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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2007-28385; Directorate Identifier 2006-NM-181-AD; Amendment 39-15513; AD 2008-10-07]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP Series Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Final rule.

SUMMARY: We are adopting a new airworthiness directive (AD) for all Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes. This AD requires revising the FAA-approved maintenance program by incorporating new airworthiness limitations (AWLs) for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. This AD also requires the initial inspection of certain repetitive AWL inspections to phase in those inspections, and repair if necessary. This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, 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 12, 2008.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in this AD as of June 12, 2008.

ADDRESSES: For service information identified in this AD, contact Boeing Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207.

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: Sulmo Mariano, Aerospace Engineer, Propulsion Branch, ANM-140S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98057-3356; telephone (425) 917-6501; 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 all Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes. That NPRM was published in the Federal Register on July 3, 2007 (72 FR 36380). That NPRM proposed to require revising the FAA-approved maintenance program by incorporating new airworthiness limitations (AWLs) for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. That NPRM also proposed to require the initial inspection of certain repetitive AWL inspections to phase in those inspections, and repair if necessary.

Actions Since NPRM Was Issued

Since we issued the NPRM, Boeing has issued the Boeing 747-100/200/300/SP Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-13747-CMR, Revision March 2008 (hereafter referred to as "Revision March 2008 of Document D6-13747-CMR"). (For the purposes of Revision March 2008 of Document D6-13747-CMR, the Model 747SR series airplane is basically a Model 747-100 series airplane with certain modifications to improve fatigue life.) The NPRM referred to Revision March 2006 of Document D6-13747-CMR as the appropriate source of service information for accomplishing the proposed actions. Revision March 2008 of Document D6-13747-CMR includes the following changes:

- Removes the repetitive task interval of 36,000 flight hours from AWLs No. 28-AWL-01, No. 28-AWL-03, and No. 28-AWL-13.
- Revises AWL No. 28-AWL-03 to reflect the new maximum loop resistance values associated with the lightning protection of the unpressurized fuel quantity indicating system (FQIS) wire bundle installations, and removes the joint resistance values.
- Revises AWL No. 28-AWL-06 to correct the numerical value given in milliohms for the bonding measurement.

We have revised paragraphs (f), (g), and (h) of this AD to refer to Revision March 2008 of Document D6-13747-CMR. We also have removed reference to 36,000 total flight cycles from Table 1 of this AD and revised the initial threshold for accomplishing AWLs No. 28-AWL-01, No. 28-AWL-03, and No. 28-AWL-13 to within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness. (The NPRM incorrectly specified 36,000 total "flight cycles" instead of "flight hours.")

We also have added a new paragraph (j) to this AD specifying that actions done before the effective date of this AD in accordance with Revisions March 2006 through January 2008 of Document D6-13747-CMR are acceptable for compliance with the corresponding requirements of paragraphs (g) and (h) of this AD.

Operators should note that we have revised paragraph (g) of this AD to require incorporating only AWLs No. 28-AWL-01 through No. 28-AWL-19 inclusive. AWLs No. 28-AWL-20, No. 28-AWL-21, and No. 28-AWL-22 were added in Revision January 2007 of Document D6-13747-CMR, and AWL No. 28-AWL-23 was added in Revision September 2007 of Document D6-13747-CMR. We issued a separate NPRM that proposes to incorporate AWL No. 28-AWL-20 into the FAA-

approved maintenance program. That NPRM (Docket No. FAA-2008-0091) was published in the Federal Register on January 31, 2008 (73 FR 5770). We also issued a separate NPRM (Docket No. FAA-2008-0090) that proposes to incorporate AWL No. 28-AWL-21 into the FAA-approved maintenance program. That NPRM was published in the Federal Register on January 31, 2008 (73 FR 5773). We might issue additional rulemaking to require the incorporation of AWLs No. 28-AWL-22 and No. 28-AWL-23. However, as an optional action, operators may incorporate those AWLs as specified in paragraph (g) of this AD.

