

**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL****BRAZILIAN AIRWORTHINESS DIRECTIVE****AD No.: 2020-09-01****Effective Date: 08 Sep. 2020**

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. 2020-09-01 - EMBRAER / 39-1469.**APPLICABILITY:**

This Airworthiness Directive is applicable to Embraer model EMB-505 airplane, all serial numbers.

CANCELLATION / REVISION:

This AD cancels and supersedes the EAD No. 2020-01-01/ 39-1454, effective 09 Jan. 2020, retaining its requirements, and is being issued to include additional aircraft in the applicability and to introduce more restrictive requirements related to the minimal weights limits of the affected part numbers (P/Ns).

REASON:

It has been found the occurrence of corrosion in the mass-balance weights of the control surfaces. The corrosion may lead to loss of mass or detachment of the mass-balance weights, resulting in an unbalance control surface, which, in conjunction with certain flight conditions, could lead to flutter and possible loss of airplane control.

Since this condition may occur in other airplanes of the same type and affects flight safety, a corrective action is required. Thus, sufficient reason exists to request compliance with this AD in the indicated time limit.

After EAD 2020-01-01 was released, a reassessment of the unsafe condition by Embraer and, subsequently, the SB 505-55-0004, revisions 0 and 1, dated March 25th, 2020 and June 24, 2020, respectively, expanding the list of affected aircraft serial numbers (S/Ns) as well as inserting more restrictive criteria to determine the replacement of affected P/Ns.

Therefore, this AD retains the requirements of EAD 2020-01-01, which is superseded, and incorporates new applicable aircraft S/Ns and new criteria for the replacement of affected P/Ns.

REQUIRED ACTION:

(1) Cleaning and weighting, of the mass-balance weights of the elevators, ailerons and rudder, and their attachment parts, and replacement as necessary.

(2) Inclusion of the mass-balance, weights maintenance requirements, and respective execution intervals, in the approved maintenance or inspection program, as applicable.

COMPLIANCE:

Required as indicated below, unless already accomplished.

EAD 2020-01-01 requirements

For aircraft belonging to Group 1, as identified in Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020, within 3 calendar days of 5 Flight Hours (FH), whichever occurs first, after November 14, 2019 (effective date of EAD 2019-11-08), carry out the actions in paragraphs (A) to (F) of this AD.

For aircraft belonging to Group 2, as identified in Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020, within 60 calendar days or 100 FH, whichever occurs first, after November 08, 2019 (effective date of AD 2019-11-06), carry out the actions in paragraphs (A) to (F) of this AD.

For aircraft belonging to Group 3, as identified in Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020, within 30 calendar days or 50 FH, whichever occurs first, after January 09, 2020 (effective date of EAD 2020-01-01), carry out the actions in paragraphs (A) to (F) of this AD.

For all aircraft serial number, update the aircraft approved maintenance or inspection program, as applicable, to include the mass-balance weights maintenance requirements, and respective execution intervals, as new Airworthiness Limitations, according to paragraph (G) of this AD.

(A) Elevator adjustable mass-balance and attachment inspection and replacement

Inspect, replace or reinstall the elevator adjustable mass-balance weights and attachments, according to procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(B) Elevator Horn mass-balance and attachments inspection and replacement

Inspect, replace or reinstall the elevator horn mass-balance weights and attachments, according to the procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(C) Elevator internal mass-balance and attachments inspection and replacement

Inspect, replace or reinstall the elevator internal mass-balance weights and attachments, according to the procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(D) Aileron mass-balance and attachments inspection and replacement

Inspect, replace or reinstall the aileron mass-balance weights and attachments, according to the procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(E) Rudder mass-balance and attachments inspection and replacement

Inspect, replace or reinstall the rudder mass-balance weights and attachments, according to the procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(F) Rudder internal mass-balance and attachments inspection and replacement

Inspect, replace or reinstall the rudder internal mass-balance weights and attachments, according to the procedures detailed in the Embraer Service Bulletin N° 505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

(G) Updating of the Airworthiness Limitations Section

Within 10 days after January 9, 2020 (the effective EAD 2020-01-01), update the approved maintenance or inspection program, as applicable, to include the inspection tasks listed in Table 1 below as new Airworthiness Limitations requirements with initial inspection according to Table 2 below and, subsequently, at intervals of 60 MO.

