



ÚŘAD PRO CIVILNÍ LETECTVÍ

SEKCE TECHNICKÁ

PŘÍKAZ K ZACHOVÁNÍ LETOVÉ ZPŮSOBILOSTI

Číslo: 2007-03-07

Ruší FAA AD 2002-20-07 R1

Účinnost od: 16. února 2007

BOEING

737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -800, -900

Tento PZZ je vydáván pro výrobek transferovaný pod působnost EASA.

Na základě rozhodnutí EASA je následující Příkaz k zachování letové způsobilosti závazný pro všechny výrobky provozované v EU na které se daný PZZ vztahuje.

Provedení PZZ, který se vztahuje podle typu a výrobního čísla na výrobek je pro provozovatele/vlastníka letadla zapsaného do leteckého rejstříku závazné. Neprovedením PZZ ve stanoveném termínu dojde ke ztrátě letové způsobilosti výrobku.

Poznámky:

- Provedení tohoto PZZ musí být zapsáno do provozní dokumentace letadla.
- Případné dotazy týkající se tohoto PZZ adresujte na ÚCL sekce technická.
- Pokud to vyžaduje povaha tohoto PZZ, musí být zapracován do příslušné části dokumentace pro obsluhu, údržbu a opravy letadla.

[Federal Register: February 1, 2007 (Volume 72, Number 21)]
[Rules and Regulations]
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From the Federal Register Online via GPO Access [wais.access.gpo.gov]
[DOCID:fr01fe07-3]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

**[Docket No. FAA-2006-26323; Directorate Identifier 2006-NM-150-AD; Amendment 39-14918; AD 2007-03-07]
RIN 2120-AA64**

Airworthiness Directives; Boeing Model 737 Airplanes

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Final rule; request for comments.

SUMMARY: The FAA is superseding an existing airworthiness directive (AD) that applies to all Boeing Model 737 airplanes. The existing AD currently requires installation of a new rudder control system and changes to the adjacent systems to accommodate that new rudder control system. For certain airplanes, this new AD adds, among other actions, repetitive tests of the force fight monitor of the main rudder power control unit (PCU), repetitive tests of the standby hydraulic actuation system, and corrective action; as applicable. For those airplanes, this new AD also adds, among other actions, replacement of both input control rods of the main rudder PCU and the input control rod of the standby rudder PCU with new input control rods, as applicable, which ends the repetitive tests. For certain other airplanes, this new AD adds installation of an enhanced rudder control system in accordance with new service information. This AD results from a report of a fractured rod end of an input control rod of the main rudder PCU and a subsequent report of a fractured rod end of the input control rod of the standby rudder PCU. We are issuing this AD to prevent failure of one of the two input control rods of the main rudder PCU, which, under certain conditions, could result in reduced controllability of the airplane; and to prevent failure of any combination of two input control rods of the main rudder PCU and/or standby rudder PCU, which could cause an uncommanded rudder hardover event and result in loss of control of the airplane.

DATES: This AD becomes effective February 16, 2007.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of February 16, 2007.

We must receive any comments on this AD by April 2, 2007.

ADDRESSES: Use one of the following addresses to submit comments on this AD.

- DOT Docket Web site: Go to <http://dms.dot.gov> and follow the instructions for sending your comments electronically.
- Government-wide rulemaking Web site: Go to <http://www.regulations.gov> and follow the instructions for sending your comments electronically.

- Mail: Docket Management Facility; U.S. Department of Transportation, 400 Seventh Street, SW., Nassif Building, Room PL-401, Washington, DC 20590.
- Fax: (202) 493-2251.
- Hand Delivery: Room PL-401 on the plaza level of the Nassif Building, 400 Seventh Street, SW., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for service information identified in this AD.

You may examine the contents of the AD docket on the Internet at <http://dms.dot.gov>, or in person at the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street, SW., Room PL-401, Washington, DC. This docket number is FAA-2006-26323; the directorate identifier for this docket is 2006-NM-150-AD.

FOR FURTHER INFORMATION CONTACT: Kenneth W. Frey, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6468; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION:

Discussion

The FAA issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that supersedes AD 2002-20-07 R1, amendment 39-12940 (67 FR 67518, November 6, 2002). The existing AD applies to all Boeing Model 737 airplanes. That NPRM was published in the Federal Register on November 15, 2006 (71 FR 66474). That NPRM proposed to continue to require installation of a new rudder control system and changes to the adjacent systems to accommodate that new rudder control system. For certain airplanes, that NPRM proposed to add, among other actions, repetitive tests of the force fight monitor of the main rudder power control unit (PCU), repetitive tests of the standby hydraulic actuation system, and corrective action; as applicable. For those airplanes, that NPRM also proposed to add, among other actions, replacement of both input control rods of the main rudder PCU and the input control rod of the standby rudder PCU with new input control rods, as applicable, which would end the repetitive tests. For certain other airplanes, that NPRM proposed to add installation of an enhanced rudder control system in accordance with new service information.