Other Changes Made to This AD

We have revised paragraph (h) of this AD to clarify that the actions identified in Table 1 of this AD must be done at the compliance time specified in that table. Also, for standardization purposes, we have revised this AD in the following ways:

We have added a new paragraph (i) to this AD to specify that no alternative inspections, inspection intervals, or critical design configuration control limitations (CDCCLs) may be used unless they are part of a later approved revision of Revision March 2008 of Document D6-13747-CMR, or unless they are approved as an alternative method of compliance (AMOC). Inclusion of this paragraph in the AD is intended to ensure that the AD-mandated airworthiness limitations changes are treated the same as the airworthiness limitations issued with the original type certificate.

We have revised Note 1 of this AD to clarify that an operator must request approval for an AMOC if the operator cannot accomplish the required inspections because an airplane has been previously modified, altered, or repaired in the areas addressed by the required inspections.

Comments

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

Request To Allow Inspections Done According to a Maintenance Program

Japan Airlines (JAL) requests that we revise paragraph (h) of the NPRM to allow an operator to update its FAA-approved maintenance program to include the initial inspections and repair for certain AWLs. JAL states that the NPRM would require accomplishing the initial inspection and repair of certain AWLs, which would require JAL to establish a special inspection and special recordkeeping for the proposed requirement.

The compliance times specified in paragraph (h) of this AD are intended to provide a grace period for those airplanes that have already exceeded the specified threshold in Document D6-13747-CMR. To be in compliance with the recording requirements of this AD, operators must record their compliance with the initial inspection for those airplanes over the specified threshold. We have revised paragraph (h) of this AD to specify that accomplishing the applicable AWLs as part of an FAA-approved maintenance program before the applicable compliance time constitutes compliance with the applicable requirements of that paragraph.

Request To Revise Intervals for Certain AWL Inspections

KLM Royal Dutch Airlines (KLM), on behalf of several operators, requests that we review a 45-page proposal to align certain airworthiness limitation item (ALI) intervals with the applicable maintenance significant item (MSI) and enhanced zonal analysis procedure (EZAP) intervals for Model 737, 747, 757, 767, and 777 airplanes. The recommendations in that proposal ensure that the ALI intervals align with the maintenance schedules of the operators. Among other changes, the proposal recommends revising certain AWL inspection intervals from 12 years/36,000 flight hours to

only 12 years for Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes.

Qantas Airways also requests that the 36,000-flight-hour parameter be removed from the inspection interval for AWL No. 28-AWL-01, No. 28-AWL-03, and No. 28-AWL-13. The commenter states that the flight-hour parameter does not adequately take into account actual airplane usage, and that the long haul utilization of the airplane is 5,000 flight hours per year. Based on this number, the commenter states that the AWL tasks would be required at 7.2 years instead of 12 years.

Qantas Airways and TradeWinds Airlines both note an inconsistency between the inspection interval specified in Revision March 2006 of Document D6-13747-CMR and the compliance threshold specified in Table 1 of the NPRM. Table 1 of the NPRM specifies accomplishing the initial inspection within 36,000 total flight cycles or 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness, whichever occurs first. TradeWinds Airlines requests that we revise the compliance threshold to 36,000 "total flight hours." However, Qantas Airways would welcome the change from "flight hours" to "flight cycles," if the flight-hour parameter is not deleted from the inspection intervals specified in Revision March 2006 of Document D6-13747-CMR.

We have reviewed the commenter's requests, and we agree to revise the compliance threshold for certain AWLs identified by KLM and Qantas Airways. As stated previously, Revision March 2008 of Document D6-13747-CMR specifies a repetitive interval of 144 months. We have revised the threshold specified in Table 1 of this AD accordingly.

