



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2021-02-01

Effective Date: 15 Feb. 2021

The following Brazilian Airworthiness Directive (AD), issued by the Agência Nacional de Aviação Civil (ANAC) in accordance with provisions of Chapter IV, Title III of Código Brasileiro de Aeronáutica - Law No. 7,565 dated 19 December 1986 - and Regulamento Brasileiro da Aviação Civil (RBAC) 39, applies to all aircraft registered in the Registro Aeronáutico Brasileiro. No person may operate an aircraft to which this AD applies, unless it has previously complied with the requirements established herein.

AD No. 2021-02-01 - (NOME DO FABRICANTE) / 39-1477.

APPLICABILITY:

This Airworthiness Directive (AD) applies to Yaborã Indústria Aeronáutica S.A. models ERJ 190-300 and ERJ 190-400, serial numbers 19020009 through 19020038.

CANCELLATION / REVISION:

This AD supersedes EAD 2019-12-01R01.

REASON:

During a failure propagation tests campaign, when a complete loss of the electrical DC essential bus 2 was induced, it was noticed that the smoke detection system of the forward and aft e-bays erroneously informs the presence of smoke by means of the respective EICAS messages. The procedures of the approved Airplane Flight Manual (AFM) require that, when these messages are displayed, the essential electrical buses DC ESS BUS 1 and DC ESS BUS 3 shall be turned off. In this situation, resulting from the adoption of this procedure, there would be a loss of all electrical DC essential buses causing loss of electrical power for critical systems of the airplane.

Since this condition affects flight safety, sufficient reason exists to request compliance with this EAD in the indicated time limit.

REQUIRED ACTION:

Temporary modification of AFM procedure associated with message of smoke in the electronic bays presented on the Engine Indication and Crew Alerting System (EICAS).

Modification of electrical wiring of the mid electronic bay and backup smoke detectors.

COMPLIANCE:

Compliance shall be as stated below, unless already accomplished.

Part I – Retention of EAD 2019-12-01 requirements

(a) Retention of the Modification of the AFM Procedure

Within 5 days from December 9th 2019, the effectivity date of the EAD 2019-12-01, revise the Section 4 - Abnormal and Emergency Procedures of the AFM by replacing the existing “FORWARD (CENTER) (AFT) ELECTRONIC BAY SMOKE” procedure by the following procedure:

“FORWARD (CENTER) (AFT) ELECTRONIC BAY SMOKE

LAND AT THE NEAREST SUITABLE AIRPORT.

Check if the DC ESS BUS 2 OFF message is displayed on EICAS.

If the DC ESS BUS 2 OFF message is not displayed:

Disengage both autopilot and autothrottle. Turn off the recirculation fan. Press the APU emergency stop button. Set DC BUS TIES switch, TRU 1 switch, TRU ESS switch and battery 1 knob to OFF.

Wait 3 minutes.

DC BUS 1, DC ESS BUS 1 and DC ESS BUS 3 are deenergized.

If the message persists:

Set DC BUS TIES switch, TRU 1 switch and TRU ESS switch to AUTO. Set battery 1 knob to ON.

Limit minimum airspeed to 150 KIAS.

Pull RAT manual lever deploy lever. Turn off the IDGs 1 and 2 and set the emergency lights to OFF.

Exit/avoid icing conditions.

NOTE: *The TAT, SAT and TAS indications may present erroneous values under icing conditions.*

Landing will be performed in Electrical Emergency configuration.

For landing, arm the emergency lights and press both flap override and landing gear warning buttons.

CAUTION: *CORRECT LANDING CONFIGURATION AND LANDING DISTANCE ACCORDING TO BLOCK 5-15, "LANDING IN ABNORMAL CONFIGURATIONS".*

If a go around is required, set slat/flap to 3 and limit minimum airspeed to VREF FULL + 20

KIAS or 130 KIAS, whichever is higher.

On ground, steer the airplane using differential braking and rudder.

If the message extinguishes:

Exit/avoid icing conditions and set the emergency lights to OFF.

NOTE: - *Do not accomplish the SHAKER ANTICIPATED Procedure.*

- *Do not accomplish the DC BUS 1 OFF Procedure.*
- *Do not accomplish the DC ESSENTIAL BUS 1 OFF Procedure.*
- *Do not accomplish the DC ESSENTIAL BUS 3 OFF Procedure.*
- *Do not accomplish the AVIONICS MAU 1A FAILURE Procedure.*
- *Do not accomplish the ANTI-ICE WING FAILURE Procedure.*
- *Do not accomplish the BRAKE LH (RH) FAULT Procedure.*
- *Disregard TAT 1 FAIL and TAT 2 FAIL messages.*

For landing, arm the emergency lights.

If a go around is required, set slat/flap to FULL and limit minimum airspeed to VREF FULL + 20 KIAS.

The emergency/parking brake must be used to stop the airplane.

CAUTION:

- *CORRECT LANDING CONFIGURATION AND LANDING DISTANCE ACCORDING TO BLOCK 5-15, "LANDING IN ABNORMAL CONFIGURATIONS".*
- *APPLY THE EMERGENCY/PARKING BRAKE MODERATELY UNTIL AIRPLANE DECELERATION IS NOTICED.*
- *VERIFY THE EMERGENCY/PARKING BRAKE LIGHT IS ON, KEEP MONITORING THE DECELERATION AND, IF NECESSARY, ADJUST THE EMERGENCY/PARKING BRAKE LEVER."*

Part II – New requirements of this AD

(b) Modification of the electrical wiring of the mid electronic bay and backup smoke detectors.

(1) Within 12 months from the effectivity date of this AD, modify the electrical wiring of the electronic bay and backup smoke detectors according to Part I and Part II of the Accomplishment Instructions of the Service Bulletin (SB) Embraer 190E2-26-0005, revision 03, dated November 05th 2020.

(2) The actions required by this paragraph terminate the requirement of the

paragraph (a) of this AD. The modifications accomplished according to paragraph (a) of this AD must be removed.

(c) Credit for previous actions

(1) This paragraph provides credit for the actions specified in paragraph (b) of this AD, if those actions were performed before the effective date of this AD according to SB Embraer 190E2-26-0005, original revision, dated June 30th, 2020, or SB Embraer 190E2-26-0005, revision 01, dated July 20th, 2020, or SB Embraer 190E2-26-0005, revision 02, dated November 05th, 2020 .

(d) Alternative Methods of Compliance (AMOC)

(1) A different method or a different compliance time with the requirements of this AD may be used if approved by the Manager of ANAC's Continuing Airworthiness Technical Branch (*Gerência Técnica de Aeronavegabilidade Continuada – GTAC*). The AMOC approval letter must specifically reference this AD.

(2) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (d)(2)(i) and (d)(2)(ii) of this AD apply.

(i) The steps labeled as RC, including sub steps under an RC step and any figures identified in an RC step, must be done to comply with this AD. An AMOC is required for any deviations to RC steps, including sub steps and identified figures.

NOTE: If a step or sub step is indicated as "RC Exempt", then the RC requirement is removed from that step.

(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 sub steps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition

(e) Material incorporated by reference

To accomplish the actions required by this AD, use the following Service Bulletin:

(1) SB Embraer 190E2-26-0005, revision 03, dated November 05th 2020, or further revisions approved by ANAC.

Record compliance with this AD in the applicable maintenance logbook.

CONTACT:

For additional technical information, contact:

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APPROVAL:

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NOTE: Original in Portuguese language signed and available in the files of the Continuing Airworthiness Technical Branch (GTAC) of the Brazilian National Civil Aviation Agency (ANAC)

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