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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2009-0715; Directorate Identifier 2008-NM-211-AD; Amendment 39-16432; AD 2010-19-04]**

**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.

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**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 the occurrence of corrosion on the Auxiliary Power Unit (APU) mounting rods that could cause the APU rod to break, affecting the APU support structure integrity.

\* \* \* \* \*

APU support structure failure could result in loss of power of the APU and possible loss of control of the airplane. We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective October 27, 2010.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of October 27, 2010.

**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 August 19, 2009 (74 FR 41805). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found the occurrence of corrosion on the Auxiliary Power Unit (APU) mounting rods that could cause the APU rod to break, affecting the APU support structure integrity.

\* \* \* \* \*

APU support structure failure could result in loss of power of the APU and possible loss of control of the airplane. The required action is doing an external detailed inspection for corrosion of the APU auxiliary and center mounting rods and rod ends, and corrective actions if necessary. Corrective actions include removing corrosion, applying anticorrosive treatment, and replacing mounting rods. 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 Revise the Unsafe Condition Specified in Paragraph (e) of the NPRM**

EMBRAER states that the undetectable fire condition described in the NPRM is not verifiable since two events must happen for APU rod breakage to occur.

EMBRAER states that the first event is a fire, because the rod breakage by itself is not enough to promote sparks or overheating of any kind. EMBRAER also states that the rod breakage has not been shown to cause leakage of APU oil in the gearbox or leakage of the fuel lines in the compartment. EMBRAER states both ignition sources and flammable fluids would be required to ignite a fire.

EMBRAER states that for the second event to occur, a fire must start due to the unforeseeable scenario described previously, at which time damage to the fire detector, located in the vicinity of the combustion chamber and accessory gearbox, could occur. EMBRAER states that in-service experience demonstrates that the fire detector must be punctured or extensively crushed for it to lose its capability to detect a fire.

From these statements we infer that EMBRAER requests that we revise paragraph (e) of the NPRM to clarify the unsafe condition. We agree with the scenarios EMBRAER has described previously in regards to an undetected fire occurring in the tail cone of the airplane. Therefore, we have changed the Summary section and paragraph (e) of this AD to state, "APU support structure failure could result in loss of power of the APU and possible loss of control of the airplane."

**Request To Extend the Proposed Initial Compliance Time**

EMBRAER states that the European Aviation Safety Agency (EASA) and the Agência Nacional de Aviação Civil (ANAC) fleets have accomplished their respective ADs. EMBRAER states that not

one APU rod was removed due to moderate or heavy corrosion, with the exception of one event of corrosion reported at the rod terminal. EMBRAER also states that there is no evidence that Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120, -120ER, -120FC, -120QC, and -120RT airplanes are prone to the corrosion event.

EMBRAER states that with the considerations stated previously, meaning lack of real fire in the compartment, and lack of evidence or reports of corrosion spreading in the current Model EMB 120 fleet, the initial compliance time of 500 flight hours or 2 months after the effective date of the AD is too conservative. EMBRAER states that this leads to extensive burden and labor costs on operators, and does not lead to a real increased margin of safety levels related to this issue. EMBRAER states that, according to Brazilian Airworthiness Directive 2008-08-01, dated October 21, 2008; and EMBRAER Service Bulletin 120-49-0023, Revision 01, dated June 30, 2008; an adequate approach could be taken within 1,500 flight hours or 6 months from the effective date of the AD, whichever occurs first.

We infer that EMBRAER requests that we extend the proposed compliance time specified in the NPRM. We agree with the commenter's request. Since the NPRM has been published, we have determined that the compliance time can be extended as the inspection reports received provided sufficient technical information to do so. We have revised the initial compliance time in paragraph (f)(1) of this AD from 500 flight hours or 2 months after the effective date of this AD to 1,500 flight hours or 6 months (whichever occurs first) after the effective date of this AD. The revised compliance time correlates with Brazilian Airworthiness Directive 2008-08-01, dated October 21, 2008.

### **Request To Eliminate Repetitive Detailed Inspections**

EMBRAER states that the repetitive inspection interval currently required by the maintenance review board (MRB) report for C-Checks (4,000 flight cycles) states:

Zonal Inspection Task 313-01Z Tail Cone Fairing (APU installed). Inspection of the APU mounting structure for condition, security of installation or chafing.

