



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0144; Directorate Identifier 2013-NM-232-AD; Amendment 39-17970; AD 2014-19-02]**

**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, -401, and -402 airplanes. This AD was prompted by reports of rudder bearings falling out of the fore rudder hinge bracket during assembly. This AD requires a proof load test and detailed inspections; and installation of a new bearing, reaming, or repair of the bearing if necessary. We are issuing this AD to detect and correct improper bearing installation, which could result in abnormal wear and potential increased freeplay in the rudder system, and resultant airframe vibration, leading to compromise of the flutter margins of the airplane.

**DATES:** This AD becomes 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 a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**ADDRESSES:** You may examine the AD docket on the Internet at

<http://www.regulations.gov/#!docketDetail;D=FAA-2014-0144> or in person at the 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.

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>. 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.

**FOR FURTHER INFORMATION CONTACT:** Ricardo Garcia, 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 516-228-7331; 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 Model DHC-8-400, -401, and -402

airplanes. The NPRM published in the Federal Register on March 25, 2014 (79 FR 16245).

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2013-34, dated November 1, 2013 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition for certain Bombardier Model DHC-8-400, -401, and -402 airplanes. The MCAI states:

It was reported that rudder bearings were falling out of the fore rudder hinge bracket during assembly. Investigation revealed the root cause as improper application of the adhesive compound and the lack of application of sealant during the installation of the rudder bearings into the fore rudder hinge bracket. The improper bearing installation, if not corrected, could result in abnormal wear and could potentially increase the freeplay in the rudder system. This may result in airframe vibration, eventually compromising the flutter-margins of the aeroplane.

This [Canadian] AD mandates the inspection, and rectification as required, of the fore rudder bearings in the hinge bracket assembly.

Required actions include a proof load test for slippage and freeplay. Related investigative actions include a detailed inspection of a certain bearing for damage, corrosion, and dimension conformity; and a detailed inspection of the fitting bore of the fore rudder hinge bracket for wear, damage, corrosion, and dimension conformity. Corrective actions include installation of a new bearing, reaming, or repair of the bearing. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2014-0144-0002>.

### **Revised Service Information**

Since the NPRM (79 FR 16245, March 25, 2014) was issued, Bombardier has issued Service Bulletin 84-27-44, Revision ‘B’, dated February 11, 2014. Among other things, Bombardier Service Bulletin 84-27-44, Revision ‘B’, dated February 11, 2014, clarifies a note, and corrects a task number for the operational check of the rudder control system.

We have revised this AD to include Bombardier Service Bulletin 84-27-44, Revision ‘B’, dated February 11, 2014, as an additional source of appropriate service information. We also have revised paragraph (i) of this AD to include Bombardier Service Bulletin 84-27-44, Revision ‘A,’ dated June 10, 2009, as service information that can be used for credit for previous accomplishment of certain actions required by this AD.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM (79 FR 16245, March 25, 2014) and the FAA’s response to each comment.

### **Request to Change Airworthy Product Paragraph**

Horizon Air requested that we revise the Airworthy Product paragraph, i.e., paragraph (j)(2) of the NPRM (79 FR 16245, March 25, 2014), to either remove or change the sentence that states, in part, that “repair approvals must specifically refer to this AD.”

Horizon Air reasoned that the sentence in question places an unnecessary regulatory burden on operators with airplanes that are built in Canada. Horizon Air explained that since TCCA is the State holding Design Authority for Bombardier, Inc. Model DHC-8-400 series airplanes, any repairs created by Bombardier would have to be in compliance with the TCCA AD, and the repair would specifically refer to the TCCA AD.

The commenter added that the bilateral agreement between Canada and the United States accepts documents approved by TCCA as meeting the requirements for FAA-approval. The commenter questioned whether the U.S. AD number is necessary when the repair is approved by TCCA and the repair specifically refers to the Canadian AD, and asked what value is added by specifically referring to the U.S. AD if the repair meets the approval requirements of the State holding the Design Authority. Horizon Air noted that the language in paragraph (j)(2) of the NPRM (79 FR 16245, March 25, 2014) would force operators that incorporated a repair method prior to the effective date of the AD to go back to the manufacturer and request a revision to the repair method to add the U.S. AD number, even if the repair method referenced the TCCA AD.

