

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.

**Note 3:** The subject of this AD is addressed in French airworthiness directives 2001-214-084(B) and 2001-215-057(B), both dated May 30, 2001.

Issued in Renton, Washington, on March 26, 2003.

**Michael J. Kaszycki,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*  
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## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. 2003-NM-33-AD]

RIN 2120-AA64

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

**AGENCY:** Federal Aviation Administration, DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** This document proposes the adoption of a new airworthiness directive (AD) that is applicable to all Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120 series airplanes. This proposal would require revising the airplane flight manual to include operational limitations for use of the autopilot, and installing two placards that advise the flight crew to check the pitch trim before descent. This action is necessary to prevent pitch trim upsets if the pitch trim actuators jam or freeze, which could result in reduced controllability of the airplane. This action is intended to address the identified unsafe condition.

**DATES:** Comments must be received by May 1, 2003.

**ADDRESSES:** Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2003-NM-33-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9 a.m. and 3 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-*

*nprcomment@faa.gov*. Comments sent via fax or the Internet must contain "Docket No. 2003-NM-33-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 the proposed rule may be obtained from Empresa Brasileira de Aeronautica S.A. (EMBRAER), PO 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.

**FOR FURTHER INFORMATION CONTACT:** Dan Rodina, Aerospace Engineer, International Branch, ANM-116, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2125; fax (425) 227-1149.

#### **SUPPLEMENTARY INFORMATION:**

##### **Comments Invited**

Interested persons are invited to participate in the making of the proposed 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 above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this action may be changed in light of the comments received.

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 proposed 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 proposed 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 summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this action

must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 2003-NM-33-AD." The postcard will be date stamped and returned to the commenter.

#### **Availability of NPRMs**

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2003-NM-33-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

#### **Discussion**

The Departamento de Aviao Civil (DAC), which is the airworthiness authority for Brazil, notified the FAA that an unsafe condition may exist on all Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120 series airplanes. The DAC advises that several events involving pitch trim upsets have occurred on these airplanes during the autopilot coupled descent phase of flight. The pitch trim upsets have been attributed to jammed or frozen pitch trim actuators. As the airplane ascends through visible moisture, the pitch trim actuators can freeze in a position trimmed for cruise flight. During a coupled descent, the autopilot will attempt to retrim the airplane, and, if the actuators are frozen, the control cables in the pitch trim system can become stretched. If the autopilot is subsequently disengaged for any reason, the spring-back effect caused by the sudden release of the tension in the stretched cables could result in a pitch upset. This condition, if not corrected, could result in reduced controllability of the airplane.

#### **Airplane Flight Manual (AFM) Revisions**

The DAC advises that the flight crew must check the pitch trim before any descent. The check will alert the crew to a possible frozen or jammed actuator and enable the crew to take appropriate action to prevent a pitch upset. The check procedures are described in certain AFM revisions, which the DAC has mandated.

#### **Explanation of Relevant Service Information**

The manufacturer has issued EMBRAER Service Bulletin 120-25-0262, dated October 15, 2001; and Change 01, dated September 3, 2002. The service bulletins describe procedures for installing two placards that advise the flight crew to check the pitch trim before descent. The DAC classified these service bulletins as mandatory and issued Brazilian

airworthiness directive 2001-06-01R1, dated November 28, 2001, to ensure 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 DAC 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 Proposed 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, the proposed AD would require revising the AFM to include operational limitations for use of the autopilot, and installing two placards that advise the flight crew to check the pitch trim before any descent.

#### Differences Between Proposed AD and Brazilian Airworthiness Directive

The Brazilian airworthiness directive mandates a 20-flight-hour compliance time to "add a copy of [the] AD to the AFM" to enforce certain procedures, and a 400-flight-hour compliance time to "incorporate the applicable AFM revision" for revised procedures. This proposed AD would require that the AFM be revised within 100 flight hours. An AD that requires an AFM revision sets forth a single compliance time that applies to the incorporation of the revised language into the AFM as well as adherence to the revised procedures. The FAA has determined that a 100-flight-hour compliance time is an appropriate interval that will maintain an adequate level of safety.

#### Interim Action

This is considered to be interim action until final action is identified, at

which time the FAA may consider further rulemaking.

