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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2008-0274; Directorate Identifier 2008-NM-038-AD; Amendment 39-16367; AD 2010-15-01]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Model 757 Airplanes, Model 767 Airplanes, and Model 777-200 and -300 Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for certain Model 757 airplanes, Model 767 airplanes, and Model 777-200 and -300 series airplanes. This AD requires repetitive inspections for damage of the electrical terminal at the left and right flightdeck window 1, and corrective actions if necessary. This AD also allows for replacing the flightdeck window 1 with a new improved flightdeck window equipped with different electrical connections, which terminates the repetitive inspections for that flightdeck window 1. This AD results from several reports of electrical arcs at the terminal blocks of the electrically heated flightdeck window 1. We are issuing this AD to prevent smoke and fire in the cockpit, which could lead to loss of visibility, and injuries to or incapacitation of the flightcrew.

DATES: This AD is effective August 17, 2010.

The Director of the Federal Register approved the incorporation by reference of certain publications listed in the AD as of August 17, 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: Louis Natsiopoulos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6478; 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 Model 757 airplanes, Model 767 airplanes, and Model 777-200 and -300 series airplanes. That NPRM was published in the Federal Register on March 13, 2008 (73 FR 13483). That NPRM proposed to require repetitive inspections for damage of the electrical terminal at the left and right flightdeck window 1, and corrective actions if necessary. That NPRM also proposed to allow for replacing the flightdeck window 1 with a new improved flightdeck window equipped with different electrical connections, which would terminate the repetitive inspections for that flightdeck window 1.

Explanation of Revised Service Information

After the NPRM was issued, Boeing issued the following service bulletins:

- Boeing Special Attention Service Bulletin 757-30-0019, Revision 2, dated April 19, 2010, for Model 757-200, -200CB, and -200PF series airplanes.
- Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010, for Model 757-300 series airplanes.

We referred to Boeing Special Attention Service Bulletin 757-30-0019, and Boeing Special Attention Service Bulletin 757-30-0020, both Revision 1, both dated December 19, 2007, as appropriate sources of service information for doing the actions proposed in the NPRM.

The actions specified in Boeing Special Attention Service Bulletins 757-30-0019 and 757-30-0020, both Revision 2, include an additional inspection of the J1 and J4 (upper) terminals; however, the inspection of the upper connections is not included in this AD. We find that to delay this action to include the inspection of the J1 and J4 terminals and to ensure that the public has sufficient time to consider and comment on the additional actions, would be inappropriate in light of the unsafe condition identified on the J5 terminal. We are considering additional rulemaking to require the inspection of the J1 and J4 terminals.

Boeing Special Attention Service Bulletins 757-30-0019 and 757-30-0020, both Revision 2, include a reduced compliance time of 500 flight hours or 150 days, whichever occurs first, for the detailed inspection for damage specified in paragraph (f) of this AD (paragraph (g) of the NPRM). We have not changed this AD to include the reduced compliance time. We have determined that the compliance time, as proposed, represents an appropriate interval of time in which the required actions can be performed in a timely manner within the affected fleet, while still maintaining an adequate level of safety. We find that to delay this action to ensure that the public has sufficient time to consider and comment on the reduced compliance time, would be inappropriate in light of the identified unsafe condition.

For Model 757 airplanes, Boeing Special Attention Service Bulletins 757-30-0019 and 757-30-0020, both Revision 2, also include a revised interval for repeating the detailed inspection for damage specified in paragraphs (f) and (g) of this AD (paragraphs (g) and (h) of the NPRM). We have determined that extending the repetitive intervals, as recommended by the manufacturer, is consistent

with data on in-service failure reports and will not adversely affect safety for the affected airplane models. Therefore, we have changed paragraphs (f) and (g) of this AD (paragraphs (g) and (h) of the NPRM), to include the revised interval. For windows manufactured by GKN Aerospace Transparency Systems (GKN), the inspection is now specified at intervals not to exceed 12,000 flight hours or 48 months, whichever occurs later. For windows manufactured by PPG Aerospace (PPG), the inspection is now specified at intervals not to exceed 6,000 flight hours or 24 months, whichever occurs later. We have also revised this same repetitive interval for Model 767 airplanes, and Model 777-200 and -300 series airplanes, as explained under "Requests to Extend Repetitive Inspection Interval" below.

