

**NOTICE OF PROPOSED REGULATION  
BRAZILIAN AIRWORTHINESS DIRECTIVES**

**REPÚBLICA FEDERATIVA DO BRASIL  
AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – ANAC  
Gerência Geral de Certificação de Produto Aeronáutico**

**Reference:** NPR/AD 2015-120-02

**Date:** 08 Dec. 2015

*In accordance with the provisions of RBAC 11, The Aeronautical Product Certification Branch (GGCP) is proposing the issuance of a Brazilian Airworthiness Directive applicable to the aeronautical product referred below.*

*All interested persons may send their comments until the date specified in item 2, indicating the **Reference** above, to the following address, fax-number or email address:*

*National Civil Aviation Agency (ANAC) - Aeronautical Product Certification Branch (GGCP)  
Rua Laurent Martins, 209 – Jardim Esplanada II  
12.242-431 – São José dos Campos - SP - Brazil - E-mail: pac@anac.gov.br*

**1. Proposer:** Engineering Branch of Aeronautical Product Certification Branch.

**2. Comments:** Must be received until 08 Jan. 2016.

**APPLICABILITY:**

This AD applies to Embraer S.A. model EMB-120, EMB-120RT, EMB-120ER, EMB-120FC, and EMB-120QC airplanes, all serial numbers.

**Note:** This AD requires revisions to certain operator maintenance documents to include new inspections. Compliance with these inspections is required by Regulamento Brasileiro da Aviação Civil (RBAC) 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by these inspections, the operator may not be able to accomplish the inspections described in the revisions. In this situation, to comply with RBAC 91.403(c), the operator must request approval for an alternative method of compliance according to paragraph (e) of this AD. The request should include a description of changes to the required inspections that will ensure the continued damage tolerance of the affected structure.

**CANCELLATION / REVISION:**

Not applicable.

**REASON:**

This AD was prompted by a structural evaluation of the impacts of extended service goal activities on Embraer S.A. model EMB-120 airplanes. We are issuing this AD to prevent reduced structural integrity of these airplanes due to fatigue cracking.

Since this condition exists in other aircraft 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:**

Revision of Maintenance or Inspection Plan, inspections and modifications on airplane structure, as applicable.

**COMPLIANCE:**

Required as indicated below, unless already accomplished.  
Comply with this AD within the compliance times specified, unless already done.

**(a) Revision of Maintenance or Inspection Program**

(1) Within 90 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to incorporate the inspection tasks with the thresholds and intervals stated in table 1 of this AD.

(2) The initial compliance times for the tasks specified in table 1 of this AD starts from the applicable threshold specified in table 1 of this AD, or within 600 flight cycles after the effective date of this AD, whichever occurs later.

**Table 1: Threshold and intervals for new/revised airworthiness limitation inspections**

Identif. No.	Task	Task Description	Freq.	SSI No.	Access
5320-141-05I 142	NDT SFT	Special detailed inspection, Eddy current, high frequency, on the fuselage central section I skin panels splices between the frames 22 and 23 and between the stringers 16 and 17, LH /RH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	Note	53-20-06	244 AF/ BF/CF/DF 243 AF/ BF/CF/DF
5320-253-04I 254	NDT SFT	Special detailed inspection, eddy current high frequency, on the fuselage central section II skin panels splices between the frames 37 and 38 and between the stringers 2 and 3, LH/RH. Require the fuselage interior lining panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-18	251AW/B W/CW/E W/FW/G W 252BW/C W/DW/E W/FW
5310-131-05I 132	DET SFT	Internal visual detailed inspection on the fuselage forward section III skin panels splices between the stringers 18 and 19 LH and stringers 15 and 16 RH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-10-21	231AF/BF CF/DF/EF 232AF/BF CF/DF
5310-232-05I	DET SFT	Internal visual detailed inspection on the fuselage forward section III skin panels splices between the stringers 1 and 2 RH. Require the fuselage interior lining panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-10-21	232 CW/ DW/EW
5320-141-06I 142	DET SFT	Internal visual detailed inspection on the fuselage central section I skin panels splices between the stringers 16 and 17, LH/RH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-06	244 AF/ BF/CF/DF 243 AF/ BF/CF/DF

