

Airworthiness Directive

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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. 98-NM-196-AD; Amendment 39-12702; AD **2002-07-08**]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 737-200, -200C, -300, -400, and -500 Series Airplanes

PDF Copy (If Available):



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▼ Preamble Information

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment supersedes an existing airworthiness directive (AD), applicable to certain Boeing Model 737 series airplanes, that currently requires repetitive inspections to find cracking of the lower skin at the lower row of fasteners in the lap joints of the fuselage, and repair of any cracking found. That amendment also requires modification of the fuselage lap joints at certain locations, which constitutes terminating action for repetitive inspections of the modified areas. This amendment adds repetitive inspections and requires replacement of the current preventive modification with an improved modification. This amendment is prompted by the FAA's determination that, in light of additional crack findings, certain modifications of the fuselage lap joints do not provide an adequate level of safety. The actions specified by this AD are intended to find and fix cracking of the fuselage lap joints, which could result in sudden decompression of the airplane.

DATES: Effective May 17, 2002.

The incorporation by reference certain publications, as listed in the regulations, is approved by the Director of the Federal Register as of May 17, 2002.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Scott Fung, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue, SW., Renton, Washington; telephone (425) 227-1221; fax (425) 227-1181.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) by superseding AD 97-22-07, amendment 39-10179 (62 FR 55732, October 28, 1997), which is applicable to certain Boeing Model 737 series airplanes, was published in the **Federal Register** on July 12, 2001 (66 FR 36509). The action proposed to continue to require repetitive inspections to find cracking of the lower skin at the lower row of fasteners in the lap joints of the fuselage, and repair of any cracking found. That action also adds a requirement for modification of the fuselage lap joints at certain locations, which constitutes terminating action for repetitive inspections of the modified areas. That action also adds new repetitive inspections and requires replacement of the current preventive modification with an improved modification.

Comments

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received. One commenter supports the intent of the proposed rule. Another commenter states that the proposed rule does not affect its fleet.

Typographical Error

One commenter states that in the section titled, "Other Relevant Proposed Rulemaking," specified in the proposed rule, the line numbers listed for replacement of certain Structural Repair Manual (SRM) repairs are line numbers 292 through 2595 inclusive. The commenter notes that the correct reference is

line numbers 292 through 2565 inclusive. The FAA agrees that a typographical error was made in that section, however, that section is not carried over to the final rule so no change is necessary.

Clarify Paragraphs (a) and (g)

One commenter states that the repetitive low frequency eddy current inspections (LFEC) of the crown areas as specified in paragraph (a) of the proposed rule need clarification. The commenter notes that the crown areas are not defined in the proposed rule and Part 1.E.1. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001 (specified in the proposed rule as the source of service information for doing the specified actions), defines the areas to be inspected. The commenter adds that the lap joint modification (repair) in the crown areas, as specified in paragraph (g) of the proposed rule, needs clarification. The commenter notes that the crown areas are not defined in the proposed rule and Part 1.E.1. ("Compliance") of the service bulletin defines the areas to be inspected.

The FAA agrees that inclusion of references to Part 1.E.1. ("Compliance") in paragraphs (a) and (g) of this final rule provides clarification of the crown lap joint areas to be inspected. We have changed paragraphs (a) and (g) of the final rule accordingly.

Credit for Previously Accomplished Modifications

Two commenters ask that paragraph (g) of the proposed rule be changed to include credit for lap joint modifications (repairs) accomplished per the instructions described in Boeing Service Bulletin 737-53A1177, Revision 4, dated September 2, 1999, or Revision 5, dated February 15, 2001. One commenter adds that this would terminate the post-NACA-modification inspections required by paragraph (i) of the proposed rule.

We agree that accomplishment of the lap joint modification (repairs) per Revision 4 or 5 of the referenced service bulletin meets the requirements specified in paragraph (g) of the final rule and terminates the repetitive post-NACA-modification inspections required by paragraph (i) of the final rule, as those revisions are technically equivalent to the modification specified in Revision 6 of the service bulletin. We have changed paragraph (g) of the final rule accordingly.

Change Paragraph (g)(5)

One commenter asks that paragraph (g)(5) of the proposed rule, for airplanes having a NACA modification per Boeing Alert Service Bulletin 737-53A1177, Revision 3, dated September 18, 1997, be changed to include airplanes that have been modified per Revision 1, dated September 19, 1996, or Revision 2, dated

July 24, 1997, of that service bulletin.

