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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-6542; Directorate Identifier 2015-NM-038-AD; Amendment 39-18563; AD 2016-12-14]

RIN 2120-AA64

Airworthiness Directives; Embraer S.A. Airplanes

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

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Embraer S.A. Model ERJ 170 airplanes; and all Embraer S.A. Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, and -200 IGW airplanes. This AD was prompted by reports of cracks in certain engine low-stage bleed check valves. This AD requires replacing the air management system (AMS) controller operation program of the AMS controller processor boards, and replacing the current low-stage bleed check valve and associated seals. We are issuing this AD to prevent failure of the low-stage bleed check valve; simultaneous failures of both low-stage bleed check valves could result in a dual engine in-flight shutdown.

DATES: This AD is effective July 27, 2016.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of July 27, 2016.

ADDRESSES: For service information identified in this final rule, 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>. You may view this referenced 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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-6542.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-6542; 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 this AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (telephone 800-647-5527) is Docket 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 FURTHER INFORMATION CONTACT: Ana Martinez Hueto, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1622; fax 425-227-1149.

SUPPLEMENTARY INFORMATION:

Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to all Embraer S.A. Model ERJ 170 airplanes; and all Embraer S.A. Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, and -200 IGW airplanes. The NPRM published in the Federal Register on November 30, 2015 (80 FR 74720) ("the NPRM").

The Agência Nacional de Aviação Civil (ANAC), which is the aviation authority for Brazil, has issued Brazilian Airworthiness Directive 2015-02-02, effective March 6, 2015 (referred to after this as the Mandatory Continuing Airworthiness Information, or "the MCAI"), to correct an unsafe condition for all Embraer S.A. Model ERJ 170 airplanes; and all Embraer S.A. Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, and -200 IGW airplanes. The MCAI states:

This [Brazilian] AD was prompted by reports of cracks in some engine low-stage bleed check valves having part number (P[/]N) 1001447-6. Further analysis has determined that if a new (zero hour) low-stage bleed check valve P/N 1001447-6 is installed in an airplane already equipped with the Air Management System (AMS) controller processor boards containing the AMS Controller Operational Program version Black Label 13, or a later version, premature cracking on the petals of the low-stage bleed check valve is not expected to occur. We are issuing this [Brazilian] AD to prevent the possibility of a dual engine in-flight shutdown due to low-stage bleed check valve failure.

The unsafe condition is failure of the low-stage bleed check valve; simultaneous failures of both low-stage bleed check valves could result in a dual engine in-flight shutdown. The required action is replacement of the AMS controller operation program of the AMS controller processor boards, and replacement of the low-stage bleed check valves and associated seals. You may examine the MCAI in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-6542.

Comments

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the NPRM and the FAA's response to each comment.

Request To Authorize Operators To Install Used Overhauled Valves

An anonymous commenter requested that we revise the NPRM to authorize operators to install used valves that have been overhauled by the manufacturer or other authorized 14 CFR part 145 repair station. The commenter stated that the historical service records required to determine the serviceability of used valves installed on airplanes are not required by 14 CFR 91.417 and are

generally not available. According to the commenter, this limits the ability of operators of Embraer Model ERJ 170 airplanes to adequately determine the service history of valves that were previously installed on Embraer Model ERJ 190 airplanes, and whether the installation of a used valve will meet compliance with the requirements of paragraph (j)(1) of the proposed AD.

We disagree to revise this AD to authorize operators to install used valves that have been overhauled. A valve that has been used on a Model ERJ 190 airplane without the AMS controller operational program version Black Label 13 or later version has been subjected to hydraulic pressures above the valve's structural limits. The damage to the valve could be undetectable, and the valve can therefore experience premature cracking. However, as is stated in paragraph (i) of this AD, low-stage bleed check valves having P/N 1001447-6 that can be demonstrated with logged hours only on Model ERJ-170 airplanes and/or on Model ERJ-190 airplanes equipped with the AMS controller operational program version Black Label 13, or a later version, can be used instead of new ones (zero-hour). We have made no changes to this AD in this regard.