The Compliance paragraphs (1.E.) of Boeing Special Attention Service Bulletins 757-30-0019 and 757-30-0020, both Revision 2, give additional time for doing the corrective action if the screw is cross threaded and the terminal lug is tight. We have added paragraph (h)(1) to this AD to specify doing the corrective action within 150 days or 500 flight hours after the inspection, whichever occurs first, rather than before further flight.

We have changed Table 1 of this final rule to refer to Boeing Special Attention Service Bulletin 757-30-0019, Revision 2, dated April 19, 2010; and Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010; as appropriate sources of service information. We have also changed Table 2 of this final rule to state that actions done before the effective date of this AD in accordance with Boeing Special Attention Service Bulletin 757-30-0019 or Boeing Special Attention Service Bulletin 757-30-0020, both Revision 1, both dated December 19, 2007, are acceptable for compliance with the corresponding requirements of this AD.

Comments

We gave the public the opportunity to participate in developing this AD. We considered the comments received from the 10 commenters.

Support for the NPRM

The National Transportation Safety Board (NTSB) fully supports the proposed action for the lower (J5) terminal.

Issue a Supplemental NPRM or Withdraw the NPRM

Air Transport Association (ATA) agrees with the intent of the proposal, but specifies that the NPRM, as written, has fundamental and detailed flaws that may not resolve the unsafe condition; instead, the NPRM focuses on electrical connections on another side of the terminal block, which likely are not the cause of the unsafe condition. ATA recommends that we instead issue a supplemental NPRM that takes into consideration the comments of member airlines.

American Airlines (AAL) indicates that the proposed rule is premature and should be withdrawn until the NTSB has completed its investigation of an incident of window heat arcing on a Model 757 airplane at the J1 and J4 terminals. The NTSB also encourages amending the NPRM (we infer by supplemental NPRM) to include inspections of the J1 and J4 terminals on all of the affected flightdeck windows. The NTSB states that in a small number of cases it determined that a loose or inadequate connection at the J1 terminal or J4 terminal is the most likely cause of the smoke and/or fire in the cockpit.

AAL, Continental Airlines (CAL), Delta Airlines (DAL), and United Airlines (UAL) request we withdraw the NPRM until we do further investigation to identify the root cause of the window arcing events. The commenters state that the proposed AD should mandate a comprehensive and worthwhile solution; that a credible analysis providing the true root cause of the failure must be completed first; and that further investigation could alter or add to the solution, thus rendering it more meaningful. Certain commenters suggest what the root causes might be, including the following:

AAL contends that material design choices contribute to unintended cross threading and apparent lack of screw retention over time; and that under-torque of the connector screw as the lone primary failure is speculative and that a more likely source of heating is arcing along the braided power wire downstream of the window heat connector. In addition, AAL service history shows the primary cause of failure to be arcing at the heat braided power wire at the lower window along with delamination between the window heat layer and the outer glass.

CAL states that it appears the root cause attributed to cross threading might actually be faulty solder joints, and that stripping of the tapped brass block due to repetitive application of current torque requirements could be a driving force behind in-service failures.

DAL notes that poor design/manufacture of the flightdeck window 1 terminal contributes to arcing events and that the design does not support a long-term robust connection to the screw.

We disagree with the requests to withdraw the NPRM or issue a supplemental NPRM.

