

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2008-1118; Directorate Identifier 2007-NM-318-AD; Amendment 39-16792; AD 2011-18-10]**

**RIN 2120-AA64**

### **Airworthiness Directives; The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER Series Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** We are superseding an existing airworthiness directive (AD) for the products listed above. The existing AD currently requires reviewing the airplane maintenance records to determine whether an engine has been removed from the airplane since the airplane was manufactured. For airplanes on which an engine has been removed, the existing AD also requires an inspection of the aft engine mount to determine if the center link assembly is correctly installed, and follow-on actions if necessary. This new AD expands the applicability to include airplanes on which the engine has not been previously removed, and Model 737-900ER airplanes. This AD was prompted by reports indicating that operators found that the center link assembly for the aft engine mount was reversed on several airplanes that had not had an engine removed since delivery. We are issuing this AD to prevent increased structural loads on the aft engine mount, which could result in failure of the aft engine mount and consequent separation of the engine from the airplane.

**DATES:** This AD is effective November 7, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of November 7, 2011.

**ADDRESSES:** For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P.O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail [me.boecom@boeing.com](mailto:me.boecom@boeing.com); 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, Washington. 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:** Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6450; fax (425) 917-6590.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a supplemental notice of proposed rulemaking (SNPRM) to amend 14 CFR part 39 to supersede airworthiness directive (AD) 2003-03-01, Amendment 39-13025 (68 FR 4367, January 29, 2003). That AD applies to the specified products. The SNPRM published in the Federal Register on January 11, 2011 (76 FR 1552). The original NPRM (73 FR 64568, October 30, 2008) proposed to continue to require reviewing the airplane maintenance records to determine whether an engine has been removed from the airplane since the airplane was manufactured. For airplanes on which an engine has been removed, the original NPRM also requires an inspection of the aft engine mount to determine if the center link assembly is correctly installed, and follow-on actions if necessary. The original NPRM also proposed to require those same actions on airplanes on which the engine has not previously been removed. The SNPRM proposed to further expand the applicability to include Model 737-900ER airplanes.

### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal and the FAA's response to each comment.

### **Supportive Comments**

Boeing and Continental Airlines concur with the SNPRM (76 FR 1552, January 11, 2011).

### **Request for Information**

American Airlines stated that it has accomplished the actions required by AD 2003-03-01 (68 FR 4367, January 29, 2003) and the SNPRM (76 FR 1552, January 11, 2011), and although it will no longer be affected by the requirements in the SNPRM, asked the following questions:

- What action has the original equipment manufacturer, Boeing, taken to prevent incorrect aft mount assembly installations?
- Can Boeing specifically identify the procedures and/or best practices incorporated into their production process to prevent a recurrence of this type of event?

We acknowledge the commenter's concerns and provide the following responses:

- Boeing Alert Service Bulletin 737-71A1462, Revision 2, dated May 29, 2003; and Revision 3, dated May 20, 2004; specify marking of the hangar fitting (pylon structure) and center link (engine structure) assembly, which is the same as the marking incorporated previously in

production. These marks "L," "AFT," and "R," applied to both the hanger fitting and center link assembly will only be in close proximity if the center link is installed correctly.

- Boeing has advised us that it has revised the instructions in its component maintenance manuals (assembly level) and aircraft maintenance manuals (installation level) to put special emphasis on the center link installation. Boeing also advised us that it implemented drawing changes affecting both production assembly and field installation of this part; these changes incorporated specific markings on both the center link assembly and the hanger fitting to which it is attached. Boeing noted that after 2003 the parts were marked with an "L" and "R" (left and right) to indicate the part orientation when assembled, and the hanger assembly was marked with 'AFT' at the center line. Boeing has also developed a shop aid for use at the facility where the parts are fabricated and assembled which helps the assembler confirm the correct orientation of the parts. We have made no change to the AD in this regard.

## Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD as proposed.

## Costs of Compliance

We estimate that this AD affects 854 airplanes of U.S. registry. There are no new requirements in this AD; however, we have expanded the applicability of this AD. The current costs for this AD are recalculated for the convenience of affected operators, as follows:

**Estimated Costs**

<b>Action</b>	<b>Work hours</b>	<b>Parts</b>	<b>Cost per airplane</b>	<b>Fleet cost</b>
Maintenance records review (required by AD 2003-03-01, Amendment 39-13025 (68 FR 4367, January 29, 2003))	1	\$0	\$85	\$72,590
Inspection for correct installation of center link assembly (new required action)	1	\$0	\$85	\$72,590

## 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 removing airworthiness directive (AD) 2003-03-01, Amendment 39-13025 (68 FR 4367, January 29, 2003), and by adding the following new AD:



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**2011-18-10 The Boeing Company:** Amendment 39-16792; Docket No. FAA-2008-1118; Directorate Identifier 2007-NM-318-AD.

**Effective Date**

- (a) This AD is effective November 7, 2011.

**Affected ADs**

- (b) This AD supersedes AD 2003-03-01, Amendment 39-13025 (68 FR 4367, January 29, 2003).

**Applicability**

- (c) This AD applies to all The Boeing Company Model 737-600, -700, -700C, -800, -900, and -900ER series airplanes, certificated in any category.

**Subject**

- (d) Air Transport Association (ATA) of America Code 71: Powerplant.

**Unsafe Condition**

- (e) This AD was prompted by reports indicating that operators found that the center link assembly for the aft engine mount was reversed on several airplanes that had not had an engine removed since delivery. We are issuing this AD to prevent increased structural loads on the aft engine mount, which could result in failure of the aft engine mount and consequent separation of the engine from the airplane.

