



# 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-2023-09

**Effective Date:**

28 February 2023

**ATA:**

36

**Type Certificate:**

A-234

**Subject:**

Pneumatic – Non-Conforming Bleed Air Leak Detection System Sensing Elements

**Replacement:**

Supersedes AD CF-2022-44, issued 10 August 2022.

**Applicability:**

Bombardier Inc. model BD-100-1A10 (Challenger 300/350) aeroplanes, all serial numbers.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

Bombardier (BA) received disclosure letters from the supplier of overheat detection sensing elements which reported a manufacturing quality escape in which some sensing elements were manufactured with insufficient salt fill. As these sensing elements are used by the bleed air leak detection system for temperature detection in the event of a hot bleed air leak, this insufficient salt fill can result in an inability to detect hot bleed air leaks, which can cause damage to surrounding structures and systems that can prevent continued safe flight and landing.

As an interim action to address this unsafe condition, AD CF-2022-44 mandated the temporary revision (TR) to the Airplane Flight Manual (AFM) to include an Advisory BLEED LOOP FAULT (A) Non-Normal Procedure to prevent the take-off of an aeroplane with an active bleed air leak annunciated while on the ground. AD CF-2022-44 also prohibited the installation of any sensing element that may have had insufficient salt fill as a replacement part on applicable aeroplanes. Since then, BA issued Service Bulletin (SB) 100-36-10 and SB 350-36-003 to test affected overheat detection sensing elements of the bleed air leak detection system and replace, as required, any non-conforming sensing elements. BA also cancelled the AFM TR and issued a revision to the AFM that incorporated the content of the TR. This AD retains the requirements of AD CF-2022-44 by mandating the incorporation of the AFM, revises the definition of an affected part and mandates compliance with the aforementioned SBs as the terminating action to the AFM Non-Normal Procedure for BLEED LOOP FAULT (A).

**Corrective Actions:**

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

**LTS SB:** Liebherr-Aerospace Toulouse SAS (LTS) SB CFD-F1958-26-01, as referenced in Section 1.K. of the applicable BA SB.

**Kidde SB:** Kidde Aerospace and Defense SB CFD-26-1, as referenced in Section K of the LTS SB, or earlier revisions of the Kidde SB.

**The applicable BA SB:** BA SB 100-36-10, Basic Issue, dated 23 December 2022, or BA SB 350-36-003, Basic Issue, dated 23 December 2022, as applicable, or later revisions of these SBs approved by the

Chief, Continuing Airworthiness, Transport Canada.

**Affected part:** A sensing element marked with a date code A0448 through A2104 (inclusive) and having an LTS/Kidde part number as defined in the LTS SB, unless that sensing element:

- a. Has been tested in accordance with Section 3 of the Accomplishment Instructions of the Kidde SB and found to be serviceable; and
- b. Has been marked on one (1) face of its connector hex nut in accordance with Section 3.C. of the Accomplishment Instructions – Identification Procedure of the Kidde SB.

OR

- c. Has been tested and found to be serviceable in accordance with Part III of this AD; and
- d. Has been marked on one (1) face of one (1) connector hex nut with one (1) green mark, as shown in Figure 11 of the applicable BA SB (figure is representative for all sensing elements).

**Serviceable part:** A sensing element that is not an affected part.

**Group 1 aeroplanes:** Model BD-100-1A10 (Challenger 300) aeroplanes, serial numbers 20001 through 20457.

**Group 2 aeroplanes:** Model BD-100-1A10 (Challenger 350) aeroplanes, serial numbers 20501 through 20906.

**Group 3 aeroplanes:** Model BD-100-1A10 (Challenger 350) aeroplanes, serial numbers 20907 and subsequent.

#### **Part I – AFM Revision – Applicable to Group 1 and Group 2 Aeroplanes**

- A. Within 30 days from the effective date of this AD, amend the applicable Transport Canada approved AFM by incorporating the applicable procedures in accordance with Table 1 below.

**Table 1**

<b>Aeroplane Model</b>	<b>AFM Procedure</b>	<b>AFM Revision</b>
BD-100-1A10 CH300	Non-Normal Procedures in Section 05-42	AFM CSP 100-1, Revision 70, issued 27 September 2022, or later revisions of this procedure approved by Transport Canada.
BD-100-1A10 CH350	Non-Normal Procedures in Section 05-42	AFM CH 350, Revision 36, issued 27 September 2022, or later revisions of this procedure approved by Transport Canada.

- B. Advise all flight crews of the changes introduced by the approved Transport Canada AFM procedures listed above and thereafter operate the aeroplane accordingly.

#### **Part II – Parts Installation Prohibition – Applicable to Group 1, Group 2 and Group 3 Aeroplanes**

As of the effective date of AD CF-2022-44 (24 August 2022), an affected part is not eligible for installation as a replacement part on Group 1, Group 2 and Group 3 aeroplanes.

#### **Part III – Testing and Replacement – Applicable to Group 1 and Group 2 Aeroplanes**

- A. Within 7500 flight cycles or 96 months, whichever occurs first, from the effective date of this AD, test the overheat detection sensing elements to determine if they are serviceable, in accordance with Section 2 of the Accomplishment Instructions of the applicable BA SB.
- B. If the sensing element is found serviceable, before further flight, mark the sensing element with a witness mark in accordance with Section 2 of the Accomplishment Instructions of the applicable BA SB.
- C. If the sensing element is found not serviceable, before further flight, replace the sensing element with a serviceable part in accordance with Section 2 of the Accomplishment Instructions of the applicable BA SB.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Jenny Young  
Chief, Continuing Airworthiness  
Issued on 14 February 2023

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