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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2012-0637; Directorate Identifier 2012-NM-006-AD; Amendment 39-17532; AD 2013-15-16]**

**RIN 2120-AA64**

#### **Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER series airplanes. This AD was prompted by a report of an inboard main landing gear (MLG) door assembly departure due to premature fatigue cracking in the inboard MLG door hinge fittings. This AD requires repetitive inspections for cracking of the inboard MLG door hinge fittings; and replacement or modification of cracked fittings. This AD also provides an option to remove the affected MLG door. We are issuing this AD to detect and correct fatigue cracking in the inboard MLG door hinge fittings, which could result in loss of the MLG door assembly from the airplane, and the MLG door assembly could impact the flight control surfaces and result in reduced controllability of the airplane.

**DATES:** This AD is effective September 20, 2013.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of September 20, 2013.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

#### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal

holidays. The AD docket contains this AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (phone: 800-647-5527) is Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Nancy Marsh, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6440; fax: 425-917-6590; email: nancy.marsh@faa.gov.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to the specified products. The NPRM published in the Federal Register on June 18, 2012 (77 FR 36222). The NPRM proposed to require repetitive inspections for cracking of the inboard MLG door hinge fittings; and modification of cracked fittings, which would terminate the repetitive inspections.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (77 FR 36222, June 18, 2012) and the FAA's response to each comment.

### **Request To Extend Compliance Time**

American Airlines requested that we revise the NPRM (77 FR 36222, June 18, 2012) to extend the compliance time for the initial inspections from 10,000 total flight cycles to before 18,000 total flight cycles. American Airlines stated that the FAA has not provided sufficient evidence to warrant issuance of regulatory action with such a reduced compliance time. American Airlines calculated that the event described in the service information represents only 0.085 percent of the airplanes under U.S. registry, and that the event described occurred at 24,000 total flight cycles.

We disagree with the request to extend the compliance time. In developing an appropriate compliance time for this action, we considered the safety implications, parts availability, and normal maintenance schedules for the timely accomplishment of the inspections and modifications. There is additional data related to the MLG door hinge failures that is not included in the manufacturer's service bulletin. Up to 10 percent of hinges inspected to date have been found with cracking. The cracking occurred between 11,000 and 24,000 total flight cycles, and has been found on both hinges of the inboard MLG door. In consideration of these items, we have determined that a compliance time of before 10,000 total flight cycles will ensure an acceptable level of safety and allow the inspections and modifications to be done during scheduled maintenance intervals for most affected operators. We have not changed the AD in this regard.

### **Request To Allow New Hinges Having Part Numbers (P/Ns) 113A8341-1 and 113A8341-2**

American Airlines requested that we revise paragraph (g) of the NPRM (77 FR 36222, June 18, 2012) to allow installation of new hinges having P/Ns 113A8341-1 and 113A8341-2 as replacements for cracked hinges found during the inspections. American Airlines stated that paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011 (referred to in the NPRM as the appropriate source of service information), implies that an operator may install a new set of hinges having P/Ns 113A8341-1 and 113A8341-2 and restart the inspection threshold and

interval; however, the Accomplishment Instructions recommend installation of new hinges having P/Ns 113A8341-9 and 113A8341-10 if cracking is found. American Airlines stated that installation of a new set of hinges having P/Ns 113A8341-1 and 113A8341-2 should be acceptable as long as the on-going repetitive inspections are accomplished as defined in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011.

We agree to allow replacement of cracked hinges with new hinges having P/Ns 113A8341-1 and 113A8341-2, as long as inspections of the replacement hinges are accomplished at the time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011. We have added new paragraph (h)(2) to this AD to clarify that installing new MLG door hinge fittings having P/N 113A8341-1 and 113A8341-2, is acceptable for compliance with the modification specified in paragraphs (g)(1)(ii) and (g)(2)(i) of this AD. Paragraph (h)(2) also specifies that installation of the MLG door hinge fittings having P/N 113A8341-1 and 113A8341-2, must be done using a method approved in accordance with the procedures specified in paragraph (j) of this AD. We have revised subsequent paragraph identifiers accordingly. This difference has been coordinated with Boeing.

### **Request for Clarification of Follow-On Actions**

Boeing requested that we reword paragraph (g) of the NPRM (77 FR 36222, June 18, 2012) to clarify the follow-on actions required after the inspections. Boeing stated that the requirement to continue repetitive inspections needs to be clarified since it only pertains if the hinges were found to be uncracked.

