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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2021-0312; Project Identifier MCAI-2020-01376-T; Amendment 39-21729; AD 2021-19-11]

RIN 2120-AA64

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

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain De Havilland Aircraft of Canada Limited Model DHC-8-102, -103, and -106 airplanes; Model DHC-8-201 and -202 airplanes; Model DHC-8-301, -311, and -315 airplanes; and Model DHC-8-400, -401, and -402 airplanes. This AD was prompted by reports that mounting nuts attaching the rudder actuator bracket to the vertical stabilizer have been found cracked or missing due to hydrogen embrittlement. This AD requires a one-time inspection of the rudder actuator bracket mounting nuts, and corrective actions if necessary. The FAA is issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective November 18, 2021.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of November 18, 2021.

ADDRESSES: For service information identified in this final rule, contact De Havilland Aircraft of Canada Limited, Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email thd@dehavilland.com; internet <https://dehavilland.com>. You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0312.

Examining the AD Docket

You may examine the AD docket on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0312; 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, 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.

FOR FURTHER INFORMATION CONTACT: Aziz Ahmed, Aerospace Engineer, Airframe and Propulsion Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7329; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued TCCA AD CF-2020-34, dated October 6, 2020 (TCCA AD CF-2020-34) (also referred to after this as the Mandatory Continuing Airworthiness Information, or the MCAI), to correct an unsafe condition for certain De Havilland Aircraft of Canada Limited Model DHC-8-102, -103, and -106 airplanes; Model DHC-8-201 and -202 airplanes; Model DHC-8-301, -311, -314, and -315 airplanes; and Model DHC-8-400, -401, and -402 airplanes. Model DHC-8-314 airplanes are not certificated by the FAA and are not included on the U.S. type certificate data sheet; this AD therefore does not include those airplanes in the applicability. You may examine the MCAI in the AD docket at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0312.

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 Model DHC-8-102, -103, and -106 airplanes; Model DHC-8-201 and -202 airplanes; Model DHC-8-301, -311, and -315 airplanes; and Model DHC-8-400, -401, and -402 airplanes. The NPRM published in the Federal Register on April 20, 2021 (86 FR 20459). The NPRM was prompted by reports that mounting nuts attaching the rudder actuator bracket to the vertical stabilizer have been found cracked or missing due to hydrogen embrittlement. The NPRM proposed to require a one-time inspection of the rudder actuator bracket mounting nuts, and corrective actions if necessary. The FAA is issuing this AD to address the possible loss of the rudder actuator bracket, which could result in a dormant disconnection between the rudder actuator and the vertical stabilizer. This condition, if not addressed, could result in a loss of directional control of the aircraft. See the MCAI for additional background information.

Comments

The FAA gave the public the opportunity to participate in developing this final rule. The following presents the comments received on the NPRM and the FAA's response to each comment.

Support for the NPRM

The Air Line Pilots Association, International (ALPA), indicated its support for the NPRM.

Request To Require Procedure Only

Horizon Air requested that paragraph (g) of the proposed AD be changed to require only paragraph 3.B. (Procedure) of the Accomplishment Instructions of the applicable service information. Horizon stated that requiring paragraph 3.A. (Job Set-up) and paragraph 3.C. (Close-Out) restricts an operator's ability to perform other maintenance in conjunction with the required actions.

The FAA agrees with the request. Paragraph (g) of this AD has been changed to require only paragraph 3.B. (Procedure) of the Accomplishment Instructions of De Havilland Service Bulletin 8-

27-123, Revision A, dated September 8, 2020; or Service Bulletin 84-27-74, Revision B, dated September 8, 2020; as applicable.

Request To Remove and Replace All Suspect Hardware

A commenter suggested removal and replacement of “all suspect hardware.” The commenter asserted that hydrogen embrittlement would not be evident by way of visual inspection. The FAA infers a request to change the requirements of the proposed AD to replace all affected rudder actuator bracket mounting nuts instead of relying on an inspection to determine which mounting nuts need replacement.

The FAA disagrees with the request. The FAA notes that the rudder actuator bracket mounting nuts were installed as required by AD 2012-04-08, Amendment 39-16964 (77 FR 13193, March 6, 2012), which has a compliance time of within 6,000 flight hours or 3 years after April 10, 2012, whichever occurs first. Viking confirmed that mounting nuts with hydrogen embrittlement can show cracking as soon as one week after being torqued. However, these airplanes have been flying for several years with the mounting nuts installed and without reports of loss of directional control of the airplane caused by the mounting nuts. TCCA and Viking therefore determined, and the FAA agrees, that a one-time visual inspection and replacement if necessary is sufficient to address the unsafe condition. This AD has not been changed with regard to this request.

