

# Airworthiness Directive

## ▶ Federal Register Information

### ▼ Header Information

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [66 FR 17348 3/30/2001]

Docket No. 2001-NM-36-AD; Amendment 39-12165; AD **2001-06-18**

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica, S.A. (EMBRAER), Model EMB-120 Series Airplanes

**PDF Copy (If Available):**

### ▼ Preamble Information

AGENCY: Federal Aviation Administration, DOT.

**ACTION:** Final rule; request for comments.

**SUMMARY:** This amendment supersedes an existing airworthiness directive (AD), applicable to all EMBRAER Model EMB-120 series airplanes, that currently requires revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems and to add information regarding operation in icing conditions; installing an ice detector system; and revising the AFM to include procedures for testing system integrity. That AD also requires installing the ice detector system in accordance with revised procedures. That amendment was prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. This amendment corrects and clarifies certain AFM procedures, and provides for an alternative AFM revision. The actions specified by this AD are intended to ensure that the flightcrew is able to recognize the formation of significant ice accretion and take appropriate action; such formation of ice could result in reduced controllability of the airplane in normal icing conditions.

The incorporation by reference of certain publications, as listed in the regulations, was approved previously by the Director of the Federal Register as of March 5, 2001 (66 FR

8082, January 29,  
2001).

Comments for inclusion in the Rules Docket must be received on or before April 30, 2001.

DATES: Effective April 16, 2001.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2001-NM-36-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 p.m., Monday through Friday, except Federal holidays. Comments may be submitted via fax to (425) 227-1232. Comments may also be sent via the Internet using the following address: 9-anm-iarcomment@faa.gov. Comments sent via fax or the Internet must contain "Docket No. 2001-NM-36-AD" in the subject line and need not be submitted in triplicate. Comments sent via the Internet as attached electronic files must be formatted in Microsoft Word 97 for Windows or ASCII text.

The service information referenced in this AD may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343 - CEP 12.225, Sao Jose dos Campos - SP, Brazil. This information may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Thomas Peters, Aerospace Engineer, Systems and Flight Test Branch, ACE-116A, FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia 30349; telephone (770) 703-6063; fax (770) 703-6097.

**SUPPLEMENTARY INFORMATION:** On January 17, 2001, the FAA issued AD 2001-02-06, amendment 39-12090 (66 FR 8082, January 29, 2001), applicable to all EMBRAER Model EMB-120 series airplanes, to require revising the Airplane Flight Manual (AFM) to include requirements for activation of the ice protection systems and to add information regarding operation in icing conditions; installing an ice detector system; and revising the AFM to include procedures for testing system integrity. That AD also requires installing the ice detector system in accordance with revised procedures. That action was prompted by issuance of mandatory continuing airworthiness information by a foreign civil airworthiness authority. The actions specified by that AD are intended to

ensure that the flightcrew is able to recognize the formation of significant ice accretion and take appropriate action; such formation of ice could result in reduced controllability of the airplane in normal icing conditions.

#### **Actions Since Issuance of Previous Rule**

Since the issuance of AD 2001-02-06, the FAA has noted that a typographical error appeared in paragraph (a)(2) of that AD, which specified certain AFM revisions. Paragraph (a)(2) of the AD should have read, "AIRSPEED (Flaps and Gear Up) .....160 KIAS MINIMUM" instead of "...60 KIAS MINIMUM." While the typographical error may be readily apparent to a pilot rated in the EMBRAER Model EMB-120 series airplane, there is no way to know what the correct figure should be. Therefore, in view of the effective date of AD 2001-02-06 (March 5, 2001), we consider it necessary to supersede the existing AD to correct and clarify that AFM revision.

In addition, the FAA has been advised that EMBRAER has issued Revision 50 of AFM-120-794, dated November 3, 1997, which contains revised procedures for activation of the ice protection systems and adds information regarding operation in icing conditions; installing an ice detector system; and revises the AFM to include procedures for testing system integrity.

