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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2009-0911; Directorate Identifier 2002-NM-12-AD; Amendment 39-16138; AD 2009-26-03]**

**RIN 2120-AA64**

**Airworthiness Directives; Boeing Model 737-300, -400, -500, -600, -700, -700C, -800, and -900, and 747-400 Series Airplanes; and Model 757, 767, and 777 Airplanes**

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

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 737-300, -400, -500, -600, -700, -700C, -800, and -900, and 747-400 series airplanes; and Model 757, 767, and 777 airplanes. This AD requires modifying the static inverter by replacing resistor R170 with a new resistor and relocating the new resistor. This AD results from evaluation of the carbon resistor, which revealed a failure mode that can cause the resistor to ignite, involving adjacent capacitors as well. We are issuing this AD to prevent a standby static inverter from overheating, which could result in smoke in the flight deck and cabin and loss of the electrical standby power system.

**DATES:** This AD becomes effective February 1, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of February 1, 2010.

**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; 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:** Binh V. Tran, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6485; fax (425) 917-6590.

**SUPPLEMENTARY INFORMATION:**

**Discussion**

The FAA issued a second supplemental notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an AD that would apply to certain Boeing Model 737-300, -400, -500, -600, -700, -700C, -800, and -900, and 747-400 series airplanes; and Model 757, 767, and 777 airplanes. That second supplemental NPRM was published in the Federal Register on January 12, 2009 (74 FR 1159). That second supplemental NPRM proposed to require modifying the static inverter by replacing resistor R170 with a new resistor and relocating the new resistor.

**Actions Since Issuance of Second Supplemental NPRM**

Since issuance of the second supplemental NPRM, Boeing has issued the revised service bulletins listed in the following table:

<b>Revised Service Bulletins</b>	
<b>Model –</b>	<b>Boeing –</b>
737-300, -400, -500 series airplanes	Alert Service Bulletin 737-24A1166, Revision 4, dated May 21, 2009
757-200, -200CB, -200PF series airplanes	Special Attention Service Bulletin 757-24-0110, Revision 1, dated August 6, 2009
757-300 series airplanes	Special Attention Service Bulletin 757-24-0111, Revision 1, dated August 6, 2009

No additional work is necessary for airplanes on which the modification specified in Boeing Alert Service Bulletin 737-24A1166, Revision 3, dated July 25, 2007, has been done. Revision 4 clarifies certain sections, moves airplanes from Group 2 to Group 1 in the effectivity, and removes the Group 2 work instructions.

Boeing Special Attention Service Bulletin 757-24-0110, Revision 1, dated August 6, 2009, adds an inspection of certain static inverter part numbers to make sure only approved part numbers are installed; however, the proposed modification requires modifying the static inverter by replacing the resistor with a new resistor having an approved part number. Revision 1 also moves airplanes from Group 2 to Group 1 in the effectivity, and the Group 2 work instructions were deleted. Therefore, no additional work is necessary for airplanes modified in accordance with Boeing Special Attention Service Bulletin 757-24-0110, dated April 28, 2005.

Boeing Special Attention Service Bulletin 757-24-0111, Revision 1, dated August 6, 2009, also adds an inspection of certain static inverter part numbers to make sure only approved part numbers are installed; however, the proposed modification requires modifying the static inverter by replacing the resistor with a new resistor having an approved part number. Revision 1 also moves airplanes from Group 2 to Group 1 in the effectivity, and the Group 2 work instructions were deleted. No

additional work is necessary for airplanes modified in accordance with Boeing Special Attention Service Bulletin 757-24-0111, dated April 28, 2005.

We have revised Table 1 of this AD to refer to the latest revisions of the service bulletins and added a new paragraph (h) to this AD to give credit for actions done in accordance with the earlier revisions that were referenced in Table 1 of the NPRM.

## **Comments**

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received on the second supplemental NPRM.

## **Support for the Second Supplemental NPRM**

Northwest Airlines has no objection to the second supplemental NPRM; Boeing concurs with the content of the second supplemental NPRM.

## **Request To Permit Installation of Static Inverters Having Certain Part Numbers**

American Airlines (AAL) and FedEx Express request that we allow installation of static inverters having certain part numbers.

AAL asks that we permit installation of static inverters having part numbers (P/Ns) S282T004-2, -3, and -4. AAL states that those static inverters do not have an overheating safety concern, which is the unsafe condition addressed in the second supplemental NPRM. AAL adds that static inverters that have P/Ns S282T004-2, -3, and -4 are fully interchangeable on the Model 757 fleet.

FedEx Express asks that Boeing Special Attention Service Bulletin 757-24-0110, dated April 28, 2005, be revised to include Avionics Instruments static inverters having P/Ns S282T004-28 and S282T004-30 as acceptable to remain on Model 757 airplanes. FedEx Express adds that since issuance of the original issue of Boeing Special Attention Service Bulletin 757-24-0110, those static inverters have been installed on some Model 757 airplanes and have been added to the Boeing Illustrated Parts Catalog. FedEx Express notes that P/Ns S282T004-2, -3, -4, -28, and -30 should be the P/Ns for the static inverters installed in accordance with the requirements in the second supplemental NPRM. FedEx Express adds that combining Groups 1 and 2 into one group would accomplish this task.

