Airworthiness Directives – A TCCA Perspective

EASA AD Workshop

Cologne, Germany • 2-3 December 2014

Outline

- **Issuing ADs – Why, When, What?**
- **Differences from EASA**
- **AMOCs**
- **Continuing Airworthiness Information System (CAWIS)**
- **When questions arise**
- **How can TCCA ADs be improved?**

What

Canadian Aviation Regulation (CAR) 101.01:

“an instruction issued by the Minister or by a civil aviation authority responsible for an aeronautical product type design that mandates a maintenance or operation action to ensure that an aeronautical product conforms to its type design and is in a condition for safe operation”

What

Mandatory Continuing Airworthiness Instruction (MCAI) in accordance with ICAO Annex 8

Issued in English and French, except for Emergency AD which can be issued in English only

What

Number of ADs issued:

Year	No. of ADs
2012	33
2013	41
2014	42

Why

An unsafe condition has been identified on an aeronautical product

"aeronautical product" means any aircraft, aircraft engine, aircraft propeller or aircraft appliance or part or the component parts of any of those things, including any computer system and software

Aeronautics Act

Why

CAR compels the Minister of Transport to issue AD when there is unsafe condition

521.427 (1) The Minister shall issue an airworthiness directive in respect of an aeronautical product if

(a) an unsafe condition exists in the aeronautical product and the condition is likely to exist or develop in other aeronautical products

Why

However, TC can accept a campaign from the DADH instead of issuing an AD

"Note:

TCCA does not necessarily automatically issue an airworthiness directive. It may allow the manufacturer to campaign the replacement of defective parts. Where that campaign is not successful, then TCCA will issue an airworthiness directive."

TCCA/EASA Technical Implementation Procedures for Airworthiness and Environmental Certification

Why

An unsafe condition has not been verified, but there is reason to believe that it exists or is likely to come into existence in an aeronautical product

Why

Subject: **Corrosion Prevention and Control Program (CPCP)**

Effective: 18 April 2005

Applicability: Applies to all Bombardier Inc. "Challenger", models CL-600-1A11 (CL600), CL-600-2A12 (CL-601) and CL-600-2B16 (CL-601-3A/-3R) aircraft.

Compliance: Required as indicated.

Background: Service experience indicates that as aircraft become older, they are more likely to exhibit indications of corrosion. Transport Canada, in conjunction with other airworthiness authorities, has committed itself to ensuring that additional maintenance programs for older aircraft are developed and implemented to minimize and control corrosive deterioration that could jeopardize airworthiness.

A corrosion prevention and control program, hereafter referred to as the "CPCP", which identifies specific areas that must be inspected, is required to be implemented in the maintenance program to ensure the structural integrity of the aircraft fleet.

Why

An existing AD (foreign or Canadian) needs to be cancelled or amended

CAR 521.427 (1) The Minister shall issue an airworthiness directive in respect of an aeronautical product if

(b) it is necessary to modify or cancel the requirements of an airworthiness directive issued by the foreign airworthiness authority having jurisdiction over the type design of the aeronautical product because the Minister considers the airworthiness directive inappropriate for reasons related to the environment, safety, the delayed receipt of an instruction issued by the foreign airworthiness authority or reliance on foreign legislation; or

(c) it is necessary to modify or cancel a Canadian airworthiness directive that is in force, because a condition for issuance referred to in paragraph (a) or (b) has changed or ceased to exist.

Why

Replacement: **Supersedes Federal Aviation Administration (FAA) AD 2011-12-02.**

Applicability: **Viking Air Limited model DHC-3 aeroplane with a Honeywell (Garrett) TPE-331-10 or -12JR turboprop engine installed in accordance with Transport Canada STC SA02-15 or FAA STC SA09866SC.**

Compliance: **As indicated below, unless already accomplished.**

Background: Analysis by the FAA has shown that at the time of certification, the airspeed limitations were not adjusted for the DHC-3 aeroplanes equipped with a Honeywell TPE-331-10 or -12JR turboprop engine installed as per FAA STC SA09866SC. When the FAA STC was familiarized, the corresponding Canadian STC SA02-15 also failed to include adjusted airspeed limitations.