Request To Harmonize Task Descriptions

JAL states that, in Revision March 2006 of Document D6-13747-CMR, the task descriptions defining the applicable area are different for AWLs Nos. 28-AWL-01 and 28-AWL-02. (AWL No. 28-AWL-01 is a repetitive inspection of the external wires over the center fuel tank, and AWL No. 28-AWL-02 is a CDCCL to maintain the original design features for the external wires over the center fuel tank.) JAL believes that the task descriptions for these AWLs should match. JAL presumes that, if one purpose for the inspection is to prevent a spark in the fuel vapor over the center fuel tank, then the applicable area should have a certain tolerance instead of defining the area by exact station number.

We agree that the task descriptions for AWL Nos. 28-AWL-01 and 28-AWL-02 should be harmonized. Revision March 2008 of Document D6-13747-CMR includes a revised task description of AWL No. 28-AWL-01, which addresses JAL's comments. As stated previously, we have revised this AD to refer to Revision March 2008 of Document D6-13747-CMR.

Request To Revise the Loop Resistance Values for AWL No. 28-AWL-03

Boeing, KLM, and Qantas Airways state that the loop resistance values for AWL No. 28-AWL-03 specified in Revision March 2006 of Document D6-13747-CMR are going to be revised, since those values are relevant for production airplanes. The commenters also state that the revised values will be more representative of the expected values for in-service airplanes. Boeing points out that, according to paragraph (h) of the NPRM, the revised values should be able to be used in accordance with a later revision of Revision March 2006 of Document D6-13747-CMR if the revision is approved by the Seattle Aircraft Certification Office (ACO), FAA.

We agree that operators may use the revised loop resistance values for AWL No. 28-AWL-03 in accordance with Revision March 2008 of Document D6-13747-CMR. As stated previously, we have revised this AD accordingly.

Request To Clarify Use of Equivalent Tools and Chemicals

JAL requests that we provide guidelines for using equivalent tools and chemical materials according to the component maintenance manuals (CMMs). JAL states that normally operators can use equivalents without FAA approval when the CMM specifies that equivalents may be used. JAL also states that it has received further clarification from Boeing specifying that unless a CDCCL refers to a certain tool by part number or certain chemicals by name, an operator can continue to use equivalent tools or materials according to the CMMs.

We acknowledge the commenter's request and are working with Boeing to provide appropriate flexibility while still ensuring that items critical for maintaining safety continue to be specifically identified in the CMMs. However, to delay issuance of this AD would be inappropriate.

We agree that when the CMMs allow use of equivalent tools or chemical materials, operators and repair stations may use equivalents. We have already approved the use of the CMMs at the revision levels specified in Revision March 2008 of Document D6-13747-CMR, including the use of equivalent tools or chemicals where the CMMs state equivalents are allowed. If the CMM does not allow use of an equivalent, none may be used. No change to this AD is necessary in this regard.

Request To Revise Appendix 1

Boeing requests that we revise Appendix 1 of the NPRM as follows: (1) Correct the ATA section for AWL No. 28-AWL-03, (2) add an airplane maintenance manual (AMM) task title for AWL No. 28-AWL-08, and (3) add an ATA section for AWL No. 28-AWL-18.

JAL requests that we update Appendix 1 of the NPRM to include all AWLs specified in the CMR, and that we indicate how to maintain the latest version of Appendix 1. JAL also requests that we correct the following error in Appendix 1 of the NPRM: For AWL No. 28-AWL-04, change "SWPM 20-10-15" to "SWPM 20-10-13."

We disagree with revising the AMM references, since we have deleted Appendix 1 from this AD. The purpose of Appendix 1 was to assist operators in identifying the AMM tasks that could affect compliance with a CDCCL. However, we have also received several similar comments regarding the appendices in other NPRMs that address the same unsafe condition on other Boeing airplanes. Those comments indicate that including non-required information in those NPRMs has caused confusion. Further, Revision March 2008 of Document D6-13747-CMR contains most of the updated information that is listed in Appendix 1 of the NPRM. Therefore, we have removed Appendix 1 from this AD.

