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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 96–NM–71–AD; Amendment 39–9945; AD 97–05–01]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 747–200, –300, and –400 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 747–200, –300, and –400 series airplanes, that requires repetitive inspections to detect cracking of the front spar web of the center section of the wing, and repair, if necessary. This amendment is prompted by reports of fatigue cracking found in the front spar web. The actions specified by this AD are intended to prevent the leakage of fuel into the forward cargo bay, as a result of fatigue cracking in the front spar web, which could result in a potential fire hazard.

DATES: Effective April 2, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of April 2, 1997.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124–2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Tamara Dow, Aerospace Engineer, Airframe Branch, ANM–120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (206) 227–2771; fax (206) 227–1181.

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 certain Boeing Model 747–200, –300, and –400 series airplanes was published in the Federal Register on November 18, 1996 (61 FR 58669). That action proposed to require repetitive HFEC inspections to detect cracking of the front spar web along the tangent point of the pocket fillet radii., and repair, if necessary.

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

Support for the Proposal

Three commenters support the proposed AD.

Request to Extend Initial Compliance Time

One commenter requests that the proposal be revised to extend the compliance time for the initial inspection from the proposed 12 months to 18 months. The commenter requests this extension so that affected operators will be able to perform the inspection during a regularly scheduled maintenance visit. The extent of the work involved in the proposed inspection, and any necessary repair, cannot be accomplished at a line station, but must be accomplished when the airplane would be located at a main base where special equipment and trained personnel would be readily available. The commenter states that the adoption of the proposed compliance time of 12 months would require operators to schedule special times for the accomplishment of the inspection, at additional expense and downtime.

Further, this commenter states that the wing center section front spar web is inspected currently on some affected airplanes under the Supplemental Structural Inspection Document (SSID) program, which was mandated most recently by AD 94–15–18, amendment 39–8989 (59 FR 41233, August 11, 1994). There have been no reports of cracks found in this front spar web area during these required inspections. Additionally, the commenter states that, since June 1995, at least 3 airplanes in its fleet have undergone either NDT or visual inspections, and no cracks or other problems were found on the subject front spar web. The commenter requests that the FAA take this experience into consideration and extend the proposed compliance threshold as requested.

The FAA does not concur. Leakage of fuel into the forward cargo bay, as a result of fatigue cracking in the front spar web, is a significant safety issue, and the FAA has determined that the inspection threshold, as proposed, is warranted. The FAA considered not only these safety issues in developing an appropriate compliance time for this action, but the recommendations of the manufacturer, the availability of any necessary repair parts, and the practical aspect of accomplishing the required inspection within an interval of time that parallels normal scheduled maintenance for the majority of affected operators.

The FAA points out that the manufacturer recommended that the inspections begin within 18 months after the release of Boeing Service Bulletin 747–57A2298, Revision 1, on September 12, 1996; that interval corresponds to most operators' scheduled ''C'' checks. The FAA took this recommendation into account, as well as the time that would be necessary to complete the rulemaking process, and found that a 12-month initial compliance time should fall well within the time that the majority of operators have regular maintenance visits scheduled.

As for the results of inspections previously performed on the affected area, the FAA points out that this AD action was based on reports from two operators who did find cracking in the wing center section front spar web on at least three airplanes; the longest crack found was 17 inches. While those cracks were found on Model 747–100 series airplanes, the FAA maintains that similar cracking is likely to develop on Model 747–200, –300, and –400 series airplanes up to line number 744 because those models have the same web thickness and similar loading as the Model 747–100.

In light of these factors, the FAA has determined that the 12-month initial compliance time, as proposed, is appropriate. The FAA points out that, if operators already have accomplished the initial inspection within the last 12 months prior to the effective date of the AD, they are given ''credit'' for that inspection as compliance with the initial inspection requirement of the AD. The final rule has been revised to clarify this point.

