of airframe shielding for HIRF. Furthermore, coupling of electromagnetic energy to cockpit-installed equipment through the cockpit window apertures is undefined. Based on surveys and analysis of existing HIRF emitters, an adequate level of protection exists when compliance with the HIRF protection special condition is shown with either paragraph 1 OR 2 below:

1. A minimum threat of 100 volts rms (root-mean-square) per meter electric field strength from 10 KHz to 18 GHz.

a. The threat must be applied to the system elements and their associated wiring harnesses without the benefit of airframe shielding.

b. Demonstration of this level of protection is established through system tests and analysis.

2. A threat external to the airframe of the field strengths indicated in the table below for the frequency ranges indicated. Both peak and average field strength components from the table are to be demonstrated.

Frequency	Field Strength (volts per meter)	
	Peak	Average
10 kHz–100 kHz ...	50	50
100 kHz–500kHz ..	50	50
500 kHz–2MHz	50	50
2 MHz–30 MHz	100	100
30 MHz–70 MHz ...	50	50
70 MHz–100 MHz	50	50
100 MHz–200 MHz	100	100
200 MHz–400 MHz	100	100
400 MHz–700 MHz	700	50
700 MHz–1GHz	700	100
1 GHz–2 GHz	2000	200
2 GHz–4 GHz	3000	200
4 GHz–6 GHz	3000	200
6 GHz–8GHz	1000	200
8 GHz–12 GHz	3000	300
12 GHz–18 GHz ...	2000	200
18 GHz–40 GHz ...	600	200

The field strengths are expressed in terms of peak of the root-mean-square (rms) over the complete modulation period.

The threat levels identified above are the result of an FAA review of existing studies on the subject of HIRF, in light of the ongoing work of the Electromagnetic Effects Harmonization Working Group of the Aviation Rulemaking Advisory Committee.

Applicability

As discussed above, these special conditions are applicable to Boeing Model 737–100, –200, and –300 series airplanes modified by Aircraft Systems & Manufacturing, Inc. to install new IS&S Digital Air Data Control System. Should Aircraft Systems & Manufacturing, Inc. apply at a later date for a supplemental type certificate to modify any other model included on Type Certificate A16WE to incorporate the same novel or unusual design feature, these special conditions would apply to that model as well under the provisions of 21.101(a)(1), Amendment 21–69, effective September 16, 1991.

Conclusion

This action affects only certain design features on the Boeing Model 737–100, –200, and –300 series airplanes modified by Aircraft Systems & Manufacturing, Inc. to include the new IS&S Digital Air Data Control System. It is not a rule of general applicability and affects only the applicant who applied to the FAA for approval of these features on the airplanes.

The substance of the special conditions for these airplanes has been subjected to the notice and comment procedure in several prior instances and has been derived without substantive change from those previously issued. Because a delay would significantly affect the certification of the airplane, which is imminent, the FAA has determined that prior public notice and comment are unnecessary and impracticable, and good cause exists for adopting these special conditions upon issuance. The FAA is requesting comments to allow interested persons to submit views that may not have been submitted in response to the prior opportunities for comment described above.

List of Subjects in 14 CFR Part 25

Aircraft, Aviation safety, Reporting and recordkeeping requirements.

The authority citation for these special conditions is as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701, 44702, 44704.

The Special Conditions

Accordingly, pursuant to the authority delegated to me by the Administrator, the following special conditions are issued as part of the supplemental type certification basis for the Boeing 737–100, –200, and –300 series airplanes modified by Aircraft Systems & Manufacturing, Inc.

1. *Protection from Unwanted Effects of High-Intensity Radiated Fields (HIRF).* Each electrical and electronic system that performs critical functions must be designed and installed to ensure that the operation and operational capabilities of these systems to perform critical functions are not adversely affected when the airplane is exposed to high-intensity radiated fields.

2. For the purpose of these special conditions, the following definition applies:

Critical Functions: Functions whose failure would contribute to or cause a failure condition that would prevent the continued safe flight and landing of the airplane.

