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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

**[Docket No. FAA-2010-0546; Directorate Identifier 2009-NM-215-AD;
Amendment 39-16659; AD 2011-08-09]**

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120, -120ER, -120FC, -120QC, and -120RT Airplanes

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

ACTION: Final rule.

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:

It has been found that some fuel quantity probes may fail during the airplane life leading to an erroneous fuel quantity indication to the crew. This erroneous indication may lead to the airplane being operated with less fuel than indicated which may lead to an uncommanded in-flight shutdown of one or both engines due to fuel starvation.

* * * * *

We are issuing this AD to require actions to correct the unsafe condition on these products.

DATES: This AD becomes effective August 1, 2011.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of August 1, 2011.

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: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149.

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 June 3, 2010 (75 FR 31332). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found that some fuel quantity probes may fail during the airplane life leading to an erroneous fuel quantity indication to the crew. This erroneous indication may lead to the airplane being operated with less fuel than indicated which may lead to an uncommanded in-flight shutdown of one or both engines due to fuel starvation.

* * * * *

Required actions include determining the real fuel quantity on each tank using the driplless measuring sticks, comparing the results of the fuel quantity measurement with the fuel master indicator and repeater indicator readings for each tank, and corrective actions as applicable. Corrective actions include replacing the measuring stick and its relevant magnetic float, replacing the master fuel quantity indicator, and replacing the repeater indicator, as applicable; inspecting defective tank units for contamination, corrosion and integrity of components, and repairing or replacing as necessary; inspecting system wiring from the connector at the wing root to the master indicator for condition and continuity; and correcting the fuel quantity indication system; as applicable. 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 considered the comments received.

Request to Change Requirements

Great Lakes Airlines (Great Lakes) and Ameriflight, LLC (Ameriflight), requested that we remove the repetitive inspections to determine real fuel quantity at intervals not to exceed 600 flight hours or 180 days from the proposed AD, and instead require a one-time inspection to determine real fuel quantity within 600 flight hours or 180 days after the effective date of the AD, and subsequent inspections to comply with the schedule per Task 28-25, Operational Check Fuel Quantity Indicating System (Measuring Sticks), specified in Section 3, Systems and Powerplant Inspection Requirements, in EMBRAER EMB120 Models Maintenance Review Board Report (MRBR), MRB-HI-200, Revision 26, dated January 5, 2010. Ameriflight stated that this inspection has already been added to Section 3 of the EMBRAER EMB120 Models MRBR (Task 28-25), to be done at each "A" check, which would occur more frequently than what is called for in the NPRM. Ameriflight stated that requiring the repetitive inspections to comply with the MRBR schedule per Task 28-25 would ensure that Task 28-25 is incorporated into the operators "A" check program.

Great Lakes stated that accomplishing the inspection at the next "A" check, but no longer than 180 days, would accomplish the same intent as the proposed AD. Great Lakes stated that accomplishing the inspection at the next "A" check would close the AD once the inspection was accomplished.

We disagree with the commenters' requests to change the requirements. We note that the operators could accomplish the inspection at the next "A" check if the "A" checks are more frequent than our requirement. Operators are always permitted to accomplish the requirements of an AD at a time earlier than the specified compliance time. We have determined that this AD must require

repetitive inspections in order to address the identified unsafe condition. We have not changed the AD in this regard.

Request To Move Task 28-25 to the Airworthiness Limitations (AWL) Section of the MRBR

Great Lakes requested that we ask EMBRAER to move Task 28-25 to the AWL section of the EMBRAER EMB120 Models MRBR. Great Lakes stated that this would accomplish the same thing as the NPRM and would close the AD once the inspection was accomplished.

We disagree with the request to move Task 28-25 to the AWL section of the EMBRAER EMB120 Models MRBR. We have determined that this AD is the vehicle for ensuring, by law, that all affected operators perform the necessary actions that will address the identified unsafe condition. If in the future the manufacturer includes this task in a different manual or some other documentation, the operator may apply for an Alternative Method of Compliance (AMOC) in accordance with paragraph (j) of this AD. We have not changed the AD in this regard.