Request To Extend Repetitive Inspection Intervals

One commenter requests that the proposal be revised to extend the repetitive inspection interval from the proposed 1,400 cycles to 2,000 cycles. The commenter, a U.S. operator, states that it already has inspected several of the airplanes in its fleet and has found no cracking. In addition, the commenter points out that the inspection area will be visually inspected at regular intervals to detect corrosion as part of the Boeing 747 Corrosion Prevention and Control Program, which was mandated by AD 90–25–05, amendment 39–6790 (55 FR 49268, November 27, 1990).

The FAA does not concur, since the commenter provided no technical justification for an extension. The repetitive interval of 1,400 cycles is based on damage tolerance and crack growth analyses that the manufacturer performed. Additionally, the interval was calculated based on accomplishing high frequency eddy current (HFEC) inspections, and the effectiveness of those inspections in detecting cracking. The FAA acknowledges that visual inspections to detect corrosion of the area are mandated by AD 90–25–05; however, the HFEC inspections required by this AD will provide a much higher level of precision than visual inspections, and will be able to detect cracking far earlier than could be discovered by visual inspections alone.

Request To Revise Method of Counting Accumulated Cycles

One commenter requests that the proposal be revised to include a provision specifying that pressurization cycles of 2.0 psi or less need not be counted as a flight cycle when determining the number of flight cycles relative to the proposed compliance thresholds. The commenter states that cabin pressure is the main contributor to stresses in the center section front spar web, but a cabin pressure of 2.0 psi would result in stresses of less than one-fourth the normal operating level. Further, with a maximum cabin pressure at 2.0 psi, the fatigue damage per cycle would be reduced by a factor of approximately 100.

The FAA does not concur with the commenter's request. The FAA considers that flights with less than 2.0 psi cabin pressure may contribute a negligible amount of fatigue damage to the front spar web of the wing center section. However, a pressurization cycle of 2.0 psi or less is a typical pressure used during flight training, and is not typical of normal operation of the affected airplanes. The FAA does not consider it appropriate to include various provisions in an AD applicable to a unique use of an affected airplane. Paragraph (e) of this final rule provides for the approval of alternative methods of compliance to address these types of unique circumstances.

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 the adoption of the rule with the one change described previously. The FAA has determined that this change will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 485 Model 747–200, –300, and –400 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 105 airplanes of U.S. registry will be affected by this AD, that it will take approximately 48 work hours per airplane to accomplish the required inspections, and that the average labor rate is $60 per work hour. Based on these figures, the cost impact of the AD on U.S. operators is estimated to be $302,400, or $2,880 per airplane, per inspection.

The cost impact figure discussed above is 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.

Regulatory Impact

The regulations adopted herein will not have substantial direct effects 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, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

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:

97–05–01 Boeing: Amendment 39–9945. Docket 96–NM–71–AD.

Applicability: Model 747–200, –300, and –400 series airplanes, up to and including line number 744, 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 (e) 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 the leakage of fuel into the forward cargo bay through fatigue cracks in the front spar web, which could result in a potential fire hazard, accomplish the following:

(a) Perform a high frequency eddy current (HFEC) inspection to detect cracking of the front spar web of the center section of the wing, in accordance with Boeing Alert Service Bulletin 747–57A2298, Revision 1, dated September 12, 1996, at the time specified in paragraph (a)(1) or (a)(2) of this AD, as applicable.

(1) For airplanes that have accumulated 12,000 to 17,999 total landings as of the effective date of this AD: Perform the initial inspection within 12 months after the effective date of this AD, unless previously accomplished within the last 12 months. Perform this inspection again prior to the accumulation of 18,000 total landings or within 1,400 landings, whichever occurs later; after accomplishing the initial inspection, and thereafter at intervals not to exceed 1,400 landings.

(2) For all other airplanes: Perform the initial inspection prior to the accumulation of 18,000 total landings or within 12 months after the effective date of this AD, whichever occurs later. Repeat this inspection thereafter at intervals not to exceed 1,400 landings.