Identif. No.	Task	Task Description	Freq.	SSI No.	Access
5320-147-04I 148	DET SFT	Internal visual detailed inspection on the fuselage central section I skin panels splices between the stringers 16 and 17, LH/RH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-06	243 AF/ BF/CF/DF 244 AF/ BF/CF/DF
5320-241-02I 242	DET SFT	Internal visual detailed inspection on the fuselage central section I skin panels splices between the stringers 12 and 13, LH/RH. Require the seats, the fuselage interior linings and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-06	241BW/C W/ DW/EW 242BW/C W/ EW
5320-245-06I 246	DET SFT	Internal visual detailed inspection on the fuselage central section I skin panels splices between the stringers 4 and 5, LH/RH. Require the fuselage interior linings and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-06	241BW/C W/DW/E W242BW/ CW/EW 243AW/B W/ 244AW 252AW
5320-151-02I	DET SFT	Internal visual detailed inspection on the fuselage central section II skin panels splice between the stringers 16 and 17 LH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC	NOTE	53-20-18	251AF/ BF/CF/DF/ EF/FF
5320-152-03I	DET SFT	Internal visual detailed inspection on the fuselage central section II skin panels splice between the stringers 17 and 18 RH. Require the seats, the fuselage floor panels and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-18	252CF/DF/ EF/FF/
5320-251-03I 252	DET SFT	Internal visual detailed inspection on the fuselage central section II skin panels splices between the stringers 10 and 11, LH/RH. Require the seats, the fuselage interior linings and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-18	251AW/ BW/ CW/EW/ FW/GW 252BW/ CW/ DW/EW/F W

Identif. No.	Task	Task Description	Freq.	SSI No.	Access
5320-253-05I 254	DET SFT	Internal visual detailed inspection on the fuselage central section II skin panels splices between the stringers 2 and 3, LH/RH. Require the fuselage interior linings and thermo-acoustic isolation removals; NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	53-20-18	251AW/B W/CW/E W/FW/G W 252BW/C W/DW/E W/FW
5720-521-03E 621 522 622	NDT SFT	Special detailed for front spar lower cap hidden details, using eddy current, low frequency on wing lower skin, between ribs 8 to 10(zone 521 / 621/ 522 / 622).  NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC. The skin fasteners under the L profile at the ribs 10 and 14, between the Front and auxiliary spars, will be inspected through Special detailed for skin hidden details. Inspection Method: Ultrasonic NDI Ref.: 57-20-00, Part 2, pages1 to 8.	NOTE	57-20-21	
5720-541-03E 641 551 651	NDT SFT	Special detailed for front spar lower cap hidden details, using eddy current, low frequency on wing lower skin, between ribs 14 to 15(zone 541 / 641 / 551/651).  NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC. The skin fasteners under the L profile at the ribs 10 and 14, between the Front and auxiliary spars, will be inspected through Special detailed for skin hidden details. Inspection Method: Ultrasonic NDI Ref.: 57-20-00, Part 2, pages1 to 8.	NOTE	57-20-21	
5720-531-05I 631	SDI SFT	Special detailed for front spar lower cap, using borescope between ribs 10 to 14.  NOTE: Threshold inspection at 40,000 FC and subsequent inspections every 4,000 FC.	NOTE	57-20-21	531AB 631AB

5710-143-2I 144	DET SFT	Detailed inspection with magnifying glass at wing-to fuselage fitting.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC - The first inspection after aircraft reaches 60,000 FC must be performed following the 32,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	32,000 FC NOTE	57-10-10 57-10-16 57-10-17 57-10-24	191/193/ 195/1911 /1912 243AF/BF CF/DF/A W 251BW
5710-144-01E	DET SFT	Wing center section lower skin panel and access openings from CL rib 3. Requires lower CL 197 fairing removal.	1,100 FC	57-10-01 57-10-02 57-10-11 55-10-18	197
5710-144-01I	ISU SFT	Wing center section skin panel under fairings 197, 193, and 194: - Access openings. - Wing-to-fuselage fittings at front and rear spars. -Upper skin panels. Requires fairing removal and access door opening.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 4,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 8,000 FC interval or at aircraft 64,000 FC, whichever occurs first.	8,000 FC NOTE	57-10-06 57-10-10 57-10-13 57-10-15 57-10-17 57-10-20	193/194 197/1911 1912/
5710-144-03I	ISU SFT	Wing center section internal elements: -Upper and lower skin panels and stringers. - CL rib. - CL rib-to-front spar web attachment. -Upper skin holes. -Fuselage bulkhead 28 to rear spar attachment. - Fuselage stringer-to-ribs attachment at rear spar. -Fuselage stringer 18 attach. - Ribs 2 and 3. - Shear clips. Requires access panel removal.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 4,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 8,000 FC interval or at aircraft 64,000 FC, whichever occurs first.	8,000 FC NOTE	57-10-01 to 57-10-09 57-10-11 to 57-10-16 57-10-18 to 57-10-21 57-10-29 to 57-10-32	191/192/ 197
5710-144-04I	ISU SFT	Wing center section internal elements: - Access opening frame. - Front and rear spars. Requires access panel removal.  NOTE: Threshold inspection at 4000 FC and subsequent inspections every 800 FC.	NOTE	57-10-02 57-10-09 57-10-11 57-10-13 57-10-15 57-10-18	197

