

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [62 FR 9359 NO. 41 03/03/97]

Docket No. 97-NM-32-AD; Amendment 39-9952; AD 97-05-08

RIN 2120-AA64

Airworthiness Directives; Boeing Model 727 Series Airplanes

AGENCY: Federal Aviation Administration, DOT

ACTION: Final rule; request for comments

SUMMARY: This amendment adopts a new airworthiness directive (AD) that is applicable to all Boeing Model 727 series airplanes. This action requires repetitive pre-modification inspections to detect cracks in the forward support fitting of the number 1 and number 3 engines; and repair, if necessary. This AD also provides for an optional high frequency eddy current (HFEC) inspection, and, if possible, modification of the fastener holes; and various follow-on actions. Accomplishment of these optional actions would constitute terminating action for the repetitive pre-modification inspections. This amendment is prompted by reports indicating that fatigue cracks were found in the forward support fitting of the number 1 and number 3 engines. The actions specified in this AD are intended to detect and correct such fatigue cracking, which could result in failure of the support fitting and consequent separation of the engine from the airplane.

DATES: Effective March 18, 1997.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of March 18, 1997.

Comments for inclusion in the Rules Docket must be received on or before May 2, 1997.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-103, Attention: Rules Docket No. 97-NM-32-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

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 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.

FOR FURTHER INFORMATION CONTACT: Walter Sippel, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (206) 227-2774; fax (206) 227-1181.

SUPPLEMENTARY INFORMATION: The FAA has received several reports of cracks found in the forward support fitting of the number 1 and number 3 engines on Boeing Model 727 series airplanes. In two of these incidents, the cracks emanated from the large fastener holes next to the side of the fuselage. In a third incident, a fitting was cracked almost completely through. In other incidents, cracks were found at a small distance inboard from the fuselage side. The cracking has been attributed to fatigue, which was caused by corrosion pitting damage on the surfaces of the fastener holes in the fittings. These conditions, if not detected and corrected in a timely manner, could result in failure of the support fitting and consequent separation of the engine from the airplane.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Service Bulletin 727-54A0010, Revision 4, dated January 30, 1997, which describes the following procedures:

1. Performing repetitive visual inspections to detect cracks of the upper and lower flanges, and the vertical web of the forward support fitting of the number 1 and number 3 engines;
2. Performing repetitive high frequency eddy current (HFEC) inspections to detect cracks of the forward flange of the support fitting adjacent to the collars of two fasteners of the number 1 and number 3 engines;
3. Performing repetitive detail visual inspections to detect cracks of the upper and lower flanges adjacent to six fasteners of the number 1 and number 3 engines;
4. Repairing the cracked forward support fitting; and
5. Performing a HFEC inspection to detect cracks of the fastener holes in the forward support fitting of the number 1 and number 3 engines, and, if possible, modification of the fastener holes; and various follow-on actions. (These follow-on actions include installation of fasteners, repetitive HFEC inspections, and repair of cracked forward support fittings.) The modification involves oversizing the fastener holes until the HFEC does not detect any cracks. Accomplishment of this HFEC inspection, modification, and follow-on actions will eliminate the need for the repetitive pre- modification inspections, as described in items 1 through 3.

Explanation of the Requirements of the Rule

Since an unsafe condition has been identified that is likely to exist or develop on other Boeing Model 727 series airplanes of the same type design, this AD is being issued to detect and correct fatigue cracking of the forward support fitting, which could result in failure of the support fitting and consequent separation of the engine from the airplane. This AD requires repetitive pre- modification inspections to detect cracks of the forward support fitting of the number 1 and number 3 engines; and repair, if necessary. This AD also provides for an optional HFEC inspection, and, if possible, modification of the fastener holes; and various follow-on actions. Accomplishment of these optional actions constitutes terminating action for the

repetitive pre-modification inspections. The actions are required to be accomplished in accordance with the service bulletin described previously.

Differences Between the AD and the Relevant Service Information

Operators should note that, although the service bulletin specifies that the manufacturer must be contacted for disposition of certain conditions, this AD requires the repair of those conditions to be accomplished in accordance with method approved by the FAA.