Issued in Renton, Washington, on September 26, 2002.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 02–25470 Filed 10–4–02; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2001–NM–251–AD; Amendment 39–12903; AD 2002–20–07]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 737 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes seven existing airworthiness directives (ADs), applicable to certain Boeing Model 737 series airplanes that, among other things, currently require replacing the main rudder power control unit (PCU) and PCU vernier control rod bolts; testing the main rudder PCU to detect certain discrepancies and to verify proper operation of the PCU; and revising the FAA-approved Airplane Flight Manual procedures to correct a jammed or restricted flight control condition. Instead, this amendment requires installation of a new rudder control system and changes to the adjacent systems to accommodate that new rudder control system. This amendment is prompted by FAA determinations that the existing system design architecture is unsafe due to inherent failure modes, including single-jam modes and certain latent failures or jams, which, when combined with a second failure or jam, could cause an uncommanded rudder hardover event and consequent loss of control of the airplane. Additionally, the current rudder operational procedure is not effective throughout the entire flight envelope. The actions specified by the proposed AD are intended to prevent the identified unsafe condition.

DATES: Effective November 12, 2002.

ADDRESSES: Information pertaining to this amendment may be obtained from or examined at the Federal Aviation Administration (FAA), Transport

Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington, 98055–4056.

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; telephone (425) 227–2673; fax (425) 227–1181.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 97–14–04, amendment 39–10061 (62 FR 35068, June 30, 1997), which is applicable to certain Boeing Model 737–100, –200, –300, –400, and –500 series airplanes; and AD 2000–22–02 R1, amendment 39–11948 (65 FR 69239, November 16, 2000), which is applicable to all Boeing Model 737 series airplanes; was published in the **Federal Register** on November 13, 2001 (66 FR 56783). The action proposed to require installation of a new rudder control system and changes to the adjacent systems to accommodate that new rudder control system.

Discussion of Background

The National Transportation Safety Board (NTSB) has identified the most probable cause of two major accidents on Model 737 series airplanes as a jammed secondary slide in the main rudder power control unit (PCU) servo valve in combination with overtravel of the primary slide. While AD 97–14–04 addresses what was considered to be this most likely cause of uncommanded rudder hardovers, the FAA recognizes that other causes are still possible.

Subsequently, we determined that the existing system design architecture is unsafe due to inherent failure modes, including single-jam modes and certain latent failures or jams, which, when combined with a second failure or jam, could cause an uncommanded rudder hardover event and consequent loss of control of the airplane. These failure modes remain even following accomplishment of the actions required by AD 97–14–04, amendment 39–10061 (62 FR 35068, June 30, 1997).

In addition, we received information from the Independent 737 Flight Controls Engineering Test and Evaluation Board (ETEB) verifying the existence of the failure modes described above in the rudder system of all Model 737 series airplanes that can cause an uncommanded rudder hardover.

Because of the existing design architecture, we issued AD 2000–22–02 R1 to include a special non-normal operational ''Uncommanded Rudder'' procedure, which provides necessary instructions to the flightcrew for control of the airplane during an uncommanded rudder hardover event. The revised rudder procedure included in AD 2000–22–02 R1 is implemented to provide the flightcrew with a means to recover control of the airplane following certain failures of the rudder control system. However, such a procedure, which is unique to Model 737 series airplanes, adds to the workload of the flightcrew at a critical time when the flightcrew is attempting to recover from an uncommanded rudder movement or other system malfunction. While that procedure effectively addresses certain rudder system failures, we find that such a procedure will not be effective in preventing an accident if the rudder control failure occurs during takeoff or landing.

For these reasons, we have determined that the need for a unique operational procedure and the inherent failure modes in the existing rudder control system, when considered together, present an unsafe condition. In light of this, we proposed to eliminate the unsafe condition by mandating incorporation of a newly designed rudder control system. The manufacturer is currently redesigning the rudder system to eliminate these rudder failure modes. The redesigned rudder control system will incorporate design features that will increase system redundancy, and will add an active fault monitoring system to detect and annunciate to the flightcrew single jams in the rudder control system. If a single failure or jam occurs in the linkage aft of the torque tube, the new rudder design will allow the flightcrew to control the airplane, using normal piloting skills, without operational procedures that are unique to this airplane model.