Request To Revise Note 1

Boeing requests that we revise Note 1 of the NPRM to clarify the need for an AMOC. Boeing states that the current wording is difficult to follow, and that the note is meant to inform operators that an AMOC to the required AWLs might be required if an operator has previously modified, altered, or repaired the areas addressed by the limitations. Boeing requests that we revise Note 1 as follows:

- Add the words "according to paragraph (g)" at the end of the first sentence.
- Replace the words "revision to" with "deviation from" in the last sentence.
- Delete the words "(g) or" and "as applicable" from the last sentence.

As stated previously, we have clarified the language in Note 1 of this AD for standardization with other similar ADs. The language the commenter requests that we change does not appear in the revised note. Therefore, no additional change to this AD is necessary in this regard.

Request To Extend the Grace Period for AWL No. 28-AWL-03

KLM expects to have problems accomplishing the initial inspection of AWL No. 28-AWL-03 within the 24-month grace period. KLM states that if it does the check and does not reach the specified values, then tank entry outside of heavy maintenance would be necessary. KLM also states that it would be helpful to plan to do this inspection during an overhaul.

We infer that KLM requests that we extend the grace period for AWL No. 28-AWL-03 in Table 1 of this AD to allow accomplishing the initial inspection during a regularly scheduled "D" check (about 6 years). We disagree with extending the grace period to 6 years. In developing an appropriate compliance time for this action, we considered the safety implications, the rate of lightning strikes in the fleet, and the average age of the fleet. In consideration of these items, we have determined that an initial compliance time of 144 months (as discussed previously) with a grace period of 24 months will ensure an acceptable level of safety. We have not changed the grace period for AWL No. 28-AWL-03 in this regard.

Request To Extend the Exceptional Short-Term Extension

Qantas Airways requests that we allow exceptional short-term extensions of 10 percent of the task interval or 6 months, whichever is less, for AWL tasks. The commenter believes that the exceptional short-term extension of 30 days, which is specified in Revision March 2006 of Document D6-13747-CMR, is too small for AWL tasks having 12-year intervals. The commenter states that, as part of the Boeing 747 Corrosion Prevention and Control Program mandated by AD 90-25-05, amendment 39-6790 (55 FR 49268, November 27, 1990), operators were given a provision to invoke exceptional short-term extensions of 10 percent of the task interval or 6 months, whichever is less. The commenter states that this is a more appropriate magnitude because operators are often permitted one-time exceptional extensions to maintenance checks and tasks of this proportion. The commenter also states that limiting the extension period to 30 days means that a "D" check can never be extended by more than 30 days, which would force operators to do certain AWL inspections outside of a "D" check.

We disagree with the commenter's request because exceptional short-term extensions are, in essence, pre-approved extensions without Seattle ACO review of the specifics of the situation. We consider that the ability to extend the interval without further approval for 30 days should be sufficient for most circumstances. However, if an operator finds that it needs an extension longer than 30 days, with appropriate justification one may be requested from the Seattle ACO, or governing regulatory authority. Longer extensions may be granted on a case-by-case basis because, as Qantas Airways points out, the task interval is long, and the FAA is interested in limiting out-of-sequence work. We have not changed this AD in this regard.

Request To Require Latest Revision of the AMM

JAL requests that we revise the NPRM to require incorporation of the latest revision of the manufacturer's AMM. JAL asserts that we have allowed Boeing to include statements in the Boeing AMM allowing operators to use certain CMM revision levels or later revisions. JAL states that, with the exception of the CMM, operators cannot find what revision level of the AMM needs to be incorporated into the operator's AMM in order to comply with the proposed requirements of the NPRM. JAL also states that it could take several weeks to incorporate the manufacturer's AMM.

