



[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0288; Directorate Identifier 2013-NM-101-AD]

RIN 2120-AA64

Airworthiness Directives; The Boeing Company Airplanes

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: We propose to adopt a new airworthiness directive (AD) for certain The Boeing Company Model DC-9-10, DC-9-20, and DC-9-30 series airplanes. This proposed AD was prompted by an evaluation by the design approval holder (DAH) indicating that the improved (shot-peened) aft fuselage non-ventral pressure bulkhead tee is subject to widespread fatigue damage (WFD). This proposed AD would require repetitive inspections for cracking of the improved (shot-peened) non-ventral aft pressure bulkhead tees, and replacement if necessary. We are proposing this AD to detect and correct fatigue cracking of the improved (shot-peened) non-ventral aft pressure bulkhead dome tees connecting the bulkhead web to the fuselage, which could result in reduced structural integrity and rapid decompression of the airplane.

DATES: We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.

- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, 3855 Lakewood Boulevard, MC D800-0019, Long Beach, CA 90846-0001; telephone 206-544-5000, extension 2; fax 206-766-5683; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Examining the AD Docket

You may examine the AD docket on the Internet at <http://www.regulations.gov> by searching for and locating Docket No. FAA-2014-0288; 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 proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

FOR FURTHER INFORMATION CONTACT: Eric Schrieber, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5348; fax: 562-627-5210; email: eric.schrieber@faa.gov.

SUPPLEMENTARY INFORMATION:

Comments Invited

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2014-0288; Directorate Identifier 2013-NM-101-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

Discussion

Structural fatigue damage is progressive. It begins as minute cracks, and those cracks grow under the action of repeated stresses. This can happen because of normal operational conditions and design attributes, or because of isolated situations or incidents such as material defects, poor fabrication quality, or corrosion pits, dings, or scratches. Fatigue damage can occur locally, in small areas or structural design details, or globally. Global fatigue damage is general degradation of large areas of structure with similar structural details and stress levels. Multiple-site damage is global damage that occurs in a large structural element such as a single rivet line of a lap splice joining two large skin panels. Global damage can also occur in multiple elements such as adjacent frames or stringers. Multiple-site-damage and multiple-element-damage cracks are typically too small initially to be reliably detected with normal inspection methods. Without intervention, these cracks will grow, and eventually compromise the structural integrity

of the airplane, in a condition known as WFD. As an airplane ages, WFD will likely occur, and will certainly occur if the airplane is operated long enough without any intervention.

The FAA's WFD final rule (75 FR 69746, November 15, 2010) became effective on January 14, 2011. The WFD rule requires certain actions to prevent structural failure due to WFD throughout the operational life of certain existing transport category airplanes and all of these airplanes that will be certificated in the future. For existing and future airplanes subject to the WFD rule, the rule requires that DAHs establish a limit of validity (LOV) of the engineering data that support the structural maintenance program. Operators affected by the WFD rule may not fly an airplane beyond its LOV, unless an extended LOV is approved.

The WFD rule (75 FR 69746, November 15, 2010) does not require identifying and developing maintenance actions if the DAHs can show that such actions are not necessary to prevent WFD before the airplane reaches the LOV. Many LOVs, however, do depend on accomplishment of future maintenance actions. As stated in the WFD rule, any maintenance actions necessary to reach the LOV will be mandated by airworthiness directives through separate rulemaking actions.

In the context of WFD, this action is necessary to enable DAHs to propose LOVs that allow operators the longest operational lives for their airplanes, and still ensure that WFD will not occur. This approach allows for an implementation strategy that provides flexibility to DAHs in determining the timing of service information development (with FAA approval), while providing operators with certainty regarding the LOV applicable to their airplanes.

We received reports indicating that the improved tee sections are subject to widespread fatigue damage (WFD). This condition, if not corrected, could result in reduced structural integrity and rapid decompression of the airplane.

Relevant Service Information

We reviewed McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993. For information on the procedures and repetitive compliance times, see this service information at <http://www.regulations.gov> by searching for Docket No. FAA-2014-0288.

FAA's Determination

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of these same type designs.

Proposed AD Requirements

This proposed AD would require accomplishing repetitive inspections of the improved (shot-peened) non-ventral aft pressure bulkhead tees as specified in the service information described previously, except as discussed under “Differences Between this Proposed AD and the Service Information.”

Differences Between this Proposed AD and the Service Information

Although McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, recommends accomplishing the inspections between 300 and 1,500 flight cycles “from issue date of Revision 1 of this Service Bulletin,” this proposed AD specifies variable compliance times depending on when the tee was installed. The compliance times for this proposed AD differ from those specified in McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, because it has been determined that the new improved tees could crack before the part's LOV is reached.