Actions Since Issuance of Proposed Rule

Since the issuance of the notice of proposed rulemaking (NPRM), which proposed to require the supersedure of AD 97–14–04 and AD 2000–22–02 R1, we have determined that this final rule needs to supersede five additional ADs, which are listed in the table below. Our decision to supersede these ADs was based on a number of factors. First, the new rudder control system required by this AD will better address the identified unsafe condition through redundancy in the system architecture, which will increase reliability. Second, the requirements of those ADs will no longer be relevant to or necessary for the new rudder control system, since the parts required by those ADs will not be included in the design for the new rudder control system. The five additional ADs are listed in the table below and described in the following paragraphs:

List of ADs To Be Superseded

AD No.	Amendment No.	Federal Register citation
95–06–53	39–9199	60 FR 18981, April 14, 1995.
97–05–10	39–9954	62 FR 9679, March 4, 1997.
97–09–15 R1	39–10912	63 FR 64857, November 24, 1998.
98–02–01	39–10283	63 FR 1903, January 13, 1998.
99–11–05 COR	39–11175	64 FR 27905, May 24, 1999.

- AD 95–06–53, applicable to all Boeing Model 737 series airplanes, requires identification of the part and serial numbers of the main rudder PCU; and replacement of certain PCUs with serviceable parts, if necessary. That AD corrects an unsafe condition caused by improper tooling used to torque the spring retaining nut in the servo valve of the main rudder PCU. However, the PCUs identified in AD 95–06–53 will not be used in the configuration of the new rudder control system required by this AD.
- AD 97–05–10, applicable to all Boeing Model 737 series airplanes, requires removal of the main rudder PCU and replacement with a serviceable unit. That AD corrects an unsafe condition due to an unapproved Hi-Lock bolt that was installed in the lever assembly bearing of the main rudder PCU instead of the correct bolt. However, the PCUs identified in AD 97–05–10 will not be used in the configuration of the new rudder control system required by this AD.

• AD 97–09–15 R1, applicable to all Boeing Model 737–100, –200, –300, –400, and –500 series airplanes, requires a one-time inspection to determine the part number of the engage solenoid valve of the yaw damper on the rudder PCU, and replacement of the valve with a valve having a different part number, if necessary. However, the engage solenoid valves specified in AD 97–09–15 R1 will not be used in the configuration of the new main rudder PCU required by this AD.

• AD 98–02–01, applicable to all Boeing Model 737–100, –200, –300, –400, and –500 series airplanes, requires removing the yaw damper coupler; replacing its internal rate gyroscope with a new or overhauled unit; and performing a test to verify the integrity of the yaw damper coupler, and repair if necessary. However, that configuration of the yaw damper coupler, using mechanical rate gyroscopes, is no longer approved for installation on Model 737 series airplanes. Instead, AD 97–14–03, amendment 39–10060 (62 FR 34623, June 27, 1997), requires, among other things, installation of a new yaw damper system that replaces the gyroscopes specified by AD 98–02–01. That new system is intended to prevent malfunction of the yaw damper system.

• AD 99–11–05 COR, applicable to all Boeing Model 737 series airplanes, requires repetitive displacement tests of the secondary slide in the dual concentric servo valve of the PCU for the rudder; and replacement of the valve assembly with a modified valve assembly, if necessary. However, the dual concentric servo valve of the PCU for the rudder, which was specified in AD 99–11–05 COR, will not be used in the configuration of the main rudder PCU that will be installed as a component of the new rudder control system required by this AD.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. One commenter supports the proposed rule. Due consideration has been given to all comments received.

Request to Withdraw Proposal

One commenter considers that an adequate level of safety has been achieved by the accomplishment of AD 97–14–04 and AD 2000–22–02 R1, which are referenced in the Discussion paragraph of the proposed rule, and by the accomplishment of ADs 95–06–53, 97–05–10, 97–06–09, 97–09–14, 97–09–15, 97–14–03, 98–02–01, and 99–11–05. The commenter states that since accomplishing the modifications required by AD 97–14–03 and AD 97–14–04, no instances of uncommanded rudder movement have occurred. In addition, no discrepancies were found by the PCU manufacturer during numerous displacement tests conducted per AD 99–11–05. Further, the proposed rule identifies multiple conditions that only theoretically could occur with the existing rudder control system. After reviewing this information, we infer that the commenter is requesting withdrawal of the proposed rule.

The FAA does not concur with the commenter's request to withdraw the proposed rule. As explained in the proposed rule, the unsafe condition is due to inherent failure modes, including single-jam modes and certain latent failures or jams, which, when combined with a second failure or jam, could cause an uncommanded rudder hardover event and consequent loss of control of the airplane. Because the identified inherent failure modes have not been eliminated by the actions required by those previously issued ADs, we have determined that the actions required by this final rule are warranted. This determination was made after considering the existence of these failure modes and the need for a unique operational procedure (per AD 2000–22–02 R1). No change to the final rule is necessary in this regard.