We agree that airplanes having a NACA modification per Revision 1 or 2 of the service bulletin meet the requirements specified in paragraph (g)(5) of the final rule. The modification in those revisions is technically equivalent to the modification specified in Revision 3 of the service bulletin. We have changed paragraph (g)(5) of the final rule accordingly.

Clarify Repair Instructions for 737 Cargo Airplanes

One commenter states that paragraph (g) of the proposed rule does not address a certain lap joint repair for Model 737-200C series airplanes, Groups 3 and 5, as specified in Revisions 4, 5, and 6 of the service bulletin. The commenter notes that Part 1.E.1. ("Compliance") of the service bulletin instructs operators to contact Boeing for repair instructions for stringers 4R and 10R. The commenter asks that a new paragraph be added with repair instructions for that area.

We agree and have changed paragraph (g) of the final rule to exclude repair per the service bulletin for certain 737-200C series airplanes. We also added a new paragraph (h) to this final rule (and renumbered subsequent paragraphs) to specify repair instructions for stringers 4R and 10R on Groups 3 and 5 airplanes.

Clarify Paragraph (h)

One commenter states that the repetitive LFEC inspections outside the crown areas as specified in paragraph (h) of the proposed rule need clarification. The commenter notes that the areas outside the crown lap joints are not defined in the proposed rule and Part 1.E.2. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, defines the areas to be inspected. The commenter adds that the instructions specified in paragraph (h) of the proposed rule are for operators to inspect for cracking at lap joints identified in Figures 2 through 7 of the referenced service bulletin. The commenter notes that Figure 7 addresses inspection of Group 6 airplanes (737-200 and 737-200C series airplanes, line numbers 1 through 291 inclusive), and those airplanes are not subject to the requirements of this AD.

We agree that inclusion of a reference to Part 1.E.2. ("Compliance") of the service bulletin provides clarification of the areas outside the crown lap joints to be inspected. We also agree that Group 6 airplanes are not subject to the requirements of this AD and have been addressed in another rulemaking action. Therefore, paragraph (i) of the final rule (which was paragraph (h) in the proposed rule) includes a reference to Part 1.E.2. ("Compliance") of the service bulletin, and includes no reference to Figure 7 of the service bulletin.

Clarify Paragraph (i)

One commenter asks that paragraph (i) of the proposed rule include clarification of the areas that require post-accomplishment inspections for the NACA modifications in the crown areas as specified in Part 1.E.4.a. ("Compliance") of Revision 6 of the service bulletin. The commenter also asks that accomplishment of the NACA modification per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997; be accepted.

We agree that inclusion of a reference to Part 1.E.4.a. ("Compliance") of the service bulletin provides clarification of the areas in the crown lap joints to be inspected. We also agree that inclusion of Revisions 1, 2, and 3 of the service bulletin into paragraph (j) of the final rule clarifies the service bulletins that can be used to do the NACA modification. Paragraph (j) of the final rule (which was paragraph (i) in the proposed rule) includes a reference to Part 1.E.4.a. ("Compliance") of the service bulletin.

Clarify Paragraph (j)

One commenter asks that paragraph (j) of the proposed rule include clarification of the areas that require post-accomplishment inspections for the NACA modifications outside the crown areas as specified in Part 1.E.4.b. ("Compliance") of Revisions 1, 2, and 3 of the service bulletin. The commenter also asks that accomplishment of the NACA modification per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997, be accepted.

We agree that inclusion of a reference to Part 1.E.4.b. ("Compliance") provides clarification of the areas outside the crown lap joints to be inspected. We also agree that inclusion of reference to Revisions 1, 2, and 3 of the service bulletin in paragraph (j) of the final rule clarifies the service bulletins that can be used to do the NACA modification. Paragraph (k) of this final rule (which was paragraph (j) in the proposed rule) includes a reference to Part 1.E.4.b. ("Compliance") of the service bulletin.

Clarify Paragraph (l)

One commenter states that paragraph (l) of the proposed rule ("Follow-on LFEC Inspections") should reference Part 1.E.7. ("Compliance") of the referenced service bulletin and should instruct operators to do the external inspection per the 737 Nondestructive Test (NDT) Manual, Part 6, Chapter 53-30-00, Figure 5.