JAL further requests that we clarify whether it is acceptable to change the procedures in the AMM with Boeing's acceptance. JAL states that the CMR notes that any use of parts, methods, techniques, or practices not contained in the applicable CDCCL and AWL inspection must be approved by the FAA office that is responsible for the airplane model type certificate, or applicable regulatory agency. JAL also states that the Boeing AMM or CMM notes to obey the manufacturer's procedures when doing maintenance that affects a CDCCL or AWL inspection. However, JAL

believes that according to the NPRM it is acceptable to change the AMM procedures with Boeing's acceptance.

We disagree with the changes proposed by the commenter. This AD does not require revising the AMM. This AD does require revising your maintenance program to incorporate the AWLs identified in Revision March 2008 of Document D6-13747-CMR. However, complying with the AWL inspections or CDCCLs will require other actions by operators including AMM revisions. In the U.S., operators are not required to use original equipment manufacturer (OEM) maintenance manuals. Operators may develop their own manuals, which are reviewed and accepted by the FAA Flight Standards Service. In order to maintain that flexibility for operators, most of the AWLs contain all of the critical information, such as maximum bonding resistances and minimum separation requirements. The FAA Flight Standards Service will only accept operator manuals that contain all of the information specified in the AWLs, so there is no need to require operators to use the OEM maintenance manuals.

Regarding JAL's request for clarification of approval of AWL changes, we infer JAL is referring to the following sentence located in the "Changes to AMMs Referenced in Fuel Tank System AWLs" section of the NPRM: "A maintenance manual change to these tasks may be made without approval by the Manager, Seattle ACO, through an appropriate FAA principal maintenance inspector (PMI) or principal avionics inspector (PAI), by the governing regulatory authority, or by using the operator's standard process for revising maintenance manuals." If changes need to be made to tasks associated with an AWL, they may be made using an operator's normal process without approval of the Seattle ACO, as long as the change maintains the information specified in the AWL. For some CDCCLs, it was beneficial to not put all the critical information into the CMR. This avoids duplication of a large amount of information. In these cases, the CDCCL refers to a specific revision of the CMM. U.S. operators are required to use those CMMs. Any changes to the CMMs must be approved by the Seattle ACO.

Request To Delete Reference to Task Cards

All Nippon Airways (ANA) requests that we delete the words "and task cards," unless the task card references are listed in Section D of Document D6-13747-CMR or Appendix 1 of the AD. Those words are located in the following sentence in the "Ensuring Compliance with Fuel Tank System AWLs" section of the NPRM: "Operators that do not use Boeing's revision service should revise their maintenance manuals and task cards to highlight actions tied to CDCCLs to ensure that maintenance personnel are complying with the CDCCLs." ANA believes that if a task card refers to the AMM, which includes the CDCCL note, then highlighting the CDCCL items is not necessary because they are already highlighted in the AMM and maintenance personnel always refer to the AMM. ANA further states that the applicable task card references are not listed in Section D of Document D6-13747-CMR, or in Appendix 1 of the NPRM; they refer only to the AMM. ANA, therefore, states that it is difficult to find out or distinguish the affected task card.

JAL believes that the proposed requirement regarding the CDCCLs is to incorporate the manufacturer's maintenance manuals into an operator's maintenance manual. If the description of a CDCCL is missing from the manufacturer's AMM, then JAL believes that operators are not responsible for the requirements of the AD.

We agree that the task cards might not need to be revised because an operator might find that the AMM notes are sufficient. However, we disagree with deleting the reference to the task cards since some operators might need to add notes to their task cards. This AD does not require any changes to the maintenance manuals or task cards. The AD requires incorporating new AWLs into the operator's maintenance program. It is up to the operator to determine how best to ensure compliance with the new AWLs. In the "Ensuring Compliance with Fuel Tank System AWLs" section of the NPRM, we were only suggesting, not requiring, ways that an operator could implement CDCCLs into its maintenance program. We have not changed this AD in this regard.

