



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2019-0493; Product Identifier 2019-NM-043-AD]

RIN 2120-AA64

Airworthiness Directives; Bombardier, Inc., Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to supersede Airworthiness Directive

(AD) 2011-18-15, which applies to certain Bombardier, Inc., Model DHC-8-400 series airplanes. AD 2011-18-15 requires initial and repetitive torque checks of the bolt preload; detailed inspection of the barrel nuts and cradle for cracking, pitting, and corrosion if the bolt preload is correct; and replacement of hardware if necessary. Since the FAA issued AD 2011-18-15, the agency has determined that incorporation of a new design change is necessary to address the root cause of the failure of the barrel nuts. This proposed AD would retain the existing requirements and add new inspections and replacement of certain hardware, which would terminate the repetitive torque checks and inspections. This AD also removes airplanes from the applicability. The FAA is proposing this AD to address the unsafe condition on these products.

DATES: The FAA must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, 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: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this NPRM, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; phone: 416-375-4000; fax: 416-375-4539; email: thd.qseries@aero.bombardier.com; Internet: <http://www.bombardier.com>. You may view this referenced service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

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-2019-0493; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received,

and other information. The street address for Docket Operations is listed above.

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

FOR FURTHER INFORMATION CONTACT: Andrea Jimenez, Aerospace Engineer, Airframe and Propulsion Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 516-228-7330; fax: 516-794-5531; email: 9-avs-nyaco-cos@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

The FAA invites you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2019-0493; Product Identifier 2019-NM-043-AD” at the beginning of your comments. The FAA specifically invites comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. The FAA will consider all comments received by the closing date and may amend this proposed AD based on those comments.

The FAA will post all comments received, without change, to <http://www.regulations.gov>, including any personal information you provide. The FAA will also post a report summarizing each substantive verbal contact received about this proposed AD.

Discussion

The FAA issued AD 2011-18-15, Amendment 39-16797 (76 FR 54093, August 31, 2011) (“AD 2011-18-15”), for certain Bombardier, Inc., Model DHC-8-400

series airplanes. AD 2011-18-15 requires initial and repetitive torque checks of the bolt preload; detailed inspection of the barrel nuts and cradle for cracking, pitting, and corrosion if the bolt preload is correct; and replacement of hardware if necessary.

AD 2011-18-15 resulted from in-service reports of cracked barrel nuts found at the front spar locations of the wing-to-fuselage attachment joints, and reports of a loose washer in the barrel nut assembly. The FAA issued AD 2011-18-15 to address cracked barrel nuts and a loose washer in the barrel nut assembly, which could result in failure of the barrel nuts, compromising the structural integrity of the wing-to-fuselage attachments, and possible separation of the wing from the airplane during flight.

Actions Since AD 2011-18-15 Was Issued

Since the FAA issued AD 2011-18-15, the manufacturer has developed a design change (replacement of the existing wing front spar barrel nuts with new barrel nuts that are more resistant to hydrogen embrittlement, and installation of new bolts and pre-load indicating washers). The FAA has determined that the design change will address the root cause of the failure of the barrel nuts.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian AD CF-2011-24R1, dated January 21, 2019 (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 series airplanes. The MCAI states:

There have been several in-service reports of cracked barrel nuts found at the front spar locations of the wing to fuselage attachment joints. Additionally, three operators have reported finding a loose washer in the barrel nut

assembly. Failure of the barrel nuts could compromise the structural integrity of the wing to fuselage attachments.

The investigation determined that these cracks are due to hydrogen embrittlement.

The original version of this [Canadian] AD mandated initial and repetitive detailed inspections of the barrel nuts, part number (P/N) DSC228-16.

Since the original version of this [Canadian] AD, Bombardier Inc. has developed a design change to address the root cause of the failure of the barrel nuts. This design change replaces the existing wing front spar barrel nuts, P/N DSC228-16, with new Inconel 718 barrel nuts, P/N B0203072-16S, which are more resistant to hydrogen embrittlement. The design change also includes new bolts and new pre-load indicating washers.

