



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL

## BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2025-04-01

Effective Date: 15 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. 2025-04-01 - EMBRAER / 39-1579.**

#### **APPLICABILITY:**

This Airworthiness Directive (AD) applies to Embraer S.A. airplanes model EMB-505, as identified in Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024.

#### **CANCELLATION / REVISION:**

Not applicable.

#### **REASON:**

It has been found the possibility of some airplanes may have invalid Horizontal Stabilizer (HS) backlash test results approved to the flight operations due to incorrect procedures. Excessive backlash may result in an aeroelastic phenomenon exposing the surrounding structure and systems to unacceptable vibration levels and reducing the airplane controllability.

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.

#### **REQUIRED ACTION:**

Inspection of the airplane horizontal stabilizers and rework, as applicable, of some attachment parts and of the pitch trim actuators, as well.

#### **COMPLIANCE:**

Required as indicated below, unless already accomplished.

Table 1 - Affected airplanes and applicable intervals.

Affected airplanes.	Applicable intervals.
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<p>Airplanes classified as Group 1 of the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.</p>	<p>Within the next 12 months or 750 flight hours (FH) after the effective date of this AD, whichever occurs first, accomplish the paragraphs <b>(a)</b> thru <b>(f)</b> of this AD, as applicable.</p>
<p>Airplanes classified as Group 2 of the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.</p>	<p>Within the next 24 months or 1000 FH after the effective date of this AD, whichever occurs first, accomplish the paragraphs <b>(a)</b> thru <b>(f)</b> of this AD, as applicable.</p>

**(a) Inspection of the airplane HS backlash.**

(1) Carry out a Functional Check of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

(i) If the backlash measure in the roll axis and in the pitch axis of the Right Hand (RH) and Left Hand (LH) side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees) no action is required at this time.

(ii) If the backlash measure in the roll axis of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(b)** of this AD.

(iii) If the backlash measure in the pitch axis of the RH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(d)** of this AD.

(iv) If the backlash measure in the pitch axis of the LH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(e)** of this AD.

**NOTE 1:** For the purposes of this AD, a Functional Check (FNC) is defined as follows.

**Functional Check (FNC):** A quantitative check to determine if one or more functions of an item performs within specified limits.

**(b) Replacement of the attachment parts of the LH hinge points that attach the HS surface to the Vertical Stabilizer (VS) surface of the airplane.**

(1) Replace the attachment parts of the LH hinge point that attach the HS surface to the VS surface of the airplane, installing new pins with Part Number (P/N) 505-10985-603, new bushings with P/N 505-10857-005, new washers with P/N 145-24985-001, new nuts with P/N MS14145-L20 and new cotter pins with P/N MS24665-311 of the LH hinge point, that attach the HS surface to the VS surface.

(2) Carry out a FNC of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

(i) If the backlash measure in the roll axis and in the pitch axis of the RH and LH side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees) no action is required at this time.

(ii) If the backlash measure in the roll axis of the airplane HS is more than  $0.034^{\circ}$

(degrees), accomplish the paragraph **(c)** of this AD.

**(iii)** If the backlash measure in the pitch axis of the RH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(d)** of this AD.

**(iv)** If the backlash measure in the pitch axis of the LH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(e)** of this AD.

**(c) Replacement of the attachment parts of the RH hinge points that attach the HS surface to the VS surface of the airplane.**

**(1)** Replace the attachment parts of the RH hinge point that attach the HS surface to the VS surface of the airplane, installing new pins with Part Number (P/N) 505-10985-603, new bushings with P/N 505-10857-005, new washers with P/N 145-24985-001, new nuts with P/N MS14145-L20 and new cotter pins with P/N MS24665-311 of the RH hinge point, that attach the HS surface to the VS surface.

**(2)** Carry out a FNC of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

**(i)** If the backlash measure in the roll axis and in the pitch axis of the RH and LH side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees), no action is required at this time.

**(ii)** If the backlash measure in the pitch axis of the RH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(d)** of this AD.

**(iii)** If the backlash measure in the pitch axis of the LH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(e)** of this AD.