#### Cost Impact

The FAA estimates that 233 airplanes of U.S. registry would be affected by this proposed AD. It would take approximately 1 work hour per airplane to accomplish the proposed actions, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of the proposed AD on U.S. operators is estimated to be \$13,980, or \$60 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the proposed requirements of this AD action, and that no operator would accomplish those actions in the future if this proposed AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

#### Regulatory Impact

The regulations proposed herein would 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 proposal would not have federalism implications under Executive Order 13132.

For the reasons discussed above, I certify that this proposed regulation (1) Is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting the Rules Docket at the location provided under the caption

#### ADDRESSES.

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

Air transportation, Aircraft, Aviation safety, Safety.

#### The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend 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 adding the following new airworthiness directive:

**Empresa Brasileira De Aeronautica S.A.**  
(Embraer): Docket 2003-NM-33-AD.

**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 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 (d) 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 prevent pitch trim upsets if the pitch trim actuators jam or freeze, which could result in reduced controllability of the airplane, accomplish the following:

#### Revision of Airplane Flight Manual (AFM): AFM-120/794

(a) Within 100 flight hours after the effective date of this AD, revise the FAA-approved AFM, EMBRAER AFM-120/794, as specified in paragraphs (a)(1) and (a)(2) of this AD. These actions may be accomplished by inserting a copy of this AD into the AFM.

(1) Revise the Flight Controls Failures paragraph of the Abnormal Procedures section by replacing the existing Elevator Trim Jamming procedure with the following:

"Elevator Trim Jamming:

Control Wheel .....	Hold Firmly
Autopilot .....	Disengage
Airspeed .....	Reduce

Note: Minimum airspeed with flap 0°—160 KIAS

Pitch trim command ..... Check all switches and elevator trim wheel

If pitch trim is recovered: Re-trim the airplane and continue the flight with the 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 Re-Engage the Autopilot."

(2) Revise the Normal Procedures section of the AFM, after the current checklist item for activating the FASTEN BELTS switch, by inserting the following:

**"Pitch Trim System Check:**

Control Wheel ..... Hold firmly

Autopilot ..... Disengage

Power Levers ..... As required

Elevator Trim Wheels ..... As required

**Caution:** Manually Set the Elevator Trim Wheels To the Required Descent Attitude.

If any trim system binding (if trim wheel rotates more than one trim wheel index mark after being released), or abnormal trim operation is observed:

Elevator Trim Jamming Procedure ..... Perform

**Caution:** Do Not Try To Re-Engage the Autopilot.

If no abnormal trim operation is observed:

Flight Director Vertical Mode ..... As required

Autopilot ..... Reengage"

**AFM Revision: Collins APS-65B Autopilot AFM Supplement**

(b) Concurrently with the AFM revisions required by paragraph (a) of this AD, revise

the Limitations section of the Collins APS-65B Autopilot System Supplement to include the following (this may be accomplished by

inserting a copy of this AD into the AFM Supplement):

"(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:** Manually Set the Elevator Trim Wheels to the Required Descent Attitude.

If any trim system binding (if trim wheel rotates more than one trim wheel index mark after being released), or abnormal trim operation is observed:

Elevator Trim Jamming Procedure ..... Perform

**Caution:** Do Not Try To Re-Engage 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, only a ferry flight using a special permit may be performed to return the aircraft to a maintenance base for replacement of the actuators. In this case, the use of autopilot is prohibited."

**Placard Installation**

(c) Within 300 flight hours after the effective date of this AD, install two placards on the glareshield, advising the flight crew to check the pitch trim before any descent, in accordance with EMBRAER Service Bulletin 120-25-0262, dated October 15, 2001; or Change 01, dated September 3, 2002.

**Alternative Methods of Compliance**

(d) 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, International Branch, ANM-116, Transport

Airplane Directorate, FAA. Operators shall submit their requests through an appropriate FAA Principal Maintenance and/or Operations Inspector, who may add comments and then send it to the Manager, International Branch, ANM-116.

**Note 2:** Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the International Branch, ANM-116.

**Special Flight Permits**

(e) 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.

**Note 3:** The subject of this AD is addressed in Brazilian airworthiness directive 2001-06-01R1, dated November 28, 2001.

Issued in Renton, Washington, on March 26, 2003.

**Michael J. Kaszycki,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

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