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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2011-0088 Directorate Identifier 2010-CE-072-AD; Amendment 39-16779; AD 2011-17-15]

RIN 2120-AA64

Airworthiness Directives; Embraer–Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-500 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) issued 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 moisture may accumulate and freeze, under certain conditions, in the gap between the AOA vane base assembly and the stationary ring of the sensor's body. If freezing occurs both AOA sensors may get stuck and the Stall Warning Protection System (SWPS) will be no longer effective without alerting. This may result in inadvertent aerodynamic stall and loss of 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 26, 2011.

On September 26, 2011, the Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD.

ADDRESSES: You may examine the AD docket on the Internet at <http://www.regulations.gov> or in person at Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

For service information identified in this AD, contact EMBRAER Empresa Brasileira de Aeronáutica S.A., Phenom Maintenance Support, Av. Brig. Farina Lima, 2170, Sao Jose dos Campos–SP, CEP: 12227-901–PO Box: 36/2, BRASIL; telephone: ++55 12 3927-5383; fax: ++55 12

3927-2619; e-mail: embraer.com.br">phenom.reliability@embraer.com.br; Internet: <http://www.embraer.com.br>. You may review copies of the referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

FOR FURTHER INFORMATION CONTACT: Jim Rutherford, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4165; fax: (816) 329-4090; e-mail: jim.rutherford@faa.gov.

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 May 10, 2011 (76 FR 26959). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

It has been found that moisture may accumulate and freeze, under certain conditions, in the gap between the AOA vane base assembly and the stationary ring of the sensor's body. If freezing occurs both AOA sensors may get stuck and the Stall Warning Protection System (SWPS) will be no longer effective without alerting. This may result in inadvertent aerodynamic stall and loss of controllability of the airplane.

Since this condition may occur in other airplanes of the same type and affects flight safety, a corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

Comments

We gave the public the opportunity to participate in developing this AD. We received no comments on the NPRM or on the determination of the cost to the public.

Conclusion

We reviewed the available data and determined that air safety and the public interest require adopting the AD as proposed.

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 FAA policies. Any such differences are highlighted in a NOTE within the AD.

Costs of Compliance

We estimate that this AD will affect 101 products of U.S. registry.

We estimate that 85 products of U.S. registry will require the modification and that it will take about 9.5 work-hours per product to comply with the modification requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$1,550 per product.

Based on these figures, we estimate the cost of the modification requirement of this AD on U.S. operators to be \$200,387.50, or \$2,357.50 per product.

We estimate that 101 products of U.S. registry will require an inspection for sealant application. We estimate it will take .5 hour to comply with the inspection requirements of this AD.

Based on these figures, we estimate the cost of the inspection for the sealant application requirement of this AD on U.S. operators to be \$4,292.50, or \$42.50 per product.

In addition, we estimate that any necessary follow-on actions will take about 1.5 work-hours and require parts costing \$50, for a cost of \$177.50 per product. We have no way of determining the number of products that may need these actions.

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 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 Management Facility 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 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:



2011-17-15 Embraer–Empresa Brasileira de Aeronautica S.A.: Amendment 39-16779; Docket No. FAA-2011-0088; Directorate Identifier 2010-CE-072-AD.

Effective Date

- (a) This airworthiness directive (AD) becomes effective September 26, 2011.

Affected ADs

- (b) None.

Applicability

- (c) This AD applies to the following airplanes, certificated in any category:

(1) Group I airplanes:

Empresa Brasileira de Aeronautica S.A. (EMBRAER) EMB-500 airplanes, serial numbers 50000005 through 50000119, 50000121 through 50000130, 50000132 through 50000134, 50000136, 50000137, 50000139, 50000141 through 50000158, 50000160 through 50000162, 50000164, 50000165, 50000167 through 50000175, 50000177, and 50000178, that are equipped with Angle of Attack (AOA) sensors, part number (P/N) C-100117-2 and cover plates P/N 500-01702-401 and/or P/N 500-01702-402.

(2) Group II airplanes:

Empresa Brasileira de Aeronautica S.A. (EMBRAER) EMB-500 airplanes, serial numbers 50000005 through 50000217, 50000219 through 50000221, and 50000226.

Note 1: In-production effectivity–Empresa Brasileira de Aeronautica S.A. (EMBRAER) EMB-500 airplanes, serial numbers 500000218, 50000222 through 50000225, 50000227, and on, have incorporated the actions of this AD at the factory and are not included in the applicability of this AD.