Request To Refer to Latest Revision of the Aircraft Maintenance Manual (AMM)

Great Lakes stated that the operator is directed to use EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 24, dated March 30, 2009, to determine the real fuel quantity using driplless stick measuring and comparing to the fuel quantity master indicator and repeater. Great Lakes stated that a later revision of the AMM introduced Task 28-25 to compare the fuel quantity indicated on driplless sticks to the fuel quantity system, and the task card manual was revised to include Task Card 28-25.

We infer that Great Lakes is requesting that we refer to EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010, to determine the real fuel quantity using driplless stick measuring and comparing to the fuel quantity master indicator and repeater. We agree. References have been changed in paragraphs (g) and (k), and Note 1 of this AD to refer to EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010. We have also revised this AD by adding new paragraph (i) to give credit to operators that accomplished the applicable inspections before the effective date of this AD, in accordance with EMBRAER EMB120 Brasilia AMM, Revision 24, dated March 30, 2009; Revision 25, dated September 28, 2009; or Revision 26, dated March 29, 2010. We have also included Task 28-25, Operational Check Fuel Quantity Indicating System (Measuring Sticks), specified in Section 3, Systems and Powerplant Inspection Requirements, in EMBRAER EMB120 Models Maintenance Review Board Report (MRBR), MRB-HI-200, Revision 26, dated January 5, 2010, in this AD as an alternative to Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly—Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010. We have also corrected the reference to the chapter number in paragraph (g)(3) of this AD.

Conclusion

We reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

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

Based on the service information, we estimate that this AD will affect about 77 products of U.S. registry. We also estimate that it will take about 2 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Based on these figures, we estimate the cost of the AD on U.S. operators to be \$13,090, or \$170 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 adding the following new AD:



2011-08-09 Empresa Brasileira de Aeronautica S.A. (EMBRAER): Amendment 39-16659.
Docket No. FAA-2010-0546; Directorate Identifier 2009-NM-215-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective August 1, 2011.

Affected ADs

(b) None.

Applicability

(c) This AD applies to all Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120, -120ER, -120FC, -120QC, and -120RT airplanes, certificated in any category.

Subject

(d) Air Transport Association (ATA) of America Code 28: Fuel.

Reason

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

It has been found that some fuel quantity probes may fail during the airplane life leading to an erroneous fuel quantity indication to the crew. This erroneous indication may lead to the airplane being operated with less fuel than indicated which may lead to an uncommanded in-flight shutdown of one or both engines due to fuel starvation.

* * * * *

Required actions include determining the real fuel quantity on each tank using the dripless measuring sticks, comparing the results of the fuel quantity measurement with the fuel master indicator and repeater indicator readings for each tank, and corrective actions as applicable. Corrective actions include replacing the measuring stick and its relevant magnetic float, replacing the master fuel quantity indicator, and replacing the repeater indicator, as applicable; inspecting defective tank units for contamination, corrosion and integrity of components, and repairing or replacing as necessary; inspecting system wiring from the connector at the wing root to the master indicator for condition and continuity; and correcting the fuel quantity indication system; as applicable.

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.

Actions

(g) Within 600 flight hours or 180 days after the effective date of this AD, whichever occurs first, with at least 400 kg (882 lb) of fuel in each tank, determine the real fuel quantity in each tank using the dripless measuring sticks, in accordance with Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010; or in accordance with Task 28-25, Operational Check Fuel Quantity Indicating System (Measuring Sticks), specified in Section 3, Systems and Powerplant Inspection Requirements, in EMBRAER EMB120 Models Maintenance Review Board Report (MRBR), MRB-HI-200, Revision 26, dated January 5, 2010. Before further flight, compare the results of the fuel quantity measurement with the fuel master indicator and repeater indicator readings for each tank and do the applicable action in paragraph (g)(1), (g)(2), or (g)(3) of this AD.

(1) If the difference of the two measurements is greater than 60 kg (132 lb) on both tanks, before further flight do all applicable corrective actions including correcting the fuel quantity indication system (FQIS), in accordance with Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010.

(2) If the difference of the two measurements is greater than 60 kg (132 lb) on only one tank, and the conditions in paragraphs (g)(2)(i), (g)(2)(ii), and (g)(2)(iii) of this AD are met, do all applicable corrective actions including correcting the FQIS, in accordance with Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010, within 10 days after determining the real fuel quantity as specified in paragraph (g) of this AD.

