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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2013-0740; Directorate Identifier 2013-NE-24-AD; Amendment 39-17804; AD 2014-05-32]

RIN 2120-AA64

Airworthiness Directives; Pratt & Whitney Turbofan Engines

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Pratt & Whitney (PW) PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2240, PW2337, PW2643, and F117-PW-100 turbofan engines. This AD was prompted by a rupture of the diffuser-to-high-pressure turbine (HPT) case flange. This AD requires a one-time eddy current inspection (ECI) of affected engines with certain diffuser and HPT cases installed. This AD also requires a fluorescent-penetrant inspection (FPI) of the diffuser case rear flange and HPT case front 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.

DATES: This AD is effective May 5, 2014.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of May 5, 2014.

ADDRESSES: For service information identified in this AD, 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, 12 New England Executive Park, 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 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: Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7758; fax: 781-238-7199; email: mark.riley@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all PW PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2240, PW2337, PW2643, and F117-PW-100 turbofan engines. The NPRM published in the Federal Register on October 29, 2013 (78 FR 64419). The NPRM was prompted by a rupture of the diffuser-to-HPT case flange. The NPRM proposed to require a one-time ECI of affected engines with certain diffuser and HPT cases installed and an FPI of the diffuser case rear flange and HPT case front 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.

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 Credit for FPI at Piece Part Level

Delta Air Lines (DAL), PW, Federal Express, and United Parcel Service (UPS) requested that previous FPI of cases at the piece part level be allowed for AD compliance in lieu of ECI. The justification for this request is that FPI of diffuser/HPT cases at the piece part level performed after January 1, 2010 are equivalent to the ECI procedures.

We agree. We changed the AD to allow credit for FPI of diffuser and HPT cases performed after January 1, 2010.

Request to Eliminate Initial Inspection and Mandated Repetitive Inspections

DAL and PW requested elimination of inspection for diffuser/HPT cases identified in Table 1 to paragraph (e) of this AD because the inspections have already been completed. DAL and PW also requested that mandated repetitive inspections of the diffuser and HPT case be eliminated since this requirement is already in the engine manual and part of DAL's PW2000 maintenance program. Mandated inspection results in a quality records burden. The AD is requested to be withdrawn based on these requested actions.

We partially agree. We agree that many of the diffuser/HPT case inspections have been completed. PW reports that all diffuser and HPT cases have been inspected except for three. Those three cases are installed on engines not currently in service. We changed the AD to eliminate Table 1 to paragraph (e) of this AD. We added the remaining diffuser cases and HPT cases requiring inspection to paragraph (e) of this AD.

We do not agree that mandated inspections for the diffuser and HPT cases are not required as diffuser or HPT case failure may result in a catastrophic aircraft event. We did not change the AD requirement for repetitive inspections. This AD will not be withdrawn.

Request to Exclude F117-PW-100 Requirements

PW requested that F117-PW-100 requirements not be included in this AD as the inspections will be completed by December 2013.

We partially agree. We received confirmation that the diffuser and HPT cases that are applicable to F117-PW-100 engines have been inspected. However, since the F117-PW-100 engine model has been certified by the FAA and is on the type certificate data sheet, we will require repetitive FPI of the diffuser and HPT cases at piece part opportunity. We changed this AD by deleting diffuser and HPT cases that have been inspected.

Request Definition for Piece Part Exposure

DAL, UPS, and an individual commenter requested that a definition be provided for "piece part exposure" as it applies to repetitive inspections of diffuser and HPT cases. The reason for this request was to clarify when inspections are required.

We agree. We added a definition for "piece part exposure" in this AD.

Request for New Compliance Method

DAL requested that the compliance requirement for repetitive inspections direct operator's to revise their approved maintenance programs with an FPI of the diffuser and HPT cases and not require documenting AD compliance for each individual case. This change would help to eliminate undue burden on operator/maintenance facility for AD tracking requirements.

We partially agree. We agree that changing the continuous airworthiness maintenance program (CAMP) to require diffuser and HPT case inspections adequately addresses our safety concerns.

We do not agree that tracking repetitive inspections to show AD compliance is an undue burden. We changed the AD by adding an Optional Terminating Action allowing diffuser and HPT case inspections to be added to the CAMP to satisfy repetitive inspection requirements of this AD.

