

Airworthiness Directive

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-28855; Directorate Identifier 2007-NM-098-AD;
Amendment 39-15323; AD 2007-26-21]

RIN 2120-AA64

Airworthiness Directives; EMBRAER Model EMB-120, -120ER, -120FC, -120QC, and -
120RT Airplanes

▼ Preamble Information

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:

Icing tunnel tests on an EMB-120 wing section, conducted under a joint Embraer-NASA (National Aeronautics and Space Administration)-- FAA-CTA (Centro Tecnico Aeroespacial) research program well after the EMB-120() was type-certificated, have shown that stick shaker to stick pusher speed margins may drop below the minimum required by the applicable regulations in certain icing conditions. Although flight tests have shown that the aircraft handling qualities are not adversely affected, these reduced speed margins may significantly increase crew workload in certain flight phases.

The unsafe condition is reduced ability of the flightcrew to maintain the safe flight and landing of the airplane. We are issuing this AD to require actions to correct the unsafe condition on these products.

DATES: This AD becomes effective February 20, 2008.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 20, 2008.

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: Dan Rodina, Aerospace Engineer, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-2125; 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 August 2, 2007 (72 FR 42328). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

Icing tunnel tests on an EMB-120 wing section, conducted under a joint Embraer-NASA (National Aeronautics and Space Administration)-- FAA-CTA (Centro Tecnico Aeroespacial) research program well after the EMB-120() was type-certificated, have shown that stick shaker to stick pusher speed margins may drop below the minimum required by the applicable regulations in certain icing conditions. Although flight tests have shown that the aircraft handling qualities are not adversely affected, these reduced speed margins may significantly increase crew workload in certain flight phases.

The unsafe condition is reduced ability of the flightcrew to maintain the safe flight and landing of the airplane. The corrective action includes modification of certain electrical wiring and installation of a new Stall Warning Computer. 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.

Requests To Change Certain Language

The Air Line Pilots Association, International (ALPA) asks that the unsafe condition specified in paragraph (e) of the NPRM be clarified. ALPA states that "clearly, the accident/incident history of this aircraft indicates that handling qualities are adversely affected under icing conditions." ALPA disagrees with EMBRAER on the statement that icing conditions do not adversely affect handling characteristics.

EMBRAER also asks that the language specified in paragraph (e) of the NPRM be clarified. EMBRAER suggests changing the language specified in paragraph (e) as follows: "During icing tunnel research tests conducted by the FAA and NASA with the support of CTA (Centro Tecnico Aeroespacial) and EMBRAER in the year 2000, new ice shapes were defined for testing on the Model EMB-120 airplane. These ice shapes are representative of icing (now defined as intercycle icing) that may accumulate in between consecutive boot cycles. Although flight testing of these new ice shapes indicated that they do not adversely affect the handling characteristics of the Brasilia, the testing did indicate that the stick shaker to stick pusher speed margins for the intercycle ice shapes may be reduced below the minimum standard values set forth in the applicable CTA and FAA Regulations. In order to preserve the original certification stick-shaker-to-stick-pusher margins when operating under the newly defined intercycle icing conditions, an upgraded Stall Warning Computer with new settings for shaker firing AOA is required to be installed." EMBRAER adds that during the flight tests no noticeable increase in crew work load was experienced.

We acknowledge the commenter's concerns. However, ALPA's comment addresses icing conditions in general; whereas EMBRAER's comment addresses stick-shaker-to-stick-pusher speed margins that may drop below the minimum required by the applicable regulations in certain icing conditions (defined as intercycle icing), which the MCAI identifies, in part, as the unsafe condition. Therefore, we have clarified the unsafe condition in paragraph (e) by reiterating the content of EMBRAER's comment.

Delay in Issuing AD

ALPA states that, while a 36-month compliance time appears to be reasonable, given the number of aircraft in the U.S. registry, ALPA is disappointed that it has taken almost ten years to implement such a requirement. ALPA notes that its submission to the National Transportation Safety Board following the conclusion of the 1997 aircraft accident investigation included a proposed safety recommendation that was almost identical to the changes being suggested in the subject document.

We understand the commenter's concern regarding a delay in issuing this AD. However, the FAA did issue AD 2001-13-14, amendment 39-12295 (66 FR 34083, June 27, 2001),

and AD **2001-20-17**, amendment 39-12465 (66 FR 52027, October 12, 2001). These ADs mitigated the subject unsafe condition.

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 change described previously. This change will neither increase the economic burden on any operator nor 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

We estimate that this AD will affect about 107 products of U.S. registry. We also estimate that it will take about 58 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$80 per work-hour. Required parts will cost up to \$2,000 per product, depending on airplane configuration. Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these costs. As we do not control warranty coverage for affected parties, some parties may incur costs higher than estimated here. Based on these figures, we estimate the cost of the AD on U.S. operators to be up to \$710,480, or \$6,640 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.

