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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0423; Directorate Identifier 2011-NM-095-AD; Amendment 39-17156; AD 2012-16-09]

RIN 2120-AA64

Airworthiness Directives; Embraer S.A. Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule.

SUMMARY: We are superseding two existing airworthiness directives (AD) for all Embraer S.A. Model ERJ 170 and ERJ 190 airplanes. Those ADs currently require revising the airplane flight manual (AFM) to introduce limitations for the use of auxiliary power unit (APU) bleed and to prohibit dispatch with a failed air management system (AMS) controller card. This new AD requires replacing the AMS controller processor module with one containing new software, and a new AFM revision. This AD was prompted by reports of the possible loss of automatic activation of the engine inlet ice protection system. We are issuing this AD to prevent the possibility of a right-hand (RH) engine compressor stall after the APU becomes the active bleed source for the left side, which may result in an engine failure; and to prevent the intermittent communication failure between the AMS controller cards and both secondary power distribution assemblies (SPDAs), which could lead to the loss of automatic activation of the engine inlet ice protection system when flying in icing conditions, which could result in ice accretion in the engine inlet and subsequent dual engine failure.

DATES: This AD becomes effective September 21, 2012.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 21, 2012.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of September 9, 2010 (75 FR 52238, August 25, 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: Cindy Ashforth, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-227-2768; 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 May 1, 2012 (77 FR 25644), and proposed to supersede AD 2010-07-04, Amendment 39-16248 (75 FR 14333, March 25, 2010); and AD 2010-18-01, Amendment 39-16414 (75 FR 52238, August 25, 2010). That NPRM proposed to correct an unsafe condition for the specified products. The MCAI states:

This [Agência Nacional de Aviação Civil (ANAC)] AD results from the possibility of loss of automatic activation of the engine inlet ice protection system when flying in ice condition. Even though the failure is announced by the caution messages "A-I Eng 1 Fail" [and] "A-I Eng 2 Fail", if the engines inlet ice protection system is not manually activated, ice may accrete in the engine inlet and causes engine to shut down.

Also there is the possibility of right hand (RH) engine compressor to stall after the Auxiliary Power Unit (APU) becomes the active bleed source for the left side, following left hand (LH) engine failure, under a condition where both engines are close to idle, the APU is running, and the APU bleed button is pushed in (automatic position).

The required actions include replacing the AMS controller processor module with one containing new software and revising the Limitations section of the AFM. 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 comment received. The Air Line Pilots Association, International (ALPA) stated that it fully supports the NPRM (77 FR 25644, May 1, 2012).

Explanation of Change Made to the AD

We have revised this AD to identify the 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, considered the comment received, and determined that air safety and the public interest require adopting the AD with the change described previously—and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (77 FR 25644, May 1, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (77 FR 25644, May 1, 2012).

Costs of Compliance

We estimate that this AD will affect about 253 products of U.S. registry.

The actions that are required by AD 2010-07-04, Amendment 39-16248 (75 FR 14333, March 25, 2010); and AD 2010-18-01, Amendment 39-16414 (75 FR 52238, August 25, 2010); and that are retained in this AD take about 1 work-hour per product, at an average labor rate of \$85 per work-hour. Based on these figures, the estimated cost of the currently required actions is \$85 per product.

We estimate that it will take about 1 work-hour per product to comply with the new basic requirements of this AD. The average labor rate is \$85 per work-hour. Required parts will cost about \$35 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 \$30,360, or \$120 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 that 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);
3. Will not affect intrastate aviation in Alaska; and
4. 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 (77 FR 25644, May 1, 2012), 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 removing airworthiness directive AD 2010-07-04, Amendment 39-16248 (75 FR 14333, March 25, 2010); and AD 2010-18-01, Amendment 39-16414 (75 FR 52238, August 25, 2010); and adding the following new AD:



2012-16-09 Embraer S.A.: Amendment 39-17156. Docket No. FAA-2012-0423; Directorate Identifier 2011-NM-095-AD.

(a) Effective Date

This airworthiness directive (AD) becomes effective September 21, 2012.

(b) Affected ADs

This AD supersedes AD 2010-07-04, Amendment 39-16248 (75 FR 14333, March 25, 2010); and AD 2010-18-01, Amendment 39-16414 (75 FR 52238, August 25, 2010).

(c) Applicability

This AD applies to Embraer S.A. Model ERJ 170-100 LR, -100 STD, -100 SE., and -100 SU airplanes; Model ERJ 170-200 LR, -200 SU, and -200 STD airplanes; Model ERJ 190-100 STD, -100 LR, -100 ECJ, and -100 IGW airplanes; and Model ERJ 190-200 STD, -200 LR, and -200 IGW airplanes; certificated in any category; all serial numbers.

(d) Subject

Air Transport Association (ATA) of America Code 21: Air Conditioning.

(e) Reason

This AD was prompted by reports of the possible loss of automatic activation of the engine inlet ice protection system. We are issuing this AD to prevent the possibility of a right-hand (RH) engine compressor stall after the auxiliary power unit (APU) becomes the active bleed source for the left side, which may result in an engine failure; and to prevent the intermittent communication failure between the air management system (AMS) controller cards and both secondary power distribution assemblies (SPDAs), which could lead to the loss of automatic activation of the engine inlet ice protection system when flying in icing conditions, which could result in ice accretion in the engine inlet and subsequent dual engine failure.