We agree that clarification is needed. The repetitive inspections are not required if the modification has been accomplished with hinges having P/Ns 113A8341-9 and 113A8341-10. However, the repetitive inspections are required if hinges having P/N 113A8341-1 and 113A8341-2 are installed. We have added this clarification in paragraphs (g)(1) and (g)(2) of this AD.

### **Request To Require Modification of Only Doors Having Cracked Hinges**

Southwest Airlines (Southwest) requested that replacement of the hinges be required only on the door where cracks were found, rather than replacing both doors if cracking is found only on one door. Southwest stated it wants the option to not modify a door on which the hinges are not cracked, even though there is hinge cracking on the door on the other side of the airplane. Southwest added that, for a door that has no cracked hinges, the repetitive inspections would remain effective, and modification would not be required prior to further flight.

We agree that only doors with cracked hinges need to be modified, and that the repetitive inspections specified in the AD remain in effect for the door that has not been modified. We have revised paragraph (g)(2)(i) of this AD to clarify that modification is only required on affected doors.

### **Request for the Option To Remove Inboard MLG Door in Accordance With the Configuration Deviation List (CDL)**

Southwest requested that we allow the option of removing the inboard MLG door from the airplane as specified in the CDL. Southwest noted that the CDL allows for continued operation without the inboard MLG door.

We agree with adding an option to the AD to remove the affected inboard MLG door. However, the removal must be done in accordance with a method approved by the FAA because applicable flight effects and restrictions must be accounted for. In addition, if a door with new hinge fittings is reinstalled, the inspection required by paragraph (h) of this AD must be done. We have added paragraph (g)(2)(ii) of this AD accordingly. We have also added note 1 to paragraph (g)(2)(ii) of this AD to refer to the CDL as guidance.

## Supplemental Type Certificate (STC) Winglet Comment

Aviation Partners Boeing stated that the installation of winglets per STC ST00830SE ([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se)) does not affect the accomplishment of the manufacturer's service instructions.

We have added paragraph (c)(1) to this AD to state that installation of STC ST00830SE ([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se)) does not affect the ability to accomplish the actions required by this AD. Therefore, for airplanes on which STC ST00830SE is installed, a "change in product" alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17. For all other AMOC requests, the operator must request approval of an AMOC in accordance with the procedures specified in paragraph (j) of this AD.

### New Optional Installation Paragraph

We have added new paragraph (h)(1) to this AD to clarify that installing new MLG door hinge fittings having P/N 113A8341-9 and 113A8341-10, terminates the inspection requirements of this AD for only the door on which new fittings are installed.

### Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting this AD with the changes described previously and minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (77 FR 36222, June 18, 2012) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (77 FR 36222, June 18, 2012).

We also determined that these changes will not increase the economic burden on any operator or increase the scope of this AD.

### Costs of Compliance

We estimate that this AD affects 1,175 airplanes of U.S. registry.

We estimate the following costs to comply with this AD:

#### Estimated Costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection	3 work-hours × \$85 per hour = \$255 per inspection cycle	\$0	\$255 per inspection cycle	\$299,625 per inspection cycle.

We estimate the following costs to do any necessary modification that would be required based on the results of the inspection. We have no way of determining the number of airplanes that might need this modification:

### On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Modification	9 work-hours × \$85 per hour = \$765	\$6,550	\$7,315

According to the manufacturer, some of the costs of this AD may be covered under warranty, thereby reducing the cost impact on affected individuals. We do not control warranty coverage for affected individuals. As a result, we have included all costs in our cost estimate.

#### Authority for This Rulemaking

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

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

#### Regulatory Findings

This AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (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),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

#### List of Subjects in 14 CFR Part 39

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

#### Adoption of the Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 14 CFR part 39 as follows:

#### **PART 39—AIRWORTHINESS DIRECTIVES**

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

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

**§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):



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**2013-15-16 The Boeing Company:** Amendment 39-17532; Docket No. FAA-2012-0637;  
Directorate Identifier 2012-NM-006-AD.

**(a) Effective Date**

This AD is effective September 20, 2013.

**(b) Affected ADs**

None.

**(c) Applicability**

(1) This AD applies to The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011.