We agree that inclusion of a reference to Part 1.E.7. ("Compliance") provides clarification of the area for the external inspection as specified in the 737 NDT Manual. However, we do not agree to instruct operators to do the external

inspection per the 737 NDT Manual. Part 1.E.7. ("Compliance") of the service bulletin references the 737 NDT Manual, which addresses the commenter's concerns. Paragraph (m) of the final rule (which was paragraph (l) in the proposed rule) includes a reference to Part 1.E.7. ("Compliance") of the service bulletin.

Clarify Paragraph (m)

One commenter asks that paragraph (m) of the proposed rule, ("Repetitive High Frequency Eddy Current (HFEC) Inspections--Window Corners"), be changed to reference Part 1.E.10. ("Compliance") of the referenced service bulletin to define the procedures necessary for inspecting the fuselage skin adjacent to the window corners that have not been modified.

We agree that inclusion of a reference to Part 1.E.10 ("Compliance") provides clarification of the inspection procedures necessary for doing the HFEC inspections of the window corners. Paragraph (n) of the final rule (which was paragraph (m) in the proposed rule) includes a reference to Part 1.E.10 ("Compliance") of the service bulletin.

Another commenter states that the repair and modification instructions specified in paragraph (m) of the proposed rule are not clear for those operators who have already installed the lap joint doublers in the corresponding area of the window belt. The commenter adds that, as written, it is unable to determine that the terminating modification for uncracked window corners consists of oversizing the fastener holes and installing Hi-lok fasteners. The commenter asks for further review of the proposed rule given additional circumstances and questions from operators who have already met the intent of the modification specified in Boeing Service Bulletin 737-53A1177, Revision 5, dated February 15, 2001.

We agree that clarification of the repair and modification instructions specified in paragraph (m) of the proposed rule is necessary. Therefore, we have added that the modification includes removing and discarding fasteners, oversizing fastener holes, and installing rivets or Hi-Lok fasteners, as applicable. We also agree that accomplishment of the modification per Revision 5 of the referenced service bulletin meets the requirements for the modification specified in paragraph (n) of the final rule. This terminates the repetitive inspections for operators who have accomplished the required actions per either of those service bulletins. Paragraph (n) of the final rule (which was paragraph (m) in the proposed rule) has been changed accordingly.

Extend Compliance Time in Paragraph (m)

One commenter, the airplane manufacturer, asks that the compliance time for the initial and repetitive inspections specified in paragraph (m) of the proposed rule be extended. The commenter states that the 1,200-flight-cycle threshold

specified is the same inspection threshold specified for lap joint lower row cracking in paragraph (a) of the proposed rule. The commenter notes that the cracking of the holes of the window corner is much less critical than the cracking of the lap joint lower row, so it finds a less-restrictive inspection threshold is acceptable for the window corner cracking. The commenter adds that fleet data on cracking of the holes of the window corner show that such cracking is not extensive on airplanes with less than 60,000 total flight cycles, and that information supports an inspection threshold of 2,250 flight cycles after the effective date of the AD for airplanes with less than 60,000 total flight cycles.

We agree with the commenter that the cracking of the window corner is less critical than cracking of the lap joint lower row; however, the fleet data to date indicate that cracking can occur on airplanes with fewer than 50,000 total flight cycles. Therefore, we have changed the initial inspection threshold required by paragraph (n) of the final rule (which was paragraph (m) in the proposed rule) to read, "Before the accumulation of 50,000 total flight cycles or within 2,250 flight cycles after the effective date of this AD, whichever comes later. * * *"

A second commenter suggests an extension of the threshold for the inspections to "Before the accumulation of 60,000 total flight cycles or within 5,500 flight cycles after the effective date of the AD, whichever occurs later." The commenter states that this will allow operators that have done the post-modification a reasonable opportunity to meet the intent of the new requirement specified in Part V (window corner inspection) of Revision 5 or 6 of the referenced service bulletin. The commenter adds that its data indicates that the window corner cracking is largely due to pressurization cycles. The commenter's operations are such that its airframe cycles are of relatively low-pressure differential, and very short duration.