We agree with the commenters' requests and provide the following explanation. As noted previously, Boeing has issued Special Attention Service Bulletin 757-24-0110, Revision 1, dated August 6, 2009. The effectivity specified in Revision 1 is changed to move airplanes from Group 2 to Group 1, and to remove the Group 2 work instructions by combining Group 2 work instructions with Group 1. The work instructions specified in Revision 1 also add an inspection for certain static inverter part numbers that allows for installation of static inverters having P/Ns S282T004-2, -3, -4, -25, -28, and -30. Inspection of the static inverter P/Ns will prevent unnecessary replacement of approved static inverters. We have changed the applicability in paragraph (c) of this AD to identify Revision 1 of Boeing Special Attention Service Bulletin 757-24-0110.

## **Request To Include Revised Service Information**

AAL states that it found a discrepancy in Figure 1 of Boeing Special Attention Service Bulletin 757-24-0160, dated June 30, 2005 (referred to in the second supplemental NPRM), and asks that this service bulletin be revised to correct the discrepancy. AAL adds that the discrepancy is in Figure 1, which specifies an inspection of the static inverter on Groups 1 and 3 airplanes. Figure 2 also contains an error which specifies the actions are applicable to Group 3 airplanes. However, Group 2 airplanes are not identified in either of these figures. AAL also notes that in Boeing Service Message 1-1156909141-2, Boeing specifies that static inverters having P/Ns S282T004-2, -3, -4 are acceptable

for installation across the Model 757 airplane fleet since the Model 767 airplane fleet uses the same static inverter.

We acknowledge the commenter's concern and agree that the error in Figure 1 of Boeing Special Attention Service Bulletin 767-24-0160, dated June 30, 2005, should be corrected in a revision; but we do not consider that delaying the final rule until after the release of a future revision is warranted. The original issue of Boeing Special Attention Service Bulletin 767-24-0160 includes sufficient information to accomplish the modification of the static inverter. However, we have added new paragraph (g) to this AD to exclude Group 2 airplanes that have a static inverter with part number S282T004-2, S282T004-3, or S282T004-4, from the modification requirement. We have re-identified subsequent paragraphs accordingly.

### **Request To Change Cost Impact Section**

AAL states that the cost estimate for material and labor necessary for accomplishing the modification on its airplanes is more than the estimate in the second supplemental NPRM.

We infer that AAL is asking that the work hours and cost specified in the Cost Impact section of the AD be increased. We do not agree. The cost information below describes only the direct costs of the specific actions required by this AD. Based on the best data available, the manufacturer provided the number of work hours (up to 2 hours, depending on airplane configuration) necessary to do the required actions. This number represents the time necessary to perform only the actions actually required by this AD. We recognize that, in doing the actions required by an AD, operators might incur incidental costs in addition to the direct costs. The cost analysis in AD rulemaking actions, however, typically does not include incidental costs such as the time required to gain access and close up, time necessary for planning, or time necessitated by other administrative actions. Those incidental costs, which might vary significantly among operators, are almost impossible to calculate. We have not changed the AD in this regard.

### **Request for Clarification**

Cargolux Airlines International S.A. states that it has followed the history of the proposed rule since 2003, and is not aware of any new event reported on the static inverters since that time. Cargolux asks for clarification that only one airplane was affected prior to 2003, and no airplanes were affected after 2003. Cargolux also asks for the number of occurrences of R170 resistors overheating, and the number of units manufactured.

We acknowledge the commenter's request and provide the following clarification. Prior to 2003 there were 39 static inverter failures on 39 airplanes; since 2003 there have been 15 inverters on 15 airplanes that failed due to the R170 resistor overheating, and approximately 9,400 units have been manufactured.

### **Explanation of Additional Paragraph in the Final Rule**

We have added a new paragraph (d) to this AD to provide the Air Transport Association (ATA) of America code 24: Electrical power. This code is added to make this AD parallel with other new AD actions. We have reidentified subsequent paragraphs accordingly.

### **Conclusion**

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

## Costs of Compliance

There are approximately 3,856 airplanes of the affected design in the worldwide fleet. The FAA estimates that 1,882 airplanes of U.S. registry will be affected by this AD. The following table provides the estimated costs for U.S. operators to comply with this AD.

Estimated Costs						
Action	Work hours	Average labor rate per hour	Parts	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Modification	Up to 2 hours, depending on airplane configuration	\$80	\$0	Between \$80 and \$160	1,882	Up to \$301,120

The cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the proposed requirements of this AD action, and that no operator would accomplish those actions in the future if the AD were not adopted. The cost impact figures discussed in AD rulemaking actions represent only the time necessary to perform the specific actions actually required by the AD. These figures typically do not include incidental costs, such as the time required to gain access and close up, planning time, or time necessitated by other administrative actions.

