



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2016-4224; Directorate Identifier 2015-NM-170-AD; Amendment 39-18720; AD 2016-24-03]**

**RIN 2120-AA64**

**Airworthiness Directives; Bombardier, Inc. Airplanes**

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

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain Bombardier, Inc. Model DHC-8-400 series airplanes. This AD was prompted by reports of cracked and corroded barrel nuts found at the mid-spar location of the horizontal-stabilizer-to-vertical-stabilizer attachment joint. This AD requires repetitive detailed inspections of each barrel nut and cradle, a check of the bolt torque of the preload indicating (PLI) washers, and corrective action if necessary. We are 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:** For service information identified in this final rule, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4224.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4224; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800-647-5527) is Docket Management Facility, 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 Mechanical Systems Branch, ANE-171, FAA, New York Aircraft Certification Office (ACO), 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7329; fax 516-794-5531.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc. Model DHC-8-400 airplanes. The NPRM published in the Federal Register on March 14, 2016 (81 FR 13298) (“the NPRM”). The NPRM was prompted by reports of cracked and corroded barrel nuts found at the mid-spar location of the horizontal-stabilizer-to-vertical-stabilizer attachment joint. The NPRM proposed to require repetitive detailed inspections of each barrel nut and cradle, a check of the bolt torque of the PLI washers, and corrective action if necessary. We are issuing this AD to detect and correct cracked and corroded barrel nuts, which could compromise the structural integrity of the vertical-stabilizer attachment joints and lead to loss of control of the airplane.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, issued Canadian Airworthiness Directive CF-2015-13, dated June 25, 2015 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for certain Bombardier, Inc. Model DHC-8-400 series airplanes. The MCAI states:

There has been one in-service report of a cracked and corroded barrel nut, part number (P/N) DSC228-12, found at the mid-spar location of the horizontal stabilizer to vertical stabilizer attachment joint. There have also been two other reports of corroded barrel nuts found at mid-spar locations.

Preliminary investigation determined that the cracking is initiated by corrosion. The corrosion may have been caused by inadequate cadmium plating on the barrel nut. Failure of the barrel nuts could compromise the structural integrity of the joint and could lead to loss of control of the aeroplane.

This [Canadian] AD mandates initial and repetitive inspections of the barrel nuts [and cradles for cracks and corrosion] at each horizontal stabilizer to vertical stabilizer attachment joints.

Required actions include a bolt preload check of the PLI washers and applicable corrective actions (retorque of the bolts and replacement of the barrel nut), a detailed inspection of cracked or broken barrel nuts for damaged bores of the fittings, replacement of barrel nuts, and repair of damage and corrosion.

You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4224.

### **Comments**

We gave the public the opportunity to participate in developing this AD. 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, and a commenter, Lara Gabrys, supported the intent of the NPRM.

### **Request to Specify Revised Service Information**

The source of service information in the NPRM – Bombardier Alert Service Bulletin A84-55-04, Revision A, dated June 2, 2015 – has been revised. Horizon Air requested that we revise the NPRM to refer to the latest version of the service information.

We agree and have revised this final rule to identify Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016, as the appropriate source of service information. The revised service information clarifies certain conditional actions; the

major actions remain essentially unchanged. We have also revised paragraph (m) of this AD to include all earlier revisions as credit for prior accomplishment of the corresponding actions specified in this AD.

### **Request for Terminating Action**

Commenter Lara Gabrys expressed concern about the unsafe condition and the lack of a permanent solution to address it.

We acknowledge the commenter's concern, and point out that this final rule (as also specified in the NPRM) requires that operators submit their inspection findings to Bombardier. Then, based on those findings, Bombardier plans to develop a permanent solution to address the unsafe condition. If terminating action is developed, approved, and available, we might consider additional rulemaking. At this time, however, we are issuing this final rule as proposed.

### **Request to Limit Required Actions**

Paragraphs (g)(1), (g)(2), (h)(1)(i), (h)(1)(ii), (i), and (k) of the proposed AD specified that certain actions be done in accordance with “the Accomplishment Instructions” of the referenced service information. Noting that “the Accomplishment Instructions” include paragraphs 3.A., “Job Set-Up,” and 3.C., “Close Out,” Horizon Air requested that the compliance method instead be limited to paragraph 3.B., “Procedures” – the only section that corrects the unsafe condition. Horizon Air objected to the inclusion of the specified set-up and close-out procedures, which would restrict the operators' ability to perform other maintenance in conjunction with the incorporation of the service information.

We agree with the request, for the reasons provided by the commenter. We have revised paragraphs (g)(1), (g)(2), (h)(1)(i), (h)(1)(ii), (i), and (k) of this AD, as well as paragraph (h)(1) of this AD, to refer to paragraph 3.B., “Procedures.”

