**[4910-13-P]**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2018-0504; Product Identifier 2018-NM-046-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 707 series airplanes and Model 720 and 720B series airplanes. This proposed AD was prompted by a report indicating that a fracture of the midspar fitting resulted in the separation of the inboard strut and engine from the airplane, and a determination that existing inspections are not sufficient for timely detection of cracking. This proposed AD would require repetitive inspections of certain nacelle strut spar and overwing fittings, and diagonal braces and associated fittings; replacement of the diagonal brace assembly on certain airplanes; and applicable related investigative and corrective actions. We are proposing this AD to address the unsafe condition on these products.

**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 NPRM, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet https://www.myboeingfleet.com. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195. It is also available on the Internet at http://www.regulations.gov by searching for and locating Docket No. FAA-2018-0504.

**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-2018-0504; or in person at Docket Operations between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this NPRM, the regulatory evaluation, any comments received, and other information. The street address for Docket Operations (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Jeffrey Chang, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5263; fax: 562-627-5210; email: jeffrey.chang@faa.gov or George Garrido, Aerospace Engineer, Airframe Section, FAA,

Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5232; fax: 562-627-5210; email george.garrido@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-2018-0504; Product Identifier 2018-NM-046-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this NPRM. We will consider all comments received by the closing date and may amend this NPRM 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 NPRM.

**Discussion**

We have received reports of cracking of the midspar fittings and of the engine and nacelle strut separating from the airplane. We issued AD 2012-16-12, Amendment 39-16159 (77 FR 49708, August 17, 2012) to require inspection of the inboard and outboard strut midspar fittings and AD 2015-11-04, Amendment 39-18167 (80 FR 30605, May 29, 2015) to require replacement of all engine strut midspar fittings and to initiate a life limit program. Since that time, we have determined that inspections of other strut fittings are needed for timely detection of cracking. Cracks have been reported in the diagonal brace end fittings, forward mating fittings, aft mating fittings, overwing support fittings, and the upper surface and the aft lug(s) of the front spar fittings on the nacelle struts, numbers 1, 2, 3 and 4. This cracking is attributed to fatigue in the end fittings and

stress corrosion or fatigue in the mating fittings. This condition, if not addressed, could result in cracks that grow beyond a critical length, allowing strut fittings to fail and reducing the structural integrity of the nacelle. This, in combination with damage to adjacent attachment structure, could result in the loss of an engine from the airplane.

**Related Service Information under 1 CFR part 51**

We reviewed the following service information.

- Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017. The service information describes procedures for repetitive detailed inspections of the diagonal brace tube for any crack; repetitive detailed inspections and high frequency eddy current (HFEC) inspections of the nacelle strut diagonal brace end fittings, forward mating fitting, and aft mating fitting for any crack; an alternative dye penetrant inspection of vertical webs on aft mating fitting for any crack; an HFEC inspection of the diagonal brace tube for any crack; and corrective actions.

- Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017. The service information describes procedures for repetitive detailed, HFEC, and ultrasonic inspections of the overwing support fittings for any crack at the bolt hole forward of the wing front spar and at the holes for the four fasteners attaching the fitting to the spar, and related investigative and corrective actions.

- Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016. The service information describes procedures for repetitive detailed and surface HFEC inspections of the front spar fittings at nacelle struts numbers 1, 2, 3, and 4 for cracks, and replacement of cracked front spar fittings.

This service information is reasonably available because the interested parties have access to it through their normal course of business or by the means identified in the ADDRESSES section.

**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 the actions specified in the service information described previously, except as discussed under "Differences Between this Proposed AD and the Service Information." For information on the procedures and compliance times, see this service information at http://www.regulations.gov by searching for and locating Docket No. FAA-2018-0504.

The phrase "related investigative actions" is used in this proposed AD. Related investigative actions are follow-on actions that (1) are related to the primary action, and (2) further investigate the nature of any condition found. Related investigative actions in an AD could include, for example, inspections.

The phrase "corrective actions" is used in this proposed AD. Corrective actions correct or address any condition found. Corrective actions in an AD could include, for example, repairs.

**Differences Between this Proposed AD and the Service Information**

Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017; Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017; and Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016; specify to contact the manufacturer for certain instructions, but this proposed AD would require using repair methods, modification deviations, replacement deviations, and alteration deviations in one of the following ways:

