

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2007-28988; Directorate Identifier 2007-NM-047-AD; Amendment 39-15975; AD 2009-15-12]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Boeing Model 747-400 and -400D Series 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 Boeing Model 747-400 and -400D series airplanes. This AD requires installing new relays to allow the flightcrew to turn off electrical power to the in-flight entertainment (IFE) system and other non-essential passenger cabin systems through the left and right utility bus switches, and other specified actions. This AD results from an IFE systems review. We are issuing this AD to ensure that the flightcrew is able to turn off electrical power to the IFE system and other non-essential passenger cabin systems through utility bus switches in the flight compartment, in the event of smoke or fumes. The flightcrew's inability to turn off electrical power to the IFE system and other non-essential passenger cabin systems could result in the inability to control smoke or fumes in the airplane flight deck or passenger cabin during a non-normal or emergency situation.

**DATES:** This AD is effective August 25, 2009.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of August 25, 2009.

**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>.

#### **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 (telephone 800-647-5527) is the 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:** Joe Salameh, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone 425-917-6454; fax 425-917-6590.

## **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 certain Boeing Model 747-400 and -400D series airplanes. That NPRM was published in the Federal Register on August 16, 2007 (72 FR 45968). That NPRM proposed to require installing new relays to allow the flightcrew to turn off electrical power to the in-flight entertainment (IFE) system and other non-essential passenger cabin systems through the left and right utility bus switches, and other specified actions.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received from the three commenters.

### **Support for the NPRM**

Inflight Canada (IFC) strongly supports the intent of the NPRM.

### **Request To Clarify Service Bulletin Instructions**

Boeing requests that we clarify, in the "Relevant Service Information" section of the NPRM, that Boeing Service Bulletin 747-24-2246, dated October 6, 2005, provides procedures for turning off 28 VDC power to the IFE system. Boeing states that all Model 747-400 series airplanes have 115 VAC control, and that representing the proposed actions as addressing electrical power, in general, might be misleading to operators regarding the scope of the action.

We agree to provide clarification. We understand that operators are able to turn off 115 VAC power under the existing configuration for Model 747 series airplanes, and that Boeing Service Bulletin 747-24-2246, dated October 6, 2005, provides changes to also allow for turning off 28 VDC power. Therefore, the wording of the NPRM is appropriate and not misleading, since the intent of this AD is to ensure that all electrical power is removed from the affected systems through the use of the right and left utility bus switches. No change to the AD is necessary in this regard.

### **Request To Clarify Instructions for Airplanes Modified After Delivery**

Boeing requests that we clarify, in the "Relevant Service Information" section of the NPRM, that instructions in Boeing service bulletins are based upon the delivered product configuration. Boeing states that it is not obvious to operators that post-production modifications to the IFE system might require an alternative method of compliance (AMOC) to comply with the requirements of the AD.

We agree that operators might not be able to accomplish the requirements of this AD on airplanes that have been modified or altered after airplane delivery. Section 39.17 of the Federal Aviation Regulations (14 CFR 39.17) specifically addresses this situation. If a change in a product affects one's ability to accomplish the actions required by an AD, then a request for FAA approval of

an AMOC addressing that configuration must be submitted in accordance with the procedures specified in paragraph (g) of this AD. According to 14 CFR 39.17, the request should include the specific actions that are proposed to address the unsafe condition, unless one can show that the change eliminated the unsafe condition. No change to the AD is necessary in this regard.

### **Request To Remove Certain Airplanes From the Applicability**

Lufthansa states that it has installed two additional Heath Techna power distribution panels (P94 and P9100) on all of its affected airplanes, in accordance with Supplemental Type Certificate (STC) ST01507SE, issued February 11, 2005, amended September 7, 2006. Lufthansa states that, on these modified airplanes, power can be turned off by right and left utility bus switches located in the cockpit. Lufthansa also states that, additionally, the cabin crew is able to turn off power to the IFE and passenger seats using a master switch located in the purser station of the cabin. Since the modification addresses the intent of the NPRM, Lufthansa has asked Boeing to remove all of Lufthansa's airplanes from the effectivity of Boeing Service Bulletin 747-24-2246, dated October 6, 2005. We refer to that service bulletin for the applicability of this AD.

We infer that Lufthansa requests that we remove airplanes modified in accordance with STC ST01507SE from the applicability of this AD. We disagree with revising the applicability of this AD because we have determined that, based upon the delivered airplane configuration, the unsafe condition of this AD applies to the airplanes identified in the effectivity of Boeing Service Bulletin 747-24-2246, dated October 6, 2005. STC ST01507SE, at the time of its issuance, was not evaluated as an AMOC to the requirements of this AD. The design and installation aspects of the STC must be reviewed under an AMOC request submitted by either the STC applicant or the operator. Under the provisions of paragraph (g) of this AD, we will consider requests for approval of an AMOC if sufficient data are submitted to substantiate that the design change would provide an acceptable level of safety. We have not changed the AD in this regard.

### **Recommendation To Consider This AD an Interim Action**

IFC recommends that we consider the requirements of this AD an interim action. IFC states the final action for eliminating the unsafe condition should be to move the components and wire bundles from the cabin area to areas where they will not be subjected to damage and abuse. IFC states that the cabin sidewalls and the area under the cabin floor offer much safer environments for these items.

We disagree with considering this AD an interim action. The intent of the AD is to address the unsafe condition, not to provide design guidelines for installation of the IFE system. We have determined that the requirements of this AD adequately address the unsafe condition. Should new reports or data arise that show that the unsafe condition has not been adequately addressed by the requirements of this AD, we could consider further rulemaking. No change to the AD is necessary in this regard.

