



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2016-8183; Directorate Identifier 2015-NM-083-AD; Amendment 39-18822; AD 2017-05-11]

RIN 2120-AA64

Airworthiness Directives; Bombardier, Inc. Airplanes

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

ACTION: Final rule.

SUMMARY: We are superseding Airworthiness Directive (AD) 2012-08-11 for certain Bombardier, Inc. Model DHC-8-400 series airplanes. AD 2012-08-11 required repetitive inspections for defects and damage of the retract port flexible hoses on the main landing gear (MLG) retraction actuators, and replacement if necessary. This AD continues to require the actions in AD 2012-08-11, requires reorientation of the retraction actuator of the MLG, and removes airplanes from the applicability. This AD was prompted by test results that showed that failure of a retract port flexible hose of a MLG retraction actuator could cause excessive hydraulic fluid leakage. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is 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 certain publications listed in this AD as of [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 other publication listed in this AD as of May 29, 2012 (77 FR 24351, April 24, 2012).

ADDRESSES: For Bombardier service information identified in this final rule, 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>. For Goodrich service information identified in this final rule, contact Goodrich Aerospace Canada Ltd., Landing Systems, 1400 South Service Road, West Oakville, ON, Canada L6L 5Y7; telephone +1-877-808-7575; fax: +1-905-825-6320; email: crc@utas.utc.com; Internet: <https://techpubs.goodrich.com/ContactUs>. 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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-8183.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-8183; 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 address for the Docket Office (telephone 800-647-5527) is 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 20590.

FOR FURTHER INFORMATION CONTACT: Cesar Gomez, Mechanical Systems Engineer, Airframe and Mechanical Systems Branch, ANE-171, FAA, New York Aircraft Certification Office (ACO), 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7318; fax 516-794-5531.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to supersede AD 2012-08-11, Amendment 39-17028 (77 FR 24351, April 24, 2012) (“AD 2012-08-11”). AD 2012-08-11 applied to certain Bombardier, Inc. Model DHC-8-400 series airplanes. The NPRM published in the Federal Register on August 5, 2016 (81 FR 51821). The NPRM was prompted by our determination that the left and right MLG retraction actuator ports must be reoriented and the retract port flexible hoses replaced with hydraulic tube assemblies to address the identified unsafe condition. The NPRM proposed to continue to require the actions required by AD 2012-08-11. The NPRM also proposed to require reorientation of the retraction actuator of the MLG, which would terminate the repetitive inspections, and to remove certain airplanes from the applicability. We are issuing this AD to prevent hydraulic fluid leakage in the event of a retract port flexible hose failure; this condition could lead to an undamped extension

of the MLG and could result in MLG structural failure, leading to an unsafe, asymmetric landing configuration.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian AD CF-2011-14R1, effective May 21, 2015 (referred to after this as the Mandatory Continuing Airworthiness Information, or "the MCAI"), to correct an unsafe condition for certain Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes. This AD also removes airplanes from the applicability of AD 2012-08-11. The MCAI states:

Testing has shown that in the event of a main landing gear (MLG) retraction actuator retract port flexible hose failure, in-flight vibrations may cause excessive hydraulic fluid leakage. This could potentially lead to an undamped extension of the MLG, which may result in MLG structural failure, leading to an unsafe asymmetric landing configuration.

The original issue of this [Canadian] AD mandated the [detailed] inspection [for defects and damage] of the retract port flexible hose and its replacement [installing a new retract port flexible hose], when required, to prevent damage to the MLG caused by undamped gear extensions.

Revision 1 of this [Canadian] AD mandates the reorientation of the MLG Retraction Actuator to prevent hydraulic fluid leakage in the event of a damaged retract port flexible hose.

Airplanes having serial number 4425 and on were modified in production and, therefore, the identified unsafe condition does not apply to these airplanes. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-8183.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request to Refer to Updated Service Information

Horizon Air requested that the NPRM be revised to refer to Bombardier Service Bulletin 84-32-106, Revision B, dated June 18, 2015. As a result, Horizon Air stated that Bombardier Service Bulletin 84-32-106, Revision A, dated April 24, 2015, should be included in paragraph (i), "Credit for Previous Actions," of the proposed AD along with Bombardier Service Bulletin 84-32-106, dated September 28, 2012.

We agree to refer to the latest service information. We have confirmed that the revised service information does not require any work beyond what was published in the NPRM. We have revised this AD to refer to Bombardier Service Bulletin 84-32-106, Revision B, dated June 18, 2015, as the appropriate source of service information for completing certain actions (Modification Summary (ModSum) 4-902418) required by this AD. We have also revised this AD to provide credit for actions done before the effective date of this AD using Bombardier Service Bulletin 84-32-106, Revision A, dated April 24, 2015.

Request to Correct MCAI Number

Contact Air Technik GmbH commented that Canadian AD CF-2011-14R1, effective May 21, 2015, is incorrectly referenced in paragraph (k), "Related Information," of the proposed AD as Canadian AD CF-2011-24R1, effective May 21, 2015.

We agree that paragraph (k)(1) of this AD should refer to Canadian AD CF-2011-14R1, effective May 21, 2015. We have revised paragraph (k)(1) of this AD accordingly.

Conclusion

We reviewed the available data, including 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 changes:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

Related Service Information under 1 CFR part 51

Bombardier, Inc. has issued the following service information.

- Bombardier Service Bulletin 84-32-105, Revision A, dated April 24, 2015.

This service information describes procedures for reworking and reorienting the retraction actuators (ModSum 4-902327).

- Bombardier Service Bulletin 84-32-106, Revision B, dated June 18, 2015.

