



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2014-0059; Directorate Identifier 2013-NM-075-AD; Amendment 39-18832; AD 2017-06-08]**

**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 Airworthiness Directive (AD) 2006-06-09, AD 2012-05-08, and AD 2012-07-08, for certain Embraer S.A. Model ERJ 170 airplanes. This AD requires revising the maintenance or inspection program, as applicable, to incorporate new airworthiness limitations. This AD was prompted by a determination that more restrictive airworthiness limitations are necessary. We are issuing this AD to address the unsafe condition on these products.

**DATES:** This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

The Director of the Federal Register approved the incorporation by reference of certain other publications listed in this AD as of May 29, 2012 (77 FR 24342, April 24, 2012 ).

**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](mailto: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-2014-0059.

### **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-2014-0059; 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 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 425-227-1320.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to supersede AD 2006-06-09, Amendment 39-14518 (71 FR 14365, March 22, 2006) (“AD 2006-06-06”); AD 2012-05-08, Amendment 39-16980 (77 FR 16155, March 20, 2012) (“AD 2012-05-08”); and AD 2012-07-08, Amendment 39-17014 (77 FR 24342, April 24, 2012) (“AD 2012-07-08”); which applied to all Embraer S.A. Model ERJ 170 airplanes.

The SNPRM published in the Federal Register on September 12, 2016 (81 FR 62668) (“the SNPRM”). We preceded the SNPRM with a notice of proposed rulemaking (NPRM) that published in the Federal Register on February 27, 2014 (79 FR 11013) (“the NPRM”). The NPRM was prompted by a determination that more restrictive maintenance requirements and airworthiness limitations are necessary than those required by AD 2012-07-08. The NPRM proposed to require a revision to the maintenance or inspection program, as applicable, to incorporate new inspections. The SNPRM also proposed to revise the maintenance or inspection program, as applicable, to incorporate the new airworthiness limitations section of the maintenance review board report (MRBR), remove certain airplanes from the applicability, and supersede AD 2006-06-09,

AD 2012-05-08, and AD 2012-07-08, which require tasks that are now included in the new revision of the MRBR.

We are issuing this AD to detect and correct fatigue cracking of various PSEs; such cracking could result in reduced structural integrity of the airplane. We are also issuing this AD to prevent safety-significant latent failures; such failures, in combination with one or more other specified failures or events, could result in a hazardous or catastrophic failure condition of avionics, hydraulic systems, fire detection systems, fuel systems, or other critical systems. We are also issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions; such failures, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

The Agência Nacional de Aviação Civil (ANAC), which is the aviation authority for Brazil, has issued Brazilian Airworthiness Directive 2015-06-01, effective June 2, 2015 (referred to after this as the Mandatory Continuing Airworthiness Information, or “the MCAI”), to correct an unsafe condition on certain Embraer S.A. Model ERJ 170 airplanes. The MCAI states:

This [Brazilian] AD was prompted by a new revision to the airworthiness limitations of the Maintenance Review Board Report. This [Brazilian] AD is being issued to ensure that fatigue cracking of various principal structural elements is detected and corrected; such fatigue cracking, could adversely affect the structural integrity of these airplanes.

The required action is revising the maintenance or inspection program, as applicable, to incorporate the airworthiness limitations in Appendix A - Airworthiness Limitations to the EMBRAER 170/175 Maintenance Review Board Report, MRB-1621, Revision 10,

dated February 23, 2015, which is divided into four parts: Part 1 – Certification Maintenance Requirements (CMR), Part 2 – Airworthiness Limitation Inspections (ALI) - Structures, Part 3 – Fuel System Limitation Items (FSL), and Part 4 – Life Limited Items (LLI).

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-2014-0059.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comment received on the SNPRM and the FAA’s response to that comment.

### **Request to Allow Use of Future Revisions of Service Information**

SkyWest Airlines requested an allowance for future revisions of the EMBRAER 170/175 Maintenance Review Board Report, MRB-1621, (“MRB-1621”), to be used as long as the tasks, intervals, and requirements haven’t changed. The commenter stated that if the purpose of the SNPRM was to ensure that operators are using the new airworthiness limitations, it would seem that using later revisions of MRB-1621, as long as the tasks, intervals, and requirements haven’t changed would make it easier to comply with the proposed requirements, and with the airworthiness limitation revisions that come with newly delivered airplanes. The commenter explained that operators might have to divide their maintenance and inspection program into groups of airplanes. For airplanes with the serial numbers identified in the SNPRM, operators would be required to use MRB-1621, Revision 10, and for newly delivered airplanes operators would be required

to comply with the EMBRAER 170/175 Maintenance Review Board Report revision released when the new airplanes were delivered.

