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-2025-27

Effective Date:

4 June 2025

ATA:

53

Type Certificate:

A-236

Subject:

Fuselage – Cracks on Aft Wing to Body Fairing (WTBF) Structure

Replacement:

Supersedes AD CF-2020-32R1, issued 23 April 2021.

Applicability:

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

Model BD-500-1A10, serial numbers 50001 through 50065,

Model BD-500-1A11, serial numbers 55001 through 55161.

Compliance:

As indicated below, unless already accomplished.

Background:

Cracks have been reported in the longeron, frame, and tie-rod on the left and right sides of the aft WTBF structure near the tie-rod attachment at Fuselage Station (FS) 973 on a number of model BD-500-1A10/-1A11 aeroplanes. This cracking is suspected to have resulted from excessive tie-rod preload, with reports indicating that cracking begins earlier on aeroplanes with the latest of two aft WTBF configurations. Uncorrected, this cracking can lead to the loss of aft WTBF integrity, which can lead to damage due to parts departing the aeroplane, the loss of the radio altimeter, and stability and performance issues.

ACLP has released Service Bulletin (SB) BD500-538005 to adjust the load on certain tie-rods and to perform repeat inspections of the aft WTBF structure near the tie-rod attachment at FS973. ACLP has also revised an Aircraft Maintenance Publication (AMP) Data Module (DM) to ensure that these tie-rods do not have excessive tie-rod preload applied when they are installed during future maintenance.

To mitigate the risks associated with the loss of aft WTBF integrity, AD CF-2020-32 required the actions specified in the SB BD500-538005 to be performed, including the collection of data required to assist the investigation and possibly develop further corrective actions. AD CF-2020-32 also required the use of the aforementioned AMP DM or later revisions of this AMP DM when installing aft WTBF tie-rods.

Since AD CF-2020-32 was issued, ACLP has released SB BD500-538006 to develop a modification, which strengthens the support structure of the aft WTBF by reinforcing the longerons and frames. AD CF-2020-32R1 revised the requirements of AD CF-2020-32 in consideration of this aft WTBF reinforcement modification. This modification was considered as an interim mitigating action.

Since then, ACLP has developed a modification, which reinforces the support structure of the aft WTBF. This new modification adds ribs to improve the stiffness of the lower flange and longerons; it also changes the composite panels and the cross-section of frames and stiffeners. This modification is considered as terminating action to address the WTBF structure issue and was also incorporated in the production line. Therefore, Transport Canada Civil Aviation (TCCA) issued Global alternative means of compliance (AMOC) AARDG-2022/A63 to exempt operators of BD-500-1A10 aeroplanes having serial numbers 50066 and subsequent and BD-500-1A11 aeroplanes having serial numbers 55162 and subsequent from the requirements of TCCA AD CF-2020-32R1. In addition, ACLP released SB BD500-538008 for incorporation of this modification in service. Therefore, TCCA issued Global AMOC AARDG-2023/A05 to exempt operators of BD-500-1A10 aeroplanes having serial numbers 50020 through 50047 and 50049 through 50065 and BD-500-1A11 aeroplanes having serial numbers 55047 through 55161 from the requirements of TCCA AD CF-2020-32R1 when these aeroplanes have incorporated SB BD500-538008. ACLP has also developed a modification, which reinforces the support structure of the aft WTBF for BD-500-1A10 aeroplanes having serial numbers 50001 through 50019 and BD-500-1A11 aeroplanes having serial numbers 55001 through 55046. ACLP released SB BD500-538011 for incorporation of this modification in service.

The incorporation of SB BD500-538008 and SB BD500-538011 are considered terminating actions for affected aircrafts. Therefore, the data reporting in accordance with SB BD500-538005 is no longer required.

For the reasons stated above, this AD, CF-2025-27 terminates the data reporting requirement, but otherwise retains the requirements of AD CF-2020-32R1, and mandates the incorporation of the corrective actions specified in ACLP SB BD500-538008 and SB BD500-538011 as terminating actions.

Corrective Actions:

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

The applicable SBs are defined as:

- **applicable SB 1**: ACLP SB BD500-538005 Issue 002, dated 22 February 2021, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada (TC).
- **applicable SB 2**: ACLP SB BD500-538008 Issue 003, dated 28 February 2023, or later revisions approved by the Chief, Continuing Airworthiness, TC.
- **applicable SB 3**: ACLP SB BD500-538011 Issue 001, dated 03 December 2024, or later revisions approved by the Chief, Continuing Airworthiness, TC.

The **reinforcement SB** is defined as ACLP SB BD500-538006 Issue 001, dated 22 February 2021, or later revisions approved by the Chief, Continuing Airworthiness, TC.

The **applicable AMP DM** is defined as ACLP AMP DM BD500-A-J53-82-55-04AAA-720A-A (Aft fairing strut, Wing To Body Fairing (WTBF) – Install procedure) Issue 006, dated 26 June 2020, or later revisions.

Group A aeroplanes are model BD-500-1A10 aeroplanes having serial numbers 50001 through 50019, and model BD-500-1A11 aeroplanes having serial numbers 55001 through 55046.

Group B aeroplanes are model BD-500-1A10 aeroplanes having serial numbers 50020 through 50055, and model BD-500-1A11 aeroplanes having serial numbers 55047 through 55085.

Group C aeroplanes are model BD-500-1A11 aeroplanes having serial numbers 55086 through 55088

Group D aeroplanes are model BD-500-1A10 aeroplanes having serial numbers 50056 through 50065, and model BD-500-1A11 aeroplanes having serial numbers 55089 and through 55161.