Actions Since NPRM Was Issued

Since we issued the NPRM, we have received a report of a fractured rod end on the input control rod of the standby rudder PCU on a Model 737-700 series airplane. This condition was discovered during accomplishment of an operational test of the standby hydraulic actuation system in accordance with Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006 (one of the actions specified in the NPRM). Investigation revealed that, although the input control rod had an existing crack of significant size, it ultimately fractured due to fatigue damage. Fatigue damage is caused by repetitive forces being applied (i.e., cyclic loading).

This finding of fatigue damage is not consistent with the results of our investigation that led to actions specified in the NPRM. The actions and compliance times specified in the NPRM were based on our finding that, while the input control rod may have been cracked during assembly, no significant loading was present to further degrade the integrity of the input control rod over time, causing it to fracture.

Therefore, we have determined that, for certain Model 737-600, -700, -700C, -800, and -900 series airplanes on which the suspect input control rod of the standby rudder PCU was installed

during production, the compliance times for the following actions in the NPRM will not detect and correct failure of the input control rod of the standby rudder PCU in a timely manner:

The initial compliance time and repetitive intervals for the operational tests specified in paragraph (g)(1), and

The threshold for the replacement of the input control rod of the standby rudder PCU specified in paragraph (g)(3).

Failure of one of the two input control rods of main rudder PCU, under certain conditions, could result in reduced controllability of the airplane; and failure of any combination of two input control rods of the main rudder PCU and/or standby rudder PCU could cause an uncommanded rudder hardover event and result in loss of control of the airplane.

Relevant Service Information

As discussed in the “Relevant Service Information” section of the NPRM, we have reviewed the following service information:

Relevant Service Information

Service Bulletin	Revision Level	Date
Boeing Alert Service Bulletin 737-27A1239	Original	January 11, 2001
Boeing Alert Service Bulletin 737-27A1279	Original	June 20, 2006
Boeing Alert Service Bulletin 737-27A1280	Original	May 25, 2006
Boeing Alert Service Bulletin 737-27A1281	Original	June 14, 2006
Boeing Service Bulletin 737-22-1042	1	April 5, 1985
Boeing Service Bulletin 737-27A1206	3	December 14, 2000
Boeing Service Bulletin 737-27-1246, including Appendix A	1	February 21, 2002
Boeing Service Bulletin 737-27-1247	1	July 25, 2002
Boeing Service Bulletin 737-27-1252	3	May 12, 2006
Boeing Service Bulletin 737-27-1253	3	May 12, 2006
Boeing Service Bulletin 737-27-1255	3	May 10, 2006
Boeing Service Bulletin 737-27-1262	Original	December 19, 2002
Boeing Service Bulletin 737-27-1263	1	September 25, 2003
Boeing Service Bulletin 737-27-1264	1	April 3, 2003
Boeing Service Bulletin 737-55-1052	1	August 5, 2004
Boeing 737 Service Bulletin 27-1026	Original	January 15, 1971
Smiths Aerospace Actuation Systems Service Bulletin 1150-27-05A	Original	August 28, 2003

Accomplishing the actions specified in the service information is intended to adequately address the unsafe condition.

Comments

We provided the public the opportunity to submit comments regarding the NPRM and have considered the comments that have been received.

Support for the NPRM

The Air Line Pilots Association and Boeing support the NPRM.

Requests To Issue Stand Alone AD

Delta and Southwest Airlines request that we issue a stand alone AD that addresses the control rod issues only instead of superseding AD 2002-20-07 R1. Delta states that a stand alone AD will minimize the amount of revisions to engineering authorizations (EAs). Delta points out that a supersedure AD would result in their revising four EAs whereas a stand alone AD would result in revising only one EA. Southwest Airlines states that a stand alone AD would be more cost effective because a supersedure AD results in document revision, record keeping, and computer tracking issues.

