

Issued in Renton, Washington, on January 24, 2000.

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Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 97-NM-323-AD; Amendment 39-11537; AD 2000-02-19]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 727 series airplanes, that currently requires repetitive inspections of the front spar web between the upper and lower seals of the center section of the wings, and repair, if necessary. That amendment also provides for an optional terminating modification for the repetitive inspections. This amendment requires a new terminating modification for the repetitive inspections. For certain airplanes, this amendment also requires new repetitive inspections to detect discrepancies of the front spar web. This amendment is prompted by a report indicating that the optional terminating modification in the existing AD does not adequately address the identified unsafe condition. The actions specified by this AD are intended to prevent fatigue cracks in the front spar web, which could lead to fuel leakage into the air-conditioning distribution bay and/or depressurization of the cabin, and to prevent fuel fumes in the cabin of the airplane.

DATES: Effective March 9, 2000.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 9, 2000.

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:

Walter Sippel, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Transport Airplane Directorate, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2774; fax (425) 227-1181.

SUPPLEMENTARY INFORMATION:

A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 90-02-16, amendment 39-6452 (55 FR 602, January 8, 1990), which is applicable to certain Boeing Model 727 series airplanes, was published in the **Federal Register** on August 10, 1999 (64 FR 43318). The action proposed to continue to require repetitive inspections of the front spar web between the upper and lower seals of the center section of the wings, and repair, if necessary. That action also proposed to require a new terminating modification for the repetitive inspections, and, for certain airplanes, new repetitive inspections to detect discrepancies of the front spar web.

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.

Support for the Proposal

One commenter supports the proposed rule.

Request to Allow Alternative Inspection Method

One commenter, the manufacturer, requests that the proposed rule be revised to allow accomplishment of repetitive high frequency eddy current (HFEC) inspections to detect cracks in the front spar web, in lieu of the repetitive detailed visual inspections specified in paragraph (a) of the proposed rule. (In the proposed rule, the FAA stated that this AD would not provide for an HFEC inspection in lieu of the detailed visual inspection because Boeing Service Bulletin 727-57-0177, dated December 22, 1988, does not contain procedures for such an HFEC inspection, and, without such procedures, the FAA could not be sure that an HFEC inspection would detect cracks in a timely manner.) The commenter states that the option of an HFEC inspection would give operators more flexibility and reduce requests to the FAA for an alternative method of compliance. The commenter provides a

reference for procedures for performing an HFEC inspection, and suggests a repetitive interval of 4,500 flight cycles. The commenter also states that it is revising Boeing Service Bulletin 727-57-0177 to incorporate procedures for an HFEC inspection and requests that the FAA delay issuance of the final rule until the release of Revision 4 of the service bulletin.

The FAA concurs with the commenter's requests. Since the issuance of the notice of proposed rulemaking (NPRM), the FAA has reviewed and approved Boeing Service Bulletin 727-57-0177, Revision 4, dated October 28, 1999. Revision 4 of the service bulletin is essentially similar to Revision 3 of the service bulletin, dated February 15, 1996. (Revision 3 of the service bulletin was cited in the NPRM as an appropriate source of service information for accomplishment of the proposed actions.) However, Revision 4 of the service bulletin also incorporates procedures for accomplishment of an HFEC inspection as an alternative to the close visual inspection. The FAA finds that the HFEC inspection described in the service bulletin would ensure that any cracks are detected in a timely manner. Therefore, paragraph (a) of this final rule has been revised to provide for accomplishment of repetitive HFEC inspections in lieu of the repetitive detailed visual inspection proposed in the NPRM. For clarity, paragraphs (a)(1) and (a)(2) have been added to specify appropriate sources of service information and repetitive inspection intervals for the two types of inspection. Also, the cost impact section of the final rule has been revised to provide an estimate of the cost for the HFEC inspection. In addition, paragraphs (b), (c), (d), and (e) of this final rule have been revised to allow accomplishment of the actions specified in those paragraphs in accordance with Revision 4 of the service bulletin.

Request to Correct Typographical Errors

One commenter requests that a reference to AD 90-02-15 in the "Alternative Method of Compliance" section of the NPRM be revised to refer to AD 90-02-16. The FAA concurs with the commenter's request and acknowledges that the correct reference should have been to AD 90-02-16. Paragraph (g)(2) of this AD has been revised accordingly.

The same commenter requests that a reference to Boeing Model 747 series airplanes in the "Other Relevant Rulemaking" section in the preamble of the NPRM be revised to refer instead to Boeing Model 727 series airplanes. The

FAA acknowledges that the correct reference should have been to Boeing Model 727 series airplanes; however, that section is not restated in the final rule and, therefore, no change to the final rule is necessary in this regard.

