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DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2005-20364; Directorate Identifier 2004-NM-186-AD; Amendment 39-14274; AD 2005-19-09]

RIN 2120-AA64

Airworthiness Directives; Boeing Model 747 Airplanes

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

ACTION: Final rule.

SUMMARY: The FAA is adopting a new airworthiness directive (AD) for certain Boeing Model 747 airplanes. This AD requires repetitive inspections of the dual side braces (DSBs), underwing midspar fittings, and associated parts; other specified actions; and corrective actions if necessary. This AD also provides an optional terminating action for the inspections and other specified actions. This AD is prompted by reports of corroded, migrated, and rotated bearings for the DSBs in the inboard and outboard struts, a report of a fractured retainer for the eccentric bushing for one of the side links of a DSB, and reports of wear and damage to the underwing midspar fitting on the outboard strut. We are issuing this AD to prevent the loss of a DSB or underwing midspar fitting load path, which could result in the transfer of loads and motion to other areas of a strut, and possible separation of a strut and engine from the airplane during flight.

DATES: This AD becomes effective October 21, 2005.

The incorporation by reference of a certain publication listed in the AD is approved by the Director of the Federal Register as of October 21, 2005.

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

Docket: The AD docket contains the proposed AD, comments, and any final disposition. You can examine the AD docket on the Internet at *http://dms.dot.gov*, or in person at the Docket Management Facility office between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The Docket Management Facility office (telephone (800) 647-5227) is located on the plaza level of the Nassif Building at the U.S. Department of Transportation, 400 Seventh Street SW., room PL-401, Washington, DC. This docket number is FAA-2005-20364; the directorate identifier for this docket is 2004-NM-186-AD.

FOR FURTHER INFORMATION CONTACT: Ivan Li, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (425) 917-6437; fax (425) 917-6590.

SUPPLEMENTARY INFORMATION: The FAA proposed to amend 14 CFR part 39 with an AD for certain Boeing Model 747 airplanes. That action, published in the Federal Register on February 14, 2005 (70 FR 7446), proposed to require repetitive inspections of the dual side braces (DSBs), underwing midspar fittings, and associated parts; other specified actions; and corrective actions if necessary. That action also provides an optional terminating action for the inspections and other specified actions.

Comments

We provided the public the opportunity to participate in the development of this AD. We have considered the comments that have been submitted on the proposed AD.

Support for the Proposed AD

One commenter concurs with the content of the proposed AD.

Requests to Refer to Revised Service Bulletin and Give Credit for Prior Issue

One commenter asks that the proposed AD reference Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005. Boeing Alert Service Bulletin 747-54A2218, dated June 17, 2004, was referenced in the proposed AD as the appropriate source of service information for accomplishing the specified actions. The commenter states that Revision 1 specifies that no more work is necessary on airplanes changed per the original issue of the service bulletin. The commenter also asks that we give credit for actions done in accordance with the original issue of the service bulletin. The commenter notes that this will prevent additional work for the Civil Aviation Authorities that would necessitate approving Revision 1 as an alternative method of compliance. The commenter adds that the revised information specified in Revision 1 may be helpful for operators in accomplishing the actions required by the proposed AD. A second commenter asks that credit be given for the initial inspection done in accordance with the original issue of the service bulletin.

We agree with the commenters. We have reviewed Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005. The instructions in Revision 1 are essentially the same as those in the original issue of the service bulletin. Accordingly, we have revised this AD to refer to Revision 1 of the service bulletin in the applicability section and as the applicable source of service information for accomplishing the actions required by this AD. We have also added a new paragraph (i) (and re-identified subsequent paragraphs accordingly) to give credit for actions accomplished before the effective date of this AD in accordance with the original issue of the service bulletin.

