



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2023-1047; Project Identifier MCAI-2022-01601-T; Amendment 39-22524; AD 2023-16-05]

RIN 2120-AA64

Airworthiness Directives; De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain De Havilland Aircraft of Canada Limited Model DHC-8-401 and -402 airplanes. This AD was prompted by reports of the main landing gear (MLG) aft door not opening when using the alternate extension system. This AD requires a one-time inspection of the spring box assembly, repetitive inspections of the cam assembly and alternate release cable assembly, corrective actions if necessary, and a replacement of certain alternate release cable assemblies. In addition, this AD requires certain aircraft maintenance manuals tasks when installing the cam assembly or alternate release cable assembly. This AD also prohibits the installation of affected parts. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-1047; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For service information identified in this final rule, contact De Havilland Aircraft of Canada Limited, Dash 8 Series Customer Response Centre, 5800 Explorer Drive, Mississauga, Ontario, L4W 5K9, Canada; telephone North America (toll-free): 855-310-1013, Direct: 647-277-5820; email: thd@dehavilland.com; website: [dehavilland.com](https://www.dehavilland.com).

- You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th Street, Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-1047.

FOR FURTHER INFORMATION CONTACT: Gabriel Kim, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email 9-avs-nyaco-cos@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.) Model DHC-8-401 and -402

airplanes. The NPRM published in the *Federal Register* on June 1, 2023 (88 FR 35788). The NPRM was prompted by AD CF-2022-69, dated December 16, 2022, issued by Transport Canada, which is the aviation authority for Canada (referred to after this as the MCAI). The MCAI states that several instances occurred where the maintenance crew using the MLG alternate extension system did not open the MLG aft doors. An investigation found that the associated cam assembly failed due to a fractured cam assembly lever, a damaged spring box assembly, or a broken alternate release cable assembly.

In the NPRM, the FAA proposed to require a one-time inspection of the spring box assembly, repetitive inspections of the cam assembly and alternate release cable assembly, corrective actions if necessary, and a replacement of certain alternate release cable assemblies. In addition, the NPRM also proposed to require certain aircraft maintenance manual tasks when installing the cam assembly or alternate release cable assembly. The NPRM also proposed to prohibit the installation of affected parts. The FAA is issuing this AD to address possible cam assembly, spring box assembly, and alternate release cable assembly failures. The unsafe condition, if not addressed, could result in asymmetric main landing gear configuration at landing, and a runway excursion.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-1047.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from Air Line Pilots Association, International (ALPA) who supported the NPRM without change.

Conclusion

This product has been approved by the aviation authority of another country and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement

with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data, considered the comments received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on this product. Except for minor editorial changes, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

The FAA reviewed De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019. This service information specifies procedures for performing a general visual inspection of the cam assembly (part number (P/N) 48510-5) for discrepancies (such as the cam assembly does not return to its original rested position, or signs of an increased gap between the roller and the cam guide); a general visual inspection of the alternate release cable assembly (or uplock cable assembly) (P/N 48503-3) for discrepancies (such as a broken cable); a one-time general visual inspection for discrepancies (such as any bend on the plunger) of the left and right MLG spring box assembly (P/N 48504-1); and corrective actions. Corrective actions include replacing the cam assembly with a new cam assembly, replacing the alternate release cable assembly with a new alternate release cable assembly, and replacing the spring box assembly with a new spring box assembly.

The FAA also reviewed De Havilland Aircraft of Canada Limited Service Bulletin 84-32-172, dated August 16, 2022, including Collins Aerospace Service Bulletin 48500-32-152, dated July 18, 2022. This service information specifies procedures for replacing the left and right MLG alternate release cable assemblies, P/N 48503-3, with the redesigned alternate release cable assembly, P/N 48503-5.