We do not agree. As explained in the “Actions Since Existing AD Was Issued” section of the NPRM, we have received a report of a fractured rod end on one of the two input control rods of the main rudder PCU on a Model 737-800 series airplane. The incident airplane had been modified to comply with the requirements of AD 2002-20-07 R1. We determined that accomplishment of the actions required by AD 2002-20-07 R1 introduces a new unsafe condition (i.e., failure of the input control rods of the rudder control system, which, under certain conditions, could result in reduced controllability of the airplane and/or loss of control of the airplane), and that a substantive change to that AD was necessary.

Our current policy specifies that, whenever a substantive change is made to an existing AD that imposes a new burden, we must supersede the AD. Substantive changes are those made to any instruction or reference that affects the substance of the AD. Substantive changes include part numbers, service bulletin and manual references, compliance times, applicability, methods of compliance, corrective action, inspection requirements, and effective dates. We consider the changes to the existing AD to be substantive. This superseding AD is assigned a new amendment number and new AD number, and the previous amendment is removed from the system. This procedure facilitates the efforts of principal maintenance inspectors in tracking ADs and ensuring that affected operators have incorporated the most recent changes into their maintenance programs.

With regard to paperwork changes required by affected operators, § 121.380(a)(2)(vi) (“Maintenance recording requirements”) of the Federal Aviation Regulations (14 CFR 121.380(a)(2)(vi)), requires that persons holding an operating certificate and operating under part 121 of the Federal Aviation Regulations must keep “The current status of applicable airworthiness directives, including the date and methods of compliance * * *.” Whether an existing AD is superseded or a new stand alone AD is issued, the new AD is assigned a new AD number. In either case, the new AD is identified by its “new” AD number. In light of this, affected operators updating their maintenance records to indicate the current AD status would have to record a new AD number in both cases. Further, operators are always given credit for work previously performed according to the existing AD by means of the phrase in the compliance section of the AD that states, “* * * unless the actions have already been done.” Therefore, we have determined that a supersedure AD is appropriate.

Request To Supersede Other ADs

If the AD does supersede AD 2002-20-07 R1, Southwest Airlines requests that the AD also supersede the following ADs:

AD 95-06-53, amendment 39-9199 (60 FR 18981, April 14, 1995);
AD 97-05-10, amendment 39-9954 (62 FR 9679, March 4, 1997); and
AD 98-02-01, amendment 39-10283 (63 FR 1903, January 13, 1998).

Southwest Airlines states that these additional ADs were all listed in AD 2002-20-07 R1.

Southwest Airlines states that if these changes are not made, operators will be required to report the status of obsolete ADs.

We do not agree. AD 2002-20-07 R1 revises AD 2002-20-07, amendment 39-12903 (67 FR 62341, October 7, 2002), and supersedes ADs 95-06-53, 97-05-10, and 98-02-01. As of November 12, 2002 (the effective date of AD 2002-20-07 R1), those ADs were effectively superseded (cancelled) and thus no further action is required in regard to those ADs.

Request To Change List of Affected ADs

Southwest Airlines also requests that AD 97-14-04, amendment 39-10061 (62 FR 35068, June 30, 1997), be added to the list of ADs in Table 1 of the NPRM.

We agree. Our intent was to retain all requirements of AD 2002-20-07 R1. AD 97-14-04 was included in paragraph (b) of AD 2002-20-07 R1. However, we inadvertently omitted it from Table 1 in paragraph (b) of the NPRM. Doing the action required by paragraph (f) or (h) of this AD ends the requirements of AD 97-14-04 and the other ADs identified in Table 1 of this AD. We have revised Table 1 accordingly.

Request To Revise the Applicability

Southwest Airlines requests that the applicability of the NPRM be revised to affect Model 737-600, -700, -700C, -800 and -900 series airplanes (i.e., 737 next generation airplanes), line numbers 1 through 1947 only (no change requested for affected Model 737-100 through -500 series airplanes). Southwest Airlines states that the effectivity of Boeing Alert Service Bulletin 737-27A1279, dated June 20, 2006; and Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006; indicate that 737 next generation airplanes with line numbers 1948 or higher have an enhanced rudder control system with the improved rods already installed. Southwest Airlines also states that it is a hardship to require AD reporting on airplanes that have been modified in production.

We do not agree with Southwest Airlines to exclude airplanes on which an enhanced rudder control system with new input control rods has been installed in production from the applicability of this AD. Paragraph (j) of this AD states, "As of the effective date of this AD, no person may install an input control rod, P/N 251A3495-1, on any airplane." All Model 737 airplanes, including those in production now and in the future, are subject to this requirement. Therefore, we have determined that the applicability of the AD is correct as proposed.