Disagreement With Identified Unsafe Condition

One commenter, the manufacturer, does not agree that the unsafe condition identified in the proposed AD exists in the current Model 737 rudder control system for the following reasons:

• The current rudder control system is safe and has been shown to meet all current regulations using accepted industry analysis and validation practices.

• Service experience accumulated over 116 million flight hours demonstrates that the system is safe; the airplane has one of the lowest accident rates of airplanes in its class.

• All issues identified as potential safety issues have been addressed by service bulletins mandated by the following airworthiness directives issued by the FAA: AD 97–14–03; AD 97–14–04; AD 97–26–01, amendment 39–10244 (62 FR 65597, December 15, 1997); and AD 98–13–12, amendment 39–10600 (63 FR 33246, June 18, 1998).

• The 737 Flight Controls ETEB report did not identify any new significant failure modes or unsafe conditions that invalidate previous Model 737 certification documentation. All failure modes in the ETEB report had been previously identified and analyzed by the manufacturer. The existing rudder system is considered safe and meets federal regulations.

While the manufacturer does not agree that the unsafe condition exists, it states that it is committed to a redesign of the Model 737 rudder control system to further enhance an already safe system. The manufacturer also states that the new design will eliminate certain potential latent failures in the system, even though evaluation in accordance with federal regulations has shown such latencies to be acceptable. The elimination of such failures will enable the system to be functionally equivalent to a three-actuator system. The new system also will eliminate the need for the existing uncommanded rudder non-normal operational procedure unique to Model 737 series airplanes.

While the ADs identified by the manufacturer were issued to address previously identified unsafe conditions, we have determined that the inherent failure modes identified in this AD have not been eliminated by the actions required by those ADs. Therefore, we do not agree with the manufacturer's conclusion that the existing design of the rudder control system is safe. As described in the proposed AD, the unsafe condition is due to inherent failure modes, including single-jam modes, and certain latent failures or jams, which, when combined with a second failure or jam, could cause an uncommanded rudder hardover event and consequent loss of control of the airplane.

Likewise, AD 2000–22–02 R1 provides instructions to the flightcrew for addressing certain rudder system failures, but those instructions will not be effective in preventing an accident if the rudder control failure occurs during takeoff or landing.

After considering all of this information, we have determined that it is necessary to issue this AD to eliminate the unsafe condition by mandating the installation of a newly designed rudder control system. The new system will incorporate design features that will increase system redundancy, and will add an active fault monitoring system to detect and annunciate to the flightcrew single jams in the rudder control system. If a single failure or jam occurs in the linkage aft of the torque tube, the new system will allow the flightcrew to control the airplane using normal piloting skills, and without using operational procedures that are unique to this airplane model. In light of this, we consider that the actions specified in this final rule are warranted. No change to the final rule is necessary in this regard.

Request for Information/Concerns About New Rudder Control System

One commenter, the NTSB, requested more information on the system safety assessment (SSA) being conducted in support of the design changes for the proposed new rudder control system. To help evaluate the new design, the commenter would like to review the analyses being conducted for each design, the reliability benefits, and other rudder actuation system designs that were submitted.

The commenter also stated the following concerns about the new system:

- It does not provide full independence for the main PCU, and ''it would appear that true redundancy would require two fully independent PCUs.''
- The automatic activation system for the standby PCU may increase the number of possible failure modes compared to the installation of a third full-time independent PCU.
- Without the SSA information, the commenter states that it is unable to determine if the revisions to the rudder actuation system of the Boeing Model 737 series airplanes will sufficiently address safety concerns.

We cannot provide the requested SSA information or other requested design information because it is proprietary to The Boeing Company. However, we have sent the commenter's request to Boeing. Boeing has informed us that it has briefed the NTSB on the Rudder System Enhancement Program on January 16, 2001, and on March 18, 2002. To the extent that the commenter expresses an interest in certification documentation, Boeing will submit the SSA results to us for our approval as part of the certification of the new design.

