



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-2024-34

Effective Date:

22 September 2024

ATA:

24

Type Certificate:

A-236

Subject:

Electrical Power – Variable Frequency Generator (VFG) Power-Feeder Harness Chafing Against Wheel Bins and Main Landing Gear (MLG)

Replacement:

Supersedes AD CF-2023-24, issued 6 April 2023.

Supersedes AD CF-2024-29, issued 22 August 2024.

Applicability:

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

Model BD-500-1A10, serial numbers 50001 through 50047;

Model BD-500-1A11, serial numbers 55001 through 55070.

Compliance:

As indicated below, unless already accomplished.

Background:

Damage to a VFG harness has been reported, which has resulted in the loss of the associated VFG and the posting of the L GEN FAIL (Caution) message. An investigation has determined that the in-service event occurred a few flight cycles after the incorporation of Part C of ACLP Service Bulletin (SB) BD500-534101 Issue 007, which introduced a new bracket on both sides of the aeroplane to move the VFG power-feeder harnesses (CPYTH2041-XXX and CPWTH2034-XXX) away from the wheel bins to prevent chafing. Transport Canada Civil Aviation (TCCA) AD CF-2023-24 required the actions specified in Part C of the above-mentioned ACLP SB to be performed to modify the VFG power-feeder harness routing to mitigate the risks associated with VFG power-feeder harness/wheel bin chafing. Federal Aviation Administration (FAA) AD 2024-04-11 similarly mandates Part C of the above-mentioned ACLP SB.

Since then, it has been discovered that the implementation of ACLP SB BD500-534101 Part C (Issue 005 to Issue 008) may potentially cause an unsupported VFG power-feeder harness length in a different location on both sides of the aeroplane, which may potentially lead to VFG power-feeder harness chafing, kinks, and damage in these locations. ACLP will be revising ACLP SB BD500-534101 Part C at Issue 009 to add instructions that will ensure that this unsupported harness length is not introduced on both sides of the aeroplane for aeroplanes incorporating this SB going forward. Currently, aeroplanes that had an equivalent modification incorporated before delivery are not considered to be affected by this new risk. VFG power-feeder harness chafing may lead to the loss of both normal generators and loss of critical systems if alternate generators are also lost. Dispatching with certain items inoperative under the Master Minimum Equipment List (MMEL) may exacerbate this risk. ACLP has issued A220-OIT-20-10-001 to

raise awareness of this risk and to recommend certain MMEL dispatch restrictions. TCCA AD CF-2024-29 prohibited dispatching under certain MMEL items to mitigate the exacerbated risk due to dispatching with certain items inoperative.

Since TCCA AD CF-2024-29 was issued, ACLP has issued an Alert Operators Transmission (AOT) with specific instructions for aeroplanes that have performed ACLP SB BD500-534101 Part C (Issue 005 to Issue 008). This AOT provides instructions to inspect the VFG power-feeder harnesses for damage and to repair or replace the VFG power-feeder harnesses if damage is found. This AOT also provides instructions for certain aeroplanes to accomplish clearance checks between the VFG power-feeder harnesses and the MLG in the retracted position and the shortening and adjustment of the VFG power-feeder harnesses if the clearance check fails.

This AD, CF-2024-34, maintains the requirements of TCCA AD CF-2023-24 and TCCA AD CF-2024-29, but mandates the above-mentioned ACLP AOT to prevent VFG power-feeder harness chafing leading to the loss of both normal generators and the loss of critical systems if alternate generators are also lost. AD CF-2024-34 also allows Group A aeroplanes to dispatch under the MMEL items prohibited by TCCA AD CF-2024-29 after the above-mentioned ACLP AOT has been incorporated on both the left and right-hand sides of the aeroplane, for both VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX.

Corrective Actions:

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

Group A aeroplanes are model BD-500-1A10 aeroplanes, having serial numbers 50001 through 50047, and model BD-500-1A11 aeroplanes, having serial numbers 55001 through 55070, which have incorporated Part C of the Accomplishment Instructions of ACLP SB BD500-534101 at Issue 005 dated 12 June 2020, Issue 006 dated 14 August 2020, Issue 007 dated 2 October 2020, or Issue 008 dated 13 March 2024.

Group B aeroplanes are model BD-500-1A10 aeroplanes, having serial numbers 50001 through 50047, and model BD-500-1A11 aeroplanes, having serial numbers 55001 through 55070.