(i) Before further flight after each refueling, the actions required in paragraph (g) of this AD are done;

(ii) Both fuel flow indicators are operating properly; and

(iii) The fuel used or fuel remaining function of the totalizer is operating properly.

(3) If the difference of the two measurements is greater than 60 kg (132 lb) on only one tank, and any condition in paragraph (g)(2)(i), (g)(2)(ii), or (g)(2)(iii) of this AD is not met, before further flight do all applicable corrective actions including correcting the FQIS, in accordance with Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010.

(h) Repeat the actions required in paragraph (g) of this AD thereafter at intervals not to exceed 600 flight hours or 180 days, whichever occurs first.

Credit for Actions Accomplished in Accordance With Previous Service Information

(i) Inspections accomplished before the effective date of this AD according to Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, the EMBRAER EMB120 Brasilia Aircraft Maintenance Manual, MM-120/1459, Revision 24, dated March 30, 2009; Revision 25, dated September 28, 2009; and Revision 26, dated March 29, 2010; are considered acceptable for compliance with the corresponding actions specified in this AD.

FAA AD Differences

Note 1: This AD differs from the MCAI and/or service information as follows:

This AD requires doing all applicable corrective actions in accordance with Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–

Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010. Corrective actions include replacing the measuring stick and its relevant magnetic float, replacing the master fuel quantity indicator, and replacing the repeater indicator, as applicable; inspecting defective tank units for contamination, corrosion and integrity of components, and repairing or replacing as necessary; inspecting system wiring from the connector at the wing root to the master indicator for condition and continuity; and correcting the fuel quantity indication system; as applicable. The MCAI does not provide a corrective action and only requires a repetitive functional check of the FQIS in accordance with Subject 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia Aircraft Maintenance Manual, Revision 24, dated March 30, 2009. This difference has been coordinated with Agência Nacional de Aviação Civil (ANAC).

Other FAA AD Provisions

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

(1) Alternative Methods of Compliance (AMOCs): The Manager, International Branch, ANM-116, 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 International Branch, send it to ATTN: Todd Thompson, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-1175; fax (425) 227-1149. Information may be e-mailed to: 9-ANM-116-AMOC-REQUESTS@faa.gov. 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. 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.

Related Information

(k) Refer to MCAI Brazilian Airworthiness Directive 2009-07-04, effective July 13, 2009; Task 28-25, Operational Check Fuel Quantity Indicating System (Measuring Sticks), specified in Section 3, Systems and Powerplant Inspection Requirements, in EMBRAER EMB120 Models Maintenance Review Board Report (MRBR), MRB-HI-200, Revision 26, dated January 5, 2010; and Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010; for related information.

Material Incorporated by Reference

(l) You must use Subjects 28-41-00, Fuel Quantity Indicating System, and 28-42-00, Fuel Quantity Measuring Sticks Assembly–Description and Operation, of Chapter 28, Fuel, of the EMBRAER EMB120 Brasilia AMM, MM-120/1459, Revision 27, dated September 28, 2010; or Task 28-25, Operational Check Fuel Quantity Indicating System (Measuring Sticks), specified in Section 3, Systems and Powerplant Inspection Requirements, in EMBRAER EMB120 Models Maintenance Review Board Report (MRBR), MRB-HI-200, Revision 26, dated January 5, 2010; as applicable; to do the actions required by this AD, unless the AD specifies otherwise. The revision level of EMBRAER EMB120 Brasilia Aircraft Maintenance Manual, MM-120/1459, Revision 27, dated September 28, 2010, is indicated only on the title page and Chapter 28 List of Effective Pages

of that document. The revision level of EMBRAER EMB120 Brasilia Maintenance Review Board Report, MRB-HI-200, Revision 26, dated January 5, 2010, is indicated only on the title page of that document; pages I-II of the List of Effective Pages of that document do not exist.

(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 Empresa Brasileira de Aeronautica S.A. (EMBRAER), Technical Publications Section (PC 060), Av. Brigadeiro Faria Lima, 2170–Putim–12227-901 São Jose dos Campos–SP–BRASIL; telephone +55 12 3927-5852 or +55 12 3309-0732; fax +55 12 3927-7546; e-mail distrib@embraer.com.br; Internet <http://www.flyembraer.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 March 25, 2011.

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