Request To Exclude Certain Airplanes From Paragraph (g) of the NPRM

Southwest Airlines requests that paragraph (g) be revised to exclude airplanes for which maintenance records can conclusively show that the suspect rods have not been installed. Southwest Airlines states that some airplanes have had control rods replaced or modified with the latest kits.

We partially agree. We agree with Southwest Airlines that no further work is required by paragraph (g) for airplanes on which the input control rods have been replaced in accordance with paragraph (g)(4) of this AD. We also find that no further work is required by paragraph (h) for airplanes on which the input control rods have been installed in accordance with paragraph (h) of this AD. We have determined that those actions adequately address the identified unsafe condition of this AD related to the input control rods. However, we do not agree to revise this AD. Operators are given credit for work previously done by the means of the phrase in the "Compliance" section of the AD that states, "* * * unless the actions have already been done." Therefore, in the case of this AD, if the actions required by paragraph (g)(4) or (h) of this AD (i.e., replacement of input control rods or

installation of a new rudder control system) have been done in accordance with the service information identified in Table 4 or 5 of this AD, respectively, before the effective date of this AD, this AD does not require those actions to be repeated.

Request To Delete Reference to Certain Group Configurations

AirTran Airways supports the proposed actions described in the NPRM, but points out a discrepancy between the NPRM and a referenced service bulletin. AirTran Airways notes that paragraph (g)(1)(iii) of the NPRM is applicable to airplanes identified as Group 1, Configuration 1, and Group 2, Configurations 1 and 2, in Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006. AirTran Airways states that the service bulletin does not contain any configurations for Group 2.

From this comment, we infer that AirTran Airways is requesting that we delete the reference to Configurations 1 and 2 for Group 2 specified in paragraphs (g)(1)(iv), (g)(2)(i), and (g)(2)(ii) of this AD (paragraph (g)(1)(iii) in the NPRM). We agree and have revised this AD accordingly.

Request To Delete Concurrent Requirements

Southwest Airlines states that it is impossible to install the enhanced rudder system without doing the concurrent requirements in paragraph (i) of the NPRM. Southwest Airlines notes that each of the service bulletins identified in Table 5 of the NPRM, except “[Boeing] [S]ervice [B]ulletin 737-55-1042,” is listed in the initial release of the primary service bulletins identified in Table 4 of the NPRM. Southwest Airlines believes it is impossible to trim the spar as illustrated in the primary service bulletins unless the trim was previously accomplished per “[Boeing] [S]ervice [B]ulletin 737-55-1042.” Southwest Airlines also believes that the NPRM validates this by not requiring rework other than for the discrepant control rods.

From this comment, we infer that Southwest Airlines is requesting that the concurrent requirements specified in paragraph (i) of the NPRM be deleted. Since Boeing Service Bulletin 737-55-1042 describes procedures unrelated to the subject of this AD, we also infer that Southwest Airlines meant to refer to Boeing Service Bulletin 737-55-1052, Revision 1, dated August 5, 2004 (referred to in paragraph (i)(2)(iv) of this AD as a concurrent requirement). We do not agree with Southwest Airlines to delete the concurrent requirements of this AD. Our current policy specifies that service information must be “published” (i.e., incorporation by reference (IBR)) if the AD mandates a method of compliance that is contained only in the referenced service information. As in the case of this AD, the concurrent requirement actions specified in Table 6 of the AD are contained only in the service information identified in that table, not in the primary service information identified in Table 5 of this AD. Therefore, we have made no change to this AD in this regard.

FAA's Determination and Requirements of This AD

The unsafe condition described previously is likely to exist or develop on other airplanes of the same type design. For this reason, we are issuing this AD to supersede AD 2002-20-07 R1. This AD supersedes AD 2002-20-07 R1 and retains the requirements of the existing AD. This AD also requires accomplishing the actions specified in the applicable service information identified previously, except as discussed under “Differences Between the AD and Certain Service Information.” For certain airplanes, this AD also requires suspending a certain Master Minimum Equipment List item, until all improperly heat-treated input control rods are replaced.

Differences Between the AD and Certain Service Information

For certain Model 737-600, -700, -700C, -800, and -900 series airplanes on which the suspect input control rod of the standby rudder PCU was installed during production, the compliance times

for the following actions required by this AD are different (i.e., shorter intervals) than those specified in Boeing Alert Service Bulletin 737-27A1279, dated June 20, 2006; and Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006:

For the operational tests of the standby hydraulic actuation system: This AD specifies an initial compliance time of within 110 flight hours or 7 days after the effective date of this AD, whichever occurs later, and repetitive intervals of 110 flight hours or 7 days, whichever occurs later, whereas Boeing Alert Service Bulletin 737-27A1280 specifies an initial compliance time of within 60 days and repetitive intervals of 500 flight hours.