The incident of window heat arcing at the J1 and J4 terminals that was investigated by the NTSB is related to the unsafe condition addressed by the NPRM that preceded this final rule. We have reports of four events involving arcing of the flightdeck window heat system at the upper aft (J1) and upper forward (J4) terminals on the first officer's flightdeck window that caused the inner pane of glass to fracture. The events, which occurred between January 2001 and August 2008, all occurred on Model 757 airplanes. Withdrawing the NPRM to include the upper terminals for Model 757 airplanes would be inappropriate as it would delay this AD action, which addresses failures of the lower (J5) terminal for Model 757 airplanes, Model 767 airplanes, and Model 777-200 and -300 series airplanes. However, we are considering additional rulemaking to address arcing at the upper (J1 and J4) terminals on Model 757 airplanes only.

Regarding the requests to determine the root causes, we disagree with withdrawing the NPRM until a different root cause is identified. Although we agree with the commenters that the failure mode that causes a significant arcing event is the melting of solder or the de-soldering of the terminal connection, we disagree as to the cause of the de-soldering of the terminal connection and subsequent arcing.

We have received reports that attribute the primary cause of the overheating of the terminal to a cross-threaded screw, a loose screw, or an incorrectly installed screw. We have also found that the majority of the arcing events happened within 500 flight hours after the flightdeck window was replaced or had undergone maintenance. The unintended cross threading and apparent lack of screw retention over time have been reported on flightdeck windows manufactured by both GKN and PPG. The failure of the moisture seal and the delamination of the flightdeck window plies are addressed by other ADs and other service bulletins; but we point out that such failures are detectable.

We find that the actions required by this AD will identify failures of the electrical terminals, regardless of the root cause, and that the corrective actions apply to all detected failures. However, if new information becomes available to justify revising this AD, we will consider further rulemaking.

For the above reasons, no change has been made to the AD in response to the requests to withdraw the NPRM or issue a supplemental NPRM.

Requests To Extend Repetitive Inspection Interval

Air France, ATA, and Northwest Airlines (NWA) request that we extend the interval for the repetitive inspection from 6,000 flight hours to 7,800 flight hours (Air France) or 8,000 flight hours (ATA and NWA). Air France contends that the inspections should be matched with the schedule for light maintenance checks. ATA recommends that we extend the interval based on service experience. NWA indicates there would not be an appreciable effect on safety in extending the inspection to an interval where the task can be performed during a scheduled "C" check in an environment more conducive to such maintenance.

We partially agree with the requests to extend the repetitive inspection interval. We agree with the request to extend the interval for GKN flightdeck windows. As explained previously under "Explanation of Revised Service Information," for windows manufactured by GKN, the inspection is

now specified in this AD at intervals not to exceed 12,000 flight hours or 48 months, whichever occurs later. According to reports the failure rate of GKN flightdeck windows seems to be substantially lower than the failure rate of the PPG flightdeck windows, and the severity of events of the GKN flightdeck windows is less.

We disagree with extending the inspection interval for PPG flightdeck windows from 6,000 flight hours; however, we have determined that specifying the compliance time as 6,000 flight hours or 24 months, whichever occurs later, will provide relief to operators. In establishing the 6,000-flight-hour interval for those flightdeck windows, we considered not only the frequency of occurrence of the electrical connection failures, the time required to perform the inspection, and the consequent risk of uncorrected unsafe conditions, but also the scheduling of the inspections so they can be accomplished during regular maintenance down time. We determined that an interval of 6,000 flight hours would give the operators ample time to schedule the proposed actions at a routine scheduled maintenance and detect an unsafe condition before an event.

We have changed paragraphs (f) and (g) of this AD (paragraphs (g) and (h) of the NPRM) to include the revised intervals.

Requests To Clarify Intent of 500 Flight Hours for Inspection

AAL, DAL, and UAL request that we clarify the intent of the initial repetitive inspection that is proposed within 500 flight hours after the corrective action for certain airplanes. DAL points out that as written in the NPRM an operator could accomplish the detailed inspection after one flight hour and be in compliance with the proposed rule. UAL would like to know if the intent is to perform a quality check (which could be performed shortly after the replacement), or if the intent is to check for degradation of the torque value over time. UAL states that if the intent is the latter, the wording should be "after 500 flight hours" instead of "within 500 flight hours." AAL also states that the inspection could be done within an hour after the corrective action and asks if the intent is simply to do a quality check.

