

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-0594; Directorate Identifier 2012-NM-019-AD; Amendment 39-17641; AD 2013-22-09]**

**RIN 2120-AA64**

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

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

**ACTION:** Final rule.

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**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 movement of the rudder pedals being impeded due to corrosion of the trunnion shaft of the rudder feel trim unit (RFTU). This AD requires an inspection to determine if certain RFTUs are installed, an operational check for signs of seizure of affected parts, repetitive lubrication of certain RFTUs, and replacement of the RFTU if necessary. Installing replacement RFTUs having conformal bushings terminates the repetitive lubrication requirements. We are issuing this AD to detect and correct any sign of rough movement or seizure of the trunnion shaft and its bushing, which could cause a rudder control jam or a large and rapid alternating rudder input leading to a structural failure of the vertical fin.

**DATES:** This AD becomes effective December 5, 2013.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of December 5, 2013.

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov/#!docketDetail;D=FAA-2012-0594> or in person at the 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:** Cesar Gomez, Aerospace Engineer, Airframe and Mechanical Systems Branch, ANE-171, FAA, New York Aircraft Certification Office, 1600 Stewart Avenue, Suite 410, Westbury, New York 11590; telephone (516) 228-7318; fax (516) 794-5531.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to the specified products. The SNPRM was published in the Federal Register on March 12, 2013 (78 FR 15655). We preceded the SNPRM with a notice of proposed rulemaking (NPRM), which published in the Federal Register on June 12, 2012 (77 FR 34874). The NPRM and the SNPRM both proposed to correct an unsafe condition for the specified products.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2012-02R1, dated October 12, 2012 (referred to after this as the Mandatory Continuing Airworthiness Information, or "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

There have been several reported incidents on DHC-8 Series 400 aeroplanes where the movement of the rudder pedals has been impeded. An investigation showed that the Rudder Feel Trim Unit (RFTU) trunnion shaft was corroded. The root cause of the corrosion was a quality escape where cadmium plating on the trunnion bushing within the RFTU assembly was not removed. Corrosion on the shaft and in the trunnion bushing seized the trunnion and caused difficulties in controlling the rudder movement.

This condition, if not corrected, could cause a rudder control jam or a large and rapid alternating rudder input leading to a structural failure of the vertical fin.

This [TCCA] Airworthiness Directive (AD) is issued [inspect to determine serial number, an operational check for seizure, repetitive lubrication and] to replace the affected RFTUs to limit the possibility of binding and replace the affected RFTUs with units that have been reworked with conformal bushings to terminate the lubrication requirements.

You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2012-0594-0006>.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received.

### **Request To Revise Compliance Time for Operational Check**

Horizon Air (Horizon) requested that paragraph (g)(2) of the SNPRM (78 FR 15655, March 12, 2013) be revised to allow operators that perform a review of airplane maintenance records, in lieu of visually inspecting the serial number of the RFTU, time to schedule the operational check specified by paragraph (g)(2) of the SNPRM. Horizon stated that the compliance time "before further flight" specified in paragraph (g)(2) of the SNPRM would immediately ground aircraft.

We agree with Horizon's request. We have revised the compliance time in paragraph (g)(2) of this final rule to "200 flight hours or 2 months, whichever occurs first after the effective date of this AD" for performing the operational check specified in that paragraph.

### **Explanation of Changes Made to This AD**

We have revised paragraph (h) of this final rule to specify that installing replacement RFTUs having conformal bushings terminates the repetitive lubrication requirements of paragraph (g)(2)(ii) of this final rule for the affected RFTU.

## Conclusion

We reviewed the available data, including the comment received, and determined that air safety and the public interest require adopting this AD with the changes described previously. We have determined that these changes:

- Are consistent with the intent that was proposed in the SNPRM (78 FR 15655, March 12, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the SNPRM (78 FR 15655, March 12, 2013).

## Costs of Compliance

We estimate that this AD affects 83 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

| <b>Estimated Costs</b>               |   |                   |  |  |
|--------------------------------------|---|-------------------|--|--|
| <b>Action</b>                        | <b>Labor cost</b>   | <b>Parts cost</b> | <b>Cost per product</b>                                  | <b>Cost on U.S. operators</b>                            |
| Inspection, Replacement, Lubrication | 5 work-hours × \$85 per hour = \$425 per inspection, replacement, and lubrication cycle | \$0               | \$425 per inspection, replacement, and lubrication cycle | \$35,275 inspection, replacement, and lubrication cycle. |

We estimate the following costs to do any necessary replacements that would be required based on the results of the inspection. We have no way of determining the number of aircraft that might need these replacements:

| <b>On-Condition Costs</b> |   |                   |                         |
|---------------------------|---|-------------------|-------------------------|
| <b>Action</b>             | <b>Labor cost</b>                       | <b>Parts cost</b> | <b>Cost per product</b> |
| Replacement               | 17 work-hours × \$85 per hour = \$1,445 | \$0               | \$1,445                 |

Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these parts. As we do not control warranty coverage for affected parties, some parties may incur costs higher than estimated here.

