



MINISTÉRIO DA AERONÁUTICA
DEPARTAMENTO DE AVIAÇÃO CIVIL

BRAZILIAN AIRWORTHINESS DIRECTIVE

EFFECTIVE DATE:

15 December 97

AD Nr.:

97-06-03R1

The following Airworthiness Directive (AD), issued by the Departamento de Aviação Civil (DAC) in accordance with provisions of Chapter IV, Title III of Código Brasileiro de Aeronáutica - Law NR 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 Nr. 97-06-03R1 - EMBRAER - Amendment 39-821.

APPLICABILITY:

This Airworthiness Directive is applicable to all EMBRAER EMB-120 aircraft model, as indicated below:

Part I - Installation of an icing-detector system on aircraft S/N 120003 thru 120339;

Part II - Inclusion of additional instructions for operation in icing conditions in the Airplane Flight Manual of all aircraft in operation; and

Part III - Inclusion of additional instructions for operation in severe icing conditions in the Airplane Flight Manual of all aircraft in operation.

CANCELLATION / REVISION:

This AD supersedes AD Nr. 97-06-03 - Amendment 39-778, dated 11 July 1997, and is being issued to extend the compliance time for installation of the icing detector system from 01 December 1997 to 01 June 1998, due to parts supply logistics problems; and, to request compliance with revision 2 of EMBRAER Service Bulletin Nr. 120-30-0027, because the previous issues have improperly affected the logic of the deicing system warning messages.

REASON:

It has been determined that a potential for hazard (performance degradation) exists during unexpected icing encounters, if the anti-icing system is maintained inoperative due to pilots unawareness or misjudgement, or if the icing condition is so severe that falls outside of those for which the airplane is certificated (supercooled liquid water and ice crystals, also called "freezing rain and drizzle"). This severe icing condition is prone to the formation of an ice build-up on protected surfaces which exceeds the capability of the anti-ice system, or even the ice build-up aft of the protected surface.

Since this condition is applicable to all aircraft of this type design, a corrective action is required. Thus, sufficient reason exists to issue this AD.

REQUIRED ACTION:

Installation of an icing detector system to provide a secondary means of indication of icing conditions, aimed to aware the pilots of the existence of such conditions in flight; and inclusion in the applicable Airplane Flight Manual of additional procedures for operation in normal or severe icing environment.

COMPLIANCE:

Required as indicated below, unless already accomplished.

To prevent performance degradation due to operation in icing conditions with the ice protection system maintained inoperative, or with severe ice accretion which exceeds those established in the airworthiness regulations for aircraft certification, accomplish the following:

Part I - No later than 01 June 1998, install an Ice Detector System on the affected aircraft (see Applicability Section of this AD) according to the EMBRAER SB 120-30-0027R2, or later CTA approved revisions.

Part II - No later than 31 July 1997, revise the Normal Procedures Section of the applicable Airplane Flight Manual, paragraph "Operation in Icing Conditions", to:

- (A) Request the pilots to immediately turn on the ice protection system upon the first indication of icing formation, either by the new ice-detector system, or by external cues of icing build-up in the airframe;
- (B) Impose a minimum speed of 160 KIAS or above if buffeting occurs; and,
- (C) Provide additional related instructions.

Such information is the object of the following approved AFM revisions:

- AFM 120/813 (CTA) - Revision 51;
- AFM 120/794 (FAA) - Revision 50;
- AFM 120/740 (DGAC/France) - Revision 27;
- AFM 120/1000 (DOT/Canada) - Revision 18; and,
- AFM 120/1017 (DOT/Australia) - Revision 22.

Part III - No later than 31 July 1997, revise the Normal Procedures Section of the applicable Airplane Flight Manual, paragraph "Operation in Icing Conditions", to include a detailed procedure for flight into severe icing conditions which shall contain, at least, the following instructions:

- (A) Cues to help pilots to recognize the freezing rain and drizzle conditions;
- (B) Request to turn on immediately the ice protection system;
- (C) Advise to exit such conditions and avoidance of abrupt maneuvers or high pitch angles; and,
- (D) Prohibiting the use of autopilot and flaps movement.

Such information is the object of the following approved AFM revisions:

- AFM 120/813 (CTA) - Revision 48;
- AFM 120/794 (FAA) - Revision 48;
- AFM 120/740 (DGAC/France) - Revision 25;
- AFM 120/1000 (DOT/Canada) - Revision 17; and,
- AFM 120/1017 (DOT/Australia) - Revision 22.

The detailed instructions and procedures to accomplish this AD are described in the EMBRAER Service Bulletin Nr. 120-30-0027R2, or further revisions approved by the CTA.

Record compliance with this AD in applicable maintenance log book.

CONTACT:

For additional technical information, contact:

Centro Técnico Aeroespacial - CTA
Instituto de Fomento e Coordenação Industrial - IFI
Divisão de Homologação Aeronáutica - FDH
Praça Mal. Eduardo Gomes, 50 - Vila das Acácias
Caixa Postal 6001
Fax: 55 (12) 341-4766
12231-970 - São José dos Campos - SP, BRAZIL.

For acquisition, contact:

Departamento de Aviação Civil
Seção Auxiliar do DAC (1GAB-4)
Aeroporto Santos Dumont, 4º andar - Sala 421
Fax: 55 (21) 212-5513
20021-340 - Rio de Janeiro - RJ, BRAZIL.

APPROVAL:

LUIZ ALBERTO C. MUNARETTO - Ten.-Cel.-Av.
Chefe da Divisão de Homologação Aeronáutica
IFI/CTA

JONAS FERREIRA SANT'ANNA - Cel.-Av.
Chefe da Divisão de Aeronaves e Manutenção - TE-1
STE/DAC

Note: Original in portuguese signed and available in the files of the Registro Geral de Aeronavegabilidade (RGA/TE-1/STE) of the Departamento de Aviação Civil.