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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2010-0382; Directorate Identifier 2009-NM-211-AD; Amendment 39-16361; AD 2010-14-16]**

**RIN 2120-AA64**

**Airworthiness Directives; Bombardier, Inc. Model DHC-8-400, -401, and -402 Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are superseding an existing 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:

Several cases have been reported where a loss of fluid in the No.2 hydraulic system has caused the power transfer unit (PTU) to overspeed, resulting in pressure fluctuations and increased fluid flow within the No. 1 hydraulic system. In one case, the hydraulic system control logic did not shut down the PTU and the overspeed condition persisted, resulting in the illumination of the No.1 HYD FLUID HOT caution light.

\* \* \* \* \*

The unsafe condition is possible loss of both the No. 1 and No. 2 hydraulic systems, resulting in the potential loss of several functions essential for safe flight and landing of the airplane. We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective August 17, 2010.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of August 17, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 2, 2008 (73 FR 47818, August 15, 2008).

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of July 10, 2007 (72 FR 30968, June 5, 2007).

**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:** Fabio Buttitta, 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) 228-7303; 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 April 21, 2010 (75 FR 20787), and proposed to supersede AD 2008-17-06, Amendment 39-15644 (73 FR 47818, August 15, 2008). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

Since we issued AD 2008-17-06, a modification of the power transfer unit (PTU) control logic, including the provision of automatic PTU shutdown in the event of loss of fluid in the No. 2 hydraulic system, has been developed. The modification addresses the identified unsafe condition. In addition, the applicability has been revised to remove airplanes having serial number 4185 and subsequent, since an equivalent modification has been installed in production on these airplanes. Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2006-08R1, dated August 31, 2009 (referred to after this as "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

Several cases have been reported where a loss of fluid in the No.2 hydraulic system has caused the power transfer unit (PTU) to overspeed, resulting in pressure fluctuations and increased fluid flow within the No. 1 hydraulic system. In one case, the hydraulic system control logic did not shut down the PTU and the overspeed condition persisted, resulting in the illumination of the No. 1 HYD FLUID HOT caution light.

As an interim action to avoid possible loss of both the No. 1 and No. 2 hydraulic systems, the Airplane Flight Manual (AFM) has been revised to include pulling the HYD PWR XFER circuit breaker in the event of the loss of all hydraulic fluid in the No. 2 hydraulic system.

Insertion of the resultant Temporary Amendment (TA) No. 13 into the AFM was mandated in the original issue of this [Canadian] directive. This instruction \* \* \* remains in effect until \* \* \* this [revised] directive is accomplished.

Revision 1 of this directive \* \* \* mandates modification of the PTU control logic, including the provision of automatic PTU shutdown in the event of loss of fluid in the No. 2 hydraulic system. In addition, the applicability of the [Canadian] directive has been revised to remove aircraft Serial Number (SN) 4185 and subsequent, since an equivalent modification has been installed in production on these aircraft.

The unsafe condition is possible loss of both the No. 1 and No. 2 hydraulic systems, resulting in the potential loss of several functions essential for safe flight and landing of the airplane. 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 about 42 products of U.S. registry.

The actions that are required by AD 2008-17-06 and retained in this AD take about 1 work-hour per product, at an average labor rate of \$85 per work hour. Required parts cost about \$0 per product. Based on these figures, the estimated cost of the currently required actions is \$85 per product.

We estimate that it will take about 165 work-hours per product to comply with the new basic requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$10,982 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 \$1,050,294, or \$25,007 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**

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 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); and
3. Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

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>; 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 removing Amendment 39-39-15644 (73 FR 47818, August 15, 2008) and adding the following new AD:



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**2010-14-16 Bombardier, Inc.:** Amendment 39-16361. Docket No. FAA-2010-0382; Directorate Identifier 2009-NM-211-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective August 17, 2010.

**Affected ADs**

- (b) This AD supersedes AD 2008-17-06, Amendment 39-15644.

