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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2011-0036; Directorate Identifier 2010-NM-230-AD;  
Amendment 39-16729; AD 2011-13-06]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Bombardier, Inc. Model DHC-8-400 Series 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 the products listed above. This AD results from mandatory continuing airworthiness information (MCAI) originated by an aviation authority of another country to identify and correct an unsafe condition on an aviation product. The MCAI describes the unsafe condition as:

Bombardier Aerospace has completed a system safety review of the aeroplanes fuel system against fuel tank safety standards introduced in Chapter 525 of the Airworthiness Manual through Notice of Proposed Amendment (NPA) 2002-043 [which corresponds with the FAA's Special Federal Aviation Regulation (SFAR) 88]. The identified non-compliances were then assessed using Transport Canada Policy Letter No. 525-001, to determine if mandatory corrective action is required.

The assessment showed that a number of modifications to the fuel system are required to mitigate unsafe conditions that could result in potential ignition source within the fuel system.

We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective August 1, 2011.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of August 1, 2011.

**ADDRESSES:** You may examine the AD docket on the Internet at <http://www.regulations.gov> 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 FURTHER INFORMATION CONTACT:** James Delisio, Aerospace Engineer, Propulsion and Services Branch, ANE-173, FAA, New York Aircraft Certification Office, 1600 Stewart Avenue, Suite 410, Westbury, New York 11590; telephone (516) 228-7321; fax (516) 794-5531.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. That NPRM was published in the Federal Register on February 7, 2011 (76 FR 6584). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

Bombardier Aerospace has completed a system safety review of the aeroplanes fuel system against fuel tank safety standards introduced in chapter 525 of the Airworthiness Manual through Notice of Proposed Amendment (NPA) 2002-043 [which corresponds with the FAA's Special Federal Aviation Regulation (SFAR) 88]. The identified non-compliances were then assessed using Transport Canada Policy Letter No. 525-001, to determine if mandatory corrective action is required.

The assessment showed that a number of modifications to the fuel system are required to mitigate unsafe conditions that could result in potential ignition source within the fuel system.

The Bombardier modifications include:

- Modsum 4-126330, "Fuel Tank System Design Left and Right Side (SFAR 88) Retrofit." The retrofit includes replacing certain fittings, couplings, o-rings, gaskets, fuel adapter, and other related components with new, improved parts; applying Alodine 1132 to certain areas of a wing rib and a wing spar; and replacing a certain doubler on the front wing spar with a new, improved doubler.
- Modsum 4-126366, "Fuel Tank System and Fuel Indication–
- Wiring Identification, Segregation and Installation (High Level Sensor and Fuel Quantity Indication)–Retrofit." The retrofit includes adding new wiring with protective sleeving, reworking existing wiring, labeling and separating the fuel quantity indicating (FQI) wiring and high level sensor wiring from other wiring, enhancing the electro-magnetic interference (EMI) shielding of the wiring connected to the vent valve position switch, and installing additional provisions (bulkhead brackets) for wiring clips in the center fuselage.
- Modsum 4-901425, "Fuel Feed to APU–Replacement of Couplings in Center Wing Left Side–SFAR 88."
- Modsum 4-126370, "Fuel Tank System–Enhance Protective Covering for Electrical Cable Assembly," which includes reworking the contact area on the rib at Yw-42.000 to ensure adequate electrical bonding, installing spiral wrap on certain cable assemblies where existing spiral wrap does not extend 4 inches past the tie mounts, applying a dome seal on thread openings on a high level sensor, and installing fuel grommets at certain locations.
- Modsum 4-113580, "Fuel Indication–High Level Sensor–
- Application of Sealant to Exposed End of Sensor Terminal Block Screws–Special Inspection and Rectification," which includes doing a detailed inspection of the high level sensor for correct sealant coverage ('dome seal') on the terminal screws, and applying sealant if necessary.

You may obtain further information by examining the MCAI in the AD docket.

## **Comments**

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM or on the determination of the cost to the public.

## **Conclusion**

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

## **Differences Between This AD and the MCAI or Service Information**

We have reviewed the MCAI and related service information and, in general, agree with their substance. But we might have found it necessary to use different words from those in the MCAI to ensure the AD is clear for U.S. operators and is enforceable. In making these changes, we do not intend to differ substantively from the information provided in the MCAI and related service information.

We might also have required different actions in this AD from those in the MCAI in order to follow our FAA policies. Any such differences are highlighted in a Note within the AD.

## **Costs of Compliance**

We estimate that this AD will affect 67 products of U.S. registry. We also estimate that it will take about 526 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 \$37,696 per product. 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. Based on these figures, we estimate the cost of this AD to the U.S. operators to be \$5,521,202, or \$82,406 per product.