We agree that the 500-flight-hour compliance time for the initial repetitive inspection for certain airplanes, as required by paragraph (g) of this AD (paragraph (h) of the NPRM), should be clarified. The intent of the inspection of certain airplanes "within 500 flight hours after the corrective action," as specified in paragraph (g) of this AD, is a quality assurance check. The phrase "within 500 flight hours after the corrective action" correctly allows for doing the initial repetitive inspection before further flight following accomplishment of the corrective action. According to the majority of the reported arcing events, the result of an incorrectly assembled screw/lug electrical connection (a heated terminal and the possibility of subsequent arcing) occurred in-service after the assembly of the electrical connection. Additionally, the phrase "within 500 flight hours after the corrective action" would also provide sufficient time for operators of mixed or large fleets to do the inspection without compromising safety. We have not changed the AD in this regard.

Requests To Exclude Certain Window From Proposed Actions

ATA, on behalf of its member AAL, requests that part number (P/N) 141T4800 flightdeck windows be excluded from the actions proposed in the NPRM. AAL has data that confirm it has not experienced what they deemed a "catastrophic" arcing or smoke event on a flightdeck window, P/N 141T4800. All of the "catastrophic" arcing and smoke events AAL has experienced have occurred on flightdeck window P/N 141T4801 with lug and screw electrical connections. AAL states that the P/N 141T4800 terminal blocks might show minor damage; however, the damage is limited and contained. AAL further asserts that the connection found in the terminating action proposed in the NPRM is exactly the P/N 141T4800 connection; therefore, the AD should exclude flightdeck windows that currently have P/N 141T4800.

We partially agree with the commenters. We agree that the performance of the P/N 141T4800 flightdeck window appears to be better than the P/N 141T4801 flightdeck window with lug and screw

electrical connections; its failure rate is lower and the failures are not as severe. We disagree with excluding the P/N 141T4800 flightdeck windows from the AD because we have received reports of arcing events with the P/N 141T4800 flightdeck windows that require corrective action. However, we find that some mitigation is appropriate because the failure rate of the screw/lug terminal equipped PPG windshields to screw/lug equipped GKN flightdeck windows is about 2 to 1. Therefore, we have changed paragraphs (f) and (g) of this AD (paragraphs (g) and (h) of the NPRM) to specify a repetitive interval of 12,000 flight hours or 48 months, whichever occurs later, for screw/lug terminal equipped GKN flightdeck windows.

Requests To Include Certain P/N as Terminating Action

GKN and AAL state that flightdeck window P/N 141T800-13/-14 should be included as a terminating action in the NPRM. The commenters state that service information points to damaged solder joints as the primary cause of the electrical arcs and point out that the P/N 141T800-13/-14 flightdeck windows do not incorporate the design feature that causes extreme arcing, an ignition source, and melting of the glass; and that the design does not incorporate features that are subject to assembly error. Specifically, the commenters state that at the cockpit side, the flightdeck window P/N 141T800-13/-14 uses a screw connector which is seen as superior to the pin and socket connector used on the proposed terminating action windshield; this superiority is due to the high clamping pressure and ability to re-tighten or replace the screw in addition to the excellent material choice for the threaded insert.

We disagree with the request to include flightdeck window P/N 141T800-13/-14 as a terminating action. While we agree that damaged solder joints are the primary cause for the electrical arcs, we point out that the primary cause of loose connections is the incorrect torque of the screw or an incorrectly installed screw. A loose connection increases the heat at the terminal, which can cause damage to the internal solder joint. A loose screw or an incorrectly installed screw is due to limited access on the airplane. The pin/socket connector, which is the design proposed as the optional terminating action in the NPRM, is assembled in a controlled environment on a bench and with full access. The screw/lug design proposed by the commenters does not provide an equivalent level of safety to that of the pin/socket design, which is not subject to the same assembly errors. Therefore, we have not changed the AD in this regard.