For the replacement of the input control rod of the standby rudder PCU: This AD specifies a compliance time of within 90 days after the effective date of this AD whereas Boeing Alert Service Bulletin 737-27A1279 specifies a compliance time of 24 months.

As discussed previously in the "Discussion" section of this AD, the proposed compliance times for these actions may not detect and correct failure of the input control rod of the standby rudder PCU in a timely manner. While we do not yet have data on the growth rate of these cracks, we believe the revised compliance times described previously are adequate to ensure safety without imposing undue burdens on air commerce. In developing appropriate compliance times for these actions in this AD, we considered the safety implications, parts availability, and normal maintenance schedules for the timely accomplishment of the operational tests and replacements. In consideration of these items, as well as the reported failures of the input control rods in service, we have determined that the compliance times in this AD will ensure an acceptable level of safety and allow the actions to be done during scheduled maintenance intervals for most affected operators.

Changes to NPRM

As a result of the differences between the AD and certain service information described previously, we have revised the applicable compliance times in this AD and changed certain paragraph identifiers and tables and added others.

In certain places in the NPRM, we referred to the incorrect year of the issuance date of Boeing Alert Service Bulletin 737-27A1280. The correct issuance date is May 25, 2006, not May 25, 2005. We have corrected this error in this AD.

FAA's Determination of the Effective Date

Regarding the reduced compliance times described previously, an unsafe condition exists that requires the immediate adoption of this AD; therefore, providing notice and opportunity for public comment before the AD is issued is impracticable, and good cause exists to make this AD effective in less than 30 days.

Comments Invited

Regarding the reduced compliance times described previously, this AD is a final rule that involves requirements that affect flight safety and was not preceded by notice and an opportunity for public comment; however, we invite you to submit any relevant written data, views, or arguments regarding this AD. Send your comments to an address listed in the ADDRESSES section. Include "Docket No. FAA-2006-26323; Directorate Identifier 2006-NM-150-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of the AD that might suggest a need to modify it.

We will post all comments we receive, without change, to <http://lidsms.dot.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact with FAA personnel concerning this AD. Using the search function of that Web site, anyone can find and read the comments in any of our dockets, including the name of the individual who sent the comment (or signed the comment on behalf of an association, business, labor union, etc.).

You may review the DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78), or you may visit <http://dms.dot.gov>.

Examining the Docket

You may examine the AD docket on the Internet at <http://dms.dot.gov>, or in person at the Docket Management Facility office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Management Facility office (telephone (800) 647-5227) is located on the plaza level of the Nassif Building at the DOT street address stated in the ADDRESSES section. Comments will be available in the AD docket shortly after the Docket Management System receives them.

Authority for This Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in subtitle VII, part A, subpart III, section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

Regulatory Findings

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD 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.

For the reasons discussed above, I certify that the 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. 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA 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. The Federal Aviation Administration (FAA) amends § 39.13 by removing amendment 39-12940 (67 FR 67518, November 6, 2002) and adding the following new airworthiness directive (AD):



2007-03-07 Boeing: Amendment 39-14918. Docket No. FAA-2006-26323; Directorate Identifier 2006-NM-150-AD.

Effective Date

(a) This AD becomes effective February 16, 2007.

Affected ADs

(b) This AD affects the ADs specified in paragraphs (b)(1), (b)(2), and (b)(3) of this AD.

(1) This AD supersedes AD 2002-20-07 R1.

(2) For airplanes on which the actions required by paragraph (f) of this AD have been done before the effective date of this AD: Doing the actions in paragraph (f) of this AD ends the requirements of the ADs listed in Table 1 of this AD.

(3) For airplanes on which the actions required by paragraph (f) of this AD have not been done before the effective date of this AD: Doing the actions in paragraph (h) of this AD ends the requirements of the ADs listed in Table 1 of this AD.

Table 1 – Other ADs

AD –	Amendment –
97-09-15 R1	39-10912
97-14-04	39-10061
99-11-05	39-11175
2000-22-02 R1	39-11948

Applicability

(c) This AD applies to all Boeing Model 737-100, -200, -200C, -300, -400, -500, -600, -700, -700C, -800 and -900 series airplanes, certificated in any category.

