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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2013-0544; Directorate Identifier 2012-NM-057-AD; Amendment 39-17935; AD 2014-16-11]**

**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 777-200 series airplanes. This AD was prompted by reports of smoke or flames in the passenger cabin of various transport category airplanes related to the wiring for the passenger cabin in-flight entertainment (IFE) system, cabin lighting, and passenger seats. This AD requires, for certain airplanes, doing an inspection of the electrical power control panel for a certain part number, and corrective action if necessary; and, for certain other airplanes, installing a new electrical power control panel, and making changes to the wiring and certain electrical load management system (ELMS) panels. We are issuing this AD to ensure that the flightcrew is able to turn off electrical power to the IFE systems and other non-essential electrical systems through one or two switches in the flight deck in the event of smoke or flames. In the event of smoke or flames in the airplane flight deck or passenger cabin, the flightcrew's inability to turn off electrical power to the IFE system and other non-essential electrical systems could result in the inability to control smoke or flames in the airplane flight deck or passenger cabin during a non-normal or emergency situation, and consequent loss of control of the airplane.

**DATES:** This AD is effective September 23, 2014.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in this AD as of September 23, 2014.

**ADDRESSES:** For Boeing 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>. For BAE Systems service information identified in this AD, contact BAE Systems, Attention: Commercial Product Support, 600 Main Street, Room S18C, Johnson City, NY 13790-1806; phone: 607-770-3084; fax: 607-770-3015; email: CS-

Customer.Service@baesystems.com; Internet: <http://www.baesystems-ps.com/customersupport>. For GE service information identified in this AD, contact GE Aviation, Customer Support Center, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: [cs.techpubs@ge.com](mailto:cs.techpubs@ge.com); Internet: <http://www.geaviation.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 425-227-2112.

### **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-2013-0544; 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:** Ray Mei, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6467; fax: 425-917-6590; email: [raymont.mei@faa.gov](mailto:raymont.mei@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 777-200 series airplanes. The NPRM published in the Federal Register on July 17, 2013 (78 FR 42727). The NPRM was prompted by reports of smoke or flames in the passenger cabin of various transport category airplanes, related to the wiring for the passenger cabin IFE system, cabin lighting, and passenger seats. The NPRM proposed to require, for certain airplanes, doing an inspection of the electrical power control panel for a certain part number, and corrective action if necessary; and, for certain other airplanes, installing a new electrical power control panel, and making changes to the wiring and certain ELMS panels. We are issuing this AD to ensure that the flightcrew is able to turn off electrical power to the IFE systems and other non-essential electrical systems through one or two switches in the flight deck in the event of smoke or flames. In the event of smoke or flames in the airplane flight deck or passenger cabin, the flightcrew's inability to turn off electrical power to the IFE system and other non-essential electrical systems could result in the inability to control smoke or flames in the airplane flight deck or passenger cabin during a non-normal or emergency situation, and consequent loss of control of the airplane.

#### **Comments**

We gave the public the opportunity to participate in developing this AD. The following presents the comments received on the proposal (78 FR 42727, July 17, 2013) and the FAA's response to each comment.

#### **Support for the NPRM (78 FR 42727, July 17, 2013)**

United Airlines (UA) supported the NPRM (78 FR 42727, July 17, 2013).

## **Request To Accept Modification Deviations Proposed by Japan Airlines (JAL)**

Japan Airlines (JAL) requested that we accept modification deviations proposed by JAL. JAL stated that there were problems with the repair kits including short electrical wire and missing wires. JAL proposed various deviations from the service bulletin instructions in order to address these problems.

We disagree with the request to accept modification deviations. The issues that JAL experienced with the Boeing kit may not be applicable to other operators; therefore, we are not changing this final rule in this regard. Operators may, however, request approval of an alternative method of compliance (AMOC) for deviations for the Boeing repair kit in accordance with paragraph (k) of this AD.

## **Request To Use Alternative Service Information**

JAL requested that we allow the use of Boeing Service Bulletin 777-23-0254 to load an alternative version of cabin management system (CMS) software. JAL stated that the NPRM (78 FR 42727, July 17, 2013), would require loading the CMS software in accordance with Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006, as a concurrent requirement to Boeing Service Bulletin 777-23-0254. JAL stated that it has loaded this required software, but also loaded another version of the software for a cabin configuration change using Boeing Service Bulletin 777-23-0254. JAL stated that Boeing Service Bulletin 777-23-0254 identifies Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006, as a concurrent requirement; JAL therefore requested that we include Boeing Service Bulletin 777-23-0254 in the NPRM.