Interim Action

This AD is considered interim action. The FAA is considering further rulemaking action to supersede this AD to require an HFEC inspection to detect cracks of the fastener holes in the forward support fitting of the number 1 and number 3 engines, and, if possible, modification of the fastener holes; and various follow-on actions. Accomplishment of these actions will constitute terminating action for the repetitive pre-modification inspections required by this AD action. However, the FAA's planned compliance time for these actions is sufficiently long so that prior notice and time for public comment will be practicable.

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.

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 97-NM-32-AD." The postcard will be date stamped and returned to the commenter.

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.

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 adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



U.S. Department
of Transportation
**Federal Aviation
Administration**

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

97-05-08 BOEING: Amendment 39-9952. Docket 97-NM-32-AD.

Applicability: All Model 727 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 (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 detect and correct fatigue cracking, which could result in failure of the support fitting and consequent separation of the engine from the airplane, accomplish the following:

(a) Within 100 days or within 600 flight cycles after the effective date of this AD, whichever occur first, accomplish paragraph (a)(1), (a)(2), and (a)(3) of this AD, in accordance with Boeing Service Bulletin 727-54A0010, Revision 4, dated January 30, 1997.

(1) Perform a visual inspection to detect cracks of the upper and lower flanges, and the vertical web of the forward support fitting of the number 1 and number 3 engines, in accordance with Part 1 - Pre-Modification Inspections of the Accomplishment Instructions of the service bulletin.

(2) Perform a high frequency eddy current (HFEC) inspection to detect cracks of the forward flange of the support fitting adjacent to the collars of two fasteners of the number 1 and number 3 engines, in accordance with Part 1 - Pre-Modification Inspections of the Accomplishment Instructions of the service bulletin.

(3) Perform a detailed visual inspection to detect cracks of the upper and lower flanges adjacent to six fasteners of the number 1 and number 3 engines, in accordance with Part 1 - Pre-Modification Inspections of the Accomplishment Instructions of the service bulletin.

(b) If no crack is detected during the inspections required by paragraph (a) of this AD, repeat those inspections thereafter at intervals not to exceed 100 days or 600 flight cycles, whichever occurs first.

(c) If any crack is detected during any inspection required by paragraph (a) of this

AD, prior to further flight, repair the forward support fitting in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate.

(d) Accomplishment of the actions specified in paragraphs (d)(1) and (d)(2) of this AD in accordance with Boeing Service Bulletin 727-54A0010, Revision 4, dated January 30, 1997, constitutes terminating action for the requirements of paragraphs (a) and (b) of this AD.

(1) Perform a HFEC inspection to detect cracks of the fastener holes in the forward support fitting of the number 1 and number 3 engines, and, if possible, modify the fastener holes, in accordance with Part II - Fastener Hole Modification of the Accomplishment Instructions of the service bulletin.

(i) If the modification (i.e., a fastener installed in a hole with no cracks) was accomplished at all eight holes, no further action is required by paragraph (d)(1) of this AD.

(ii) If the modification was not accomplished at all eight holes because of the continued detection of cracking, prior to further flight, repair the forward support fitting in accordance with a method approved by the Manager, Seattle ACO.

(2) Prior to the accumulation of 3,000 flight cycles or 24 months, whichever occurs first, following accomplishment of paragraph (d)(1) of this AD, perform a HFEC inspection to detect corrosion or cracks of the modified forward support fitting of the number 1 and number 3 engines, in accordance with Part III - Post-Modification Inspections of the Accomplishment Instructions of the service bulletin.

(i) If no crack or corrosion is detected, prior to further flight, install the fasteners wet with a sealant in accordance with the service bulletin. Repeat the HFEC inspection required by paragraph (d)(2) of this AD thereafter at intervals not to exceed 3,000 flight cycles or 24 months, whichever occurs first.

(ii) If any crack or corrosion is detected, prior to further flight, repair the forward support fitting in accordance with a method approved by the Manager, Seattle ACO.

(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 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 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 inspections and modifications shall be done in accordance with Boeing Service Bulletin 727-54A0010, Revision 4, dated January 30, 1997. 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 March 18, 1997.