### **Clarification of Applicability**

This AD affects Model DHC-8-400, -401, and -402 airplanes. The SUMMARY of the NPRM and paragraph (c) of the proposed AD identified the affected airplanes as “Model DHC-8-400 airplanes.” Model DHC-8-400 series airplanes consist of Model DHC-8-400, -401, and -402 airplanes and correspond to the affected airplanes identified in the MCAI. We have therefore revised the SUMMARY to identify the affected airplanes as certain “Model DHC-8-400 series airplanes.” We also revised paragraph (c) of this AD to identify the applicability as “Model DHC-8-400, -401, and -402 airplanes” with serial numbers 4001 and subsequent.

### **Conclusion**

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

## **Related Service Information under 1 CFR part 51**

Bombardier, Inc. has issued Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016. The service information describes procedures for a detailed inspection and repair for cracks and corrosion of the barrel nuts and cradles, a bolt preload check of the PLI washers, applicable corrective actions, a detailed inspection and repair for corrosion and damage of the bores of the fittings, and replacement of the barrel nuts.

Bombardier, Inc. has also issued Bombardier Repair Drawing (RD) 8/4-55-1143, Issue 1, dated May 21, 2015. The service information describes procedures for repairing corrosion and damage of the fitting bore.

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**

We estimate that this AD affects 76 airplanes of U.S. registry.

We also estimate that it will take about 6 work-hours per product to comply with the basic requirements of this AD and 1 work-hour per product for reporting. The average labor rate is \$85 per work-hour. Required parts will cost about \$0 per product. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$45,220, or \$595 per product.

In addition, we estimate that any necessary follow-on actions would take about 4 work-hours, and require parts costing \$8,881, for a cost of \$9,221 per product. We have no way of determining the number of aircraft that might need this action.

## **Paperwork Reduction Act**

A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB control number. The control number for the collection of information required by this AD is 2120-0056. The paperwork cost associated with this AD has been detailed in the Costs of Compliance section of this document and includes time for reviewing instructions, as well as completing and reviewing the collection of information. Therefore, all reporting associated with this AD is mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave., SW, Washington, DC 20591, ATTN: Information Collection Clearance Officer, AES-200.

## **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.

We are 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**

We determined that 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. Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979);
3. Will not affect intrastate aviation in Alaska; and
4. 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 (AD):

**2016-24-03 Bombardier, Inc.:** Amendment 39-18720; Docket No. FAA-2016-4224; Directorate Identifier 2015-NM-170-AD.

**(a) Effective Date**

This 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 Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, certificated in any category, serial numbers 4001 and subsequent.

**(d) Subject**

Air Transport Association (ATA) of America Code 55, Stabilizers.

**(e) Reason**

This AD was prompted by reports of cracked and corroded barrel nuts found at the mid-spar location of the horizontal-stabilizer-to-vertical-stabilizer attachment joint. We are issuing this AD to detect and correct cracked and corroded barrel nuts, which could compromise the structural integrity of the vertical-stabilizer attachment joints and lead to loss of control of the airplane.

**(f) Compliance**

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

**(g) Detailed Inspection of Barrel Nuts for Cracks and Corrosion**

(1) For airplanes that have accumulated 5,400 flight hours or more, or have been in service 32 months or more since the date of issuance of the original certificate of airworthiness or the date of issuance of the original export certificate of airworthiness, as of the effective date of this AD: Within 600 flight hours or 4 months, whichever occurs first after the effective date of this AD, do a detailed visual inspection for signs of cracks and corrosion of the barrel nut and cradle, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

(2) For airplanes that have less than 5,400 flight hours, and have been in-service for less than 32 months since the date of issuance of the original certificate of airworthiness or the date of issuance of the original export certificate of airworthiness, as of the effective date of this AD: Before the accumulation of 6,000 total flight hours or 36 months since the date of issuance of the original certificate of airworthiness or the date of issuance of the original export certificate of airworthiness, whichever occurs first, do a detailed visual inspection of the barrel nut for signs of cracks and corrosion of the barrel nut and cradle, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

**(h) Corrective Actions, Detailed Inspection, and Repetitive Inspections**

Depending on the findings of any inspection required by paragraphs (g) and (j) of this AD, do the applicable actions in paragraphs (h)(1), (h)(2), and (h)(3) of this AD.

