

14 CFR Part 39**[Docket No. 96-NM-150-AD]****RIN 2120-AA64****Airworthiness Directives; Boeing Model 737-100, -200, -300, -400, and -500 Series Airplanes****AGENCY:** Federal Aviation Administration, DOT.**ACTION:** Notice of proposed rulemaking (NPRM).

SUMMARY: This document proposes the adoption of a new airworthiness directive (AD) that is applicable to all Boeing Model 737-100, -200, -300, -400, and -500 series airplanes. This proposal would require an inspection of the aileron/elevator power control units (PCU's) and the rudder PCU to determine if reworked PCU manifold cylinder bores containing chrome plating are installed, and replacement of the cylinder bores with bores that have been reworked using the oversize method or the steel sleeve method, if necessary. This proposal is prompted by a review of the design of the flight control systems on Model 737 series airplanes. The actions specified by the proposed AD are intended to prevent a reduced rate of movement of the elevator, aileron, or rudder due to contamination of hydraulic fluid from chrome plating chips; such reduced rate of movement, if not corrected, could result in reduced controllability of the airplane.

DATES: Comments must be received by October 24, 1996.

ADDRESSES: Submit comments in triplicate to the Federal Aviation Administration (FAA), Transport Airplane Directorate, ANM-103, Attention: Rules Docket No. 96-NM-150-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.

The service information referenced in the proposed rule 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.

FOR FURTHER INFORMATION CONTACT: Don Kurlle, Senior Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington; telephone (206) 227-2798; fax (206) 227-1181.

SUPPLEMENTARY INFORMATION:**Comments Invited**

Interested persons are invited to participate in the making of the proposed 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 above. All communications received on or before the closing date for comments, specified above, will be considered before taking action on the proposed rule. The proposals contained in this notice may be changed in light of the comments received.

Comments are specifically invited on the overall regulatory, economic, environmental, and energy aspects of the proposed 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 summarizing each FAA-public contact concerned with the substance of this proposal will be filed in the Rules Docket.

Commenters wishing the FAA to acknowledge receipt of their comments submitted in response to this notice must submit a self-addressed, stamped postcard on which the following statement is made: "Comments to Docket Number 96-NM-150-AD." The postcard will be date stamped and returned to the commenter.

Availability of NPRMs

Any person may obtain a copy of this NPRM by submitting a request to the FAA, Transport Airplane Directorate, ANM-103, Attention: Rules Docket No. 96-NM-150-AD, 1601 Lind Avenue, SW., Renton, Washington 98055-4056.

Discussion

In October 1994, the FAA organized a team to conduct a Critical Design Review (CDR) of the flight control systems installed on Boeing Model 737 series airplanes in an effort to confirm the continued operational safety of these airplanes. The formation of the CDR team was prompted by questions that arose following an accident involving a Model 737-200 series airplane that occurred near Colorado Springs, Colorado, and one involving a Model 737-300 series airplane that occurred near Pittsburgh, Pennsylvania. The CDR team's analysis of the flight control systems was performed independent of the investigations of these accidents, which are conducted by the National Transportation Safety Board (NTSB). The cause of the accidents has not yet been determined.

The CDR team was composed of representatives from the FAA, the NTSB, other U.S. government organizations, and foreign airworthiness authorities. The team reviewed the service history and the design of the flight control systems of Model 737 series airplanes. The team completed its review in May 1995. The recommendations of the team include various changes to the design of the flight control systems of these airplanes, as well as correction of certain design deficiencies. This proposed AD is one of nine rulemaking actions being issued by the FAA to address the recommendations of the CDR team.

Reports Received by FAA

The FAA has received reports indicating that the chrome plating separated from reworked cylinder bores of the aileron/elevator power control units (PCU's). Investigation revealed that a number of aileron/elevator and rudder PCU's were repaired using chrome plating on the aluminum cylinder bores. Separation of the chrome plating has occurred on several of these repaired units, which can result in contamination of hydraulic fluid from chrome plating chips. Such contamination could result in blocked or jammed valves in the rudder PCU, which could result in reduced movement capability of the rudder or partial or total deflection of the rudder. In addition, such contamination could result in scored piston seals or cylinder bores and consequent reduced performance of the aileron/elevator PCU's. A reduced rate of movement of the elevator, aileron, or rudder, if not corrected, could result in reduced controllability of the airplane.