We agree with the commenter's observation that operators might have to use two different revisions of MRB-1621, the revision required by this final rule and the revision that is released with newly delivered airplanes; however, in an AD we may not refer to any document that does not yet exist. Allowing the use of a "later revision" of a specific service document violates Office of the Federal Register (OFR) regulations for approval of materials "incorporated by reference," as specified in 1 CFR 51.1(f).

Operators may request approval to use later revisions of a referenced document as an alternative method of compliance (AMOC) under the provisions specified in paragraph (k)(1) of this AD. The FAA routinely approves AMOCs that allow operators to incorporate later revisions of referenced ALI documents (issued after publication of the AD) into their maintenance or inspection programs instead of the revision required by an AD. This allows an operator to comply with both the AD, for affected airplanes, and the airplane's type design for later delivered airplanes. We have not changed this AD regarding this issue.

## **Conclusion**

We reviewed the available data, including the comment received, and determined that air safety and the public interest require adopting this AD as proposed, with minor editorial changes. We have determined that these changes:

- Are consistent with the intent that was proposed in the SNPRM for correcting the unsafe condition; and

- Do not add any additional burden upon the public than was already proposed in the SNPRM.

**Related Service Information under 1 CFR part 51**

Embraer S.A. has issued Appendix A - Airworthiness Limitations to the EMBRAER 170/175 Maintenance Review Board Report, MRB-1621, Revision 10, dated February 23, 2015, which is divided into four parts. As noted in the titles of each of these parts, Appendix A addresses Certification Maintenance Requirements (CMRs), airworthiness limitation inspections (ALIs) for structures, fuel system limitation items (FSLs), and life-limited items (LLI), and includes established tasks and intervals.

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 286 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

**Estimated costs**

<b>Action</b>	<b>Labor cost</b>	<b>Parts cost</b>	<b>Cost per product</b>	<b>Cost on U.S. operators</b>
Revision of the maintenance or inspection program (retained action from AD 2012-07-08)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$24,310
Revision of the maintenance or inspection program (new action)	1 work-hour X \$85 per hour = \$85	\$0	\$85	\$24,310

## **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:

a. Removing Airworthiness Directives (AD) 2006-06-09, Amendment 39-14518 (71 FR 14365, March 22, 2006); AD 2012-05-08, Amendment 39-16980 (77 FR 16155, March 20, 2012); and AD 2012-07-08, Amendment 39-17014 (77 FR 24342, April 24, 2012); and

b. Adding the following new AD:

**2017-06-08 Embraer S.A.:** Amendment 39-18832; Docket No. FAA-2014-0059; Directorate Identifier 2013-NM-075-AD.

**(a) Effective Date**

This AD is effective [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

**(b) Affected ADs**

This AD replaces the ADs specified in paragraphs (b)(1), (b)(2), and (b)(3) of this AD:

(1) AD 2006-06-09, Amendment 39-14518 (71 FR 14365, March 22, 2006) (“AD 2006-06-09”).

(2) AD 2012-05-08, Amendment 39-16980 (77 FR 16155, March 20, 2012) (“AD 2012-05-08”).

(3) AD 2012-07-08, Amendment 39-17014 (77 FR 24342, April 24, 2012) (“AD 2012-07-08”).

**(c) Applicability**

This AD applies to 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; certificated in any category; manufacturer serial numbers 17000002, 17000004 through 17000013 inclusive, and 17000015 through 17000453 inclusive.

**(d) Subject**

Air Transport Association (ATA) of America Codes 27, Flight controls; 28, Fuel; 52, Doors; 53, Fuselage; 54, Nacelles/pylons; 55, Stabilizers; 57, Wings; 71, Powerplant; and 78, Exhaust.

**(e) Reason**

This AD was prompted by a determination that more restrictive airworthiness limitations are necessary. We are issuing this AD to detect and correct fatigue cracking of various principal structural elements (PSEs); such cracking could result in reduced

structural integrity of the airplane. We are also issuing this AD to prevent safety-significant latent failures; such failures, in combination with one or more other specified failures or events, could result in a hazardous or catastrophic failure condition of avionics, hydraulic systems, fire detection systems, fuel systems, or other critical systems. We are also issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions; such failures, in combination with flammable fuel vapors, could result in fuel tank explosions and consequent loss of the airplane.

**(f) Compliance**

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

**(g) Retained Maintenance Program Revision, with No Changes**

This paragraph restates the action required by paragraph (i) of AD 2012-07-08, with no changes.