(2) Installation of Supplemental Type Certificate (STC) ST00830SE ([http://rgl.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se](http://rgl.faa.gov/Regulatory_and_Guidance_Library/rgstc.nsf/0/408E012E008616A7862578880060456C?OpenDocument&Highlight=st00830se)) does not affect the ability to accomplish the actions required by this AD. Therefore, for airplanes on which STC ST00830SE is installed, a "change in product" alternative method of compliance (AMOC) approval request is not necessary to comply with the requirements of 14 CFR 39.17.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 52, Doors.

**(e) Unsafe Condition**

This AD was prompted by a report of an inboard main landing gear (MLG) door assembly departure due to premature fatigue cracking in the inboard MLG door hinge fittings. We are issuing this AD to detect and correct fatigue cracking in the inboard MLG door hinge fittings, which could result in loss of the MLG door assembly from the airplane, and the MLG door assembly could impact the flight control surfaces and result in reduced controllability of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Initial and Repetitive Inspections**

Except as provided by paragraph (i) of this AD, at the applicable time specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011, do either a detailed or surface high frequency eddy current (HFEC) inspection for cracking of the left-

and right-side inboard MLG door hinge fittings, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011.

(1) If no cracking is found, at the times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011, do the actions specified in either paragraph (g)(1)(i) or (g)(1)(ii) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011.

(i) Repeat either a detailed or a surface HFEC inspection for cracking of the left- and right-side inboard MLG door hinge fittings.

(ii) Modify the hinge fittings on the inboard MLG doors by installing P/N 113A8341-9 and 113A8341-10, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011. Doing the modification specified in this paragraph terminates the inspection requirements for only the door on which new fittings are installed.

(2) If any cracking is found, before further flight, do the actions specified in either paragraph (g)(2)(i) or (g)(2)(ii) of this AD.

(i) Modify the hinge fittings on all affected inboard MLG doors by installing P/N 113A8341-9 and 113A8341-10, in accordance with Part 3 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011. Doing the modification specified in this paragraph terminates the inspection requirements for only the door on which new fittings are installed.

(ii) Remove the affected MLG door, using a method approved in accordance with the procedures specified in paragraph (j) of this AD. For airplanes on which this door is reinstalled, before further flight, accomplish the actions specified in either paragraph (h)(1) or (h)(2) of this AD on the reinstalled door.

Note 1 to paragraph (g)(2)(ii) of this AD: Guidance for removing the door can be found in Section 32-10 of Appendix CDL, Configuration Deviation List, Model 737-100/200/300/400/500/600/700/800/900/900 ER Series, to the Boeing 737-700 Airplane Flight Manual Document D631A001.

#### **(h) Optional Installation**

(1) Installing new MLG door hinge fittings having P/N 113A8341-9 and 113A8341-10, terminates the inspection requirements of this AD for only the doors on which new fittings are installed.

(2) Installing new MLG door hinge fittings having P/N 113A8341-1 and 113A8341-2, is acceptable for compliance with the modification specified in paragraphs (g)(1)(ii) and (g)(2)(i) of this AD, provided the inspections (both the initial and the repetitive inspections) required by paragraph (g) of this AD are done within the applicable times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011. Installation of the MLG door hinge fittings having P/N 113A8341-1 and 113A8341-2, as applicable, must be done using a method approved in accordance with the procedures specified in paragraph (j) of this AD. Accomplishing the requirements of this paragraph does not terminate the inspection requirements of paragraph (g) of this AD.

#### **(i) Exception to the Service Information**

Where Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011, specifies a compliance time "after the original issue date of this service bulletin," this AD requires compliance within the specified compliance time after the effective date of this AD.

## **(j) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be emailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

## **(k) Related Information**

For more information about this AD, contact Nancy Marsh, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6440; fax: 425-917-6590; email: nancy.marsh@faa.gov.

## **(l) Material Incorporated by Reference**

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the service information listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this service information as applicable to do the actions required by this AD, unless the AD specifies otherwise.

(i) Boeing Alert Service Bulletin 737-52A1167, dated December 1, 2011.

(ii) Reserved.

(3) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>.

(4) You may view this service information at FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

(5) You may view this service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: <http://www.archives.gov/federal-register/cfr/ibr-locations.html>.

Issued in Renton, Washington, on July 21, 2013.

Stephen P. Boyd,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.