(1) If any barrel nut or cradle is found cracked or broken, before further flight, replace the barrel nut and associated hardware, in accordance with paragraph 3.B.,

“Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

(i) Concurrently with the replacement of any barrel nut, do a detailed inspection for corrosion and damage of the bore of the fitting, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016, and, before further flight, repair all corrosion and damage, in accordance with Bombardier Repair Drawing (RD) 8/4-55-1143, Issue 1, dated May 21, 2015. If the bore of the fitting cannot be repaired in accordance with Bombardier RD 8/4-55-1143, Issue 1, dated May 21, 2015, accomplish corrective actions in accordance with the procedures specified in paragraph (n)(2) of this AD.

(ii) Within 600 flight hours or 4 months, whichever occurs first, after the replacement of a cracked barrel nut, replace the remaining barrel nuts and their associated hardware at the horizontal-stabilizer-to-vertical-stabilizer attachment joints, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

(2) If any corrosion is found on any barrel nut on the front or rear-spar joints, before further flight, replace the barrel nut accomplish corrective actions in accordance with the procedures specified in paragraph (n)(2) of this AD.

(3) If any corrosion above level 1, as defined in Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016, is found on a barrel nut at the mid-spar joint, before further flight, replace the barrel nut and accomplish corrective actions in accordance with the procedures specified in paragraph (n)(2) of this AD.

(4) If all corrosion found is at level 1 or below, as defined in Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016, on a barrel nut at the mid-spar joint, repeat the inspection specified in paragraph (g) of this AD at intervals not to exceed 600 flight hours or 4 months, whichever occurs first, until completion of the actions required by paragraph (k) of this AD.

**(i) Preload Indicating (PLI) Washer Check**

For airplanes with PLI washers installed at the front and rear-spar joints, before further flight after accomplishing any inspection required by (g) of this AD and all applicable corrective actions required by paragraph (h) of this AD, check the bolt preload, and do all applicable corrective actions, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016. Do all applicable corrective actions before further flight.

**(j) Repetitive Inspection Interval**

Repeat the inspection and preload check required by paragraphs (g) and (i) of this AD at intervals not to exceed 3,600 flight hours or 18 months, whichever occurs first, except as provided by paragraph (k) of this AD.

**(k) Optional Barrel Nut Replacement**

Inspection and replacement of all barrel nuts at the horizontal-stabilizer-to vertical-stabilizer attachment joints, in accordance with paragraph 3.B., “Procedures,” of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016, extends the next inspection required by paragraph (j) of

this AD to within 6,000 flight hours or 36 months, whichever occurs first, after accomplishing the replacement.

**(l) Reporting Requirements**

At the applicable time specified in paragraph (l)(1) or (l)(2) of this AD, submit a report of the findings (both positive and negative) of each inspection required by this AD to Technical Help Desk – Q-series, telephone: 416-375-4000, fax: 416-375-4539, e-mail: thd.qseries@aero.bombardier.com, using the inspection form in Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

(1) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(2) If the inspection was done before the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

**(m) Credit for Previous Actions**

This paragraph provides credit for the corresponding actions specified in paragraphs (g)(1), (g)(2), (h)(1), (h)(1)(i), (h)(1)(ii), (h)(3), (h)(4), (i), (k), and (l) of this AD, if those actions were performed before the effective date of this AD using the service information identified in paragraphs (m)(1), (m)(2), and (m)(3) of this AD.

(1) Bombardier Alert Service Bulletin A84-55-04, dated May 21, 2015.

(2) Bombardier Alert Service Bulletin A84-55-04, Revision A, dated June 2, 2015.

(3) Bombardier Alert Service Bulletin A84-55-04, Revision B, dated July 30, 2015.

**(n) Other FAA AD Provisions**

The following provisions also apply to this AD:

**(1) Alternative Methods of Compliance (AMOCs):** The Manager, New York ACO, ANE-170, 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 local Flight Standards District Office, as appropriate. If sending information directly to the ACO, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO, 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 local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

**(2) Contacting the Manufacturer:** For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, New York ACO, ANE-170, FAA; or Transport Canada Civil Aviation (TCCA); or Bombardier, Inc.'s TCCA DAO. If approved by the DAO, the approval must include the DAO-authorized signature.

**(3) Reporting Requirements:** A federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the

collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at 800 Independence Ave. SW, Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

**(o) Related Information**

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian Airworthiness Directive CF-2015-13, dated June 25, 2015, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-4224.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (p)(4) and (p)(5) of this AD.

**(p) 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) Bombardier Alert Service Bulletin A84-55-04, Revision C, dated May 3, 2016.

(ii) Bombardier Repair Drawing (RD) 8/4-55-1143, Issue 1, dated May 21, 2015.

(3) For service information identified in this AD, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; telephone 416-375-4000; fax 416-375-4539; email [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>.

(4) You may view this service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(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, call 202-741-6030, or go to <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on November 15, 2016.

Paul Bernado, Acting Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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