Horizon Air also explained that it discussed the statement concerning repair approvals with Bombardier Aerospace, Toronto. The Engineering Department management of Bombardier Aerospace, Toronto, stated they are under the TCCA umbrella, and they can refer only to a TCCA AD on their repair drawings. If this requirement is retained in the U.S. AD as written, it would require an operator to somehow have a repair drawing revised to include the U.S. AD number. This is a difficult

task, considering the manufacturer's stated position that they currently do not include the U.S. AD number, and they have no internal processes to add it. The statement in the U.S. AD should allow the TCCA AD number as an equivalent to the U.S. AD number.

Horizon Air also noted that an operator could pursue an alternative method of compliance (AMOC) but that would add additional time and cost to compliance. The additional time required for an AMOC will most likely delay returning the airplanes to service, and if the AMOC is needed on a weekend or federal holiday, the return to service would take even longer.

We concur with the commenter's request to remove from this AD the requirement that repair approvals must specifically refer to this AD. Since late 2006, we have included a standard paragraph titled "Airworthy Product" in all MCAI ADs in which the FAA develops an AD based on a foreign authority's AD. The MCAI or referenced service information in an FAA AD often directs the owner/operator to contact the manufacturer for corrective actions, such as a repair. Briefly, the Airworthy Product paragraph allowed owners/operators to use corrective actions provided by the manufacturer if those actions were FAA-approved. In addition, the paragraph stated that any actions approved by the State of Design Authority (or its delegated agent) are considered to be FAA-approved.

In the NPRM (79 FR 16245, March 25, 2014), we proposed to prevent the use of repairs that were not specifically developed to correct the unsafe condition, by requiring that the repair approval provided by the State of Design Authority or its delegated agent specifically refer to this FAA AD. This change was intended to clarify the method of compliance and to provide operators with better visibility of repairs that are specifically

developed and approved to correct the unsafe condition. In addition, we proposed to change the phrase “its delegated agent” to include a design approval holder (DAH) with State of Design Authority design organization approval (DOA), as applicable, to refer to a DAH authorized to approve required repairs for the proposed AD.

A related comment was provided for an NPRM having Directorate Identifier 2012-NM-101-AD (78 FR 78285, December 26, 2013), which applies to certain Airbus airplane models. The commenter stated the following: “The proposed wording, being specific to repairs, eliminates the interpretation that Airbus messages are acceptable for approving minor deviations (corrective actions) needed during accomplishment of an AD mandated Airbus service bulletin.”

This comment has made the FAA aware that some operators have misunderstood or misinterpreted the Airworthy Product paragraph to allow the owner/operator to use messages provided by the manufacturer as approval of deviations during the accomplishment of an AD-mandated action. The Airworthy Product paragraph does not approve messages or other information provided by the manufacturer for deviations to the requirements of the AD-mandated actions. The Airworthy Product paragraph only addresses the requirement to contact the manufacturer for corrective actions for the identified unsafe condition and does not cover deviations from other AD requirements. However, deviations to AD-required actions are addressed in 14 CFR 39.17, and anyone may request the approval for an alternative method of compliance to the AD-required actions using the procedures found in 14 CFR 39.19.

To address this misunderstanding and misinterpretation of the Airworthy Product paragraph, we have changed that paragraph and retitled it “Contacting the Manufacturer.” This paragraph now clarifies that, for any requirement in this AD to obtain corrective actions from a manufacturer, the actions must be accomplished using a method approved by the FAA, TCCA, or Bombardier, Inc.’s TCCA Design Approval Organization (DAO).

The Contacting the Manufacturer paragraph also clarifies that, if approved by the DAO, the approval must include the DAO-authorized signature. The DAO signature indicates that the data and information contained in the document are TCCA-approved, which is also FAA-approved. Messages and other information provided by the manufacturer that do not contain the DAO-authorized signature approval are not TCCA-approved, unless TCCA directly approves the manufacturer’s message or other information.

This clarification does not remove flexibility afforded previously by the Airworthy Product paragraph. Consistent with long-standing FAA policy, such flexibility was never intended for required actions. This is also consistent with the recommendation of the Airworthiness Directive Implementation Aviation Rulemaking Committee to increase flexibility in complying with ADs by identifying those actions in manufacturers’ service instructions that are “Required for Compliance” with ADs. We continue to work with manufacturers to implement this recommendation. But once we determine that an action is required, any deviation from the requirement must be approved as an alternative method of compliance.



Other commenters to the NPRM having Directorate Identifier 2012-NM-101-AD (78 FR 78285, December 26, 2013), pointed out that in many cases the foreign manufacturer's service bulletin and the foreign authority's MCAI may have been issued some time before the FAA AD. Therefore, the DOA may have provided U.S. operators with an approved repair, developed with full awareness of the unsafe condition, before the FAA AD is issued. Under these circumstances, to comply with the FAA AD, the operator would be required to go back to the manufacturer's DOA and obtain a new approval document, adding time and expense to the compliance process with no safety benefit.