A third commenter asks that the 1,200-flight-cycle threshold be elevated to 5,000 flight cycles so that the initial inspection and the preventative modification of the window corner on its airplanes can be accomplished at the same time as the lap joint modification. The commenter states that it has approximately 25 airplanes that are over 50,000 flight cycles that have not accomplished the window corner inspection or lap joint repairs. The commenter adds that a compliance interval of 1,200 flight cycles will require the airlines to bring in those airplanes for inspection within a 3-month timeframe, without the ability to accomplish the preventative modifications.

The same commenter asks that the compliance time for the initial inspection of the window belts be required within 10,000 flight cycles after the effective date of the AD, or 20,000 flight cycles after accomplishment of the lap joint repairs, whichever occurs first. The commenter states that the structural integrity for airplanes on which the lap joint repairs have been done has already been improved, which justifies changing the compliance time.

A fourth commenter suggests that the inspection be accomplished before the accumulation of 50,000 total flight cycles or within 4,500 flight cycles after the effective date of the AD, whichever occurs later. The commenter states that this will allow operators to schedule the inspection into a "C" check visit. The commenter adds that, for airplanes with 50,000-plus total flight cycles, the 1,200-flight-cycle threshold for the initial inspection will place a significant burden on operators that have already accomplished the skin lap modifications because the inspection will have to be accomplished outside a scheduled maintenance visit.

We do not agree to extend the compliance threshold for the initial inspection further, per the above requests from the second, third, and fourth commenters. We have already considered factors such as operators' maintenance schedules in setting a compliance time for the required modification, and have determined that an inspection threshold of 2,250 flight cycles is an appropriate compliance time in which the inspection may be accomplished during scheduled airplane maintenance for the majority of affected operators. Since maintenance schedules vary from operator to operator, it would not be possible to guarantee that all affected airplanes could be modified during scheduled maintenance, even with a compliance threshold of 2,250 flight cycles. In any event, we find that this threshold represents the maximum time wherein the affected airplanes may continue to operate prior to inspection without compromising safety. No further change to the final rule is necessary in this regard.

Extend Compliance Time in Paragraph (i)

One commenter asks that the compliance threshold in paragraph (i) of the proposed rule be changed. The commenter states that it has one airplane on which the preventative change of the crown lap joint stringers has been done, and that airplane will have flown more than 12,000 flight cycles when this final rule is effective. The commenter asks for an alternate initial inspection threshold in paragraph (i) of the proposed rule to avoid immediate grounding of that airplane when the final rule is issued. The commenter asks that a provision be added which states, "* * * if an airplane has reached the 12,000 flight cycle limit, the initial inspection must be done within 6 months or 1,500 flight cycles, whichever occurs later, after the effective date of the AD."

We acknowledge the need for operators with airplanes that have exceeded the 12,000 flight cycle limit to have ample time to accomplish the initial inspection required by paragraph (j) of the final rule (which was paragraph (i) in the proposed rule). Paragraph (k) of this final rule (which was paragraph (j) in the proposed rule) has a similar compliance threshold. Therefore, we have changed paragraphs (j) and (k) of this final rule to add a grace period, "* * * or within 750 flight cycles after the effective date of this AD, whichever is later."

Add Previous Alternative Methods of Compliance (AMOC)

One commenter asks that paragraph (n) of the proposed rule be changed to add a paragraph for previously approved AMOCs for AD 97-22-07, amendment 39-10179.

We agree to change paragraph (o) of the final rule (which was paragraph (n) in the proposed rule) to add a new paragraph (o)(2) for AMOCs previously approved for AD 97-22-07 that are approved for certain paragraphs in this AD.

Eliminate References to Bear Strap Areas

One commenter, the airplane manufacturer, states that, since the release of Revision 6 of the referenced service bulletin, its review suggests that the cracking of the skin and doublers common to the bear strap around the entry and service doors may be caused by hinge cutouts, and may not be related to the typical cracking of the lower row of the lap splice. The commenter submits this comment for FAA review and consideration.

We infer that the commenter wants to eliminate all references to the areas that are common to the bear strap around the entry and service doors, as specified in the proposed rule. We do not agree. The commenter has not provided substantiating data for its request. We may eliminate these areas from the requirements of the final rule in future rulemaking if data are submitted showing that cracking in these areas is definitely caused by hinge cutouts. No change to the final rule is necessary in this regard.