The Departamento de Aviacao Civil (DAC), which is the airworthiness authority for Brazil, classified Revision 50 of the AFM as mandatory, in order to assure the continued airworthiness of these airplanes in Brazil.

#### **FAA's Conclusions**

This airplane model is manufactured in Brazil and is type certificated for operation in the United States under the provisions of section 21.29 of the Federal Aviation Regulations (14 CFR 21.29) and the applicable bilateral airworthiness agreement. Pursuant to this bilateral airworthiness agreement, the Departamento de Aviacao Civil (DAC), which is the airworthiness authority for Brazil, has kept the FAA informed of the situation described above. The FAA has examined the findings of the DAC, reviewed all available information, and determined that AD action is necessary for products of this type design that are certificated for operation in the United States.

#### **Explanation of Requirements of Rule**

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of the same type design registered in the United States, this AD supersedes AD 2001-02-06 to require revision of the Normal Procedures Section of the current AFM. The revision corrects and clarifies the Normal Procedures Section of the current AFM revision, which currently specifies that when atmospheric or ground icing conditions exist, "AIRSPEED (Flaps and Gear Up) .....60 KIAS." The revision corrects the reference to 60 KIAS to read "160 KIAS."

This AD also provides an alternative method of compliance to revise the AFM required by paragraph (a) of this AD.

### **Determination of Rule's Effective Date**

Since a situation exists that requires the immediate adoption of this regulation, it is found that notice and opportunity for prior public comment hereon are impracticable, and that good cause exists for making this amendment effective in less than 30 days.

### **Comments Invited**

Although this action is in the form of a final rule that involves requirements affecting flight safety and, thus, was not preceded by notice and an opportunity for public comment, comments are invited on this rule. Interested persons are invited to comment on this rule by submitting such written data, views, or arguments as they may desire. Communications shall identify the Rules Docket number and be submitted in triplicate to the address specified under the caption "ADDRESSES." All communications received on or before the closing date for comments will be considered, and this rule may be amended in light of the comments received. Factual information that supports the commenter's ideas and suggestions is extremely helpful in evaluating the effectiveness of the AD action and determining whether additional rulemaking action would be needed. Submit comments using the following format:

- Organize comments issue-by-issue. For example, discuss a request to change the compliance time and a request to change the service bulletin reference as two separate issues.
- For each issue, state what specific change to the AD is being requested.
- Include justification (e.g., reasons or data) for each request.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the rule that might suggest a need to modify the rule. All comments submitted will be available, both before and after the closing date for comments, in the Rules Docket for examination by interested persons. A report that summarizes each FAA-public contact concerned with the substance of this AD will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this rule must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2001-NM-36-AD." The postcard will be date stamped and returned to the commenter.

### **Regulatory Impact**

The regulations adopted herein will not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government. Therefore, it is determined that this final rule does not have federalism implications under Executive Order 13132.

The FAA has determined that this regulation is an emergency regulation that must be

issued immediately to correct an unsafe condition in aircraft, and that it is not a "significant regulatory action" under Executive Order 12866. It has been determined further that this action involves an emergency regulation under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979). If it is determined that this emergency regulation otherwise would be significant under DOT Regulatory Policies and Procedures, a final regulatory evaluation will be prepared and placed in the Rules Docket. A copy of it, if filed, may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

### **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

### **Adoption of the Amendment**

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

#### **PART 39 - AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-12090 (66 FR 8082, January 29, 2001), and by adding a new airworthiness directive (AD), amendment 39-12165, to read as follows:

### **▼ Regulatory Information**

#### **2001-06-18 EMPRESA BRASILEIRA DE AERONAUTICA, S.A. (EMBRAER):**

Amendment 39-12165. Docket 2001-NM-36-AD. Supersedes AD 2001-02-06, Amendment 39-12090 which superseded AD 97-26-06 Amendment 39-10249.

Applicability: All Model EMB-120 series airplanes, certificated in any category.