As such, the FAA issued AD 2011-12-02 that mandates new Maximum Operating Limit Speed (VMO) limitations and modifies the airspeed indicator by adding a red line at the VMO speeds. However, the FAA AD did not remove the existing red radial lines at the never-exceed maximum permissible dive speeds, the yellow arc from the current Maximum Structural Cruising Airspeed (VNO) to the Never-Exceed Speed (VNE) or the reference to VNE in the existing DHC-3 Airplane Flight Manual (AFM).

Why

Revision: **Supersedes AD CF-2014-14, issued 5 June 2014.**

Applicability: **Viking Air Limited model DHC-3 aeroplanes, all serial numbers.**

Compliance: **Within 100 hours air time or 90 days, whichever occurs first, from the effective date of this AD.**

Background: A horizontal stabilizer actuator (trim jack) mounting block, part number C3FS79-5, was found loose in the forward-aft and side-to-side directions. The trim jack mounting block fastens the stabilizer actuator (trim jack) which allows the angle of incidence of the stabilizer to be varied. The stabilizer actuator (trim jack) also functions as the rear mounting point for the stabilizer.

Failure of the mounting block through breakage or detachment may cause loss of control of the horizontal stabilizer and subsequent loss of control of the aeroplane. Therefore, this AD mandates a one-time inspection of the stabilizer actuator (trim jack) mounting block.

Revision 1 of this AD corrects the issue date of Service Bulletin (SB) V3/0005 Revision A.

Why

Need to override a global Alternative Means of Compliance (AMOC) granted by the state of design

Why

Emergency equipment intended to minimize the effects of survivable accidents is not performing its intended function

Why

Subject: Improper Installation of Chemical Oxygen Generator Release Pin

Effective: 19 June 2006

Applicability: Bombardier Inc. Model CL-600-2B19, with aircraft serial numbers listed in Bombardier Service Bulletin 601R-35-016, dated 8 September 2005, and Alert Service Bulletin A601R-35-014, dated 25 September 2003.

Compliance: Compliance is required as indicated unless already accomplished.

Background: There have been several incidents on other aircraft makes and models where the release pins of chemical oxygen generators were installed incorrectly in the safety pin hole. This resulted in failure to activate the oxygen generators when required. The same hazard exists on the CL-600-2B19 aircraft since chemical oxygen generators B/E Aerospace part numbers, 117025-22 and 117025-23, used on the CL-600-2B19 aircraft have a similar actuation mechanism design as the oxygen generators used on the incident aircraft.

Why

Hazard of collateral damage/injuries on ground/personnel caused by components that have detached from the aircraft

MLG door landed in Maryland park

Engine part damaged car in Toronto

Why

Subject: **Engine Exhaust Nozzle In-Flight Loss**

Effective: 25 August 2006

Applicability: Bombardier Inc. CL600-2B19 Regional Jet (CRJ), aircraft serial numbers 7003 through 7067, and 7069 through 7947.

Compliance: As indicated, unless already accomplished.

Background: There have been three reported incidents of CL600-2B19 (CRJ) aircraft engine exhaust nozzle and fairing departure in flight. Investigation on the failed retaining bolts revealed the bolts attaching the engine exhaust nozzle to the engine flange offered less than desirable stress margins. Loss of the engine exhaust nozzle during flight could result in damage to the aircraft and create a hazard to persons and property on the ground.

Why

Deficiency in components which are involved in fire protection or are intended to minimize/retard the effects of fire/smoke in a survivable crash (e.g. non-compliance with the applicable flammability requirements)

Why

Subject: Non-Compliant Cargo Compartment Liners.

Effective: 9 April 2012

Applicability: Bombardier Inc. Aeroplane Model CL-600-2B19, Serial Numbers 7003 and subsequent configured with Class C Cargo Compartment.

Compliance: As indicated below, unless already accomplished.

Background: It was found that the cargo compartment liners installed on CL-600-2B19 configured with Class C cargo compartment do not all meet the flammability requirements. Non-compliant cargo compartment liners may not provide adequate fire protection and could lead to an uncontrolled baggage bay fire.

Why

Design features used to assist in the enquiry following an accident (e.g. CVR, FDR, ELT are not performing their intended function

Why

Subject: **Bombardier CL-600-2B19 "Regional Jet" – CVR/FDR Paint Stripping**

Effective: 28 December 2001

Applicability: Bombardier Inc. Model CL-600-2B19 "Regional Jet" aircraft, Serial Numbers 7003 through 7573.

Compliance: Compliance is required within 18 months of the effective date of this directive.