Delete Paragraph (f)

Two commenters ask that the compliance plan requirement specified in paragraph (f) of the proposed rule be deleted.

One commenter states that the inclusion of paragraph (f) does nothing to address the safety issue for which the proposed rule is being written, and asks that it be deleted from the final rule. Another commenter does not consider the requirements of paragraph (f) an airworthiness issue and states that it should not be included as such in the final rule. The commenter adds that the letter check does not determine if an airplane is airworthy, and the airplanes on which the actions required by paragraph (g) of the proposed rule have been done, as well as the airplanes on which the actions are not required in the near future, are not excluded from paragraph (f). The commenter also states that a simple forecast report with estimated due dates based on average airplane utilization cycles can be provided to the Principle Maintenance Inspector upon request.

We partially agree with the commenters, as follows:

We do not agree to delete paragraph (f) of the final rule. As specified in the preamble of the proposed rule, we recognize that doing the lap joint modification will require a lengthy maintenance visit, within a relatively short compliance time. This makes it necessary for operators to do compliance planning to ensure that when the compliance deadline is reached all the required actions have been done on all affected airplanes. Although plans and schedules can change over time, a compliance plan ensures that the operator is aware of the complexity of the actions required by this final rule at the start rather than at the end of the compliance period.

We agree that the requirements specified in paragraph (f) of the final rule can be changed to exclude operators that have previously done the modification required by either paragraph (g) or (h) of the final rule; and by revising the requirement to provide dates and maintenance events (e.g., letter checks) to just estimated dates, for operators that have not yet done the required actions. Paragraph (f) of the final rule has been changed accordingly.

Change Cost Impact Information

Two commenters ask that the cost impact section of the proposed rule be changed.

One commenter states that the cost impact to the industry is underestimated in the proposed rule. The commenter notes that, after accomplishing the lap joint modifications on some of its fleet, it found that the cost estimates and man hours were 30-40% higher than the estimate in the proposed rule. The commenter adds that the amount of time required for access and close-up equates to approximately 4 additional days of downtime in which no revenue can be generated. The commenter also states that the estimate of 14 hours to accomplish the window corner inspections is on the condition that it is done in conjunction with the lap joint modifications, and does not account for fastener removal. If the inspection is done separately, the access and close-up time would take at least one week.

Another commenter also asks that the time required for access and close-up be added to the proposed rule. The commenter notes that the cost impact is particularly useful to operators and the public when a proposed compliance period would not allow accomplishment of the actions during a scheduled intermediate or heavy maintenance visit. The commenter adds that in such cases, access and close-up are direct requirements of, and are solely attributable to, the proposed rule, and in some cases the out-of-service time and other impacts of unscheduled access and close-up may account for nearly all of the actual economic impact. The commenter recommends a re-evaluation of the cost impact estimated in the proposed rule.

We do not agree that the cost impact section of the final rule should be changed

to add in the work hours and cost for access, close-up, and fastener removal. The cost estimates for the actions required by this final rule are estimated over the life of the AD, which is approximately 20-25 years. The cost impact section of the final rule references paragraph 1.G. of the service bulletin for more detailed information, and that section includes, among other things, time necessary for access, close-up, and fastener removal. Therefore, no change to the final rule is necessary in this regard.

Conclusion

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule with the changes previously described. The FAA has 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 2,203 Model 737 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 905 airplanes of U.S. registry will be affected by this AD.

Cost estimates for the actions required by this AD for U.S. operators over the life of the AD are included in the following table:

Paragraph/AD action	Number affected	Work hours	Parts (\$)	Cost/Airplane (\$)	Total Cost (\$)
(a) Lap joint inspection	905	100	0	6,000	5,430,000
(f) Compliance planning	905	24	0	1,440	1,303,200
(g) Lap joint modification	905	4,200	12,000	264,000	238,920,000
(h) Lap joint inspection	905	100	0	6,000	5,430,000
(i) Post-NACA inspection	25	100	0	6,000	150,000
(j) Post-NACA inspection	10	100	0	6,000	60,000
(m) Window corner inspection	807	14	0	840	677,880

The cost estimates are based on the following criteria:

- Lap joint inspection cost estimates reflect costs for a single inspection cycle, and the work hours vary between groups of airplanes. Refer to paragraph 1.G. of

Boeing Service Bulletin 737-53A1177 for more detailed information. An average of 100 work hours was used in determining the cost estimates.