5720-521-01I 621	ISU SFT	<p>Wing box beam internal elements:</p> <ul style="list-style-type: none"> <li>- Auxiliary and front spars.</li> <li>- Upper and lower skins, stringers, and access openings.</li> <li>- Ribs.</li> <li>- Shear clips.</li> </ul> <p>Requires access panel removal.</p> <p>NOTE: For aircraft operating beyond 60,000 FC, inspect at every 4,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 8,000 FC interval or at aircraft 64,000 FC, whichever occurs first.</p>	8,000 FC NOTE	57-20-02 57-20-09 57-20-13 57-20-14 57-20-16 57-20-18 /19/23/ 24/26/43	521AB/BB 521CB 621AB/BB 621CB
5720-521-02I 621	NDT SFT	<p>Special detailed for skin hidden details, using ultrasonic inspection method.</p> <p>NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.</p>	20,000 FC NOTE	57-20-04	
5720-522-02I 622	NDT SFT	<p>Special detailed for skin hidden details, using ultrasonic inspection method.</p> <p>NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.</p>	20,000 FC NOTE	57-20-04 57-20-44	
5720-531-01E 631	DET SFT	<p>Wing box beam external elements through LG bay:</p> <ul style="list-style-type: none"> <li>- Detailed on door cutout.</li> <li>- Detailed on front and rear spars.</li> </ul>	2,015 FC	57-20-02 20/22/30 31	723/724/ 725/726/ 733/734/ 735/736
5720-531-01I 631	ISU SFT	<p>Wing box beam external elements (dry bay):</p> <ul style="list-style-type: none"> <li>- Upper and lower skin, stringers, and access opening.</li> <li>- Fuel duct.</li> <li>- Front and rear spars.</li> <li>- Main landing gear vertical fitting attachment at front spar.</li> <li>- Main landing gear vertical fitting attachment at rear spar.</li> <li>- Ribs.</li> <li>- Main landing gear support ribs.</li> <li>- Fire protection element attachment.</li> </ul> <p>NOTE: For aircraft operating beyond 60,000 FC, inspect at every 2,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 4,000 FC interval or at aircraft 62,000 FC, whichever occurs first.</p>	4,000 FC NOTE	57-20-01 57-20-02 57-20-05 09/13/21 to 57-20-25 28/30/31 32/34/35 42/43	531AB 631AB 723/724/ 725/726/ 733/734/ 735/736

5720-531-02I 631	NDT SFT	Special detailed for skin hidden details, using ultrasonic method.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	20,000 FC NOTE	57-20-44	531AB 631AB 723/724 725/726 733/734 735/736
5720-531-03I 631	NDT SFT	Wing front spar lower cap, hidden by main landing gear support rib and wing ribs 11 and 13, using ultrasonic/"Eddy Current" inspection methods according to chapter 57 of the nondestructive inspection manual P/N NDI - 120/985.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	20,000 FC NOTE	57-20-45	723/724/ 725/726/ 733/734/ 735/736
5720-531-04I 631	NDT SFT	Wing rear spar lower cap, hidden by main landing gear support rib and wing ribs 11 and 13, using ultrasonic/"Eddy Current", inspection methods according to chapter 57 of the nondestructive inspection manual P/N NDI -120/985.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	20,000 FC NOTE	57-20-46	723/724/ 725/726/ 733/734/ 735/736
5720-541-02I 641	NDT SFT	Special detailed for skin hidden details, using ultrasonic method.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	20,000 FC NOTE	57-20-04	
5720-551-02I 651	NDT SFT	Special detailed for skin hidden details, using ultrasonic inspection method.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 20,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	20,000 FC NOTE	57-20-04	

