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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2018-0634; Product Identifier 2018-NM-050-AD; Amendment 39-19594; AD 2019-05-12]

RIN 2120-AA64

Airworthiness Directives; Bombardier, Inc., Airplanes

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

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Bombardier, Inc., Model CL-600-2C10 (Regional Jet Series 700, 701 & 702) airplanes, Model CL-600-2D15 (Regional Jet Series 705) airplanes, Model CL-600-2D24 (Regional Jet Series 900) airplanes, and Model CL-600-2E25 (Regional Jet Series 1000) airplanes. This AD was prompted by reports of a fractured main landing gear (MLG) orifice support tube (OST). This AD requires replacing the MLG OST, and revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive maintenance requirements and airworthiness limitations. We are issuing this AD to address the unsafe condition on these products.

DATES: This AD is effective May 3, 2019.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of May 3, 2019.

ADDRESSES: For service information identified in this final rule, contact Bombardier, Inc., 400 Côte Vertu Road West, Dorval, Québec H4S 1Y9, Canada; Widebody Customer Response Center North America toll-free telephone 866-538-1247 or direct-dial telephone 514-855-2999; fax 514-855-7401; email ac.yul@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. It is also available on the internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2018-0634.

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-2018-0634; 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 final rule, the regulatory evaluation, any comments received, and other information. The address for Docket Operations (phone: 800-647-5527) is 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: Aziz Ahmed, Aerospace Engineer, Airframe and Mechanical Systems Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7329; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Bombardier, Inc., Model CL-600-2C10 (Regional Jet Series 700, 701 & 702) airplanes, Model CL-600-2D15 (Regional Jet Series 705) airplanes, Model CL-600-2D24 (Regional Jet Series 900) airplanes, and Model CL-600-2E25 (Regional Jet Series 1000) airplanes. The NPRM published in the Federal Register on July 12, 2018 (83 FR 32215). The NPRM was prompted by reports of a fractured MLG OST. The NPRM proposed to require replacing the MLG OST, and revising the existing maintenance or inspection program, as applicable, to incorporate new or more restrictive maintenance requirements and airworthiness limitations.

We are issuing this AD to address a fractured MLG OST, which can lead to structural damage to the airplane and collapse of the MLG.

Transport Canada Civil Aviation (TCCA), which is the aviation authority for Canada, has issued Canadian AD CF-2018-02, dated January 16, 2018 (referred to after this as the Mandatory Continuing Airworthiness Information, or "the MCAI"), to correct an unsafe condition for certain Bombardier, Inc., Model CL-600-2C10 (Regional Jet Series 700, 701 & 702) airplanes, Model CL-600-2D15 (Regional Jet Series 705) airplanes, Model CL-600-2D24 (Regional Jet Series 900) airplanes, and Model CL-600-2E25 (Regional Jet Series 1000) airplanes. The MCAI states:

> Five cases of fractured Main Landing Gear (MLG) Orifice Support Tube (OST) have been reported. Subsequent analysis determined that the MLG OST is unable to withstand the loads generated during a hard landing event. A MLG OST fracture cannot be detected during routine maintenance and if not corrected, a fractured MLG OST can lead to aeroplane structural damage and/or collapse of the MLG.
>
> This [Canadian] AD mandates the replacement of the existing MLG OSTs with a re-designed part, and the implementation of a new airworthiness limitation task.

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-2018-0634.

Comments

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

Support for the NPRM

The Air Line Pilots Association, International (ALPA), and Endeavor Air stated their support for the NPRM.

Request To Refer to Revised Service Information

Bombardier stated that Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016, was being revised to include procedures for on-wing replacement of the MLG OSTs. This service bulletin was referred to as the required source of service information for accomplishing the replacement of the MLG OSTs in the proposed AD. The commenter stated that it estimated that Bombardier Service Bulletin 670BA-32-058, Revision A, would be released in October of 2018.

We infer that the commenter is requesting that this AD refer to Bombardier Service Bulletin 670BA-32-058, Revision A, as the required source of service information for replacing the MLG OSTs. We agree with the commenter's request. We have included Bombardier Service Bulletin 670BA-32-058, Revision A, dated November 7, 2018, in this AD. Bombardier Service Bulletin 670BA-32-058, Revision A, dated November 7, 2018, adds an optional procedure for OST installation. We have determined that no additional work is required for airplanes that have accomplished the actions specified in Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016. We have added paragraph (j) to this AD to provide credit for actions done before the effective date of this AD using Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016. We have also redesignated the subsequent paragraphs accordingly.

Request To Clarify Applicability

Envoy Air requested that the applicability of the proposed AD be clarified by including the MLG shock strut assemblies part numbers (P/Ns) 49200-9 through 49200-32 with orifice OSTs installed having P/N 49212-3 or 49212-5. The commenter stated that it perceived the intent of the proposed AD was to address the unsafe condition by replacing in-service OSTs with re-designed OSTs having P/N 49212-7 or 49212-9. The commenter observed that OSTs with P/Ns 49212-3 and 49212-5 are not tracked, however, the MLG shock strut assemblies on which the OSTs are installed, are tracked.