The FAA also reviewed De Havilland Aircraft of Canada Limited Temporary Revision 32-603, dated December 1, 2022, which describes aircraft maintenance manual

(AMM) TASK 32-34-16-400-804, “Installation of the Alternate Extension Cables-Center Fuselage to Nacelle.”

The FAA also reviewed AMM TASK 32-34-26-400-801, “Installation of the MLG Alternate-Extension Cam-Mechanism Assembly” of Subject 32-34-26, “Cam Mechanism Assembly-MLG Alternative Extension” in Chapter 32, “Landing Gear,” of the De Havilland Aircraft of Canada Limited Aircraft Maintenance Manual, Revision 76, dated March 5, 2022. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

The FAA estimates that this AD affects 55 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Up to 5 work-hour X \$85 per hour = \$425	\$4,780	Up to \$5,205	Up to \$286,275

The FAA estimates the following costs to do any necessary on-condition action that would be required based on the results of any required action. The FAA has no way of determining the number of aircraft that might need this on-condition action:

Estimated costs of on-condition actions

Labor cost	Parts cost	Cost per product
4.5 work-hours X \$85 per hour = \$383	\$41,328	\$41,711

The FAA has included all known costs in its cost estimate. According to the manufacturer, however, some or all of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected operators.

Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

The FAA is issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: General requirements. Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Will not affect intrastate aviation in Alaska, and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA

amends 14 CFR part 39 as follows:

PART 39 - AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2023-16-05 De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.): Amendment 39-22524; Docket No. FAA-2023-1047; Project Identifier MCAI-2022-01601-T.

(a) Effective Date

This airworthiness directive (AD) is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to De Havilland Aircraft of Canada Limited (type certificate previously held by Bombardier, Inc.) Model DHC-8-401 and -402 airplanes, certificated in any category, having serial numbers 4001 and 4003 through 4633 inclusive.

(d) Subject

Air Transport Association (ATA) of America Code: 32, Landing Gear.

(e) Unsafe Condition

This AD was prompted by reports of the main landing gear (MLG) aft door not opening when using the alternate extension system. The FAA is issuing this AD to address possible cam assembly, spring box assembly, and alternate release cable assembly failures. The unsafe condition, if not addressed, could result in asymmetric MLG configuration at landing, and a runway excursion.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) One-Time Inspection

Within 2,400 flight hours or 12 months, whichever occurs first, after the effective date of this AD, do a one-time general visual inspection for discrepancies on the left and right MLG spring box assemblies (part number (P/N) 48504-1), in accordance with Section 3.B., Part A, of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019. If any discrepancy is discovered in the spring box assembly, before further flight, replace with a new spring box assembly, in accordance with Section 3.B. Part B, of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019.

(h) Repetitive Inspections

(1) Within 2,400 flight hours or 12 months, whichever occurs first, after the effective date of this AD, do a general visual inspection for discrepancies of the cam assemblies (P/N 48510-5) on the left and right MLG, in accordance with Section 3.B. Part A, of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019. Thereafter, repeat the inspection at intervals not to exceed 2,400 flight hours or 12 months, whichever occurs first. If any discrepancy is discovered in the cam assembly, before further flight, replace with a new cam assembly, in accordance with Section 3.B. Part B, of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019.

(2) Within 2,400 flight hours or 12 months, whichever occurs first, after the effective date of this AD, do a general visual inspection for discrepancies of the alternate release cable assemblies (P/N 48503-3) on the left and right MLG, in accordance with

Section 3.B., Part A, of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019. Thereafter, repeat the inspection at intervals not to exceed 2,400 flight hours or 12 months, whichever occurs first. If any discrepancy is found, before further flight, replace the alternate release cable assembly with a redesigned alternate release cable assembly P/N 48503-5, in accordance with in accordance with Section 3.B. of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-172, dated August 16, 2022, including Collins Aerospace Service Bulletin 48500-32-152, dated July 18, 2022. Accomplishing the replacement required by paragraph (i) of this AD terminates the inspections required by this paragraph.

