



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

**[Docket No. FAA-2024-2133; Project Identifier MCAI-2024-00243-T; Amendment
39-22922; AD 2024-26-07]**

RIN 2120-AA64

**Airworthiness Directives; Embraer S.A. (Type Certificate Previously Held by
Yaborã Indústria Aeronáutica S.A.; Embraer S.A.; Empresa Brasileira de
Aeronáutica S.A. (EMBRAER)) Airplanes**

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for all Embraer S.A. Model EMB-135ER, -135KE, -135KL, and -135LR airplanes; and Model EMB-145, -145EP, -145ER, -145LR, -145MP, -145MR, and -145XR airplanes. This AD was prompted by a structural assessment that indicated certain central fuselage longitudinal splices are subjected to fatigue damage on multiple sites due to loose fasteners, which may reduce the structural residual strength below the required levels. This AD requires performing repetitive inspections of certain upper central fuselage longitudinal splices and reporting the inspection results, as specified in an Agência Nacional de Aviação Civil (ANAC) AD, which is incorporated by reference. This AD also requires performing corrective actions if necessary. The FAA is 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].

ADDRESSES:

AD Docket: You may examine the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2024-2133; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this final rule, the mandatory continuing airworthiness information (MCAI), any comments received, and other information. The address for Docket Operations is U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE, Washington, DC 20590.

Material Incorporated by Reference:

- For ANAC material identified in this AD, contact National Civil Aviation Agency (ANAC), Aeronautical Products Certification Branch (GGCP), Rua Dr. Orlando Feirabend Filho, 230 – Centro Empresarial Aquarius – Torre B – Andares 14 a 18, Parque Residencial Aquarius, CEP 12.246-190 – São José dos Campos – SP, Brazil; telephone 55 (12) 3203-6600; email pac@anac.gov.br; website anac.gov.br/en/. You may find this material on the ANAC website at sistemas.anac.gov.br/certificacao/DA/DAE.asp.

- You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2024-2133.

FOR FURTHER INFORMATION CONTACT: Hassan Ibrahim, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 206-231-3653; email: Hassan.M.Ibrahim@faa.gov.

SUPPLEMENTARY INFORMATION:

Background

The FAA 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 EMB-135ER, -135KE, -135KL, and -135LR airplanes; and Model EMB-145, -145EP, -145ER, -145LR, -145MP, -145MR, and -145XR airplanes. The NPRM published in the *Federal Register* on August 28, 2024 (89 FR 68840). The NPRM was prompted by AD 2024-04-03R01, effective May 31, 2024, issued by ANAC, which is the aviation authority for Brazil (ANAC AD 2024-04-03R01) (also referred to as the MCAI). The MCAI states that a structural assessment indicated that certain central fuselage longitudinal splices are subjected to fatigue damage on multiple sites due to working (i.e., loose) fasteners, which could reduce structural residual strength below the required levels. This fatigue damage may be undetected by current maintenance tasks and could result in reduced structural integrity of the airplane.

In the NPRM, the FAA proposed to require performing repetitive inspections of certain upper central fuselage longitudinal splices and reporting the inspection results, as specified in ANAC AD 2024-04-03R01. The NPRM also proposed to require performing corrective actions if necessary. The FAA is issuing this AD to address the unsafe condition on these products.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2024-2133.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from Embraer. The following presents the comment received on the NPRM and the FAA's response.

Request for Withdrawing the Proposed AD

Embraer requested the FAA withdraw the proposed AD. The commenter stated the proposed AD is based on the occurrence of nonconforming (loose, failed or missing) rivets detected in tests that exceeded applicable regulatory requirements, and there has been no in-service occurrence to prompt the structural assessment used to justify the proposed AD. The commenter stated that the maintenance plan for Model EMB-145 airplanes includes inspection tasks that allow for timely detection of nonconforming rivets. The commenter stated analysis related to working rivets show that the probability of failure of a rivet of fuselage longitudinal splices under operational conditions is less than one percent at 60,000 flight cycles. Embraer added that, assuming the additional inspections are necessary, the proposed inspection times are overly conservative. The commenter added that a significant reduction in the structural residual strength requires the undetected failure of many rivets close to each other over a large area, which is improbable. The commenter concluded that the proposed AD creates an unnecessary burden for operators.

The FAA disagrees with the request. ANAC, as the state of design authority, has determined an unsafe condition exists and is likely to persist based on the data provided. ANAC reviewed current maintenance tasks and stated they are not adequate to address the unsafe condition. The FAA contacted ANAC, who stated an analysis was unable to establish the exact cause of failure; therefore, a conservative course of action is required. The FAA concurs with ANAC's determination. If ANAC later withdraws their AD due to concluding existing inspections are sufficient, the FAA may consider further rulemaking.

Additional Changes Made to this AD

The FAA revised paragraph (h)(3) of this AD to clarify that any discrepancy (including cracking) that is detected must be repaired. In the NPRM, the FAA

inadvertently said that if cracking is found, the discrepancy (including cracking) must be repaired.

Conclusion

This product has been approved by the aviation authority of another country and is approved for operation in the United States. Pursuant to the FAA's bilateral agreement with this State of Design Authority, it has notified the FAA of the unsafe condition described in the MCAI referenced above. The FAA reviewed the relevant data, considered the comment received, and determined that air safety requires adopting this AD as proposed. Accordingly, the FAA is issuing this AD to address the unsafe condition on this product. Except for minor editorial changes, this AD is adopted as proposed in the NPRM. None of the changes will increase the economic burden on any operator.