(1) Within 60 days after May 29, 2012 (the effective date of AD 2012-07-08):

Revise the maintenance program to incorporate the new or revised tasks specified in Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, to the EMBRAER 170 Maintenance Review Board Report (MRBR), MRB-1621, Revision 7, dated November 11, 2010; and EMBRAER Temporary Revision 7-1, dated February 11, 2011, to Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, to the EMBRAER 170 MRBR, MRB-1621, Revision 7, dated November 11, 2010; with the initial compliance times and intervals specified in these documents.

(2) The initial compliance times for the tasks start from the date of issuance of the original Brazilian airworthiness certificate or the date of issuance of the original Brazilian export certificate of airworthiness of the applicable airplane at the applicable time specified in the tasks, or within 600 flight cycles after revising the maintenance program, whichever occurs later. For certain tasks, the compliance times depend on the pre-modification and post-modification status of the actions specified in the associated service bulletin, as specified in the “Applicability” column of Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, to the EMBRAER 170 MRBR, MRB-1621, Revision 7, dated November 11, 2010; and EMBRAER Temporary Revision 7-1, dated February 11, 2011, to Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, to the EMBRAER 170 MRBR, MRB-1621, Revision 7, dated November 11, 2010.

**(h) Retained No Alternative Actions Intervals, and/or Critical Design Configuration Control Limitations (CDCCLs), with New Exception**

This paragraph restates the action required by paragraph (j) of AD 2012-07-08, with a new exception. Except as required by paragraph (i) of this AD, after accomplishing the revisions required by paragraph (g) of this AD, no alternative actions (e.g., inspections), intervals, and/or CDCCLs may be used other than those specified in Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, of the EMBRAER 170 MRBR MRB-1621, Revision 7, dated November 11, 2010; and EMBRAER Temporary Revision 7-1, dated February 11, 2011, to Part 2 – Airworthiness Limitation Inspection (ALI) – Structures, of Appendix A, Airworthiness Limitations, of the EMBRAER 170 MRBR, MRB-1621, Revision 7, dated

November 11, 2010; unless the actions, intervals, and/or CDCCLs are approved as an alternative method of compliance (AMOC) in accordance with the procedures specified in paragraph (k)(1) of this AD.

**(i) New Revision of Maintenance or Inspection Program**

Within 12 months after the effective date of this AD, revise the maintenance or inspection program, as applicable, to incorporate the airworthiness limitations specified in Part 1 - Certification Maintenance Requirements (CMR); Part 2 - Airworthiness Limitation Inspections (ALI) – Structures; Part 3 – Fuel System Limitation Items (FSL); and Part 4 – Life Limited Items (LLI); of Appendix A - Airworthiness Limitations; of the EMBRAER 170/175 MRBR, MRB-1621, Revision 10, dated February 23, 2015. The initial compliance times and repetitive intervals are specified in the applicable part of the EMBRAER 170/175 MRBR, MRB-1621, Revision 10, dated February 23, 2015. Accomplishing the revision to the maintenance or inspection program required by this paragraph terminates the requirements of paragraph (g) of this AD.

**(j) No Alternative Actions, Intervals, or CDCCLs**

After accomplishing the revision required by paragraph (i) of this AD, no alternative actions (e.g., inspections), intervals, or CDCCLs may be used unless the actions, intervals, and CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (k)(1) of this AD.

**(k) 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 425-227-1320. 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.

**(2) Contacting the Manufacturer:** As of the effective date of this AD, 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 the Agência Nacional de Aviação Civil (ANAC); or ANAC's authorized Designee. If approved by the ANAC Designee, the approval must include the Designee's authorized signature.

**(1) Related Information**

Refer to Mandatory Continuing Airworthiness Information (MCAI) Brazilian Airworthiness Directive 2015-06-01, effective June 2, 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-2014-0059.

**(m) 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.

(3) The following service information was approved for IBR on [INSERT DATE 35 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(i) Appendix A - Airworthiness Limitations to the EMBRAER 170/175 Maintenance Review Board Report, MRB-1621, Revision 10, dated February 23, 2015.

(ii) Reserved.

(4) The following service information was approved for IBR on May 29, 2012 (77 FR 24342, April 24, 2012).

(i) Part 2—Airworthiness Limitation Inspection (ALI) - Structures, of Appendix A, Airworthiness Limitations, of the EMBRAER 170 Maintenance Review Board Report, MRB–1621, Revision 7, dated November 11, 2010. Only the title page of this document specifies the revision level.

(ii) EMBRAER Temporary Revision 7–1, dated February 11, 2011, to Part 2 - Airworthiness Limitation Inspection (ALI) - Structures, of Appendix A, Airworthiness

Limitations, of the EMBRAER 170 Maintenance Review Board Report, MRB–1621, Revision 7, dated November 11, 2010.

(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](mailto:distrib@embraer.com.br); Internet <http://www.flyembraer.com>.

(6) 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.

(7) 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 March 10, 2017.

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

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