Requests to Remove/Delay Check for an Insufficient Gap/Delay Corrective Actions

One commenter questions why the check for an insufficient gap between the underwing midspar fitting and the strut midspar fitting is necessary if no discrepancies are found during the proposed inspections of the dual side brace (DSB) bearings. The commenter states that it was both surprising and disappointing to learn of reported interference between the underwing midspar fitting and the adjacent strut midspar fitting. The commenter states that, while recognizing that corrective actions should be accomplished only if conditions warrant such actions, any future adopted rule should consider the inclusion of options that will enable corrective actions to occur during planned D-check visits to minimize unplanned out-of-service situations. The commenter notes that the proposed AD includes a check for an insufficient gap between those fittings within 24 months. The commenter

concludes that the check for an insufficient gap between those fittings should only be required if discrepancies are found during the inspection of the DSB bearings per Parts 1 and 2 of the referenced service bulletin.

A second commenter asks that paragraph (f) of the proposed AD be changed to postpone the requirement for accomplishing the corrective actions per Parts 3, 5, and 6 of the referenced service bulletin, if an insufficient gap is found per Part 4. The commenter states that those actions can be performed at its first FD-check, and until the actions are performed, the spring beam/wing fitting joint and DSB fitting can be inspected per the baseline inspection task specified in Boeing Service Bulletin 747-54A2182, Revision 1, dated January 8, 2004, but at a 3A interval. That service bulletin describes procedures for certain baseline inspections of the strut-to-wing attachment structure. The commenter adds that it has performed wing pylon modifications on more than 50 airplanes per Boeing Alert Service Bulletins 747-54A2156 (referenced in AD 95-13-06, amendment 39-9286, as the appropriate source of service information for modification of the nacelle strut and wing) and 747-54A2158 (referenced in AD 95-13-07, amendment 39-9287, as the appropriate source of service information for modification of the nacelle strut and wing), concurrently with Boeing Service Bulletin 747-57-2246, Revision 5, dated July 17, 1997. Boeing Service Bulletin 747-57-2246 describes procedures for modification of the nacelle strut attachment fittings. The commenter notes that Service Bulletin 747-57-2246 also describes procedures for checking the surface wear on the underwing fittings of the outboard pylon midspar that were caused by interference with the spring beam flanged bushings, and removal of any damage by spotfacing. The commenter states that only four of its airplanes required the spotfaces to be larger than what was allowed in the service bulletin, and the larger spotfaces were approved by the FAA. The commenter adds that cracks were never found in the wear/spotface area; however, several of the 50 airplanes must have had the insufficient gap condition for many years. The commenter concludes that if additional surface damage occurs on the underwing midspar fittings, it would be detected in a timely manner when performing the proposed inspections.

A third commenter, the airplane manufacturer, states that it is concerned with the comments regarding a no-gap condition that may exist during inspection, and the actions specified in paragraph (f) of the proposed AD per Parts 4, 5, and 6 of the referenced service bulletin. The commenter adds that a deferral for these actions may be justified for a no-gap condition, provided that no damage is found during the Part 4 inspection. The commenter's position is based on fleet history data with similar conditions, as provided by other commenters. The commenter may consider a change to the referenced service bulletin upon a recommended course of action, and will advise us accordingly. The commenter adds that we may choose to approve an alternative method of compliance (AMOC) on a case-by-case basis, at our discretion.

We acknowledge the new information provided by the commenters. The airplane manufacturer has informed us that it is planning to revise the service bulletin to reflect this new information by the end of 2005. Delaying this action until after the release and approval of the manufacturer's planned service bulletin is not warranted. We have determined that the inspections must be conducted to ensure continued operational safety. When a new revision of the service bulletin has been developed, we will review that revision and consider approving it as an alternative method of compliance with the requirements of this AD. In light of this, we have determined that all the actions required by this AD are appropriate and warranted. No change is made to the AD in this regard.

Additionally, insufficient technical justification was provided by the commenters to justify delaying issuance of the AD; however, if sufficient technical justification is provided, we may approve an AMOC, in accordance with paragraph (j)(1) of the AD.

