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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2013-0197; Directorate Identifier 2013-NE-09-AD; Amendment 39-17524; AD 2013-15-08]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Pratt & Whitney Canada Corp. Turboprop Engines**

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

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Pratt & Whitney Canada Corp. (P&WC) PW118A, PW118B, PW119B, PW119C, PW123, PW123B, PW123C, PW123D, PW123E, PW123AF, PW124B, PW125B, PW126A, PW127, PW127E, PW127F, PW127G, and PW127M turboprop engines. This AD was prompted by reports of fractures of the first-stage power turbine (PT) blade. This AD requires inspection of the first-stage PT blades and the removal from service of those blades that fail the inspection or their replacement with blades eligible for installation. We are issuing this AD to prevent fracture of the first-stage PT blade, possible engine fire, and damage to the airplane.

**DATES:** This AD becomes effective September 17, 2013.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 17, 2013.

**ADDRESSES:** The Docket Operations office is located at Docket Management Facility, U.S. Department of Transportation, 1200 New Jersey Avenue SE., West Building Ground Floor, Room W12-140, Washington, DC 20590-0001.

For service information identified in this AD, contact Pratt & Whitney Canada Corp., 1000 Marie-Victorin, Longueuil, Quebec, Canada, J4G 1A1; phone: 800-268-8000; fax: 450-647-2888; Internet: www.pwc.ca. 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>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the Mandatory Continuing Airworthiness Information (MCAI), the regulatory evaluation, any comments received, and other information. The street address for the Docket Operations office (phone: 800-647-5527) is provided in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7779; fax: 781-238-7199; email: [frederick.zink@faa.gov](mailto:frederick.zink@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. The NPRM was published in the Federal Register on April 5, 2013 (78 FR 20503). The NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

There have been various reported incidents of P&WC PW100 series engine failures caused by the fracturing of the 1st Stage Power turbine (PT1) blade. Some of the above cases have resulted in engine fires. Further investigation by P&WC has traced the affected PT1 blade failures to undetected shrinkage porosity of unacceptable levels within the blade casting. Service experience indicates that the blades manufactured between 2005 and 2008 exhibit a higher propensity for unacceptable levels of shrinkage porosity.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the proposal (78 FR 20503, April 5, 2013) and the FAA's response to the comment.

### **Request To Include Additional Engine Model**

Empire Airlines, Inc. (EA) suggested that the PW121 model engine should be included in the proposed AD. EA reported that an ATR 42 airplane experienced what was believed to be an engine fire on the No. 1, PW121, engine. The engine was shut down and the aircraft landed safely. An engine teardown report revealed that the fracture of one low-pressure turbine (LPT) blade near the platform was by fatigue propagation from the trailing edge until final fracture by overload. The fatigue fracture most likely originated at the trailing edge tip from a casting anomaly that also resulted in the formation of numerous cracks. The reason for this request, although not specifically stated, is to add the PW121 model engine to the applicability of this AD.

We do not agree. The EA engine LPT blade failure incident was not due to the micro porosity issue which is the subject of this AD. The smaller PW121 engine stage 1 PT blades are under considerably less stress than the larger PW100 family of engines. Therefore, there is a lower probability of similar failures as seen on the larger PW100 engine series. We did not change the AD.

## **Conclusion**

We reviewed the available data, including the comment received, and determined that air safety and the public interest require adopting this AD as proposed.

## **Costs of Compliance**

We estimate that this AD affects about 540 engines installed on airplanes of U.S. registry. We also estimate that it will take about 1.5 hours per engine to perform the inspection or replacement required by this AD. The average labor rate is \$85 per hour. We estimate that 25% of the engines inspected would fail at least one first-stage PT blade. If the first-stage PT blade fails the inspection, a replacement blade would cost \$6,000. Based on these figures, we estimate the cost of the inspection or replacement to U.S. operators will be \$878,850.

## **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 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 this AD:

- (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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

## **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 AD:



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**2013-15-08 Pratt & Whitney Canada Corp.:** Amendment 39-17524; Docket No. FAA-2013-0197; Directorate Identifier 2013-NE-09-AD.

**(a) Effective Date**

This airworthiness directive (AD) becomes effective September 17, 2013.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to Pratt & Whitney Canada Corp. (P&WC) PW118A, PW118B, PW119B, PW119C, PW123, PW123B, PW123C, PW123D, PW123E, PW123AF, PW124B, PW125B, PW126A, PW127, PW127E, PW127F, PW127G, and PW127M turboprop engines with a first-stage power turbine (PT) blade, part number (P/N) 3120973-01, P/N 3120983-01, or P/N 3054053-01, installed, that has a serial number listed in Table 1 of the Appendix of P&WC Service Bulletin No. PW100-72-21823, Revision 3, dated March 8, 2013.

**(d) Reason**

This AD was prompted by reports of fractures of the first-stage PT blade. We are issuing this AD to prevent fracture of the first-stage PT blade, possible engine fire, and damage to the airplane.

**(e) Actions and Compliance**

Unless already done, within 60 months after the effective date of this AD or when the affected PT blades are at module level exposure, whichever occurs first, do one of the following:

- (1) Replace the affected first-stage PT blade with a blade eligible for installation; or
- (2) Perform a one-time X-ray inspection of the affected first-stage PT blades, using paragraph 3.F.(2) of the Accomplishment Instructions of P&WC Service Bulletin No. PW100-72-21823, Revision 3, dated March 8, 2013.

**(f) Installation Prohibition**

After the effective date of this AD, do not install into any engine any first-stage PT blade that has not passed the inspection required by paragraph (e)(2) of this AD.

**(g) Definition**

For the purpose of this AD, module level exposure is when the affected engine is inducted into the engine shop, the PT module is removed from the engine, and access is available to the necessary subassembly.

#### **(h) Credit for Previous Actions**

If before the effective date of this AD, you inspected the first-stage PT blades using P&WC Service Bulletin No. PW100-72-21823, Revision 2, dated November 15, 2012 or earlier versions, you met the inspection requirements in paragraph (e) of this AD.

#### **(i) Alternative Methods of Compliance (AMOCs)**

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

#### **(j) Related Information**

(1) For more information about this AD, contact Frederick Zink, Aerospace Engineer, Engine Certification Office, FAA, Engine & Propeller Directorate, 12 New England Executive Park, Burlington, MA 01803; phone: 781-238-7779; fax: 781-238-7199; email: frederick.zink@faa.gov.

(2) Refer to Transport Canada AD CF-2013-02, dated January 22, 2013, for more information. You may examine the AD on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2013-0197-0003>.

(3) P&WC Service Bulletin No. PW100-72-21823, Revision 2, dated November 15, 2012, or earlier versions, which are not incorporated by reference in this AD, can be obtained from P&WC, using the contact information in paragraph (k)(3) of this AD.

#### **(k) 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 Canada Service Bulletin No. PW100-72-21823, Revision 3, dated March 8, 2013.

(ii) Reserved.

(3) For service information identified in this AD, contact Pratt & Whitney Canada Corp., 1000 Marie-Victorin, Longueuil, Quebec, Canada, J4G 1A1; phone: 800-268-8000; fax: 450-647-2888; Internet: [www.pwc.ca](http://www.pwc.ca).

(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 July 19, 2013.  
Colleen M. D'Alessandro,  
Assistant Manager, Engine & Propeller Directorate,  
Aircraft Certification Service.