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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2013-0368; Directorate Identifier 2012-NM-058-AD; Amendment 39-17851; AD 2014-11-01]**

**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 and -300 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 installing wiring and making changes to certain electrical load management system (ELMS) panels and other concurrent requirements to ensure 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 July 8, 2014.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of July 8, 2014.

**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.

## **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-2013-0368; 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 and -300 series airplanes. 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 published in the Federal Register on May 10, 2013 (78 FR 27310). The NPRM proposed to require installing wiring and making changes to certain ELMS panels and other concurrent requirements. We are issuing this AD to ensure 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 27310, May 10, 2013) and the FAA's response to each comment. United Airlines and Air Line Pilots Association International (ALPA) supported the NPRM.

### **Request To Include Additional Work-Hours in Costs of Compliance**

American Airlines (AA) requested that we add 200 work-hours to the total labor costs specified in the Costs of Compliance section of the NPRM (78 FR 27310, May 10, 2013). AA stated that the costs of compliance specified in the NPRM include the work-hours specified in Boeing Service Bulletin 777-24-0075, Revision 3, dated August 26, 2010, but those work-hours do not take into account the work-hours for making changes to certain ELMS panels specified in the concurrent service bulletins.

We acknowledge that we underestimated the work-hours for completing the installation of wiring and changing the ELMS panel wiring in the NPRM (78 FR 27310, May 10, 2013). We have added 200 work-hours to the Costs of Compliance of this final rule to account for the work-hours for making changes to certain ELMS panels.

## **Request To Allow Use of Later Revisions of ELMS Service Information**

AA requested that we allow use of later revisions of certain ELMS service information instead of Boeing Service Bulletin 777-24-0075, Revision 3, dated August 26, 2010. AA stated that revised ELMS service information has been released since publication of Boeing Service Bulletin 777-24-0075, Revision 3, dated August 26, 2010.

We do not agree. Allowing a reference to "a later revision" of a specific service document violates Office of the Federal Register policies for approving materials incorporated by reference.

However, we have reviewed Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014, which contains the appropriate service information. Operators may request approval of an alternative method of compliance (AMOC) under the provisions of paragraph (j) of this final rule to use later revisions of the ELMS service information. We have revised paragraph (g) of this AD to refer to Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014, as the appropriate source of service information. We have given credit for Boeing Service Bulletin 777-24-0075, Revision 3, dated August 26, 2010, in paragraph (i)(2) of this AD.

## **Request To Use Equivalent Procedure**

AA requested that we allow the use of an operator's equivalent procedure to mark the applicable service bulletin number on the panel, rather than using the labels in the General Electric (GE) kits as specified. AA stated that Boeing Service Bulletin 777-24-0075, Revision 3, dated August 26, 2010, specifies installing a label of the service bulletin number on the ELMS power panels. AA stated that the labels that are in the GE kits have a shelf life that expires prior to the compliance time of 60 months.

We agree that an operator's equivalent procedure may safely and effectively be used to indelibly mark the applicable service bulletin number on the panels in place of the labels. We have revised paragraph (g) of this final rule accordingly. We have also added Note 1 to paragraph (g) of this AD to specify that additional guidance on indelibly marking the panel can be found in Boeing Process Specification BAC5307.

## **Request To Allow Various Modifications to Repair Kits**

Japan Air Lines (JAL) requested that we allow certain modifications of the repair kits, which JAL has proposed to Boeing and Smiths Aerospace Actuation Systems to address problems with the Smiths Aerospace Actuation Systems repair kits. JAL stated that problems with the repair kits include a certain electrical wire being too short, omission of certain other wires, inclusion of unshielded wires rather than shielded wires, inability to install a certain relay bracket, and inclusion of an incorrect relay part number.

We disagree with the request to allow modifications of repair kits in this final rule. Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014, is the latest service information available for compliance with the actions specified in paragraph (g) of this final rule. We do not consider it appropriate to include various provisions in an AD applicable only to individual airplanes or to a single operator's configuration or use of an airplane. However, any person may request approval of an alternative method of compliance (AMOC) under the provisions of paragraph (j) of this final rule. No change has been made to this final rule in this regard.

## **Requests To Add Alternative ELMS Software**

Boeing requested that we add alternative ELMS software to the NPRM (78 FR 27310, May 10, 2013). Boeing and JAL pointed out that new ELMS software is required in order to be compliant with the requirements of AD 2011-09-15, Amendment 39-16677 (76 FR 24345, May 2, 2011). Boeing and JAL stated that AD 2011-09-15 requires, among other actions, installing new ELMS

software. Note 2 of AD 2011-09-15 specifies that Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, is an additional source of guidance for installing the new ELMS software. Boeing and JAL stated that, if ELMS software is required to be installed in accordance with Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007, as proposed in the NPRM, a conflict with the requirements of AD 2011-09-15 will be created.

We agree to allow the option of installing ELMS software using Boeing Service Bulletin 777-28A0039, dated June 13, 2008; Revision 1, dated January 8, 2009; or Revision 2, dated September 20, 2010. We have revised paragraph (h)(5) of this final rule to add a reference to Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010. We have also revised paragraph (i)(5) of this final rule to provide credit for ELMS software installations done before the effective date of this AD using Boeing Service Bulletin 777-28A0039, dated June 13, 2008; or Revision 1, dated January 8, 2009.

