



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

**[Docket No. FAA-2025-0010; Project Identifier MCAI-2024-00270-T; Amendment
39-23020; AD 2025-08-07]**

RIN 2120-AA64

**Airworthiness Directives; Embraer S.A. (Type Certificate Previously Held by
Yaborá 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 superseding Airworthiness Directive (AD) 2006-20-08, which applied to all Embraer S.A. Model EMB-145, -145ER, -145MR, -145LR, -145XR, -145MP, and -145EP airplanes. AD 2006-20-08 required repetitive inspections to detect cracking or failure of the rod ends and fittings of the aileron power control actuator (PCA), and corrective actions if necessary, and provided an optional terminating action. This AD was prompted by a determination that there was an error in identifying a maintenance task number. This AD continues to require the actions in AD 2006-20-08 and corrects an error in a task number, as specified in an Agência Nacional de Aviação Civil (ANAC) AD, which is incorporated by reference. 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-2025-0010; 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. 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-2025-0010.

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 to supersede AD 2006-20-08, Amendment 39-14777 (71 FR 58487, October 4, 2006) (AD 2006-20-08). AD 2006-20-08 applied to all Embraer Model EMB-145, -145ER, -145MR, -145LR, -145XR, -145MP, and -145EP airplanes. AD 2006-20-08 required repetitive inspections to detect cracking or failure/breaking of the rod ends and fittings of the aileron PCA, and corrective actions if necessary, and provided an optional terminating action for the requirements. The FAA issued AD 2006-20-08 to detect and correct cracking or breaking of the rod ends and connecting fittings of the aileron PCA, which could result in reduced controllability of the airplane.

The NPRM published in the *Federal Register* on January 31, 2025 (90 FR 8684). The NPRM was prompted by AD 1999-02-01R7, effective May 6, 2024; as corrected October 11, 2024 (ANAC AD 1999-02-01R7) (also referred to as the MCAI), issued by ANAC, which is the aviation authority for Brazil. The MCAI states that after ANAC AD 1999-02-01R6 was issued it was identified that the visual inspection task number referenced on requirement (c) of that AD (AMM TASK 27-12-01-212-002-A00, “Aileron PCA Rod Ends/Fitting, Lugs for Integrity and General Condition”) was incorrect. ANAC AD 1999-02-01R7 was issued to replace the task reference to MRB-145/1150 TASK 27-12-01-212-002-A05. For airplanes identified in paragraph (c) of ANAC AD 1999-02-01R7, accomplishing repetitive inspections as specified in MRB-145/1150 TASK 27-12-01-212-002-A05 are necessary to address the unsafe condition.

In the NPRM, the FAA proposed to continue to require the actions in AD 2006-20-08 and correct an error in a task number, as specified in ANAC AD 1999-02-01R7. The FAA is issuing this AD to address cracking or breaking of the rod

ends and connecting fittings of the aileron PCA, which could result in reduced controllability of the airplane.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2025-0010.

Discussion of Final Airworthiness Directive

Comments

The FAA received comments from the Air Line Pilots Association, International (ALPA) who supported the NPRM without change.

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 1999-02-01R7 specifies procedures for repetitive inspections to detect cracking and failure of the rod ends and PCA fittings of the aileron PCA and corrective actions if necessary, and provides an optional terminating action. Corrective actions include replacing cracked and failed rod ends and PCA fittings. 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 that this AD will affect 272 airplanes of U.S. registry. The FAA estimates the following costs to comply with this AD:

Estimated costs for required actions

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Retained actions from AD 2006-20-08	1 work-hour X \$85 per hour = \$85	None	\$85	\$23,120

Estimated costs for optional actions

Labor cost	Parts cost	Cost per product
24 work-hours X \$85 per hour = \$2,040	\$19,817	\$21,857

The FAA estimates the following costs to do any necessary on-condition actions that would be required based on the results of any required actions. The FAA has no way of determining the number of aircraft that might need these on-condition actions:

Estimated costs of on-condition actions

Labor cost	Parts cost	Cost per product
24 work-hours X \$85 per hour = \$2,040	\$19,817	\$21,857

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:

- a. Removing Airworthiness Directive (AD) 2006-20-08, Amendment 39-14777

(71 FR 58487, October 4, 2006); and

b. Adding the following new AD:

2025-08-07 Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.; Empresa Brasileira de Aeronáutica S.A.

(EMBRAER)): Amendment 39-23020; Docket No. FAA-2025-0010; Project Identifier MCAI-2024-00270-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

This AD replaces AD 2006-20-08, Amendment 39-14777 (71 FR 58487, October 4, 2006) (AD 2006-20-08).

(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)) Model EMB-145, -145ER, -145MR, -145LR, -145XR, -145MP, and -145EP airplanes, certificated in any category.

(d) Subject

Air Transport Association (ATA) of America Code 27, Flight Controls.

(e) Unsafe Condition

This AD was prompted by reports of broken rod ends of the aileron power control actuator (PCA) at the aileron or at the wing structure connection points and a determination that an incorrect task number was published in AD 2006-20-08. The FAA is issuing this AD to address cracking or breaking of the rod ends and connecting fittings of the aileron PCA. The unsafe condition, if not addressed, could result in reduced controllability of the airplane.

(f) Compliance

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

(g) Requirements

Except as specified in paragraphs (h) and (i) of this AD: Comply with all required actions and compliance times specified in, and in accordance with, Agência Nacional de Aviação Civil (ANAC) AD 1999-02-01R7, effective May 6, 2024; as corrected October 11, 2024 (ANAC AD 1999-02-01R7).

