



No.	CF-2012-12	1/2
Issue Date 26 March 2012		

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-2012-12

Subject: Propeller Shaft Crack

Effective: 2 April 2012

Applicability: Pratt and Whitney Canada Engine Models: PW118, PW118A, PW118B, PW119B, PW119C, PW120, PW120A, PW121, PW121A, PW123, PW123B, PW123C, PW123D, PW123E, PW123AF, PW124B, PW125B, PW126, PW126A, PW127, PW127B, PW127E, PW127F, PW127G, PW127H, PW127J and PW127M

Compliance: As indicated below, unless already accomplished.

Background: Two PW100 propeller shafts were discovered with cracks during troubleshooting for oil leakage in the propeller shaft area. The subsequent investigation has determined that the crack initiation resulted from a plating repair not performed in accordance with the current published Pratt and Whitney Canada (P&WC) Cleaning Inspection and Repair (CIR) Manual. Both propeller shafts that were found with a circumferential crack had been processed consecutively for nickel plating repair at the same repair facility.

P&WC had initially identified 24 High Risk propeller shafts that were repaired by the same facility and accordingly, issued Service Bulletin (SB) A21802 in May 2011 to remove those 24 units from service. Nineteen (19) of those units were removed and the remaining 5 are confirmed to not be installed on any serviceable aircraft. Further investigation by P&WC indicated that the lack of full conformity with the CIR procedure may not have been limited to one vendor only. As result P&WC identified a total of 203 (24 + 179) suspect units that may not have been repaired in accordance with CIR procedures.

In order to mitigate any potential safety hazard caused by the possible failure of the suspect propeller shafts, P&WC has issued SB A21813 to inspect as well as SBs A21802 and A21798 to remove from service all identified suspect propeller shafts within a limited time. This AD is issued to mandate compliance with P&WC SBs: A21813 Rev.3, A21802 Rev.4 and A21798 Rev.5.

Corrective Actions: **Part I - Verification Of Propeller Shaft Serial Number**

Within 150 flight hours or 30 days, whichever occurs first, from the effective date of this AD, confirm if the engine has a propeller shaft with a Serial Number (S/N) listed in Tables 1 and 2 of P&WC SB A21813 Rev.3 dated 21 March 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

If a propeller shaft in the engine is listed in Tables 1 and 2 above, proceed to Part II of this AD, if a propeller shaft in the engine is not listed in Tables 1 and 2 above, no further action is required by this AD.

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

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Part II - Inspection Of The Propeller Shaft

- A. Within 50 flight hours after accomplishing Part 1 of this AD, perform either a visual inspection or an ultrasonic inspection on the affected S/N propeller shaft for cracks, in accordance with P&WC SB A21813 Rev.3 dated 21 March 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada. If a crack is found, remove the propeller shaft from service before next flight.
- B. If a visual inspection is performed according to Part II A of this AD, repeat the visual inspection and removal requirements of Part II A of this AD within 50 flight hours.
- C. After accomplishing Part II B of this AD, repeat the visual inspection and removal requirements of Part II A of this AD at intervals not to exceed 10 flight hours, until the propeller shaft is removed in accordance with Part III of this AD.
- D. If an ultrasonic inspection is performed according to Part II A of this AD, repeat the ultrasonic inspection and removal requirements of Part II A of this AD at intervals not to exceed 1000 flight hours, until the propeller shaft is removed in accordance with Part III of this AD.
- E. Ultrasonic inspection performed on the affected S/N propeller shaft in accordance with P&WC Special Instruction (SI) P&WC 22-2012 prior to the effective date of this AD, satisfies the initial ultrasonic inspection requirement in Part II A of this AD.
- F. After removal of the affected propeller shafts, no further action is required by this AD.

Part III - Removal Of Propeller Shaft

- A. Within 30 days from the effective date of this AD, verify the affected S/N propeller shafts and remove them from service in accordance with P&WC SB A21802 Rev.4, dated 16 March 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- B. Within 6 months from the effective date of this AD, verify the S/N for effectivity per the Table 1, and remove the affected propeller shafts from service in accordance with P&WC SB A21798 Rev.5, dated 20 March 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- C. Within 12 months from the effective date of this AD, verify the S/N for effectivity per the Table 2, and remove the affected propeller shafts from service in accordance with P&WC SB A21798 Rev.5, dated 20 March 2012, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- D. After removal of the affected propeller shafts, no further action is required by this AD.

It is prohibited for anyone to install any propeller shaft removed as a result of compliance with this AD on an in-service engine.

Authorization: For the Minister of Transport, Infrastructure and Communities

ORIGINAL SIGNED BY

Robin Lau
Acting 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.