Request To Revise Wording of the Unsafe Condition

Embraer requested that we revise the unsafe condition in the NPRM to indicate that a single valve failure cannot result in a dual engine failure. Embraer stated that a dual engine failure can occur only in the event of simultaneous failures of both valves on both engines on the same flight.

For the reasons stated by Embraer, we agree to include the requested phrasing in all appropriate locations in this final rule.

Request To Revise the Applicability

United Technologies Aerospace Systems (UTAS) requested that we revise the applicability of the NPRM to include Model ERJ "195 airplanes" and limit the applicability for Model ERJ 170 airplanes (including Model ERJ "175 airplanes") to those "requiring replacement check valves."

We disagree to revise the applicability of this AD. There is a difference between the commercial designation and the model designation on the type certificate data sheet (TCDS): "ERJ 175" is the commercial designation of Model ERJ 170-200 airplanes on the TCDS, and "ERJ 195" is the commercial designation of Model ERJ 190-200 airplanes on the TCDS. We use the model designation on the TCDS to define the applicability of ADs.

Although this AD is applicable to Model ERJ 190 and Model ERJ 170 airplanes, the only requirement for Model ERJ 170 airplanes is included in paragraph (j)(1) of this AD, which is related to installation of used low-stage bleed check valves having P/N 1001447-6 on Model ERJ 170 airplanes. As noted in the NPRM, ANAC is considering future rulemaking to include a similar requirement. We have made no changes to this AD in this regard.

Request To Clarify the Reason for the NPRM

UTAS requested that we revise paragraph (e), "Reason," of the proposed AD to specify that cracks were found only on check valve P/N 1001447-6 on Model ERJ 190 airplanes.

Although we agree that cracks may have been found only on check valve P/N 1001447-6 on Model ERJ 190 airplanes, we disagree to revise paragraph (e), "Reason," of this AD. The unsafe condition of this AD is not limited to Model ERJ 190 airplanes since the check valves may also be installed on Model ERJ 170 airplanes. We have made no changes to this AD in this regard.

Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

Related Service Information Under 1 CFR Part 51

Embraer has issued Service Bulletin 190-36-0023, Revision 03, dated September 24, 2014; and Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013. The service information describes procedures for replacing the engine low-stage bleed check valves. Embraer Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013, also describes procedures for replacing the AMS controller operation program of the AMS controller processor boards. This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

Costs of Compliance

We estimate that this AD affects 197 airplanes of U.S. registry.

We also estimate that it will take about 4 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 \$638 per product. Based on these figures, we estimate the cost of this AD on U.S. operators to be \$192,666, or \$978 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.

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 airworthiness directive (AD):



2016-12-14 Embraer S.A.: Amendment 39-18563. Docket No. FAA-2015-6542; Directorate Identifier 2015-NM-038-AD.

(a) Effective Date

This AD is effective July 27, 2016.

(b) Affected ADs

None.

(c) Applicability

This AD applies to the airplanes identified in paragraphs (c)(1) and (c)(2) of this AD, certificated in any category.

(1) All Embraer S.A. Model ERJ 170-100 LR, -100 STD, -100 SE., and -100 SU airplanes; and Model ERJ 170-200 LR, -200 SU, and -200 STD airplanes.

(2) All Embraer S.A. Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, and -200 IGW airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 36, Pneumatic.

(e) Reason

This AD was prompted by reports of cracks in certain engine low-stage bleed check valves. We are issuing this AD to prevent failure of the low-stage bleed check valve; simultaneous failures of both low-stage bleed check valves could result in a dual engine in-flight shutdown.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Modification

For Embraer S.A. Model ERJ 190 airplanes identified in Embraer Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013: Within 3 months after the effective date of this AD, replace the Hamilton Sundstrand air management system (AMS) controller operation program of the AMS controller processor boards, as specified in paragraph (g)(1) or (g)(2) of this AD.

(1) Replace with a new, improved program, in accordance with the Accomplishment Instructions of Embraer Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013.

(2) Replace with a version of the Hamilton Sundstrand AMS controller operation program approved after August 31, 2012, using a method approved by the Manager, International Branch,

ANM-116, Transport Airplane Directorate, FAA; Agência Nacional de Aviação Civil (ANAC); or ANAC's authorized Designee.