Note 1: The inspection task listed in Table 1 below are currently part of Chapter 5 of the AMM - Aircraft Maintenance Manual (PART III - Schedule Maintenance Requirements (SMR)), and are being included as new Airworthiness Limitations requirements by this AD.

Table 1 - New Airworthiness Limitations Requirements

MRBP Task Number	Type	Title/Description	Applicability	I: Interval
55-20-04-001	GVI	Internal General Visual Inspection of Elevator Mass-Balance Weight and Attachments	EMB-505 (all serial numbers)	I: 60 MO
55-20-04-002	SDI	Special Detailed Inspection (Borescope Method) of Elevator Mass-Balance Weights and Attachments	EMB-505 (all serial numbers)	I: 60 MO
55-40-04-002	GVI	Internal General Visual Inspection of Rudder Adjustable Mass-Balance Weight and Attachments	EMB-505 (all serial numbers)	I: 60 MO
55-40-04-003	SDI	Special Detailed Inspection (Borescope Method) of Rudder Fixed Mass-Balance Weight and Attachments	EMB-505 (all serial numbers)	I: 60 MO
57-60-00-001	DET	External Detailed Visual Inspection of the Aileron	EMB-505 (all serial numbers)	I: 60 MO

Table 2 - Initial inspection of the tasks listed on Table 1

Aircraft age	Initial inspection
< 48 MO after new (recorded at January 9, 2020)	Before aircraft completes 60 MO
>= 48 and < 72 MO after new (recorded at January 9, 2020)	Next 12 MO after January 9, 2020 (effective date of EAD 2020-01-01) or before aircraft completes 72 MO, whichever occurs first
>= 72 MO after new (recorded at January 9, 2020)	30 days after January 9, 2020 (effective date of EAD 2020-01-01)

Note 2: Inspections performed according to Embraer Service Bulletin N° 505-55-A004, revision 2 or later until revision 6, dated March 25, 2020, count as initial inspections for the tasks listed on Table 1.

New requirements: cleaning, weighting and replacement

(H) PART I

- For aircraft pertaining to **Groups 1 and 3** of PART I, as identified in items 1.A.(1)(a) and (c), respectively, of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, within the next **12 months** after the effective date of this AD, execute the actions contained in PART I of the SB.
- For aircraft pertaining to **Group 2** of PART I, as identified in item 1.A.(1)(b), of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, execute the actions contained in PART I of the SB within the following intervals:

(a) Aircraft not included in the effectivity of superseded Service Bulletin SB505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020:

- Within the next **18 months** after the effective date of this AD for aircraft with up to 12 months of use since new (recorded at the effectivity date of this AD);

- ii. Within the next **12 months** after the effective date of this AD for aircraft in between 12 (plus one day) and 24 months of use since new (recorded at the effectivity date of this AD);
- iii. Within the next **9 months** after the effective date of this AD for aircraft in between 24 (plus one day) and 36 months of use since new (recorded at the effectivity date of this AD);
- iv. Within the next **7 months** after the effective date of this AD for aircraft in between 36 (plus one day) and 48 months of use since new (recorded at the effectivity date of this AD);
- v. Within the next **6 months** after the effective date of this AD for aircraft in between 48 (plus one day) and 60 months of use since new (recorded at the effectivity date of this AD);
- vi. Within the next **5 months** after the effective date of this AD for aircraft with more than 60 months (plus one day) of use since new (recorded at the effectivity date of this AD).

(b) Aircraft listed in the effectivity of superseded Service Bulletin SB505-55-A004 revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020:

- i. Execute the requirements of EAD 2020-01-01, retained by this AD (see section **EAD 2020-01-01 requirements** above).

