacement, or

(B) Within 2,500 cycles since last piece-part FPI inspection, or

(C) Within 500 cycles from the effective date of this AD.

(ii) If no crack indications are found, re-inspect within 2,500 cycles since last ECI or last piece-part FPI inspection, whichever occurs first.

(iii) If crack indications are found, measure the crack length and determine the re-inspect interval in accordance with:

(A) Paragraphs 5.(C) through 5.(D) of PW ASB No. PW2000 A72-765, Revision No. 1, dated July 13, 2016, "For Engines Installed on the Aircraft"; or

(B) Paragraphs 4.(C) through 4.(D) of PW ASB No. PW2000 A72-765, Revision No. 1, dated July 13, 2016, "For Engines Removed from the Aircraft."

(iv) Remove from service diffuser cases with cracks exceeding 0.170 inches.

**(g) Definition**

For the purpose of this AD, piece-part opportunity is defined as when the part is completely disassembled.

**(h) Credit for Previous Actions**

If you performed an ECI of the diffuser case and HPT case M-flange using the Accomplishment Instructions of PW SB No. PW2000 72-763, Revision No. 1, dated August 13, 2013, or an earlier version, or you performed a high sensitivity FPI of the diffuser case and HPT case at the piece-part opportunity after January 1, 2010, you met the requirements of paragraph (f)(1) of this AD.

**(i) 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. You may email your request to: ANE-AD-AMOC@faa.gov.

**(j) Related Information**

(1) For more information about this proposed AD, contact Brian Kierstead, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA 01803; phone: 781-238-7772; fax: 781-238-7199; email: brian.kierstead@faa.gov.

(2) PW SB No. PW2000 72-763, Revision No. 1, dated August 30, 2013; and PW ASB No. PW2000 A72-765, Revision No. 1, dated July 13, 2016, can be obtained from PW using the contact information in paragraph (j)(3) of this AD.

(3) For service information identified in this proposed AD, contact Pratt & Whitney, United Technologies Corporation, 400 Main St., East Hartford, CT 06108; phone: 860-565-8770; fax: 860-565-4503.

(4) You may view this service information at the FAA, Engine & Propeller Directorate, 1200 District Avenue, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

Issued in Burlington, Massachusetts, on December 1, 2016.

Colleen M. D'Alessandro,
Manager, Engine & Propeller Directorate,
Aircraft Certification Service.
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