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 changes described previously. The FAA has determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 1,524 Model 727 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 1,098 airplanes of U.S. registry will be affected by this AD.

The detailed visual inspection that is currently required by AD 90-02-16, and retained in this AD as one option for compliance, and the HFEC inspection that may be accomplished in lieu of the detailed visual inspection, take approximately 3 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of either the currently required detailed visual or the HFEC inspection on U.S. operators is estimated to be \$197,640, or \$180 per airplane, per inspection cycle.

The modification that is required by this new AD will take approximately 360 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$1,430 per airplane. Based on these figures, the cost impact of the new requirements of this AD on U.S. operators is estimated to be \$25,286,940, or \$23,030 per airplane.

The visual inspection that is required for certain airplanes in this new AD action will take approximately 1 work hour per airplane to accomplish, at an average labor rate of \$60 per work hour. Based on these figures, the cost impact of this inspection on U.S. operators is estimated to be \$60 per airplane, per inspection cycle.

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.

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 removing amendment 39-6452 (55 FR 602, January 8, 1990), and by adding a new airworthiness directive (AD), amendment 39-11537, to read as follows:

2000-02-19 Boeing: Amendment 39-11537. Docket 97-NM-323-AD. Supersedes AD 90-02-16, Amendment 39-6452.

Applicability: Model 727 series airplanes, as listed in Boeing Service Bulletin 727-57-0177, dated December 22, 1988; 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 (g)(1) 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 fatigue cracks of the front spar web of the center section of the wings, which could lead to fuel leakage and/or depressurization of the cabin, or to prevent fuel fumes in the cabin of the airplane, accomplish the following:

Repetitive Inspections

(a) For areas on which the front spar web between the upper and lower seals of the center section of the wings has not been repaired or modified in accordance with Figure 2 or 3 of Boeing Service Bulletin 727-57-0177, dated December 22, 1988; Revision 1, dated November 21, 1991; or Revision 2, dated September 16, 1993: Prior to the accumulation of 40,000 total flight cycles, or within the next 2,300 flight cycles after February 12, 1990 (effective date of AD 90-02-16, amendment 39-6452), whichever occurs later, unless accomplished within the last 700 flight cycles, accomplish the requirements of either paragraph (a)(1) or (a)(2) of this AD.

(1) Perform a detailed visual inspection to detect cracks in the front spar web, in accordance with Figure 1 of Boeing Service Bulletin 727-57-0177, dated December 22, 1988; Revision 1, dated November 21, 1991; Revision 2, dated September 16, 1993; Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999. Repeat the detailed visual inspection thereafter at intervals not to exceed 3,000 flight cycles, until accomplishment of the requirements specified in either paragraph (b) or (c) of this AD.

Note 2: For the purposes of this AD, a detailed visual inspection is defined as: "An intensive visual examination of a specific structural area, system, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at intensity deemed appropriate by the inspector. Inspection aids such as mirror, magnifying lenses, etc., may be used. Surface cleaning and elaborate access procedures may be required."

(2) Perform a high frequency eddy current (HFEC) inspection to detect cracks in the front spar web, in accordance with Boeing Service Bulletin 727-57-0177, Revision 4, dated October 28, 1999. Repeat the HFEC inspection thereafter at intervals not to exceed 4,500 flight cycles, until accomplishment of the requirements specified in either paragraph (b) or (c) of this AD.

Note 3: Accomplishment of the high frequency eddy current (HFEC) inspection required by AD 90-02-16, is considered acceptable for compliance with the initial detailed visual inspection required by paragraph (a) of this AD.

Repair of Cracks

(b) If any crack is detected during any inspection required by paragraph (a) of this AD, prior to further flight, accomplish the actions specified in either paragraph (b)(1) or (b)(2) of this AD, as applicable.

Accomplishment of the repair constitutes terminating action for the repetitive inspection requirements of paragraph (a) of this AD for that repaired area.

(1) For airplanes equipped with integral fuel tanks in the center section of the wings: Repair in accordance with Figure 2 of Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999.

(2) For airplanes not equipped with integral fuel tanks in the center section of the wings: Repair in accordance with Figure 2 of Boeing Service Bulletin 727-57-0177, dated December 22, 1988, Revision 1, dated November 21, 1991; Revision 2, dated September 16, 1993; Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999.

Note 4: Where there are differences between the referenced service bulletins and this AD, the AD prevails.