Request To Clarify Meaning of Task Cards

JAL requests that we clarify whether "task cards," as found in the "Recording Compliance with Fuel Tank System AWLs" section of the NPRM, means Boeing task cards only or if they also include an operator's unique task cards.

We intended that "task cards" mean both Boeing and an operator's unique task cards, as applicable. The intent is to address whatever type of task cards are used by mechanics for maintenance. This AD would not require any changes to the AMMs or task cards relative to the CDCCLs. We are only suggesting ways an operator might implement CDCCLs into its maintenance program. No change to this AD is necessary in this regard.

Request To Delete Reference to Parts Manufacturer Approval (PMA) Parts

ANA requests that we delete the words "Any use of parts (including the use of parts manufacturer approval (PMA) approved parts)," unless a continuous supply of CMM specified parts is warranted or the FAA is open 24 hours to approve alternative parts for in-house repair by the operator. Those words are located in the following sentence in the "Changes to CMMs Cited in Fuel Tank System AWLs" section of the NPRM: "Any use of parts (including the use of parts manufacturer approval (PMA) approved parts), methods, techniques, and practices not contained in the CMMs needs to be approved by the Manager, Seattle ACO, or governing regulatory authority."

ANA states that in some cases the parts specified in the CMMs cannot be obtained from the parts market or directly from the component vendor, so an operator is forced into using alternative parts to keep its schedule. ANA requests that we direct the component vendor to ensure a continuous supply of CMM parts and to direct the component vendor to remedy a lack of parts if parts are not promptly supplied. ANA further requests that we direct the component vendor to promptly review the standard parts and allow use of alternative fasteners and washers listed in Boeing D590. ANA asserts that, in some cases, a component vendor specifies the uncommon part to preserve its monopoly.

We disagree with revising the "Changes to CMMs Cited in Fuel Tank System AWLs" section of the NPRM. We make every effort to identify potential problems with the parts supply, and we are not aware of any problems at this time. The impetus to declare overhaul and repair of certain fuel tank system components as CDCCLs arose from in-service pump failures that resulted from repairs not done according to OEM procedures. We have approved the use of the CMMs—including parts, methods, techniques, and practices—at the revision levels specified in Revision March 2008 of Document D6-13747-CMR. Third-party spare parts, such as parts approved by PMA, have not been reviewed.

An operator may submit a request to the Seattle ACO, or governing regulatory authority, for approval of an AMOC if sufficient data are submitted to substantiate that use of an alternative part would provide an acceptable level of safety. The CDCCLs do not restrict where repairs can be performed, so an operator may do the work in-house as long as the approved CMMs are followed. If operators would like to change those procedures, they can request approval of the changes. The FAA makes every effort to respond to operators' requests in a timely manner. If there is a potential for disrupting the flight schedule, the operator should include that information in its request. Operators should request approval for the use of PMA parts and alternative procedures from the FAA or the governing regulatory authority in advance in order to limit schedule disruptions. We have not changed this AD in this regard.

Request To Identify Other Test Equipment

JAL states that certain test equipment is designated in the CMR and that additional equipment should also be designated. For example, AWL No. 28-AWL-03 would require using loop resistance tester, part number (P/N) 906-10246-2 or -3. Therefore, JAL requests that we also identify alternative test equipment, so that operators do not need to seek an AMOC to use other equipment.

We disagree with identifying other test equipment. We cannot identify every possible piece of test equipment. We ensure that some are listed as recommended by the manufacturer. With substantiating data, operators can request approval of an alternative tester from the Seattle ACO, or the governing regulatory agency. We have not changed this AD in this regard.

