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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-0435; Directorate Identifier 2010-NM-084-AD; Amendment 39-16283; AD 2010-10-04]

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; request for comments.

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:

> Operators of DHC-8 400 Series aeroplanes have been reporting chafing of wires in the AC wire harnesses located along the lower wing shroud on either wing resulting in a loss of various system services. Chafed wires may lead to arcing, local overheating and AC generator failure. The AC generators provide power to the anti-icing heaters, including pitot/static heater, engine adapter heater, and propeller heater. Failure of both AC generators would result in the loss of these systems and poses a safety concern.
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> * * * * *

Loss of both AC generators could lead to unannunciated loss of heat to both engine inlets, which could lead to loss of power in both engines during icing conditions. This AD requires actions that are intended to address the unsafe condition described in the MCAI.

DATES: This AD becomes effective May 20, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of May 20, 2010.

We must receive comments on this AD by June 21, 2010.

ADDRESSES: You may send comments by any of the following methods:

- Federal eRulemaking Portal: Go to http://www.regulations.gov. Follow the instructions for submitting comments.
- Fax: (202) 493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.
- Hand Delivery: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-40, 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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 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. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Craig Yates, 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) 228-7355; fax (516) 794-5531.

SUPPLEMENTARY INFORMATION:

Discussion

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian Airworthiness Directive CF-2010-08, dated March 16, 2010 (referred to after this as "the MCAI"), to correct an unsafe condition for the specified products. The MCAI states:

> Operators of DHC-8 400 Series aeroplanes have been reporting chafing of wires in the AC wire harnesses located along the lower wing shroud on either wing resulting in a loss of various system services. Chafed wires may lead to arcing, local overheating and AC generator failure. The AC generators provide power to the anti-icing heaters, including pitot/static heater, engine adapter heater, and propeller heater. Failure of both AC generators would result in the loss of these systems and poses a safety concern.
>
> Investigation has revealed that at four wiring harness tie down mount locations, the blind fasteners used to attach the tie down mount base were found to have protruding stems which chafed through the wire insulation leading to arcing damage. In addition, the wire chafing along the wing rear spar lower shroud has been attributed to sagging wire bundles resting on the structure and insufficient support in low clearance areas.
>
> This directive mandates the replacement of the blind fasteners with solid rivets, and to inspect for and rectify damaged wiring along the wing lower shroud.

Loss of both AC generators could lead to unannunciated loss of heat to both engine inlets, which could lead to loss of power in both engines during icing conditions. The required actions also include a detailed inspection for damage and chafing of the wires in the wiring harness installation, and the Teflon tubing if necessary. The corrective actions (rectifying) include replacement or repair of the

chafed or damaged wire or Teflon tubing. You may obtain further information by examining the MCAI in the AD docket.

Relevant Service Information

Bombardier has issued Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010; and Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010. The actions described in this service information are intended to correct the unsafe condition identified in the MCAI.

FAA's Determination and Requirements of This AD

This product has been approved by the aviation authority of another country, and is approved for operation in the United States. Pursuant to our bilateral agreement with the State of Design Authority, we have been notified of the unsafe condition described in the MCAI and service information referenced above. We are issuing this AD because we evaluated all pertinent information and determined the unsafe condition exists and is likely to exist or develop on other products of the same type design.

Differences Between the 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 FAA policies. Any such differences are highlighted in a Note within the AD.

FAA's Determination of the Effective Date

An unsafe condition exists that requires the immediate adoption of this AD. The FAA has found that the risk to the flying public justifies waiving notice and comment prior to adoption of this rule because the chafing of a wire bundle could result in an electrical short and potential loss of several functions essential for safe flight, including both AC generators. Therefore, we determined that notice and opportunity for public comment before issuing this AD are impracticable and that good cause exists for making this amendment effective in fewer than 30 days.

Comments Invited

This AD is a final rule that involves requirements affecting flight safety, and we did not precede it by notice and opportunity for public comment. We invite you to send any written relevant data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2010-0435; Directorate Identifier 2010-NM-084-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this AD because of those comments.

We will post all comments we receive, without change, to http://www.regulations.gov, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this AD.

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.

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:

2010-10-04 Bombardier, Inc.: Amendment 39-16283. Docket No. FAA-2010-0435; Directorate Identifier 2010-NM-084-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective May 20, 2010.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, serial numbers 4001 through 4169 inclusive, certificated in any category.

Subject

(d) Air Transport Association (ATA) of America Code 24: Electrical Power.

Reason

(e) The mandatory continued airworthiness information (MCAI) states:

> Operators of DHC-8 400 Series aeroplanes have been reporting chafing of wires in the AC wire harnesses located along the lower wing shroud on either wing resulting in a loss of various system services. Chafed wires may lead to arcing, local overheating and AC generator failure. The AC generators provide power to the anti-icing heaters, including pitot/static heater, engine adapter heater, and propeller heater. Failure of both AC generators would result in the loss of these systems and poses a safety concern.
>
> Investigation has revealed that at four wiring harness tie down mount locations, the blind fasteners used to attach the tie down mount base were found to have protruding stems which chafed through the wire insulation leading to arcing damage. In addition, the wire chafing along the wing rear spar lower shroud has been attributed to sagging wire bundles resting on the structure and insufficient support in low clearance areas.
>
> This directive mandates the replacement of the blind fasteners with solid rivets, and to inspect for and rectify damaged wiring along the wing lower shroud.