Unsafe Condition

(d) This AD results from a report of a fractured rod end of an input control rod of the main rudder power control unit (PCU) and a subsequent report of a fractured rod end of the input control rod of the standby rudder PCU. We are issuing this AD to prevent failure of one of the two input control rods of the main rudder PCU, which, under certain conditions, could result in reduced controllability of the airplane; and to prevent failure of any combination of two input control rods of the main rudder PCU and/or standby rudder PCU, which could cause an uncommanded rudder hardover event and result in loss of control of the airplane.

Compliance

(e) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

Requirements of AD 2002-20-07 R1

Installation

(f) Except as provided by paragraphs (h) and (i) of this AD: Within 6 years after November 12, 2002 (the effective date of AD 2002-20-07), do the actions required by paragraphs (f)(1) and (f)(2) of this AD, in accordance with a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA.

(1) Install a new rudder control system that includes new components such as an aft torque tube, hydraulic actuators, and associated input control rods, and additional wiring throughout the airplane to support failure annunciation of the rudder control system in the flight deck. The system also must incorporate two separate inputs, each with an override mechanism, to two separate servo valves on the main rudder PCU; and an input to the standby PCU that also will include an override mechanism.

(2) Make applicable changes to the adjacent systems to accommodate the new rudder control system.

New Requirements of This AD

For Certain Airplanes: Tests, Suspension of Certain Master Minimum Equipment List Item, Replacements, Inspection, and Corrective Actions

(g) For airplanes on which the actions required by paragraph (f) of this AD have been done before the effective date of this AD: Do the actions in paragraphs (g)(1) through (g)(4) of this AD, as applicable.

(1) At the applicable times listed in paragraph 1.E., “Compliance,” of the applicable service bulletin specified in Table 2 of this AD; except, where the service bulletin specifies a compliance time from the date on the service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD: Do the tests specified in Table 2 of this AD, until all applicable actions required by paragraph (g)(4) of this AD have been done in accordance with the applicable service bulletin specified in Table 4 of this AD. Do all applicable corrective actions specified in Table 2 of this AD before further flight.

Table 2 – Repetitive Tests for Certain Airplanes

For Model –	Do –	In accordance with the Accomplishment Instructions of –
(i) 737-100, -200, and -200C series airplanes identified as Group 1, Configuration 1, in the service bulletin	The “Rudder Main Power Control Unit Force Fight Test,” the “Standby Rudder Actuator Shutoff Valve Test,” and any applicable corrective action	Boeing Alert Service Bulletin 737-27A1281, dated June 14, 2006.

For Model –	Do –	In accordance with the Accomplishment Instructions of –
(ii) 737-300, -400, and -500 series airplanes identified as Group 2, Configuration 1, in the service bulletin	The “Rudder Main Power Control Unit Force Fight Test,” the “Standby Rudder Actuator Shutoff Valve Test,” and any applicable corrective action	Boeing Alert Service Bulletin 737-27A1281, dated June 14, 2006.
(iii) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 1, Configuration 1, in the service bulletin	The “Rudder Main Power Control Unit Force Fight Monitor Test,” the “Operational Test of the Standby Hydraulic Actuation System,” and any applicable corrective action	Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006.
(iv) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 2 in the service bulletin	The “Rudder Main Power Control Unit Force Fight Monitor Test,” and any applicable corrective action	Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006.

(2) At the applicable times listed in Table 3 of this AD, do the “Operational Test of the Standby Hydraulic Actuation System,” and any applicable corrective action, until all applicable actions required by paragraph (g)(4) of this AD have been done in accordance with the applicable service bulletin specified in Table 4 of this AD. The actions must be done in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-27A1280, dated May 25, 2006. Do all applicable corrective actions before further flight.

Table 3 – Repetitive Operational Tests for Certain Airplanes

For Model –	On which the input control rod of the standby rudder PCU –	Do the “Operational Test of the Standby Hydraulic Actuation System” –	And repeat the test at intervals not to exceed –
(i) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 2 in the service bulletin	Has not been replaced as required by paragraph (g)(4)(v) of this AD	Within 110 flight hours or 7 days after the effective date of this AD, whichever occurs later	110 flight hours or 7 days, whichever occurs later
(ii) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 2 in the service bulletin	Has been replaced as required by paragraph (g)(4)(v) of this AD	Within 60 days after the effective date of this AD	500 flight hours

(3) As of the effective date of this AD, do not use the Master Minimum Equipment List Item 27-21, “STBY RUD ON light,” until all applicable actions required by paragraph (g)(4) of this AD are done.