The commenter also expressed a concern that true redundancy would require two fully independent PCUs. During our reviews of the new rudder control system, we have found that the new main rudder PCU design is equivalent to two independent PCUs. The main rudder PCU is an assembly with two PCUs arranged in tandem. The new main rudder PCU will have two independent servo valves in lieu of the existing common dual concentric servo valve. Two separate input linkages will control the position of these valves on the main rudder PCU. The pilot can override each of these input linkages and also override the linkage for the standby PCU. The function of the override capability is to enable the pilot to control the airplane in the event of a jam in any one of the three input linkages or associated servo valves in the rudder control system.

Finally, the commenter expressed concerns that the automatic activation system for the standby PCU may increase the number of failure modes, compared to the installation of a third full-time independent PCU. In addressing this concern, we note that introduction of a third full-time PCU for a single flight control surface would introduce latent failure modes. With three active PCUs, a single PCU failure (due to a valve jam or linkage failure) can remain latent while the other two PCUs control the rudder surface position. Typically, rudder control systems with three active PCUs require frequent periodic maintenance to detect a single failure, or require a fault-monitoring and annunciation system.

The introduction of any fault-monitoring system will increase the number of failure modes due to increased system complexity. Although the fault-monitoring system for the new rudder control system slightly increases the number of failure modes, these failure modes would not have any adverse effect on the operation of the rudder control system. However, this new system will provide significant benefits in the capability to detect certain failures, provide crew annunciation, and activate the standby rudder PCU. When the standby rudder PCU is activated along with the main rudder PCU, there will be effectively three PCUs controlling the rudder surface position.

In light of this information and based on our certification activities, the new rudder control system will adequately address the identified unsafe condition. No change to the final rule is necessary in this regard.

Suggestion Regarding the Identified Unsafe Condition

One commenter suggested that electromagnetic interference may have contributed to reported events of uncommanded rudder movement on Boeing Model 737–100, –200, –300, –400, and –500 series airplanes. However, the commenter concluded that, if this is true, those airplanes have already been fixed by previously mandated changes to the yaw damper system.

We do not concur with the commenter's suggestion or conclusion. The only electrical components in the rudder control system are in the yaw damper system. The existing rudder yaw damper system has mechanical stops that limit rudder movement to the yaw damper authority. In a normally functioning system, it is not possible for electrical interference to move the rudder beyond the mechanical stops. No change to the final rule is necessary in this regard.

Requests To Revise the Compliance Time

Several commenters request revising the proposed compliance time of 5 years, and two commenters suggest a new compliance time of September 2008. In addition, several commenters recommend basing the compliance time on the completion of tests for the new main rudder PCU, receipt of service bulletins, operators' maintenance schedules, and parts availability. Additional recommendations and FAA responses are described as follows:

- One commenter states that wiring kits should be available in the second quarter of 2002, but actual hardware won't be available until the year 2003. In addition, because of the number of affected airplanes (about 150) in the commenter's fleet, the proposed 5-year compliance time will not be sufficient to accomplish the required actions if receipt of the service bulletins and parts are delayed for 2 years.
- One commenter suggests extending the compliance time to 10 years, and states that the extensive modifications required by the proposed rule are best suited for accomplishment at a D-check.
- One commenter is concerned about parts availability and a possible schedule slide. The commenter states that the manufacturer projects a maximum production capacity of 100 PCUs per month, with about 75 of those units available for retrofit each month after airplane production line requirements are met. In addition, if PCU certification and production proceed on schedule, a maximum of 3,300 airplanes could be retrofitted within 44 months, which would be insufficient to meet 27 percent of potential worldwide demands. The commenter is concerned that, if PCU certification or the production schedule should slide, the schedule for providing sufficient parts would be adversely affected.
- One commenter, the manufacturer, justifies its request for a September 2008 compliance time by noting the benefits of a slower introduction to the retrofit program. The manufacturer states that the FAA made assumptions in the proposed AD based on estimates for retrofitting U.S.-registered airplanes (about 2,000). However, the manufacturer notes that it must plan for retrofitting the worldwide fleet (about

4,500 airplanes). In addition, because the proposed changes to the rudder control system will require modifications throughout the airplane, the manufacturer recommends the September 2008 compliance time to allow for a phased approach for the retrofit program, thereby providing the time necessary to correct any issues identified during the first retrofits.