Modification

(c) Except as provided by paragraph (d) of this AD, prior to the accumulation of 60,000 total flight cycles, or within 48 months after the effective date of this AD, whichever occurs later, accomplish the actions specified in either paragraph (c)(1) or (c)(2) of this AD, as applicable. Accomplishment of this action constitutes terminating action for the repetitive inspection requirements of paragraph (a) of this AD.

(1) For airplanes equipped with integral fuel tanks in the center section of the wings: Modify the front spar web, between the upper and lower seals, of the center section of the wings, in accordance with Part I of the Accomplishment Instructions of Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999.

(2) For airplanes not equipped with integral fuel tanks in the center section of the wings: Modify the front spar web, between the upper and lower seals, of the center section of the wings, in accordance with Boeing Service Bulletin 727-57-0177, dated December 22, 1988, Revision 1, dated November 21, 1991; Revision 2, dated September 16, 1993; Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999.

Repetitive Visual Inspections and Repair/Modification of the Front Spar Web

(d) For areas on which the front spar web between the upper and lower seals of the center section of the wings has been repaired or modified in accordance with Figure 2 or 3 of Boeing Service Bulletin 727-57-0177, dated December 22, 1988; Revision 1, dated November 21, 1991; or Revision 2, dated September 16, 1993: Accomplish the actions required by either paragraph (d)(1) or (d)(2) of this AD, as applicable.

(1) For airplanes not equipped with integral fuel tanks in the center section of the

wings: No further action is required by this AD for those areas repaired or modified.

(2) For airplanes equipped with integral fuel tanks in the center section of the wings: Accomplish the actions required by both paragraphs (d)(2)(i) and (d)(2)(ii) of this AD.

(i) Within 500 flight cycles after the effective date of this AD, perform a detailed visual inspection of the front spar web to detect fuel leakage and penetrations in the secondary fuel barrier, and to verify the installation of the secondary fuel barrier; in accordance with Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999. Repeat the visual inspection thereafter at intervals not to exceed 1,500 flight cycles, until accomplishment of the actions required by paragraph (d)(2)(ii) of this AD.

(ii) Prior to the accumulation of 14,000 flight cycles, or within 96 months after the effective date of this AD, whichever occurs later, repair/modify the front spar web in accordance with Part II of the Accomplishment Instructions of Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999. Accomplishment of this action constitutes terminating action for the repetitive inspection requirements of paragraph (d)(2)(i) of this AD for that repaired/modified area.

Follow-On Corrective Action

(e) During any inspection required by paragraph (d)(2)(i) of this AD, if any fuel leakage or penetration in the secondary fuel barrier is detected, or if any secondary fuel barrier is verified as not being installed, prior to further flight, repair in accordance with Part II of the Accomplishment Instructions of Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Revision 4, dated October 28, 1999. Accomplishment of this action constitutes terminating action for the repetitive inspection requirements of paragraph (d)(2)(i) of this AD for that repaired area.

Terminating Action for AD 94-05-04

(f) Accomplishment of the actions required by paragraph (b), (c), (d)(2)(ii), or (e) of this AD constitutes terminating action for the requirements specified in paragraph (a) of AD 94-05-04, amendment 39-8842 (59 FR 13442, March 22, 1994), with respect to the modification specified in Boeing Service Bulletin 727-57-0177, dated December 22, 1988. This service bulletin is one of many service bulletins referenced in Boeing Document D6-54860, Revision G, Appendix A.3, dated March 5, 1993. All other service bulletins referenced in that document still apply.

Alternative Method of Compliance

(g)(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, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane 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 5: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

(2) For airplanes not equipped with integral fuel tanks in the center section of the wings: Alternative methods of compliance, approved previously in accordance with AD 90-02-16, amendment 39-6452, are approved as alternative methods of compliance with this AD. For airplanes equipped with integral fuel tanks in the center section of the wings: Alternative methods of compliance, approved previously in accordance with AD 90-02-16, are NOT approved as alternative methods of compliance with this AD.

Special Flight Permits

(h) Special flight permits may be issued in accordance with §§ 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

(i) The actions shall be done in accordance with Boeing Service Bulletin 727-57-0177, dated December 22, 1988; Boeing Service Bulletin 727-57-0177, Revision 1, dated November 21, 1991; Boeing Service Bulletin 727-57-0177, Revision 2, dated September 16, 1993; Boeing Service Bulletin 727-57-0177, Revision 3, dated February 15, 1996; or Boeing Service Bulletin 727-57-0177, Revision 4, dated October 28, 1999; as applicable. 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.

(j) This amendment becomes effective on March 9, 2000.

Issued in Renton, Washington, on January 24, 2000.

Donald L. Riggins,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.
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