Conclusion

The FAA reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the change described previously and minor editorial changes. The FAA has determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for addressing the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

The FAA also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

Related Service Information Under 1 CFR Part 51

De Havilland has issued Service Bulletin 8-27-123, Revision A, dated September 8, 2020; and Service Bulletin 84-27-74, Revision B, dated September 8, 2020. This service information specifies procedures for doing a detailed visual inspection of the nuts attaching the rudder actuator brackets to the rear spar. If the nuts are corroded, cracked, or otherwise damaged, or if they are missing, they are replaced. These documents are distinct since they apply to different airplane models. 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 would affect 69 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
3 work-hours × \$85 per hour = \$255	\$0	\$255	\$17,595

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

On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Nut replacement	2 work-hours × \$85 per hour = \$170	Minimal	\$170

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.

Adoption of 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:



FAA
Aviation Safety

AIRWORTHINESS DIRECTIVE

www.faa.gov/aircraft/safety/alerts/
www.gpoaccess.gov/fr/advanced.html

2021-19-11 De Havilland Aircraft of Canada Limited (Type Certificate Previously Held by Bombardier, Inc.): Amendment 39-21729; Docket No. FAA-2021-0312; Project Identifier MCAI-2020-01376-T.

(a) Effective Date

This airworthiness directive (AD) is effective November 18, 2021.

(b) Affected ADs

None.

(c) Applicability

This AD applies to De Havilland Aircraft of Canada Limited (type certificate previously held by Bombardier, Inc.) airplanes, certificated in any category, and identified in paragraphs (c)(1) through (4) of this AD.

(1) Model DHC-8-102, -103, and -106 airplanes, as identified in De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020.

(2) Model DHC-8-201 and -202 airplanes, as identified in De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020.

(3) Model DHC-8-301, -311, and -315 airplanes, as identified in De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020.

(4) Model DHC-8-400, -401, and -402 airplanes, as identified in De Havilland Service Bulletin 84-27-74, Revision B, dated September 8, 2020.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight controls.

(e) Unsafe Condition

This AD was prompted by reports that mounting nuts attaching the rudder actuator bracket to the vertical stabilizer have been found cracked or missing due to hydrogen embrittlement. The FAA is issuing this AD to address the possible loss of the rudder actuator bracket, which could result in a dormant disconnection between the rudder actuator and the vertical stabilizer. This condition, if not addressed, could result in a loss of directional control of the aircraft.

(f) Compliance

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

(g) Required Actions

Within 8,000 flight hours or 4 years, whichever is earlier, after the effective date of this AD: Do a detailed visual inspection of the rudder actuator bracket mounting nuts for missing nuts or corrosion, cracking, or other damage, in accordance with paragraph 3.B. of the Accomplishment Instructions of De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020; or De Havilland Service Bulletin 84-27-74, Revision B, dated September 8, 2020; as applicable. If any missing nuts or corrosion, cracking, or other damage is found, replace the nuts before further flight, in accordance with paragraph 3.B. of the Accomplishment Instructions of De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020; or De Havilland Service Bulletin 84-27-74, Revision B, dated September 8, 2020; as applicable.

(h) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using De Havilland Service Bulletin 8-27-123, dated December 20, 2019; De Havilland Service Bulletin 84-27-74, dated December 20, 2019; or De Havilland Service Bulletin 84-27-74, Revision A, dated January 20, 2020; as applicable.

(i) No Reporting Requirement

Although De Havilland Service Bulletin 8-27-123, Revision A, dated September 8, 2020; and De Havilland Service Bulletin 84-27-74, Revision B, dated September 8, 2020, specify to submit certain information to the manufacturer, this AD does not include that requirement.

(j) Other FAA AD Provisions

The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, New York ACO 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 certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7300; fax 516-794-5531. 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, New York ACO Branch, FAA; or Transport Canada Civil Aviation (TCCA); or De Havilland Aircraft of Canada Limited's TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

(k) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) TCCA AD CF-2020-34, dated October 6, 2020, for related information. This MCAI may be found in the AD docket on the internet at <https://www.regulations.gov> by searching for and locating Docket No. FAA-2021-0312.

(2) For more information about this AD, contact Aziz Ahmed, Aerospace Engineer, Airframe and Propulsion Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7329; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (l)(3) and (4) of this AD.

(I) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) 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 Service Bulletin 8-27-123, Revision A, dated September 8, 2020.

(ii) De Havilland Service Bulletin 84-27-74, Revision B, dated September 8, 2020.

(3) For service information identified in this AD, contact De Havilland Aircraft of Canada Limited, Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email thd@dehavilland.com; internet <https://dehavilland.com>.

(4) You may view this service information at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., 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: <https://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued on September 7, 2021.

Lance T. Gant,

Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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