[Federal Register: July 17, 2008 (Volume 73, Number 138)]
[Rules and Regulations]
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[DOCID:fr17jy08-8]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2003-NM-33-AD; Amendment 39-15613; AD 2008-15-01]

RIN 2120-AA64

Airworthiness Directives; Empresa Brasileira de Aeronautica S.A. (EMBRAER) Model EMB-120, -120ER, -120FC, -120QC, and -120RT Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to all EMBRAER Model EMB-120 series airplanes, that requires revising the airplane flight manual to include operational limitations for use of the autopilot, installing two placards that advise the flight crew to check the pitch trim before descent, and modifying the elevator trim system, which would terminate the requirements of the AD. The actions specified by this AD are intended 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: Effective August 21, 2008.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of August 21, 2008.

ADDRESSES: 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 Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 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 98057-3356; telephone (425) 227-2125; fax (425) 227-1149.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to all EMBRAER Model EMB-120 series airplanes was published as a supplemental notice of proposed rulemaking (NPRM) in the Federal Register on February 8, 2008 (73 FR 7494). That action proposed

to require revising the airplane flight manual to include operational limitations for use of the autopilot, installing two placards (with revised language) that advise the flight crew to check the pitch trim before descent, and modifying the elevator trim system, which would terminate the requirements of the AD.

New Relevant Service Information

The supplemental NPRM referred to EMBRAER Service Bulletins 120-27-0095 and 120-27-0096, both dated February 16, 2007, as the appropriate sources of service information for the elevator trim system modification. EMBRAER has since revised these service bulletins. Service Bulletins 120-27-0095, Revision 01, dated October 30, 2007; and 120-27-0096, Revision 01, dated October 1, 2007; include minor changes but provide no additional work. In this final rule, we have changed paragraph (d) to refer to Revision 01 of the service bulletins, added new paragraph (e) to provide credit for the prior accomplishment of the original service bulletins, and re-identified subsequent paragraphs accordingly.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Request to Conditionally Allow Autopilot Re-Engagement

SkyWest Airlines, Inc., requests that we revise the NPRM to allow autopilot re-engagement once pitch trim is recovered. According to the commenter, the inability to re-engage the autopilot for the remainder of the flight can place an unreasonable workload on a flightcrew during some of the most critical and demanding phases of flight.

We do not agree. We recognize that the inability to re-engage the autopilot could add to the flightcrew's workload during certain phases of flight, but we do not agree that continued flight would be safe with the autopilot re-engaged. When free pitch trim is restored after jamming, the appropriate approach is to continue the flight manually without the autopilot and report the issue to maintenance, rather than re-engaging the autopilot, so the cause of the jam can be evaluated and corrected before further use of the autopilot. We have not changed the AD regarding this issue.

Request to Limit Conditions That Require Pitch Trim Check

SkyWest requests that we require a pitch trim check only when a pitch trim jam is suspected. The commenter states that the existing criteria are too broad, as they would include extremes of descents in conditions of no ice, no moisture, and outside air temperature in excess of 25 degrees Celsius.

We disagree. Jamming of the trim system is not dependent on the environmental conditions. Internal friction of the trim actuators may gradually increase in normal use regardless whether the actuator is internally contaminated. We have not changed the AD regarding this issue.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require adopting the AD with the changes described previously. We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

Cost Impact

The following table provides the estimated costs for U.S. operators to comply with this AD.

Estimated Costs

Action	Work hours	Average labor rate per hour	Parts	Cost per product	Number of U.S.-registered airplanes	Fleet cost
AFM revisions	1	$80	$0	$80	103	$8,240
Placard installation	2	$80	182	342	103	35,226
Actuator replacement	7	$80	16,670	17,230	103	1,774,690
Cable replacement	14	$80	1,050	2,170	103	223,510

The cost impact figures discussed above are based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this 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.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, Section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

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.

For the reasons discussed above, I certify that this action (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) 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 final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it 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 adding the following new airworthiness directive:

2008-15-01 Empresa Brasileira De Aeronautica S.A. (EMBRAER): Amendment 39-15613. Docket 2003-NM-33-AD.

Applicability: All Model EMB-120, -120ER, -120FC, -120QC, and -120RT airplanes, certificated in any category.

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 0º – 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 initial descent, in accordance with Part II of the Accomplishment Instructions of EMBRAER Service Bulletin 120-25-0262, Change 02, dated October 30, 2003.

Elevator Trim System Modification

(d) Within 36 months after the effective date of this AD, modify the elevator trim system, in accordance with the Accomplishment Instructions of EMBRAER Service Bulletin 120-27-0095, Revision 01, dated October 30, 2007; and EMBRAER Service Bulletin 120-27-0096, Revision 01, dated October 1, 2007. Accomplishment of the modification terminates the requirements of paragraphs (a), (b), and (c) of this AD, and the corresponding AFM revisions and placards may be removed.

Credit for Prior Accomplishment

(e) A modification done before the effective date of this AD in accordance with EMBRAER Service Bulletins 120-27-0095 and 120-27-0096, both dated February 16, 2007, is acceptable for compliance with the requirements of paragraph (d) of this AD.

Parts Installation

(f) As of 36 months after the effective date of this AD, no person may install, on any airplane, an elevator trim tab actuator or control cable having a part number identified in Table 1 of this AD.

Table 1 – Prohibited Parts

Part	Part Number
Elevator trim tab actuator	120-19685-001
	120-19685-003
	120-19685-007
	120-38650-001
	120-39205-001
	5299
	5299-1
Control cable	120-27729-095
	120-27729-097
	120-31370-095
	120-31370-097

Alternative Methods of Compliance

(g)(1) The Manager, International Branch, ANM-116, Transport Airplane Directorate, FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

Incorporation by Reference

(h) You must use the service information contained in Table 2 of this AD to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For service information identified in this AD, contact Empresa Brasileira de Aeronautica S.A. (EMBRAER), P.O. Box 343–CEP 12.225, Sao Jose dos Campos–SP, Brazil.

(3) You may review copies of the service information that is incorporated by reference at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

Table 2 – Material Incorporated by Reference

Service Bulletin	Revision Level	Date
EMBRAER Service Bulletin 120-25-0262	Change 02	October 30, 2003
EMBRAER Service Bulletin 120-27-0095	Revision 01	October 30, 2007
EMBRAER Service Bulletin 120-27-0096	Revision 01	October 1, 2007

Note 1: The subject of this AD is addressed in Brazilian airworthiness directive 2001-06-01R4, effective August 23, 2007.

Effective Date

(i) This amendment becomes effective on August 21, 2008.

Issued in Renton, Washington, on July 3, 2008.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E8-15969 Filed 7-16-08; 8:45 am]