



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2025-04-02

Effective Date: 23 Apr. 2025

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. 2025-04-02 - EMBRAER / 39-1582.

APPLICABILITY:

This Airworthiness Directive (AD) applies to Embraer S.A. models ERJ 190-300 and ERJ 190-400, all serial numbers.

CANCELLATION / REVISION:

This AD cancels and supersedes AD 2024-08-01 / 39-1568, effective on August 19th 2024, and being issued to include a software modification of the Brake Control Module (BCM) as a terminal action.

REASON:

A report was received about a failure of the MAU 3B announced by the AVNX MAU 3B FAIL caution message associated with BRK LH FAULT and BRK RH FAULT advisory messages. During the landing run, the normal brakes were not available and the messages BRK LH FAIL, BRK RH FAIL, BRK PEDL LH SEAT FAIL and BRK PEDL RH SEAT FAIL were also displayed on the Engine Indicating and Crew Alerting System (EICAS) after the pilots pressed the brake pedals.

The investigation has shown that certain failures of the MAU 3B and MAU 1A may lead to an unannounced loss of normal brakes scenario until the brake pedals are pressed by the pilots. Therefore, incorrect on ground performance factors may be applied and, due to a short time available for pilots reaction, a runway excursion event may occur.

Since this condition may affect flight safety, sufficient reason exists to request, compliance with this AD in the indicated time limit.

REQUIRED ACTION:

Modification of AFM procedures associated with *AVIONICS MAU 1A FAILURE* and *AVIONICS MAU 3B FAILURE* messages and modification of the Brake Control Module (BCM) software version as terminal action.

COMPLIANCE:

(a) AFM procedure modification

Within 10 days from August 19th 2024, the effectivity date the AD 2024-08-01, revise the Section 4 - Abnormal and Emergency Procedures of the AFM replacing the *AVIONICS MAU 1A FAILURE* and *AVIONICS MAU 3B FAILURE* existing procedures by the

following procedures:

“AVIONICS MAU 1A FAILURE

If the A-I WING FAIL message is displayed, exit/avoid icing conditions.

- NOTE:** – Do not accomplish the SHAKER ANTICIPATED Procedure.
– Do not accomplish the ANTI-ICE WING FAILURE

Verify if the normal brake is available by pressing the left seat pilot brake pedals and the right seat pilot brake pedals.

If the BRK LH FAIL and BRK RH FAIL messages are displayed:

- NOTE:** – Do not accomplish the BRAKE LH (RH) FAILURE Procedure.
– Do not accomplish the BRAKE PEDAL LH (RH) SEAT FAILURE Procedure.

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

CAUTION: – CORRECT LANDING CONFIGURATION AND LANDING DISTANCE ACCORDING TO THE FOLLOWING TABLES FOR "LANDING IN ABNORMAL CONFIGURATIONS".

- AVOID LANDING WITH CROSSWIND COMPONENTS ABOVE 10 KT.
- APPLY THE EMERGENCY/PARKING BRAKE MODERATELY UNTIL AIRPLANE DECELERATION.
- VERIFY THE EMERGENCY/PARKING BRAKE LIGHT IS ON, KEEP MONITORING THE DECELERATION AND, IF NECESSARY, ADJUST THE EMERGENCY/PARKING BRAKE LEVER.

If the BRK LH FAIL and BRK RH FAIL messages are not displayed:

- NOTE:** Do not accomplish the BRAKE LH (RH) FAULT Procedure.

On ground, apply brakes normally.

CAUTION: CORRECT LANDING CONFIGURATION AND LANDING DISTANCE ACCORDING TO THE FOLLOWING TABLES FOR "LANDING IN ABNORMAL CONFIGURATIONS".

If required, steer the airplane using differential braking (if available) and rudder.

E190-E2 – LANDING IN ABNORMAL CONFIGURATION

E190-E2 - DRY RUNWAYS - NO ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE	SLAT/FLAP – SPEED	FACTOR	
		DRY	DRY + OVSP

AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.43	1.62
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.90	2.13

E190-E2 - WET RUNWAYS - NO ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			WET	WET + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.79	2.03
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	2.38	2.67

E190-E2 - DRY RUNWAYS – WITH ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			DRY	DRY + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.42	1.61
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.93	2.15

E190-E2 - WET RUNWAYS - WITH ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			WET	WET + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.78	2.02

	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	2.42	2.69
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E195-E2 – LANDING IN ABNORMAL CONFIGURATION

E195-E2 - DRY RUNWAYS - NO ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			DRY	DRY + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.43	1.63
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.94	2.18

E195-E2 - WET RUNWAYS - NO ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			WET	WET + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.79	2.04
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	2.43	2.73

E195-E2 - DRY RUNWAYS – WITH ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			DRY	DRY + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - $V_{REF FULL} + 17$ KIAS	1.43	1.62

	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - V _{REF FULL} + 17 KIAS	1.97	2.22
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E195-E2 - WET RUNWAYS - WITH ICE ACCRETION

EMERGENCY/ABNORMAL PROCEDURE		SLAT/FLAP – SPEED	FACTOR	
			WET	WET + OVSP
AVIONICS MAU 1A FAILURE	BRK LH FAIL and BRK RH FAIL messages displayed	Slat/Flap FULL - V _{REF FULL} + 17 KIAS	1.79	2.03
	BRK LH FAULT and BRK RH FAULT messages displayed	Slat/Flap FULL - V _{REF FULL} + 17 KIAS	2.47	2.78

AVIONICS MAU 3B FAILURE

NOTE: Do not accomplish the APU FAILURE Procedure.

Press the APU emergency stop button.

Verify if the normal brake is available by pressing the left seat pilot brake pedals and the right seat pilot brake pedals.

If the BRK LH FAIL and BRK RH FAIL messages are displayed:

NOTE: Do not accomplish the BRAKE PEDAL LH (RH) SEAT FAILURE Procedure.

Accomplish the BRAKE LH (RH) FAILURE Procedure.

If the BRK LH FAIL and BRK RH FAIL messages are not displayed:

Accomplish the BRAKE LH (RH) FAULT Procedure.”

NOTE: The AFM procedures alteration required by this AD may be accomplished by inserting a copy of this AD into the Aircraft Flight Manual.

(b) Terminal action

(1) Within 12 months from the effective date of this AD, update the Break Control Module (BCM) software version according to Embraer Service Bulletin N^o 190E2-32-0023, revision 01, dated December 20th 2024, or further revisions approved by ANAC.

(2) After the update required by the paragraph (b)(1) of this AD, the modification required by the paragraph(a) of this AD can be removed.

(c) Credit for previous actions

This paragraph provides credit for the actions specified in paragraph (b)(1) of this AD, if those actions were performed before the effective date of this AD according to Embraer Service Bulletin N° 190E2-32-0023, original revision, dated December 18th 2024.

(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

You must use the Embraer Service Bulletin N. N° 190E2-32-0023, revision 01, dated December 20th 2024, or further revisions approved by ANAC to do the actions required by this AD.

Record compliance with this AD in the applicable maintenance log book.

CONTACT:

For additional technical information, contact:

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APPROVAL:

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NOTA: Original in Portuguese language signed and available in the files of the Continuing Airworthiness Technical Branch (GGCP) of the National Civil Aviation Agency (ANAC).

