



No.	CF-2013-02	1/2
Issue Date	22 January 2013	

AIRWORTHINESS DIRECTIVE

The following airworthiness directive (AD) may be applicable to an aircraft which our records indicate is registered in your name. ADs are issued pursuant to **Canadian Aviation Regulation (CAR) 521 Division X**. Pursuant to **CAR 605.84** and the further details of **CAR Standard 625, Appendix H**, the continuing airworthiness of a Canadian registered aircraft is contingent upon compliance with all applicable ADs. Failure to comply with the requirements of an AD may invalidate the flight authorization of the aircraft. Alternative means of compliance shall be applied for in accordance with **CAR 605.84** and the above-referenced **Standard**.

This AD has been issued by the Continuing Airworthiness Division (AARDG), National Aircraft Certification Branch, Transport Canada, Ottawa, telephone 613 952-4357.

Number: CF-2013-02

Subject: First Stage Power Turbine Blade Failure

Effective: 31 January 2013

Applicability: Pratt & Whitney Canada (P&WC) engine models:

PW118A, PW118B, PW119B, PW119C, PW123, PW123B, PW123C, PW123D, PW123E, PW123AF, PW124B, PW125B, PW126, PW126A, PW127, PW127B, PW127D, PW127E, PW127F, PW127G, PW127H, PW127J and PW127M.

Compliance: As indicated below, unless already accomplished.

Background: 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.

To address the problem of unacceptable shrinkage porosity in the blade castings, in April 2008 P&WC introduced improved X-ray inspection methodology, which has shown to be twice as effective in detecting the subject discrepancy in the blades as compared to the pre 2008 inspection method. In order to help purge the suspect 2005 to April 2008 production batch blades from service, P&WC has issued service bulletin (SB) 21823 requiring a onetime inspection of all affected 2005 to April 2008 production blades, using the post 2008 improved X-ray inspection methodology.

To mitigate the problem of in-flight engine failures and a possible safety hazard of engine fires, as result of PT1 blade fractures, this AD is issued to mandate compliance with P&WC SB 21823R2 to inspect the affected batch of blades and remove potentially discrepant PT1 blades from in service engines.

Corrective Actions: Within 60 months from the effective date of this AD or any time when the affected engine with PT blades that are listed in the Table 1 of P&WC SB 21823 R2 dated 15 Nov 2012 is disassembled and access is available to the necessary subassembly, whichever occurs first, perform a onetime inspection of the affected PT1 blades, in accordance with P&WC SB 21823 R2 dated 15 Nov 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Pursuant to **CAR 202.51** the registered owner of a Canadian aircraft shall, within seven days, notify the Minister in writing of any change of his or her name or address.

To request a change of address, contact the **Civil Aviation Communications Centre (AARC)** at **Place de Ville, Ottawa, Ontario K1A 0N8**, or **1-800-305-2059**, or www.tc.gc.ca/civilaviation/communications/centre/ address.asp

PT1 blades inspected in compliance with earlier versions of SB 21823 prior to the effective date of this AD, meet the intent of this AD.

Authorization: For the Minister of Transport, Infrastructure and Communities,

ORIGINAL SIGNED BY

Derek Ferguson
Chief, Continuing Airworthiness

Contact: A.K Durrani, Continuing Airworthiness, Ottawa, telephone 613-952-4357, facsimile 613-996-9178 or e-mail ADs@tc.gc.ca or any Transport Canada Centre.