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Issued in Kansas City, Missouri, on July 7, 2015.

**Earl Lawrence,**

*Manager, Small Airplane Directorate, Aircraft Certification Service.*

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**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

[Docket No. FAA-2014-0926; Directorate Identifier 2014-NM-085-AD; Amendment 39-18204; AD 2015-14-06]

RIN 2120-AA64

#### Airworthiness Directives; The Boeing Company Airplanes

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

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain The Boeing Company Model 747-8 and 747-8F series airplanes. This AD was prompted by an analysis, which indicated that in a limited flight envelope with specific conditions, divergent flutter could occur during a high g-load maneuver in combination with certain system failures. This AD requires replacing the lateral control electronic (LCE) modules, replacing the inboard elevator power control packages (PCPs), installing new external compensators for the PCPs, and revising the maintenance or inspection program. We are issuing this AD to prevent certain system failures from resulting in divergent flutter, and subsequent loss of continued safe flight and landing.

**DATES:** This AD is effective August 20, 2015.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of August 20, 2015.

**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 view this 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. It is also available on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0926.

#### Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0926; 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 Docket 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:** Douglas Tsuji, Senior Aerospace Engineer, Systems and Equipment Branch, ANM-130S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6546; fax: 425-917-6590; email: [douglas.tsuji@faa.gov](mailto:douglas.tsuji@faa.gov).

#### SUPPLEMENTARY INFORMATION:

##### Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 by adding an AD that would apply to certain The Boeing Company Model 747-8 and 747-8F series airplanes. The NPRM published in the **Federal Register** on December 17, 2014 (79 FR 75100). The NPRM was prompted by an analysis, which indicated that in a limited flight envelope with specific conditions, divergent flutter could occur during a high g-load maneuver in combination with certain system failures. The NPRM proposed to require replacing the LCE modules, replacing the inboard elevator PCPs, installing new external compensators for the PCPs, and revising the maintenance or inspection program. We are issuing this AD to prevent certain system failures from resulting in divergent flutter, and subsequent loss of continued safe flight and landing.

#### Comments

We gave the public the opportunity to participate in developing this AD. We have considered the comment received. Boeing supported the NPRM (79 FR 75100, December 17, 2014).

#### Conclusion

We reviewed the relevant data, considered the comment received, and determined that air safety and the public interest require adopting this AD as proposed except for minor editorial changes. We have determined that these minor changes:

- Are consistent with the intent that was proposed in the NPRM (79 FR 75100, December 17, 2014) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (79 FR 75100, December 17, 2014).

#### Related Service Information Under 14 CFR Part 51

We reviewed the following service information.

- Boeing Alert Service Bulletin 747-27A2506, dated February 3, 2014, which describes procedures for replacing the LCE modules.
- Boeing Service Bulletin 747-27A2513, Revision 1, dated July 18, 2014, which describes procedures for installing the inboard elevator compensator and replacing the PCP.

We have also reviewed Boeing 747-8/8F Certification Maintenance Requirements (CMRs) Document D011U721-02-03, Revision December 2013, which contains the following tasks in Section G., "CMR Tasks":

- Item Number 27-CMR-10, "Lubricate inboard elevator hinge bearings."
- Item Number 27-CMR-11, "Functional check of inboard elevator hinge bearing and power control unit rod end bearing free play."

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the **ADDRESSES** section of this AD.

#### Costs of Compliance

We estimate that this AD affects 8 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
Replacement of LCEs .....	4 work-hours × \$85 per hour = \$340 .....	\$0	\$340	\$2,720
Replacement of inboard elevator PCPs and installation of external inboard elevator compensators.	57 work-hours × \$85 per hour = \$4,845 .....	44,894	49,739	397,912
Revision to maintenance or inspection program.	1 work-hour × \$85 per hour = \$85 .....	0	85	680

According to the manufacturer, all 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):

**2015–14–06 The Boeing Company:**  
Amendment 39–18204; Docket No. FAA–2014–0926; Directorate Identifier 2014–NM–085–AD.

**(a) Effective Date**

This AD is effective August 20, 2015.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company airplanes, certificated in any category, identified in paragraphs (c)(1), (c)(2), and (c)(3) of this AD.

(1) Model 747–8 and 747–8F series airplanes, as identified in Boeing Alert Service Bulletin 747–27A2506, dated February 3, 2014.

(2) Model 747–8 and 747–8F series airplanes, as identified in Boeing Service Bulletin 747–27A2513, Revision 1, dated July 18, 2014.

(3) Model 747–8 series airplanes that are operated less than 1,200 flight hours per calendar year.

**(d) Subject**

Air Transport Association (ATA) of America Code 27, Flight Controls.

**(e) Unsafe Condition**

This AD was prompted by an analysis, which indicated that in a limited flight

envelope with specific conditions, divergent flutter could occur during a high g-load maneuver in combination with certain system failures. We are issuing this AD to prevent certain system failures from resulting in divergent flutter, and subsequent loss of continued safe flight and landing.

**(f) Compliance**

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

**(g) Replacement of Lateral Control Electronic (LCE) Modules**

For airplanes identified in paragraph (c)(1) of this AD: Within 12 months after the effective date of this AD, replace the LCE modules with new LCE modules having revised software, and do an operational test of the LCE modules, in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 747–27A2506, dated February 3, 2014. If the operational test fails, before further flight, do corrective actions and repeat the operational test and applicable corrective actions until the operational test passes.