5750-572-02I 672	NDT SFT	Special detailed for upper flap spar cap between ribs 5A and 7A using "Eddy Current".  NOTE: - Applicable to metallic flap, only; - For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 32,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	32,000 FC NOTE	57-50-17	
5750-572-03I 672	ISU SFT	Inboard flap internal elements: - Spar caps.  NOTE: For aircraft operating beyond 60,000 FC, inspect at every 4,000 FC. - The first inspection after aircraft reaches 60,000 FC must be performed following the 8,000 FC interval or at aircraft 64,000 FC, whichever occurs first.	8,000 FC NOTE	57-50-02 57-50-25	572AT/BT / CT /DT/ET/ FT/GT/NT / 672AT/BT / CT/DT/ET / FT/GT/NT / For composite flaps: 572JB/KB/ LB 672JB/KB/ LB
5750-582-02I 682	NDT SFT	Special detailed for upper flap spar cap between ribs 16A/17A, using "Eddy Current".  Note: For aircraft operating beyond 60,000 FC, inspect at every 8,000 FC. The first inspection after aircraft reaches 60,000 FC must be performed following the 32,000 FC interval or at aircraft 68,000 FC, whichever occurs first.	32,000 FC	57-50-18	582AT/BT CT/DT/ET /FT GT 682AT/BT CT/DT/ET FT/GT
5750-582-03I 682	ISU SFT	Outboard flap internal elements: - Spar caps.  NOTES: - For aircraft operating beyond 60,000 FC, inspect at every 4,000 FC - The first inspection after aircraft reaches 60,000 FC must be performed following the 8,000 FC interval or at aircraft 64,000 FC, whichever occurs first.	8,000 FC	57-50-09 57-50-35	582AT/BT CT/DT/ET /FT GT 682AT/BT CT/DT/ET FT/GT

**(b) Service Bulletins**

Before the accumulation of 60,000 total flight cycles or within 600 flight cycles after the effective date of this AD, whichever occurs later, do the modifications and inspections in accordance with the Accomplishment Instructions of Embraer S.A. Service Bulletins specified in Table 2 of this AD, as applicable to airplane serial number. Do all applicable repairs before further flight.

**Table 2: Embraer S.A. Service Bulletins**



SB N°	Publication Date	SB Title
120-57-0040	I: 08/May/15. R1: 18/May/15	Wings – Replacement of the Wing Lower Skin Fasteners
120-51-0005	I: 11/Oct/01	Inspection for detection of corrosion on the wing to fuselage attaching bolts
120-51-0006-R01	I: 29/Oct/02 R1: 30/May/03	Inspection on, and protection against corrosion of, the vertical stabilizer to frame 46 attaching bolts
120-53-0034-R02	I: 02/May/88 R2:24/Sep/90	Removal of rivets attaching windshield lower horizontal brace.
120-53-0041-R01	I: 13/Mar/89 R1: 10/Feb/03	Installation of outer gusset to lateral/upper portion of fuselage forward section
120-53-0070	I: 06//Jul/99	Reinforcement of the windshield lower horizontal beam
120-53-0071-R01	I: 04/May/99 R1: 27/Jun/00	Inspection/replacement of windshield center post support fittings and replacement of attachment bolts
120-53-0071-R01	I: 04/May/99 R1: 27/Jun/00	Inspection/replacement of windshield center post support fittings and replacement of attachment bolts
120-53-0072	I: 21/Feb/00	Installation of a doubler and replacement of rivets in the windshield post skin
120-53-0073	I: 21/Jul/99	Rework to frame 9
120-53-0074-R01	I: 02/Sep/99 R1: 16/Jul/02	Replacement and modification to vertical stabilizer /fuselage junction “L” profile attachment
120-55-0006	I: 13/Jan/88	Rework of an access panel located on the elevator underside
120-55-0011	I: 20/Jun/96	Introduction of Drain Holes in Dorsal Fin
120-55-0016-R01	I: 24/Jan/06 R1: 30/Oct/06	Inspection and protection against corrosion in the elevator mass balance tube
120-57-0036-R02	I: 21/Sep/01 R: 17/Jul/03	Inspection and Reinforcement of the Main Wing Spar Lower Cap between Ribs 17 & 18.
120-57-0039	I: 29/Oct/03	Inspection and, on, rework against corrosion of interconnecting rods of the flap track
120-57-0040-R01	I:18/May/2015	Wings – Replacement of the Wing Lower Skin Fasteners

**(c) Airplane Airworthiness Limitation**

As of the effective date of this AD, do not operate any airplane beyond 66,000 total flight cycles or 55,000 total flight hours, whichever occurs first.

**(d) No Alternative Actions and Intervals**

After accomplishing the revision required by paragraph (a) of this AD, no alternative actions (e.g., inspections) or intervals may be used unless the actions or intervals are approved as an alternative method of compliance in accordance with the procedures specified in paragraph (e) of this AD.

**(e) Alternative Means of Compliance (AMOC)**

A different method or a different compliance time, with the requirements of this AD, may be used if approved by the General-Manager, Aeronautical Product Certification Branch (Gerência-Geral de Certificação de Produtos Aeronáuticos – GGCP).