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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2009-0497; Directorate Identifier 2009-NM-019-AD; Amendment 39-16417; AD 2010-18-04]**

**RIN 2120-AA64**

**Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model ERJ 170 Airplanes; and Model ERJ 190-100 LR, -100 IGW, -100 STD, -200 STD, -200 LR, and -200 IGW 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 possibility of cracks developing in the ram air turbine (RAT) machined support, located in the forward compartment [zone 124] of [the] aircraft, due to downlock pin not [being] pull[ed] during its retraction. In case of RAT failure or malfunction, it will not provide electrical power to essential systems of [the] aircraft in [an] electrical emergency situation.

\* \* \* \* \*

Lack of electrical power could result in reduced controllability of the airplane. We are issuing this AD to require actions to correct the unsafe condition on these products.

**DATES:** This AD becomes effective September 29, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 29, 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:** Kenny Kaulia, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-2848; 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 2, 2009 (74 FR 26315). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found the possibility of cracks developing in the ram air turbine (RAT) machined support, located in the forward compartment [zone 124] of [the] aircraft, due to downlock pin not [being] pull[ed] during its retraction. In case of RAT failure or malfunction, it will not provide electrical power to essential systems of [the] aircraft in [an] electrical emergency situation.

\* \* \* \* \*

Lack of electrical power could result in reduced controllability of the airplane. Corrective actions include a detailed visual inspection for cracking of the RAT machined support, replacing the support with a new part if any crack is found, and reinforcing or replacing the support if no crack is found. 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 the RAT Deployment Criteria**

EMBRAER and JetBlue Airways request that we revise the NPRM so that operators are allowed to reach the maximum time of 5,000 flight hours provided that the RAT machined support is inspected for cracks after each RAT deployment. EMBRAER states that the original undamaged support does not represent an unsafe condition, and that to damage it to an unacceptable level, it would be necessary to have two incorrect stows of the RAT.

JetBlue Airways states that the NPRM specifies that installing reinforcements or replacing the RAT support must be done before the next flight after the next two RAT deployments or within 5,000 flight hours. JetBlue Airways notes that it is difficult to track the number of deployments as the deployment could be used as part of troubleshooting in an airplane maintenance manual task. JetBlue Airways specifies that an inspection could be done after RAT deployment during MRB tasks.

We agree with the request to allow the option to do the above procedures. We have determined that allowing the option specified in paragraph (f)(1)(ii) of this AD to do the installation or replacement within 5,000 flight hours provided that the RAT machined support is inspected for cracking after each RAT deployment will provide an acceptable level of safety. We have revised paragraph (f)(1) of this AD accordingly. This has been coordinated with Agência Nacional de Aviação Civil (ANAC). We have revised the final rule accordingly.

## **Request To Remove the RAT Deployment Criteria**

Air Transport Association of America (ATA), on behalf of its member US Airways, requests that we remove the RAT deployment criteria specified in paragraph (f)(1)(ii) of the NPRM. US Airways states that the deployment criterion specified in paragraph (f)(1)(ii) of the NPRM is confusing and would be difficult to document. US Airways also states that it is unclear whether a RAT deployment via unscheduled maintenance must be counted. US Airways and JetBlue Airways both state that the maintenance review board (MRB) task specifies a manual RAT deployment and an auto RAT deployment, and questions if doing the MRB tasks counts as two RAT deployments.

We do not agree to remove the RAT deployment criteria. However, we agree to clarify what counts as a RAT deployment in this AD. A flight deployment means any RAT deployment that occurs during flight, whether scheduled or unscheduled. RAT deployment during a MRB task procedure means doing both a manual and automatic RAT deployment and counts as two RAT deployments. No change has been made to the AD in this regard.

## **Request To Allow Further Flights With a Cracked Upper Lug**

EMBRAER and Air Transport Association (ATA), on behalf of its member US Airways, request that we revise the NPRM to remove the requirement to replace cracked upper lugs before further flight. EMBRAER requests that operators be allowed to operate airplanes up to 600 hours with a cracked upper lug. EMBRAER states that the RAT was designed to remain operational with one damaged machined support and that the 600 hours were deemed appropriate by risk analysis calculations.

Air Transport Association (ATA), on behalf of its member US Airways, requests that the more stringent criteria to replace any cracked lug of the RAT machined support with a new support before further flight, as specified in the "FAA AD Differences" section of the NPRM, be removed. US Airways states that the more stringent criteria are not justified and would cause unnecessary operational disruptions.

We disagree with the request to allow airplanes to operate with a cracked upper lug. We have reviewed the risk analysis and found that there is no evidence that flights with a cracked upper lug, once found, would provide an adequate level of safety. If additional data are presented that would justify operating with a cracked upper lug, we might consider further rulemaking on this issue. We have not changed the AD in this regard.

## **Request To Allow the Use of Future Revised Service Bulletins**

Air Transport Association (ATA) on behalf of its member US Airways requests that the "Actions and Compliance" paragraph of the proposed NPRM be revised to allow use of revised service bulletins. US Airways states that due to possible material shortages, alternative materials may be specified in a future revised service bulletin.