Revision 1 of this [Canadian] AD mandates this design change as a terminating action to the repetitive inspection requirements of Part II of this [Canadian] AD. A torque verification has also been introduced to address loose washers in the barrel nut assembly.

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-2019-0493.

Related Service Information Under 1 CFR part 51

Bombardier has issued the following service information.

- Bombardier Alert Service Bulletin A84-57-25, Revision A, dated July 16, 2018. This service information describes procedures for initial and repetitive torque checks of the bolt preload, detailed inspection of the barrel nuts and cradle for cracking, pitting, and corrosion if the bolt preload is correct, and replacement of hardware if necessary.

- Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018. This service information describes procedures for a visual inspection of the saddle washer and retainer for any damage (cracks) and corrosion, and replacement of the existing wing front spar barrel nuts, bolts, and pre-load indicating washers.

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.

FAA's Determination

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, the FAA has been notified of the unsafe condition described in the MCAI and service information referenced above. The FAA is proposing this AD because the agency evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop on other products of the same type design.

Proposed Requirements of this NPRM

This proposed AD would retain all of the requirements of AD 2011-18-15. This proposed AD would also require accomplishing the actions specified in the service information described previously, which would terminate the repetitive torque checks and inspections and the corrective actions for incorrect bolt preload.

Revised Applicability

The FAA also revised the applicability of this AD from what was specified in AD 2011-18-15 to remove airplane serial numbers 4438 and subsequent. The terminating actions specified in this proposed AD are accomplished on those airplanes during production.

Costs of Compliance

The FAA estimates that this proposed AD affects 54 airplanes of U.S. registry.

The FAA estimates the following costs to comply with this proposed AD:

Estimated costs for required actions

| Action | Labor cost | Parts cost | Cost per product | Cost on U.S. operators |
|-------------------------------------|---|-------------------|-------------------------|-------------------------------|
| Retained actions from AD 2011-18-15 | 15 work-hours X \$85 per hour = \$1,275 | \$10,492 | \$11,767 | \$635,418 |
| New proposed actions | 15 work-hours X \$85 per hour = \$1,275 | \$10,492 | \$11,767 | \$635,418 |

The FAA has received no definitive data that would enable us to provide cost estimates for the on-condition repairs specified in this proposed 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.

The FAA is 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.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

Regulatory Findings

The FAA determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 proposed regulation:

1. Is not a “significant regulatory action” under Executive Order 12866,
2. Will not affect intrastate aviation in Alaska, 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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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) 2011-18-15, Amendment 39-16797 (76 FR 54093, August 31, 2011), and adding the following new AD:

Bombardier, Inc.: Docket No. FAA-2019-0493; Product Identifier 2019-NM-043-AD.

(a) Comments Due Date

The FAA must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

This AD replaces AD 2011-18-15, Amendment 39-16797 (76 FR 54093, August 31, 2011) (“AD 2011-18-15”).

(c) Applicability

This AD applies to Bombardier, Inc., Model DHC-8-400, -401, and -402 airplanes, certificated in any category, serial numbers 4001 through 4437 inclusive.

(d) Subject

Air Transport Association (ATA) of America Code 57, Wings.

(e) Reason

This AD was prompted by in-service reports of cracked barrel nuts found at the front spar locations of the wing-to-fuselage attachment joints, and a loose washer in the barrel nut assembly. The FAA is issuing this AD to address cracked barrel nuts and a loose washer in the barrel nut assembly, which could result in failure of the barrel nuts, compromising the structural integrity of the wing-to-fuselage attachments, and possible separation of the wing from the airplane during flight.