We partially concur with the commenters' requests to revise the compliance time. We have considered the commenters' suggestions and concerns, and have made the following determinations. We concur with the requests to revise the compliance time to the year 2008, but do not concur with the request to extend the compliance time to 10 years. We agree that the 5-year compliance time required by the proposed rule may not allow operators sufficient time to accomplish the required design modifications. We also agree that the new compliance time should take into consideration when the service bulletins will be issued and when the required parts will be made available to the operators.

In addressing the concerns about delays in the issuance of service bulletins, insufficient parts, and sliding schedules, the manufacturer has established a firm schedule and has assured us that all service information and parts will be provided within the required 6-year compliance time to support the new rudder control system. The manufacturer also has established backup plans to further ensure that parts will be available to meet schedule deadlines. To date, the manufacturer has informed us that the necessary service information is being developed and will be issued according to schedule, and that all necessary parts are being manufactured and will be available per the schedule. Further, we will closely monitor the manufacturer's schedule to ensure that all service information and parts are provided to the operators on time.

In making our determination to extend the compliance time from 5 to 6 years, we also have taken into consideration the service record of Model 737 series airplanes since the accomplishment of the modifications required by AD 97–14–03 and AD 97–14–04. In light of all of this information, we have determined that a compliance time of 6 years will provide sufficient time for affected operators to install the new rudder control system without adversely affecting safety. Paragraph (a) of the final rule is revised accordingly.

Requests To Delay Issuance of Proposed Rule

Although several commenters support the intent of the proposed AD, the commenters request delaying issuance of the proposed rule. The specific comments are described as follows:

- The Air Transport Association (ATA) of America, on behalf of some of its members, recommends delaying issuance of the proposed rule until after the new main rudder PCU is tested and certified, and after the service information is issued by the manufacturer and approved by the FAA. Although service bulletins for the wiring installations for certain airplanes were issued in February 2002, issuance of additional service bulletins are not expected until the third quarter of 2002. In addition, service information for PCU procedures is not expected until July 2003. ATA is concerned about the risks associated with mandating the proposed actions before completing test and evaluation procedures for the new rudder control system, and about the limited number of retrofit kits that will be available each month.
- One commenter strongly recommends waiting to issue the proposed rule until the relevant Boeing service bulletins and required parts are available. As noted earlier in the ''Requests to Revise the Compliance Time'' paragraph of this AD, that same commenter stated that, although the wiring kits would be available in the second quarter of 2002, actual hardware would not be available until the year 2003.
- Two commenters consider that the proposed rule should be issued after the new rudder control system has been tested and approved. Issuing the proposed rule before approval of the system does not allow operators the opportunity to evaluate and comment on the system. Requiring installation of an unknown system places an undue burden on operators, since procedures for the corrective action are not yet defined.

We do not agree that issuance of this AD should be delayed. The manufacturer has assured us that the compliance time specified by this AD will allow sufficient time to design, test, and evaluate the new rudder control system. As described earlier, we are monitoring the manufacturer's schedule for issuing the required service information and providing parts, and we will strive to ensure that the parts and information will be provided to the operators so that they can meet the requirements of this AD.

We infer from the commenters' requests to delay issuance of the final rule that the commenters are seeking more time to comply with the rule. In this regard, we partially concur, and, as described earlier in this AD, have extended the 5-year compliance time specified in the proposed AD to 6 years. The manufacturer has assured us that, in addition to the wiring service information issued in February 2002, it will provide all additional service information (including PCU procedures) and parts necessary to meet the requirements of this AD. In addition, the new rudder control system, including all necessary components for the system, will be thoroughly tested and evaluated prior to issuance of the service information. No change is made to the final rule in this regard. As described earlier, paragraph (a) of the final rule specifies the new compliance time of 6 years after the effective date of this AD.

Cost Concerns

One commenter states that the proposed costs are substantial ($184,000 per airplane, or $364 million for U.S. operators).

We recognize that the costs for the new rudder control system are substantial. However, in determining the costs associated with the new rudder control system, we based our cost estimate on the manufacturer's estimate of 700 work hours per airplane for the installation of the new rudder control system, and our estimate of approximately $140,000 per airplane for parts. For reasons specified in the proposed AD, we have determined that an unsafe condition exists, and we consider that accomplishment of the requirements of this AD is necessary to address that identified unsafe condition. No change is made to the final rule in this regard.