NOTE 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been [otherwise] modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (c) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To ensure that the flightcrew is able to recognize the formation of significant ice accretion, which could result in reduced controllability of the airplane in normal icing conditions, accomplish the following:

**RESTATEMENT OF THE REQUIREMENTS OF AD 2001-02-06**

(a) Within 30 days after January 23, 1998 (the effective date of AD 97-26-06, amendment 39-10249), accomplish paragraphs (a)(1) and (a)(2) of this AD.

**AFM Revisions - Limitations Section**

(1) Revise the Limitations Section of the FAA-approved Airplane Flight Manual (AFM) to include the following requirements for activation of the ice protection systems. This may be accomplished by inserting a copy of this AD in the AFM. "TURN ON ICE PROTECTION SYSTEM and IGNITION SWITCHES AS FOLLOWS:

- AOA, TAT, SLIP, ENGINE AIR INLET, and IGNITION SWITCHES:
  - When atmospheric or ground icing conditions exist.
- PROPELLER:
  - When atmospheric or ground icing conditions exist, OR
  - At the first sign of ice formation anywhere on the aircraft.
- WING and TAIL LEADING EDGES, and WINDSHIELD:
  - At the first sign of ice formation anywhere on the aircraft.

NOTE: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

NOTE: Atmospheric icing conditions exist when:

- Indicated Outside Air Temperature (OAT) during ground operations or Total Air Temperature (TAT) in flight is 10 degrees C or below; and
- Visible moisture in any form is present (such as clouds, fog with visibility of one mile or less, rain, snow, sleet, or ice crystals).

NOTE: Ground icing conditions exist when:

- Indicated OAT during ground operations is 10 degrees C or below; and
- Surface snow, standing water, or slush is present on the ramps, taxiways, or runways.

NOTE: For Operation in Atmospheric Icing Conditions:

- Follow the procedures in the Normal Procedures Section under Operation in Icing Conditions."

**AFM Revisions - Normal Procedures Section**

(2) Revise the Normal Procedures Section of the FAA-approved AFM to include the following additional and revised information regarding operation in icing conditions. This may be accomplished by inserting a copy of this AD in the AFM.

"Under DAILY CHECKS of the Ice Protection System, add the following:  
 The following tests must be performed prior to the first flight of the day for which known or forecast icing conditions are anticipated.

Ice Detector System TEST Button (if installed).....PRESS  
 Check normal test sequence.

Under APPROACH Checklist, add the following:

Minimum  
 Airspeed.....APPROPRIATE TO  
 FLAP POSITION  
 (See Table Below)

<b>Gear/Flap</b>	<b>Minimum Recommended Airspeed</b>
UP/0°	150 KIAS
UP/15°	130 KIAS

Under OPERATION IN ICING CONDITIONS for FLYING INTO ICING  
 CONDITION, replace the current AFM section information for normal icing conditions  
 with the following:

- During flight, monitoring for icing conditions should start whenever the indicated outside air temperature is near or below freezing or when operating into icing conditions, as specified in the Limitations Section of this manual.

- When operating in icing conditions, the front windshield corners (unheated areas), propeller spinners, and wing leading edges will provide good visual cues of ice accretion.

- For airplanes equipped with an ice detection system, icing conditions will also be indicated by the illumination of the ICE CONDITION light on the multiple alarm panel.

- When atmospheric or ground icing conditions exist, proceed as follows:

AOA, TAT, SLIP, and ENGINE AIR INLET .....ON  
 IGNITION Switches .....ON  
 AIRSPEED (Flaps and Gear UP) .....160 KIAS  
 MINIMUM

- When atmospheric or ground icing conditions exist, OR
- At the first sign of ice formation anywhere on the aircraft, proceed as follows:

PROPELLER Deicing Switch .....ON  
 Select NORM mode if indicated OAT is above -10°C (14°F) or COLD mode if indicated OAT is below -10°C (14°F).

- At the first sign of ice formation anywhere on the aircraft, proceed as follows:

WINDSHIELD .....ON  
WING and TAIL LEADING EDGE .....ON

Visually evaluate the severity of the ice encounter and the rate of accretion and select light or heavy mode (1-minute or 3-minute cycle) based on this evaluation.