We disagree with the request to use Boeing Service Bulletin 777-23-0254 to load an alternative version of CMS software. Although Boeing Service Bulletin 777-23-0254 identifies Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006, as a concurrent requirement, we have not evaluated the alternative software to ensure it provides an acceptable level of safety to the AD requirements. Operators may request approval of an AMOC for installation of this alternative CMS software in accordance with paragraph (k) of this AD.

## **Request To Add New Optional Action**

Boeing and JAL requested that we revise the Costs of Compliance section and paragraph (i)(2) of the NPRM (78 FR 42727, July 17, 2013) to add Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, as an option to Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012, for installation of additional ELMS software.

The commenters stated that the new ELMS software is required for compliance to another AD (AD 2011-09-15, Amendment 39-16677 (76 FR 24345, May 2, 2011)). The commenters stated that AD 2011-09-15 requires installing new panels in the main equipment center and installing new ELMS software in accordance with Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010, in order to prevent potential ignition sources inside fuel tanks. The commenters also stated that AD 2011-09-15 identifies Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, as an additional source of guidance for installing ELMS software.

Boeing and JAL stated that requiring ELMS software to be installed according to Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007, as proposed in the NPRM (78 FR 42727, July 17, 2013), will create a conflict with the requirements of AD 2011-09-15, Amendment 39-16677 (76 FR 24345, May 2, 2011). Boeing stated that it intends to revise Service Bulletin 777-24-0077 to Revision 5 to include Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, as concurrent service information.

We agree to add an option to use Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, for installation of additional ELMS software. We have added this reference to the Costs of Compliance section and to paragraph (i)(2) of this final rule, as requested.

## Change to Final Rule

For editorial purposes, we have moved the credit service bulletin references from paragraph (j)(3) of the NPRM (78 FR 42727, July 17, 2013) to new paragraphs (j)(3)(i) through (j)(3)(v) of this final rule.

## 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 (78 FR 42727, July 17, 2013) for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM (78 FR 42727, July 17, 2013).

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 49 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/installation and changes	Up to 28 work-hours × \$85 per hour = \$2,380	\$1,436	Up to \$3,816	Up to \$186,984.
Concurrent installation (Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006)	2 work-hours × \$85 per hour = \$170	0	\$170	\$8,330.
Concurrent installation (Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012; Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007; or Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010)	3 work-hours × \$85 per hour = \$255	0	\$255	\$12,495.

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

### On-Condition Costs

Action	Labor cost	Parts cost	Cost per product
Change part number	1 work-hour × \$85 per hour = \$85	\$0	\$85

### 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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**2014-16-11 The Boeing Company:** Amendment 39-17935; Docket No. FAA-2013-0544; Directorate Identifier 2012-NM-057-AD.

**(a) Effective Date**

This AD is effective September 23, 2014.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 777-200 series airplanes, certificated in any category, as identified in Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012.

**(d) Subject**

Air Transport Association (ATA) of America Code 24, Electrical power.

**(e) Unsafe Condition**

This AD was prompted by reports of smoke or flames in the passenger cabin of various transport category airplanes related to the wiring for the passenger cabin in-flight entertainment (IFE) system, cabin lighting, and passenger seats. We are issuing this AD to ensure that the flightcrew is able to turn off electrical power to the IFE systems and other non-essential electrical systems through one or two switches in the flight deck in the event of smoke or flames. In the event of smoke or flames in the airplane flight deck or passenger cabin, the flightcrew's inability to turn off electrical power to the IFE system and other non-essential electrical systems could result in the inability to control smoke or flames in the airplane flight deck or passenger cabin during a non-normal or emergency situation, and consequent loss of control of the airplane.

**(f) Compliance**

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

**(g) Installation**

For Group 1, Configuration 1, airplanes, as identified in Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012: Within 60 months after the effective date of this AD, install a new electrical power control panel and make changes to the wiring and certain electrical load management system (ELMS) panels, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012.

## **(h) Inspection**

For Group 1, Configuration 2, airplanes, as identified in Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012: Within 60 months after the effective date of this AD, inspect the electrical power control panel to determine the part number, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012. Do all applicable corrective actions before further flight.

## **(i) Concurrent Actions**

(1) For Group 1, Configuration 1, airplanes, as identified in Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, install new operational software (OPS) in the cabin management system to change the operation of the cabin lighting system when the CABIN/UTILITY switch is installed, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006.

(2) For Group 1, Configuration 1, airplanes, as identified in Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012: Concurrently with accomplishing the requirements of paragraph (g) of this AD, change the ELMS OPS and configuration database software to decrease the number of ELMS P110, ELMS P210, and ELMS P310 panel engine indication and crew alerting system status messages, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007; or Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010.