Request To Supersede Certain ADs

One commenter considers that any new proposed rule should supersede the ADs listed in the following table and described below:

COMMENTER'S SUGGESTED LIST OF ADs TO BE SUPERSEDED

AD No.	Amendment No.	Federal Register citation
95–06–53	39–9199	60 FR 18981, April 14, 1995.
97–05–10	39–9954	62 FR 9679, March 4, 1997.

COMMENTER'S SUGGESTED LIST OF ADS TO BE SUPERSEDED—Continued

AD No.	Amendment No.	Federal Register citation
97–06–09	39–9966	62 FR 12739, March 18, 1997.
97–09–14*	39–10010	62 FR 24008, May 2, 1997.
97–09–15*	39–10011	62 FR 24325, May 5, 1997.
97–14–03	39–10060	62 FR 34623, June 27, 1997.
97–14–04	39–10061	62 FR 35068, June 30, 1997.
98–02–01	39–10283	63 FR 1903, January 13, 1998.
99–11–05*	39–11175	64 FR 27905, May 24, 1999.
2000–22–02 R1	39–11948	65 FR 69239, November 16, 2000.

- Asterisks in the preceding table indicate the following changes since the issuance of those ADs:
- AD 97–09–14 was superseded by AD 2000–02–18, amendment 39–11536 (65 FR 5238, February 3, 2000).
- AD 97–09–15 was revised by AD 97–09–15 R1, amendment 39–10912 (63 FR 64857, November 24, 1998).
- AD 99–11–05 was corrected by AD 99–11–05 COR, amendment 39–11175 (64 FR 27905, May 24, 1999).

The commenter adds that incidents of uncommanded rudder movement were reported on airplanes prior to the accomplishment of AD 97–14–03 and AD 97–14–04; however, no incidents have occurred since the accomplishment of those ADs. In addition, the manufacturer of the main rudder PCU has accomplished 361 displacement tests per AD 99–11–05, and no discrepancies occurred during those tests.

We partially concur with the commenter's request. We have determined that the final rule should supersede the two ADs cited in the NPRM (AD 97–14–04 and AD 2000–22–02 R1) and only five of the ADs listed in the table above (AD 95–06–53, 97–05–10, 97–09–15 R1, 98–02–01, and 99–11–05 COR). (Those five ADs were described in detail in this AD in ''Actions Since Issuance of Proposed Rule.'')

However, we do not agree that this AD should supersede AD 97–06–09, AD 97–14–03, or AD 2000–02–18 (which supersedes 97–09–14) because the requirements of those ADs are necessary to correct unsafe conditions that are not addressed by the requirements of this AD. In addition, the components and system specified in AD 97–14–03 are compatible with the new rudder control system and are necessary for the operation of that system. The requirements of those three ADs are described as follows:

- AD 97–06–09, applicable to certain Boeing Model 737–300, –400, and –500 series airplanes, requires replacing certain aileron/rudder trim control modules with an improved module that contains an improved rudder trim switch that precludes the problems of sticking associated with the existing switch. That AD is intended to prevent such sticking.
- AD 97–14–03, applicable to all Boeing Model 737–100, –200, –300, –400, and –500 series airplanes, requires installation of a newly designed rudder-limiting device and yaw damper system. As described earlier in this AD in the ''Actions Since Issuance of Proposed Rule'' paragraph, AD 97–14–03 supersedes AD 98–02–01 (which requires mechanical rate gyroscopes that are no longer approved for installation on Model 737 series airplanes). The new yaw damper system required by AD 97–14–03 is intended to prevent excessive rudder authority and consequent reduced controllability of the airplane, and malfunctions of the yaw damper system.
- AD 2000–02–18 (which supersedes AD 97–09–14), applicable to certain Boeing Model 737–100, –200, –300, –400, and –500 series airplanes, requires an inspection of reworked aileron/elevator PCUs and rudder PCUs to determine if reworked PCU manifold cylinder bores containing chrome plating are installed, and replacement of the cylinder bores with cylinder bores that have been reworked using the oversize method or the steel sleeve method if necessary. That AD is 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.

We have revised the final rule to supersede the five ADs listed and described in a previous paragraph, ''Actions Since Issuance of Proposed Rule.'' As discussed previously in this AD, the final rule also supersedes two other ADs.

