[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2012-0424; Directorate Identifier 2011-NM-004-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 all The Boeing Company Model 777 airplanes. This proposed AD was prompted by heat damage and cracks at the pivot joint location of the main landing gear (MLG) inner cylinder/truck beam. This proposed AD would require repetitive lubrication of the MLG pivot joints; repetitive detailed inspections of the outer diameter chrome on the center axles of the MLG for chicken-wire cracks, corrosion, and chrome plate distress; repetitive magnetic particle inspections of the outer diameter chrome on the center axles of the MLG for cracks; and related investigative and corrective actions if necessary. We are proposing this AD to detect and correct cracking in the MLG center axle and shock strut inner cylinder lugs (pivot joint), which could result in fracture of the MLG pivot joint components and consequent collapse of the MLG.

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, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; phone: 206-544-5000, extension 1; fax: 206-766-5680; e-mail: me.boecom@boeing.com; Internet https://www.myboeingfleet.com. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

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 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: James Sutherland, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6533; fax: 425-917-6590; e-mail: James.Sutherland@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-2012-0424; Directorate Identifier 2011-NM-004-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

We have received reports of 39 MLG center axles with cracks at the pivot joint location of the inner cylinder/truck beam. These cracks were found in areas common to the inner cylinder pivot bushings where heat damage had occurred. This heat damage and cracks are caused by MLG truck pitching motion during normal airplane operations. Heat damage or cracking in the MLG center axle and shock strut inner cylinder lugs (pivot joint) could result in fracture of the MLG pivot joint components and consequent collapse of the MLG.

Relevant Service Information

We reviewed Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010, which describes procedures for repetitive lubrication of the MLG pivot joints; repetitive detailed inspections of the outer diameter chrome on the center axles of the MLG for chicken-wire cracks, corrosion, and chrome plate distress; repetitive

magnetic particle inspections of the outer diameter chrome on the center axles of the MLG for cracks; and related investigative and corrective actions if necessary.

The related investigative actions include a detailed inspection of the inner diameters and flanges of the inner cylinder bushing for cracks, smearing of material into the lubrication grooves, bushing distress, and wear limits; a detailed inspection for corrosion of the inner cylinder lug face; a detailed inspection of the lug bore inner cylinder for cracks, corrosion, or bronze transfer; a detailed inspection of the lug bore face for corrosion or cracks; a penetrant inspection of the lug bore inner cylinder for corrosion; a magnetic particle inspection of the lug bore inner cylinder and face for cracks; and a local etch inspection of large parts of the lug bore inner cylinder for heat damage.

The corrective actions include repairing the center axle or replacing it with a new, overhauled, or serviceable axle; and refinishing the lug bore and faces, and installing new bushings.

Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010, specifies, for the lubrication, an initial compliance time of within 120 days after the original issue date of that service bulletin, and a repetitive interval of 50 flight cycles or 25 days, whichever occurs later. That service bulletin also specifies, for the detailed and magnetic particle inspections, an initial compliance time between 1,825 days after the issue date of the original Certificate of Airworthiness or Export Certificate of Airworthiness or since the last MLG overhaul, or within 1,125 days after the original issue date of this service bulletin, whichever is later; and 3,750 days after the issue date of the original Certificate of Airworthiness or Export Certificate of Airworthiness or since the last MLG overhaul, or within 375 days after the original issue date of this service bulletin, whichever is later; depending on the airplane configuration, lubrication schedule, and inspection status. That

service bulletin specifies a repetitive interval of 3,750 days for the detailed and magnetic particle inspections.

We have reviewed Boeing Special Attention Service Bulletin 777-32-0080, dated July 10, 2008; and Boeing Special Attention Service Bulletin 777-32-0080, Revision 1, dated April 16, 2009. Part 2 of the Accomplishment Instructions of these service bulletins describe procedures for a detailed inspection of the outer diameter chrome on the center axles of the MLG for chicken-wire cracks, corrosion, and chrome plate distress and a magnetic particle inspection of the outer diameter chrome on the center axles of the MLG for cracks.

We have reviewed Boeing Service Bulletin 777-32A0085, dated April 14, 2011. This service bulletin describes procedures for replacing the MLG left and right center axles with new, overhauled, or serviceable center axles, or changing the center axles by polishing to the new configuration; replacing the inner cylinder assemblies with new, overhauled, or serviceable inner cylinder assemblies; part marking the MLG components and assemblies; lubricating the pivot joint with new grease; and updating the maintenance program to do repetitive lubrication of the MLG pivot joints.

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 the same type designs.

Proposed AD Requirements

This proposed AD would require accomplishing the actions specified in the service information described previously.