## **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**

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 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>; 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 the NPRM, 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. Comments will be available in the AD docket shortly after receipt.

### **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:



**2011-13-06 Bombardier, Inc.:** Amendment 39-16729. Docket No. FAA-2011-0036; Directorate Identifier 2010-NM-230-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective August 1, 2011.

**Affected ADs**

- (b) None.

**Applicability**

(c) This AD applies to Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, certificated in any category; with serial numbers (S/N) 4003, 4004, 4006, and 4008 through 4205 inclusive.

**Subject**

- (d) Air Transport Association (ATA) of America Code 28: Fuel.

**Reason**

- (e) The mandatory continuing airworthiness information (MCAI) states:

Bombardier Aerospace has completed a system safety review of the aeroplanes fuel system against fuel tank safety standards introduced in Chapter 525 of the Airworthiness Manual through Notice of Proposed Amendment (NPA) 2002-043 [which corresponds with the FAA's Special Federal Aviation Regulation (SFAR) 88]. The identified non-compliances were then assessed using Transport Canada Policy Letter No. 525-001, to determine if mandatory corrective action is required.

The assessment showed that a number of modifications to the fuel system are required to mitigate unsafe conditions that could result in potential ignition source within the fuel system.

**Compliance**

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

## **Actions Applicable to Airplanes Having S/N 4003, 4004, 4006 & 4008 through 4118**

(g) For airplanes having S/Ns 4003, 4004, 4006, and 4008 through 4118 inclusive: Within 6,000 flight hours after the effective date of this AD, incorporate the modifications required in paragraphs (g)(1), (g)(2), and (g)(3) of this AD, as applicable.

(1) Incorporate Bombardier Modsum 4-126330, "Fuel Tank System Design Left and Right Side (SFAR 88) Retrofit," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-57-09, Revision B, dated September 3, 2008.

(2) Incorporate Bombardier Modsum 4-126366, "Fuel Tank System and Fuel Indication—Wiring Identification, Segregation and Installation (High Level Sensor and Fuel Quantity Indication)—Retrofit," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-28-04, Revision B, dated October 21, 2009.

(3) For airplanes on which Bombardier Modsum 4-302000, "Standard Option—APU Installation," has been installed: Incorporate Bombardier Modsum 4-901425, "Fuel Feed to APU—Replacement of Couplings in Center Wing Left Side—SFAR 88," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-28-05, dated June 28, 2006.

(h) For airplanes having S/Ns 4003, 4004, 4006, and 4008 through 4118 inclusive, do Bombardier Fuel System Limitation (FSL) Task 284000-417 (Functional Check of the Fuel Tank Components and Plumbing Lines for Electrical Bonding) contained in Section 4-1, Fuel System Limitations, of Part 2—Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, at the applicable times specified in paragraphs (h)(1) and (h)(2) of this AD. Where the task specifies contacting Bombardier for technical assistance, this AD requires repairs/rework actions in accordance with a method approved by the Manager, New York Aircraft Certification Office (ACO), FAA, or Transport Canada Civil Aviation (TCCA) (or its delegated agent).

(1) Except as provided in paragraphs (h)(1)(i) and (h)(1)(ii) of this AD, for airplanes that have incorporated either Bombardier Modsum 4-126330 or 4-901425 prior to the effective date of this AD: Do Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2—Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, within 6,000 flight hours after the effective date of this AD.

(i) Airplanes on which Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2—Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, was successfully completed after incorporation of Bombardier Modsum 4-126330 or 4-901425 do not need to comply with the requirements of paragraph (h) of this AD.

(ii) Airplanes on which Bombardier Modsum 4-126330 or 4-901425 was incorporated during manufacturing of the airplane do not need to comply with the requirements of paragraph (h) of this AD.

(2) For airplanes on which neither Bombardier Modsum 4-126330 nor 4-901425 were incorporated before the effective date of this AD: Do Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2—Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, upon completion of the incorporation of Bombardier Modsum 4-126330 and, if applicable, Bombardier Modsum 4-901425.

## **Actions Applicable to Airplanes S/N 4003, 4004, 4006 & 4008 Through 4118 Inclusive, Manufactured Before September 21, 2005**

(i) For airplanes having S/N 4003, 4004, 4006, and 4008 through 4118 inclusive, on which the date of issuance of the original Canadian standard airworthiness certificate or the date of issuance of the original Canadian export certificate of airworthiness is before September 21, 2005: Within 6,000 flight hours after the effective date of this AD, incorporate Bombardier Modsum 4-126370, "Fuel

Tank System—Enhance Protective Covering for Electrical Cable Assembly," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-28-03, Revision C, dated May 15, 2009.