## 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 27310, May 10, 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 27310, May 10, 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 59 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
Wiring changes	236 work-hours × \$85 per hour = \$20,060	\$2,503	\$22,563	\$1,331,217
Concurrent ELMS software installation (Boeing Service Bulletin 777-24-0087, Revision 2, dated August 16, 2007; or 777-28A0039, Revision 2, dated September 20, 2010)	3 work-hours × \$85 per hour = \$255	0	255	15,045
Concurrent operational program software change (Boeing Service Bulletin 777-23-0175, Revision 2, dated October 12, 2006)	4 work-hours × \$85 per hour = \$340	0	340	20,060
Concurrent power isolation switch installation (Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012)	5 work-hours × \$85 per hour = \$425	751	1,176	69,384

Concurrent cabin services system hardware and software change (No affected U.S. operators; Boeing Service Bulletin 777-23-0142, dated November 25, 2003)	10 work-hours × \$85 per hour = \$850	119,959	120,809	0
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### 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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**2014-11-01 The Boeing Company:** Amendment 39-17851; Docket No. FAA-2013-0368; Directorate Identifier 2012-NM-058-AD.

**(a) Effective Date**

This AD is effective July 8, 2014.

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 777-200 and -300 series airplanes, certificated in any category, as identified in Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014.

**(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 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**

Within 60 months after the effective date of this AD, install certain wiring and make changes to certain electrical load management system (ELMS) panels; as identified in, and in accordance with, the Accomplishment Instructions of Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014. Where the installation or change specifies installing a label, an operator's equivalent procedure to indelibly mark the applicable service bulletin number on the panel may be used.

Note 1 to paragraph (g) of this AD: Additional guidance on procedures for indelibly marking the ELMS panel can be found in Boeing Process Specification BAC5307.

### **(h) Concurrent Requirements**

(1) For airplanes identified in Boeing Service Bulletin 777-23-0142, dated November 25, 2003: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, change the hardware and software for the cabin services system, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-23-0142, dated November 25, 2003.

(2) For all airplanes: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, change the operational software (OPS) of the cabin management system, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-23-0175, Revision 2, dated October 12, 2006.

(3) For Group 1, Configurations 1, 3, and 4 airplanes, identified in Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, install certain new electrical power control panels, as identified in, and in accordance with, the Accomplishment Instructions of Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012.

(4) For Group 1, Configuration 2 airplanes, identified in Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, inspect the electrical power control panel for a certain part number and change the part number, as applicable; as identified in, and in accordance with, the Accomplishment Instructions of Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012.

(5) For all airplanes: Prior to or concurrently with accomplishing the requirements of paragraph (g) of this AD, change the ELMS OPS and configuration database software (OPC) at the data loader, 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.

### **(i) Credit for Previous Actions**

(1) This paragraph provides credit for the actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-24-0075, dated August 21, 2003; or Revision 1, dated December 11, 2003, provided that Smiths Service Bulletin 5000ELM-24-379 identified on pages 8 and 19 of Boeing Service Bulletin 777-24-0075, Revision 1, dated December 11, 2003, is not used. These documents are not incorporated by reference in this AD.

(2) This paragraph provides credit for the actions required by paragraph (g) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-24-0075, Revision 2, dated October 5, 2006; or Revision 3, dated August 26, 2010. These documents are not incorporated by reference in this AD.

(3) This paragraph provides credit for the actions required by paragraph (h)(2) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-23-0175, dated July 11, 2002; or Revision 1, dated July 17, 2003; provided that overhead electronics unit hardware, part number 285W0029-5, is not installed. These documents are not incorporated by reference in this AD.

(4) This paragraph provides credit for the actions required by paragraphs (h)(3) and (h)(4) of this AD, if those actions were performed before the effective date of this AD using Boeing Service Bulletin 777-24-0074, dated June 27, 2002; Revision 1, dated October 5, 2006; Revision 2, dated May 20, 2010; or Revision 3, dated February 20, 2012; provided all applicable concurrent requirements identified in Section 1.B. of Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012, have been done prior to or concurrently with that revision; and provided that

any additional work identified by the phrase "More work is necessary" in section 1.D. of Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012, is accomplished before the effective date of this AD. These documents are not incorporated by reference in this AD.

(5) This paragraph provides credit for the actions required by paragraph (h)(5) 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 Revision 1, dated December 18, 2003; or Boeing Service Bulletin 777-28A0039, dated June 13, 2008, or Revision 1, dated January 8, 2009. These documents are not incorporated by reference in 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**

(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) For service information identified in this AD that is not incorporated by reference 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.

#### **(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 Service Bulletin 777-23-0142, dated November 25, 2003.

(ii) Boeing Service Bulletin 777-23-0175, Revision 2, dated October 12, 2006.

(iii) Boeing Service Bulletin 777-24-0074, Revision 4, dated September 13, 2012.

(iv) Boeing Service Bulletin 777-24-0075, Revision 4, dated January 8, 2014.

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

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

(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 referenced 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 May 15, 2014.

Michael Kaszycki,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.