Request for Further Analysis Before Terminating Action

CAL, DAL, and ATA on behalf of its member AAL, request that we and the manufacturer perform an engineering analysis to determine whether pin and socket connections, proposed as an optional terminating action, offer any advantage over screw and lug connections. AAL has had considerable experience with pin and socket connections and states that carrying any appreciable current through a pin and socket connection is less reliable than a ring terminal and screw connection. CAL states that it has had problems with pin and socket connections; however, it applauds the mechanical joining at the mesh to block interface. CAL considers that more time is needed to determine if the pin and socket design is more reliable. DAL is unaware of any destructive testing that has been performed to substantiate the use of the new design as the corrective action for flightdeck window arcing events.

We disagree with the need for further study. The pin and socket connection of the electrical heat terminal was designed and qualification tested for contact retention and current-carrying capacity by the suppliers as part of the certification process of the block. The testing verified the integrity of the design and showed it not to have nuisance failures. Further, the pin and socket technology is well-established and used in a significant number of electrical applications on the airplane. The pin and socket connectors for the flightdeck window heat terminal have been in service since 2004 without any reported failures. The failures that the commenters referred to were due to manufacturing error rather than a design defect. We have not changed the AD in this regard.

Request To Make Terminating Action Mandatory

The NTSB asks that we make the installation of a new flightdeck window mandatory rather than optional and states that the installation would prevent similar events of smoke or fire in the cockpit. The NTSB notes that the NPRM proposes installation of a new flightdeck window that incorporates the pin and socket electrical connection that provides a more secure connection and is less susceptible to installation errors. This new flightdeck window design also uses a crimped ring terminal that is internal to the terminal block; the crimped ring terminal connects the flightdeck window heat braid wire to the terminal, which addresses some of the solder issues suspected in the NTSB's investigations around the J1 and J4 terminals.

We partially agree. While we agree with the commenter that the installation of the new flightdeck window with the pin and socket electrical connection is more robust because it is not as susceptible to assembly errors as is the flightdeck window with the screw/lug connection, we disagree with the request to make the installation of the flightdeck window with the new pin and socket electrical connection mandatory. The repetitive inspections and corrective actions required by this AD provide adequate means to maintain the safety of the screw/lug flightdeck windows. Requiring the replacement of the flightdeck windows is not necessary to address the unsafe condition. We have not changed the AD in this regard.

Request To Improve Access to Terminal Block

CAL notes that access to the terminal block on Boeing Model 757 airplanes is "atrocious"; even with small hands it cannot be held. CAL does not consider it a coincidence that this connection is the "problem child" because access is so poor. This limited access, coupled with poor "view-ability" turns a simple installation into a very complex installation. CAL requests that certain aircraft improvements and modifications be addressed, as well as human factor items such as special tooling to be developed.

We infer that the commenter asks us to address this issue in the AD. We partially agree with the request. The commenter is correct in saying that access to the electrical terminal block makes it difficult to achieve the torque limits outlined in the airplane maintenance manual and that this could be the primary reason for incorrectly assembled electrical terminations. We note that the optional terminating action of this AD (pin and socket design) is much easier to accomplish in the existing limited space. In addition, we find that to delay this action to allow time for modifications and human factor changes would be inappropriate in light of the identified unsafe condition. The commenter should note that under the provisions of paragraph (k) of the final rule, we will consider requests for approval of an alternative method of compliance (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.

Request To Revise Service Bulletins

AAL requests revisions to the service bulletins listed in the table titled "Requested revisions."

