



**AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL**

## **BRAZILIAN AIRWORTHINESS DIRECTIVE**

**AD No.: 2020-04-01R02**

**Effective Date: 02 Nov. 2023**

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. 2020-04-01R02 - (EMBRAER) / 39-1534.**

#### **APPLICABILITY:**

(a) This Airworthiness Directive (AD) applies to Embraer S.A. airplanes model EMB-545 and EMB-550 airplanes equipped with cockpit side window Left Hand (LH) side with Part Number (P/N) NP-200402-1 or P/N NP-200402-5 or cockpit side window Right Hand (RH) side with P/N NP-200402-2 or P/N NP-200402-6, as identified in Embraer Service Bulletin N. 550-56-0001, original revision, dated July 18, 2019.

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

This AD cancels and supersedes the AD No. 2020-04-01, revision 01 - EMBRAER/39-1461, dated 22 May. 2020, and is being issued due to premature failures on windows with P/N NP-200402-7 or P/N NP-200402- 8 that may lead to in-flight depressurization event.

#### **REASON:**

It has been found occurrences of cracks, delamination, and failure of the cockpit side windows during the certification fatigue tests. The presence of delamination or any other damage may impair the detection of existing cracks. The cracks may cause the cockpit side windows failure leading to an in-flight depressurization event.

AD 2020-04-01R01, dated May 22, 2020, requires inspection and replacement of cockpit LH and RH side windows with the P/N NP-200402-7 or P/N NP-200402-8, as applicable, in case any crack is detected. In addition, the AD 2020-04-01R01 requires the replacement of cockpit LH and RH side windows with the P/N NP 200402-7 or P/N NP-200402-8 before the airplane logs 3,400 Flight Cycles Since New.

The new P/Ns made mandatory by the previous revisions of this DA have not had the expected effect on the fleet as it has been found occurrences of premature cracks in the outer layer of windows with P/N NP200402-7 or P/N NP-200402-8. These cracks may be undetected, and the inner layer may be subjected to unpredicted loads for several flights, which may result in window failure and subsequent in-flight depressurization events.

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

**REQUIRED ACTION:**

Inspection and replacement of the cockpit side windows LH and RH of the airplane by modified side windows with new P/N.

**COMPLIANCE:**

Required as indicated below, unless already accomplished.

**(b) Initial and repetitive inspection of the cockpit LH and RH side windows.**

**(1)** For airplanes identified in paragraph (a) of this AD, before they log 750 Flight Hours Since New (FHSN) or within the next 50 Flight Cycles (FC) after April 17th, 2020, the effective date of the original issue of AD 2020-04-01, whichever occurs later; carry out a detailed inspection (DET) for cracks, delamination or any other damage according to the Task 56-12-00-200-801-A Detailed Inspection of Cockpit Side Window, revision 36 dated May 15th, 2020; as published on Aircraft Maintenance Manual AMM-5613, Part II (Maintenance Practices and Procedures-MPP), or further revisions of this task approved by ANAC.

**(i)** In case any crack is detected, before the next flight, replace the damaged window with a modified window with a new P/N NP-200402-9 or P/N NP-200402-10, as applicable.

**(ii)** In case of interlayer delamination or any other damage at the region around the bolt holes, which does not allow for proper perform inspection for the existence of cracks, before the next flight, replace the damaged window with a modified window with a new P/N NP-200402-9 or P/N NP200402-10, as applicable

**(iii)** In case of no crack, delamination, or any other damage, no action is required at this time.

**(2)** Repeat the required inspections of paragraph (b)(1) of this AD at each 750 Flight Hours (FH).

**NOTE 1:** For the purpose of this AD, a Detailed Inspection (DET) is an intensive examination of a specific item, installation or assembly to detect damage, failure or irregularity. This could include tactile assessment in which a component or assembly can be checked for tightness/security. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors and magnifying lenses may be necessary. Surface cleaning and elaborate access procedures may be required.

**NOTE 2:** The required inspection by this AD works best at night using a flashlight.

**(c) Replacement of cockpit LH and RH side windows.**

For airplanes identified in paragraph (a) of this AD, before the airplane logs 3,400 Flight Cycles Since New (FCSN), replace the cockpit LH and RH side windows with a new P/N NP-200402-9 or P/N NP-200402- 10, as applicable.

**(d) Prohibition of new installations.**

After the effective date of this AD it is forbidden to install side windows on the airplane with P/N NP-200402-1, P/N NP-200402-2, P/N NP-200402-5, P/N NP-200402-6, P/N NP-200402-7, and P/N NP-200402-8.

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

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

**(f) Service information.**

You must use Embraer Service Bulletin N. 550-56-0001, original issue, dated July 18, 2019; or further revisions approved by the ANAC and the Task 56-12-00-200-801-A Detailed Inspection of Cockpit Side Window, revision 36 dated May 15, 2020, as published on Aircraft Maintenance Manual AMM-5613, Part II (Maintenance Practices and Procedures-MPP) or further revisions of this task approved by ANAC; to do the actions required by this AD

Record compliance with this AD in the applicable maintenance documents.

**CONTACT:**

For additional technical information, contact:

National Civil Aviation Agency (ANAC)

Continuing Airworthiness Technical Branch (GTAC)

Rua Doutor Orlando Feirabend Filho, nº 230 - Centro Empresarial Aquárius - Torre B Parque Residencial Aquárius

CEP 12246-190 - São José dos Campos, SP - BRAZIL

E-mail: pac@anac.gov.br

**APPROVAL:**

ROBERTO JOSÉ SILVEIRA HONORATO

Head of Department

Airworthiness Department

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