(h) Valve Replacement

For Embraer S.A. Model ERJ 190 airplanes identified in Embraer Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013: Within 3 months after the effective date of this AD, and after accomplishment of the actions required by paragraph (g) of this AD, replace the check valve and associated seals of the left-hand and right-hand engine bleed system with a check valve identified in paragraph (i) of this AD, and new seals, in accordance with the Accomplishment Instructions of Embraer Service Bulletin 190-36-0023, Revision 03, dated September 24, 2014.

(i) Allowed Valves

When complying with paragraph (h) of this AD, the low-stage bleed check valves having P/N 1001447-6, and associated seals, are replaced with new ones (zero-hour). Low-stage bleed check valves having P/N 1001447-6 that can be demonstrated with logged hours only on Model ERJ 170 airplanes and/or on Model ERJ 190 airplanes equipped with the AMS controller operational program version Black Label 13, or a later version, can be used instead of new ones (zero-hour).

(j) Parts Installation Limitation

(1) For Model ERJ 170-100 STD, -100 LR, -100SU, -100SE, -200 STD, -200 LR, and -200 SU airplanes: No person may install on any airplane a low-stage bleed check valve having P/N 1001447-6 that was installed on any Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, or -200 IGW airplane, any serial number except 190-00587, 190-00589, and 190-00593 and subsequent, prior to accomplishment of the requirements of paragraph (g) of this AD.

(2) For Model ERJ 190-100 STD, -100 LR, -100IGW, -200 STD, -200 LR, and -200 IGW airplanes: No person may install on any airplane on which the actions of paragraph (g) of this AD have been done, a low-stage bleed check valve having P/N 1001447-6 that was previously installed on any Model ERJ 190-100 STD, -100 LR, -100 IGW, -200 STD, -200 LR, or -200 IGW airplane, any serial number except 190-00587, 190-00589, 190-00593 and subsequent, prior to accomplishment of the requirements of paragraph (g) of this AD.

(k) Credit for Previous Actions

(1) This paragraph provides credit for actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using the service information identified in paragraph (k)(1)(i) or (k)(1)(ii) of this AD. This service information is not incorporated by reference in this AD.

(i) Embraer Service Bulletin 190-21-0041, dated September 27, 2012.

(ii) Embraer Service Bulletin 190-21-0041, Revision 01, dated December 20, 2012.

(2) This paragraph provides credit for actions required by paragraph (h) of this AD, if those actions were performed before the effective date of this AD using the service information identified in paragraph (k)(2)(i), (k)(2)(ii), or (k)(2)(iii) of this AD. This service information is not incorporated by reference in this AD.

(i) Embraer Service Bulletin 190-36-0023, dated July 22, 2013.

(ii) Embraer Service Bulletin 190-36-0023, Revision 01, dated September 3, 2013.

(iii) Embraer Service Bulletin 190-36-0023, Revision 02, dated April 30, 2014.

(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: Ana Martinez Hueto, Aerospace Engineer, International Branch, ANM-116, Transport Airplane Directorate, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; telephone 425-227-1622; 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) Contacting the Manufacturer: For any requirement in this AD to obtain corrective actions from a manufacturer, the action must be accomplished using a method approved by the Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA; or ANAC; or ANAC's authorized Designee. If approved by the ANAC Designee, the approval must include the Designee's authorized signature.

(m) Related Information

(1) Refer to Mandatory Continuing Airworthiness Information (MCAI) Brazilian Airworthiness Directive 2015-02-02, effective March 6, 2015, for related information. This MCAI may be found in the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2015-6542.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (n)(3) and (n)(4) of this AD.

(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 this AD specifies otherwise.

(i) Embraer Service Bulletin 190-21-0041, Revision 02, dated July 30, 2013.

(ii) Embraer Service Bulletin 190-36-0023, Revision 03, dated September 24, 2014.

(3) 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>.

(4) You may view this 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.

(5) You may view this 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/cfr/ibr-locations.html>.

Issued in Renton, Washington, on June 8, 2016.
Michael Kaszycki,
Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.