Requested Revisions

Boeing Special Attention Service Bulletin –	Revision –	Dated –
757-30-0019	1	December 19, 2007
757-30-0020	1	December 19, 2007

767-30-0041	Original	December 5, 2007
777-30-0012	2	December 19, 2007

AAL lists several editorial changes in the service bulletins in its comments, and specifies that revisions would reduce the burden of processing numerous requests for AMOCs.

UAL requests that we revise Boeing Special Attention Service Bulletin 777-30-0012, Revision 2, dated December 19, 2007, to clarify the following statement: "There is a time limit on how long the old number 1 flightdeck window can be used." UAL would like to know if the time limit refers to the serviceability limit of the old flightdeck window, or the availability of the flightdeck window, or to future spares.

We have discussed AAL's concerns with Boeing. In addition, we agree with UAL that the statement about the time limit is in error and should not be included in the service bulletin. We have also referred this concern to Boeing. We have not changed the AD in this regard.

Request To Add Reference to Table 1

Boeing asks that we add a reference to Table 1 of the NPRM in the paragraph titled "Actions Accomplished Previously," for the latest revision of the released service bulletins. Boeing points out that the service bulletins listed in both Table 1 and Table 2 are acceptable before the effective date of the AD.

We disagree with the request to refer to Table 1 in the "Credit for Actions Accomplished Previously" paragraph of this AD. The intent of the "Credit for Actions Accomplished Previously" paragraph is to list service bulletins that are acceptable for compliance before the effective date of the AD, but not after the effective date of the AD. The service bulletins listed in Table 1 of the AD are acceptable for compliance both before and after the effective date of the AD. The acceptable use of the service bulletins listed in Table 1 of this AD before the effective date is covered by the statement in paragraph (e) of this AD that says, "Comply with this AD within the compliance times specified, unless already done." We have not changed the AD in this regard.

Request To Add Statement to AD Regarding Window Manufacturer

Boeing asks that we add the following statement to the "Alternative Methods of Compliance" paragraph of the NPRM: "These inspections are for the 1 flight deck windows regardless of window manufacturer." Boeing explains that there are two different suppliers for the flightdeck windows, but each flightdeck window is connected to the airplane side wiring in the same manner and requires the specified inspections.

We disagree with the request to change this AD to add the statement. The AD requires inspection of the flightdeck windows according to the Accomplishment Instructions of the applicable service bulletin. The service bulletins listed in this AD apply to all flightdeck windows, regardless of manufacturer. We have not changed the AD in this regard.

Request To Take Similar Action for Model 747 Series Airplanes

The NTSB believes that we should take similar action for Model 747 series airplanes because a similar condition exists on those airplanes.

We agree with the NTSB and are considering rulemaking to address a similar unsafe condition on Model 747 series airplanes. We have not changed this AD in this regard.

Clarification of Service Bulletin Information

The last column in the table in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010, specifies repeating the inspection for damage at "intervals not to exceed 6,000 flight hours or 24 months." The intent of that column is to specify an interval "not to exceed 6,000 flight hours or 24 months, whichever occurs later." We have included the correct interval in paragraphs (f) and (g) of this AD.

In several places of the Compliance paragraph (1.E.) of Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010; and Boeing Special Attention Service Bulletin 757-30-0019, Revision 2, dated April 19, 2010; the "Action" column implies that both the left and right windows must be replaced. For example, "*** replace windshield in accordance with Work Package 1, step 3. and Work Package 2, step 3." The intent is to state, "*** Work Package 1, step 3. or Work Package 2, as applicable ***." Operators are to use one or the other (or both) work instruction, as applicable, to replace the window(s) that need replacing. We have included this information in paragraph (h)(2) of this AD.

The Action column for Inspection Condition 4 in the table in paragraph 1.E., "Compliance," of Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010, states "3. If terminal lug is still loose." That statement should be "3. If terminal lug is still loose then disassemble, inspect and reassemble the electrical connection."

