



# 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-2022-36

**Effective Date:**

18 July 2022

**ATA:**

36

**Type Certificate:**

A-177

**Subject:**

Pneumatic – Non-Conforming Bleed Leak Detection System Sensing Elements

**Applicability:**

Bombardier Inc. model BD-700-2A12 aeroplanes, serial numbers 70005 and subsequent.

**Compliance:**

As indicated below, unless already accomplished.

**Background:**

Bombardier Inc. 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.

To mitigate this unsafe condition, this AD prohibits installation of any sensing element that may have insufficient salt fill and requires operators to operate their aeroplanes in a manner that will prevent an aeroplane dispatching with an active bleed air leak. This AD is considered an interim action and further AD action may follow.

**Corrective Actions:**

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

**LTS SB:** Liebherr-Aerospace Toulouse SAS (LTS) Service Bulletin (SB) CFD-F1958-26-01 Initial Issue, dated 6 May 2022.

**Kidde SB:** Kidde Aerospace and Defense SB CFD-26-1 Revision 6, dated 28 February 2022, or earlier revisions of this SB.

**Affected part:** A sensing element marked with a date code before A2105 and having an LTS/Kidde part number as defined in the LTS SB, unless that sensing element:

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

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

**Group A aeroplanes:** Model BD-700-2A12 aeroplanes having serial numbers 70005 through 70096.

**Group B aeroplanes:** Model BD-700-2A12 aeroplanes having serial numbers 70097 and subsequent.

**Part I – Parts Installation Prohibition – Applicable to Group A and B Aeroplanes**

As of the effective date of this AD, it is prohibited to install any affected part unless it is a serviceable part.

**Part II – Maintenance Program Verification and Rework – Applicable to Group B Aeroplanes Whose Aeroplane Date of Manufacture, as Identified on the Identification Plate of the Aeroplane, is On or Before the Effective Date of this AD**

- A. Within 60 days from the effective date of this AD, verify the aeroplane maintenance records to confirm if any affected part has been installed since the aeroplane date of manufacture, as identified on the identification plate of the aeroplane.
- B. If the maintenance records verification confirms that an affected part has been installed, or if it cannot be confirmed that an affected part has not been installed, Part III of this AD must be complied with within the compliance time specified in Part III of this AD. Otherwise, Part III of this AD is not applicable.

**Part III – Master Minimum Equipment List (MMEL) Operational Restrictions – Applicable to All Group A Aeroplanes and Certain Group B Aeroplanes as Required by Part II of this AD**

As of 90 days after the effective date of this AD, it is prohibited to dispatch an aeroplane under MMEL items 21-0425, 30-0055, 30-0060, 30-0090, 30-0095, 36-0050, and 36-0105, unless the aeroplane is operated in accordance with the following dispatch instructions:

**MMEL Item 21-0425**

Crew Alerting System (CAS) Message	1. Repair Category	2. Dispatch Consideration
21 AIR COND / PRESS – TRIM LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: – 21 AIR COND / PRESS – IASC 1B INOP – 21 AIR COND / PRESS – IASC 2B INOP – 21 AIR COND / PRESS – IASC 1B FAULT – 21 AIR COND / PRESS – IASC 2B FAULT

**1. OPERATIONS (O)**

Before each flight:

- (1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

- a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

- i. Connect external AC power, OR

- ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

- b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

- c. After 6 minutes, check for the 21 AIR COND / PRESS – TRIM LOOP ONE ELEMENT INOP info message as follows:

- i. If the 21 AIR COND / PRESS – TRIM LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

- ii. If the 21 AIR COND / PRESS – TRIM LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

- d. If required, remove external AC power from the aeroplane.
  - e. If required, set APU BLEED to AUTO.
- (2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info

#### M MEL Item 30-0055

CAS Message	1. Repair Category	2. Dispatch Consideration
30 ICE PROT – L WING LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: <ul style="list-style-type: none"> <li>– 21 AIR COND / PRESS – IASC 1B INOP</li> <li>– 21 AIR COND / PRESS – IASC 2B INOP</li> <li>– 21 AIR COND / PRESS – IASC 1B FAULT</li> <li>– 21 AIR COND / PRESS – IASC 2B FAULT</li> </ul>

#### 1. OPERATIONS (O)

Before each flight:

- (1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

- a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

- i. Connect external AC power, OR
- ii. Start the APU as follows:
  1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
  2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
  3. On the APU control panel, turn the APU switch to START.
- b. When external AC power is on or APU is running, wait a minimum of 6 minutes.
- c. After 6 minutes, check for the 30 ICE PROT – L WING LOOP ONE ELEMENT INOP info message as follows:
  - i. If the 30 ICE PROT – L WING LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.
 

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.
  - ii. If the 30 ICE PROT – L WING LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.
 

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.
- d. If required, remove external AC power from the aeroplane.
- e. If required, set APU BLEED to AUTO.

- (2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info

#### **M MEL Item 30-0060**

<b>CAS Message</b>	<b>1. Repair Category</b>	<b>2. Dispatch Consideration</b>
30 ICE PROT – L WIPS LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: <ul style="list-style-type: none"> <li>– 21 AIR COND / PRESS – IASC 1B INOP</li> <li>– 21 AIR COND / PRESS – IASC 2B INOP</li> <li>– 21 AIR COND / PRESS – IASC 1B FAULT</li> <li>– 21 AIR COND / PRESS – IASC 2B FAULT</li> </ul>

#### **1. OPERATIONS (O)**

Before each flight:

(1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

i. Connect external AC power, OR

ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

c. After 6 minutes, check for the 30 ICE PROT – L WIPS LOOP ONE ELEMENT INOP info message as follows:

i. If the 30 ICE PROT – L WIPS LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

ii. If the 30 ICE PROT – L WIPS LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

d. If required, remove external AC power from the aeroplane.

e. If required, set APU BLEED to AUTO.

