



DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1163; Project Identifier MCAI-2022-00571-T; Amendment 39-22487; AD 2023-13-02]

RIN 2120-AA64

Airworthiness Directives; Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.) Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Embraer S.A. Model ERJ 170 airplanes. This AD was prompted by reports indicating that certain flight control electrical harnesses were routed incorrectly, providing inadequate separation from other electrical harness installations. This AD requires an inspection of certain flight control electrical harnesses for incorrect routing, and modifying any incorrect electrical harness installations, 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-2022-1163; 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 material incorporated by reference 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 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 in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1163.

FOR FURTHER INFORMATION CONTACT: Joshua K. Bragg, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone 817-222-5366; email: joshua.k.bragg@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 certain Embraer S.A. Model ERJ 170 airplanes. The NPRM published in the *Federal Register* on September 15, 2022 (87 FR 56598). The

NPRM was prompted by AD 2022-04-01, effective April 29, 2022, issued by ANAC, which is the aviation authority for Brazil (ANAC AD 2022-04-01) (also referred to as the MCAI). The MCAI states that certain flight control electrical harnesses were routed incorrectly, providing inadequate separation from other electrical harness installations.

In the NPRM, the FAA proposed to require inspecting certain flight control electrical harnesses for incorrect routing, and modifying any incorrect electrical harness installations, as specified in ANAC AD 2022-04-01.

You may examine the MCAI in the AD docket at [regulations.gov](https://www.regulations.gov) under Docket No. FAA-2022-1163.

The FAA issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain Embraer S.A. Model ERJ 170 airplanes. The SNPRM published in the *Federal Register* on February 24, 2023 (88 FR 11830). The SNPRM was prompted by reports indicating that certain flight control electrical harnesses were routed incorrectly, providing inadequate separation from other electrical harness installations. In the SNPRM, the FAA proposed to require inspecting certain flight control electrical harnesses for incorrect routing, and modifying any incorrect electrical harness installations. The FAA is issuing this AD to address the incorrect routing of flight control electrical harnesses near critical fuel quantity indication harnesses, which could possibly result in fuel tank ignition and subsequent loss of the airplane.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from Air Line Pilots Association, International (ALPA), who supported the SNPRM without change.

The FAA received additional comments from two commenters, including Embraer and Horizon Air. The following presents the comments received on the SNPRM and the FAA's response to each comment.

Requests for Increased Compliance Time and Later Date for Correction

Embraer requested that the FAA allow an increase in the compliance time and to allow the correction to be done at a later date. According to Embraer, because this inspection and subsequent correction of the wiring harnesses cannot fit within a basic check, operators plan to add it to the heavy maintenance visits, during which these accesses are already open. However, the service information and the proposed AD do not allow for inspecting to be done at one opportunity and correction to be done at a later date.

The FAA does not agree to the requests to revise the compliance time and allow correction to be done later. ANAC, as the state of design authority, conducted a safety analysis and determined that a 12-month compliance time is appropriate to mitigate the identified unsafe condition and did not allow for correction to be done later. The FAA concurs with ANAC's assessment. However, under the provisions specified in paragraph (i)(1) of this AD, operators may request an alternative method of compliance (AMOC) to use a different compliance time, if the proposed AMOC provides an acceptable level of safety. This AD has not been changed with regard to this request.

Request to Increase the Estimated Work-Hours

Embraer requested an increase in the total number of estimated work-hours for the required actions. The commenter noted that the actual work-hours required for the actions have proven to be greater than the estimate given in the proposed AD.

The FAA agrees with the request because the agency has determined that the total work-hours required exceed the previous estimate. The FAA has increased the estimated total work-hours from 8 to 16.

Request to Correct Typographical Error

Horizon Air requested that a correction be made in paragraph (i)(3) of the proposed AD. The commenter noted that the reference to paragraph (j)(3)(i) should be to paragraph (i)(3)(i).

The FAA agrees with the request. The FAA has corrected the typographical error in this AD.

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 comments 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, and any other changes described previously, this AD is adopted as proposed in the SNPRM. None of the changes will increase the economic burden on any operator.

Related Service Information under 1 CFR Part 51

ANAC AD 2022-04-01R1 specifies procedures for inspecting the installation of flight control electrical harnesses W126 and W127 for incorrect routing and modifying any incorrect electrical harness installations. 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 ADDRESSES.

Costs of Compliance

The FAA estimates that this AD affects 701 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 |
|---|------------|------------------|------------------------|
| 6 work-hours X \$85 per hour = \$510 | \$0 | \$510 | \$357,510 |

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 |
|---------------------------------------|------------|------------------|
| 10 work-hours X \$85 per hour = \$850 | \$0 | \$850 |

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:

2023-13-02 Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria

Aeronáutica S.A.; Embraer S.A.): Amendment 39-22487; Docket No. FAA-2022-

1163; Project Identifier MCAI-2022-00571-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 Embraer S.A. (Type Certificate previously held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.) Model ERJ 170-100 LR, -100 STD, -100 SE, and -100 SU airplanes; and Model ERJ 170-200 LR, -200 SU, -200 STD, and -200 LL airplanes, certificated in any category, as identified in Agência Nacional de Aviação Civil (ANAC) AD 2022-04-01R1, effective October 31, 2022 (ANAC AD 2022-04-01R1).

(d) Subject

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

(e) Unsafe Condition

This AD was prompted by reports indicating that certain flight control electrical harnesses were routed incorrectly, providing inadequate separation from other electrical harness installations. The FAA is issuing this AD to address the incorrect routing of flight control electrical harnesses near critical fuel quantity indication harnesses, which could possibly result in fuel tank ignition and subsequent loss 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, ANAC AD 2022-04-01R1.

(h) Exceptions to ANAC AD 2022-04-01R1

(1) Where ANAC AD 2022-04-01R1 refers to April 29, 2022 (the effective date of ANAC AD 2022-04-01), this AD requires using the effective date of this AD.

(2) Where ANAC AD 2022-04-01R1 refers to its effective date, this AD requires using the effective date of this AD.

(3) Where ANAC AD 2022-04-01R1 refers to August 3, 2022 (the Revision 02 date of Embraer Service Bulletin), the correct date is August 5, 2022.

(4) Paragraph (c) of ANAC AD 2022-04-01R1 does not apply to this AD.

(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 International Validation Branch, send it to the attention of the person identified in paragraph (j) of this AD. Information may be emailed to: 9-AVS-AIR-730-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.

(3) *Required for Compliance (RC)*: Except as specified by paragraph (i)(2) of this AD: if any service information contains steps that are labeled as RC, the provisions of paragraphs (i)(3)(i) and (ii) of this AD apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. If a step or substep is labeled "RC Exempt," then the RC requirement is removed from that step or substep. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition.

(j) Additional Information

For more information about this AD, contact Joshua K. Bragg, Aviation Safety Engineer, FAA, 1600 Stewart Avenue, Suite 410, Westbury, NY 11590; phone 817-222-5366; email: joshua.k.bragg@faa.gov.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference 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) Agência Nacional de Aviação Civil (ANAC) AD 2022-04-01R1, effective October 31, 2022.

(ii) [Reserved]

(3) For ANAC AD 2022-04-01R1, 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 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 that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fr.inspection@nara.gov, or go to: www.archives.gov/federal-register/cfr/ibr-locations.html.

Issued on July 21, 2023.

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

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