EMBRAER states that these findings demonstrate that the inspection interval in the MRB report is adequate. EMBRAER also states that few APU rods are reportedly replaced over time, apart from this proposed AD, demonstrating the MRB task is effective for the repetitive inspections. EMBRAER states that the repetitive detailed inspections in the NPRM are more restrictive than the general visual inspection specified in the MRB report.

Ameriflight, LLC, states that the repetitive inspection interval of "not to exceed 1,500 flight hours or 6 months, whichever occurs first," is adding an additional inspection item outside the scope of the EMBRAER EMB120 MRB. Ameriflight, LLC, states that due to the fact that all of the corrosion control and corrosion prevention items contained in the MRB report are calendar driven, it would seem relevant to have the repetitive APU mounting rod corrosion inspection interval come due at a calendar limit rather than on an hourly basis. Ameriflight, LLC, also states that the MRB report contains a 12-month inspection for the airplane, and that the repetitive inspection of the APU mounting rods should be completed at a 12-month interval so it could be completed during the normal inspection cycle contained in the MRB report.

From these statements, we infer that EMBRAER and Ameriflight, LLC, believe that the repetitive detailed inspections specified in the NPRM are more restrictive than the repetitive inspections in the MRB report, and that Ameriflight, LLC, believes that the repetitive inspections could be completed during the same inspection cycle specified in the MRB report.

We agree with EMBRAER and Ameriflight, LLC, that the repetitive detailed inspection proposed in the NPRM is more conservative than the inspection in the MRB report. Since the NPRM was published, we have determined that the proposed repetitive inspections are no longer necessary as the inspection reports received provided sufficient technical information to remove the requirement. Therefore, the repetitive inspections have been removed from this AD.

## **Request To Extend the Compliance Time for the Reporting Requirement**

EMBRAER states that the EASA and ANAC ADs were issued in advance of this proposed NPRM. EMBRAER also states that the current status of U.S. operators that have proactively started inspecting their fleets is 46 percent of the total fleet, meaning nearly 50 airplanes have already been inspected. EMBRAER states that since the proposed compliance time for the initial inspection specified in the NPRM is 500 flight hours, with the current average of 100 flight hours per month fleet usage, it would take more than 5 months to complete the first inspection. EMBRAER states that, since the results remain unchanged with time, it is recommended that the 30-day reporting requirement be extended to 120 days minimum, reducing the unnecessary labor burden and processing for the operators.

We disagree with extending the compliance time for submitting the inspection results. We also disagree that the report is an undue burden to the operator. A reporting requirement is instrumental in ensuring that we can gather as much information as possible regarding the extent and nature of the problem, especially when findings of corrosion are involved and in cases where those data might not be available through other established means. This information is necessary to ensure that proper corrective action will be taken. We have not changed this AD regarding this issue.

## **Removal of Reporting Requirement for Light Corrosion**

Since the NPRM was issued, we have received sufficient technical information to remove the reporting requirement for light corrosion only (characterized by discoloration or pitting). We have revised paragraph (f)(3) of this AD to remove light corrosion from the reporting requirement of this AD. In addition, EMBRAER has provided us with an e-mail address for submission of reports. We have added that e-mail address to paragraph (f)(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.

## **Explanation of Changes to Costs of Compliance**

Since issuance of the NPRM, we have increased the labor rate used in the Costs of Compliance from \$80 per work-hour to \$85 per work-hour. The Costs of Compliance information, below, reflects this increase in the specified hourly labor rate.

## **Costs of Compliance**

We estimate that this AD will affect 90 products of U.S. registry. We also estimate that it will take about 8 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 this AD to the U.S. operators to be \$61,200, or \$680 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:



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**2010-19-04 Empresa Brasileira de Aeronautica S.A. (EMBRAER):** Amendment 39-16432.  
Docket No. FAA-2009-0715; Directorate Identifier 2008-NM-211-AD.

**Effective Date**

- (a) This airworthiness directive (AD) becomes effective October 27, 2010.

**Affected ADs**

- (b) None.

**Applicability**

(c) This AD applies to Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120, -120ER, -120FC, -120QC, and -120RT airplanes, certified in any category; as identified in EMBRAER Service Bulletin 120-49-0023, Revision 01, dated June 30, 2008.

**Subject**

- (d) Air Transport Association (ATA) of America Code 49: Airborne Auxiliary Power.

**Reason**

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

It has been found the occurrence of corrosion on the Auxiliary Power Unit (APU) mounting rods that could cause the APU rod to break, affecting the APU support structure integrity.