### **Recommendation To Remove Power From All Components in the Cabin**

IFC recommends that the requirement to be able to remove power from the IFE system be expanded to include all components using power in the passenger cabin. IFC states that, in most cases, the In Seat Power Systems (ISPS) and seat adjustment systems carry much higher power loads than do the IFE components.

We disagree that the scope of the AD needs to be expanded because the ISPS and seat adjustment systems are addressed already as other non-essential cabin systems in Boeing Service Bulletin 747-24-2246, dated October 6, 2005. No change to the AD is necessary in this regard.

## **Recommendation To Locate Primary Switch in the Passenger Cabin**

IFC recommends that the primary switch to isolate the IFE system and other non-essential cabin systems be located in the cabin, rather than in the cockpit. IFC states that, in most cases, the cabin crew will be the first to notice a problem, and that the additional time needed to notify the flightcrew will allow the problem to worsen if not immediately addressed by the trained cabin crew. IFC states that, if desired, a secondary switch could also be located in the cockpit.

We disagree because Boeing's design approach adequately addresses the unsafe condition; the flightcrew can shut off power to any non-essential system in the event of smoke or fire in the flight deck or passenger cabin. However, under the provisions of paragraph (g) of this AD, we will consider requests for approval of an AMOC if sufficient data are submitted to substantiate that the design change would provide an acceptable level of safety. We have not changed the AD in this regard.

## **Recommendation to Automatically Turn Off Power in an Emergency**

IFC recommends that the system, which will provide the IFE shut-off capability, also be required to automatically turn off power in the event of certain emergencies, such as deployment of oxygen masks or loss of a generator. IFC states that this capability would allow the flightcrew and cabin crew to perform more important tasks without having to be concerned with turning off power to the IFE system.

We disagree with requiring the system to automatically turn off power to the IFE system and other non-essential cabin systems in the event of certain emergencies because, currently, there is no regulatory requirement to have power turned off automatically. We are issuing this AD to address a specific unsafe condition, and the areas discussed by IFC fall outside the requirements of this AD. We have not changed the AD in this regard.

## **Recommendation To Allow Operators To Develop Other Solutions**

IFC states that Boeing Service Bulletin 747-24-2246, dated October 6, 2005, which is referenced as the only acceptable means of complying with the intent of the NPRM, provides only limited protection from the myriad of electrical hazards in the cabin. IFC recommends that we establish the desired functionality of a system for dealing with the electrical hazards, and then allow operators to develop workable solutions using these in combination with other designs to meet the requirements.

We disagree because we are issuing this AD to address a specific unsafe condition, and we have determined that the service information that is currently available adequately addresses that unsafe condition. However, under the provisions of paragraph (g) of this AD, we will consider requests for approval of an AMOC if sufficient data are submitted to substantiate that the design 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 as proposed.

## **Costs of Compliance**

There are about 490 airplanes of the affected design in the worldwide fleet. This AD affects about 62 airplanes of U.S. registry. The required actions take about 123 work hours per airplane, at an average labor rate of \$80 per work hour. Required parts cost between \$9,412 and \$11,936 per airplane. Based on these figures, the estimated cost of the AD for U.S. operators is up to \$1,350,112, or up to \$21,776 per airplane.

## **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), and
- (3) 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.

You can find our regulatory evaluation and the estimated costs of compliance in the AD Docket.

## **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 AD:



**FAA**  
**Aircraft Certification Service**

## **AIRWORTHINESS DIRECTIVE**

[www.faa.gov/aircraft/safety/alerts/](http://www.faa.gov/aircraft/safety/alerts/)  
[www.gpoaccess.gov/fr/advanced.html](http://www.gpoaccess.gov/fr/advanced.html)

**2009-15-12 Boeing:** Amendment 39-15975. Docket No. FAA-2007-28988; Directorate Identifier 2007-NM-047-AD.

### **Effective Date**

- (a) This airworthiness directive (AD) is effective August 25, 2009.

### **Affected ADs**

- (b) None.

### **Applicability**

- (c) This AD applies to Boeing Model 747-400 and -400D series airplanes, certificated in any category; as identified in Boeing Service Bulletin 747-24-2246, dated October 6, 2005.

### **Unsafe Condition**

- (d) This AD results from an in-flight entertainment (IFE) systems review. We are issuing this AD to ensure that the flightcrew is able to turn off electrical power to the IFE system and other non-essential passenger cabin systems through utility bus switches in the flight compartment, in the event of smoke or fumes. The flightcrew's inability to turn off electrical power to the IFE system and other non-essential passenger cabin systems could result in the inability to control smoke or fumes in the airplane flight deck or passenger cabin during a non-normal or emergency situation.

### **Compliance**

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

### **Install New Relays**

- (f) Within 60 months after the effective date of this AD, install new relays to allow the flightcrew to turn off electrical power to the IFE system and other non-essential passenger cabin systems through the left and right utility bus switches and do all other specified actions as applicable, by accomplishing all the applicable actions specified in the Accomplishment Instructions of Boeing Service Bulletin 747-24-2246, dated October 6, 2005. The other specified actions must be done before further flight after installing the new relays.

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

- (g)(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, ATTN: Joe Salameh, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle ACO, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone 425-917-6454; fax 425-917-6590; has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19.

(2) 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 principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

### **Material Incorporated by Reference**

(h) You must use Boeing Service Bulletin 747-24-2246, dated October 6, 2005, 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 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>.

(3) You may review copies of the 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 or 425-227-1152.

(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 NARA, 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 July 6, 2009.  
Ali Bahrami,  
Manager, Transport Airplane Directorate, Aircraft Certification Service.  
[FR Doc. E9-17118 Filed 7-20-09; 8:45 am]