**(d) Replacement of the RH attachment parts that attach the pitch trim actuator upper rod-end to the HS and lower lug to the airplane structure.**

**(1)** Replace the RH attachment parts that attach the pitch trim actuator upper rod-end to the HS, installing new bolts with P/N NAS6208-23D, new washers with P/N NAS1149F0832P, new bushing with P/N 505-10858-001, new castellated nuts with P/N MS14145L8 and new cotter pins with P/N MS24665-319, that attach the pitch trim actuator upper rod-end to the HS.

**(2)** Replace the RH attachment parts that attach the pitch trim actuator lower lug to the airplane structure, installing new bolt with P/N NAS6208-23D, new washers with P/N NAS1149F0832P, new bushings with P/N 505-10858-001, new castellated nuts with P/N MS14145L8 and new cotter pins with P/N MS24665-319, that attach the pitch trim actuator lower lug to the airplane structure.

**(3)** Carry out a FNC of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

**(i)** If the backlash measure in the roll axis and in the pitch axis of the RH and LH side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees), no action is required at this time.

**(ii)** If the backlash measure in the pitch axis of the RH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(d)** of this AD.

**(iii)** If the backlash measure in the pitch axis of the LH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph **(e)** of this AD.

**(e) Replacement of the LH attachment parts that attach the pitch trim actuator upper rod-end to the HS and lower lug to the airplane structure.**

(1) Replace the LH attachment parts that attach the pitch trim actuator upper rod-end to the HS, installing new bolts with P/N NAS6208-23D, new washers with P/N NAS1149F0832P, new bushing with P/N 505-10858-001, new castellated nuts with P/N MS14145L8 and new cotter pins with P/N MS24665-319, that attach the pitch trim actuator upper rod-end to the HS.

(2) Replace the LH attachment parts that attach the pitch trim actuator lower lug to the airplane structure, installing new bolt with P/N NAS6208-23D, new washers with P/N NAS1149F0832P, new bushings with P/N 505-10858-001, new castellated nuts with P/N MS14145L8 and new cotter pins with P/N MS24665-319, that attach the pitch trim actuator lower lug to the airplane structure.

(3) Carry out a FNC of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

(i) If the backlash measure in the roll axis and in the pitch axis of the RH and LH side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees), no action is required at this time.

(ii) If the backlash measure in the pitch axis of the LH and/or RH side of the airplane HS is more than  $0.034^{\circ}$  (degrees), accomplish the paragraph (f) of this AD.

**(f) Replacement of the pitch trim actuators.**

(1) Install the new pitch trim actuators with P/N 467500-1003.

(2) Carry out a FNC of the airplane HS backlash according to the detailed instructions and procedures described in the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC.

(i) Make sure that the backlash measure in the roll axis and in the pitch axis of the RH and LH side of the airplane HS are all equal to or less than  $0.034^{\circ}$  (degrees).

**(g) Credit for previous actions.**

This paragraph provides credit for the actions specified in the paragraphs (a) thru (f) of this AD, if those actions were performed before the effective date of this AD using the Embraer Service Bulletin (SB) No. 505-27-0034, original issue, dated September 19, 2024, or the Embraer Service Bulletin (SB) No. 505-27-0034, revision 01, dated October 04, 2024, or the; since the airplane maintenance records clearly identify that the actions required by the paragraphs (a) thru (f) of this AD, as applicable, have been complied with.

**(h) Alternative methods of compliance (AMOCs).**

A different method or a different compliance time, with the requirements of this AD, maybe used if approved by the Manager of the Continuing Airworthiness Technical Branch (GTAC) of ANAC.

**(i) Material incorporated by reference.**

You must use the Embraer Service Bulletin N. 505-27-0034, revision 02, dated December 06, 2024; or further revisions approved by ANAC, to do the actions required by this AD, unless this AD specifies otherwise.

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 (GTAC) of the National Civil Aviation Agency (ANAC).

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**Referência:** Processo nº 00066.015156/2024-14

SEI nº 10937281