



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL - BRAZIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2020-01-02R3

Effective Date: 17 Oct. 2024

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. 2020-01-02R3 - EMBRAER / 39-1570.

APPLICABILITY:

(a) This Airworthiness Directive (AD) applies to Embraer S.A. airplanes, as specified in paragraphs (a)(1) thru (a)(3) of this AD.

(1) Model ERJ 170-100 LR, ERJ 170-100 SE, ERJ 170-100 STD, ERJ 170- 100 SU, ERJ 170-200 LL, ERJ 170-200 LR, ERJ 170-200 STD, and ERJ 170-200 SU airplanes, as identified in Embraer Service Bulletin N. 170-54-0015, revision 01, dated April 06, 2016.

(2) Model ERJ 190-100 STD, ERJ 190-100 LR, ERJ 190-100 IGW, ERJ 190- 100 SR, ERJ 190-200 STD, ERJ 190-200 LR, and ERJ 190-200 IGW airplanes, as identified in Embraer Service Bulletin N. 190-54-0018, original issue, dated November 26, 2018.

(3) Model ERJ 190-100 ECJ airplanes, as identified in Embraer Service Bulletin N. 190LIN-54-0009, original issue, dated June 24, 2019.

CANCELLATION / REVISION:

This AD cancels and supersedes the AD No. 2020-01-02R2 / 39-1567, dated July 12, 2024, and is being issued to include terminal actions to the repetitive inspections.

REASON:

It has been found the occurrences of cracks on the Left Hand (LH) and Right Hand (RH) sides of engine pylon inboard lower link lugs, which may cause the loss of engine pylon integrity. The loss of integrity of the engine pylon can result in engine separation from the wing affecting the airplane controllability and/or causing injury to persons on ground.

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

REQUIRED ACTION:

Inspection, repair and modification, as applicable, of LH and RH engine inboard and outboard pylon lower link lugs.

COMPLIANCE:

Required as indicated below, unless already accomplished.

(b) Initial inspection, repair and modification of LH and RH engine inboard and outboard pylon lower link lugs.

(1) For airplanes identified in paragraph **(a)(1)** of this AD, carry out a Special Detailed Inspection - SDI for cracks on the LH and RH inboard and outboard engine pylon lower link lugs, according to the table below:

Airplane Model	Embraer Service Bulletin N. <u>170-54-0018</u> , original revision, dated October 30, 2023; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>170-54-0020</u> , original revision, dated February 28, 2024; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>170-57-0058</u> , original revision, dated May 21, 2014; or further revisions approved by ANAC	Threshold
ERJ 170-100 / ERJ 170-200	PRE-MOD	PRE-MOD	N/A or PRE-MOD	13,214 FC ^[1] or 17,575 FH ^[2] , whichever occurs first
ERJ 170-200	PRE-MOD	PRE-MOD	POST-MOD	11,500 FC ^[3] or 15,295 FH ^[4] , whichever occurs first
ERJ 170-100 / ERJ 170-200	PRE-MOD	POST-MOD ^[5]	N/A or PRE-MOD	31,000 FC or 41,230 FH, whichever occurs first
ERJ 170-200	PRE-MOD	POST-MOD ^[5]	POST-MOD	22,875 FC or 30,242 FH, whichever occurs first
ERJ 170-100 / ERJ 170-200	POST-MOD	PRE-MOD or POST-MOD	PRE-MOD or POST-MOD ^[5]	40,000 FC or 53,200 FH, whichever occurs first
ERJ170-200 with winglet	PRE-MOD	PRE-MOD or POST-MOD ^[5]	N/A	17,849 FC or 23,739 FH, whichever occurs first
ERJ170-200 with winglet	POST-MOD	PRE-MOD or POST-MOD	N/A	40,000 FC or 53,200 FH, whichever occurs first

[1] For airplanes that have reached at least 8,484 FC in the effective date of the revision 3 of this AD, before the next 4.730 FC

[2] For airplanes that have reached at least 11,275 FH in the effective date of the revision 3 of this AD, before the next 6.300 FH

[3] For airplanes that have reached at least 7,280 FC in the effective date of the revision 3 of this AD, before the next 4.220 FC

[4] For airplanes that have reached at least 9,685FH in the effective date of the revision 3 of this AD, before the next 5.610 FH

[5] Threshold from the date of application of the Service Bulletin

(i) If there is any crack on these inspected structural members, before the next flight, the ANAC and Embraer must be contacted to approve an adequate repair according to the paragraph **(g)(1)** of this AD.

(ii) If there is no crack on these inspected structural members, no maintenance action is

required by this paragraph.