The commenter explained that the MLG shock strut assemblies on which OSTs are installed can be replaced in the field and can be moved among airplanes and operators. The commenter suggested that changing the applicability to include the part numbers of the MLG shock strut assemblies and OSTs would allow operators to track the affected OSTs regardless of where they are installed.

We acknowledge the commenter's request and agree to clarify. Section 1.A., “Effectivity,” of Bombardier Service Bulletin 670BA-32-058, Revision A, dated November 7, 2018, provides the part numbers and serial numbers of the affected MLG shock strut assemblies on which the affected OSTs were installed, and the serial numbers of the airplanes on which the MLG shock strut assemblies were installed when the airplane was delivered. We recognize that the affected OSTs are not easily tracked. Therefore, we have revised figure 1 to paragraph (g) of this AD to clarify the compliance times by referring to the MLG shock strut assembly instead of the OST. However, we do not agree to revise the applicability of this AD, which corresponds with the applicability of the corresponding Canadian AD. We have coordinated this issue with Bombardier and determined that the applicability is acceptable. There is minimal risk for rotation of affected OSTs and expanding the applicability would require a Supplemental NPRM for additional public comments, which would further delay issuance of this AD. Therefore, we have not changed this AD in regard to this issue.

Request To Revise Proposed Compliance Time

Bombardier and Endeavor Air requested that the compliance times in paragraph (g) of the proposed AD be changed to the number of total flight cycles accumulated on the MLG shock strut

assembly since it was new instead of the number of total flight cycles accumulated on the MLG OSTs. Both of the commenters noted that OSTs having P/Ns 49212-3 and 49212-5 are not tracked, however, flight cycles are tracked for the MLG shock strut assemblies on which the OSTs are installed. Endeavor Air stated that operators cannot comply with the proposed compliance times because the OSTs are not tracked and operators would not know when the OSTs have reached the flight cycle limits specified in paragraph (g) of the proposed AD. Endeavor Air noted that, because the OST is internal to the MLG shock strut assembly, MLG shock strut assemblies that have not been overhauled will have OSTs with the same flight cycle accumulation as the MLG shock strut assembly, and if an OST had been replaced it would have been replaced with a new OST having fewer flight cycles than the MLG shock strut assembly it is installed on. Therefore, it is unlikely the OST would have accumulated more flight cycles than the MLG shock strut assembly on which it is installed. Bombardier noted that, when an OST is removed during repair or overhaul of the MLG shock strut assembly, it will remain with the MLG shock strut assembly when it is returned to service.

We agree with the commenters' requests. Operators can use the total flight cycles on the MLG shock strut assembly since new, but not since overhaul, to determine the applicable compliance time. If an MLG shock strut assembly is overhauled and the OST is removed, if it is a serviceable OST, it will typically be re-installed on the overhauled MLG shock strut assembly. We have revised figure 1 to paragraph (g) of this AD to clarify the compliance times.

Request To Allow Replacement of OSTs Using Alternative Methods

Endeavor Air requested that the proposed AD allow approval and credit for replacement of OSTs using methods other than following the procedures in Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016. The commenter stated that operators might have replaced affected OSTs after a non-routine event or after sending an MLG shock strut assembly out for repair or overhaul. The commenter noted that Bombardier has issued Reference Instruction Letter (RIL) 5096, Revision C, dated June 20, 2017, for replacement of OSTs after a suspected hard landing. The commenter noted that the Bombardier RIL refers to the same vendor service information that is specified in Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016, for accomplishing replacement of the OSTs. The commenter specifically requested that paragraph (g) of the proposed AD be revised, or a new paragraph created, to provide credit for MLG shock strut assemblies that have new OSTs installed using the Bombardier RIL, the applicable vendor service information, or the applicable vendor component maintenance manual. The commenter noted that maintenance repair organizations will replace OSTs using the applicable vendor service bulletin and not Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016.

We do not agree with the commenter's request. We contacted Bombardier and Bombardier stated that the Bombardier RIL provides procedures for replacing an OST following a high-load landing, and does not specify that the replacement OSTs must have P/N 49212-7 or 49212-9. In addition, Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016, includes certain leak checks that must be done; those leak checks are not specified in the Bombardier RIL. We have not changed this AD in regard to this issue.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this final rule with the changes described previously and minor editorial changes. We have determined that these minor changes:

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

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this final rule.

Related Service Information Under 1 CFR Part 51

Bombardier has issued Service Bulletin 670BA-32-058, Revision A, dated November 7, 2018. The service information describes procedures for replacing each MLG OST.

Bombardier has also issued CRJ700/900/1000 Airworthiness Limitations Temporary Revision ALI-0593, dated December 18, 2017. The service information describes new life limits for the MLG OSTs.

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 542 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
Replacement (left- and right-hand sides)	24 work-hours × $85 per hour = $2,040	* $0	$2,040	$1,105,680

* We have received no definitive data that would enable us to provide cost estimates for the parts cost in this AD.