Requests to Change Costs of Compliance Section/Extend Compliance Time

One commenter states that we should revise the Costs of Compliance section that is specified in the preamble of the proposed AD. The language in that section states, "The following table provides the estimated costs for U.S. operators to comply with this proposed AD." The commenter notes that

the table provides the cost impact of the required inspections, but offers no estimate of the cost impact should an inspection detect the specific discrepancy that is the basis for the proposal. The commenter states that it is well aware that the FAA's policy for estimating the impact of proposed ADs does not include publishing the impact of aircraft re-routing, preparation, access, correction of discrepancies found, aircraft close-up, or return-to-flight tests and procedures, often categorizing them as "incidental" impacts. The commenter does not support that policy. The commenter states that, in this particular proposal, the impact of the man hours necessary for accomplishing the corrective action alone can be an order-of-magnitude greater than the per airplane cost published for comment. The commenter asks us to consider adopting a policy for proposed ADs that consistently states the per airplane impact of the prescribed corrective action in cases where that action is found necessary.

A second commenter states that it will be subjected to a huge economic impact when accomplishing the actions specified in the proposed AD, per the referenced service bulletin, due to the mandatory status of the follow-up inspections and modification after an insufficient gap is found. The commenter adds that the follow-up inspections require engine and pylon removal. The commenter lists, and we respond to, the following factors that will make the economic impact of the proposed AD even greater:

1. Experience with the modification specified in Part 3 of the referenced service bulletin shows that one of the DSB underwing fitting bolts may interfere with the modification tool. If a bolt interferes, it will have to be removed. Removal of a bolt requires removal of the WS 1140 rib to gain access to the DSB underwing fitting bolt for modification, which is a very time-consuming job.

Since we issued the proposed AD, this condition has not been reported by any other operators. In addition, accomplishing the modification is only necessary if damage or cracking is found, thus making it an on-condition action and not part of the inspections required by the AD.

2. The tooling kit specified in the referenced service bulletin limits the operator to modifying only one fitting on one pylon at a time, and not two or more pylons simultaneously. This results in additional downtime when more than one pylon must be modified.

As we stated previously, accomplishing the modification is an on-condition action. Obtaining the tooling kits necessary for accomplishing the modification should be addressed by operators on a case-by-case basis.

3. The airplane manufacturer does not seem ready to support so many modifications with tooling and material kits. Currently, the airplane manufacturer does not have enough tooling and material kits available to support all operators in the 24-month timeframe allowed for the modification.

We have no way of estimating how many operators will be accomplishing the on-condition modifications. The airplane manufacturer has confirmed that it will have the necessary tooling and material kits available to complete the on-condition actions required by the AD.

A third commenter states that the maintenance and economic impact of the proposed AD could be significantly greater than that specified in the "Costs of Compliance" section. The commenter notes that a review of labor estimates in the referenced service bulletin revealed that over 500 labor hours per airplane may be required to perform the necessary corrective actions if problems exist at all four engine strut to wing attachment locations. The commenter adds that this would raise the labor cost for compliance to over $30K per airplane; additionally, material costs total over $21K per airplane, plus tooling rental charges in excess of $1K per day are expected.

We do not agree with the commenters that request changing the work hours in this AD, because the AD reflects only the direct costs of the specific required actions based on the best data available from the manufacturer. We recognize that operators may incur incidental costs (such as the time for planning and associated administrative actions) in addition to the direct costs. The cost analysis in ADs, however, typically does not include incidental costs.

The 24-month compliance time for the initial inspection required by this AD should allow ample time for the majority of affected operators to do the required actions at the same time as scheduled major airplane inspection and maintenance activities, which would reduce the additional time and costs associated with special scheduling. We note that the 24-month compliance time is consistent

with the compliance time specified in the referenced service bulletin. However, operators may submit a request for approval of an AMOC, as specified in paragraph (j)(1) of this AD. The request must include data substantiating that an acceptable level of safety would be maintained by extending the compliance time. No change is made to the AD in this regard.