## **(j) Provisional Credit for Previous Actions**

(1) This paragraph provides credit for the actions specified in paragraphs (g) and (h) this AD, if those actions were performed before the effective date of this AD using the service information identified in paragraph (k) of this AD, provided that, within 60 months after the effective date of this AD, the actions specified in paragraphs (j)(1)(i) and (j)(1)(ii) of this AD are done, and wire kit 280W5110-105W is used.

(i) Identify the electrical power control panels 233W3202-12 and 233W3202-13, in accordance with the Accomplishment Instructions of BAE Systems Service Bulletin 233W3202-24-04, Revision 2, dated October 2, 2006. The correct part number for the changed 233W3202-12 panel is 233W3202-18, and the correct part number for the changed 233W3202-13 panel is 233W3202-19.

(ii) Put back the P210 power panel to the correct standard, in accordance with the Accomplishment Instructions of GE Aviation Service Bulletin 6000ELM-24-614, Revision 1, dated November 9, 2009; or GE Aviation Service Bulletin 6200ELM-24-616, Revision 1, dated March 5, 2010.

(2) This paragraph provides credit for the actions specified in paragraph (i)(1) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-23-0176, dated January 9, 2003; or Boeing Service Bulletin 777-23-0176, Revision 1, dated March 11, 2004; which are not incorporated by reference in this AD; provided that the actions specified in Boeing Service Bulletin 777-23-0141, dated June 14, 2001, were done prior to or concurrently with the actions specified in Boeing Service Bulletin 777-23-0176, dated January 9, 2003; or Boeing Service Bulletin 777-23-0176, Revision 1, dated March 11, 2004.

(3) This paragraph provides credit for the actions specified in paragraph (i)(2) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-24-0087, dated July 24, 2003; or Boeing Service Bulletin 777-24-0087, Revision 1, dated December 18, 2003; which are not incorporated by reference in this AD; provided that the actions specified in Boeing Service Bulletin 777-24-0087, dated July 24, 2003; or Boeing Service Bulletin 777-24-0087,

Revision 1, dated December 18, 2003; were done concurrently with the actions specified in the service information identified in paragraphs (j)(3)(i) through (j)(3)(v) of this AD.

(i) Boeing Service Bulletin 777-24-0077, dated August 21, 2003, which is not incorporated by reference in this AD.

(ii) Boeing Service Bulletin 777-24-0077, Revision 1, dated May 24, 2007, which is not incorporated by reference in this AD.

(iii) Boeing Service Bulletin 777-24-0077, Revision 2, dated December 17, 2009, 2007, which is not incorporated by reference in this AD.

(iv) Boeing Service Bulletin 777-24-0077, Revision 3, dated December 6, 2011, 2007, which is not incorporated by reference in this AD.

(v) Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012.

#### **(k) 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 (l) 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.

#### **(l) Related Information**

(1) For more information about this AD, contact Ray Mei, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, WA 98057-3356; phone: 425-917-6467; fax: 425-917-6590; email: raymont.mei@faa.gov.

(2) Service information identified in this AD that is not incorporated by reference is available at the addresses specified in paragraphs (m)(3), (m)(4), (m)(5), and (m)(6) of this AD, as applicable.

#### **(m) 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) BAE Systems Service Bulletin 233W3202-24-04, Revision 2, dated October 2, 2006.

(ii) Boeing Service Bulletin 777-23-0176, Revision 2, dated October 26, 2006.

(iii) Boeing Service Bulletin 777-24-0077, Revision 4, dated October 17, 2012.

(iv) Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007.

(v) Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010.

(vi) GE Aviation Service Bulletin 6000ELM-24-614, Revision 1, dated November 9, 2009.

(vii) GE Aviation Service Bulletin 6200ELM-24-616, Revision 1, dated March 5, 2010.

(3) For Boeing 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) For BAE Systems service information identified in this AD, contact BAE Systems, Attention: Commercial Product Support, 600 Main Street, Room S18C, Johnson City, NY 13790-1806; phone: 607-770-3084; fax: 607-770-3015; email: CS-Customer.Service@baesystems.com; Internet: <http://www.baesystems-ps.com/customersupport>.

(5) For GE service information identified in this AD, contact GE Aviation, Customer Support Center, 1 Neumann Way, Cincinnati, OH 45215; phone: 513-552-3272; email: cs.techpubs@ge.com; Internet: <http://www.geaviation.com>.

(6) 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.

(7) 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 August 1, 2014.

Jeffrey E. Duven,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.