- An average of 24 work hours was used in estimating the costs for compliance planning.
- Lap joint modification work hours vary between groups of airplanes. Refer to paragraph 1.G of Boeing Service Bulletin 737-53A1177 for more detailed information. An average of 4,200 work hours and \$12,000 for parts were used in estimating these costs. Modification costs are spread over the estimated life of the AD, which is approximately 20 to 25 years.
- Window corner inspection work hours vary between groups of airplanes. Refer to paragraph 1.G of Boeing Service Bulletin 737-53A1177 for more detailed information. An average of 14 work hours was used in estimating the costs of the inspections only.

The FAA estimates that during the 10-year period after issuance of this AD, worldwide operators will be required to modify 805 Model 737 series airplanes. The new modification required by this AD will take an average of approximately 4,200 work hours to accomplish, at an average labor rate of \$60 per work hour. The worldwide cost impact of the required modification is estimated to be \$212,701,000 over 10 years, or an average of \$21,270,000 per year. The highest impact year is the third year after issuance of the AD: an estimated 155 Model 737 series airplanes will require modification in that year. Therefore, the worldwide cost impact of the modification is estimated to be \$40,955,000 in that year. The affected Model 737 airplanes operated by U.S. operators comprise approximately 41 percent of the total worldwide costs. Therefore, the highest cost impact in any given year for the modifications is estimated to be \$16,791,000 for U.S. operators.

The cost impact figures discussed above are 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, Incorporation by reference, Safety.

Adoption of the Amendment

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

PART 39--AIRWORTHINESS DIRECTIVES

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

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

Sec. 39.13 [Amended]

2. Section 39.13 is amended by removing amendment 39-10179 (62 FR 55732, October 28, 1997), and by adding a new airworthiness directive (AD), amendment 39-12702, to read as follows:

▼ Regulatory Information

2002-07-08 Boeing: Amendment 39-12702. Docket 98-NM-196-AD. Supersedes AD 97-22-07, Amendment 39-10179.

Applicability: Model 737-200, -200C, -300, -400, and -500 series airplanes having line numbers 292 through 2565 inclusive, certificated in any category.

Note 1: This AD applies to each airplane identified in the preceding applicability provision, regardless of whether it has been modified, altered, or repaired in the area subject to the requirements of this AD. For airplanes that have been modified, altered, or repaired so that the performance of the requirements of this AD is affected, the owner/operator must request approval for an alternative method of compliance in accordance with paragraph (o)(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 find and fix cracking of certain fuselage lap joints, which could result in sudden decompression of the airplane, accomplish the following:

Repetitive Low Frequency Eddy Current (LFEC) Inspections--Crown Areas

(a) Do an LFEC inspection to find cracking of the lower skin at the lower row of fasteners in the lap joints of the fuselage as specified in Part 1.E.1.

("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; per PART I ("Inspection") of the Accomplishment Instructions of the service bulletin; at the time specified in paragraph (b) or (c) of this AD, as applicable.

(b) For airplanes that have accumulated more than 65,000 total flight cycles but not more than 70,000 total flight cycles as of the effective date of this AD: Do the inspection at the earlier of the times specified in paragraphs (b)(1) and (b)(2) of this AD. Repeat the inspection after that at intervals not to exceed 1,200 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

(1) Within 1,200 flight cycles after the effective date of this AD.

(2) Within 1,200 flight cycles after the last inspection, if any, accomplished in accordance with AD 97-22-07, amendment 39-10179.

(c) For airplanes that have accumulated at least 45,000 total flight cycles but not more than 65,000 total flight cycles as of the effective date of this AD: Do the inspection at the earlier of the times specified in paragraphs (c)(1) and (c)(2) of this AD. Repeat the inspection after that at intervals not to exceed 1,200 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

(1) At the later of the times specified in paragraphs (c)(1)(i) and (c)(1)(ii) of this AD.

(i) Before the accumulation of 50,000 total flight cycles.

(ii) Within 1,200 flight cycles after the effective date of this AD.

(2) Within 1,200 flight cycles after the last inspection, if any, accomplished in

accordance with AD 97-22-07, amendment 39-10179.