(2) For airplanes identified in paragraph (a)(2) of this AD, carry out a Special Detailed Inspection - SDI for cracks on the LH and RH inboard and outboard engine pylon lower link lugs, according to the table below:

Airplane Model	Embraer Service Bulletin N. <u>190-54-0020</u> , revision 02, dated April 06, 2023; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>190-54-0022</u> , revision 01, dated May 16, 2024 ; or further revisions approved by ANAC	Threshold
ERJ 190-100 / ERJ 190-200	PRE-MOD	PRE-MOD	14,285 FC ^[1] or 19,000 FH ^[2] , whichever occurs first
ERJ 190-100 / ERJ 190-200	PRE-MOD	POST-MOD	16,300 FC ou 21,700 FH, whichever occurs first ^[3]
ERJ 190-100 / ERJ 190-200	POST-MOD	PRE-MOD ou POST-MOD	40,000 FC ou 53,200 FH, whichever occurs first

[1] For airplanes that have reached at least 13,710 FC in the effective date of the revision 3 of this AD, before the next 575 FC

[2] For airplanes that have reached at least 18,240 FH in the effective date of the revision 3 of this AD, before the next 760 FH

[3] From the date of application of the Service Bulletin

(i) If there is any crack on these inspected structural members, before the next flight, the ANAC and Embraer must be contacted to approve an adequate repair according to the paragraph (g)(1) of this AD.

(ii) If there is no crack on these inspected structural members, no maintenance action is required by this paragraph.

(3) For airplanes identified in paragraph (a)(3) of this AD and that have reached at least 10,000 FH, before the next 250 FH after 28 January 2020, the effective date of original revision of this AD, or the airplane have reached 10,250 FH, whichever occurs later, carry out a DET for cracks on the LH and RH inboard and outboard engine pylon lower link lugs.

(i) If there is any crack on these inspected structural members, before the next flight, the ANAC and Embraer must be contacted to approve an adequate repair according to the paragraph (g)(1) of this AD.

(ii) If there is no crack on these inspected structural members, no maintenance action is required by this paragraph.

NOTE 1: Inspection intervals defined in paragraphs (b)(1) to (b)(3) are associated with the pylon configuration. The inspections may be carried out and controlled on each pylon.

NOTE 2: For the purposes of this AD, a Detailed Inspection (DET) is defined as follows.

Detailed Inspection (DET): 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 3: For the purposes of this AD, a Special Detailed Inspection (SDI) is defined as follows.

Special Detailed Inspection (SDI): An examination of a specific item, installation, or assembly making use of specialized inspection techniques such as Nondestructive Testing (NDT) and/or equipment (e.g. boroscope, videoscope, tap test) to detect damage, failure or irregularity. Intricate cleaning and substantial access or disassembly procedures may be required. Classification of a task as an SDI does not define the required qualifications for the person performing the task.

(c) Repetitive inspections

(1) For the airplanes identified in paragraph **(a)(1)** of this AD, repeat the inspections required by the paragraph **(b)(1)** of this AD, according to the table below:

Airplane Model	Embraer Service Bulletin N. <u>170-54-0018</u> , original revision, dated October 30, 2023; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>170-54-0020</u> , original revision, dated February 28, 2024; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>170-57-0058</u> , original revision, dated May 21, 2014; or further revisions approved by ANAC	Interval
ERJ 170-100 / ERJ 170-200	PRE-MOD	PRE-MOD	N/A or PRE-MOD	4,730 FC ou 6,300 FH, whichever occurs first
ERJ 170-200	PRE-MOD	PRE-MOD	POST-MOD	4,220 FC ou 5,610 FH, whichever occurs first
ERJ 170-100 / ERJ 170-200	PRE-MOD	POST-MOD	N/A or PRE-MOD	4,730 FC ou 6,300 FH, whichever occurs first
ERJ 170-200	PRE-MOD	POST-MOD	POST-MOD	4,220 FC ou 5,610 FH, whichever occurs first
ERJ 170-100 / ERJ 170-200	POST-MOD	PRE-MOD or POST-MOD	PRE-MOD	20,000 FC ou 26,600 FH, whichever occurs first
ERJ 170-100 / ERJ 170-200	POST-MOD	PRE-MOD or POST-MOD	POST-MOD	17,300 FC FC ou 23,000 FH, whichever occurs first
ERJ170-200 with winglet	PRE-MOD	PRE-MOD ou POST-MOD	N/A	2,630 FC ou 3,500 FH, whichever occurs first
ERJ170-200 with winglet	POST-MOD	PRE-MOD ou POST-MOD	N/A	14,100 FC ou 18,750 FH, whichever occurs first

(2) For the airplanes identified in paragraph **(a)(2)** of this AD, repeat the inspections

required by the paragraph **(b)(2)** of this AD, according to the table below:

Airplane Model	Embraer Service Bulletin N. <u>190-54-0020</u> , revision 02, dated April 06, 2023; or further revisions approved by ANAC	Embraer Service Bulletin N. <u>190-54-0022</u> , revision 01, dated May 16, 2024 ; or further revisions approved by ANAC	Intervalo
ERJ 190-100 / ERJ 190-200	PRE-MOD	PRE-MOD	575 FC ou 760 FH , o que ocorrer primeiro
ERJ 190-100 / ERJ 190-200	PRE-MOD	POST-MOD	1,837 FC ou 2,443 FH, o que ocorrer primeiro
ERJ 190-100 / ERJ 190-200	POST-MOD	PRE-MOD or POST-MOD	13,750 FC ou 18,300 FH, o que ocorrer primeiro

