



AIRWORTHINESS DIRECTIVE

This Airworthiness Directive (AD) is issued pursuant to Canadian Aviation Regulation (CAR) 521.427. No person shall conduct a take-off or permit a take-off to be conducted in an aircraft that is in their legal custody and control, unless the requirements of CAR 605.84 pertaining to ADs are met. Standard 625 - Aircraft Equipment and Maintenance Standards Appendix H provides information concerning alternative means of compliance (AMOC) with ADs.

Number:

CF-2021-37

Effective Date:

16 November 2021

ATA:

75

Type Certificate:

E-21

Subject:

Engine Bleed Air – Bleed-Off Valve (BOV) Failure to Close

Replacement:

Supersedes CF-2021-20, issued 18 May 2021 and cancels AMOC AARDG-2021/A43, issued 24 September 2021.

Applicability:

Pratt & Whitney Canada (P&WC) model PT6E-67XP engines, serial number HP0138 and earlier engines.

Compliance:

As indicated below, unless already accomplished.

Background:

Multiple incidents of engines failing to achieve the required power (torque) during high power applications, have been reported. An investigation by P&WC revealed that the bleed-off valves (BOVs) on the incident engines failed to fully close at high power settings, due to internal leaks caused by contaminants. The primary source of contaminants was determined to be the glass beads that were used in the manufacturing process during the gas generator casing (GGC) production.

The failure of an engine to achieve the required power during a go-around maneuver of the aeroplane is considered hazardous and potentially an unsafe condition that needs mitigation. To address the BOV contamination issue, P&WC has issued an Alert Service Bulletin (SB) A75018 for the affected engines, requiring inspection and cleaning of the BOVs.

To address this potentially unsafe condition, AD CF-2021-20, which is now superseded, mandated compliance with P&WC SB A75018R2.

Subsequently on 8 June 2021, P&WC released SB 75020 introducing a compressor BOV assembly with a pre-loaded plastic seal ring and metal ring. This assembly has been validated to be more tolerant to glass bead contamination. P&WC then issued SB A75018 Revision 4 on 23 September 2021 with inspection instructions for both pre- and post-SB 75020 configurations. SB 75020 Revision 1 was then released on 6 October 2021.

Transport Canada Civil Aviation (TCCA) issued a global AMOC, AARDG-2021/A43 on 24 September 2021, to account for fielded engines with post-SB 75020 hardware and extend the initial inspection requirements. This AD mandates compliance with SBs 75020R1 and A75018R4 and consequently it also covers the provisions of the AMOC.

Further AD action may follow depending on the in-service findings and investigation results.

Corrective Actions:

- A. Within 50 hours air time from the effective date of AD CF-2021-20 (1 June 2021), inspect the BOVs on the pre-SB 75020 configuration affected engines, in accordance with the Accomplishment

Instructions of P&WC SB A75018R4, dated 23 September 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Inspection in accordance with earlier versions of P&WC SB A75018, prior to the effective date of this AD, also meets the intent of this paragraph.

- B. If particulate contamination or any other discrepancy is found during the inspection required by Paragraph A above, repeat the Paragraph A inspection requirements every 40 to 60 hours air time from the previous inspection, until no particulate contamination or any other discrepancy is found.
- C. Within 100 hours air time from the effective date of this AD, replace the BOV assembly with one that has a pre-loaded plastic seal ring and metal ring, in accordance with the Accomplishment Instructions of P&WC SB 75020R1, dated 6 October 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

Replacement of the BOV assembly in accordance with P&WC SB 75020, Initial Issue, dated 8 June 2021, prior to the effective date of this AD, also meets the requirement of this paragraph.

Replacement of the BOV assembly in accordance with P&WC SB 75020 within the interval specified at Paragraph A, also meets the inspection requirements of Paragraphs A and B.

- D. Within 650 hours air time or 12 months, whichever occurs first, from the incorporation date of P&WC SB 75020, inspect the BOVs in accordance with the Accomplishment Instructions of P&WC SB A75018R4, dated 23 September 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.
- E. If particulate contamination or any other discrepancy is found during the inspection required by Paragraph D above, repeat the Paragraph D inspection within 650 hours air time or 12 months, whichever occurs first, from the previous inspection, until no particulate contamination or any other discrepancy is found.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 2 November 2021

Contact:

Liviu Badita, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca or any Transport Canada Centre.