(f) Compliance

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

(g) Retained Initial and Repetitive Inspections, with Revised Service Information

This paragraph restates the requirements of paragraph (g) of AD 2011-18-15, with revised service information. At the applicable time specified in paragraph (g)(1) or (g)(2) of this AD: Do a torque check to determine if the bolt preload is correct, and if the preload is correct, before further flight, do a detailed inspection of each barrel nut and cradle for cracking, pitting or corrosion, in accordance with paragraph 3.B., part A, of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-57-25, dated July 20, 2011; or Bombardier Alert Service Bulletin A84-57-25, Revision A, dated

July 16, 2018. After the effective date of this AD, only Bombardier Alert Service Bulletin A84-57-25, Revision A, dated July 16, 2018, may be used. Repeat the torque check and, as applicable, the inspection thereafter at intervals not to exceed 2,000 flight hours or 12 months, whichever occurs first.

(1) For airplanes that have accumulated 1,900 or more total flight hours as of September 15, 2011 (the effective date of AD 2011-18-15), or for which it has been 12 months or more since the date of issuance of the original Canadian airworthiness certificate or the date of issuance of the original Canadian export certificate of airworthiness as of September 15, 2011: Within 100 flight hours or 10 days after September 15, 2011, whichever occurs first.

(2) For airplanes that have accumulated less than 1,900 total flight hours as of September 15, 2011 (the effective date of AD 2011-18-15), and for which it has been less than 12 months since the date of issuance of the original Canadian airworthiness certificate or the date of issuance of the original Canadian export certificate of airworthiness as of September 15, 2011: Prior to the accumulation of 2,000 total flight hours or within 12 months since the date of issuance of the original Canadian standard airworthiness certificate or the date of issuance of the original Canadian export certificate of airworthiness, whichever occurs first.

(h) Retained Corrective Actions for Incorrect Bolt Preload, with Revised Service Information

This paragraph restates the requirements of paragraph (h) of AD 2011-18-15, with revised service information. If any bolt preload is found to be incorrect (i.e., the ring can be rotated during any torque check required by paragraph (g) of this AD), before further

flight, replace all hardware at that location (except the saddle washer and retainer) in accordance with paragraph 3.B., part B, of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-57-25, dated July 20, 2011; or paragraph 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018. After the effective date of this AD, only Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018, may be used.

(i) Retained Corrective Actions for Barrel Nut/Cradle Discrepancies, with Revised Service Information

This paragraph restates the requirements of paragraph (i) of AD 2011-18-15, with revised service information. If any crack, pitting, or corrosion of the barrel nut or cradle is found during any inspection required by paragraph (g) of this AD, before further flight, replace all hardware at that location (except the saddle washer and retainer) in accordance with paragraph 3.B., part B, of the Accomplishment Instructions of Bombardier Alert Service Bulletin A84-57-25, dated July 20, 2011; or paragraph 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018. After the effective date of this AD, only Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018, may be used

(j) New Requirement of this AD: Replacement and Visual Inspection

Within 12,000 flight hours or 72 months after the effective date of this AD, whichever occurs first: Do a visual inspection of the saddle washer and retainer for any damage (cracks) or corrosion; and replace the wing front spar barrel nuts, bolts, and pre-load indicating washers; in accordance with paragraph 3.B. of the Accomplishment Instructions of Bombardier Service Bulletin 84-57-26, Revision C, dated July 16, 2018.

(k) New Corrective Actions for Damage (Cracks) or Corrosion

If any damage (cracks) or corrosion is found during any inspection required by paragraph (j) of this AD: Before further flight, accomplish corrective actions in accordance with the procedures specified in paragraph (p)(2) of this AD.

(l) New Provision of this AD: Terminating Actions for Repetitive Torque Checks and Detailed Inspections

Accomplishment of the applicable actions required by paragraphs (j) and (k) of this AD, at all four barrel nut locations, terminates the repetitive torque checks and detailed inspections of paragraph (g) of this AD.

(m) Parts Installation Prohibition

As of the effective date of this AD, no person may install, on any airplane, a barrel nut having part number DSC228-16.