Background: The environment within the aft equipment compartment has proven to be conducive to the stripping of the orange paint and the markings from the dust cover of both the Flight Data Recorder (**FDR**) and the Cockpit Voice Recorder (**CVR**). The distinctive color and markings are essential features of this equipment.

When – Types of AD

- **Normal AD**
- **Emergency AD**

When – Compliance Time

Establishing compliance time based on:

- Urgency of the Unsafe Condition
- Parts Availability
- Practicality of Performing the Required Tasks
- Impact of Required Actions on Existing Maintenance and Overhaul Schedules
- Need for a “Phase-In Period”

What – Equipment AD

- **For items with approval certificate such as TSO, STC, Part Design Approval (PDA)**
- **AD applicability section identifies affected components/installed modifications using words *"Installed on, but not limited to, [list known affected aeronautical products]."***

What – Equipment AD

Subject: Emergency Locator Transmitter – Battery Wiring Installation Discrepancies

Effective: 26 August 2013

Applicability: Honeywell ASCa Inc. Emergency Locator Transmitter (ELT) model RESCU 406AF and 406AFN with Transmitter Unit (TU) part numbers 1152682-1, -2 and -3

Note: These ELT TUs are known to be installed on, but not limited to the following aeroplane series/models and/or their variants:

The Boeing Company: 717, 727, 737, 747, 757, 767, 777, 787, MD-11, MD-80 and MD-90
Lockheed Martin Corporation: 382
Airbus: A300, A310, A320, A321, A330, A340 and A380
ATR – GIE Avions de Transport Régional: ATR42 and ATR72
Dassault Aviation: Falcon 7X

What – AD on Airworthiness Limitations

AD is required when:

•New or more restrictive Airworthiness Limitations (AWL), Fuel System Limitations, Flight Manual Limitations, Certification Maintenance Requirements (CMR) are introduced post-certification.

Except if:

•Non-compliance with new or more restrictive limitations/requirements will not result in unsafe condition

What – AD on Airworthiness Limitations

Example of "more restrictive":

- Reduction of inspection interval
- Reduction in Safe Life Limit/mandatory replacement time
- Reduction in operational limitations (e.g. Never Exceed Speed)
- Change of inspection method from visual to NDI

What – AD on Airworthiness Limitations

Subject: Flight Controls - Horizontal Stabilizer Trim Actuator (HSTA) – Incorporation of New Airworthiness Limitations

Effective Date: 19 September 2014

Applicability: Bombardier Inc. model CL-600-2B16 (604 Variant) aeroplanes, serial numbers 5301 through 5665 and 5701 through 5962.

Compliance: Within 30 days from the effective date of this AD, unless already accomplished.

Background: A revision has been made to the CL 604/605 Time Limits/Maintenance Checks (TLMC) manual, to introduce new tasks for the HSTA. Failure to comply with the TLMC tasks could lead to an unsafe condition.

This AD is issued to ensure that premature wear and cracking of the affected components are detected and corrected.

What – AD on Airworthiness Limitations

Typical wording:

Corrective Actions:

Amend the Transport Canada approved maintenance schedule by incorporating tasks 27-42-01-109 and 27-42-01-111 as introduced in the Airworthiness Limitations Part 2, Section 5-10-40, dated 11 July 2014, of the applicable CL 604 or 605 TLMC Manual.

The above referenced tasks contain phase-in schedules, as required, for aeroplanes with HSTA that may have exceeded the initial task intervals.

Compliance in accordance with superseding Temporary Revisions or later revisions of the above mentioned tasks in Airworthiness Limitation Section of the CL 604 or 605 TLMC manual, approved by Transport Canada, also satisfies the requirements of this AD.

What – Unilateral AD

State of design authority may disagree with TCCA on the unsafe condition and decide not to issue AD

This type of AD issued by TCCA is generally not of concern to EU operators

What – Unilateral AD

Subject: **Hydraulic Test Switch Protection**

Revision: Supersedes Airworthiness directive (AD) CF-2007-19 issued on 7 September 2007.

Effective: 31 December 2008

Applicability: Eurocopter AS 350 Series Helicopters equipped with a Honeywell Control Unit .

This directive also applies to spare Honeywell Control Units P/N 350A61-1614-0004, 350A61-1722-0001, 350A61-1722-0002, 350A61-1722-0010, 350A61-1755-0001 and 350A61-1755-0101.

Helicopters equipped with a Honeywell Control Unit with sealed push-buttons (post-MOD 071262) are excluded from this directive.