APU support structure failure could result in loss of power of the APU and possible loss of control of the airplane. The required action is doing an external detailed inspection for corrosion of the APU auxiliary and center mounting rods and rod ends, and corrective actions if necessary. Corrective actions include removing corrosion, applying anticorrosive treatment, and replacing mounting rods.

**Actions and Compliance**

- (f) Unless already done do the following actions:

(1) Within 1,500 flight hours or 6 months after the effective date of this AD, whichever occurs first, do an external detailed inspection for corrosion of the APU, auxiliary and center mounting rods, and rod ends. If any corrosion is found during any inspection, before further flight, do the actions required by paragraphs (f)(1)(i), (f)(1)(ii), and (f)(1)(iii) of this AD, as applicable. Do all actions required by this paragraph in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 120-49-0023, Revision 01, dated June 30, 2008.

(i) If light corrosion (characterized by discoloration or pitting) is found on a mounting rod, remove the corrosion and apply an anticorrosive treatment.

(ii) If moderate corrosion (characterized by surface blistering or evidence of scaling and flaking), or heavy corrosion (characterized by severe blistering exfoliation, scaling and flaking) is found, replace the affected mounting rod with a new mounting rod having the same part number.

(iii) If any corrosion is detected on the rod ends, remove the corrosion and apply an anticorrosive treatment.

(2) Accomplishing of the inspection and corrective actions required by paragraph (f)(1) of this AD before the effective date of this AD in accordance with EMBRAER Service Bulletin 120-49-0023, dated April 18, 2008, is acceptable for compliance with the corresponding requirements of paragraph (f)(1) of this AD.

(3) For mounting rods with moderate or heavy corrosion, submit a report of the positive findings (including level of corrosion such as moderate or heavy; guidance on corrosion can be found in Chapter 51-11-01 of the EMBRAER Corrosion Prevention Manual) of the inspection required by paragraph (f)(1) of this AD to Mr. Antonio Claret—Customer Support Group, Embraer Aircraft Holding, Inc, 276 S.W 34th Street Fort Lauderdale, FL 33315—USA; telephone (954) 359-3826; e-mail structure@embraer.com.br; at the applicable time specified in paragraph (f)(3)(i) or (f)(3)(ii) of this AD. The report must include the inspection results, a description of any discrepancies found, the airplane serial number, and the number of landings and flight hours on the airplane.

(i) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(ii) If the inspection was accomplished prior to the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

## **FAA AD Differences**

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

(1) Although Brazilian Airworthiness Directive 2008-08-01, dated October 21, 2008, does not include a reporting requirement, the service bulletin identified in paragraph (f)(1) of this AD does specify reporting findings to EMBRAER. This AD requires that operators report the results of the inspections to EMBRAER because the required inspection report will help determine the extent of the corrosion in the affected fleet, from which we will determine if further corrective action is warranted. This difference has been coordinated with ANAC.

(2) Brazilian Airworthiness Directive 2008-08-01, dated October 21, 2008, allows replacement of the affected APU mounting rods by "new ones bearing a new P/N [part number] approved by ANAC [Agência Nacional de Aviação Civil]." However, paragraph (f)(1)(ii) of this AD requires replacing the affected mounting rod only with a new mounting rod having the same part number. Operators may request approval of an alternative method of compliance to install a new part number in accordance with the procedures specified in paragraph (g)(1) of this AD. This difference has been coordinated with ANAC.

## **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, Transport Airplane Directorate, 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: 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. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards 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.

(3) Reporting Requirements: For any reporting requirement in this AD, under the provisions of the Paperwork Reduction Act (44 U.S.C. 3501 et seq.), the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056.

(4) Special Flight Permits: Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the airplane can be modified (if the operator elects to do so), except if two or more center mounting rods or rod ends are heavily corroded or broken, a special flight permit is not permitted.

## **Related Information**

(h) Refer to MCAI Brazilian Airworthiness Directive 2008-08-01, dated October 21, 2008; and EMBRAER Service Bulletin 120-49-0023, Revision 01, dated June 30, 2008; for related information.

## **Material Incorporated by Reference**

(i) You must use EMBRAER Service Bulletin 120-49-0023, Revision 01, dated June 30, 2008, to do the actions required by this AD, unless the AD specifies otherwise.

(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](mailto: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](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on August 30, 2010.

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