(i) Replacement

Within 5,500 flight hours or 30 months, whichever occurs first, after the effective date of this AD, replace the left and right MLG alternate release cable assemblies, P/N 48503-3, with the redesigned alternate release cable assembly, P/N 48503-5, in accordance with Section 3.B. of the Accomplishment Instructions of De Havilland Aircraft of Canada Limited Service Bulletin 84-32-172, dated August 16, 2022, including Collins Aerospace Service Bulletin 48500-32-152, dated July 18, 2022.

(j) Maintenance Task Requirement

As of the effective date of this AD, when installing an MLG alternate extension system cam assembly and when installing an alternate release cable assembly, the following aircraft maintenance manual (AMM) tasks must be used, as applicable:

(1) For the alternate release cable assembly: AMM TASK 32-34-16-400-804, “Installation of the Alternate Extension Cables-Center Fuselage to Nacelle” as specified in De Havilland Aircraft of Canada Limited Temporary Revision 32-603, dated December 1, 2022.

(2) For the MLG alternate extension system cam assembly: AMM TASK 32-34-

26-400-801, "Installation of the MLG Alternate-Extension Cam-Mechanism Assembly" of Subject 32-34-26, "Cam Mechanism Assembly-MLG Alternative Extension" in Chapter 32, "Landing Gear," of the De Havilland Aircraft of Canada Limited Aircraft Maintenance Manual, Revision 76, dated March 5, 2022.

(k) Parts Installation Prohibition

As of the effective date of this AD, no person may install, on any airplane, an alternate release cable assembly P/N 48503-3.

(l) Additional AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, International Validation Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the International Validation Branch, mail it to ATTN: Program Manager, Continuing Operational Safety, at the address identified in paragraph (m)(2) of this AD or email to: 9-avs-nyaco-cos@faa.gov. If mailing information, also submit information by email. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, International Validation Branch, FAA; or Transport Canada; or De Havilland Aircraft of Canada Limited's Transport Canada Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

(m) Additional Information

(1) Refer to Transport Canada AD CF-2022-69, dated December 16, 2022, for related information. This Transport Canada AD may be found in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2023-1047.

(2) For more information about this AD, contact Gabriel Kim, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; email 9-avs-nyaco-cos@faa.gov.

(n) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) De Havilland Aircraft of Canada Limited Service Bulletin 84-32-159, dated June 28, 2019.

(ii) De Havilland Aircraft of Canada Limited Service Bulletin 84-32-172, dated August 16, 2022, including Collins Aerospace Service Bulletin 48500-32-152, dated July 18, 2022.

Note 1 to paragraph (n)(2)(ii): De Havilland issued De Havilland Service Bulletin 84-32-172, dated August 16, 2022, with Collins Aerospace Service Bulletin 48500-32-152, dated July 18, 2022, attached as one “merged” file for the convenience of affected operators.

(iii) De Havilland Aircraft of Canada Limited Temporary Revision 32-603, dated December 1, 2022.

(iv) AMM TASK 32-34-26-400-801, “Installation of the MLG Alternate-Extension Cam-Mechanism Assembly,” of Subject 32-34-26, “Cam Mechanism

Assembly-MLG Alternative Extension” in Chapter 32, “Landing Gear,” of the De Havilland Aircraft of Canada Limited Aircraft Maintenance Manual, Revision 76, dated March 5, 2022.

(3) For service information identified in this AD, contact De Havilland Aircraft of Canada Limited, Dash 8 Series Customer Response Centre, 5800 Explorer Drive, Mississauga, Ontario, L4W 5K9, Canada; telephone North America (toll-free): 855-310-1013, Direct: 647-277-5820; email: thd@dehavilland.com; website: dehavilland.com.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th Street, Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on August 7, 2023.

Victor Wicklund, Deputy Director,
Compliance & Airworthiness Division,
Aircraft Certification Service.

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