**Compliance**

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

**Restatement of Requirements of AD 2003-03-01 (68 FR 4367, January 29, 2003): Review of Maintenance Records**

- (g) For Model 737-600, -700, -700C, -800, and -900 series airplanes: Within 90 days after February 13, 2003 (the effective date of AD 2003-03-01 (68 FR 4367, January 29, 2003)), review the airplane maintenance records to determine whether either engine has been removed since the airplane's date of manufacture. If neither engine has been removed since the airplane's date of manufacture, no further action is required by this paragraph.

## **Inspection of Engines That Have Been Removed To Determine If Center Link Assembly Is Installed Correctly**

(h) For Model 737-600, -700, -700C, -800, and -900 series airplanes on which any installed engine has been removed from the airplane since the airplane's date of manufacture: Within 90 days after February 13, 2003, do a one-time general visual inspection to determine if the center link assembly of the aft engine mount is installed correctly, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 1, dated November 7, 2002; or Revision 3, dated May 20, 2004. If the center link assembly is installed correctly, no further action is required by paragraph (h) or (i) of this AD for that engine. As of the effective date of this AD, use only Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004.

Note 1: For the purposes of this AD, a general visual inspection is: "A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to ensure visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hanger lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked."

### **Follow-On and Corrective Actions**

(i) For airplanes on which any center link assembly is found installed incorrectly during any inspection required by paragraph (h), (k), or (l) of this AD: Before further flight, do the actions specified in paragraphs (i)(1), (i)(2), and (i)(3) of this AD, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 1, dated November 7, 2002; or Revision 3, dated May 20, 2004; except that it is not necessary to submit a report of findings to the airplane manufacturer. As of the effective date of this AD, use only Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004.

(1) Remove the center link assembly and install it correctly.

(2) Perform a detailed inspection of the engine mounting lugs and engine turbine rear frame for cracking, yielding, buckling, or wear damage.

(3) Perform a detailed inspection of the hardware for the aft engine mount; including the center link assembly, right link assembly, aft mount hanger assembly, and link pins; for cracking, yielding, buckling, or wear damage.

Note 2: For the purposes of this AD, a detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

### **Repair**

(j) If any cracking, yielding, buckling, or wear damage is found during the inspections required by paragraphs (i)(2) and (i)(3) of this AD: Before further flight, replace the discrepant part with a new or serviceable part, or repair in accordance with a method approved in accordance with the procedures specified in paragraph (o) of this AD.

## **New Requirements of This AD**

### **Inspection of Engines That Have Not Been Removed To Determine If Center Link Assembly Is Installed Correctly**

(k) For airplanes identified in Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004, on which any installed engine has not been removed from the airplane since the airplane's date of manufacture: Within 90 days after the effective date of this AD, do a detailed inspection to determine if the center link assembly of the aft engine mount is installed correctly, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004. If the center link is installed correctly, no further action is required by this paragraph for that engine.

### **Follow-On and Corrective Actions**

(l) For airplanes on which any center link assembly is found installed incorrectly during the inspection required by paragraph (k) of this AD: Before further flight, do the follow-on and corrective actions required by paragraph (i) of this AD.

### **Credit for Actions Done Using Previous Service Information**

(m) Inspections and corrective actions done before the effective date of this AD in accordance with a Boeing service bulletin listed in Table 1 of this AD are acceptable for compliance with the corresponding requirements of this AD.

**Table 1—Previous Service Bulletins**

<b>Boeing Alert Service Bulletin –</b>	<b>Revision –</b>	<b>Dated –</b>
737-71A1462	Original	August 29, 2002
737-71A1462	1	November 7, 2002
737-71A1462	2	May 29, 2003

### **Parts Installation**

(n) As of the effective date of this AD, no person may install an engine on any airplane identified in paragraph (c) of this AD unless the actions required by paragraph (n)(1) or (n)(2) of this AD are accomplished.

(1) The inspection is accomplished in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004, and the center link assembly of the aft engine mount is found to be installed correctly.

(2) The hanger fitting and center link assembly are marked and part marked in accordance with Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004.

Note 3: For hanger fittings and center link assemblies marked and part marked in production, as specified in Part 2 of the Accomplishment Instructions of Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004, the actions specified in paragraph (n)(2) of this AD do not apply.

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

(o) The certification office specified in paragraph (o)(1) or (o)(2) of this AD, as applicable, has the authority to approve AMOCs for paragraphs (i) and (j) of this AD, if requested using the procedures found in 14 CFR 39.19.

(1) For the structure identified in paragraph (i)(2) of this AD: The Manager, Engine Certification Office (ECO), FAA. Send information to ATTN: Antonio Cancelliere, Aerospace Engineer, ANE-141, FAA, ECO, 12 New England Executive Park, Burlington, Massachusetts 01803-5299; telephone 781-238-7751; fax 781-238-7199.

(2) For the structure identified in paragraph (i)(3) of this AD: The Manager, Seattle Aircraft Certification Office (ACO), FAA. Send information to ATTN: Alan Pohl, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle ACO, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6450; fax (425) 917-6590. Information may be e-mailed to: 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(3) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19.

Before using any approved AMOC on any airplane to which the AMOC applies, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office. The AMOC approval letter must specifically reference this AD.

(4) An AMOC that provides an acceptable level of safety may be used for any repair required by paragraph (i)(3) of this AD if it is approved by 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.

## **Material Incorporated by Reference**

(p) You must use Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of Boeing Alert Service Bulletin 737-71A1462, Revision 3, dated May 20, 2004, under 5 U.S.C. 552(a) and 1 CFR part 51.

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

(3) You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at an NARA facility, call 202-741-6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).



Issued in Renton, Washington on September 8, 2011.  
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