Subject

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

Reason

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

It has been found that moisture may accumulate and freeze, under certain conditions, in the gap between the AOA vane base assembly and the stationary ring of the sensor's body. If freezing occurs both AOA sensors may get stuck and the Stall Warning Protection System (SWPS) will be no longer effective without alerting. This may result in inadvertent aerodynamic stall and loss of controllability of the airplane.

Since this condition may occur in other airplanes of the same type and affects flight safety, a corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

The MCAI requires replacement of both Angle of Attack (AOA) sensors and cover plates, inspection of the sensor area, and, if needed, application of sealant between the AOA covers and the AOA sensors.

Actions and Compliance

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

(1) For group I airplanes: Within 300 hours time-in-service (TIS) after the effective date of this AD or within 12 months after the effective date of this AD, whichever comes first, do the following actions following part I of PHENOM Service Bulletin SB No.: 500-27-0006, Revision No.: 02, dated January 14, 2011:

(i) Replace the left hand (LH) and the right hand (RH) AOA sensors P/N C-100117-2 with LH and RH AOA sensors P/N C-100117-3.

(ii) Replace the LH cover plate P/N 500-01702-401 and the RH cover plate P/N 500-01702-402 with LH cover plate P/N 500-01702-403 and RH cover plate P/N 500-01702-404.

(iii) If, before the effective date of this AD, the replacement actions required in paragraphs (f)(1)(i) and (f)(1)(ii) of this AD have already been done following PHENOM Service Bulletin SB No.: 500-27-0006, dated September 2, 2010, and/or PHENOM Service Bulletin SB No.: 500-27-0006, Revision No.: 01, dated November 29, 2010, we will allow "unless already done" credit for corrective actions already done.

(2) For group I and group II airplanes: Within 300 hours TIS after the effective date of this AD or within 12 months after the effective date of this AD, whichever comes first, inspect the interface between the AOA covers and the AOA sensors, and, if the sealant is missing, clean the areas and apply new sealant following part II of PHENOM Service Bulletin SB No.: 500-27-0006, Revision No.: 02, dated January 14, 2011.

FAA AD Differences

Note 2: 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, Standards Office, 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: Jim Rutherford, Aerospace Engineer, FAA, Small Airplane Directorate, 901 Locust, Room 301, Kansas City, Missouri 64106; telephone: (816) 329-4165; fax: (816) 329-4090; e-mail: jim.rutherford@faa.gov. 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, a Federal agency may not conduct or sponsor, and a person is not required to respond to, nor shall a person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act unless that collection of information displays a current valid OMB Control

Number. The OMB Control Number for this information collection is 2120-0056. Public reporting for this collection of information is estimated to be approximately 5 minutes per response, including the time for reviewing instructions, completing and reviewing the collection of information. All responses to this collection of information are mandatory. Comments concerning the accuracy of this burden and suggestions for reducing the burden should be directed to the FAA at: 800 Independence Ave. SW., Washington, DC 20591, Attn: Information Collection Clearance Officer, AES-200.

Related Information

(h) Refer to AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL–BRAZIL (ANAC), NPR/AD 2011-500-02, dated March 31, 2011; MCAI AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL–BRAZIL (ANAC), AD No.: 2010-11-01, dated December 20, 2010; and PHENOM Service Bulletin SB No.: 500-27-0006, Revision No.: 02, dated January 14, 2011; for related information.

Material Incorporated by Reference

(i) You must use PHENOM Service Bulletin SB No.: 500-27-0006, Revision No.: 02, dated January 14, 2011, 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 EMBRAER Empresa Brasileira de Aeronáutica S.A., Phenom Maintenance Support, Av. Brig. Farina Lima, 2170, Sao Jose dos Campos-SP, CEP: 12227-901–P.O. Box: 36/2, BRASIL; telephone: ++55 12 3927-5383; fax: ++55 12 3927-2619; e-mail: phenom.reliability@embraer.com.br; Internet: <http://www.embraer.com.br>.

(3) You may review copies of the referenced service information at the FAA, Small Airplane Directorate, 901 Locust, Kansas City, Missouri 64106. For information on the availability of this material at the FAA, call (816) 329-4148.

(4) You may also review copies of the service information incorporated by reference for this AD 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 Kansas City, Missouri on August 9, 2011.

Earl Lawrence,
Manager, Small Airplane Directorate,
Aircraft Certification Service.