Request FAA Standard Practices, Processes, Consumables, and Standard Tooling be Allowed to Perform ECI

One individual commenter requested that only Non-destructive Inspection Procedure sections IX through XVIII be mandated as these sections contain the only items that have an actual effect on the unsafe condition of the AD.

We disagree. The specific ECI inspection equipment and procedures developed by PW have been verified as being able to detect cracks in the diffuser case and HPT case M-flange. The specific equipment and procedures must be used to ensure proper inspection results. However, operators and maintenance facilities can propose use of other equipment and/or procedures as an alternative method of compliance if they can validate equivalent results. We did not change this AD.

Request Clarification for Applicability

The same individual commenter requested clarification that the Compliance paragraph apply to all HPT and diffuser cases regardless of whether they are listed in Table 1 to paragraph (e) or not. The reason for this request is that it is unclear if the repetitive inspections are required only for those cases specified in Table 1.

We agree. We deleted Table 1 to paragraph (e) of this AD and added the remaining diffuser cases and HPT cases requiring inspection to paragraph (e) of this AD.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these changes:

- Are consistent with the intent that was proposed in the NPRM (78 FR 64419, October 29, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (78 FR 64419, October 29, 2013).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Costs of Compliance

We estimate that this AD will affect 638 engines installed on airplanes of U.S. registry. Of the 638 engines, we estimate that about 3 engines will be subject to ECI and all engines will be subject to the FPI. We also estimate that it will take about 5 hours to perform the ECI and 3 hours to perform the FPI required by this AD. Materials cost for the FPI will be about $20 per engine. The average labor rate is $85 per hour. Based on these figures, we estimate the total cost of this AD to U.S. operators is $176,725.

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 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.

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):

Corrected: The PW2143 model was incorrectly listed as PW2146 throughout the AD. This copy has been corrected, and we will issue a correction to the Federal Register.

2014-05-32 Pratt & Whitney: Amendment 39-17804 Docket No. FAA-2013-0740; Directorate Identifier 2013-NE-24-AD.

(a) Effective Date

This AD is effective May 5, 2014.

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Pratt & Whitney (PW) PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2240, PW2337, PW2643, and F117-PW-100 turbofan engines.

(d) 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.

(e) 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 the effective date of this AD, whichever is later, eddy current inspect (ECI) the diffuser case and the HPT case M-flange. Use PW Service Bulletin (SB) No. PW2000 72-763, Revision 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.

(f) Optional Terminating Action

As a terminating action to the repetitive inspection requirements of this AD, you may insert the repetitive inspection requirement identified in paragraph (e)(2) of this AD into the required inspection portion of your continuous airworthiness maintenance program.

(g) Definition

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

(h) Prohibition Statement

After the effective date of this AD, do not install any engine with a diffuser or HPT case onto any airplane that was not inspected using paragraph (e) of this AD.

(i) 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, dated March 22, 2013, 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 (e)(1) of this AD.

(j) 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.

(k) Related Information

(1) For more information about this AD, contact Mark Riley, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7758; fax: 781-238-7199; email: mark.riley@faa.gov.

(2) Pratt & Whitney Engine Manual, P/N 1A6231, (PW2000) and P/N 1B2412 (F117), Chapter 72-41-00, Inspection/Check-02, (Task 72-41-00-230-002) and Chapter 72-52-00, Inspection/Check-02 (Task 72-52-00-230-000), which are not incorporated by reference in this AD, can be obtained from Pratt & Whitney, using the contact information in paragraph (l)(3) of this AD.

(l) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Pratt & Whitney Service Bulletin No. PW2000 72-763, Revision 1, dated August 30, 2013.

(ii) Reserved

(3) For PW service information identified in this AD, contact Pratt & Whitney, 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, 12 New England Executive Park, Burlington, MA. For information on the availability of this material at the FAA, call 781-238-7125.

(5) You may view this service information 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.

Issued in Burlington, Massachusetts, on March 6, 2014.

Colleen M. D'Alessandro,

Assistant Directorate Manager, Engine & Propeller Directorate,

Aircraft Certification Service.