Explanation of Additional Changes

We have clarified paragraph (f) of this AD (paragraph (g) of the NPRM) to specify that Work Packages 1 and 2 apply to the J5 terminal. As stated previously, the Accomplishment Instructions of Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010, and Boeing Special Attention Service Bulletin 757-30-0019, Revision 2, dated April 19, 2010, include an inspection of the J1 and J4 (upper) electrical connections; however, the inspection of these connections is not included in this AD.

We have clarified paragraph (g) of this AD (paragraph (h) of the NPRM) to remove the phrase "or tightening a loose screw" from the description of corrective actions that requires additional inspection within 500 flight hours. The only corrective action after which the inspection is necessary is replacement.

After the NPRM was issued, we reviewed the figures we have used over the past several years to calculate AD costs to operators. To account for various inflationary costs in the airline industry, we find it necessary to increase the labor rate used in these calculations from \$80 per work hour to \$85 per work hour. The cost impact information, below, reflects this increase in the specified hourly labor rate.

We have removed the "Service Bulletin Reference" paragraph from this AD. That paragraph was identified as paragraph (f) in the NPRM. Instead, we have provided the full service bulletin citations throughout this AD.

We also have revised this final rule to identify the legal name of the manufacturer as published in the most recent type certificate data sheet for the affected airplane models.

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 changes described previously. 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 affects 1,212 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD. The average labor rate is \$85 per work hour.

Costs

Action	Work hours	Parts	Cost per product	Fleet Cost
Inspection	1	None	\$85, per inspection cycle	\$103,020, per inspection cycle

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(f), 40113, 44701.

§ 39.13 [Amended]

2. The FAA amends § 39.13 by adding the following new AD:



2010-15-01 The Boeing Company: Amendment 39-16367. Docket No. FAA-2008-0274; Directorate Identifier 2008-NM-038-AD.

Effective Date

(a) This airworthiness directive (AD) is effective August 17, 2010.

Affected ADs

(b) None.

Applicability

(c) This AD applies to the airplanes identified in Table 1 of this AD, certificated in any category.

Table 1–Airplanes Affected by This AD

The Boeing Company Model –	As identified in Boeing Special Attention Service Bulletin –
757-200, -200CB, and -200PF series airplanes	757-30-0019, Revision 2, dated April 19, 2010
757-300 series airplanes	757-30-0020, Revision 2, dated March 31, 2010
767-200, -300, and -300F series airplanes	767-30-0039, dated December 5, 2007
767-400ER series airplanes	767-30-0041, dated December 5, 2007
777-200 and -300 series airplanes	777-30-0012, Revision 2, dated December 19, 2007

Unsafe Condition

(d) This AD results from several reports of electrical arcs at the terminal blocks of the electrically heated flightdeck window 1. We are issuing this AD to prevent smoke and fire in the cockpit, which could lead to loss of visibility, and injuries to or incapacitation of the flightcrew.

Compliance

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

Inspection and Corrective Actions

(f) Within 500 flight hours after the effective date of this AD, do a detailed inspection for damage (including arcing, loose terminal, or heat damage) of the electrical terminal (J5 terminal) at the left and right flightdeck window 1, and do all applicable corrective actions, by accomplishing all the actions for the J5 terminal specified in Work Packages 1 and 2 of the applicable service bulletin

specified in Table 1 of this AD, except as provided by paragraph (h) of this AD. Except as provided by paragraph (h) of this AD, do all applicable corrective actions before further flight. Except as provided by paragraph (g) of this AD, repeat the detailed inspection at the applicable interval specified in paragraph (f)(1) or (f)(2) of this AD. Doing the replacement specified in paragraph (i) of this AD terminates the repetitive inspection requirements of this paragraph for the replaced flightdeck window 1.

(1) For flightdeck windows manufactured by GKN with SCREW/LUG electrical connections, repeat the detailed inspection thereafter at intervals not to exceed 12,000 flight hours or 48 months, whichever occurs later.

(2) For flightdeck windows manufactured by PPG with SCREW/LUG electrical connections, repeat the detailed inspection thereafter at intervals not to exceed 6,000 flight hours or 24 months, whichever occurs later.