We disagree with the request to allow the use of future revised service bulletins. Using the phrase "or later FAA-approved revisions" in reference to a specific service bulletin in an AD violates Office of the Federal Register regulations for approving materials that are incorporated by reference. The procedures included in EMBRAER Service Bulletins 170-53-0057, dated February 21, 2008; and 190-53-0027, dated February 18, 2008; provide an adequate level of safety. If the service bulletin is revised later, an operator may apply for approval of an alternative method of compliance (AMOC) in accordance with the procedures outlined in paragraph (g) of this AD to be allowed to use that service bulletin revision. We have not changed the AD in this regard.

## **Request To Add Note Regarding Correct RAT Stow Procedure**

EMBRAER requests that a note be added to the AD to reaffirm the correct RAT stow procedure.

We agree. We have added Note 1 to this AD to specify the correct stow procedure.

## **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 Change 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 163 products of U.S. registry. We also estimate that it will take about 60 work-hours per product to comply with the basic requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$7,535 per product. Where the service information lists required parts costs that are covered under warranty, we have assumed that there will be no charge for these parts. 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 this AD to the U.S. operators to be \$2,059,505, or \$12,635 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:



**2010-18-04 Empresa Brasileira de Aeronautica S.A. (EMBRAER):** Amendment 39-16417.  
Docket No. FAA-2009-0497; Directorate Identifier 2009-NM-019-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective September 29, 2010.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to EMBRAER Model ERJ 170-100 LR, -100 STD, -100 SE, -100 SU, -200 LR, -200 STD, and -200 SU airplanes, serial numbers 17000002, 17000004 through 17000013 inclusive, and 17000015 through 17000208 inclusive; and Model ERJ 190-100 LR, -100 IGW, -100 STD, -200 STD, -200 LR, and -200 IGW airplanes, serial numbers 19000002, 19000004, and 19000006 through 19000152 inclusive; certificated in any category.

**Subject**

(d) Air Transport Association (ATA) of America Code 53: Fuselage.

**Reason**

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

It has been found the possibility of cracks developing in the ram air turbine (RAT) machined support, located in the forward compartment [zone 124] of [the] aircraft, due to downlock pin not [being] pull[ed] during its retraction. In case of RAT failure or malfunction, it will not provide electrical power to essential systems of [the] aircraft in [an] electrical emergency situation.

\* \* \* \* \*

Lack of electrical power could result in reduced controllability of the airplane. Corrective actions include a detailed visual inspection for cracking of the RAT machined support, replacing the support with a new part if any crack is found, and reinforcing or replacing the support if no crack is found.

**Actions and Compliance**

(f) Unless already done, within 600 flight hours after the effective date of this AD: Perform a detailed visual inspection for cracks in the RAT machined support, in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; or EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; as applicable.

(1) If no crack is found, do the actions in either paragraph (f)(1)(i) or (f)(1)(ii) of this AD.

(i) At the earlier of the times specified in paragraphs (f)(1)(i)(A) and (f)(1)(i)(B) of this AD, install reinforcements in the RAT machined support or replace the RAT machined support with a new support having part number 170-18676-405, in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; or EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; as applicable.

(A) Within 5,000 flight hours after accomplishing the inspection required by paragraph (f) of this AD.

(B) Before further flight after the next two RAT deployments—which can be a flight deployment or a ground deployment as part of a maintenance task—after accomplishing the inspection required by paragraph (f) of this AD.

(ii) Do the actions specified in paragraph (f)(1)(ii)(A) and (f)(1)(ii)(B) of this AD.

(A) Do the inspection specified in paragraph (f) of this AD before further flight after each RAT deployment—which can be a flight deployment or a ground deployment as part of a maintenance task—until the installation specified in paragraph (f)(1)(ii)(B) of this AD is accomplished or the replacement specified in paragraph (f)(2) of this AD is accomplished.

(B) Within 5,000 flight hours after accomplishing the inspection required by paragraph (f) of this AD, install reinforcements in the RAT machined support or replace the RAT machined support with a new support having part number 170-18676-405, in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; or EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; as applicable.

(2) If any cracking is found, before further flight replace the RAT machined support with a new support having part number 170-18676-405, in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; or EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; as applicable.

Note 1: Guidance on retracting the RAT without damaging the RAT machined support may be found in Task Number 24-23-00-840-801-A/200—Ram-Air-Turbine (RAT)—Retraction, of the EMBRAER 170/190 Airplane Maintenance Manual.

## **FAA AD Differences**

Note 2: This AD differs from the MCAI and/or service information as follows: Although the MCAI or service information allows further flight after cracks are found during compliance with the required action, paragraph (f)(2) of this AD requires that you replace any cracked lug of the RAT machined support with a new support before further flight.

## **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: Kenny Kaulia, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 227-2848; 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.

(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 Agência Nacional de Aviação Civil (ANAC) Airworthiness Directives 2008-10-05 and 2008-10-06, both dated November 10, 2008; EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; and EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; for related information.

### **Material Incorporated by Reference**

(i) You must use EMBRAER Service Bulletin 170-53-0057, dated February 21, 2008; or EMBRAER Service Bulletin 190-53-0027, dated February 18, 2008; as applicable; 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 13, 2010.

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