



AGÊNCIA NACIONAL DE AVIAÇÃO CIVIL – BRAZIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

AD No.: 2001-06-01R4

Effective Date: 23 Aug. 2007

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 de Homologação Aeronáutica (RBHA) 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. 2001-06-01R4 - EMBRAER - Amendment 39-1193.

APPLICABILITY:

This Airworthiness Directive is applicable to all Embraer EMB-120() aircraft models in operation.

CANCELLATION / REVISION:

This AD cancels and supersedes the AD No. 2001-06-01R3 – Amdt 39-1014, dated 15 Mar. 2004, and is being issued to include a modification to the elevator trim system.

REASON:

It has been found the occurrence of pitch upset events caused by the spring back effect of the elevator trim system control cables, due to autopilot sudden disengagement during the descent phase of the flight. The problem results from jammed or frozen trim actuators associated with the autopilot trim servo action stretching the cables up to the servo torque limit and consequent release.

Since this condition may occur 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 the applicable airplane flight manual (AFM) establishing an operational limitation for using the autopilot; installation of two placards on the cockpit frontal panel; and modification of the elevator trim system.

COMPLIANCE:

Required as indicated below, unless already accomplished.

PART I - Within the next 20 flight hours after 26 June 2001, the effective date of the original issue of this AD, add a copy of this AD to the AFM enforcing the following:

- (a) In the ABNORMAL PROCEDURES Section, paragraph FLIGHT CONTROLS FAILURES, revise the ELEVATOR TRIM JAMMING procedure as follows:

ELEVATOR TRIM JAMMING

Control WheelHold firmly
Autopilot.....Disengage
Airspeed.....Reduce

NOTE: Minimum airspeed with flap 0° - 160 KIAS

Pitch trim commandCheck all switches and elevator trim wheel

If pitch trim is recovered:

Re-trim the airplane and proceed the flight with autopilot disengaged, not exceeding the airspeed when the trim was recovered.

If pitch trim is not recovered:

Land at the nearest suitable airport.

Approach and landing configuration:

- Landing gear..... Down
- Flaps 25
- Airspeed Vref25

CAUTION: DO NOT TRY TO REENGAGE THE AUTOPILOT

Report to maintenance personnel.

(b) In the LIMITATIONS Section of Collins APS-65B Autopilot System Supplement, add the following limitation and procedure:

1) The autopilot must not be used during descent unless a trim check has been performed successfully prior to descent, as follows:

PITCH TRIM SYSTEM CHECK

- Control Wheel Hold firmly
- Autopilot Disengage
- Power Levers..... As required
- Elevator Trim Wheels As required

CAUTION: SET MANUALLY THE ELEVATOR TRIM WHEELS TO THE REQUIRED DESCENT ATTITUDE

If any spring effect greater than 1 DOT, or abnormal trim operation is observed:

Elevator Trim Jamming Procedure Perform

CAUTION: DO NOT TRY TO REENGAGE THE AUTOPILOT

If no abnormal trim operation is observed:

- Flight Director Vertical Mode As required
- Autopilot..... Reengage

2) If an elevator trim jamming is detected during flight and the pitch trim system resumes normal operation on ground, subsequent flights may only be performed to return the aircraft to a maintenance base for replacement of the actuators. In this case, the use of autopilot is prohibited.

PART II - Within the next 400 flight hours after 26 June 2001, the effective date of the original issue of this AD, incorporate the applicable AFM revision that shall contain the following:

- (a) On ABNORMAL PROCEDURES Section, paragraph FLIGHT CONTROLS FAILURES:
 - revision of ELEVATOR TRIM JAMMING PROCEDURE according to Part I of this AD.
- (b) On LIMITATIONS Section of the Autopilot Collins APS-65B Supplement:
 - Prohibition to use the autopilot during descent unless a trim check has been performed successfully prior to descent, according to the PITCH TRIM SYSTEM CHECK PROCEDURE, described in the NORMAL PROCEDURES Section of the same supplement; and,
 - Information that, if an elevator trim jamming is detected during flight and the pitch trim system resumes normal operation on ground, subsequent flights may only be performed to return the aircraft to a maintenance base for replacement of the actuators. In this case, the use of autopilot is prohibited.
- (c) On NORMAL PROCEDURES Section of the Autopilot Collins APS-65B Supplement:
 - inclusion of PITCH TRIM SYSTEM CHECK PROCEDURE according to Part I of this AD.

PART III - Within the next 300 flight hours after 15 Mar. 2004, the effective date of the revision 3 of this AD, install on cockpit frontal panel of the aircraft two placards containing the following, or else modify the text of the placards already installed:

"ACCOMPLISH PITCH TRIM SYSTEM CHECK PRIOR TO INITIAL DESCENT".

or

"PERFORM PITCH TRIM SYSTEM CHECK PRIOR TO INITIAL DESCENT".

PART IV - Within the next 3 years after the effective date of this revision 4 of AD, modify the elevator trim system according to the instructions contained in Embraer Service Bulletins Nos. 120-27-0095 original issue and 120-27-0096 original issue, or further respective revisions approved by ANAC.

NOTE 1: The accomplishment of the Part IV above exempt the operator to comply with the procedures and limitations of Parts I, II and III of this AD.

NOTE 2: After 21 Aug. 2010, no elevator trim tab actuators with part numbers (P/N) 120-19685-001, 120-19685-003, 120-19685-007, 120-38650-001, 120-39205-001, 5299 and 5299-1, and control cables with P/N 120-27729-095, 120-27729-097, 120-31370-095 and 120-31370-097 may be installed in any aircraft in operation.

The detailed instructions and procedures to accomplish with the Parts III and IV of this AD are described in the Embraer Service Bulletins Nos. 120-25-0262 original issue, 120-27-0095 original issue, and 120-27-0096 original issue, or its further respective revisions approved by the ANAC.

Record compliance with Parts I, II and III or IV of this AD in the applicable maintenance log book.

CONTACT:

For additional technical information, contact:

National Civil Aviation Agency (ANAC)
Aeronautical Products Certification Branch (GGCP)
Av. Cassiano Ricardo, 521, Bloco B, 2º andar, Parque Residencial Aquarius
Fax: 55 (12) 3797-2330
12246-870 – São José dos Campos - SP, BRAZIL.
E-mail: pac@anac.gov.br

For acquisition, contact:

National Civil Aviation Agency (ANAC)
Publications Branch
R. Santa Luzia, 651, 2º Mezanino, Centro
Fax: 55 (21) 3814-6929
20030-040 – Rio de Janeiro - RJ, BRAZIL.
E-mail: publicacoes@anac.gov.br

APPROVAL:

CLÁUDIO PASSOS SIMÃO
General Manager
GGCP

MILTON ZUANAZZI
Director-President
ANAC

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