(2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info

## MMEL Item 30-0090

CAS Message	1. Repair Category	2. Dispatch Consideration
30 ICE PROT – R WING LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: – 21 AIR COND / PRESS – IASC 1B INOP – 21 AIR COND / PRESS – IASC 2B INOP – 21 AIR COND / PRESS – IASC 1B FAULT – 21 AIR COND / PRESS – IASC 2B FAULT

## 1. OPERATIONS (O)

Before each flight:

(1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

i. Connect external AC power, OR

ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

c. After 6 minutes, check for the 30 ICE PROT – R WING LOOP ONE ELEMENT INOP info message as follows:

i. If the 30 ICE PROT – R WING LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

ii. If the 30 ICE PROT – R WING LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

d. If required, remove external AC power from the aeroplane.

e. If required, set APU BLEED to AUTO.

(2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info

## MMEL Item 30-0095

CAS Message	1. Repair Category	2. Dispatch Consideration
30 ICE PROT – R WIPS LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: <ul style="list-style-type: none"> <li>– 21 AIR COND / PRESS – IASC 1B INOP</li> <li>– 21 AIR COND / PRESS – IASC 2B INOP</li> <li>– 21 AIR COND / PRESS – IASC 1B FAULT</li> <li>– 21 AIR COND / PRESS – IASC 2B FAULT</li> </ul>

## 1. OPERATIONS (O)

Before each flight:

(1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

i. Connect external AC power, OR

ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

c. After 6 minutes, check for the 30 ICE PROT – R WIPS LOOP ONE ELEMENT INOP info message as follows:

i. If the 30 ICE PROT – R WIPS LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

ii. If the 30 ICE PROT – R WIPS LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

d. If required, remove external AC power from the aeroplane.

e. If required, set APU BLEED to AUTO.

(2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info

## MMEL Item 36-0050

CAS Message	1. Repair Category	2. Dispatch Consideration
36 BLEED – L BLEED LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: <ul style="list-style-type: none"> <li>– 21 AIR COND / PRESS – IASC 1B INOP</li> <li>– 21 AIR COND / PRESS – IASC 2B INOP</li> <li>– 21 AIR COND / PRESS – IASC 1B FAULT</li> <li>– 21 AIR COND / PRESS – IASC 2B FAULT</li> </ul>

## 1. OPERATIONS (O)

Before each flight:

(1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

i. Connect external AC power, OR

ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

c. After 6 minutes, check for the 36 BLEED – L BLEED LOOP ONE ELEMENT INOP info message as follows:

i. If the 36 BLEED – L BLEED LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

ii. If the 36 BLEED – L BLEED LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

d. If required, remove external AC power from the aeroplane.

e. If required, set APU BLEED to AUTO.

(2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info



## MMEL Item 36-0105

CAS Message	1. Repair Category	2. Dispatch Consideration
36 BLEED – R BLEED LOOP ONE ELEMENT INOP	C	(O) May be displayed provided none of the following messages are displayed: – 21 AIR COND / PRESS – IASC 1B INOP – 21 AIR COND / PRESS – IASC 2B INOP – 21 AIR COND / PRESS – IASC 1B FAULT – 21 AIR COND / PRESS – IASC 2B FAULT

## 1. OPERATIONS (O)

Before each flight:

(1) Make sure that the aeroplane is not powered on and that engines and APU are OFF.

a. Connect electrical power to the aeroplane as follows:

Note: Do not use a Jet Airstart Cart or High Pressure Ground Cart.

i. Connect external AC power, OR

ii. Start the APU as follows:

1. On the ELECTRICAL control panel, set the MAIN BATT and APU BATT switches to ON.
2. On the BLEED/AIR COND control panel, make sure that the APU BLEED switch is set to OFF.
3. On the APU control panel, turn the APU switch to START.

b. When external AC power is on or APU is running, wait a minimum of 6 minutes.

c. After 6 minutes, check for the 36 BLEED – R BLEED LOOP ONE ELEMENT INOP info message as follows:

i. If the 36 BLEED – R BLEED LOOP ONE ELEMENT INOP info message shows – DISPATCH IS PERMITTED.

Note: The INFO message confirms it is not heat related and therefore cannot be a potential leak in the presence of an affected part.

ii. If the 36 BLEED – R BLEED LOOP ONE ELEMENT INOP info message does not show – DISPATCH IS NOT PERMITTED.

Note: No INFO message confirms that it is heat related and therefore could be a potential leak in the presence of an affected part.

d. If required, remove external AC power from the aeroplane.

e. If required, set APU BLEED to AUTO.

(2) On the INFO synoptic page, make sure that the messages that follow do not show:

Note: Confirm the aeroplane has electrical power to activate the synoptic page.

- 21 AIR COND / PRESS – IASC 1B INOP info
- 21 AIR COND / PRESS – IASC 2B INOP info
- 21 AIR COND / PRESS – IASC 1B FAULT info
- 21 AIR COND / PRESS – IASC 2B FAULT info



**Authorization:**

For the Minister of Transport,

*ORIGINAL SIGNED BY*

Zack Tecler  
Acting Chief, Continuing Airworthiness  
Issued on 4 July 2022

**Contact:**

Hilary Ross, Continuing Airworthiness, Ottawa, telephone 888-663-3639, facsimile 613-996-9178 or e-mail [TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca](mailto:TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca) or any Transport Canada Centre.

SUPERSEDED