(4) At the applicable time specified in Table 4 of this AD, do the replacement(s) and inspection, as applicable, specified in that table. Do all applicable corrective actions specified in Table 4 of this AD before further flight. Doing all applicable actions ends the requirements of paragraphs (g)(1) through (g)(3) of this AD.

Table 4 – Replacement of Input Control Rods, Inspection, and Corrective Action, As Applicable

For Model –	Do the following action(s) –	In accordance with –	And do the replacement(s) and inspection, as applicable –
(i) 737-100, -200, and -200C series airplanes identified as Groups 1 through 9, Configuration 3, in the service bulletin	Replace both input control rods of the main rudder PCU with new input control rods	Part 2 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1252, Revision 3, dated May 12, 2006	Within 24 months after the effective date of this AD
(ii) 737-300, -400, and -500 series airplanes identified as Groups 1 through 19, Configuration 3, in the service bulletin	Replace both input control rods of the main rudder PCU with new input control rods	Part 2 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1255, Revision 3, dated May 10, 2006	Within 24 months after the effective date of this AD
(iii) 737-600, -700, -700C, -800, and -900 series airplanes identified as Groups 1 through 20, Configuration 3, in the service bulletin	Replace both input control rods of the main rudder PCU with new input control rods, inspect the input control rod of the standby rudder PCU to determine if part number (P/N) 251A3495-1 is installed, and do any corrective action	Part 2 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1253, Revision 3, dated May 12, 2006	Within 24 months after the effective date of this AD
(iv) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 1 in the service bulletin	Replace both input control rods of the main rudder PCU with new input control rods	The Accomplishment Instructions of Boeing Alert Service Bulletin 737-27A1279, dated June 20, 2006	Within 24 months after the effective date of this AD

For Model –	Do the following action(s) –	In accordance with –	And do the replacement(s) and inspection, as applicable –
(v) 737-600, -700, -700C, -800, and -900 series airplanes identified as Group 1 in the service bulletin	Replace the input control rod of the standby rudder PCU with a new input control rod	The Accomplishment Instructions of Boeing Alert Service Bulletin 737-27A1279, dated June 20, 2006	Within 90 days after the effective date of this AD

For Certain Other Airplanes: Install New Rudder Control System Per Service Information

(h) For airplanes on which the actions required by paragraph (f) of this AD have not been done before the effective date of this AD: As of the effective date of this AD, use the applicable service bulletin specified in Table 5 of this AD to do the actions required by paragraph (f) of this AD at the time specified in that paragraph.

Table 5 – Service Bulletins for Installation of New Rudder Control System

For Model –	Identified as –	Do the actions required by paragraph (f) of this AD in accordance with –
(1) 737-100, -200, and -200C series airplanes	Groups 1 through 9, Configurations 1 and 2, in the service bulletin	Part 1 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1252, Revision 3, dated May 12, 2006.
(2) 737-300, -400, and -500 series airplanes	Groups 1 through 19, Configurations 1 and 2, in the service bulletin	Part 1 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1255, Revision 3, dated May 10, 2006.
(3) 737-600, -700, -700C, -800, and -900 series airplanes	Groups 1 through 20, Configurations 1 and 2, in the service bulletin	Part 1 of the Accomplishment Instructions of Boeing Service Bulletin 737-27-1253, Revision 3, dated May 12, 2006.

(i) Before or concurrently with the requirements of paragraph (h) of this AD, do the actions specified in Table 6 of this AD.

Table 6 – Before/Concurrent Requirements

Before or concurrently with the actions specified in –	Do these actions –	In accordance with the Accomplishment Instructions of –
(1) Paragraph (h)(1) of this AD	(i) Remove the rudder position sensor of the automatic flight control system	Boeing Service Bulletin 737-22-1042, Revision 1, dated April 5, 1985.