Conclusion

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

Costs of Compliance

There are about 1,091 airplanes of the affected design in the worldwide fleet. 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
Part 1 Inspections, per inspection cycle.	8	$65	None	$520	229	$119,080, per inspection cycle.
Part 2 Inspections, per inspection cycle.	48	65	None	3,120	229	714,480, per inspection cycle.
Part 4 Inspections, per inspection cycle.	4	65	None	260	229	59,540, 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

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. 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 FAA amends § 39.13 by adding the following new airworthiness directive (AD):

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

We post ADs on the internet at www.faa.gov/aircraft/safety/alerts/

2005-19-09 Boeing: Amendment 39-14274. Docket No. FAA-2005-20364; Directorate Identifier 2004-NM-186-AD.

Effective Date

(a) This AD becomes effective October 21, 2005.

Affected ADs

(b) None.

Applicability

(c) This AD applies to Boeing Model 747-100, 747-100B, 747-100B SUD, 747-200B, 747-200C, 747-200F, 747-300, 747-400, 747-400D, 747-400F, 747SR, and 747SP series airplanes; certificated in any category; as identified in Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005.

Unsafe Condition

(d) This AD was prompted by reports of corroded, migrated, and rotated bearings for the dual side braces (DSB) in the inboard and outboard struts, a report of a fractured retainer for the eccentric bushing for one of the side links of a DSB, and reports of wear and damage to the underwing midspar fitting on the outboard strut. We are issuing this AD to prevent the loss of a DSB or underwing midspar fitting load path, which could result in the transfer of loads and motion to other areas of a strut, and possible separation of a strut and engine from the airplane during flight.

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.

Inspections and Other Specified Actions

(f) At the times specified in Figure 1 of Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005, except as provided by paragraph (g) of this AD: Do the various inspections and other specified actions in the figure to detect discrepancies of the DSBs, underwing midspar fittings,

and associated parts, by doing all of the actions specified in Parts 1, 2, and 4; and the applicable corrective actions specified in Parts 3, 5, 6, and 7; of the Accomplishment Instructions of the service bulletin, except as provided by paragraph (h) of this AD. Repeat the inspections and other specified actions thereafter at the intervals specified in Figure 1 of the service bulletin. Accomplishment of any terminating action specified in Figure 1 of the service bulletin terminates the inspections and other specified actions for the affected strut.

(g) Where Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005, recommends an initial compliance threshold of "within 24 months after the original issue date on this service bulletin" for Parts 1 and 4 of the service bulletin, and of "within 72 months after the original issue date on this service bulletin" for Part 2 of the service bulletin, this AD requires an initial compliance threshold of "within 24 months after the effective date of this AD" for Parts 1 and 4 of the service bulletin and of "within 72 months after the effective date of this AD" for Part 2 of the service bulletin.

Corrective Actions

(h) If any damage or crack is found during any inspection or corrective action required by this AD, before further flight, repair in accordance with the Accomplishment Instructions of Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005; except, where the service bulletin specifies to contact Boeing, before further flight, repair according to a method approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA; or according to data meeting the certification basis of the airplane approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

Actions Accomplished According to Previous Issue of Service Bulletin

(i) Inspections and other specified and corrective actions accomplished before the effective date of this AD in accordance with Boeing Alert Service Bulletin 747-54A2218, dated June 17, 2004, are considered acceptable for compliance with the corresponding actions specified in paragraph (f) of this AD.

Alternative Methods of Compliance (AMOCs)

(j)(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) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD, if it is approved by an Authorized Representative for the Boeing Delegation Option Authorization Organization who has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

Material Incorporated by Reference

(k) You must use Boeing Service Bulletin 747-54A2218, Revision 1, dated February 24, 2005, to perform the actions that are required by this AD, unless the AD specifies otherwise. The Director of the Federal Register approves the incorporation by reference of this document in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To get copies of the service information, contact Boeing

Commercial Airplanes, P.O. Box 3707, Seattle, Washington 98124-2207. To view the AD docket, go to the Docket Management Facility, U.S. Department of Transportation, 400 Seventh Street SW., room PL-401, Nassif Building, Washington, DC. To review copies of the service information, go to the National Archives and Records Administration (NARA). For information on the availability of this material at the 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 September 8, 2005.
Kalene C. Yanamura,
Acting Manager, Transport Airplane Directorate, Aircraft Certification Service.
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