NOTE: On takeoff, delay activation of the wing and tail leading edge de-ice systems until reaching the final segment speed.

NOTE: The minimum NH required for proper operation of the pneumatic deicing system is 80%. At lower NH values, the pneumatic deicing system may not totally inflate, and the associated failure lights on the overhead panel may illuminate. If this occurs, increase NH.

Holding configuration:

Landing Gear Lever UP

Flap Selector Lever UP

N<sub>P</sub> 85% MINIMUM

Increase N<sub>P</sub> as required to eliminate propeller vibrations.

Approach and Landing procedure:

Increase approach and landing speeds, according to the following flap settings, until landing is assured. Reduce airspeed to cross runway threshold (50 ft) at VREF.

Flaps 15 - Increase Speed by 10 KIAS (130+10)

Flaps 25 - Increase Speed by 10 KIAS (VREF25+10)

Flaps 45 - Increase Speed by 5 KIAS (VREF45+5)

Go-Around procedure: Reduce values from Maximum Landing Weight Approach Climb Limited charts by:

1500 lbs. for PW 118 Engines

1544 lbs. for PW 118A and 118B Engines

Flaps 15 - Increase approach climb speed by 10 KIAS (V<sub>2</sub>+10);

Decrease approach climb gradient by:

3.0% for PW 118 Engines

2.9% for PW 118A and 118B Engines

Flaps 25 - Increase landing climb speed by 10 KIAS (VREF25+10)

Flaps 45 - Increase landing climb speed by 5 KIAS (VREF +5)

CAUTION: The ice protection systems must be turned on immediately (except leading edge de-icers during takeoff) when the ICE CONDITION light illuminates on the multiple alarm panel or when any ice accretion is detected by visual observation or other

cues.

**CAUTION:** Do not interrupt the automatic sequence of operation of the leading edge de-ice boots once it is turned ON. The system should be turned OFF only after leaving the icing conditions and after the protected surfaces of the wing are free of ice."

### **Ice Detector Installation**

(b) For airplanes identified in any of Parts I, II, III, IV, V, and VI of EMBRAER Service Bulletin 120-30-0027, Change 02, dated December 3, 1997; Change 03, dated June 26, 1998; or Change 04, dated July 13, 1999: Within 30 days after March 5, 2001, (the effective date of AD 2001-02-06, amendment 39-12090), install an ice detector system in accordance with the service bulletin.

### **Alternative Methods of Compliance**

(c) (1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Atlanta Aircraft Certification Office (ACO), FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Atlanta ACO.

(2) Alternative methods of compliance, approved previously in accordance with AD 97-26-06, amendment 39-10249, are approved as alternative methods of compliance with this AD.

(3) Incorporation of Revision 50 of the EMBRAER AFM-120/79, dated November 3, 1997, into the AFM, is considered to be an approved alternative method of compliance with the requirements of paragraph (a) of this AD.

NOTE 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Atlanta ACO.

### **Special Flight Permits**

(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

### **Incorporation by Reference**

(e) The ice detector system installation shall be done in accordance with EMBRAER Service Bulletin 120-30-0027, Change 02, dated December 3, 1997; EMBRAER Service Bulletin 120-30-0027, Change 03, dated June 26, 1998; or EMBRAER Service Bulletin 120-30-0027, and Change 04, dated July 13, 1999.

The incorporation by reference of those documents was approved previously by the Director of the Federal Register, as of March 5, 2001 (66 FR 8082, January 29, 2001). Copies may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343 - CEP 12.225, Sao Jose dos Campos - SP, Brazil. Copies may be inspected

at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Atlanta Aircraft Certification Office, One Crown Center, 1895 Phoenix Boulevard, suite 450, Atlanta, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

NOTE 3: The subject of this AD is addressed in Brazilian airworthiness directive 97-06-03R1, dated December 15, 1997.

**Effective Date**

(f) This amendment becomes effective on April 16, 2001.

**▼ Footer Information**

Issued in Renton, Washington, on March 23, 2001.  
Donald L. Riffin,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.

**▼ Comments**