Compliance: No later than 1 May 2009, unless already accomplished.

Background: It has been determined that inadvertent selection of the Hydraulic Test Switch can occur in flight due to close proximity to other switches. Transport Canada has concluded that a Hydraulic Test push-button protection flap is needed to reduce exposure to events leading to hydraulic system loss and control difficulties.

What – Supersede vs. Cancel

Supersedure

•ADs are superseded if a different Canadian AD is issued

Number:	CF-2014-31R2	**Effective Date:**	27 November 2014
ATA:	24	**Type Certificate:**	A-142
Subject:	Electrical Power – Generator Undervoltage		
Revision:	Supersedes AD CF-2014-31R1, dated 21 October 2014.		

What – Supersede vs. Cancel

Cancellation

•ADs are cancelled if the requirements are completely cancelled, with no other requirements, or if a foreign AD is applicable

What – Supersede vs. Cancel

Subject: **Seat Lock Mechanism**

Effective: **29 November 2011.**

Cancellation: **Cancels Airworthiness Directive CF-87-15R2 and CF-1987-15R3**

Applicability: **All serial numbers of the following Cessna Aircraft Company models that are certified in any category:**

Background: Airworthiness Directive (AD) CF-87-15 was originally issued to adopt the requirements of FAA (state of type design) AD 87-20-03. The FAA AD was applicable to aeroplanes operating for compensation or hire or operating under FAR Part 91. Since FAR Part 91 is not applicable in Canada, AD CF-87-15 was issued. Revisions 1 and 2 to AD CF-87-15 were issued to reflect revisions made by the FAA to AD 87-20-03R1 and 87-20-03R2 respectively.

The FAA has now issued AD 2011-10-09, which supersedes FAA AD 87-20-03R2. This new AD mandates all the corrective actions of AD CF-87-15R2, contains additional actions and information, and is applicable to all stated Cessna aeroplanes regardless of the type of operations.

Therefore, AD CF-87-15R2 is no longer required and FAA AD 2011-10-09 is applicable to operators in accordance with CAR 625 Appendix H (2).

The current revision is issued to correct a typographical error in the corrective action section of CF-1987-15R3 which made reference to the incorrect FAA AD, and does not impact the technical content of the AD. Please note that Rev 3 was only partially distributed.

Differences from EASA

Wording used

EASA	TCCA
Flight hours	Hours Air Time
Does not approve SBs	Approves SB

“air time” is defined in CAR 101.01 and operators are required to track that

Differences from EASA

Approval of SB

CAR 521.356 *If the Minister determines that a corrective action is required to rectify an unsafe condition in an aeronautical product, the holder of the design approval document in respect of the aeronautical product shall*

(a) submit to the Minister for approval the corrective action required to rectify the unsafe condition

Differences from EASA

Types of AD

EASA	TCCA
AD Correction without AD revision	Correction to AD requires AD revision

Differences from EASA

EASA AD No. 2014-0207

EASA	AIRWORTHINESS DIRECTIVE
	AD No.: 2014-0207 **[Correction: 26 November 2014]** **Date: 16 September 2014** Note: This Airworthiness Directive (AD) is issued by EASA, acting in accordance with Regulation (EC) No 216/2008 on behalf of the European Community, its Member States and of the European third countries that participate in the activities of EASA under Article 66 of that Regulation.

This AD is issued in accordance with EU 748/2012, Part 21.A.3B. In accordance with EC 2042/2003 Annex I, Part M.A.301, the continuing airworthiness of an aircraft shall be ensured by accomplishing any applicable ADs. Consequently, no person may operate an aircraft to which an AD applies, except in accordance with the requirements of that AD, unless otherwise specified by the Agency [EC 2042/2003 Annex I, Part M.A.303] or agreed with the Authority of the State of Registry [EC 216/2008, Article 14(4) exemption].

Type Approval Holder's Name :	Type/Model designation(s) :
AIRBUS	A318, A319, A320 and A321 aeroplanes

Differences from EASA

Number: CF-2014-14R1

ATA: 27 **Type Certificate: A-27**

Subject: Flight Controls - Loose Horizontal Stabilizer Actuator (Trim Jack) Mounting Block

Effective Date: 2 September 2014

Revision: Supersedes AD CF-2014-14, issued 5 June 2014.

Applicability: Viking Air Limited model DHC-3 aeroplanes, all serial numbers.