(n) Retained Special Flight Permit Provisions, with No Changes

This paragraph restates the requirements of paragraph (k) of AD 2011-18-15, with no changes. Special flight permits, as described in 14 CFR 21.197 and 21.199, may be issued to operate the airplane to a location where the requirements of this AD can be accomplished, but concurrence by the Manager, New York ACO Branch, FAA, is required before issuance of the special flight permit. Before using any approved special flight permits, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office (FSDO). Operators must request a repair drawing from Bombardier, which provides recommendations for a one-time special flight permit. The repair drawing will be applicable to the operator's aircraft serial number only. Special

flight permits may be permitted provided that the conditions specified in paragraphs (n)(1), (n)(2), (n)(3), (n)(4), and (n)(5) of this AD are met.

(1) Only one barrel nut out of four is cracked, one cradle is cracked, or one washer is loose; all other strut (wing front spar) bolt locations must be free of damage.

(2) The airplane must operate with reduced airspeed not to exceed 180 KIAS (knots indicated air speed). No passengers and no cargo are onboard.

(3) The airplane must not operate in known or forecast turbulence, other than light turbulence.

(4) The airplane descent rate on landing flare-out is not to exceed 5 feet per second.

(5) Heavy braking or hard turning of the airplane upon landing is to be avoided if possible.

(o) Credit for Previous Actions

(1) This paragraph restates the provisions of paragraph (j) of AD 2011-18-15, with revised formatting and updated service information. This paragraph provides credit for torque checks, initial inspections, and replacements required by paragraphs (g) and (h) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (o)(1)(i) through (o)(1)(v) of this AD, which is not incorporated by reference in this AD. The repetitive inspections required by paragraph (g) of this AD must be continued at the time specified.

(i) Bombardier Alert Service Bulletin A84-57-19, dated February 1, 2008.

(ii) Bombardier Alert Service Bulletin A84-57-19, Revision A, dated February 6, 2008.

(iii) Bombardier Alert Service Bulletin A84-57-19, Revision B, dated March 6, 2008.

(iv) Bombardier Alert Service Bulletin A84-57-19, Revision C, dated August 20, 2008.

(v) Bombardier Alert Service Bulletin A84-57-19, Revision D, dated August 12, 2011.

(2) This paragraph provides credit for the actions required by paragraphs (h), (i), (j), and (k) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (o)(2)(i) through (o)(2)(iii) of this AD. This service information is not incorporated by reference in this AD.

(i) Bombardier Service Bulletin 84-57-26, dated March 21, 2013.

(ii) Bombardier Service Bulletin 84-57-26, Revision A, dated July 18, 2014.

(iii) Bombardier Service Bulletin 84-57-26, Revision B, dated February 26, 2015.

(3) This paragraph provides credit for the actions required by paragraphs (h) and (i) of this AD, if those actions were performed before the effective date of this AD using the service information specified in paragraphs (o)(3)(i) and (o)(3)(ii) of this AD.

(i) Bombardier Alert Service Bulletin A84-57-25, dated July 20, 2011, which was incorporated by reference in AD 2011-18-15.

(ii) Bombardier Alert Service Bulletin A84-57-25, Revision A, dated July 16, 2018, which is incorporated by reference in this AD.

(p) Other FAA AD Provisions

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, New York ACO Branch, 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 manager of the certification office, send it to ATTN: Program Manager, Continuing Operational Safety, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 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.

(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 Branch, 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.

(3) AMOCs approved previously for AD 2011-18-15 are approved as AMOCs for the corresponding provisions of this AD.

(q) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian AD CF-2011-24R1, dated January 21, 2019, 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-2019-0493.

(2) For more information about this AD, contact Andrea Jimenez, Aerospace Engineer, Airframe and Propulsion Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 516-228-7330; fax: 516-794-5531; email: 9-avs-nyaco-cos@faa.gov.

(3) For service information identified in this AD, contact Bombardier, Inc., Q-Series Technical Help Desk, 123 Garratt Boulevard, Toronto, Ontario M3K 1Y5, Canada; phone: 416-375-4000; fax: 416-375-4539; email: thd.qseries@aero.bombardier.com; Internet: <http://www.bombardier.com>. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

Issued in Des Moines, Washington, on June 28, 2019.

Dionne Palermo,
Acting Director,
System Oversight Division,
Aircraft Certification Service.

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