**(h) Replacement of Inboard Elevator Power Control Packages (PCPs) and Installation of External Inboard Elevator Compensators**

For airplanes identified in paragraph (c)(2) of this AD: Within 60 months after the effective date of this AD, replace both inboard elevator PCPs with new PCPs that have the internal compensators removed, install two larger external compensators for each PCP, and do an operational test of each inboard elevator PCP, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747–27A2513, Revision 1, dated July 18, 2014. If the operational test fails, before further flight, do corrective actions and repeat the operational test and applicable corrective actions until the operational test passes.

**(i) Revision to the Maintenance or Inspection Program**

For all airplanes: Within 90 days after the effective date of this AD, revise the maintenance or inspection program, as applicable, to incorporate Item Numbers 27–CMR–10, “Lubricate inboard elevator hinge bearings,” and 27–CMR–11, “Functional check of inboard elevator hinge bearing and power control unit rod end bearing free play,” of Section G., “CMR Tasks,” of the Boeing 747–8/8F Certification Maintenance Requirements (CMRs) Document D011U721–02–03, Revision December 2013. The initial compliance times and repetitive intervals for

the lubrication and functional check are specified in paragraphs (i)(1) and (i)(2) of this AD.

(1) For airplanes identified in paragraphs (c)(1) and (c)(2) of this AD that are not identified in paragraph (c)(3) of this AD:

(i) The initial compliance time for the lubrication of the inboard elevator hinge bearings is within 18 months after the most recent lubrication. The repetitive lubrication intervals are specified in Item Number 27-CMR-10, "Lubricate inboard elevator hinge bearings," of Section G., "CMR Tasks," of the Boeing 747-8/8F Certification Maintenance Requirements (CMRs) Document D011U721-02-03, Revision December 2013.

(ii) The initial compliance time for the functional check of the inboard elevator hinge bearing and power control unit rod end bearing freeplay is within 12 months after the effective date of this AD. The repetitive functional check intervals are specified in Item Number 27-CMR-11, "Functional check of inboard elevator hinge bearing and power control unit rod end bearing free play," of Section G., "CMR Tasks," of the Boeing 747-8/8F Certification Maintenance Requirements, D011U721-02-03, Revision December 2013.

(2) For airplanes identified in paragraph (c)(3) of this AD:

(i) The initial compliance time for the lubrication of the inboard elevator hinge bearings is within 24 months after the most recent lubrication. Repeat the lubrication thereafter at intervals not to exceed 24 months.

(ii) The initial compliance time for the functional check of the inboard elevator hinge bearing and power control unit rod end bearing freeplay is within 36 months after the effective date of this AD. Repeat the functional check thereafter at intervals not to exceed 36 months.

#### (j) Parts Installation Prohibition

As of the effective date of this AD, no person may install on any airplane an LCE having part number (P/N) CA49253-001 or CA49253-002, or an inboard elevator PCP having P/N 327400-1009.

#### (k) Credit for Previous Actions

This paragraph provides credit for the actions required by paragraph (h) of this AD, if those actions were performed before the effective date of this AD using Boeing Alert Service Bulletin 747-27A2513, dated February 4, 2014, which is not incorporated by reference in this AD.

#### (l) 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 paragraph (m)(1) of this AD. Information may be emailed to: [9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto: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.

(4) For service information that contains steps that are labeled as Required for Compliance (RC), the provisions of paragraphs (l)(4)(i) and (l)(4)(ii) apply.

(i) The steps labeled as RC, including substeps under an RC step and any figures identified in an RC step, must be done to comply with the AD. An AMOC is required for any deviations to RC steps, including substeps and identified figures.

(ii) Steps not labeled as RC may be deviated from using accepted methods in accordance with the operator's maintenance or inspection program without obtaining approval of an AMOC, provided the RC steps, including substeps and identified figures, can still be done as specified, and the airplane can be put back in an airworthy condition

#### (m) Related Information

(1) For more information about this AD, contact Douglas Tsuji, Senior Aerospace Engineer, Systems and Equipment Branch, ANM-130S, Seattle Aircraft Certification Office, FAA, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6546; fax: 425-917-6590; email: [douglas.tsuji@faa.gov](mailto:douglas.tsuji@faa.gov).

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (n)(3) and (n)(4) of this AD.

#### (n) 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 747-27A2506, dated February 3, 2014.

(ii) Boeing Service Bulletin 747-27A2513, Revision 1, dated July 18, 2014.

(iii) Boeing 747-8/8F Certification Maintenance Requirements (CMRs) Document D011U721-02-03, Revision December 2013.

(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>. You may view this 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.

(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 1, 2015.

**Michael Kaszycki,**

*Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.*

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**BILLING CODE 4910-13-P**

## DEPARTMENT OF TRANSPORTATION

### Federal Aviation Administration

#### 14 CFR Part 39

**[Docket No. FAA-2014-0428; Directorate Identifier 2014-NM-067-AD; Amendment 39-18205; AD 2015-14-07]**

**RIN 2120-AA64**

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

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

**ACTION:** Final rule.

**SUMMARY:** We are adopting a new airworthiness directive (AD) for certain airplanes. This AD was prompted by reports of deficiencies in the flight control module (FCM) software. This AD requires installing certain FCM software. We are issuing this AD to correct deficiencies in the FCM software, which, if not corrected, could prevent continued safe flight and landing.

**DATES:** This AD is effective August 20, 2015.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of August 20, 2015.

**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 view this 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,