Although McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, describes inspection procedures for the original design tees, the

inspection procedures also apply to the improved (shot-peened) tees specified in this proposed AD.

Although McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, notes that replacing an original tee section with a new improved tee section eliminates the need for the repetitive inspections for that tee section, this proposed AD would not allow that terminating action. We have determined that the inspections must be repetitively performed because the new improved tee could crack before the airplane's LOV is reached.

Although McDonnell Douglas Alert DC-9 Service Bulletin A53-231, Revision 2, dated June 25, 1993, notes that replacing all six original tee sections with new improved tee sections eliminates the need for the repetitive inspections, this proposed AD would not allow that terminating action because the new improved tee could crack before the airplane's LOV is reached.

Although Table 1 of Figure 4, and paragraph 3, "Material Information," of McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, specifies doubler configuration part numbers (P/Ns) SR09530056-3, SR09530056-5, SR09530056-6, SR09530056-7, SR09530056-8, SR09530056-9, 5910163-387, 5910163-389, 5910163-391, 5910163-392, 5910163-393, and 5910163-394, the correct part numbers are identified in paragraphs (h) and (k) of this proposed AD.

These differences have been coordinated with The Boeing Company.

Related Rulemaking

AD 89-06-04, Amendment 39-6152 (54 FR 11167, March 17, 1989), requires repetitive inspections of the original tee section having P/Ns 5910163-89, 5910163-91, 5910163-92, 5910163-93, 5910163-94, and 5910163-95, in accordance with McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, for McDonnell Douglas Model DC-9-10 through -30 series and C-9 (Military) series

airplanes equipped with a non-ventral aft pressure bulkhead. AD 89-06-04 requires that the inspections be repeated whether or not the tee is replaced.

Explanation of Compliance Time

The compliance time for the replacement specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is replaced before WFD develops in airplanes. Standard inspection techniques cannot be relied on to detect WFD before it becomes a hazard to flight. We will not grant any extensions of the compliance time to complete any AD-mandated service bulletin related to WFD without extensive new data that would substantiate and clearly warrant such an extension.

Costs of Compliance

We estimate that this proposed AD affects 48 airplanes of U.S. registry. We estimate the following costs to comply with this proposed AD:

Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection	Up to 148 work-hours X \$85 per hour = \$12,580 per inspection cycle	\$0	\$12,580 per inspection cycle	Up to \$603,840 per inspection cycle

We estimate the following costs to do any necessary replacements that would be required based on the results of the proposed inspection. We have no way of determining the number of aircraft that might need these replacements:

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replacement (per tee)	4,000 work-hours X \$85 per hour = \$340,000	\$26,000	\$366,000

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 determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would 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 this proposed regulation:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) 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.

List of Subjects in 14 CFR Part 39

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

The Proposed Amendment

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 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):

The Boeing Company: Docket No. FAA-2014-0288; Directorate Identifier 2013-NM-101-AD.

(a) Comments Due Date

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(b) Affected ADs

None.

(c) Applicability

This AD applies to The Boeing Company Model DC-9-11, DC-9-12, DC-9-13, DC-9-14, DC-9-15, and DC-9-15F airplanes; Model DC-9-21 airplanes; and Model DC-9-31, DC-9-32, DC-9-32 (VC-9C), DC-9-32F, DC-9-33F, DC-9-34, DC-9-34F, and DC-9-32F (C-9A, C-9B) airplanes; certificated in any category; equipped with a non-ventral aft pressure bulkhead.

(d) Subject

Air Transport Association (ATA) of America Code 53, Fuselage.

(e) Unsafe Condition

This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the improved (shot-peened) non-ventral aft pressure bulkhead tee is subject to widespread fatigue damage (WFD). We are issuing this AD to detect and correct fatigue cracking of the improved (shot-peened) non-ventral aft pressure bulkhead tees connecting the bulkhead web to the fuselage, which could result in reduced structural integrity and rapid decompression of the airplane.

(f) Compliance

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

(g) Definitions

(1) For the purposes of this AD, the term “original tee section” refers to the original (non-peened) non-ventral aft pressure bulkhead web to fuselage skin attach tee sections.

(2) For the purposes of this AD, the term “improved tee section” refers to improved (shot peened) non-ventral aft pressure bulkhead web to fuselage skin attach tee sections.