Part I – Applicable AMP DM

From the effective date of AD CF-2020-32 (9 October 2020), when installing aft WTBF tie-rods, the applicable AMP DM must be used.

Part II – Initial Inspection and Tie-Rod Load Adjustment

A. For Group A and B aeroplanes: Within the applicable compliance time indicated in Table 1 below, inspect the aft WTBF structure and before further flight repair any cracks or damage found in accordance with Part A of the applicable SB 1 and adjust the load on the two tie-rods at FS973 in accordance with Part B of the applicable SB 1.

   Compliance with Part A and Part B of ACLP SB BD500-538005 Issue 001, dated 8 July 2020, prior to the effective date of this AD, satisfies the requirements of Part II paragraph A of this AD.

B. For Group C and D aeroplanes: Within the applicable compliance time indicated in Table 1 below, inspect the aft WTBF structure and before further flight repair any cracks or damage found in accordance with Part A of the applicable SB 1.

Compliance with Part A of ACLP SB BD500-538005 Issue 001, dated 8 July 2020, prior to the effective date of this AD, satisfies the requirements of Part II paragraph B of this AD.

Table 1: Compliance Time for Initial or Rework Incorporation of the Applicable SB 1

	Aeroplane Usage	Compliance Time
Group A Aeroplanes	All Group A aeroplanes	Within 850 hours air time from the effective date of AD CF-2020-32 (9 October 2020) or 4850 hours air time from the aeroplane date of manufacture, as identified on the identification plate of the aeroplane, whichever occurs later
Group B and C Aeroplanes	For aeroplanes with 1200 hours total air time or more accumulated as of the effective date of AD CF-2020-32 (9 October 2020)	Within 500 hours air time from the effective date of AD CF-2020-32 (9 October 2020)
	For aeroplanes with less than 1200 hours total air time accumulated as of the effective date of AD CF-2020-32 (9 October 2020)	Within 850 hours air time from the effective date of AD CF-2020-32 (9 October 2020)
	For new aeroplanes with an aeroplane date of manufacture, as identified on the identification plate of the aeroplane, dated on or after the effective date of AD CF-2020-32 (9 October 2020)	Within 850 hours air time from the aeroplane date of manufacture, as identified on the identification plate of the aeroplane
Group D Aeroplanes	All Group D aeroplanes	Within 2000 hours air time from the aeroplane date of manufacture, as identified on the identification plate of the aeroplane

Part III – Applicable to Group A and B Aeroplanes – Rework Requirement

For aeroplanes that have complied with Part II prior to the effective date of AD CF-2020-32 (9 October 2020), within 30 days from the effective date of AD CF-2020-32 (9 October 2020), verify the aeroplane maintenance records to confirm that the applicable AMP DM was followed for all WTBF tie-rod installations during or subsequent to the incorporation of Part II. For all WTBF tie-rod installations during or subsequent to the incorporation of Part II, if the applicable AMP DM was not followed, or if it cannot be confirmed that the applicable AMP DM was followed, repeat the adjustment of the load on the two tie-rods at FS973 in accordance with Part B of the applicable SB 1 within the applicable compliance timeframe indicated in Table 1 above.

Compliance with Part B of ACLP SB BD500-538005 Issue 001, dated 8 July 2020, prior to the effective date of this AD, to repeat the adjustment of the load on the two tie-rods at FS973, satisfies the requirements of Part III of this AD.

Part IV – Repeat Inspections

Repeat the inspection of the aft WTBF structure and before further flight repair any cracks or damage found, in accordance with Part A of the applicable SB 1, at intervals not to exceed:

A. For Group A aeroplanes: Intervals not to exceed 1100 hours air time from the initial inspection required by Part II of this AD.

B. For Group B and C aeroplanes:
   1. For aeroplanes that have completed Part A and Part B of the reinforcement SB and ACLP SB BD500-538005 Issue 001, dated 8 July 2020, or later revisions approved by the Chief, Continuing Airworthiness, TC, as a pre-requisite to the reinforcement SB: Intervals not to exceed 850 hours air time from the initial inspection required by Part II of this AD.

   2. All other aeroplanes: Intervals not to exceed 500 hours air time from the initial inspection required by Part II of this AD.

C. For Group D aeroplanes: Intervals not to exceed 850 hours air time from the initial inspection required by Part II of this AD.

Compliance with Part A of ACLP SB BD500-538005 Issue 001, dated 8 July 2020, prior to the effective date of this AD, satisfies the requirements of Part IV of this AD.

Part V – Terminating Action - Rework of the aft WTBF support structure

A. For Group A aeroplanes: within 12 000 hours air time from the effective date of this AD, rework the support structure of the aft WTBF in accordance with applicable SB 3.

B. For Group B, C, and D aeroplanes: within 12 000 hours air time from the effective date of this AD, rework the support structure of the aft WTBF in accordance with applicable SB 2.

   Compliance with SB BD500-538008 Issue 002, dated 20 December 2022, prior to the effective date of this AD, satisfies the requirements of Part V Paragraph B of this AD.

C. Accomplishment of Part V Paragraph A and Paragraph B of this AD, as applicable, terminates the requirements of Part II, Part III, and Part IV of this AD.

Authorization:

For the Minister of Transport,

ORIGINAL SIGNED BY

Jenny Young
Chief, Continuing Airworthiness
Issued on 21 May 2025

Contact:

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