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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001-NM-236-AD; Amendment 39-12393; AD 2001-17-02]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 737-600, -700, and -800 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 certain Boeing Model 737-600, -700, and -800 series airplanes. This action requires repetitive inspections for corrosion or cracking of the keel beam splices, and corrective action, if necessary. This action also provides an optional terminating action for the repetitive inspections. This action is necessary to find and fix corrosion or cracking of the keel beam splices, which could result in failure of the keel beam and consequent failure of the forward fuselage of the airplane. This action is intended to address the identified unsafe condition.

DATES: Effective September 4, 2001.

Comments for inclusion in the Rules Docket must be received on or before October 19, 2001.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-114, Attention: Rules Docket No. 2001-NM-236-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056. Comments may be inspected at this location between 9:00 a.m. and 3:00 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-iarcomment@faa.gov. Comments sent via fax or the Internet must contain "Docket No. 2001-NM-236-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.

Information related to this AD may be examined at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington.

FOR FURTHER INFORMATION CONTACT: James Blilie, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 227-2131; fax (425) 227-1181.

SUPPLEMENTARY INFORMATION: The FAA has received a report that severe corrosion was found on a keel beam splice on two Boeing Model 737-700 series airplanes. At the time the severe corrosion was found, the airplanes had been in service for approximately 22 months since date of manufacture. This corrosion has been attributed to the material of the keel beam splice plates that were installed during production of certain Boeing Model 737-600, -700, and -800 series airplanes. The material, 7150-T6511, is known to be highly susceptible to corrosion. Such corrosion, if not found and fixed, could cause cracking of the keel beam splices, which in turn could lead to rapid degradation of the strength of the keel beam splices, and result in failure of the keel beam and consequent failure of the forward fuselage of the airplane.

This unsafe condition may exist or develop on Model 737-600 and -700 series airplanes up to and including line number 908; and on Model 737-800 series airplanes up to and including line number 455. The keel beam splices on airplanes after those line numbers are made of a more corrosion-resistant material.

Other Relevant Rulemaking

On November 5, 1990, we issued AD 90-25-01, amendment 39-6789 (55 FR 49263, November 27, 1990). That AD applies to all Boeing Model 737 series airplanes and requires implementation of a corrosion prevention and control program (CPCP) specified in Boeing Document Number D6-38528 "Aging Airplane CPCP, Model 737," Revision A, dated July 28, 1989.

The airplanes subject to this new AD are also subject to AD 90-25-01. However, we have previously approved an alternative method of compliance (AMOC) to paragraph (a) of that AD for Boeing Model 737 "Next Generation" airplanes (which includes Model 737-600, -700, and -800 series airplanes). This AMOC allows certain inspection thresholds and repetitive intervals listed in Section 8 ("Structural Maintenance Program") of Boeing Document Number D626A001, dated June 2000 (the "Maintenance Planning Document" (MPD) for the Boeing 737 Next Generation airplanes), to be used as an alternative to the thresholds and intervals listed in Boeing Document Number D6-38528, Revision A.

FAA's Determination

We have determined that existing inspections of the keel beam splices included in the CPCP required by the existing AD and in Boeing Document Number D626A001 are not sufficient to ensure that the splices are inspected for corrosion and cracking in a timely manner. This determination is based on the following information:

- Task Number 53-210-00 of Boeing Document Number D626A001, Section 8, dated June 2001, includes repetitive general visual inspections for any discrepancy of the keel beam under the wing-to-body fairing, including the keel beam splice (among other areas). We find that the procedures involved in this inspection are sufficient to ensure that corrosion and cracking of the keel beam splices are found. However, the compliance time for this inspection is 12 years since the airplane's date of manufacture or 36,000 total flight cycles, whichever occurs first, and the repetitive interval is 8 years or 24,000 flight cycles, whichever occurs first. We have determined that the compliance threshold is not early enough and the repetitive interval is too long to ensure that corrosion and cracking of the keel beam splices is found and fixed in a timely manner. (As stated above, severe corrosion of the keel beam splice plates has been found on two Model 737-700 series airplanes within 22 months after the date of manufacture of those airplanes.)
- Task 53-828-00 of Boeing Document Number D626A001, Section 7 ("Zonal Inspection Program"), dated June 2001, contains instructions for an optional general visual inspection for discrepancies in a specific area aft of the keel beam at a suggested repetitive interval of 18 months. However, the procedures do not specifically state that the keel beam splices should be inspected.

Determination of Compliance Time

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, the FAA and representatives of the airplane manufacturer met on July 23 and 25, 2001. (Records of these meetings are available in the Rules Docket for examination by interested persons.) The purpose of these meetings was to allow the manufacturer to provide revised engineering data that could potentially affect the compliance time for the actions required by this AD. Although the manufacturer concurs with our determination that the corrosion addressed by this AD represents a safety concern, it asserts that the compliance times could be increased over the times we planned to require for the actions in this AD.

The revised data presented primarily consisted of a finite-element analysis (FEA) of the wing and fuselage of the Boeing Model 737 "Next Generation" airplanes. The FEA included results of a "splice plates intact" model, and an analysis of the model with the keel beam chords rendered ineffective (due to corroded or cracked splice plates) at the body station (BS) 540 location. The manufacturer asserted that the FEA was necessary to properly analyze this area because this area, the lower wing-to-fuselage connection, is highly complex and redundant.

The manufacturer asserted that the buttock line 41 fuel beam and the under-wing longeron would be adequate to react limit load in the case of failure of the keel beam chord splices at BS 540. (Limit load is defined as the highest application of load that is expected to occur in service.) Based on these data, the manufacturer suggested that an 18-month repetitive inspection interval, similar to the MPD inspection of an adjacent area which was described previously, would provide an adequate level of safety.