• In accordance with a method that we approve; or

• Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

**Costs of Compliance**

We estimate that this proposed AD affects 65 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 |
|---|---|---|---|---|
| Detailed inspections per Service Bulletin A3364, Revision 4 | 36 work-hours X $85 per hour = $3,060 per inspection cycle | $0 | $3,060 per inspection cycle | $198,900 per inspection cycle |
| HFEC inspections per Service Bulletin A3364, Revision 4 | 128 work-hours X $85 per hour = $10,880 per inspection cycle | $0 | $10,880 per inspection cycle | $707,200 per inspection cycle |
| Inspections per Service Bulletin A3365, Revision 3 | 20 work-hours X $85 per hour = $1,700 per inspection cycle | $0 | $1,700 per inspection cycle | $110,500 per inspection cycle |
| Detailed inspections per Service Bulletin A3514, Revision 1 | 12 work-hours X $85 per hour = $1,020 per inspection cycle | $0 | $1,020 per inspection cycle | $66,300 per inspection cycle |
| HFEC inspections per Service Bulletin A3514, Revision 1 | 32 work-hours X $85 per hour = $2,720 per inspection cycle | $0 | $2,720 per inspection cycle | $176,800 per inspection cycle |

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this proposed AD.

We estimate that any necessary proposed replacement of affected fittings would take about 96 work-hours for a cost of $8,160 per fitting. We have received no definitive

data on the parts costs of the affected fittings. We have no way of determining the number of aircraft that might need this replacement.

**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.

This proposed AD is issued in accordance with authority delegated by the Executive Director, Aircraft Certification Service, as authorized by FAA Order 8000.51C. In accordance with that order, issuance of ADs is normally a function of the Compliance and Airworthiness Division, but during this transition period, the Executive Director has delegated the authority to issue ADs applicable to transport category airplanes and associated appliances to the Director of the System Oversight Division.

**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-2018-0504; Product Identifier 2018-NM-046-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**

This AD affects AD 82-24-03, Amendment 39-4496 (47 FR 51099, November 12, 1982) ("AD 82-24-03") and AD 2005-08-15, Amendment 39-14067 (70 FR 21136, April 25, 2005) ("AD 2005-08-15").

**(c) Applicability**

This AD applies to all The Boeing Company Model 707-100 Long Body, -200, -100B Long Body, and -100B Short Body series airplanes; Model 707-300, -300B, -300C, and -400 series airplanes; and Model 720 and 720B series airplanes; certificated in any category.

**(d) Subject**

Air Transport Association (ATA) of America Code 54, Nacelles/pylons.

**(e) Unsafe Condition**

This AD was prompted by a report indicating that a fracture of the midspar fitting resulted in the separation of the inboard strut and engine from the airplane, and a determination that existing inspections for other nacelle strut fittings are not sufficient for timely detection of cracking. We are issuing this AD to address cracks, which if not detected and corrected, could grow beyond a critical length, allowing the strut fitting to fail and reducing the structural integrity of the nacelle. This, in combination with damage to adjacent attachment structure, could result in the loss of an engine from the airplane.

**(f) Compliance**

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

**(g) Repetitive Detailed Inspections of the Front Spar Fittings at Nacelle Struts Numbers 1, 2, 3, and 4**

Prior to the accumulation of 3,500 total flight hours; within 700 flight hours after the most recent inspection specified in Boeing 707 Alert Service Bulletin A3514, dated July 29, 2004, was done; or within three months after the effective date of this AD;

whichever occurs later: Do a detailed inspection for cracking of the front spar fittings at nacelle struts numbers 1, 2, 3, and 4, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016. If any cracking is found, before further flight, replace the affected fitting, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016. Repeat the inspections thereafter at intervals not to exceed 700 flight hours.

**(h) Repetitive Surface High Frequency Eddy Current (HFEC) Inspections of the Aft Lugs on the Front Spar Fittings at Nacelle Struts Numbers 1, 2, 3, and 4**

Within 1,500 flight cycles or 48 months after the most recent detailed inspection required by paragraph (g) of this AD was done, whichever occurs first, do a surface HFEC inspection for cracking of the aft lugs on the front spar fittings at nacelle struts numbers 1, 2, 3, and 4, and do all applicable corrective actions, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016, except as required by paragraph (l)(4) of this AD. Do all applicable corrective actions before further flight. Repeat the inspection thereafter at intervals not to exceed 1,500 flight cycles or 48 months, whichever occurs first.

**(i) Repetitive Inspections of the Overwing Support Fitting at Nacelle Struts Numbers 1, 2, 3, and 4**

At the times specified in paragraph 1.E., "Compliance," of Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017, except as required by paragraph (l)(1) of this AD: Do the inspections specified in paragraphs (i)(1) through (i)(3) of this AD and do all applicable related investigative and corrective actions, in accordance with the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017, except as required by paragraph (l)(3) of this AD. Do all applicable related investigative and corrective actions before further flight. Repeat the inspections thereafter at the applicable time specified in paragraph 1.E.,

"Compliance," of Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017.

(1) Do a detailed inspection for any crack at all five holes in the overwing support fitting, and at the flange radii.

(2) Do the inspection specified in paragraph (i)(2)(i) or (i)(2)(ii) of this AD.