(I) PART II

- 1. For aircraft pertaining to **Group 1** of PART II, as identified in item 1.A.(2)(a), of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, within the next **60 months** after the effective date of this AD, execute the actions contained in PART II of this SB.
- 2. For aircraft pertaining to **Group 2** of PART II, as identified in item 1.A.(2)(b), of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, execute the actions contained in PART II of the SB within the following intervals:

(a) Aircraft listed in the effectivity of superseded Service Bulletin SB505-55-A004 revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020.

- i. Execute the requirements of EAD 2020-01-01, retained by this AD (see section **EAD 2020-01-01 requirements** above).

(b) Aircraft not included in the effectivity of superseded Service Bulletin SB505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020:

- i. Within the next **60 months** after entry into service for aircraft with up to 59 months of use since new (recorded at the effectivity date of this AD);
- ii. Within the next **120 months** after entry into service for aircraft with more than 59 months (plus one day) of use since new (recorded at the effectivity date of this AD).

(J) PART III

- 1. For aircraft pertaining to **Group 1** of PART III, as identified in item 1.A.(3)(a), of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, execute the actions contained in PART III of the SB within the following intervals:
 - (a) Within the next **60 months** after entry into service for aircraft with up to 59 months of use since new (recorded at the effectivity date of this AD);
 - (b) Within the next **120 months** after entry into service for aircraft in between 59 (plus one day) and 119 months of use since new (recorded at the effectivity date of this AD);
 - (c) Within the next **6 months** after the effective date of this AD for aircraft with more than 119 months (plus one day) of use since new (recorded at the effectivity date of this AD).
- 2. For aircraft pertaining to **Group 2** of PART III, as identified in item 1.A.(3)(b), of Service Bulletin Embraer N° SB505-55-0004, revision 1, dated June 24, 2020, execute the actions contained in PART III of the SB within the following intervals:

(a) Aircraft listed in the effectivity of superseded Service Bulletin SB505-55-A004 revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020:

i. Execute the requirements of EAD 2020-01-01, retained by this AD (see section **EAD 2020-01-01 requirements** above).

(b) Aircraft not included in the effectivity of superseded Service Bulletin SB505-55-A004, revision 5, dated December 12, 2019, or revision 6, dated March 25, 2020:

i. Within the next **60 months** after entry into service for aircraft with up to 59 months of use since new (recorded at the effectivity date of this AD);

ii. Within the next **120 months** after entry into service for aircraft with more than 59 months (plus one day) of use since new (recorded at the effectivity date of this AD).

(K) Alternative methods of compliance (AMOCs)

A different method or a different compliance time, with the requirements of this AD, may be use if approved by General Manager of the Aeronautical Product Certification Branch (GGCP).

(L) Service information

The detailed instructions and procedures to accomplish the requirements contained in paragraphs (A) through (F) of this AD are described in Embraer Service Bulletin N° 505-55-A004, revisions 5 or 6, dated December 12, 2019, and March 25, 2020, respectively.

The detailed instructions and procedures to accomplish the requirements contained in paragraphs (H) through (J) of this AD are described in Embraer Service Bulletin N° 505-55-0004, revision 1, dated June 24, 2020, or later revisions approved by ANAC.

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

(M) Credit for previous actions

This paragraph provides credit for the actions specified in paragraphs (A) through (F) of this AD, if those actions were performed before the effective date of this AD using Embraer Service Bulletin N° 505-55-A004, revision 2 or later until revision 6, dated March 25, 2020.

This paragraph provides credit for the initial inspections specified on the Table 2, paragraph (G) of this AD, if those inspections were performed before the effective date of this AD using Embraer Service Bulletin N° 505-55-A004, revision 2 or later until 6, dated March 25, 2020.

This paragraph provides credit for the actions specified in paragraphs (H) through (J) of this AD, if those actions were performed before the effective date of this AD using Embraer Service Bulletin N° 505-55-0004, revision 0, dated March 25, 2020.

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NOTA: Original in Portuguese language signed and available in the files of the Aeronautical Product Certification Branch (GGCP) of the National Civil Aviation Agency (ANAC).

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