Explanation of Relevant Service Information

The FAA has reviewed and approved Boeing Service Letter 737-SL-27-30, dated April 1, 1985, which describes procedures for an inspection of the aileron/elevator PCU's and the rudder PCU to determine if reworked PCU manifold cylinder bores containing chrome plating are installed, and replacement of the cylinder bores with bores that have been reworked using the oversize method or the steel sleeve method, if necessary.

Explanation of Requirements of Proposed Rule

Since an unsafe condition has been identified that is likely to exist or develop on other products of this same type design, the proposed AD would require an inspection of the aileron/elevator PCU's and the rudder PCU to determine if reworked PCU manifold

cylinder bores containing chrome plating are installed, and replacement of the cylinder bores with bores that have been reworked using the oversize method or the steel sleeve method, if necessary. The actions would be required to be accomplished in accordance with the service letter described previously.

Explanation of Proposed Compliance Time

In developing an appropriate compliance time for the proposed actions, the FAA's intent is that they be performed during a regularly scheduled maintenance visit for the majority of the affected fleet, when the airplanes would be located at a base where special equipment and trained personnel would be readily available, if necessary. In addition, the FAA considered the availability of necessary parts. In light of these considerations, the FAA has specified a compliance time of 18 months for accomplishment of the proposed inspection. The FAA finds that 18 months corresponds closely to the interval representative of most of the affected operators' normal maintenance schedules. The FAA considers that the proposed compliance time will provide an acceptable level of safety.

Cost Impact

There are approximately 2,675 Model 737 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 1,091 airplanes of U.S. registry would be affected by this proposed AD, that it would take approximately 5 work hours per airplane to accomplish the proposed inspection, and that the average labor rate is \$60 per work hour. Based on these figures, the cost impact of the proposed AD on U.S. operators is estimated to be \$327,300, or \$300 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the proposed requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

Should an operator be required to accomplish the necessary replacement, it would take approximately 18 work hours per airplane to accomplish, at an average labor rate of \$60 per work hour. Required parts will cost approximately \$15,800 per airplane. Based on these figures, the cost impact of any necessary replacement action is estimated to be \$16,880 per airplane.

Regulatory Impact

The regulations proposed herein would 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 proposal would not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this proposed regulation (1) is not a "significant regulatory action" under Executive Order 12866; (2) is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) if promulgated, 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 copy of the draft regulatory evaluation prepared for this action is contained in the Rules Docket. A copy of it may be obtained by contacting 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.

The Proposed Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration proposes to amend 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:

Boeing: Docket 96-NM-150-AD.

Applicability: All Model 737-100, -200, -300, -400, and -500 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 (d) 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 a reduced rate of movement of the elevator, aileron, or rudder, which, if not corrected, could result in reduced controllability of the airplane, accomplish the following:

(a) Within 18 months after the effective date of this AD: Perform an inspection of the aileron and elevator PCU's, part number (P/N) 65-44761-(), and the rudder PCU, P/N 65-44681-(), to determine if reworked PCU manifold cylinder bores containing chrome plating are installed, in accordance with Boeing Service Letter 737-SL-27-30, dated April 1, 1985.

(b) If any reworked PCU manifold cylinder bores containing chrome plating are installed: Prior to further flight, replace the cylinder bores with bores that have been reworked using the oversize method or the steel sleeve method specified in Boeing Service Letter 737-SL-27-30, dated April 1, 1985. Accomplish the replacement in accordance with the service letter.

(c) As of the effective date of this AD, no person shall install a reworked PCU manifold cylinder bore containing chrome plating on an aileron or elevator PCU having P/N 65-44761-(), or on a rudder PCU having P/N 65-44681-(), of any airplane unless the cylinder bore has been reworked using the oversize method or the steel sleeve method specified in Boeing Service Letter 737-SL-27-30, dated April 1, 1985.

(d) 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.

(e) 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.

Issued in Renton, Washington, on August 21, 1996.

Ronald T. Wojnar,

Manager, Transport Airplane Directorate,
Aircraft Certification Service.

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