(3) For the airplanes identified in paragraph **(a)(3)** of this AD, repeat the inspections required by the paragraph **(b)(3)** of this AD at intervals not exceeding 250 FH

(d) Termination actions

(1) For the airplanes identified in paragraph **(a)(1)** of this AD, revision to the maintenance or inspection program, incorporating “Embraer 170/175 - MRB-1621 Appendix A - Temporary Revision TR19-1” and “Embraer 170/175 - MRB-1621 Appendix A - Temporary Revision TR19-2”, or further revisions approved by ANAC terminates the repetitive inspections required by paragraph **(c)(1)**.

(2) For the airplanes identified in paragraph **(a)(2)** of this AD, revision to the maintenance or inspection program, incorporating “Embraer 190/195 - MRB-1928 Appendix A - Revision 18”, dated September 13, 2023, or further revisions approved by ANAC, terminates the repetitive inspections required by paragraph **(c)(2)**.

(3) For the airplanes identified in paragraph **(a)(3)** of this AD, revision to the maintenance or inspection program, incorporating “Embraer ERJ 190-100 ECJ - MPG-2928 Appendix A - Revision 12”, dated October 31, 2023, or further revisions approved by ANAC, terminates the repetitive inspections required by paragraph **(c)(3)**.

(e) Credit for previous actions

This paragraph provides credit for the actions specified in paragraph **(b)** of this AD. No further action is required per paragraph **(b)** of this AD if the actions specified in paragraph **(b)** of this AD were performed before July 18, 2023, the effective date of AD 2020-01-02R1, in accordance with:

(1) Embraer Service Bulletin N. 170-54- 0015, original issue, dated September 22, 2015 for paragraph **(b)(1)**.

(2) Embraer Service Bulletin N. 190-54- 0020, original revision, dated June 20, 2022 or Embraer Service Bulletin N. 190-54- 0020, revision 01, dated September 02, 2022 for paragraphs **(b)(2)** or **(b)(3)**.

(f) Compliance time clarification.

For compliance times identified in paragraph **(b)** of this AD that specify flight hours or

flight cycles, and the affected structure (engine pylon inboard lower link lug) is a removable structural component, those compliance times must be measured on the affected structure since its first installation on any airplane, regardless of what the airframe as a whole has accumulated. If the flight hours or flight cycles on the affected structure are not available or cannot be determined, use the airframe total flight hours or flight cycles for the compliance times identified in paragraph **(b)** of this AD.

(g) Alternative methods of compliance (AMOCs).

(1) A repair performed according to the Structural Repairs Manual or Embraer Service Bulletins referenced in paragraph (h) of this AD is considered approved by ANAC. For other methods, an approved Alternative Method of Compliance with this Airworthiness Directive, which provides an acceptable level of safety, must be used for any required repair if any crack on inspected structural parts is found.

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

(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.

(3) 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

(h) Material incorporated by reference.

Use the service information provided by the following documents, as applicable, to perform the required actions required by this AD, unless the AD indicates a different method:

(1) Embraer Service Bulletin N. 170-54-0015, revision 01, dated April 06, 2016, or further revisions approved by ANAC.

(2) Embraer Service Bulletin N. 170-57-0058, original revision, dated May 21, 2014; or further revisions approved by ANAC.

(3) Embraer Service Bulletin N. 170-54-0018, original revision, dated October 30, 2006; or further revisions approved by ANAC.

(4) Embraer Service Bulletin N. 170-54-0020, original revision, dated February 28, 2024; or further revisions approved by ANAC.

(5) Embraer Service Bulletin N. 190-54-0018, original revision, dated November 26, 2018, or further revisions approved by ANAC.

(6) Embraer Service Bulletin N. 190-54-0020, revision 02, dated April 06, 2023, or further revisions approved by ANAC.

(7) Embraer Service Bulletin N. 190-54-0022, revision 01, dated May 16, 2024, or further revisions approved by ANAC.

(8) Embraer Service Bulletin N. 190LIN-54-0009, original issue, dated June 24, 2019, or further revisions approved by ANAC.

(9) Appendix A, Airworthiness Limitations, of the "Embraer 170/175 Maintenance Review Board Report, MRB-1621, Temporary Revision 19-1" and "Embraer 170/175 - MRB-1621 Appendix A – Temporary Revision TR19-2", or further revisions approved by ANAC.

(10) Appendix A, Airworthiness Limitations, of the Embraer 190/195 Maintenance Review

Board Report, MRB-1928, Revision 18, dated September 13, 2023, or further revisions approved by ANAC.

(11) Appendix A, Airworthiness Limitations, of the Embraer ERJ 190-100 ECJ Maintenance Planning Guide, MPG-2928, Revision 12, dated October 31, 2023, or further revisions approved by ANAC.

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

CONTACT:

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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).