(b) Except as provided by paragraph (c) of this AD, if any cracking is detected during an inspection required by paragraph (a) of this AD, prior to further flight, repair in accordance with paragraph (b)(1) or (b)(2) of this AD, as applicable. Thereafter repeat the HFEC inspection required by paragraph (a) of this AD at intervals not to exceed 1,400 landings.

(1) If any vertical crack is found that is less than 10 inches in length, repair in accordance with Boeing Alert Service Bulletin 747–57A2298, Revision 1, dated September 12, 1996.

(2) If any vertical crack is found that is 10 inches or greater in length; or if any crack is found that has extended in a diagonal direction (regardless of length); or if any crack is found that would affect an existing repair; repair in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate.

(c) In lieu of accomplishing the procedures specified in paragraph (b) of this AD: If a crack in the front spar web is detected during an HFEC inspection required by paragraph (a) of this AD, prior to further flight, operators may accomplish the procedures for an optional HFEC inspection to confirm cracking, as described in paragraph III.D.2. of the Accomplishment Instructions of Boeing Alert Service Bulletin 747–57A2298, Revision 1, dated September 12, 1996.

(1) If this optional inspection is accomplished and cracking is not confirmed, thereafter repeat the HFEC inspection specified in paragraph (a) of this AD at intervals not to exceed 1,400 landings.

(2) If this optional inspection is accomplished and confirms cracking, prior to further flight, repair the cracking in accordance with paragraph (b)(1) or (b)(2) of this AD, as applicable.

(d) For airplanes that are required to perform an initial HFEC inspection in accordance with paragraph (a)(1) of this AD: Within 30 days after accomplishing the initial inspection, submit a report of inspection results, negative or positive, that includes the information identified in paragraphs (d)(1) through (d)(5) of this AD, to the Manager, Seattle Aircraft Certification Office, FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington 98055–4056; fax (206) 227–1181. Information collection requirements contained in this regulation have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*) and have been assigned OMB Control Number 2120–0056.

(1) Airplane serial number.

(2) Total number of landings accumulated.

(3) Total number of hours time-in-service accumulated.

(4) Location, size and orientation of each crack.

(5) Whether fuel leakage resulted from the crack.

(e) 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, Seattle ACO Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

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

(f) 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.

(g) The actions shall be done in accordance with Boeing Alert Service Bulletin 747–57A2298, Revision 1, dated September 12, 1996. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124–2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(h) This amendment becomes effective on April 2, 1997.

Issued in Renton, Washington, on February 19, 1997.

James V. Devany,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 97–4555 Filed 2–25–97; 8:45 am]

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14 CFR Part 39

[Docket No. 95–NM–51–AD; Amendment 39–9946; AD 97–05–02]

RIN 2120–AA64

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

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain EMBRAER Model EMB–120 series airplanes, that requires removal of the upper channel fairings and their shims; and rework of the riveting holes, the aileron sealing canvas (aerodynamic seals), and the protective covers of the trim tab hinge fittings of the aileron and elevator. This amendment is prompted by reports of binding of the aileron due to water freezing between the upper channel fairings and the surface of the leading edge of the aileron. The actions specified by this AD are intended to prevent water from freezing these areas, which could result in binding of the aileron and subsequent reduced controllability of the airplane.

DATES: Effective April 2, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of April 2, 1997.

ADDRESSES: The service information referenced in this AD may be obtained from Embraer, Empresa Brasileira De Aeronautica S/A, Sao Jose Dos Campos, Brazil. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, Suite 2–160, College Park, Georgia; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Curtis Jackson, Aerospace Engineer, Airframe Branch, ACE–117A, FAA, Small Airplane Directorate, Atlanta Aircraft Certification Office, Campus Building, 1701 Columbia Avenue, Suite 2–160, College Park, Georgia 30337–2748; telephone (404) 305–7358; fax (404) 305–7348.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal