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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2010-1205; Directorate Identifier 2010-NM-146-AD; Amendment 39-16677; AD 2011-09-15]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Model 777-200, -200LR, -300, and -300ER Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for the products listed above. This AD requires, for certain airplanes, replacing certain boost pump relays with ground fault interrupter (GFI) relays. For certain other airplanes, this AD requires installing new panels in the main equipment center, making certain wiring changes, installing new GFI relays in the new panels, and installing new electrical load management system (ELMS) software. For certain other airplanes, this AD requires doing certain bond resistance measurements, and corrective actions if necessary. This AD was prompted by fuel system reviews conducted by the manufacturer. We are issuing this AD to prevent potential ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

DATES: This AD is effective June 6, 2011.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of June 6, 2011.

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, Washington 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; e-mail me.boecom@boeing.com; Internet <https://www.myboeingfleet.com>.

For Smiths and GE Aviation service information identified in this AD, contact GE Aviation, Customer Support Center, 1 Neumann Way, Cincinnati, Ohio 45215; telephone 513-552-3272; e-mail cs.techpubs@ge.com; Internet <http://www.geaviation.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: Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; phone: 425-917-6482; fax: 425-917-6590; e-mail: georgios.roussos@faa.gov.

SUPPLEMENTARY INFORMATION: Discussion

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to the specified products. That NPRM published in the Federal Register on December 28, 2010 (75 FR 81508). That NPRM proposed to require, for certain airplanes, replacing certain boost pump relays with ground fault interrupter (GFI) relays. For certain other airplanes, that NPRM proposed to require installing new panels in the main equipment center, making certain wiring changes, installing new GFI relays in the new panels, and installing new electrical load management system (ELMS) software. For certain other airplanes, that NPRM proposed to require doing certain bond resistance measurements, and corrective actions if necessary.

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. Boeing supported the NPRM.

Request to Extend Compliance Time

American Airlines (AAL) requested that we extend the compliance time in paragraphs (g) and (h) of the NPRM for the work done in accordance with Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010, from 36 months to 60 months. AAL stated that they have already accomplished Boeing Service Bulletin 777-28A0037, Revision 1, dated June 15, 2009, on 75 percent of their Model 777 fleet. The proposed 36-month compliance time would require special scheduling for those airplanes. AAL proposed that the compliance time for all actions in the NPRM be extended to 60 months to be consistent with the 60-month compliance time in paragraph (i) of the NPRM for the GFI relay replacement for the main tank boost pumps specified in Boeing Service Bulletin 737-28A0038, Revision 1, dated September 20, 2010.

We disagree with the request to extend the compliance time for the actions required by paragraphs (g) and (h) of the NPRM (bond resistance measurements and the installation of new panels, new fuel pump control GFI relays, software, and wiring changes). In developing appropriate compliance times for those actions, we considered the safety implications and practical aspects of accomplishing these actions within a period of time that corresponds to the normal scheduled maintenance for most affected operators. In consideration of these items, we have determined that a 36-month compliance time will ensure an acceptable level of safety and allow those actions to be done during scheduled maintenance intervals for most affected operators. However, under the provisions of paragraph (k) of this AD, we will consider requests for approval of an alternative

method of compliance (AMOC) if sufficient data are submitted to substantiate that the request would provide an acceptable level of safety. We have not changed this AD in this regard.

Request To Delay Rule Pending Release of New Service Bulletins

Japan Airlines (JAL) requested that we delay the issuance of this AD until Boeing and GE Aviation publish new revisions to their service information (referenced in the NPRM) to include certain changes. JAL stated these changes are to correct or add numbers for wires, modules, connectors, and figures. JAL also stated that, in addition, certain GE Aviation service information also needed to be revised to add another procedure to install labels or separate the labels from the conversion kit. JAL explained that when it receives the labels as part of the conversion kit, the remaining shelf life of the labels is not adequate to allow the labels to be installed on the airplanes. JAL is concerned that, unless the service information is revised, these issues could delay incorporation of this AD or result in multiple AMOC requests. JAL stated that they are in communication with Boeing and GE Aviation in regard to these issues with the service information.

We agree with JAL's concerns about the shelf life of the labels possibly affecting operators' ability to comply with this AD within the required compliance times. This AD requires all actions, including labeling, in the Accomplishment Instructions of Boeing Service Bulletins 777-28A0038, Revision 1; and 777-28A0037, Revision 2; both dated September 20, 2010; to be accomplished. We have added paragraph (j) to this AD to provide an optional method of labeling panels. However, we disagree with the request to delay this AD until Boeing and GE Aviation issue revised service information to correct or add numbers for wires, modules, connectors, and figures. No data or information to justify that request was provided. However, under the provisions of paragraph (k) of this AD, we will consider requests for an AMOC if sufficient data are submitted to substantiate that the change would provide an acceptable level of safety. We have not changed 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 with the change described previously and minor editorial changes. We have determined that these minor changes:

- [Agr]re consistent with the intent that was proposed in the NPRM for correcting the unsafe condition; and
- Do not add any additional burden upon the public than was already proposed in the NPRM.

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

Costs of Compliance

We estimate that this AD will affect 130 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

Table—Estimated Costs

Action	Work hours	Average labor rate per hour	Parts	Cost per product	Number of U.S.-registered airplanes	Fleet cost
Replacements: Group 1 airplanes identified in Boeing Service Bulletin 777-28A0038	3	\$85	\$25,577	\$25,832	126	\$3,254,832
Replacements: Group 2 airplanes identified in Boeing Service Bulletin 777-28A0038	3	\$85	\$52,545	\$52,800	0	No airplanes currently on U.S. Register
Replacements: Group 3 airplanes identified in Boeing Service Bulletin 777-28A0038	4	\$85	\$37,257	\$37,597	4	\$150,388
Replacements: Group 4 airplanes identified in Boeing Service Bulletin 777-28A0038	4	\$85	\$17,816	\$18,156	0	No airplanes currently on U.S. Register
Installations and Measurement: Boeing Service Bulletin 777-28A0037	76	\$85	\$29,934	\$36,394	130	\$4,731,220

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):



2011-09-15 The Boeing Company: Amendment 39-16677; Docket No. FAA-2010-1205; Directorate Identifier 2010-NM-146-AD.