## 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket.

## **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov/#!docketDetail;D=FAA-2012-0594>; or in person at the Docket Operations office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this AD, the MCAI, 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 AD:



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**2013-22-09 Bombardier, Inc.:** Amendment 39-17641. Docket No. FAA-2012-0594; Directorate Identifier 2012-NM-019-AD.

**(a) Effective Date**

This airworthiness directive (AD) becomes effective December 5, 2013.

**(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 (S/N) 4001, 4003 and subsequent, equipped with rudder feel trim unit (RFTU) part number (P/N) 399500-1007.

**(d) Subject**

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

**(e) Reason**

This AD was prompted by reports of movement of the rudder pedals being impeded due to corrosion of the trunnion shaft of the RFTU. We are issuing this AD to detect and correct any sign of rough movement or seizure of the trunnion shaft and its bushing, which could cause a rudder control jam or a large and rapid alternating rudder input leading to a structural failure of the vertical fin.

**(f) Compliance**

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**(g) Inspection, Replacement, and Lubrication**

Within 200 flight hours or two months after the effective date of this AD, whichever occurs first: Inspect the RFTU to determine whether the serial number is in the range from S/N 0008 through 0509 inclusive without a suffix 'B,' in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-60, dated July 12, 2012. A review of airplane maintenance records is acceptable in lieu of this inspection if the serial number of the RFTU can be conclusively determined from that review.

(1) If the RFTU's serial number is not in the range from S/N 0008 through 0509 inclusive, or if the serial number has a suffix 'B,' no further action is required for this paragraph.

(2) If the RFTU's serial number is in the range from S/N 0008 through 0509 inclusive, including those with a suffix 'A,' but not including those with suffix 'B': Within 200 flight hours or 2 months, whichever occurs first after the effective date of this AD, perform an operational check of the RFTU for any sign of rough movement or seizure of the trunnion or center shaft, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-60, dated July 12, 2012.

(i) If rough movement or seizure of the RFTU trunnion or center shaft is found: Before further flight, replace the RFTU with a new or serviceable RFTU, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-60, dated July 12, 2012.

(ii) If no rough movement or seizure of the RFTU trunnion or center shaft is found: Before further flight, lubricate the RFTU, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-60, dated July 12, 2012. Repeat the lubrication of the RFTU at intervals not to exceed 600 flight hours or 3 months, whichever occurs first, until the RFTU is replaced with a unit that has a serial number outside the affected range or a serial number with a suffix 'B.'

#### **(h) Replacement**

For airplanes having an RFTU identified in paragraph (g)(2) of this AD: Except as required by paragraph (g)(2)(i) of this AD, within 5,000 flight hours or 3 years after the effective date of this AD, whichever occurs first, replace all affected RFTUs with units that have a serial number outside the range from S/Ns 0008 through 0509 inclusive, or that have a serial number with a suffix 'B,' in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-27-60, dated July 12, 2012. Installing replacement RFTUs having conformal bushings terminates the repetitive lubrication requirements of paragraph (g)(2)(ii) of this AD for the affected RFTU.

#### **(i) Parts Installation Limitation**

As of the effective date of this AD, no person may install an RFTU P/N 399500-1007 with a serial number from S/N 0008 through 0509 inclusive, including serial numbers with suffix 'A,' on any airplane, except that RFTUs having a serial number with suffix 'B' may be installed.

#### **(j) Other FAA AD Provisions**

The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, New York Aircraft Certification Office (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, New York 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) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

#### **(k) Related Information**

Refer to MCAI Canadian Airworthiness Directive CF-2012-02R1, dated October 12, 2012, for related information, which can be found in the AD docket on the Internet at <http://www.regulations.gov/#!documentDetail;D=FAA-2012-0594-0006>.

#### **(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 the AD specifies otherwise.

(i) Bombardier Service Bulletin 84-27-60, dated July 12, 2012.

(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](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>.

(4) You may review copies of the 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 October 18, 2013.

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