



# AIRWORTHINESS DIRECTIVE

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*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.*

<b>Number:</b>	<b>Effective Date:</b>
CF-2020-41	29 October 2020
<b>ATA:</b>	<b>Type Certificate:</b>
72	A-236

**Subject:**

Engine - Aircraft Flight Manual – Operating Limitations

**Replacement:**

Supersedes AD CF-2019-37, issued 25 October 2019.

**Applicability:**

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

Model BD-500-1A10, serial numbers 50001 and subsequent for aeroplanes with PW1521G or PW1524G engines,

Model BD-500-1A11, serial numbers 55001 and subsequent for aeroplanes with PW1521G-3 or PW1524G-3 engines.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

Several occurrences of engine in-flight shutdowns (IFSDs) were reported on Airbus Canada Limited Partnership (ACLP) BD-500 family aeroplanes. Investigations are ongoing to determine the root cause. Investigation results indicate high altitude climbs at higher thrust settings for engines with certain thrust ratings may be a contributor. This condition, if not corrected, could lead to an uncontained failure of the engine and damage to the aeroplane.

On 25 October 2019 to address this unsafe condition, Transport Canada issued AD CF-2019-37 introducing a new Aircraft Flight Manual (AFM) limitation and normal procedure to limit the engine N1 setting to 94% while above 29000 feet.

After AD CF-2019-37 was issued, ACLP issued an AFM supplement for operations above 29000 feet which reflected the limitations introduced by that AD. This supplement has been updated with instructions for crew reporting when the AFM N1 limitation has been exceeded, to identify the need to perform inspections of the engine.

Pratt & Whitney Canada and ACLP have developed a health management unit (HMU) system update to detect when the N1 engine limit has been exceeded and generate an automated aircraft communications addressing and reporting system (ACARS) report. ACLP issued Service Bulletin (SB) BD500-720002 with instructions to incorporate this modification. Incorporation of Part A of this SB is recommended as an optional corrective action as it will more reliably identify an N1 exceedance.

This AD requires the incorporation of an updated AFM supplement for operations above 29000 feet and inspections of the low-pressure compressor (LPC) Rotor 1 when an engine N1 speed exceedance has been detected.

This AD is considered an interim action and further AD action may follow.

**Corrective Actions:**

For the purpose of this AD, the following terms apply:

**The SB:** ACLP Service Bulletin (SB) BD500-720002 Issue 2, dated 28 July 2020, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

**The inspection period:** from the date of the crew or automated HMU exceedance report, 4 engine cycles for aeroplanes that conduct extended twin operations (ETOPs), otherwise 15 engine cycles.

- A. Within 30 days from the effective date of this AD, amend the Transport Canada approved AFM by incorporating the SUPPLEMENT 21 Operation above 29000 feet from AFM Revision 15-A dated 10 September 2020, or later revisions of this supplement approved by Transport Canada. Inform all flight crews of the new supplement and thereafter operate the aeroplane accordingly.
- B. When a crew reports an N1 exceedance in accordance with AFM SUPPLEMENT 21, perform a borescope inspection of the 1st stage axial LPC rotor of each engine in accordance with Part B of the SB within the inspection period. Inspection is not required on engines where a review of the recorded flight data for the event determines the engine N1 did not exceed 95% for 40 or more consecutive seconds while above 29000 feet.
- C. If the optional procedure for HMU Monitoring of N1 Exceedances has been accomplished in accordance with Part A of the SB and an automated report of an N1 exceedance is received, perform the borescope inspection of the 1st stage axial LPC of the affected engine in accordance with Part B of the SB within the inspection period.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Rémy Knoerr  
Chief, Continuing Airworthiness  
Issued on 15 October 2020

**Contact:**

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