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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2022-1243; Project Identifier MCAI-2022-00674-T; Amendment 39-22344; AD 2023-03-19]

RIN 2120-AA64

Airworthiness Directives; Embraer S.A. (Type Certificate Previously Held by Yaborã Indústrias Aeronáuticas 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 a report of uncommanded setting of the barometric reference in both primary flight displays (PFDs) due to the architecture of data communication of the Control I/O modules, which interconnect the display controllers to the air data system. This AD requires installing updated Primus EPIC software, 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 April 7, 2023.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of April 7, 2023.

ADDRESSES:

AD Docket: You may examine the AD docket at *regulations.gov* under Docket No. FAA-2022-1243; 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* under Docket No. FAA-2022-1243.

FOR FURTHER INFORMATION CONTACT:

Hassan Ibrahim, Aerospace Engineer, Large Aircraft Section, FAA, International Validation Branch, 2200 South 216th St., Des Moines, WA 98198; telephone 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 certain 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. The NPRM published in the **Federal Register** on September 30, 2022 ([87 FR 59345](#)). The NPRM was prompted by AD 2022-05-03, effective May 25, 2022 issued by ANAC, which is the aviation authority for Brazil (ANAC AD 2022-05-03) (also referred to as the MCAI). The MCAI states that there was a report of uncommanded setting of the barometric reference in both PFDs due to the architecture of data communication of the Control I/O modules, which interconnect the display controllers to the air data system.

In the NPRM, the FAA proposed to require installing updated Primus EPIC software, as specified in ANAC AD 2022-05-03. The FAA is issuing this AD to address the unsafe condition which could interfere with the decisions taken by the flightcrew during critical phases of flight, and possibly result in reduced controllability of the airplane.

You may examine the MCAI in the AD docket at *regulations.gov* under Docket No. FAA-2022-1243.

Related Rulemaking

This AD requires installing updated Primus EPIC software. ANAC AD 2022-05-03 specifies that accomplishment of that AD “covers the accomplishment of [terminates] ANAC AD 2019-10-02” (which corresponds to FAA AD 2020-05-22) Amendment 39-19872 ([85 FR 15936](#), March 20, 2020) (AD 2020-05-22). Both AD 2020-05-22 and this AD require installing updated Primus EPIC software standards, and the FAA has determined that the actions in AD 2020-05-22 must be done prior to accomplishing the actions in this AD. Accomplishment of the actions in this AD on an airplane would then terminate all of the requirements of AD 2020-05-22 for that airplane only.

Discussion of Final Airworthiness Directive

Comments

The FAA received a comment from Horizon Air. The following presents the comment received on the NPRM and the FAA's response to each comment.

Request To Revise an Exception

Horizon Air requested that the FAA revise paragraph (h)(2) of this AD. The commenter noted that paragraph (h)(2) of the proposed AD states: “The “Alternative methods of compliance (AMOC)” section of ANAC AD 2022-05-03 does not apply to this AD.” Horizon Air asked that the proposed AD be revised to limit this exception to paragraph (c)(1) of ANAC AD 2022-05-03. Horizon Air noted that paragraphs (c)(2), (c)(2)(i), and (c)(2)(ii) of ANAC AD 2022-05-03 clarify that only steps labeled as Required for Compliance (RC), including sub-steps under a RC step and any figures identified in a RC step, must be done to comply with that AD. The commenter reasoned that excepting paragraphs (c)(2), (c)(2)(i) and (c)(2)(ii) of ANAC AD 2022-05-03 would unnecessarily mandate steps that are not required to correct the unsafe condition.

The FAA agrees with the commenter's request, and notes that although the current service information does not have RC steps labeled, Embraer might revise the service information to include RC steps in the future. Therefore, the FAA changed paragraph (h)(2) of this AD to state that paragraph (c)(1) of ANAC AD 2022-05-03 does not apply to this AD. The FAA also added paragraph (j)(3) of this AD to clarify the provisions related to complying with service information with RC steps labeled.

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

Related Service Information Under [1 CFR Part 51](#)

ANAC AD 2022-05-03 specifies procedures for installing updated Primus EPIC software. 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 668 airplanes of U.S. registry. We estimate 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
8 work-hours × \$85 per hour = \$680	\$0	\$680	\$454,240

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:

2023-03-19 Embraer S.A. (Type Certificate Previously Held by Yaborã Indústria Aeronáutica S.A.; Embraer S.A.): Amendment 39-22344; Docket No. FAA-2022-1243; Project Identifier MCAI-2022-00674-T.

(a) Effective Date

This airworthiness directive (AD) is effective April 7, 2023.

(b) Affected ADs

This AD affects AD 2020-05-22, Amendment 39-19872 ([85 FR 15936](#), March 20, 2022) (AD 2020-05-22).

(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 2022-05-03, effective May 25, 2022 (ANAC AD 2022-05-03).

(d) Subject

Air Transport Association (ATA) of America Code 31, Instruments.

(e) Unsafe Condition

This AD was prompted by a report of uncommanded setting of the barometric reference in both primary flight displays due to the architecture of data communication of the Control I/O modules, which interconnect the display controllers to the air data system. The FAA is issuing this AD to address

this condition, which could interfere with the decisions taken by the flightcrew during critical phases of flight, and possibly 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 paragraph (h) of this AD: Comply with all required actions and compliance times specified in, and in accordance with, ANAC AD 2022-05-03.

(h) Exceptions to ANAC AD 2022-05-03

(1) Where ANAC AD 2022-05-03 refers to its effective date, this AD requires using the effective date of this AD.

(2) Paragraph (c)(1) of ANAC AD 2022-05-03 does not apply to this AD.

(3) Where paragraph (d) of ANAC AD 2022-05-03 specifies you must use certain service information for software installation, this AD specifies to use that service information as applicable, except as provided in paragraphs (a)(1) and (2) of ANAC AD 2022-05-03.

(i) Terminating Action for AD 2020-05-22

Accomplishing the actions required by this AD on an airplane terminates all requirements of AD 2020-05-22 for that airplane only.

(j) 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 (k) 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 (j)(2) of this AD: if any service information contains steps that are labeled as RC, the provisions of paragraphs (j)(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.

(k) Additional Information

For more information about this AD, contact Hassan Ibrahim, Aerospace Engineer, Large Aircraft Section, FAA, International Validation Branch, 2200 South 216th St., Des Moines, WA 98198; telephone 206-231-3653; email hassan.m.ibrahim@faa.gov.

(l) 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 2022-05-03, effective May 25, 2022.

(ii) [Reserved]

(3) ANAC AD 2022-05-03, 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 February 10, 2023.

Christina Underwood,

Acting Director, Compliance & Airworthiness Division, Aircraft Certification Service.

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