We have determined that revising the existing maintenance or inspection program takes an average of 90 work-hours per operator, although we recognize that this number may vary from operator to operator. In the past, we have estimated that this action takes 1 work-hour per airplane. Since operators incorporate maintenance or inspection program changes for their affected fleet(s), we have determined that a per-operator estimate is more accurate than a per-airplane estimate. Therefore, we estimate the total cost per operator to be $7,650 (90 work-hours x $85 per work-hour).

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.

This 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

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 adding the following new airworthiness directive (AD):

2019-05-12 Bombardier, Inc.: Amendment 39-19594; Docket No. FAA-2018-0634; Product Identifier 2018-NM-050-AD.

(a) Effective Date

This AD is effective May 3, 2019.

(b) Affected ADs

None.

(c) Applicability

This AD applies to the Bombardier, Inc., airplanes identified in paragraphs (c)(1), (c)(2), and (c)(3) of this AD, certificated in any category.

(1) Model CL-600-2C10 (Regional Jet Series 700, 701 & 702) airplanes, serial numbers 10003 through 10345 inclusive.

(2) Model CL-600-2D15 (Regional Jet Series 705) airplanes and Model CL-600-2D24 (Regional Jet Series 900) airplanes, serial numbers 15001 through 15429 inclusive.

(3) Model CL-600-2E25 (Regional Jet Series 1000) airplanes, serial numbers 19001 through 19052 inclusive.

(d) Subject

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

(e) Reason

This AD was prompted by reports of a fractured main landing gear (MLG) orifice support tube (OST). We are issuing this AD to address a fractured MLG OST, which can lead to structural damage to the airplane and collapse of the MLG.

(f) Compliance

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

(g) Replacement

Within the compliance times specified in figure 1 to paragraph (g) of this AD: Replace each MLG OST, in accordance with the Accomplishment Instructions of Bombardier Service Bulletin 670BA-32-058, Revision A, dated November 7, 2018.

Figure 1 to paragraph (g) of this AD — *Compliance Times*

Airplane Models	Compliance Time
CL-600-2C10 (Regional Jet Series 700, 701 & 702) airplanes	Within 21,000 flight cycles from the effective date of this AD, or before accumulating 40,000 total flight cycles on an MLG shock strut assembly since new, whichever occurs first
CL-600-2D15 (Regional Jet Series 705) airplanes and CL-600-2D24 (Regional Jet Series 900) airplanes equipped with an MLG shock strut assembly(s) that have accumulated fewer than 23,100 total flight cycles as of the effective date of this AD	Within 20,000 flight cycles from the effective date of this AD, or before accumulating 29,100 total flight cycles on an MLG shock strut assembly since new, whichever occurs first
CL-600-2D15 (Regional Jet Series 705) airplanes and CL-600-2D24 (Regional Jet Series 900) airplanes equipped with an MLG shock strut assembly(s) that have accumulated 23,100 total flight cycles or more as of the effective date of this AD	Within 6,000 flight cycles from the effective date of this AD
CL-600-2E25 (Regional Jet Series 1000) airplanes	Before accumulating 20,000 total flight cycles on an MLG shock strut assembly since new

(h) Maintenance or Inspection Program Revision

Within 90 days after the effective date of this AD, revise the existing maintenance or inspection program, as applicable, to incorporate Bombardier CRJ700/900/1000 Airworthiness Limitations Temporary Revision ALI-0593, dated December 18, 2017. The initial compliance time for accomplishing the actions is at the applicable time specified in Bombardier CRJ700/900/1000 Airworthiness Limitations Temporary Revision ALI-0593, dated December 18, 2017; or within 90 days after the effective date of this AD; whichever occurs later.

(i) No Alternative Actions or Intervals

After the existing maintenance or inspection program has been revised as required by paragraph (h) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k)(1) of this AD.

(j) Credit for Previous Actions

This paragraph provides credit for the actions specified in paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Bombardier Service Bulletin 670BA-32-058, dated September 26, 2016.

(k) Other FAA AD Provisions

The following provisions also apply to this AD:

(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; 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.

(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.

(l) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Canadian AD CF-2018-02, dated January 16, 2018, 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-2018-0634.

(2) For more information about this AD, contact Aziz Ahmed, Aerospace Engineer, Airframe and Mechanical Systems Section, FAA, New York ACO Branch, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; telephone 516-228-7329; fax 516-794-5531; email 9-avs-nyaco-cos@faa.gov.

(3) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3) and (m)(4) of this AD.

(m) 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 670BA-32-058, Revision A, dated November 7, 2018.

(ii) Bombardier CRJ700/900/1000 Airworthiness Limitations Temporary Revision ALI-0593, dated December 18, 2017.

(3) For service information identified in this AD, contact Bombardier, Inc., 400 Côte-Vertu Road West, Dorval, Québec H4S 1Y9, Canada; Widebody Customer Response Center North America toll-free telephone 866-538-1247 or direct-dial telephone 514-855-2999; fax 514-855-7401; email ac.yul@aero.bombardier.com; internet http://www.bombardier.com.

(4) 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.

(5) 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 Des Moines, Washington, on March 20, 2019.
Michael Kaszycki,
Acting Director, System Oversight Division,
Aircraft Certification Service.