(h) Inspection

For airplanes on which an improved tee section having P/N 5910163-257, 5910163-259, 5910163-260, 5910163-261, 5910163-262, 5910163-263, SR09530001-3, SR09530001-5, SR09530001-6, SR09530001-7, SR09530001-8, SR09530001-9, SR09530001-29, SR09530001-30, SR09530001-31, SR09530001-32, SR09530001-33, SR09530001-35, SR09530056-3, SR09530056-5, SR09530056-6, SR09530056-7, SR09530056-8, SR09530056-9, SR09530056-11, SR09530056-13, SR09530056-14, SR09530056-15, SR09530056-16, SR09530056-17, SR09530056-19, SR09530056-21, SR09530056-22, SR09530056-23, SR09530056-24, or SR09530056-25, is installed: At the applicable time specified in paragraph (i)(1) or (i)(2) of this AD, do a general visual

and low frequency eddy current (LFEC) inspection (Option I), or a high and low frequency eddy current inspection (Option II), for cracking of the improved tee sections, in accordance with the Accomplishment Instructions of McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, including Service Sketch 3683D, Revision C, dated July 19, 1989.

(i) Compliance Times

(1) For Option I and Option II inspections specified in paragraph (h) of this AD: If the time of installation of an improved tee section having a part number listed in paragraph (h) of this AD is known, do the initial inspection required by paragraph (h) of this AD within 50,000 flight cycles after installation of the improved tee section, or within 1,500 flight cycles after the effective date of this AD, whichever occurs later.

(2) For Option I and Option II inspections specified in paragraph (h) of this AD: If the time of installation of an improved tee section having a part number identified in paragraph (h) of this AD is not known, do the initial inspection required by paragraph (h) of this AD before the accumulation of 75,000 total flight cycles, or within 1,500 flight cycles after the effective date of this AD, whichever occurs later.

(j) Repetitive Inspections

If no cracking is found during the inspection required by paragraph (h) of this AD: Do the actions specified in paragraph (j)(1) or (j)(2) of this AD, as applicable, in accordance with the Accomplishment Instructions of McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, including Service Sketch 3683D, Revision C, dated July 19, 1989.

(1) For Option I: If Option I was used for the inspection required by paragraph (h) of this AD, do the actions at the applicable intervals, as specified in paragraphs (j)(1)(i), (j)(1)(ii), and (j)(1)(iii) of this AD.

(i) Repeat the LFEC inspection for cracking of the side areas above the floor between longerons L7 and L17 on the fuselage left and right sides, at intervals not to exceed 2,000 flight cycles.

(ii) Repeat the general visual inspection for cracking of the top and lower areas from longeron L7 left side to L7 right side, and lower fuselage longeron L17 to L20 on the fuselage left and right sides, at intervals not to exceed 1,500 flight cycles.

(iii) Repeat the general visual inspection for cracking of the bottom areas from longeron L20 left side to L20 right side, at intervals not to exceed 3,500 flight cycles.

(2) For Option II: If Option II was used for the inspection required by paragraph (h) of this AD, repeat the high and low eddy frequency eddy current inspections for cracking around the entire periphery of the fuselage from the forward side of the bulkhead at intervals not to exceed 2,500 flight cycles.

(k) Corrective Action and Post-Replacement Inspections

If any cracking is found during any inspection required by paragraph (h) or (j) of this AD: Before further pressurized flight, replace each cracked tee section with an airworthy tee section having a part number identified in paragraph (h) of this AD, or with an original tee section having P/N 5910163-89, 5910163-91, 5910163-92, 5910163-93, 5910163-94, or 5910163-95, in accordance with the Accomplishment Instructions of McDonnell Douglas DC-9 Alert Service Bulletin A53-231, Revision 2, dated June 25, 1993, including Service Sketch 3683D, Revision C, dated July 19, 1989.

(1) If the tee section is replaced with an improved tee section listed in paragraph (h) of this AD, prior to the accumulation of 50,000 flight cycles after installation, inspect the tee section in accordance with paragraph (h) of this AD and do all applicable corrective actions and repetitive inspections in accordance with and at the times specified in paragraphs (j) and (k) of this AD.

(2) If the tee section is replaced with an original tee section listed in paragraph (k) of this AD, prior to the accumulation of 25,000 flight cycles after installation, inspect the tee section in accordance with paragraph (h) of this AD and do all applicable corrective actions and repetitive inspections in accordance with and at the times specified in paragraphs (j) and (k) of this AD.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Los Angeles Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in paragraph (m)(1) of this AD. Information may be emailed to:

9-ANM-LAACO-AMOC-REQUESTS@faa.gov.

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Los Angeles ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane and 14 CFR 25.571, Amendment 45, and the approval must specifically refer to this AD.

(m) Related Information

(1) For more information about this AD, contact Eric Schrieber, Aerospace Engineer, Airframe Branch, ANM-120L, FAA, Los Angeles Aircraft Certification Office, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5348; fax: 562-627-5210; email: eric.schrieber@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, 3855 Lakewood Boulevard, MC D800-0019, Long Beach, CA 90846-0001; telephone 206-544-5000, extension 2; fax 206-766-5683; Internet <https://www.myboeingfleet.com>. You may view this referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, WA. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on May 16, 2014.

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

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