

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39 [59 FR 32879 NO. 122 06/27/94

Docket No. 93-NM-189-AD; Amendment 39-8946; AD 94-13-06

Airworthiness Directives; Boeing Model 747 Series Airplanes

AGENCY: Federal Aviation Administration, DOT.

ACTION: Final rule.

SUMMARY: This amendment adopts a new airworthiness directive (AD), applicable to certain Boeing Model 747 series airplanes, that requires inspections to detect cracking in certain fuselage upper deck tension ties, and repair or modification of any cracked tension ties. This amendment is prompted by reports of fatigue cracking in tension ties. The actions specified by this AD are intended to prevent failure of two or more tension ties and the resultant rapid decompression of the airplane.

DATES: Effective July 27, 1994.

The incorporation by reference of certain publications listed in the regulations is approved by the Director of the Federal Register as of July 27, 1994.

ADDRESSES: The service information referenced in this AD may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. This information may be examined at the Federal Aviation Administration (FAA), Transport Airplane Directorate, Rules Docket, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Steven C. Fox, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Transport Airplane Directorate, Seattle Aircraft Certification Office, 1601 Lind Avenue, SW., Renton, Washington 98055-4056; telephone (206) 227-2777; fax (206) 227-1181.

SUPPLEMENTARY INFORMATION: A proposal to amend part 39 of the Federal Aviation Regulations (14 CFR part 39) to include an airworthiness directive (AD) that is applicable to certain Boeing Model 747 series airplanes was published in the Federal Register on January 24, 1994 (59 FR 3527). That action proposed to require inspections to detect cracking in certain fuselage upper deck tension ties, and repair or modification of any cracked tension ties.

Interested persons have been afforded an opportunity to participate in the making of this amendment. Due consideration has been given to the comments received.

Two commenters support the proposed rule.

Several commenters request that the proposed 1,000-flight cycle compliance time for low-time airplanes be revised to require that the inspection be performed "upon the accumulation of 20,000 total flight cycles or within 1,000 flight cycles after the effective date of this AD, whichever comes later." The FAA does not concur. Since cracking has been found on airplanes

that had accumulated less than 20,000 flight cycles, the FAA reasoned that requiring inspection of all airplanes within 1,000 flight cycles, regardless of the total number of flight cycles, would be prudent to preclude the propagation of cracks in airplanes in the Model 747 fleet.

Two commenters request that the proposed rule be revised to include a provision specifying that pressurization cycles of 2.0 psi or less need not be counted as a flight cycle when determining the number of flight cycles relative to the proposed compliance thresholds. The FAA does not concur. The FAA finds that operating at cabin pressure differentials of 2.0 psi or less is applicable to only one operator. The FAA does not consider it appropriate to include various provisions in an AD applicable to a single operator's unique use of an affected airplane. Further, this commenter does not compile data for each of its airplanes so that an individual airplane's pressurization cycles could be determined; instead, it uses a fleet average to calculate the equivalent number of pressurization cycles. The FAA does not consider it appropriate to use approximations for determining compliance with this AD. Furthermore, since there are numerous factors that affect the calculation of flight cycles, such as total number of low pressure cycles, amount of thrust, number of gross weight flight cycles, etc., the FAA has determined that these mitigating factors could be best evaluated through requests for alternative methods of compliance, as provided for in paragraph (c) of the final rule.

One commenter requests that the FAA and Boeing review the requirement for inspections contained in AD 93-06-01, amendment 39-8526 (58 FR 19571, April 15, 1993), which requires that the FAA-approved maintenance inspection program include inspections that will give no less than the required damage tolerance rating (DTR) for each Structural Significant Item (SSI). This commenter states that the proposed inspection of the tension ties may be included in the requirement for inspections contained in AD 93-06-01. The FAA concurs and has reviewed the requirement for inspections contained in AD 93-06-01. This AD was prompted by reports of fatigue cracks that were detected while performing inspections specified by the Supplemental Structural Inspection Document (SSID) program, which was required to be implemented by AD 93-06-01. The purpose of that AD is to implement an inspection program of a sample number of airplanes, which will detect the potential for cracking in specific areas of the airplane that are critical for safety of flight. Whenever cracks are found in an SSI during an inspection in accordance with the SSID program, the FAA takes rulemaking action to correct these findings of an unsafe condition within the applicable fleet. This AD is issued in response to such a finding. Therefore, the FAA will, in a separate rulemaking action, revise AD 93-06-01 to remove the requirement to inspect the tension ties.

After careful review of the available data, including the comments noted above, the FAA has determined that air safety and the public interest require the adoption of the rule as proposed.