Before or concurrently with the actions specified in –	Do these actions –	In accordance with the Accomplishment Instructions of –
	(ii) Replace the rudder feel and centering assembly with a new all-mechanical unit	Boeing 737 Service Bulletin 27-1026, dated January 15, 1971.
	(iii) Install the rudder pressure reducer and yaw damper coupler	Boeing Service Bulletin 737-27A1206, Revision 3, dated December 14, 2000.
	(iv) Install provisional wires for rudder system enhancement	Boeing Service Bulletin 737-27-1246, Revision 1, including Appendix A, dated February 21, 2002.
	(v) Replace the P5-3 panel with a new panel	Boeing Service Bulletin 737-27-1263, Revision 1, dated September 25, 2003.
	(vi) Replace the input lever for the auxiliary rudder power control package with a new input lever	Smiths Aerospace Actuation Systems Service Bulletin 1150-27-05A, dated August 28, 2003.
(2) Paragraph (h)(2) of this AD	(i) Install provisional wires for rudder system enhancement	Boeing Service Bulletin 737-27-1246, Revision 1, including Appendix A, dated February 21, 2002.
	(ii) Replace the P5-3 panel with a new panel	Boeing Service Bulletin 737-27-1264, Revision 1, dated April 3, 2003.
	(iii) Install a new yaw damper coupler	Boeing Service Bulletin 737-27A1206, Revision 3, dated December 14, 2000.
	(iv) Inspect the trailing edge beam on the vertical fin and rework if necessary	Boeing Service Bulletin 737-55-1052, Revision 1, dated August 5, 2004.
	(v) Replace the input lever for the auxiliary rudder power control package with a new input lever	Smiths Aerospace Actuation Systems Service Bulletin 1150-27-05A, dated August 28, 2003.
(3) Paragraph (h)(3) of this AD	(i) Install provisional wires for rudder system enhancement	Boeing Service Bulletin 737-27-1247, Revision 1, dated July 25, 2002.
	(ii) Replace the P5-3 panel with a new panel	Boeing Service Bulletin 737-27-1262, dated December 19, 2002.

Before or concurrently with the actions specified in –	Do these actions –	In accordance with the Accomplishment Instructions of –
	(iii) Relocate the wire bundle routing in the vertical stabilizer	Boeing Alert Service Bulletin 737-27A1239, dated January 11, 2001.

Parts Installation

(j) As of the effective date of this AD, no person may install an input control rod, P/N 251A3495-1, on any airplane.

Alternative Methods of Compliance (AMOCs)

(k)(1) The Manager, Seattle ACO, FAA, has the authority to approve AMOCs for this AD, if requested in accordance with the procedures found in 14 CFR 39.19.

(2) Before using any AMOC approved in accordance with § 39.19 on any airplane to which the AMOC applies, notify the appropriate principal inspector in the FAA Flight Standards Certificate Holding District Office.

(3) Except as provided by paragraph (j) of this AD: AMOCs approved previously in accordance with AD 2002-20-07 R1 are approved as AMOCs for the corresponding provisions of paragraphs (f) and (h) of this AD.

Material Incorporated by Reference

(l) You must use the applicable service bulletin specified in Table 7 of this AD to perform the actions that are required by this AD, unless the AD specifies otherwise. Boeing Service Bulletin 737-22-1042, Revision 1, dated April 5, 1985, contains the following effective pages:

Page Number	Revision Level Shown on Page	Date Shown on Page
1-7, 9	1	April 5, 1985
8	Original	July 1, 1983

The Director of the Federal Register approved the incorporation by reference of these documents in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207, for a copy of this service information. You may review copies at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Table 7 – Material Incorporated by Reference

Service Bulletin	Revision Level	Date
Boeing Alert Service Bulletin 737-27A1239	Original	January 11, 2001
Boeing Alert Service Bulletin 737-27A1279	Original	June 20, 2006

Service Bulletin	Revision Level	Date
Boeing Alert Service Bulletin 737-27A1280	Original	May 25, 2006
Boeing Alert Service Bulletin 737-27A1281	Original	June 14, 2006
Boeing Service Bulletin 737-22-1042	1	April 5, 1985
Boeing Service Bulletin 737-27A1206	3	December 14, 2000
Boeing Service Bulletin 737-27-1246, including Appendix A	1	February 21, 2002
Boeing Service Bulletin 737-27-1247	1	July 25, 2002
Boeing Service Bulletin 737-27-1252	3	May 12, 2006
Boeing Service Bulletin 737-27-1253	3	May 12, 2006
Boeing Service Bulletin 737-27-1255	3	May 10, 2006
Boeing Service Bulletin 737-27-1262	Original	December 19, 2002
Boeing Service Bulletin 737-27-1263	1	September 25, 2003
Boeing Service Bulletin 737-27-1264	1	April 3, 2003
Boeing Service Bulletin 737-55-1052	1	August 5, 2004
Boeing 737 Service Bulletin 27-1026	Original	January 15, 1971
Smiths Aerospace Actuation Systems Service Bulletin 1150-27-05A	Original	August 28, 2003

Issued in Renton, Washington, on January 25, 2007.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. E7-1496 Filed 1-31-07; 8:45 am]