**Applicability**

- (c) This AD applies to Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, certificated in any category; serial numbers 4001, 4003, 4004, 4006, and 4008 through 4184 inclusive.

**Subject**

- (d) Air Transport Association (ATA) of America Code 29: Hydraulic power.

**Reason**

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

Several cases have been reported where a loss of fluid in the No.2 hydraulic system has caused the power transfer unit (PTU) to overspeed, resulting in pressure fluctuations and increased fluid flow within the No. 1 hydraulic system. In one case, the hydraulic system control logic did not shut down the PTU and the overspeed condition persisted, resulting in the illumination of the No. 1 HYD FLUID HOT caution light.

As an interim action to avoid possible loss of both the No. 1 and No. 2 hydraulic systems, the Airplane Flight Manual (AFM) has been revised to include pulling the HYD PWR XFER circuit breaker in the event of the loss of all hydraulic fluid in the No. 2 hydraulic system.

Insertion of the resultant Temporary Amendment (TA) No. 13 into the AFM was mandated in the original issue of this [Canadian] directive. This instruction \* \* \* remains in effect until \* \* \* this [revised] directive is accomplished.

Revision 1 of this directive \* \* \* mandates modification of the PTU control logic, including the provision of automatic PTU shutdown in the event of loss of fluid in the No. 2 hydraulic system. In addition, the applicability of the [Canadian] directive has

been revised to remove aircraft Serial Number (SN) 4185 and subsequent, since an equivalent modification has been installed in production on these aircraft.

The unsafe condition is possible loss of both the No. 1 and No. 2 hydraulic systems, resulting in the potential loss of several functions essential for safe flight and landing of the airplane.

### 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.

### RESTATEMENT OF REQUIREMENTS OF AD 2007-12-03 AIRPLANE FLIGHT MANUAL (AFM) REVISION

(g) Within 14 days after July 10, 2007 (the effective date of AD 2007-12-03, Amendment 39-15081, which was superseded by AD 2008-17-06), revise the Limitations section of the applicable AFM to include the information in the applicable Bombardier temporary amendment specified in Table 1 of this AD, as specified in the temporary amendment. These temporary amendments introduce procedures for pulling the "HYD PWR XFER" circuit breaker in the event of the loss of all hydraulic fluid in the No. 1 or No. 2 hydraulic system. Operate the airplane according to the limitations and procedures in the applicable temporary amendment.

**Table 1 - AFM Temporary Amendments**

<b>For Model -</b>	<b>Use Bombardier Temporary Amendment -</b>	<b>Issue -</b>	<b>Dated -</b>	<b>To Bombardier Dash 8 Q400 Airplane Flight Manual -</b>
DHC-8-400 airplanes	13	1	July 14, 2005	PSM 1-84-1A
DHC-8-401 airplanes	13	1	July 14, 2005	PSM 1-84-1A
DHC-8-402 airplanes	13	1	July 14, 2005	PSM 1-84-1A

Note 1: This may be done by inserting a copy of the applicable temporary amendment into the applicable AFM. When the applicable temporary amendment has been included in general revisions of the AFM, the general revisions may be inserted into the AFM, provided the relevant information in the general revisions is identical to that in the temporary amendment.

### Restatement of Requirements of AD 2008-17-06: AFM Revision

(h) Within 14 days after September 2, 2008 (the effective date of AD 2008-17-06), revise the applicable AFM Normal and Abnormal Procedures section to include the information in the applicable Bombardier temporary amendment specified in Table 2 of this AD, as specified in the temporary amendment. These temporary amendments introduce additional procedures for ensuring that the "PTU CNTRL" switch is Normal, the "PTU CNTRL ON" advisory light is out, and the "HYD PWR XFER" circuit breaker is pulled in the event of the illumination of the "2 HYD ISO VALVE" caution light. After accomplishing the AFM revision, the AFM limitation required by paragraph (g) in this AD may be removed from the AFM.