Costs of Compliance

We estimate that this proposed AD affects 160 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
Lubrication of MLG pivot joints	4 work-hours X $85 per hour = $340 per lubrication cycle	$0	$340 per lubrication cycle	$ 54,400 per lubrication cycle
Detailed and magnetic particle inspections	39 work-hours X $85 per hour = $3,315 per inspection cycle	$0	$3,315 per inspection cycle	$530,400 per inspection cycle
Inner cylinder lug bore inspection	6 work-hours X $85 per hour = $510 per inspection cycle	$0	$510 per inspection cycle	$81,600 per inspection cycle

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

On-condition costs

Action	Labor cost	Parts cost	Cost per product
Replacing center axle	25 work-hours X $85 per hour = $2,125	$54,030	$56,155
Refinishing the lug bore and faces, and installing new bushings	12 work-hours X $85 per hour = $1,020	Up to $3,526	Up to $4,546
Replacing the inner cylinder assembly cylinder assembly	46 work-hours X $85 per hour = $3,910	Up to $254,847	Up to $258,757

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-2012-0424; Directorate Identifier 2011-NM-004-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 777-200, -200LR, -300, -300ER, and 777F series airplanes, certificated in any category, as identified in Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010.

(d) Subject

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 32, Landing Gear.

(e) Unsafe Condition

This AD was prompted by heat damage and cracks at the pivot joint location of the main landing gear (MLG) cylinder/truck beam. We are issuing this AD to detect and correct cracking in the MLG center axle and shock strut inner cylinder lugs (pivot joint), which could result in fracture of the MLG pivot joint components and consequent collapse of the MLG.

(f) Compliance

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

(g) Repetitive Lubrication and Inspections

At the applicable compliance times specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010, except as provided by paragraph (i) of this AD: Lubricate the MLG pivot joints; do a detailed inspection of the outer diameter chrome on the center axles of the MLG for chicken-wire cracks, corrosion, and chrome plate distress; do a magnetic particle inspection of the outer diameter chrome on the center axles of the MLG for cracks; and do all applicable related investigative and corrective actions; in accordance with the Accomplishment Instructions of Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010. Repeat the lubrication and inspections thereafter at the applicable interval specified in paragraph 1.E., "Compliance," of Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010. Do all applicable related investigative and corrective actions before further flight.

(h) Definition

For the purposes of this AD, chicken-wire cracks are defined as cracks that occur when stress created in the chrome deposit during plating are relieved. The cracks are evident in the deposited chrome when viewed from a perpendicular plane as a pattern similar to chicken wire. Crack size can vary with plating conditions.

(i) Exception to Service Information

Where Boeing Alert Service Bulletin 777-32A0082, dated December 9, 2010, specifies a compliance time after the original issue date of that service bulletin, this AD requires compliance within the specified compliance time after the effective date of this AD.

(j) Optional Actions for Compliance with Paragraph (g) of this AD

(1) Doing the detailed and magnetic particle inspections in accordance with Part 2 of the Accomplishment Instructions of Boeing Special Attention Service Bulletin 777-32-0080, dated July 10, 2008; or Boeing Special Attention Service Bulletin 777-32-0080, Revision 1, dated April 16, 2009; is considered acceptable for compliance with the inspections of the center axle of the MLG required by paragraph (g) of this AD.

(2) Replacing the MLG left and right center axles with new, overhauled, or serviceable center axles, or changing the center axles by polishing to the new configuration; replacing the inner cylinder assembly with new, overhauled, or serviceable inner cylinder assembly; part marking the MLG components and assemblies; and lubricating the pivot joint with new grease; and updating the maintenance program to repetitively lubricate the MLG pivot joints; in accordance with the Accomplishment Instructions of Boeing Service Bulletin 777-32A0085, dated April 14, 2011; is considered acceptable for compliance with lubricating of the MLG pivot joints and inspecting the center axles of the MLG as required by paragraph (g) of this AD.

(k) Special Flight Permit

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 airplane can be modified (if the operator elects to do so), if the flight is operated as a non-revenue flight.

(l) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. 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 the Related Information section of this AD. Information may be e-mailed to: 9-ANM-Seattle-ACO-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, 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.

(m) Related Information

(1) For more information about this AD, contact James Sutherland, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office (ACO), 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: 425-917-6533; fax: 425-917-6590; e-mail: James.Sutherland@faa.gov.

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, Washington 98124-2207; phone: 206-544-5000, extension 1; fax: 206-766-5680; e-mail me.boecom@boeing.com; Internet https://www.myboeingfleet.com. You may review

copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW., Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on April 20, 2012.

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

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