Based on these comments, we removed from this AD the requirement that the DAH-provided repair specifically refer to this AD. Before adopting such a requirement in the future, the FAA will coordinate with affected DAHs and verify they are prepared to implement means to ensure that their repair approvals consider the unsafe condition addressed in an AD. Any such requirements will be adopted through the normal AD rulemaking process, including notice-and-comment procedures, when appropriate.

We have also decided not to include a generic reference to either the "delegated agent" or the "DAH with State of Design Authority design organization approval," but instead we will provide the specific delegation approval granted by the State of Design Authority for the DAH throughout this AD.

## **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 (79 FR 16245, March 25, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 16245, March 25, 2014).

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

### **Costs of Compliance**

We estimate that this AD affects 78 airplanes of U.S. registry.

We also estimate that it will take about 7 work-hours per product to comply with the basic requirements of this AD. 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 \$46,410, or \$595 per product.

In addition, we estimate that any necessary follow-on actions will take about 8 work-hours and require parts costing \$155, for a cost of \$835 per product. We have no way of determining the number of aircraft that might need this action.

### **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.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov/#!docketDetail;D=FAA-2014-0144>; 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 Operations office (telephone 800-647-5527) is in the ADDRESSES section.

#### **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):

**2014-19-02 Bombardier, Inc.:** Amendment 39-17970. Docket No. FAA-2014-0144; Directorate Identifier 2013-NM-232-AD.

#### **(a) Effective Date**

This AD becomes 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 4166 through 4175, inclusive.

**(d) Subject**

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

**(e) Reason**

This AD was prompted by reports of rudder bearings falling out of the fore rudder hinge bracket during assembly. We are issuing this AD to detect and correct improper bearing installation, which could result in abnormal wear and potential increased freeplay in the rudder system, and resultant airframe vibration, leading to compromise of the flutter margins of the airplane.

**(f) Compliance**

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

**(g) Proof Load Test**

Within 2,000 flight hours or 12 months after the effective date of this AD, whichever occurs first, do a proof load test for slippage and freeplay (relative movement between the bearing and fitting), in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014. If no slippage or freeplay is detected during the proof load test required by this paragraph, before further flight, identify the area with a marker and apply sealant if missing, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014; and after identifying the area with a marker and applying sealant, no further action is required by this AD.

**(h) Rectification**

If any slippage or freeplay (relative movement between the bearing and fitting) is detected during the test required by paragraph (g) of this AD, before further flight, do the actions specified in paragraphs (h)(1) and (h)(2) of this AD.

(1) Do a detailed inspection of bearing DSC8-6 for damage, corrosion, and dimension conformity, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014. If damage, corrosion, or dimension non-conformity is found, before further flight, install new bearing DSC8-6, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014.

(2) Do a detailed inspection of the fitting bore of the fore rudder hinge bracket assembly for wear, damage, corrosion, and dimension conformity, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014.

(i) If damage, corrosion, or dimension non-conformity is found during the inspection required by paragraph (h)(2) of this AD, before further flight, ream the inside diameter, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014.

(ii) If bore wear or damage beyond 0.8140-inch diameter is found during the inspection required by paragraph (h)(2) of this AD, before further flight, repair using a method approved by the Manager, New York ACO, ANE-170, Engine and Propeller Directorate, FAA; or Transport Canada Civil Aviation (TCCA); or Bombardier, Inc.'s

TCCA Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

**(i) Credit for Previous Actions**

This paragraph provides credit for actions required by paragraphs (g) and (h) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 84-27-44, dated April 13, 2009; or Bombardier Service Bulletin 84-27-44, Revision 'A,' dated June 10, 2009; which are not incorporated by reference in this AD.

**(j) 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 New York 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, Engine and Propeller Directorate, FAA; or TCCA; or Bombardier, Inc.'s TCCA 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) Canadian Airworthiness Directive CF-2013-34, dated November 1, 2013, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2014-0144-0002>.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (1)(3) and (1)(4) of this AD.

**(l) 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 Service Bulletin 84-27-44, Revision 'B,' dated February 11, 2014.

(ii) Reserved.

(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; 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 September 8, 2014.

Jeffrey E. Duven,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

[FR Doc. 2014-22153 Filed 09/18/2014 at 8:45 am; Publication Date: 09/19/2014]