# 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-2022-16

**Effective Date:**

21 April 2022

**ATA:**

36

**Type Certificate:**

A-276

**Subject:**

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

**Applicability:**

MHI RJ Aviation ULC. (formerly Bombardier Inc.) aeroplanes:

Model CL-600-2B19, serial numbers 7002 through 7990, and 8000 through 8113;

Model CL-600-2C10 and CL-600-2C11, serial numbers 10002 through 10347;

Model CL-600-2D15 and CL-600-2D24, serial numbers 15001 through 15494;

Model CL-600-2E25, serial numbers 19001 through 19064.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

MHI RJ Aviation ULC. (MHIRJ) received disclosure letters from the supplier of overheat detection sensing elements which reported a manufacturing quality escape in which some of the 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.

To address this unsafe condition, this AD mandates testing of all affected overheat detection sensing elements of the bleed air leak detection system and replacement, as required, of non-conforming sensing elements, in accordance with MHIRJ Service Bulletin (SB) 601R-36-021 and SB 670BA-36-025. This AD also prohibits the installation of any non-conforming sensing element as a replacement part on applicable aeroplanes.

**Corrective Actions:**

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

**SB 601R-36-021**: MHIRJ SB 601R-36-021, Revision C, dated 14 March 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

**SB 670BA-36-025**: MHIRJ SB 670BA-36-025, Revision B, dated 14 March 2022, or later revisions approved by the Chief, Continuing Airworthiness, Transport Canada.

**Group 1 aeroplanes**: Model CL-600-2B19, serial numbers 7002 through 7990, and 8000 through 8113.

**Group 2 aeroplanes**: Models CL-600-2C10 and CL-600-2C11, serial numbers 10002 through 10347, models CL-600-2D15 and CL-600-2D24, serial numbers 15001 through 15494, and model CL-600-2E25, serial numbers 19001 through 19064.

**Affected part**: A sensing element marked with a date code before A2105 and having a part number as defined in Section 1 Paragraph G (1) of SB 601R-36-021 for Group 1 aeroplanes and in Appendix B of SB 670BA-36-025 for Group 2 aeroplanes, unless the sensing element has been tested and found to be serviceable in accordance with Part I.A. of this AD or:

a. Has been tested in accordance with Section 3 of the Accomplishment Instructions of Kidde Aerospace and Defense SB CFD-26-5, Initial Release, dated 4 October 2021, and found to be serviceable; and

b. Has been marked with a dot on the face of one of the connector hex nuts and is packaged in accordance with Section 3.C. of the Accomplishment Instructions – Identification Procedure of the Kidde Aerospace and Defense SB CFD-26-5, Initial Release, dated 4 October 2021.

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

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

A. Perform a test of the bleed air leak detection system sensing elements to determine if they are serviceable, in accordance with Section 2 Part A through Part F of the Accomplishment Instructions of SB 601R-36-021 for Group 1 aeroplanes and Section 2 Part A through Part M of the Accomplishment Instructions of SB 670BA-36-025 for Group 2 aeroplanes, within the applicable compliance time indicated in Table 1 below.

**Table 1: Compliance Time**

| Aeroplanes | Applicable SB Accomplishment Instructions | Compliance Time |
|---|---|---|
| Group 1 | SB 601R-36-021 Part D | Within 4400 hours air time or 24 months, whichever occurs first, from the effective date of this AD |
| Group 1 | SB 601R-36-021 Part A, Part B, Part C, Part E and Part F | Within 6600 hours air time or 36 months, whichever occurs first, from the effective date of this AD |
| Group 2 | SB 670BA-36-025 Part K | Within 8400 hours air time or 48 months, whichever occurs first, from the effective date of this AD |
| Group 2 | SB 670BA-36-025 Part A, Part B, Part C, Part D, Part E, Part F, Part G, Part H, Part I, Part J, Part L and Part M | Within 2200 hours air time or 18 months, whichever occurs first, from the effective date of this AD |

B. For Group 1 aeroplanes: If the sensing element is found not serviceable, before further flight, replace the sensing element with a serviceable part in accordance with Section 2 Part A through Part F of the Accomplishment Instructions of SB 601R-36-021, as applicable.

C. For Group 2 aeroplanes: If the sensing element is found not serviceable, before further flight unless deferred in accordance with Part II of this AD, replace the sensing element with a serviceable part in accordance with Section 2 Part A through Part M of the Accomplishment Instructions of SB 670BA-36-025, as applicable.

The testing and replacement of bleed air leak detection system sensing elements carried out in accordance with MHIRJ SB 601R-36-021, Initial Issue, dated 5 July 2021 or SB 601R-36-021, Revision A, dated 21 October 2021 or SB 601R-36-021, Revision B, dated 2 December 2021 for Group 1 aeroplanes and SB 670BA-36-025, Initial Issue, dated 5 July 2021 or SB 670BA-36-025, Revision A, dated 21 October 2021 for Group 2 aeroplanes, prior to the effective date of this AD, also meet the intent of Part I of this AD under the following conditions:

1. For Group 1 aeroplanes: If the sensing element is found not serviceable, it must be replaced before

further flight. Deferred replacement of an affected part is prohibited.

2. For Group 2 aeroplanes: If the sensing element is found not serviceable, the replacement of the affected part with a serviceable part can be deferred in accordance with the requirements and limitations of Part II of this AD.

**Part II – Deferred Replacement – Applicable to Group 2 Aeroplanes**

The replacement of an affected part with a serviceable part for Group 2 aeroplanes, as required by Part I.C. of this AD, can be deferred up to a maximum of 10 days under the following conditions:

A. When a single bleed air leak detection loop (loop A or loop B) sensing element for a given Part (Part A through Part M of SB 670BA-36-025) is found not serviceable, provided that:

   a. The remaining operative bleed air leak detection loop (loop A or loop B) sensing elements have been tested and found to be serviceable in accordance with Part I.A. of this AD.

   b. The applicable maintenance procedures of Appendix C of SB 670BA-36-025 to deactivate the defective sensing element are accomplished prior to operation with the listed item inoperative.

   c. A placard has been installed on the BLEED AIR control panel in accordance with Section 2 Part A through Part M of the Accomplishment Instructions of SB 670BA-36-025, as applicable.

   d. All flight crew have been advised that the aeroplane is dispatched with one out of two bleed air leak detection loops inoperative.

B. When both bleed air leak detection loop A and loop B sensing elements for a given Part (Part A through Part M of SB 670BA-36-025) are found not serviceable, provided that:

   a. The applicable maintenance procedures of Appendix C of SB 670BA-36-025 to deactivate the defective sensing elements are accomplished prior to operation with the listed items inoperative.

   b. The applicable instructions and limitations of Master Minimum Equipment List (MMEL) item 36-21-06 sub-item 1, 2, or 3, as applicable, in accordance with Section 2 Part A through Part M of the Accomplishment Instructions of SB 670BA-36-025, are accomplished prior to operation with the listed items inoperative.

   c. A placard has been installed on the BLEED AIR control panel in accordance with Section 2 Part A through Part M of the Accomplishment Instructions of SB 670BA-36-025, as applicable.

   d. All flight crew have been advised that the aeroplane is dispatched with both bleed air leak detection loops inoperative.

**Part III – Parts Installation Prohibition – Applicable to Group 1 and Group 2 Aeroplanes**

As of the effective date of this AD, an affected part is not eligible for installation as a replacement part on Group 1 and Group 2 aeroplanes.

**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Rémy Knoerr
Chief, Continuing Airworthiness
Issued on 7 April 2022

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