We have reviewed the revised data provided by the manufacturer and concur that the area is structurally very complex and difficult to analyze, due to the structural interactions of the fuselage and wing. We accept that the alternate load paths shown by the manufacturer's analysis are adequate to react limit load in the event of failure of the keel beam splices at BS 540. However, the fatigue life of the alternate load paths is unknown and is expected to be reduced due to the significant increase in loads.

Given the level of risk, we conclude that urgent airworthiness action continues to be necessary and requires the immediate adoption of this AD without notice and opportunity for prior public comment. However, we have determined that the manufacturer's analysis allows for an increase in the initial inspection threshold and repetitive inspection interval over what we planned to require, as well as an increase in the planned grace period (for airplanes over the initial inspection threshold).

The initial reports of severe corrosion were received in July 2000, on airplanes with line numbers 73 and 90. As described previously, at that time, these airplanes had been in service for approximately 22 months. It was not until May 2001, that we determined the actual extent of the corrosion of the splice plate. As a result, it is possible that there are approximately 400 airplanes at present that are at two years or more since date of manufacture, with some airplanes being as old as 4 years since date of manufacture. Inspection of these airplanes may reveal corrosion considerably in excess of the severe corrosion observed on line numbers 73 and 90.

We originally intended to set a compliance threshold of 12 months since date of manufacture for the initial inspection, with a repetitive inspection interval of 12 months. We intended to allow a grace period of 30 days after the effective date of this AD for airplanes older than 12 months since date of manufacture. As discussed above, due to the revised data provided by the manufacturer, we have determined that the following changes to the compliance times for this AD will provide an acceptable level of safety:

- For airplanes at less than 18 months since date of manufacture as of the effective date of this AD, extension of the initial inspection threshold to the later of 18 months since date of manufacture or 90 days after the effective date of this AD.

- For airplanes at 18 months or more since date of manufacture as of the effective date of this AD, extension of the initial inspection threshold to the later of 24 months since date of manufacture or 30 days after the effective date of this AD.
- For all airplanes, extension of the repetitive inspection interval to 18 months.

Explanation of the Requirements of the Rule

Since an unsafe condition has been identified that is likely to exist or develop on other airplanes of the same type design, this AD is being issued to find and fix corrosion or cracking of the keel beam splices, which could lead to rapid degradation of the strength of the keel beam splices, and result in failure of the keel beam and consequent failure of the forward fuselage of the airplane. This AD requires repetitive detailed visual inspections for corrosion or cracking of the keel beam splices, and repair or replacement of splice plates and bolts with new, improved parts, if necessary. This action also provides an optional terminating action for the repetitive inspections.

Interim Action

This is considered to be interim action. We are currently considering requiring the replacement of existing splice plates and bolts with new, improved parts, which is included in this AD as an optional terminating action that terminates the repetitive inspections required by this AD action. However, the planned compliance time for the replacement is sufficiently long so that notice and opportunity for prior public comment will be practicable.

Difference Between This AD and Service Document

Task Number 53-210-00 of Boeing Document Number D626A001 describes a general visual inspection for discrepancies of the keel beam under the wing-to-body fairing, including the keel beam splice. However, we have determined that it is necessary for this AD to require a detailed visual inspection for corrosion or cracking of the keel beam splice only.

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.

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 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 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 2001-NM-236-AD." The postcard will be date-stamped and returned to the commenter.

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.

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, 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.

Sec. 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**

We post ADs on the internet at "av-info.faa.gov"

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).

2001-17-02 Boeing: Amendment 39-12393. Docket 2001-NM-236-AD.

Applicability: Model 737-600 and -700 series airplanes, line numbers 1 through 908 inclusive; and Model 737-800 series airplanes, line numbers 1 through 455 inclusive; 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 (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 rapid degradation of the strength of the keel beam splices, which could result in failure of the keel beam and consequent failure of the forward fuselage, accomplish the following:

Repetitive Inspections

(a) Perform a detailed visual inspection for corrosion or cracking of the keel beam splices, according to Boeing Document D626A001 (the "Maintenance Planning Data Document"), Task Number 53-210-00, dated June 2001. Do the initial inspection at the compliance time specified in paragraph (a)(1) or (a)(2) of this AD; as applicable; and repeat the inspection at least every 18 months, until the requirements of paragraph (c) of this AD have been done.

(1) For airplanes at less than 18 months since date of manufacture as of the effective date of this AD: Inspect within 18 months since date of manufacture, or 90 days after the effective date of this AD, whichever comes later.

(2) For airplanes at 18 months or more since date of manufacture as of the effective date of this AD: Inspect within 24 months since date of manufacture, or 30 days after the effective date of this AD, whichever comes later.

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."

Repair or Replacement

(b) If any corrosion or cracking is found during the inspection required by paragraph (a) of this AD, before further flight, repair or replace the splice plates and bolts with new, improved parts, according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the Manager's approval letter must specifically reference this AD.

Optional Terminating Action

(c) Replacement of splice plates and bolts with new, improved parts not made from 7150-T6511 material; according to a method approved by the Manager, Seattle ACO, or per data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings; constitutes terminating action for the repetitive inspections required by paragraph (a) of this AD.

Spares

(d) As of the effective date of this AD, no person shall install a splice plate made from 7150-T6511 material, or with part number 144A7155-1 or 143A7812-1, on any airplane.

Alternative Methods of Compliance

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

Special Flight Permits

(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.

Effective Date

(g) This amendment becomes effective on September 4, 2001.

Issued in Renton, Washington, on August 13, 2001.

Vi L. Lipski,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 01-20807 Filed 8-17-01; 8:45 am]

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