### 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

We have determined that 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

## **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 Federal Aviation Administration (FAA) amends § 39.13 by adding the following new airworthiness directive (AD):



**2009-26-03 Boeing:** Amendment 39-16138. Docket No. FAA-2009-0911; Directorate Identifier 2002-NM-12-AD.

**Effective Date**

(a) This AD becomes effective February 1, 2010.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to the following airplanes, certificated in any category, as identified in the applicable Boeing service bulletin specified in Table 1 of this AD:

**Table 1 - Applicability**

<b>Model –</b>	<b>Boeing –</b>
737-600, -700, -700C, -800, -900 series airplanes	Special Attention Service Bulletin 737-24-1165, Revision 1, dated October 20, 2005
737-300, -400, -500 series airplanes	Alert Service Bulletin 737-24A1166, Revision 4, dated May 21, 2009
747-400, -400D, -400F series airplanes	Service Bulletin 747-24-2254, Revision 1, dated March 5, 2007
757-200, -200CB, -200PF series airplanes	Special Attention Service Bulletin 757-24-0110, Revision 1, dated August 6, 2009
757-300 series airplanes	Special Attention Service Bulletin 757-24-0111, Revision 1, dated August 6, 2009
767-200, -300, -300F series airplanes	Special Attention Service Bulletin 767-24-0160, dated June 30, 2005
767-400ER series airplanes	Special Attention Service Bulletin 767-24-0161, dated June 30, 2005
777-200, -300, -300ER series airplanes	Service Bulletin 777-24-0095, Revision 1, dated January 3, 2007

**Subject**

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

## Unsafe Condition

(e) This AD results from evaluation of the carbon resistor, which revealed a failure mode that can cause the resistor to ignite, involving adjacent capacitors as well. The Federal Aviation Administration is issuing this AD to prevent a standby static inverter from overheating, which could result in smoke in the flight deck and cabin and loss of the electrical standby power system.

## Modification

(f) At the time specified in paragraph (f)(1) or (f)(2) of this AD, as applicable: Modify the static inverter by removing resistor R170 from the logic control card assembly and replacing it with a new resistor, and relocating the new resistor to the solder side of the printed circuit board, in accordance with the Accomplishment Instructions of the applicable service bulletin specified in Table 1 of this AD, except as provided by paragraph (g) of this AD.

(1) For Model 737, 757, and 767 airplanes: Within 42 months after the effective date of this AD.

(2) For Model 747 and 777 airplanes: Within 60 months after the effective date of this AD.

(g) For Group 2 airplanes identified Boeing Special Attention Service Bulletin 767-24-0160, dated June 30, 2005: Airplanes having a static inverter with part number S282T004-2, S282T004-3, or S282T004-4, are not required to do the modification specified in paragraph (f) of this AD.

(h) Actions accomplished before the effective date of this AD in accordance with the applicable Boeing service bulletin specified in Table 2 of this AD, are considered acceptable for compliance with the corresponding actions specified in this AD.

**Table 2 – Previously Issued Service Information**

<b>Boeing –</b>	<b>Revision –</b>	<b>Dated –</b>
Alert Service Bulletin 737-24A1166	3	July 25, 2007
Special Attention Service Bulletin 757-24-0110	Original	April 28, 2005
Special Attention Service Bulletin 757-24-0111	Original	April 28, 2005

Note 1: The Boeing service bulletins specified in Table 1 of this AD refer to Avionic Instruments Inc. Service Bulletins 1-002-0102-1000-24-28, Revision A, dated June 22, 2005; and Revision B, dated July 24, 2006; as additional sources of guidance for accomplishing the modification required by paragraph (f) of this AD.

## Alternative Methods of Compliance

(i)(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. Send information to ATTN: Binh V. Tran, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6485; fax (425) 917-6590. Or, e-mail information to 9-ANM-Seattle-ACO-AMOC-Requests@faa.gov.

(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

(j) You must use the applicable Boeing service information contained in Table 3 of this AD to do the actions required by this AD, unless the AD specifies otherwise.

**Table 3 – Material Incorporated by Reference**

<b>Boeing –</b>	<b>Revision –</b>	<b>Dated –</b>
Alert Service Bulletin 737-24A1166	4	May 21, 2009
Service Bulletin 747-24-2254	1	March 5, 2007
Service Bulletin 777-24-0095	1	January 3, 2007
Special Attention Service Bulletin 737-24-1165	1	October 20, 2005
Special Attention Service Bulletin 757-24-0110	1	August 6, 2009
Special Attention Service Bulletin 757-24-0111	1	August 6, 2009
Special Attention Service Bulletin 767-24-0160	Original	June 30, 2005
Special Attention Service Bulletin 767-24-0161	Original	June 30, 2005

(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 December 4, 2009.

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