**Table 2 - AFM Temporary Amendments**

<b>For Model -</b>	<b>Use Bombardier Temporary Amendment -</b>	<b>Issue -</b>	<b>Dated -</b>	<b>To Bombardier Dash 8 Q400 Airplane Flight Manual -</b>
DHC-8-400 airplanes	13	3	June 9, 2008	PSM 1-84-1A
DHC-8-401 airplanes	13	3	June 9, 2008	PSM 1-84-1A
DHC-8-402 airplanes	13	3	June 9, 2008	PSM 1-84-1A

**New Requirements of This AD: Actions**

(i) Within 6,000 flight hours after the effective date of this AD, modify the PTU control logic, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-29-22, Revision A, dated February 24, 2009. Doing this modification terminates the requirements of paragraphs (g) and (h) of this AD, and after the modification has been done, the AFM limitation required by paragraphs (g) and (h) of this AD may be removed from the AFM.

(j) Modifying the PTU control logic is also acceptable for compliance with the requirements of paragraph (i) of this AD if done before the effective date of this AD, in accordance with Bombardier Service Bulletin 84-29-22, dated December 5, 2008.

**FAA AD Differences**

Note 2: This AD differs from the MCAI and/or service information as follows: No differences.

**Other FAA AD Provisions**

(k) 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. 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 on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards 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.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

## Related Information

(l) Refer to MCAI Canadian Airworthiness Directive CF-2006-08R1, dated August 31, 2009; the Bombardier temporary amendments specified in Tables 1 and 2; and Bombardier Service Bulletin 84-29-22, Revision A, dated February 24, 2009; for related information.

## Material Incorporated by Reference

(m) You must use Bombardier Service Bulletin 84-29-22, Revision A, dated February 24, 2009, and the applicable temporary amendment identified in Table 3 of this AD; as applicable; to do the actions required by this AD, unless the AD specifies otherwise.

**Table 3 – All temporary amendments incorporated by reference**

<b>Bombardier Temporary Amendment –</b>	<b>Issue –</b>	<b>Dated –</b>	<b>To Bombardier Dash 8 Q400 Airplane Flight Manual –</b>
13	1	July 14, 2005	Model 400 PSM 1-84-1A
13	1	July 14, 2005	Model 401 PSM 1-84-1A
13	1	July 14, 2005	Model 402 PSM 1-84-1A
13	3	June 9, 2008	Model 400 PSM 1-84-1A
13	3	June 9, 2008	Model 401 PSM 1-84-1A
13	3	June 9, 2008	Model 402 PSM 1-84-1A

(1) The Director of the Federal Register approved the incorporation by reference of Bombardier Service Bulletin 84-29-22, Revision A, dated February 24, 2009, under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) The Director of the Federal Register previously approved the incorporation by reference of the service information contained in Table 4 of this AD on September 2, 2008 (73 FR 47818, August 15, 2008).

**Table 4 – Material previously incorporated by reference in AD 2008-17-06**

<b>Bombardier Temporary Amendment–</b>	<b>Issue –</b>	<b>Dated –</b>	<b>To Bombardier Dash 8 Q400 Airplane Flight Manual –</b>
13	3	June 9, 2008	Model 400 PSM 1-84-1A
13	3	June 9, 2008	Model 401 PSM 1-84-1A
13	3	June 9, 2008	Model 402 PSM 1-84-1A

(3) On July 10, 2007 (72 FR 30968, June 5, 2007), the Director of the Federal Register approved the incorporation by reference of the temporary amendments identified in Table 5 of this AD.

**Table 5 – Material previously incorporated by reference in AD 2007-12-03**

<b>Bombardier Temporary Amendment–</b>	<b>Issue –</b>	<b>Dated –</b>	<b>To Bombardier Dash 8 Q400 Airplane Flight Manual –</b>
13	1	July 14, 2005	Model 400 PSM 1-84-1A
13	1	July 14, 2005	Model 401 PSM 1-84-1A
13	1	July 14, 2005	Model 402 PSM 1-84-1A

(4) 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>.

(5) 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.

(6) 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).

Issued in Renton, Washington, on June 25, 2010.

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