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**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2009-0610; Directorate Identifier 2009-NM-021-AD; Amendment 39-16171; AD 2010-01-12]**

**RIN 2120-AA64**

**Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model ERJ 170 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:

The result of re-assessment of rotor burst analysis has shown the possibility of loss of electrical power supply to the following aircraft systems: Air Data System (ADS), Ailerons, Multifunctional spoilers and rudder, which result in loss of the aircraft pitch and yaw control.

\* \* \* \* \*

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

**DATES:** This AD becomes effective February 18, 2010. The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of February 18, 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 July 15, 2009 (74 FR 34276). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

The result of re-assessment of rotor burst analysis has shown the possibility of loss of electrical power supply to the following aircraft systems: Air Data System (ADS), Ailerons, Multifunctional spoilers and rudder, which result in loss of the aircraft pitch and yaw control.

\* \* \* \* \*

Required actions include modifying the electrical wiring in the overhead panel of the cockpit, modifying the air data smart probe 3B power supply bus, and modifying the Aeronautical Radio Incorporated (ARINC) 429 data bus, 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 Withdraw NPRM**

Embraer requests that we withdraw the NPRM. Embraer states that based on service experience, the probability of a rotor burst combined with the probability of a disk trajectory that hits the specific wiring bundle is extremely rare. Embraer disagrees that the modifications addressed by the service bulletins should be mandatory. Embraer also states that issuance of a Special Airworthiness Information Bulletin would be an alternative measure to be taken in this case, since it would address the concerns in the NPRM and still be in conformity with the 14 CFR part 39 requirements.

We disagree with the request to withdraw the NPRM. We have consulted with the Agência Nacional de Aviação Civil (ANAC) regarding the manufacturer's comment and determined that, regardless of the very low probability that a catastrophic event could occur due to a rotor burst, the requirements of 14 CFR part 25 do not permit the use of probability as a risk reduction parameter. Furthermore, the design must minimize the effects of rotor burst by any means practicable. This AD is necessary to address the identified unsafe condition. Therefore, the AD is not changed in this regard.

### **Explanation of Changes Made to This AD**

We have revised this AD to identify the correct legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

### **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. We determined that this change 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**

We estimate that this AD will affect 77 products of U.S. registry. We also estimate that it will take about 62 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 about \$668 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 \$433,356, or \$5,628 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:



**2010-01-12 Empresa Brasileira de Aeronautica S.A. (EMBRAER):** Amendment 39-16171.  
Docket No. FAA-2009-0610; Directorate Identifier 2009-NM-021-AD.

**Effective Date**

(a) This airworthiness directive (AD) becomes effective February 18, 2010.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model ERJ 170-100 LR, -100 STD, -100 SE, -100 SU, -200 LR, -200 STD, and -200 SU airplanes; certificated in any category; as identified in Embraer Service Bulletins 170-24-0019, dated December 6, 2006; 170-24-0020, dated November 30, 2006; and 170-31-0020, Revision 01, dated May 21, 2008.

**Subject**

(d) Air Transport Association (ATA) of America Codes 24 and 31: Electrical power and Instruments, respectively.

**Reason**

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

The result of re-assessment of rotor burst analysis has shown the possibility of loss of electrical power supply to the following aircraft systems: Air Data System (ADS), Ailerons, Multifunctional spoilers and rudder, which result in loss of the aircraft pitch and yaw control.

\* \* \* \* \*

Required actions include modifying the electrical wiring in the overhead panel of the cockpit, modifying the air data smart probe 3B power supply bus, and modifying the Aeronautical Radio Incorporated (ARINC) 429 data bus, as applicable.

**Actions and Compliance**

(f) Unless already done, do the following actions as applicable.

(1) For airplanes identified in Embraer Service Bulletin 170-24-0019, dated December 6, 2006: Within 6,000 flight hours after the effective date of this AD, modify the electrical wiring in the overhead panel of the cockpit in accordance with Embraer Service Bulletin 170-24-0019, dated December 6, 2006.

(2) For airplanes identified in Embraer Service Bulletin 170-24-0020, dated November 30, 2006: Within 6,000 flight hours after the effective date of this AD, change the Air Data Smart Probe 3

channel B power supply bus from ESS2 to ESS3 in accordance with Embraer Service Bulletin 170-24-0020, dated November 30, 2006.

(3) For airplanes identified in Embraer Service Bulletin 170-31-0020, Revision 01, dated May 21, 2008: Within 6,000 flight hours after the effective date of this AD, duplicate the Aeronautical Radio Incorporated (ARINC) 429 airspeed signal for an extension longer than the rotor burst impact area; change the primary power source for the modular avionics unit (MAU) 2 from DC BUS 2 to DC ESS BUS 2 to include an additional ground and to provide dual electrical power to MAU 2; and change the wiring of the slat/flap actuators control electronics (SF-ACE) 1 and 2 to primary actuator control electronics (P-ACE) 1, 2, and 3; in accordance with Embraer Service Bulletin 170-31-0020, Revision 01, dated May 21, 2008.

(4) Actions accomplished before the effective date of this AD according to Embraer Service Bulletin 170-31-0020, dated July 20, 2007, 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: 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, 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: 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 (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.

### **Related Information**

(h) Refer to MCAI Agência Nacional de Aviação Civil (ANAC) Airworthiness Directive 2008-09-01, dated September 30, 2008, and the service information identified in Table 1 of this AD, for related information.

**Table 1 – Service Information**

<b>Embraer Service Bulletin –</b>	<b>Revision –</b>	<b>Dated –</b>
170-24-0019	Original	December 6, 2006
170-24-0020	Original	November 30, 2006
170-31-0020	01	May 21, 2008

**Material Incorporated by Reference**

(i) You must use the service information contained in Table 2 of this AD 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 or 425-227-1152.

(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).

**Table 2 – Material incorporated by reference**

<b>Embraer Service Bulletin –</b>	<b>Revision –</b>	<b>Dated –</b>
170-24-0019	Original	December 6, 2006
170-24-0020	Original	November 30, 2006
170-31-0020	01	May 21, 2008

Issued in Renton, Washington, on December 28, 2009.

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