Applicable MMEL Items: refers to the following MMEL items corresponding with the MMEL items:

- 1) Section 1 Line Replaceable Unit (LRU) / Component Oriented MMEL Relief:
 - a) 24-11-02 – Variable Frequency Generator (VFG) Systems [each system includes Variable Frequency Generator (VFG), Generator Control Unit (GCU), Overvoltage Protection Unit (OPU), Generator Line Contactor (GLC), Line Current Transformer (LCT), Generator Control Switch (PBA)]
 - b) 24-12-01-3 – Variable Frequency Generator (VFG) Oil System/Oil Low Pressure or High Temperature
 - c) 24-22-01 – Auxiliary Power Unit Generator (AGEN) System [includes APU Generator (AGEN), APU Generator Control Unit (AGCU), APU Overvoltage Protection Unit (OPU3), APU Line Contactor (ALC), Line Current Transformer (LCT3)]
 - d) 49-00-03 – Auxiliary Power Unit (APU) System
 - e) 49-14-19-1 – APU Inlet Door Actuator/APU Inlet Door Closed
 - f) 49-14-19-3 – APU Inlet Door Actuator/APU Inlet Door Secured Open and APU Not in Use
 - g) 49-62-05-1-B – External Service Panel/Switch Inoperative Closed
 - h) 49-62-05-2-B – APU Compartment/Switch Inoperative Closed
- 2) Section 2 Crew Alerting System (CAS) Message Oriented MMEL Relief:
 - a) 24-00-009-01 – APU GEN FAIL(CAUTION)
 - b) 24-00-105-01 – L GEN FAIL(CAUTION)
 - c) 24-00-119-01 – R GEN FAIL(CAUTION)
 - d) 49-00-007-01 – APU FAULT(ADVISORY) // APU INOP
 - e) 49-00-011-01 – APU OIL LO QTY(ADVISORY)
 - f) 49-00-013-01 – APU SHUTDOWN(ADVISORY)

Part I – VFG Power-Feeder Harness Chafing Against MLG – Applicable to Group A Aeroplanes

Note: Any damage found on VFG power-feeder harnesses CPYTH2041-XXX and/or CPWTH2034-XXX is a reportable service difficulty as defined in CAR 101.01. Persons not required to report service difficulties by the CARs are requested to voluntarily report such findings via the Transport Canada (TC) Web Service Difficulty Reporting System (WSDRS) and/or directly to ACLP.

- A. For Group A aeroplanes with less than 6 flight cycles (FCs) since ACLP SB BD500-534101 Part C incorporation, within one (1) calendar day from the effective date of this AD, inspect VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX for damage and clearance to the MLG in the retracted position, and, before further flight, repair any damage found and modify and adjust VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX to ensure no preload on any attaching point and a minimum of 0.5 inch clearance between VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX and the MLG in the retracted position, in accordance with Section 4.2 of ACLP AOT A220-AOT-20-10-001 Revision --, dated 12 September 2024, or later revisions approved by the Chief, Continuing Airworthiness, TC.
- B. For Group A aeroplanes with 6 FCs or more since ACLP SB BD500-534101 Part C incorporation, within 50 hours air time from the effective date of this AD, on the left or right-hand sides and within 1000 hours air time from the effective date of this AD on the remaining side, in accordance with Section 4.2 of ACLP AOT A220-AOT-20-10-001 Revision --, dated 12 September 2024, or later revisions approved by the Chief, Continuing Airworthiness, TC, accomplish the following actions:
 - a. Inspect VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX for damage and, before further flight, repair any damage found; and
 - b. If VFG power-feeder harness damage is found, before further flight on the sides where the VFG power-feeder harness damage is found, modify and adjust VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX to ensure no preload on any attaching point and a minimum of 0.5 inch clearance between VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX and the MLG in the retracted position.
- C. As of the effective date of this AD, it is prohibited to dispatch Group A aeroplanes under the applicable MMEL items defined in this AD, unless Paragraphs A or B of Part I of this AD have been complied with, as applicable, on both the left and right-hand sides of the aeroplane, for both VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX.

Part II – VFG Power-Feeder Harness Chafing Against Wheel Bins – Applicable to Group B Aeroplanes

- A. Before accumulating 12 000 total hours air time, modify the VFG power-feeder harness routing, in accordance with Part C of the Accomplishment Instructions of ACLP SB BD500-534101, Issue 008, dated 13 March 2024, or later revisions approved by the Chief, Continuing Airworthiness, TC. Upon incorporation of Part C of the Accomplishment Instructions of ACLP SB BD500-534101, Issue 008, dated 13 March 2024, before further flight, accomplish the actions specified in Part I Paragraph A of this AD.
- B. Prior to the effective date of this AD, this paragraph gives credit for the modification of the VFG power-feeder harness routing, in accordance with Part C of the Accomplishment Instructions of ACLP SB BD500-534101 at Issue 005 dated 12 June 2020, Issue 006 dated 14 August 2020, or Issue 007 dated 2 October 2020, provided that Paragraphs A or B of Part I of this AD have also been complied with, as applicable, on both the left and right-hand sides of the aeroplane, for both VFG power-feeder harnesses CPYTH2041-XXX and CPWTH2034-XXX.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Audrey Vézina-Manzo
Acting Chief, Continuing Airworthiness
Issued on 19 September 2024

Contact:

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