Loss of both AC generators could lead to unannunciated loss of heat to both engine inlets, which could lead to loss of power in both engines during icing conditions. The required actions also include a detailed inspection for damage and chafing of the wires in the wiring harness installation, and the

Teflon tubing if necessary. The corrective actions (rectifying) include replacement or repair of the chafed or damaged wire or Teflon tubing.

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.

Replacement of Blind Fasteners, Inspection for Chafing at Four Wiring Harness Tie Down Mount Locations and Corrective Action

(g) Within 200 flight hours after the effective date of this AD: Replace the blind fasteners installed at the four wiring harness tie down mount locations with solid rivets; and do a detailed inspection for chafing and damage of the wires and, as applicable, of any Teflon tubing and do all applicable corrective actions; in accordance with paragraph B.(6) of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010. Do all applicable corrective actions before further flight.

Inspection of AC Feeder Cables Along Lower Wing Shroud and Corrective Action

(h) At the applicable time in paragraph (h)(1) or (h)(2) of this AD: Do a detailed inspection of the wiring harness installation along the wing rear spar lower shroud for any chafing and damage, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010. Do all applicable corrective actions before further flight.

(1) For airplanes with AC feeder cables not covered with protective Teflon tubing (Modsum Number IS4Q2450001 or production Modsum 4Q109946 not incorporated): Within 600 flight hours after the effective date of this AD.

(2) For airplanes with AC feeder cables covered with protective Teflon tubing (Modsum Number IS4Q2450001 or production Modsum 4Q109946 incorporated): Within 4,000 flight hours after the effective date of this AD.

(i) For airplanes on which the temporary repair specified in Bombardier Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010, has been done: Within 600 flight hours after accomplishing the temporary repair or 60 flight hours after the effective date of this AD, whichever occurs later, do the permanent repair or replace the wiring, in accordance with Bombardier Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010.

Actions According to Previous Issue of Service Information

(j) Actions done before the effective date of this AD in accordance with Bombardier Alert Service Bulletin A84-24-44, dated January 27, 2010, are acceptable for compliance with the corresponding requirements of paragraphs (g) and (h) of this AD.

(k) Actions done before the effective date of this AD in accordance with any modification summary identified in Table 1 of this AD are acceptable for compliance with the corresponding requirements of paragraph (g) of this AD.

Table 1 – Modification Summaries

Bombardier Modification Summary -	Revision -	Dated -
IS4Q5700013	A	January 12, 2010

IS4Q5700013	B	January 20, 2010
IS4Q5700013	C	January 27, 2010

Reporting Requirement

(l) Submit a report of the findings (both positive and negative) of the inspection required by paragraph (h) of this AD to Bombardier Technical Help Desk; telephone 416-375-4000; e-mail thd.qseries@aero.bombardier.com; at the applicable time specified in paragraph (l)(1) or (l)(2) of this AD. Use Figures 1 and 2 (Feedback Form) of Bombardier Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010, to submit the report. The report must include the inspection results, a description of any discrepancies found, the airplane serial number, and the number of landings and flight hours on the airplane.

(1) If the inspection was done on or after the effective date of this AD: Submit the report within 14 days after the inspection.

(2) If the inspection was accomplished prior to the effective date of this AD: Submit the report within 14 days after the effective date of this AD.

FAA AD Differences

Note 1: This AD differs from the MCAI and/or service information as follows: The MCAI does not specify a compliance time for doing a permanent repair or replacement for airplanes on which a temporary repair is done. This AD requires that the temporary repair is replaced by a permanent repair or replacement of the wiring. We have coordinated this difference with Transport Canada Civil Aviation (TCCA).

Other FAA AD Provisions

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

(1) Alternative Methods of Compliance (AMOCs): The Manager, ANE-170, New York Aircraft Certification Office, 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

(n) Refer to MCAI Canadian Airworthiness Directive CF-2010-08, dated March 16, 2010; Bombardier Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010; and Bombardier Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010; for related information.

Material Incorporated by Reference

(o) You must use Bombardier Alert Service Bulletin A84-24-44, Revision A, dated February 2, 2010; and Bombardier Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010; as applicable; to do the actions required by this AD, unless the AD specifies otherwise. Bombardier Repair Drawing 8/4-24-011, Issue 2, dated January 21, 2010, contains the following effective pages:

Page No.	Revision level shown on page	Date shown on page
1, 3	2	January 21, 2010.*
2, 4–7	1	January 18, 2010.*

* Only the first page of this repair drawing contains the issue dates.

(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; 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.

Issued in Renton, Washington, on April 27, 2010.
Ali Bahrami,
Manager, Transport Airplane Directorate,
Aircraft Certification Service.