There are approximately 203 Model 747 series airplanes of the affected design in the worldwide fleet. The FAA estimates that 113 airplanes of U.S. registry will be affected by this AD, that it will take approximately 5 work hours per airplane to accomplish the required actions, and that the average labor rate is \$55 per work hour. Based on these figures, the total cost impact of the AD on U.S. operators is estimated to be \$31,075, or \$275 per airplane.

The total cost impact figure discussed above is based on assumptions that no operator has yet accomplished any of the requirements of this AD action, and that no operator would accomplish those actions in the future if this AD were not adopted.

The regulations adopted herein will not have substantial direct effects 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. Therefore, in accordance with Executive Order 12612, it is determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

For the reasons discussed above, I certify that this action (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. A final evaluation has been prepared for this action and it is contained in the Rules Docket. A copy of it may be obtained from the Rules Docket at the location provided under the caption "ADDRESSES."

List of Subjects in 14 CFR Part 39

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

Adoption of the Amendment

Accordingly, pursuant to the authority delegated to me by the Administrator, the Federal Aviation Administration amends part 39 of the Federal Aviation Regulations (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. App. 1354(a), 1421 and 1423; 49 U.S.C. 106(g); and 14 CFR 11.89. § 39.13 - [Amended]
2. Section 39.13 is amended by adding the following new airworthiness directive:

AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC



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

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Federal Aviation Regulations, Part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

94-13-06 BOEING: Amendment 39-8946. Docket 93-NM-189-AD.

Applicability: Model 747 series airplanes, as listed in Boeing Service Bulletin 747-53-2371, dated July 29, 1993; certificated in any category.

Compliance: Required as indicated, unless accomplished previously.

To prevent rapid decompression of the airplane due to failure of two or more tension ties, accomplish the following:

(a) Prior to the accumulation of 1,000 flight cycles after the effective date of this AD, unless accomplished previously within the last 2,000 flight cycles, perform a detailed visual inspection to detect cracking of the outboard end tension ties, in accordance with Boeing Service Bulletin 747-53-2371, dated July 29, 1993.

(1) If no cracking is detected, repeat the inspection thereafter at intervals not to exceed 3,000 flight cycles until the repair or modification required by paragraph (a)(2) of this AD is accomplished.

(2) If any cracking is detected, prior to further flight, repair or modify the cracked tension tie in accordance with the service bulletin. Accomplishment of this repair or modification terminates the repetitive inspection requirement of paragraph (a) of this AD.

NOTE 1: Although AD 84-19-01, amendment 39-4913, requires inspections of the tension ties at body station (BS) 760 on a certain group of Model 747 series airplanes, and at BS 780 on certain other Model 747 series airplanes, the inspections required by this AD do not retract the inspection requirements of that AD.

(b) Prior to the accumulation of 10,000 flight cycles following repair or modification of any tension tie in accordance with paragraph (a)(2) of this AD, perform a detailed visual inspection to detect cracking of the repaired or modified outboard end tension tie in accordance with Boeing Service Bulletin 747-53-2371, dated July 29, 1993.

(1) If no cracking is detected, repeat this inspection thereafter at intervals not to exceed 6,000 flight cycles.

(2) If any cracking is detected, prior to further flight, repair or modify in accordance with the service bulletin, and repeat the inspection required by paragraph (b) of this AD.

(c) An alternative method of compliance or adjustment of the compliance time that provides an acceptable level of safety may be used if approved by the Manager, Seattle Aircraft Certification Office (ACO), FAA, Transport Airplane Directorate. Operators shall submit their requests through an appropriate FAA Principal Maintenance Inspector, who may add comments and then send it to the Manager, Seattle ACO.

NOTE 2: Information concerning the existence of approved alternative methods of compliance with this AD, if any, may be obtained from the Seattle ACO.

(d) Special flight permits may be issued in accordance with sections 21.197 and 21.199 of the Federal Aviation Regulations (14 CFR 21.197 and 21.199) to operate the airplane to a location where the requirements of this AD can be accomplished.

(e) The inspections, repair, and modification shall be done in accordance with Boeing Service Bulletin 747-53-2371, including the "ADDENDUM," dated July 29, 1993. This incorporation by reference was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be obtained from Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, Washington 98124-2207. Copies may be inspected at the FAA, Transport Airplane Directorate, 1601 Lind Avenue, SW., Renton, Washington; or at the Office of the Federal Register, 800 North Capitol Street, NW., suite 700, Washington, DC.

(f) This amendment becomes effective on July 27, 1994.