**Actions Applicable to Airplanes S/N 4003, 4004, 4006 & 4008 Through 4118 Inclusive, Manufactured on or After September 21, 2005**

(j) For airplanes having S/Ns 4003, 4004, 4006, and 4008 through 4118 inclusive, on which the date of issuance of the original Canadian standard airworthiness certificate or the date of issuance of the original Canadian export certificate of airworthiness is on or after September 21, 2005: Within 12,000 flight hours after the effective date of this AD, incorporate Bombardier Modsum 4-126370, "Fuel Tank System—Enhance Protective Covering for Electrical Cable Assembly," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-28-03, Revision C, dated May 15, 2009.

**Actions Applicable to Airplanes S/N 4119 Through 4205 Inclusive**

(k) For airplanes having S/N 4119 through 4205 inclusive: Within 6,000 flight hours after the effective date of this AD, incorporate Bombardier Modsum 4-113580, "Fuel Indication—High Level Sensor—Application of Sealant to Exposed End of Sensor Terminal Block Screws—Special Inspection and Rectification," by doing all the applicable actions in the Accomplishment Instructions of Bombardier Service Bulletin 84-28-07, dated August 1, 2008.

**Credit for Actions Accomplished in Accordance With Previous Service Information**

(l) Incorporation of Bombardier Modsum 4-126330 prior to the effective date of this AD according to the instructions contained in Bombardier Service Bulletin 84-57-09, Revision A, dated March 19, 2007, meets the requirements of paragraph (g)(1) of this AD.

(m) Incorporation of Bombardier Modsum 4-126366 prior to the effective date of this AD according to the instructions contained in Bombardier Service Bulletin 84-28-04, dated June 29, 2006; or Revision A, dated November 15, 2006; meets the requirements of paragraph (g)(2) of this AD.

(n) Incorporation of Bombardier Modsum 4-126370 prior to the effective date of this AD according to instructions contained in Bombardier Service Bulletin 84-28-03, Revision B, dated October 18, 2006, meets the requirements of paragraphs (i) and (j) of this AD.

**FAA AD Differences**

Note 1: This AD differs from the MCAI and/or service information as follows: The MCAI specifies to do Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2—Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, but does not specify what to do if the functional check finds that measured resistance exceeds the specified values. This AD requires contacting the Manager, New York ACO, FAA, or TCCA (or its delegated agent) for repair/rework instructions.

**Other FAA AD Provisions**

(o) The following provisions also apply to this AD:

(1) Alternative Methods of Compliance (AMOCs): The Manager, ANE-170, New York ACO, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. Send information 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.

### Related Information

(p) Refer to MCAI Canadian Airworthiness Directive CF-2010-31, dated September 3, 2010; Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2–Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7; and the Bombardier service bulletins identified in Table 1 of this AD; for related information.

**Table 1–Relevant Service Information**

| <b>Bombardier Service Bulletin -</b> | <b>Revision -</b> | <b>Dated -</b>    |
|--------------------------------------|-------------------|-------------------|
| 84-28-03                             | C                 | May 15, 2009      |
| 84-28-04                             | B                 | October 21, 2009  |
| 84-28-05                             | Original          | June 28, 2006     |
| 84-28-07                             | Original          | August 1, 2008    |
| 84-57-09                             | B                 | September 3, 2008 |

### Material Incorporated by Reference

(q) You must use Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2–Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, and the service information contained in Table 2 of this AD, as applicable, to do the actions required by this AD, unless the AD specifies otherwise. The revision level for Bombardier Task 284000-417 in Section 4-1, Fuel System Limitations, of Part 2–Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, is specified only on the title page and page 1 of the record of Revisions of that document. Page 4 of Section 4-1, Fuel System Limitations, of Part 2–Airworthiness Limitation Items, Revision 5, dated April 21, 2010, of Bombardier Q400 Dash 8 Maintenance Requirements Manual, PSM 1-84-7, is not listed in the Table of Contents of that document.

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

(2) For service information identified in this AD, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; telephone 514-855-5000; fax 514-855-7401; e-mail [thd.qseries@aero.bombardier.com](mailto:thd.qseries@aero.bombardier.com); Internet <http://www.bombardier.com>.

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

(4) You may also review copies of the 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/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

**Table 2–Service Bulletins Incorporated by Reference**

| <b>Document</b>                      | <b>Revision</b> | <b>Date</b>       |
|--------------------------------------|-----------------|-------------------|
| Bombardier Service Bulletin 84-28-03 | C               | May 15, 2009      |
| Bombardier Service Bulletin 84-28-04 | B               | October 21, 2009  |
| Bombardier Service Bulletin 84-28-05 | Original        | June 28, 2006     |
| Bombardier Service Bulletin 84-28-07 | Original        | August 1, 2008    |
| Bombardier Service Bulletin 84-57-09 | B               | September 3, 2008 |

Issued in Renton, Washington, on June 10, 2011.

Ali Bahrami,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.