(f) Compliance

You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

(g) Retained Revision for Certain Airplanes

This paragraph restates the requirements of paragraph (g) of AD 2010-07-04, Amendment 39-16248 (75 FR 14333, March 25, 2010). For airplanes equipped with AMS controller cards having part number (P/N) 1001050-1-YYY or 1001050-2-YYY containing software version Black Label 08 or lower installed: Within 10 days after April 9, 2010 (the effective date of AD 2010-07-04), revise

the Limitations section of the AFM to include the following statement. This may be done by inserting a copy of this AD in the AFM. Doing the actions required by paragraph (i) of this AD terminates the requirements of this paragraph.

Dispatch with the message 'RECIRC SMK DET FAIL' displayed on the ground is prohibited unless troubleshooting action confirms the message has not been triggered due to a failure of an AMS controller card.

Note 1 to paragraph (g) of this AD: When a statement identical to that in paragraph (g) of this AD has been included in the general revisions of the AFM, the general revisions may be inserted into the AFM, and the copy of this AD may be removed from the AFM.

(h) Retained AFM Revision for All Airplanes

This paragraph restates the requirements of paragraph (g) of AD 2010-18-01, Amendment 39-16414 (75 FR 52238, August 25, 2010). For all airplanes: Within 14 days after September 9, 2010 (the effective date of AD 2010-18-01), revise the Limitations section of the applicable AFM to include the information in EMBRAER Operational Bulletin 170-001/09, Revision 1, dated February 10, 2010, as specified in the operational bulletin. This operational bulletin introduces limitations for the use of APU bleed. Doing the actions required by paragraph (i) of this AD terminates the requirements of this paragraph.

Note 2 to paragraph (h) of this AD: This may be done by inserting a copy of EMBRAER Operational Bulletin 170-001/09, Revision 1, dated February 10, 2010, into the AFM. When this operational bulletin has been included in general revisions of the AFM, the general revisions may be inserted in the AFM, provided the relevant information in the general revision is identical to that in the operational bulletin, and the operational bulletin can be removed.

(i) New Requirement of This AD: Load Software or Replace AMS Controller Module

Within 3,300 flight hours after the effective date of this AD: Replace existing Hamilton Sundstrand AMS controller processor modules (slots 18 and 25) P/N 1001050-1-YYY, 1001050-2-YYY, 1001050-3-YYY, or 1001050-4-YYY, with a new or serviceable AMS controller processor module containing software version Black Label-11, or later approved version of the software, in accordance with the Accomplishment Instructions of Embraer Service Bulletin 170-21-0049, dated November 29, 2010 (for Model ERJ 170 airplanes); Embraer Service Bulletin 190-21-0035, dated November 29, 2010 (for Model ERJ 190 airplanes); or Embraer Service Bulletin 190LIN-21-0016, dated February 23, 2011 (for Model ERJ 190-100 ECJ airplanes).

(j) Definition

For the purposes of this AD, "later-approved version of the software," is defined as software having design approval holder (DAH) design changes that have been approved after the publication of Embraer Service Bulletin 170-21-0049, dated November 29, 2010 (for Model ERJ 170 airplanes); Embraer Service Bulletin 190-21-0035, dated November 29, 2010 (for Model ERJ 190 airplanes); and Embraer Service Bulletin 190LIN-21-0016, dated February 23, 2011 (for Model ERJ 190-100 ECJ airplanes).

(k) New Requirement of This AD: Revise Limitations Section of AFM

After doing the actions required by paragraph (i) of this AD, before further flight, revise the Limitations section of the applicable AFM by removing the limitation required by paragraph (g) of this AD and the revision required by paragraph (h) of this AD.

(l) Other FAA AD Provisions

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. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the International Branch, send it to ATTN: Cindy Ashforth, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-227-2768; fax: 425-227-1149. Information may be emailed to: 9-ANM-116-AMOC-REQUESTS@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding 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.

(m) Related Information

Refer to MCAI Brazilian ADs 2011-05-01 and AD 2011-05-02, both dated May 9, 2011, and the service information specified in paragraphs (m)(1), (m)(2), (m)(3) and (m)(4) of this AD, for related information.

- (1) EMBRAER Operational Bulletin 170-001/09, Revision 1, dated February 10, 2010.
- (2) Embraer Service Bulletin 170-21-0049, dated November 29, 2010.
- (3) Embraer Service Bulletin 190-21-0035, dated November 29, 2010.
- (4) Embraer Service Bulletin 190LIN-21-0016, dated February 23, 2011.

(n) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(3) The following service information was approved for IBR on September 21, 2012.

- (i) Embraer Service Bulletin 170-21-0049, dated November 29, 2010.
- (ii) Embraer Service Bulletin 190-21-0035, dated November 29, 2010.
- (iii) Embraer Service Bulletin 190LIN-21-0016, dated February 23, 2011.

(4) The following service information was approved for IBR on September 9, 2010 (75 FR 52238, August 25, 2010).

- (i) EMBRAER Operational Bulletin 170-001/09, Revision 1, dated February 10, 2010.
- (ii) Reserved.

(5) For service information identified in this AD, contact Embraer S.A., 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; email distrib@embraer.com.br; Internet <http://www.flyembraer.com>.

(6) You may review copies of the service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(7) 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 an NARA facility, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Issued in Renton, Washington, on July 31, 2012.

Michael Kaszycki,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.