Effective Date

(a) This AD is effective June 6, 2011.

Affected ADs

(b) AD 2008-11-13, Amendment 39-15536, affects this AD.

Applicability

(c) This AD applies to The Boeing Company Model 777-200, -200LR, -300, and -300ER series airplanes, certificated in any category; as identified in the service information specified in paragraphs (c)(1) and (c)(2) of this AD.

(1) Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010.

(2) Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010.

Subject

(d) Air Transport Association (ATA) of America Code 28: Fuel.

Unsafe Condition

(e) This AD was prompted by fuel system reviews conducted by the manufacturer. The Federal Aviation Administration is issuing this AD to prevent potential ignition sources inside fuel tanks, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of 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.

Related Airworthiness Limitation

Note 1: AD 2008-11-13 requires a revision of the Airworthiness Limitations (AWLs) section of the Instructions for Continued Airworthiness to include limitations for the fuel tank systems. One of the limitations, AWL 28-AWL-18, requires a repetitive inspection of the ground fault interrupter (GFI) functions.

Installations and Software Changes

(g) For Groups 1 and 2 airplanes identified as Configuration 2 in Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010: Within 36 months after the effective date of this AD, install new panels, P301 and P302, in the main equipment center; make certain wiring changes; install new GFI relays in the P301 and P302 panels; and install new electrical load management system (ELMS) software; as applicable. Do the applicable actions in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010, except as specified in paragraph (j) of this AD.

Note 2: Boeing Service Bulletin 777-28A0039, Revision 2, dated September 20, 2010, is an additional source of guidance for installing ELMS software.

Note 3: Smiths Service Bulletin 5000ELM-28-454, dated August 13, 2007; and GE Aviation Service Bulletin 6000ELM-28-455, Revision 1, dated February 1, 2010; are additional sources of guidance for making a wiring change in the P110 and P210 panels, respectively.

(h) For Groups 1 and 2 airplanes identified as Configuration 1 in Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010: Within 36 months after the effective date of this AD, do bonding resistance measurements to verify bonding requirements as specified in Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010, are met, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010.

Replacement of GFI Relays

(i) For airplanes identified in Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010: Within 60 months after the effective date of this AD, replace 4 main tank boost pump relays in electrical load management system panels P110, P210, and P320 with new GFI relays, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010, except as specified in paragraph (j) of this AD.

Note 4: Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010, references the service bulletins identified in Table 1 of this AD as additional sources of guidance for replacing the main tank boost pump relays.

Table 1–Additional Sources of Guidance for Replacing the Main Tank Boost Pump Relays

Group number of airplanes, as identified in Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010	Panel number	Service bulletin	Revision level	Date
Group 1	P110	Smiths Service Bulletin 5000ELM-28-443	Original	August 8, 2007
Group 1	P210	Smiths Service Bulletin 6000ELM-28-444	Original	August 8, 2007
Group 1	P320	Smiths Service Bulletin 4000ELM-28-445	Original	August 8, 2007
Group 2	P110	GE Aviation Service Bulletin 5000ELM-28-446	1	January 7, 2010
Group 2	P210	Smiths Service Bulletin 6000ELM-28-447	Original	August 8, 2007
Group 2	P320	GE Aviation Service Bulletin 4000ELM-28-448	1	January 7, 2010
Group 3	P110	GE Aviation Service Bulletin 5000ELM-28-449	1	January 7, 2010
Group 3	P210	Smiths Service Bulletin 6000ELM-28-450	Original	August 8, 2007
Group 3	P320	GE Aviation Service Bulletin 4000ELM-28-451	1	January 7, 2010
Group 4	P110	Smiths Service Bulletin 5000ELM-28-463	Original	August 8, 2007
Group 4	P210	Smiths Service Bulletin 6000ELM-28-464	Original	August 8, 2007
Group 4	P320	Smiths Service Bulletin 4000ELM-28-465	Original	August 8, 2007

Optional Method To Install a Label

(j) Where Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010; and Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010: specify installing a label, an operator's equivalent procedure may be used as a method to indelibly mark the applicable service bulletin number on the panel.

Note 5: Additional guidance on indelibly marking the panel may also be found in Boeing Standard BAC5307.

Alternative Methods of Compliance (AMOCs)

(k)(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 e-mailed 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.

Related Information

(l) For more information about this AD, contact Georgios Roussos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone: 425-917-6482; fax: 425-917-6590; e-mail: georgios.roussos@faa.gov.

Material Incorporated by Reference

(m) You must use Boeing Service Bulletin 777-28A0038, Revision 1, dated September 20, 2010; or Boeing Service Bulletin 777-28A0037, Revision 2, dated September 20, 2010; as applicable; 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 this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) For Boeing 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) For Smiths and GE Aviation service information identified in this AD, contact GE Aviation, Customer Support Center, 1 Neumann Way, Cincinnati, Ohio 45215; telephone 513-552-3272; e-mail cs.techpubs@ge.com; Internet <http://www.geaviation.com>.

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

(5) 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.

Issued in Renton, Washington, on April 8, 2011.
Ali Bahrami,
Manager, Transport Airplane Directorate, Aircraft Certification Service.
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