Compliance: Within 100 hours air time or 90 days, whichever occurs first, from the effective date of this AD.

Background: A horizontal stabilizer actuator (trim jack) mounting block, part number C3FS79-5, was found loose in the forward-aft and side-to-side directions. The trim jack mounting block fastens the stabilizer actuator (trim jack) which allows the angle of incidence of the stabilizer to be varied. The stabilizer actuator (trim jack) also functions as the rear mounting point for the stabilizer.

Failure of the mounting block through breakage or detachment may cause loss of control of the horizontal stabilizer and subsequent loss of control of the aeroplane. Therefore, this AD mandates a one-time inspection of the stabilizer actuator (trim jack) mounting block.

Revision 1 of this AD corrects the issue date of Service Bulletin (SB) V3/0005 Revision A.

What to do when caught in a difficult situation?

AMOC

AMOC

3.5(2) "The State of Design shall, upon request, assist in determining the acceptability of a specific AMOC request submitted to the Importing Party on an airworthiness directive that has been issued by the State of Design for its own civil aeronautical products."

TCCA/EASA Technical Implementation Procedures for Airworthiness and Environmental Certification

AMOC

“…submitted to the Importing Party...”

AMOC

“The State of Design shall, upon request, assist in determining the acceptability…”

AMOC

3.5(1) "An AMOC of general applicability that is issued by either Competent Authority for its own State of Design civil aeronautical products is considered automatically accepted by the other Competent Authority."

TCCA/EASA Technical Implementation Procedures for Airworthiness and Environmental Certification

AMOC

“general applicability” would mean “Global AMOCs” issued by TCCA

“Global AMOC” applies to multiple owners/operators of affected Canadian state of design aeronautical products

Issued to a DADH

Global AMOC

A letter issued by Chief of Continuing Airworthiness with AMOC number (e.g AARDG 2014/A23)

DADH distribute and communicate to owner/operators (e.g. AOM)

Not published in TCCA website

Continuing Airworthiness Information System

CAWIS

CAWIS

http://wwwapps3.tc.gc.ca/Saf-Sec-Sur/2/CAWIS-SWIMN/logon-cs0101.asp?lang=E

Repository of ADs

Includes Canadian and foreign ADs applicable in Canada

CAWIS


Transport Canada
Transports Canada
Canada
Transport Canada
www.tc.gc.ca
Français
Home
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Help
Search
canada.gc.ca
Home > Transport Canada > CAWIS
CAWIS
Help
Airworthiness Directives
Civil Aviation Safety Alerts
Feedback Magazine
TCCA e-Bulletin
Related Links
Contact List
Aircraft Register
Web Service Difficulty Reporting System
CAWIS Web Notice
IMPORTANT:
Transport Canada is now distributing Airworthiness Directives (ADs) and Civil Aviation Safety Alerts (CASAs) to aircraft owners, aircraft maintenance engineers (AMEs) and foreign civil aviation authorities primarily through e-mail. Transport Canada is moving in this direction to reduce its environmental footprint and better manage public funds. In addition, electronic distribution is much quicker than standard mail.
If you are an aircraft owner, AME or foreign civil aviation authority, Transport Canada recommends that you join the AD / CASA electronic mailing list by sending an email to cawwebfeedback@tc.gc.ca. If you do not belong to one of these groups and would like to receive notification of new ADs and/or CASAs, you may sign up via e-news.

When questions arise

Specific AD interpretation/questions

Contact person in the AD

Upon completion of Part II or Part III of this AD, it is prohibited for anyone to install inboard MLG door assemblies with part numbers listed in the "Pre-SB Part Number" column of Section M, Relationship Chart, of Bombardier SB 670BA-32-043, Initial Issue, dated 2 July 2014.

Authorization: For the Minister of Transport,

ORIGINAL SIGNED BY

Derek Ferguson
Chief, Continuing Airworthiness

Contact: Helen Tsai, Continuing Airworthiness, Ottawa, telephone 613-952-4357, facsimile 613-996-9178 or e-mail AD-CN@tc.gc.ca or any Transport Canada Centre.

When questions arise

AMOC

CAA of State of Registry/EASA

When questions arise

General questions on AD/CAWIS

cawwebfeedback@tc.gc.ca

How can TCCA improve our ADs?

Comments?

Suggestions?

Questions?

Thank you for your attention

Presented by: Philip Tang (philip.tang@tc.gc.ca)