This service information describes procedures for reworking and installing reconfigured hydraulic tube assemblies for the retraction actuators (ModSum 4-902418).

Goodrich Aerospace Canada Ltd. has issued the following service information.

- Goodrich Service Bulletin 46550-32-99 R2, dated February 19, 2015. This service information describes procedures for reworking and reorienting the retraction actuators.

- Goodrich Service Bulletin 46455-32-100 R1, dated March 20, 2013. This service information describes procedures for reworking and installing reconfigured hydraulic tube assemblies for the retraction actuators.

These service bulletins contain different requirements and must be accomplished at the same time. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

We estimate that this AD affects 82 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection (retained action from AD 2012-08-11)	1 work-hour x \$85 per hour = \$85 per inspection cycle	\$0	\$85 per inspection cycle	\$6,970 per inspection cycle
Reorient MLG retraction actuators (new action)	4 work-hours x \$85 per hour = \$340	\$0	\$340	\$27,880

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

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replace the retract port flexible hose (retained action from AD 2012-08-11)	4 work-hours X \$85 per hour = \$340	\$713	\$1,053

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

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.

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 Airworthiness Directive (AD) 2012-08-11, Amendment 39-17028 (77 FR 24351, April 24, 2012), and adding the following new AD:

2017-05-11 Bombardier, Inc.: Amendment 39-18822; Docket No. FAA-2016-8183; Directorate Identifier 2015-NM-083-AD.

(a) Effective Date

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2012-08-11, Amendment 39-17028 (77 FR 24351, April 24, 2012) (“AD 2012-08-11”).

(c) Applicability

This AD applies to Bombardier, Inc. Model DHC-8-400, -401, and -402 airplanes, certificated in any category, serial numbers 4001 through 4424 inclusive.

(d) Subject

Air Transport Association (ATA) of America Code 32, Landing gear.

(e) Reason

This AD was prompted by test reports that showed that failure of a retract port flexible hose of a main landing gear (MLG) retraction actuator could cause excessive hydraulic fluid leakage. We are issuing this AD to prevent hydraulic fluid leakage in the event of a retract port flexible hose failure; this condition could lead to an undamped

extension of the MLG and could result in MLG structural failure, leading to an unsafe asymmetric landing configuration.

(f) Compliance

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

(g) Retained Repetitive Inspections and Follow-on Action, with New Reference

This paragraph restates the requirements of paragraph (g) of AD 2012-08-11, with new reference to terminating action. Within 600 flight hours after May 29, 2012 (the effective date of AD 2012-08-11), do a detailed inspection for defects and damage of the retract port flexible hose of the left and right MLG retraction actuators, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-32-89, dated March 22, 2011. Repeat the inspection thereafter at intervals not to exceed 600 flight hours. If any defect or damage is found, before further flight, replace the retract port flexible hose with a new or serviceable retract port flexible hose, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 84-32-89, dated March 22, 2011. Doing the actions required by paragraph (h) of this AD terminates the inspections required by this paragraph.

(h) New Requirement of this AD: Reorient MLG Retraction Actuators

Within 6,000 flight hours or 36 months, whichever occurs first after the effective date of this AD: Reorient the MLG retraction actuator by incorporating Bombardier Modification Summaries 4-902418 and 4-902327, in accordance with the Accomplishment Instructions of the applicable service information specified in

paragraphs (h)(1) and (h)(2) of this AD. Accomplishment of the actions required by this paragraph terminates the actions required by paragraph (g) of this AD.

(1) Bombardier Service Bulletin 84-32-105, Revision A, dated April 24, 2015; and Goodrich Service Bulletin 46550-32-99 R2, dated February 19, 2015.

(2) Bombardier Service Bulletin 84-32-106, Revision B, dated June 18, 2015; and Goodrich Service Bulletin 46455-32-100 R1, dated March 20, 2013.

(i) Credit for Previous Actions

This paragraph provides credit for actions required by paragraph (h) of this AD, if those actions were performed before the effective date of this AD using the service information identified in paragraph (i)(1), (i)(2), or (i)(3) of this AD, as applicable.

(1) Bombardier Service Bulletin 84-32-105, dated September 28, 2012.

(2) Bombardier Service Bulletin 84-32-106, dated September 10, 2012.

(3) Bombardier Service Bulletin 84-32-106, Revision A, dated April 24, 2015.

(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 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.

(i) 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.

(ii) AMOCs approved previously for AD 2012-08-11 are approved as AMOCs for the corresponding provisions of 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, 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.

(k) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian AD CF-2011-14R1, dated May 21, 2015, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2016-8183.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (1)(4), (1)(5), and (1)(6) 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 84-32-105, Revision A, dated April 24, 2015.

(ii) Bombardier Service Bulletin 84-32-106, Revision B, dated June 18, 2015.

(iii) Goodrich Service Bulletin 46550-32-99 R2, dated February 19, 2015.

(iv) Goodrich Service Bulletin 46455-32-100 R1, dated March 20, 2013.

(3) The following service information was approved for IBR on May 29, 2012 (77 FR 24351, April 24, 2012).

(i) Bombardier Service Bulletin 84-32-89, dated March 22, 2011.

(ii) Reserved.

(4) For Bombardier 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>.

(5) For Goodrich service information identified in this AD, contact Goodrich Aerospace Canada Ltd., Landing Systems, 1400 South Service Road, West Oakville, ON, Canada L6L 5Y7; telephone +1-877-808-7575; fax: +1-905-825-6320; email: crc@utas.utc.com; Internet: <https://techpubs.goodrich.com/ContactUs>.

(6) 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.

(7) 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 February 28, 2017.

Michael Kaszycki,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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