



EMERGENCY 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-2023-12

Effective Date:

2 March 2023

ATA:

72

Type Certificate:

A-236

Subject:

Engine – Dispatch Restriction to Prevent No. 3 Bearing Failure

Applicability:

Airbus Canada Limited Partnership (ACLP) (formerly C Series Aircraft Limited Partnership (CSALP), Bombardier Inc.) aeroplanes:

Model BD-500-1A10, serial numbers 50001 and subsequent,

Model BD-500-1A11, serial numbers 55001 and subsequent.

Compliance:

As indicated below, unless already accomplished.

Background:

Since early 2021, there have been several unscheduled PW1500G engine removals due to crew alerting system (CAS) message L/R ENGINE FAULT with associated INFO message OIL DEBRIS ABOVE LIMIT being displayed, high vibration, or debris found on the magnetic chip collector of bearing compartment No. 3 (BC3). The investigation by Pratt & Whitney (P&W) found that in most instances the No. 3 bearings originated from a single manufacturing lot which have a possible defect. To address the defect issue with the suspect No. 3 bearings, P&W issued Service Bulletin (SB) PW1000G-A-72-00-0187-00A-930A-D to recommend the replacement of suspect No. 3 bearings at the next engine heavy shop visit.

In December 2022, an aeroplane experienced engine stall and uncommanded in-flight shutdown (IFSD) while in cruise. Prior to the IFSD event, the aeroplane had received advisory-level CAS message R ENGINE FAULT with associated INFO message 79 R ENGINE FAULT- OIL DEBRIS ABOVE LIMIT during the previous flight, and the fault was deferred in accordance with the approved Minimum Equipment List (MEL). The No. 3 bearing installed on the event engine was found to be from the suspect lot, and post-event inspection found metallic debris on the BC3 chip collector. ACLP issued Operator Information Transmission No. A220-OIT-72-30-001 to recommend certain dispatch restrictions.

To address the unsafe condition of potential unrecoverable engine failure or power loss for both engines and with consequent reduced control of the aeroplane, this AD is issued to mandate the prohibition of dispatch for certain CAS/INFO messages to prevent No. 3 bearing failure.

Corrective Actions:

For the purpose of this AD the following definitions apply:

Affected engine: An engine listed in Table 1 of P&W SB PW1000G-A-72-00-0187-00A-930A-D, original issue, dated 15 March 2022, and which has not incorporated P&W SB PW1000G-A-72-00-0187-00A-930A-D, original issue, dated 15 March 2022, or P&W

Special Instruction (SI) 243F-21, dated 20 December 2021.

Applicable CAS Message:

Advisory CAS message L ENGINE FAULT with INFO message:

- 77 L ENGINE FAULT – PHMU INOP, or
- 79 L ENGINE FAULT- OIL DEBRIS ABOVE LIMIT, or
- 79 L ENGINE FAULT- OIL DEBRIS MON INOP.

Advisory CAS message R ENGINE FAULT with INFO message:

- 77 R ENGINE FAULT – PHMU INOP, or
- 79 R ENGINE FAULT- OIL DEBRIS ABOVE LIMIT, or
- 79 R ENGINE FAULT- OIL DEBRIS MON INOP.

As of the effective date of this AD, it is prohibited to dispatch an aeroplane with an affected engine having an applicable CAS message displayed, unless: the BC3 chip collector and oil filter are inspected, and any debris found is dispositioned, in accordance with applicable instructions of the Aircraft Maintenance Publication and Fault Isolation Manual.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 23 February 2023

Contact:

Zhiwei Wang, 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.