Request to Clarify AWL No. 28-AWL-02

JAL requests that we clarify the intent of AWL No. 28-AWL-02. JAL states that Chapters 53-01 and 53-21 of the Boeing 747 AMM specify doing an inspection of the external wires over the center fuel tank according to AMM 28-11-00 before installing the floor panel over the center wing tank based on AWL No. 28-AWL-02. JAL also states that, according to Revision March 2006 of Document D6-13747-CMR, AWL No. 28-AWL-02 contains two limitations: maintaining the existing wire bundle routing and clamping, and installing any new wire bundle per the Boeing standard wiring practices manual (SWPM). Therefore, JAL believes it is not necessary to inspect the external wires over the center fuel tank according to AMM 28-11-00 before installing the floor panel over the center wing tank, unless that wire bundle routing and clamping are changed.

We point out that AWL No. 28-AWL-02 also contains a third limitation: Verifying that all wire bundles over the center fuel tank are inspected according to AWL No. 28-AWL-01, which refers to AMM 28-11-00 for accomplishing the inspection. We do not agree that the inspection should be required only if the wire bundle routing and clamping are changed while maintenance is accomplished in the area. If any of the other bundles have a clamp or routing failure, it must be detected and corrected. After accomplishing the inspection required by AWL No. 28-AWL-01, an operator would not need to repeat the inspection for another 12 years. No change to this AD is necessary in this regard.

Request for Clarification for Recording Compliance With CDCCLs

JAL requests that we clarify the following sentence: "An entry into an operator's existing maintenance record system for corrective action is sufficient for recording compliance with CDCCLs, as long as the applicable maintenance manual and task cards identify actions that are CDCCLs." That sentence is located in the "Recording Compliance with Fuel Tank System AWLs" section of the NPRM. Specifically, JAL asks whether an operator must indicate the CDCCL in their recording documents or whether it is sufficient for the recording document to call out the applicable AMMs that are tied to the CDCCLs.

We have coordinated with the FAA Flight Standards Service and it agrees that, for U.S.-registered airplanes, if the applicable AMMs and task cards identify the CDCCL, then the entry into the recording documents does not need to identify the CDCCL. However, if the applicable AMMs and tasks cards do not identify the CDCCL, then they must be identified. Other methods may be accepted by the appropriate FAA PMI or PAI, or governing regulatory authority. No change to this AD is necessary 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 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

There are about 308 airplanes of the affected design in the worldwide fleet. The following table provides the estimated costs, at an average labor rate of \$80 per work hour, for U.S. operators to comply with this AD.

Action	Estimated Costs				
	Work hours	Parts	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Maintenance program revision	8	None	\$640	93	\$59,520
Inspections	8	None	\$640	93	\$59,520

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:



2008-10-07 Boeing: Amendment 39-15513. Docket No. FAA-2007-28385; Directorate Identifier 2006-NM-181-AD.

Effective Date

(a) This airworthiness directive (AD) is effective June 12, 2008.

Affected ADs

(b) None.

Applicability

(c) This AD applies to all Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747SR, and 747SP series airplanes, certificated in any category.

Note 1: This AD requires revisions to certain operator maintenance documents to include new inspections. Compliance with these inspections is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by these inspections, the operator may not be able to accomplish the inspections described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance (AMOC) according to paragraph (k) of this AD. The request should include a description of changes to the required inspections that will ensure the continued operational safety of the airplane.

Unsafe Condition

(d) This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

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.

Service Information Reference

(f) The term "Revision March 2008 of Document D6-13747-CMR," as used in this AD, means Boeing 747-100/200/300/SP Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-13747-CMR, Revision March 2008. (For the purposes of Revision March 2008 of Document D6-13747-CMR, the Model 747SR series airplane is basically a Model 747-100 series airplane with certain modifications to improve fatigue life.)