Sec. 39.13 [Amended]

2. The FAA amends Sec. 39.13 by adding the following new AD:

▼ **Regulatory Information**

2007-26-21 Empresa Brasileira de Aeronautica S.A. (EMBRAER): Amendment 39-15323. Docket No. FAA-2007-28855; Directorate Identifier 2007-NM-098-AD.

Effective Date

(a) This airworthiness directive (AD) becomes effective February 20, 2008.

Affected ADs

(b) None.

Applicability

(c) This AD applies to all EMBRAER Model EMB-120, -120ER, -120FC, -120QC, and -120RT airplanes; certificated in any category.

Subject

(d) Air Transport Association (ATA) of America Code 27: Flight controls.

Reason

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

Icing tunnel tests on an EMB-120 wing section, conducted under a joint Embraer-NASA (National Aeronautics and Space Administration)-- FAA-CTA (Centro Tecnico Aeroespacial) research program well after the EMB-120() was type-certificated, have shown that stick shaker to stick pusher speed margins may drop below the minimum required by the applicable regulations in certain icing conditions. Although flight tests have shown that the aircraft handling qualities are not adversely affected, these reduced speed margins may significantly increase crew workload in certain flight phases.

During icing tunnel research tests conducted by the FAA and NASA in the year 2000, with the support of CTA (Centro Tecnico Aeroespacial) and EMBRAER, new ice shapes were defined for testing on the Model EMB-120 airplane. These ice shapes are representative of icing (now defined as intercycle icing) that may accumulate in between consecutive boot cycles. Although flight testing of these new ice shapes indicated that they do not adversely affect the handling characteristics of the Brasilia, the testing did indicate that the stick-shaker-to-stick-pusher speed margins for the intercycle ice shapes

may be reduced below the minimum standard values set forth in the applicable CTA and FAA Regulations. In order to preserve the original certification stick- shaker-to-stick- pusher margins when operating under the newly defined intercycle icing conditions, an upgraded Stall Warning Computer with new settings for shaker firing angle-of-attack (AOA) is required to be installed. The unsafe condition is reduced ability of the flightcrew to maintain the safe flight and landing of the airplane. The corrective action includes modification of certain electrical wiring and installation of a new Stall Warning Computer.

Actions and Compliance

(f) Within 36 months after the effective date of this AD, unless already done, do the following actions.

(1) Replace the current Stall Warning Computers with new improved ones in accordance with detailed instructions and procedures described in the EMBRAER Service Bulletin 120-27-0092, Revision 01, dated December 29, 2006.

(2) Before installing the improved Stall Warning Computers, accomplish the detailed instructions and procedures described in the EMBRAER Service Bulletin 120-27-0091, Change 02, dated September 29, 2003.

(3) As of 36 months after the effective date of this AD, no person may install a Stall Warning Computer; part number C-81806-1 or -2, Mod. A, or C-81806-3, on any airplane.

FAA AD Differences

Note: This AD differs from the MCAI and/or service information as follows: No differences.

Other FAA AD Provisions

(g) 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. Send information to ATTN: Dan Rodina, Aerospace Engineer, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 227-2125; fax (425) 227-1149. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

(2) Airworthy Product: For any requirement in this AD to obtain corrective actions from a manufacturer or other source, use these actions if they are FAA-approved. Corrective actions are considered FAA-approved if they are approved by the State of Design Authority (or their delegated agent). You are required to assure the product is airworthy before it is returned to service.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act, the Office of Management and Budget

(OMB) has approved the information collection requirements and has assigned OMB Control Number 2120- 0056.

Related Information

(h) Refer to MCAI Brazilian Airworthiness Directive 2007-03-03, effective April 10, 2007; and EMBRAER Service Bulletins 120-27-0091, Change 02, dated September 29, 2003; and 120-27-0092, Revision 01, dated December 29, 2006; for related information.

Material Incorporated by Reference

(i) You must use EMBRAER Service Bulletin 120-27-0091, Change 02, dated September 29, 2003; or EMBRAER Service Bulletin 120-27- 0092, Revision 01, dated December 29, 2006; as applicable; to do the actions required by this AD, unless the AD specifies otherwise. EMBRAER Service Bulletin 120-27-0091, Change 02, contains the following list of effective pages:

Page Nos.	Change level Shown on Page	Date Shown on Page
1, 2, 51, 58.	02	September 29, 2003
3-50, 52-57, 59-87	01	October 15, 2002

(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), P.O. Box 343--CEP 12.225, Sao Jose dos Campos--SP, Brazil.

(3) You may review copies at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington; or 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> .

Footer Information

Issued in Renton, Washington, on December 21, 2007.

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

[FR Doc. E8-170 Filed 1-15-08; 8:45 am]

BILLING CODE 4910-13-P

 **Comments**