Conclusion

After careful review of the available data, including the comments noted above, we have determined that air safety and the public interest require the adoption of the rule with the changes previously described. We also have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

Cost Impact

There are approximately 4,500 Model 737 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 2,000 airplanes of U.S. registry will be affected by this AD.

The new installation action that is required by this new AD will take approximately 700 work hours per airplane to accomplish, at an average labor rate of $60 per work hour. Required parts will cost approximately $140,000 per airplane. Based on these figures, the cost impact of the new requirements of this AD on U.S. operators is estimated to be $364,000,000 (over the proposed 6-year compliance time), or $182,000 per airplane.

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

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.

For the reasons discussed above, I certify that this action (1) is not a ''significant regulatory action'' under Executive Order 12866; (2) is not a ''significant rule'' under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and (3) will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption **ADDRESSES.**

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (14 CFR part 39) as follows:

PART 39—AIRWORTHINESS DIRECTIVES

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39–9199 (60 FR 18981, April 14, 1995); amendment 39–9954 (62 FR 9679, March 4, 1997); amendment 39–10061 (62 FR 35068, June 30, 1997); amendment 39–10283 (63 FR 1903, January 13, 1998); amendment 39–10912 (63 FR 64857, November 24, 1998); amendment 39–11175 (64 FR 27905, May 24, 1999); and amendment 39–11948 (65 FR 69239, November 16, 2000); and by adding a new airworthiness directive (AD), amendment 39–12903, to read as follows:

2002–20–07 Boeing: Amendment 39–12903. Docket 2001–NM–251–AD. Supersedes AD 95–06–53, Amendment 39–9199; AD 97–05–10, Amendment 39–9954; AD 97–09–15 R1, Amendment 39–10912; AD 97–14–04, Amendment 39–10061; AD 98–02–01, Amendment 39–10283; AD 99–11–05 COR, Amendment 39–11175; and AD 2000–22–02 R1, Amendment 39–11948.

Applicability: All Model 737 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 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 (b)(1) of this AD. The request should include an assessment of the effect of the modification, alteration, or repair on the unsafe condition addressed by this AD; and, if the unsafe condition has not been eliminated, the request should include specific proposed actions to address it.

Compliance: Required as indicated, unless accomplished previously.

To prevent an uncommanded rudder hardover event and consequent loss of control of the airplane due to inherent failure modes, including single-jam modes, and certain latent failure or jams combined with a second failure or jam; accomplish the following:

Installation

(a) Within 6 years after the effective date of this AD, do the actions required by paragraphs (a)(1) and (a)(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 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 power control unit (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.

Alternative Methods of Compliance

(b)(1) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle 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.

(2) Alternative methods of compliance, approved previously in accordance with the ADs listed in the following table, are not considered to be approved as alternative methods of compliance with this AD:

TABLE—LIST OF ADS

AD No.	Amendment No.
95–06–53	39–9199
97–05–10	39–9954
97–09–15 R1	39–10912
97–14–04	39–10061
98–02–01	39–10283
99–11–05 COR	39–11175
2000–22–02 R1	39–11948

Note 2: 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

(c) 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

(d) This amendment becomes effective on November 12, 2002.

Issued in Renton, Washington, on September 27, 2002.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.

[FR Doc. 02–25346 Filed 10–4–02; 8:45 am]

BILLING CODE 4910–13–P

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 2002–NM–248–AD; Amendment 39–12904; AD 2002–19–51 R1]

RIN 2120–AA64

Airworthiness Directives; Boeing Model 737 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule; request for comments.

SUMMARY: This document publishes in the **Federal Register** an amendment adopting airworthiness directive (AD) 2002–19–51 R1 that was sent previously to all known U.S. owners and operators of all Boeing Model 737 series airplanes by individual notices. This AD revises existing AD 2002–19–51 that currently requires, for certain airplanes, an inspection to determine the serial number of certain flight control modules (FCM), having P/N 65–44891–7, and corrective actions if necessary. That AD was prompted by reports of failed FCMs, which resulted in sluggish response of the aileron, elevator, and rudder surfaces. This AD revises the existing AD to provide operators with additional options for compliance, to specify the serial numbers of the affected compensator, and to make other editorial changes. The actions specified by this AD are intended to prevent operation with one failed FCM, which could result in reduced controllability of the airplane, or with two failed FCMs, which could result in loss of control of the airplane.