Crack Repair

(d) Except as provided by paragraph (e) of this AD: If any cracking is found during any inspection required by this AD, before further flight, repair per PART II ("Crack Repair") of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001.

(e) If any cracking is found during any inspection required by this AD, and Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, specifies to contact Boeing for repair instructions: Repair any cracking, before further flight, per a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or per data meeting the type certification basis of the airplane approved by a Boeing Company Designated Engineering Representative (DER) who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

Compliance Plan

(f) For airplanes on which the applicable lap joint modification as required by paragraph (g) or (h) of this AD, as applicable, has not been done as of the effective date of this AD: Within 3 months after the effective date of this AD, submit a plan to the FAA identifying a schedule for compliance with paragraph (g) and (h) of this AD, as applicable. This schedule must include, for each of the operator's affected airplanes, the estimated dates when the required actions will be accomplished. For the purposes of this paragraph, "FAA" means the Principal Maintenance Inspector (PMI) for operators that are assigned a PMI, or the cognizant Flight Standards District Office for other operators. Information collection requirements contained in this regulation have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*) and have been assigned OMB Control Number 2120-0056.

Note 2: Operators are not required to submit revisions to the compliance plan required by paragraph (f) of this AD to the FAA.

Lap Joint Modification (Repair)--Crown Areas

(g) Except as provided by paragraph (h) of this AD: Install the lap joint repair as specified in Part 1.E.1. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 4, dated September 2, 1999; Revision 5, dated February 15, 2001; or Revision 6, dated May 31, 2001; per PART III or IV ("Lap Joint Repair"), as applicable, of the Accomplishment Instructions of the applicable

service bulletin; at the time specified in paragraph (g)(1), (g)(2), (g)(3), (g)(4), or (g)(5) of this AD, as applicable. Accomplishment of this repair terminates the repetitive inspections required by paragraphs (b), (c), and (j) of this AD.

(1) For airplanes that have accumulated 70,000 total flight cycles or more as of the effective date of this AD: Within 600 flight cycles after the effective date of this AD, do the lap joint repair.

(2) For airplanes that have accumulated 65,000 total flight cycles or more, but less than 70,000 total flight cycles as of the effective date of this AD: Do the repair at the later of the times specified in paragraphs (g)(2)(i) and (g)(2)(ii) of this AD.

(i) Before the accumulation of 70,000 total flight cycles.

(ii) Within 600 flight cycles after the effective date of this AD.

(3) For airplanes that have accumulated 45,000 total flight cycles or more, but less than 65,000 total flight cycles as of the effective date of this AD: Within 5,000 flight cycles after the effective date of this AD.

(4) For airplanes that have accumulated less than 45,000 total flight cycles as of the effective date of this AD: Before the accumulation of 50,000 total flight cycles.

(5) Notwithstanding the times specified in paragraphs (g)(1), (g)(2), (g)(3), and (g)(4) of this AD, for airplanes on which the "Preventive Change" (NACA modification) has been accomplished per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997: Within 18,000 flight cycles after accomplishment of the NACA modification.

(h) For Groups 3 and 5 airplanes as listed in Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001: Install the lap joint repair at stringers 4R and 10R, as specified in Part 1.E.1. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; at the time specified in paragraph (g)(1), (g)(2), (g)(3), (g)(4), or (g)(5) of this AD, as applicable; per a method approved by the Manager, Seattle ACO; or per data meeting the type certification basis of the airplane approved by a Boeing Company DER who has been authorized by the Manager, Seattle ACO, to make such findings. For a repair method to be approved by the Manager, Seattle ACO, as required by this paragraph, the approval letter must specifically reference this AD.

Repetitive LFEC Inspections--Outside Crown Areas

(i) Before the accumulation of 70,000 total flight cycles, or within 2,500 flight cycles after the effective date of this AD, whichever comes later: Do an LFEC inspection to find cracking of the lap joints of the fuselage, as specified in Part 1.E.2. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, and as identified in Figures 2 through 6 of the Accomplishment Instructions of the service bulletin. Do the inspection per the service bulletin. Repeat the inspection after that at intervals not to exceed 5,000 flight cycles.

