



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0624; Product 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) 2017-11-06, which applies to all Pratt & Whitney (PW) PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2643, and F117-PW-100 turbofan engine models. AD 2017-11-06 requires initial and repetitive on-wing eddy current inspections (ECIs) of affected engines with certain diffuser and high-pressure turbine (HPT) cases installed. AD 2017-11-06 also requires a fluorescent-penetrant inspection (FPI) of the diffuser case rear flange and the HPT case front flange. Since we issued AD 2017-11-06, we learned of designated engineering representative (DER)-approved diffuser case M-flange replacement repairs. This proposed AD would require an on-wing ECI of all diffuser case M-flange replacement repairs. We are proposing this AD to address 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, 06118; phone: 860-565-0140; fax: 860-565-5442; email: help24@pw.utc.com; internet: <http://fleetcare.pw.utc.com>. You may view this service information at the FAA, Engine & Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

### **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-2018-0624; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is listed above. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7088; fax: 781-238-7199; email: [kevin.m.clark@faa.gov](mailto:kevin.m.clark@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-2018-0624; Product 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 NPRM. We will consider all comments received by the closing date and may amend this NPRM 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**

We issued AD 2017-11-06, Amendment 39-18905 (82 FR 26979, June 13, 2017), (“AD 2017-11-06”), for all PW PW2037, PW2037D, PW2037M, PW2040, PW2040D, PW2043, PW2143, PW2643, and F117-PW-100 turbofan engine models. AD 2017-11-06 requires initial and repetitive on-wing ECIs of affected engines with certain diffuser and HPT cases installed. AD 2017-11-06 also requires an FPI of the diffuser case rear flange and the HPT case front flange. AD 2017-11-06 resulted from the manufacturer determining through analysis that the inspections required by AD 2014-05-32, which was prompted by a rupture of the diffuser case M-flange, were not adequate to maintain safety for diffuser cases that incorporate a wrought diffuser case M-flange. Also, repaired wrought flanges cannot be distinguished from other wrought flanges or from non-repaired flanges on diffuser cases installed on the affected engines. We issued AD 2017-11-06 to add additional repetitive, on-wing ECIs.

### **Actions Since AD 2017-11-06 Was Issued**

Since we issued AD 2017-11-06, we learned of DER-approved diffuser case M-flange replacement repairs. The language in AD 2017-11-06 requires additional on-wing ECIs for PW repairs; however, it does not address DER-approved diffuser case M-flange

replacement repairs. The DER-approved diffuser case M-flange replacement repairs use the same wrought material as PWs and therefore require the same additional on-wing ECIs.

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

We reviewed PW Service Bulletin (SB) No. PW2000 72-763, Revision No. 1, dated August 30, 2013. The SB describes procedures for a one-time ECI inspection of the engine diffuser case. We also reviewed PW Alert Service Bulletin (ASB) No. PW2000 A72-765, Revision No. 4, dated January 25, 2018. The ASB describes procedures for repetitive on-wing ECIs of the engine diffuser case assembly. 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 all of the requirements of AD 2017-11-06. This proposed AD would also require an on-wing ECI of all diffuser case M-flange replacement repairs.

**Costs of Compliance**

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

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

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
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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.

This AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to engines, propellers, and associated appliances to the Manager, Engine and Propeller Standards Branch, Policy and Innovation Division.

## **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, 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) 2017-11-06, Amendment 39-18905 (82 FR 26979, June 13, 2017), and adding the following new AD:

**Pratt & Whitney Division:** Docket No. FAA-2018-0624; Product 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 2017-11-06, Amendment 39-18905 (82 FR 26979, June 13, 2017).

**(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 7200, 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. The unsafe condition, if not addressed, could result in uncontained diffuser-to-HPT case flange release, damage to the engine, and damage to the airplane.

**(f) Compliance**

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

**(g) Required Actions**

(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 after the effective date of this AD, perform an eddy current inspection (ECI) of the diffuser case and the HPT case M-flange in accordance

with PW Service Bulletin (SB) No. PW2000 72-763, Revision No. 1, dated August 30, 2013.

(ii) Reserved.

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

(3) For all diffuser cases installed on any affected engine model except for F117-PW-100 turbofan engines, that have not incorporated PW SB PW2000-72-364, have incorporated PW SB PW2000-72-700, or have had an M-flange replacement, perform initial and repetitive ECIs of the diffuser case M-flange as follows:

(i) Perform an initial ECI in accordance with the “Last Shop Visit Activity” column and before exceeding the maximum cycles since the last shop visit activity in the “Initial Inspection” column of Table 1 of PW Alert Service Bulletin (ASB) No. PW2000 A72-765, Revision No. 4, dated January 25, 2018, or within 1,000 cycles from the effective date of this AD, whichever occurs later.

(ii) Evaluate the inspection results and perform re-inspections as necessary in accordance with Accomplishment Instructions, “For Engines Installed on the Aircraft,” paragraph 5, or the Accomplishment Instructions, “For Engines Removed from the Aircraft,” paragraph 4, of PW ASB No. PW2000 A72-765, Revision No. 4, dated January 25, 2018, as applicable. If given a cycle range, perform the subsequent inspections before exceeding the maximum number of cycles.

(iii) Inspect the diffuser case M-flange using, 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 ASB No. PW2000 A72-765, Revision No. 4, dated January 25, 2018.

**(h) Definition**

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

**(i) Credit for Previous Actions**

(1) You may take credit for the diffuser case and HPT case inspections required by paragraphs (g)(1) and (3) of this AD if you performed:

(i) an ECI of the diffuser case and the HPT case M-flange using the Accomplishment Instructions of PW SB No. PW2000 72-763, Original Issue, dated March 22, 2013, or

(ii) a high sensitivity FPI of the diffuser case and the HPT case at a piece-part opportunity after January 1, 2010.

(2) You may take credit for only the diffuser case inspections required by paragraphs (g)(1) and (3) of this AD if you performed an ECI of the diffuser case M-flange using the Accomplishment Instructions of PW ASB No. PW2000 A72-765, Revision No. 3, dated December 19, 2017, or an earlier version.

**(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, ECO Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the certification office, send it to the attention of the person identified in paragraph (k)(1) of this AD. You may email your request to: ANE-AD-AMOC@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) AMOCs approved for AD 2017-11-06 (82 FR 26979, June 13, 2017) are approved as AMOCs for the corresponding provisions of this AD.

**(k) Related Information**

(1) For more information about this AD, contact Kevin M. Clark, Aerospace Engineer, ECO Branch, FAA, 1200 District Avenue, Burlington, MA, 01803; phone: 781-238-7088; fax: 781-238-7199; email: kevin.m.clark@faa.gov.

(2) For service information identified in this AD, contact Pratt & Whitney, 400 Main St., East Hartford, CT, 06118; phone: 860-565-0140; fax: 860-565-5442; email: help24@pw.utc.com; internet: <http://fleetcare.pw.utc.com>. You may view this referenced service information at the FAA, Engine & Propeller Standards Branch, 1200 District Avenue, Burlington, MA, 01803. For information on the availability of this material at the FAA, call 781-238-7759.

Issued in Burlington, Massachusetts, on September 28, 2018.

Robert J. Ganley,  
Manager, Engine and Propeller Standards Branch,  
Aircraft Certification Service.  
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