(i) Do a surface HFEC inspection for any crack in the overwing support fitting around the hole immediately forward of the spar chord, with the bolt in place, and at the flange radii.

(ii) Do an open hole HFEC inspection for any crack in the overwing support fitting at the hole immediately forward of the spar chord.

(3) Do the inspection specified in paragraph (i)(3)(i) or (i)(3)(ii) of this AD.

(i) Do an ultrasonic inspection for any crack in the overwing support fitting around the four holes common to the fitting and the spar chord, with the bolts in place.

(ii) Do a surface HFEC inspection for any crack in the overwing support fitting around the four holes common to the fitting and the spar chord, with the bolts in place.

**(j) Inspections of the Nacelle Strut Diagonal Braces and Associated Fittings**

For airplanes with nacelle strut diagonal braces and associated fittings which have accumulated 7,500 flight cycles or more: At the applicable times specified in paragraph 1.E., "Compliance" of Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017, except as required by paragraph (l)(2) of this AD, do the inspections specified in paragraphs (j)(1) through (j)(3) of this AD. Repeat the inspections thereafter at the applicable intervals specified in tables 1, 2, 3, and 4 of paragraph 1.E., "Compliance," of Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017. If any crack is found during any inspection required by this paragraph, before further flight, do all applicable corrective actions, in accordance with

the Accomplishment Instructions of Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017, except as required by paragraph (l)(3) of this AD.

(1) Do a detailed inspection of the nacelle strut diagonal brace end fittings, diagonal brace tube, forward mating fitting, and aft mating fitting for any crack.

(2) Do HFEC inspections of the nacelle strut diagonal brace end fittings, forward mating fitting, and aft mating fitting for any crack. As an alternative for the aft mating fitting, do a dye penetrant inspection of vertical webs on aft mating fitting for any crack.

(3) Do an HFEC inspection of the diagonal brace tube for any crack.

**(k) Replacement**

For Group 3, 4, and 6 airplanes as identified in Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017, on which the outboard diagonal brace end fitting (forward or aft) attach holes have been oversized as specified in Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017: Within 1,000 flight cycles after the effective date of this AD, replace the diagonal brace assembly, in accordance with Figure 3 of Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017.

**(l) Exceptions to Service Information Specifications**

(1) For purposes of determining compliance with the requirements of this AD: Where Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017, uses the phrase "the Revision 3 date of this service bulletin," this AD requires using "the effective date of this AD."

(2) For purposes of determining compliance with the requirements of this AD: Where Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017, uses the phrase "the Revision 4 date of this service bulletin," this AD requires using "the effective date of this AD."

(3) Where Boeing 707 Alert Service Bulletin A3364, Revision 4, dated February 21, 2017; and Boeing 707 Alert Service Bulletin A3365, Revision 3, dated March 9, 2017; specify contacting Boeing: This AD requires repair using a method approved in accordance with the procedures specified in paragraph (o) of this AD.

(4) Where Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016, specifies contacting Boeing: This AD requires replacement using a method approved in accordance with the procedures specified in paragraph (o) of this AD.

**(m) Terminating Action for Other ADs**

(1) Accomplishing the initial inspections required by paragraph (j) of this AD terminates all requirements of AD 82-24-03.

(2) Accomplishing the initial inspections required by paragraph (g) of this AD, terminates all requirements of AD 2005-08-15.

**(n) Parts Installation Prohibition**

As of the effective date of this AD, no person may install, on any airplane, a front spar fitting having a part number other than the part numbers specified in paragraph 2.C.2. of Boeing 707 Alert Service Bulletin A3514, Revision 1, dated November 9, 2016.

**(o) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Los Angeles ACO Branch, 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 certification office, send it to the attention of the person(s) identified in paragraph (p)(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, modification, replacement, or alteration 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 Branch, to make those findings. To be approved, the repair method, modification deviation, replacement deviation, or alteration deviation must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

**(p) Related Information**

(1) For more information about this AD, contact Jeffrey Chang, Aerospace Engineer, Propulsion Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5263; fax: 562-627-5210; email: jeffrey.chang@faa.gov or George Garrido, Aerospace Engineer, Airframe Section, FAA, Los Angeles ACO Branch, 3960 Paramount Boulevard, Lakewood, CA 90712-4137; phone: 562-627-5232; fax: 562-627-5210; email george.garrido@faa.gov

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Contractual & Data Services (C&DS), 2600 Westminster Blvd., MC 110-SK57, Seal Beach, CA 90740-5600; telephone 562-797-1717; Internet https://www.myboeingfleet.com. You may view this service information at the FAA, Transport Standards Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206-231-3195.

Issued in Des Moines, Washington, on May 24, 2018.

James Cashdollar,
Acting Director,
System Oversight Division,
Aircraft Certification Service.
[FR Doc. 2018-12128 Filed: 6/6/2018 8:45 am; Publication Date: 6/7/2018]