Post-NACA Modification Inspections--Crown Areas

(j) For airplanes that have the "Preventive Change" (NACA modification) of the crown lap joint stringers ("Crown Laps") done per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997: Within 12,000 flight cycles after accomplishment of the NACA modification, or within 750 flight cycles after the effective date of this AD, whichever is later, do either an external (Figure 8) or internal (Figure 9) LFEC inspection to find cracking and corrosion as specified in Part 1.E.4.a. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001; per PART I ("Inspection") of the Accomplishment Instructions of Revision 6 of the service bulletin.

(1) If the external inspection is done: Repeat the inspection after that at intervals not to exceed 1,500 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

(2) If the internal inspection is done: Repeat the inspection after that at intervals not to exceed 4,500 flight cycles until accomplishment of the lap joint repair required by paragraph (g) of this AD.

Post-NACA Modification Inspections--Outside Crown Areas

(k) For airplanes that have the "Preventive Change" (NACA modification) outside the crown areas done per PART III of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 1, dated September 19, 1996; Revision 2, dated July 24, 1997; or Revision 3, dated September 18, 1997: Before the accumulation of 20,000 flight cycles after accomplishment of the NACA modification or within 750 flight cycles after the effective date of this AD, whichever is later, do either an external (Figure 8) or internal (Figure 9) LFEC inspection to find cracking and corrosion as specified in Part 1.E.4.b. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, per PART I ("Inspection") of the Accomplishment Instructions of Revision 6 of the service bulletin.

(1) If the external inspection is done: Repeat the external inspection after that at

intervals not to exceed 1,500 flight cycles.

(2) If the internal inspection is done: Repeat the internal inspection after that at intervals not to exceed 4,500 flight cycles.

Modification of Tear Strap Splice Straps

(1) For airplanes that have the "lap joint repair," as specified in Part IV of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-53A1177, Revision 2, dated July 24, 1997, or Revision 3, dated September 18, 1997: Within 45,000 flight cycles after accomplishment of this lap joint repair, modify the splice straps per Figures 10, 11, and 12 of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001.

Follow-On LFEC Inspections

(m) Within 45,000 flight cycles after accomplishment of the lap joint repair required by paragraph (g) or (h) of this AD, as applicable: Do either an external or internal (Figure 9) LFEC inspection as specified in Part 1.E.7. ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, to find cracking of the lap joint repair, per PART I ("Inspection") of the Accomplishment Instructions of the service bulletin. Repeat the inspection after that at intervals not to exceed 2,800 flight cycles.

Repetitive High Frequency Eddy Current (HFEC) Inspections--Window Corners

(n) For airplanes having line numbers 520 through 2565 inclusive: Before the accumulation of 50,000 total flight cycles or within 2,250 flight cycles after the effective date of this AD, whichever comes later, do an HFEC inspection to find cracking as specified in Part 1.E.10 ("Compliance") of Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, per PART V ("Window Corner Fastener Hole Cracking, Inspection and Repair") of the Accomplishment Instructions of the service bulletin. Repeat the inspection after that at intervals not to exceed 4,500 flight cycles. Accomplishment of the modification (which includes removing and discarding fasteners, oversizing fastener holes, and installing rivets or Hi-Lok fasteners, as applicable), per PART V of the Accomplishment Instructions of Boeing Service Bulletin 737-53A1177, Revision 5, dated February 15, 2001, or Revision 6, dated May 31, 2001, constitutes terminating action for the inspections required by this paragraph.

Alternative Methods of Compliance

(o)(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 PMI, who may add comments and then send it to the Manager, Seattle ACO.

(2) Alternative methods of compliance, approved in accordance with AD 97-22-07, amendment 39-101-79 are approved as alternative methods of compliance with paragraphs (a), (b), (d), (e), (g), and (i) of this AD.

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

Special Flight Permits

(p) 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.

Incorporation by Reference

(q) Except as provided by paragraphs (e), (f), and (h) of this AD, the actions shall be done in accordance with Boeing Service Bulletin 737-53A1177, Revision 4, dated September 2, 1999; Boeing Service Bulletin 737-53A1177, Revision 5, dated February 15, 2001; or Boeing Service Bulletin 737-53A1177, Revision 6, dated May 31, 2001, as applicable. This incorporation by reference is approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(r) This amendment becomes effective on May 17, 2002.

▼ Footer Information

Issued in Renton, Washington, on April 2, 2002.

Ali Bahrami,

Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service.

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▼ Comments