(g) For airplanes on which replacement with a new window 1 that uses screws and lugs for the electrical connections is done in accordance with Work Package 1 or 2 of the applicable service bulletin specified in Table 1 of this AD: Do the next detailed inspection within 500 flight hours after the corrective action, and repeat the inspection thereafter at the applicable interval specified in paragraph (g)(1) or (g)(2) of this AD. Doing the replacement specified in paragraph (i) of this AD terminates the repetitive inspection requirements of this paragraph for the replaced flightdeck window 1.

(1) For flightdeck windows manufactured by GKN with SCREW/LUG electrical connections, repeat the detailed inspection thereafter at intervals not to exceed 12,000 flight hours or 48 months, whichever occurs later.

(2) For flightdeck windows manufactured by PPG with SCREW/LUG electrical connections, repeat the detailed inspection thereafter at intervals not to exceed 6,000 flight hours or 24 months, whichever occurs later.

Exceptions

(h) Do the applicable actions specified in paragraph (f) of this AD except as provided by paragraphs (h)(1) and (h)(2) of this AD.

(1) If, during the inspection required by paragraph (f) of this AD, the screw is cross threaded and the terminal lug is tight, do the applicable corrective action within 150 days or 500 flight hours after the inspection, whichever occurs first.

(2) Where paragraph 1.E. of Boeing Special Attention Service Bulletin 757-30-0020, Revision 2, dated March 31, 2010, and Boeing Special Attention Service Bulletin 757-30-0019, Revision 2, dated April 19, 2010, states in the "Action" column to (for example) " * * * replace windshield in accordance with Work Package 1, step 3. and Work Package 2, step 3," the intent of the applicable service bulletin is to state, " * * * Work Package 1, step 3. or Work Package 2, as applicable * * *." Operators are to use one or the other (or both) work instruction, as applicable, to replace the window(s) that need replacing.

Optional Terminating Action

(i) Replacing a flightdeck window 1 that uses screws and lugs for the electrical connections with a flightdeck window that uses pins and sockets for the electrical connections in accordance with Work Packages 3 or 4 of the applicable service bulletin specified in Table 1 of this AD ends the repetitive inspection requirements of this AD for that window 1.

Credit for Actions Accomplished Previously

(j) Actions done before the effective date of this AD in accordance with the applicable service bulletin specified in Table 2 of this AD are acceptable for compliance with the corresponding requirements of this AD.

Table 2—Acceptable Service Bulletins

Boeing Special Attention Service Bulletin -	Revision -	Dated -
757-30-0019	Original	July 19, 2006
757-30-0019	1	December 19, 2007
757-30-0020	Original	July 19, 2006
757-30-0020	1	December 19, 2007
777-30-0012	Original	April 15, 2004
777-30-0012	1	June 2, 2006

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. Send information to ATTN: Louis Natsiopoulos, Aerospace Engineer, Systems and Equipment Branch, ANM-130S, 1601 Lind Avenue SW., Renton, Washington 98057-3356; telephone (425) 917-6478; fax (425) 917-6590. Information may be e-mailed 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

(1) You must use the applicable service information contained in Table 3 of this AD to do the actions required by this AD, unless the AD specifies otherwise. If you accomplish the optional actions specified by this AD, you must use the applicable service information specified in Table 3 of this AD to perform those actions, 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; 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.

(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.

Table 3—Material Incorporated by Reference

Boeing Special Attention Service Bulletin -	Revision -	Dated -
757-30-0019	2	April 19, 2010
757-30-0020	2	March 31, 2010
767-30-0039	Original	December 5, 2007
767-30-0041	Original	December 5, 2007
777-30-0012	2	December 19, 2007

Issued in Renton, Washington, on July 6, 2010.
Ali Bahrami,
Manager, Transport Airplane Directorate,
Aircraft Certification Service.