Maintenance Program Revision

(g) Before December 16, 2008, revise the FAA-approved maintenance program to incorporate the information in Section D, "AIRWORTHINESS LIMITATIONS–SYSTEMS," AWLs No. 28-AWL-01 through No. 28-AWL-19 inclusive, of Revision March 2008 of Document D6-13747-CMR; except that the initial inspections required by paragraph (h) of this AD must be done at the applicable compliance time specified in that paragraph. As an optional action, AWLs No. 28-AWL-20 through No. 28-AWL-23 inclusive, as identified in Section D of Revision March 2008 of Document D6-13747-CMR, also may be incorporated into the FAA-approved maintenance program. Accomplishing the revision in accordance with a later revision of Document D6-13747-CMR is an acceptable method of compliance if the revision is approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA.

Initial Inspections and Repair if Necessary

(h) Do the inspections specified in Table 1 of this AD at the compliance time specified in Table 1 of this AD, and repair any discrepancy, in accordance with Section D of Revision March 2008 of Document D6-13747-CMR. The repair must be done before further flight. Accomplishing the actions required by this paragraph in accordance with a later revision of Document D6-13747-CMR is an acceptable method of compliance if the revision is approved by the Manager, Seattle ACO. Accomplishing the inspections identified in Table 1 of this AD as part of an FAA-approved maintenance program before the applicable compliance time specified in Table 1 of this AD constitutes compliance with the requirements of this paragraph.

Note 2: For the purposes of this AD, a detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirror, magnifying lenses, etc., may be necessary. Surface cleaning and elaborate procedures may be required."

Note 3: For the purposes of this AD, a special detailed inspection is: "An intensive examination of a specific item, installation, or assembly to detect damage, failure, or irregularity. The examination is likely to make extensive use of specialized inspection techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required."

Table 1 – Initial Inspections

AWL No.	Description	Compliance Time (whichever occurs later)	
		Threshold	Grace Period
28-AWL-01	A detailed inspection of external wires over the center fuel tank for damaged clamps, wire chafing, and wire bundles in contact with the surface of the center fuel tank	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 72 months after the effective date of this AD

28-AWL-03	A special detailed inspection of the lightning shield to ground termination on the out-of-tank fuel quantity indicating system to verify functional integrity	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 24 months after the effective date of this AD
28-AWL-13	A special detailed inspection of the fault current bond of the fueling shutoff valve actuator of the center wing tank to verify electrical bond	Within 144 months since the date of issuance of the original standard airworthiness certificate or the date of issuance of the original export certificate of airworthiness	Within 60 months after the effective date of this AD

No Alternative Inspections, Inspection Intervals, or Critical Design Configuration Control Limitations (CDCCLs)

(i) After accomplishing the actions specified in paragraphs (g) and (h) of this AD, no alternative inspections, inspection intervals, or CDCCLs may be used unless the inspections, intervals, or CDCCLs are part of a later revision of Revision March 2008 of Document D6-13747-CMR that is approved by the Manager, Seattle ACO; or unless the inspections, intervals, or CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (k) of this AD.

Credit for Actions Done According to Previous Revisions of the Service Information

(j) Actions done before the effective date of this AD in accordance with Boeing 747-100/200/300/SP Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-13747-CMR, Revision March 2006; Revision May 2006; Revision December 2006; Revision January 2007; Revision September 2007; or Revision January 2008; are acceptable for compliance with the corresponding requirements of paragraphs (g) and (h) of this AD.

Alternative Methods of Compliance (AMOCs)

(k)(1) The Manager, Seattle ACO, has the authority to approve AMOCs for this AD, if requested in accordance with 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 appropriate principal inspector (PI) in the FAA Flight Standards District Office (FSDO), or lacking a PI, your local FSDO.

Material Incorporated by Reference

(l) You must use Boeing 747-100/200/300/SP Airworthiness Limitations (AWLs) and Certification Maintenance Requirements (CMRs), D6-13747-CMR, Revision March 2008, 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, P.O. Box 3707, Seattle, Washington 98124-2207.

(3) You may review copies of the service information incorporated by reference at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington; or 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.

Issued in Renton, Washington, on April 28, 2008.

Ali Bahrami,

Manager, Transport Airplane Directorate, Aircraft Certification Service.

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