(h) Exceptions to ANAC AD 1999-02-01R7

(1) Where ANAC AD 1999-02-01R7 refers to “21 jul. 2004,” this AD requires using November 8, 2006 (the effective date of AD 2006-20-08).

(2) This AD does not adopt paragraph (f) of ANAC AD 1999-02-01R7.

(3) Where ANAC AD 1999-02-01R7 specifies “operating days,” this AD requires replacing that text with “days.”

(4) Where paragraphs (a)2. and (a)3. of ANAC AD 1999-02-01R7 specify to replace cracked and failed rod ends and PCA fittings, for this AD, all applicable replacements must be done before further flight.

(5) Where paragraph (a) of ANAC AD 1999-02-01R7 does not specify an initial compliance time for the repetitive inspections, for this AD, the initial compliance time for the inspection is at the applicable time identified in paragraph (h)(5)(i), (ii), or (iii) of this AD.

(i) For airplanes that have PCAs with part number (P/N) 394900-1003 or 394900-1005, do the initial inspection within 3 days after November 8, 2006.

(ii) For airplanes that have PCAs with P/N 394900-1007, do the initial inspection within 14 days after November 8, 2006.

(iii) For airplanes that have PCAs with P/Ns 418800-1001, 418800-1003, 418800-9003, 418800-1005, 418800-9005, 418800-1007, or 418800-9007; and that have

new reinforced PCA fittings installed in accordance with paragraph (k) or (l) of AD 2006-20-08 or paragraph (b) of ANAC AD 1999-02-01R7, do the initial inspection within 500 flight hours after November 8, 2006.

(6) Where paragraph (b) of ANAC AD 1999-02-01R7 specifies to accomplish an installation within “6000 operating cycles,” for this AD, the compliance time is at the applicable time specified in paragraph (h)(6)(i) or (ii) of this AD.

(i) For airplanes with PCAs with P/N 394900-1003, 394900-1005, or 394900-1007: At the later of the times in paragraphs (h)(6)(i)(A) or (B) of this AD.

(A) Before the airplane accumulates 6,000 total flight hours.

(B) Within 3 days or 25 flight hours after November 8, 2006 (the effective date of AD 2006-20-08), whichever occurs later.

(ii) For airplanes with PCAs with P/N 418800-1001, 418800-1003, 418800-9003, 418800-1005, 418800-9005, 418800-1007, or 418800-9007: Before the airplane accumulates 6,000 total flight cycles or within 600 flight cycles after November 8, 2006 (the effective date of AD 2006-20-08), whichever occurs later.

(7) Where paragraph (c) of ANAC AD 1999-02-01R7 specifies to do an inspection in accordance with a task, for this AD, inspections done before the effective date of this AD using AMM Task 27-12-01-212-002-A00 or using a method approved by either the Manager, International Validation Branch, FAA, or ANAC (or its delegated agent) are acceptable methods of compliance. Inspections done on or after the effective date of this AD must be done using the task identified in paragraph (c) of ANAC AD 1999-02-01R7 or using a method approved as specified in paragraph (k)(2) of this AD.

(8) Where paragraph (c) of ANAC AD 1999-02-01R7 specifies to accomplish the initial inspection “in conjunction with the new PCA fittings and reinforcement provisions referred on item (b) above,” this AD requires replacing that text with “within 500 flight

hours after accomplishing the installation and reinforcements provisions referred to in item (b) above.”

(9) Where paragraph (c) of ANAC AD 1999-02-01R7 specifies to accomplish the inspections “every 500 flight hours” this AD requires replacing that text with “at intervals not to exceed 500 flight hours.”

(10) Where paragraph (d) of ANAC AD 1999-02-01R7 specifies to accomplish the inspections “every 1000 flight hours” this AD requires replacing that text with “at intervals not exceeding 1,000 flight hours.”

(i) Credit for Previous Actions

This paragraph provides credit for the replacement specified in paragraph (a)2. of ANAC AD 1999-02-01R7 and the optional terminating actions specified in paragraph (d) of ANAC AD 1999-02-01R7, if those actions were performed before the effective date of this AD using EMBRAER Service Bulletin 145-27-0061, dated October 19, 1999.

(j) No Return of Parts

Although the material identified in ANAC AD 1999-02-01R7 specifies to send removed parts to the parts manufacturer, this AD does not include that requirement.

(k) 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, send it to the attention of the person identified in paragraph (l)(1) of this AD and email to: AMOC@faa.gov.

(i) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(ii) AMOCs approved previously for AD 2006-20-08 are approved as AMOCs for the corresponding provisions of ANAC AD 1999-02-01R7 that are required by paragraph (g) of this AD.

(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.

(l) Additional Information

(1) 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.

(2) For EMBRAER material identified in this AD that is not incorporated by reference, contact Embraer S.A., Technical Publications Section (PC 060), Av. Brigadeiro Faria Lima, 2170 - Putim - 12227-901 São Jose dos Campos - SP - Brazil; telephone +55 12 3927-5852 or +55 12 3309-0732; fax +55 12 3927-7546; email distrib@embraer.com.br; website flyembraer.com.

(m) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference 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) ANAC AD 1999-02-01R7, effective May 6, 2024; as corrected October 11, 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. You may find this material 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 St., 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 May 5, 2025.

Steven W. Thompson,
Acting Deputy Director, Compliance & Airworthiness Division,
Aircraft Certification Service.

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