Material Incorporated by Reference Under 1 CFR Part 51

ANAC AD 2024-04-03R01 specifies an initial and repetitive external detailed inspections of the upper central fuselage II, III, and IV longitudinal splices to identify loose fasteners, contacting the manufacturer if any discrepancy is found, and reporting the inspection results. Discrepancies include loose fasteners, missing rivets, and any crack, crease, bend, nick, scratch, gouge, dent, abrasion, or structural deformation found in the skin attachments or fasteners. This material 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

The FAA estimates this AD affects 309 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Labor cost	Parts cost	Cost per product	Cost on U.S. operators
4 work-hours X \$85 per hour = \$340 per inspection cycle	\$0	\$340 per inspection cycle	\$105,060 per inspection cycle

The FAA has received no definitive data on which to base the cost estimates for the corrective actions specified in this AD.

Paperwork Reduction Act

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 currently 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 take approximately 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. All responses to this collection of information are mandatory. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to: Information Collection Clearance Officer, Federal Aviation Administration, 10101 Hillwood Parkway, Fort Worth, TX 76177-1524.

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.

The FAA is 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

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) Will not affect intrastate aviation in Alaska, 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.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

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:

2024-26-07 Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.; Empresa Brasileira de Aeronáutica S.A.

(EMBRAER)): Amendment 39-22922; Docket No. FAA-2024-2133; Project Identifier MCAI-2024-00243-T.

(a) Effective Date

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

(b) Affected ADs

None.

(c) Applicability

This AD applies to all Embraer S.A. (Type Certificate previously held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.; Empresa Brasileira de Aeronáutica S.A. (EMBRAER)) airplanes specified in paragraphs (c)(1) and (2) of this AD, certificated in any category.

(1) Model EMB-135ER, -135KE, -135KL, and -135LR airplanes.

(2) Model EMB-145, -145EP, -145ER, -145LR, -145MP, -145MR, and -145XR airplanes.

(d) Subject

Air Transport Association (ATA) of America Code 53, Fuselage.

(e) Unsafe Condition

This AD was prompted by a structural assessment that indicated certain central fuselage longitudinal splices are subjected to fatigue damage on multiple sites due to loose fasteners, which may reduce the structural residual strength below the required levels. The FAA is issuing this AD to address undetected fatigue damage on certain

central fuselage longitudinal splices. The unsafe condition, if not addressed, could result in reduced structural integrity of the airplane.

(f) Compliance

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

(g) Requirements

Except as specified in paragraph (h) of this AD: Comply with all required actions and compliance times specified in, and in accordance with, Agência Nacional de Aviação Civil (ANAC) AD 2024-04-03R01, effective May 31, 2024 (ANAC AD 2024-04-03R01).

(h) Exceptions to ANAC AD 2024-04-03R01

(1) Where ANAC AD 2024-04-03R01 refers to its effective date, this AD requires using the effective date of this AD.

(2) Where paragraphs (b)(1) and (2) of ANAC AD 2024-04-03R01 specify the initial compliance time for the external detailed inspection, for this AD, the initial compliance time for doing the external detailed inspection is prior to the accumulation of 44,000 total flight cycles, or within 500 flight cycles after the effective date of this AD, whichever occurs later.

(3) Where paragraph (b)(3) of ANAC AD 2024-04-03R01 specifies “If any discrepancies are found, contact Embraer,” this AD requires replacing that text with “If any discrepancy (including cracking) is detected during an inspection required by paragraph (g) of this AD, repair the discrepancy (including cracking) before further flight using a method approved by the Manager, International Validation Branch, FAA; or ANAC; or Embraer’s ANAC Design Organization Approval (DOA). If approved by the DOA, the approval must include the DOA-authorized signature.”

(4) Paragraph (d) of ANAC AD 2024-04-03R01 specifies to report inspection results to ANAC and Embraer within a certain compliance time. For this AD, report

inspection results after each inspection required by paragraph (g) of this AD at the applicable times specified in paragraph (h)(4)(i) or (ii) of this AD.

(i) If the inspection was done on or after the effective date of this AD: Submit the report within 30 days after the inspection.

(ii) If the inspection was done before the effective date of this AD: Submit the report within 30 days after the effective date of this AD.

(5) This AD does not adopt paragraph (e) of ANAC AD 2024-04-03R01.

(i) Additional AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs)*: The Manager, International Validation Branch, 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 responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the International Validation Branch, mail it to the address identified in paragraph (j) of this AD. Information may be emailed to: AMOC@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) *Contacting the Manufacturer*: For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, International Validation Branch, FAA; or ANAC; or ANAC's authorized Designee. If approved by the ANAC Designee, the approval must include the Designee's authorized signature.

(j) Additional Information

For more information about this AD, contact Hassan Ibrahim, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone: 206-231-3653; email: Hassan.M.Ibrahim@faa.gov.

(k) Material Incorporated by Reference

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

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

(i) Agência Nacional de Aviação Civil (ANAC) AD 2024-04-03R01, effective May 31, 2024.

(ii) [Reserved]

(3) For ANAC material identified in this AD, contact ANAC, Aeronautical Products Certification Branch (GGCP), Rua Dr. Orlando Feirabend Filho, 230 – Centro Empresarial Aquarius – Torre B – Andares 14 a 18, Parque Residencial Aquarius, CEP 12.246-190 – São José dos Campos – SP, Brazil; telephone 55 (12) 3203-6600; email pac@anac.gov.br; website anac.gov.br/en/. You may find this ANAC AD on the ANAC website at sistemas.anac.gov.br/certificacao/DA/DAE.asp.

(4) You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th Street, Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations or email fr.inspection@nara.gov.

Issued on January 6, 2025.

Victor Wicklund,
Deputy Director, Compliance & Airworthiness Division,
Aircraft Certification Service.

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