[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2015-0493; Directorate Identifier 2014-NM-184-AD]

RIN 2120-AA64

Airworthiness Directives; Lockheed Martin Corporation/Lockheed Martin Aeronautics 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 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 188 series airplanes. This proposed AD was prompted by an evaluation by the design approval holder (DAH) indicating that the upper and lower wing skin planks at the attachment of the main landing gear (MLG) ribs at certain wing-stations are subject to widespread fatigue damage (WFD). This proposed AD would require an inspection (for cracking) and modification of the chordwise fastener rows of the upper and lower wing planks at the attachments to the MLG ribs at certain wing-stations. We are proposing this AD to prevent fatigue cracking of the upper and lower wing skin planks at the attachment of the MLG ribs, which could result in failure of the wing.

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 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company, Airworthiness Office, Dept. 6A0M, Zone 0252, Column P-58, 86 S. Cobb Drive, Marietta, GA 30063; telephone 770-494-5444; fax 770-494-5445; email ams.portal@lmco.com; Internet http://www.lockheedmartin.com/ams/tools/TechPubs.html. 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-2015-0493; 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: Carl Gray, Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta Aircraft Certification Office (ACO), 1701

Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; fax: 404-474-5605; email: Carl.W.Gray@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-2015-0493; Directorate Identifier 2014-NM-184-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.

This proposed AD was prompted by an evaluation by the DAH indicating that the upper and lower wing skin planks at the attachment of the MLG ribs are subject to WFD.

The root cause of WFD is fatigue cracks manifesting and growing simultaneously at similar structural details and stress levels of the upper and lower wing skin planks at the attachment of the MLG ribs. Fatigue cracking is increasingly likely as the airplane is operated and aged, and without intervention, fatigue cracking of the upper and lower wing skin planks at the attachment of the MLG ribs could result in failure of the wing.

Related Service Information under 1 CFR part 51

We reviewed Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014. This service bulletin describes procedures to do a bolt hole eddy current (BHEC) inspection for cracking and modification of the chordwise fastener rows of the upper and lower wing planks at the attachments to the MLG ribs at wing-station (WS) 167 and WS 209 by removing the original fasteners and replacing them with new first oversize fasteners of the same type or approved substitute type for original fasteners. Corrective actions include repairing any cracking before further flight. The compliance times for the inspection and modification are specified at the following times.

- For WS 167 lower: Before the accumulation of 33,300 total flight hours.
- For WS 167 upper: Before the accumulation of 23,200 total flight hours.
- For WS 209 lower: Before the accumulation of 31,500 total flight hours.
- For WS 209 upper: Before the accumulation of 35,400 total flight hours.

This service information is reasonably available; see ADDRESSES for ways to access this service information.

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."

Differences Between this Proposed AD and the Service Information

Operators should note that, although the Accomplishment Instructions of Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014, describe procedures for reporting any damage detected to the manufacturer, this proposed AD would not require those actions.

Although Lockheed Martin Electra Service Bulletin 88/721, dated April 30, 2014, specifies that operators may contact the manufacturer for disposition of certain repair conditions, this proposed AD would require operators to repair those conditions in accordance with a method approved by the FAA.

Explanation of Compliance Time

The compliance time for the modification specified in this proposed AD for addressing WFD was established to ensure that discrepant structure is modified 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 4 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 and Modification	560 work-hours X $85 per hour = $47,600	$5,000	$52,600	$210,400

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

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):

Lockheed Martin Corporation/Lockheed Martin Aeronautics Company: Docket No. FAA-2015-0493; Directorate Identifier 2014-NM-184-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 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 188A and 188C airplanes, certificated in any category, serial numbers 1001 and subsequent.

(d) Subject

Air Transport Association (ATA) of America Code 57, Wings.

(e) Unsafe Condition

This AD was prompted by an evaluation by the design approval holder (DAH) indicating that the upper and lower wing skin planks at the attachment of the main landing gear (MLG) ribs at certain wing-stations are subject to widespread fatigue

damage (WFD). We are issuing this AD to prevent fatigue cracking of the upper and lower wing skin planks at the attachment of the MLG ribs, which could result in failure of the wing.

(f) Compliance

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

(g) Inspection, Modification, and Corrective Action

At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD: Remove the chordwise fastener rows of the upper and lower wing planks at the attachments to the MLG ribs at wing-station (WS) 167 and WS 209; do a bolt hole eddy current (BHEC) inspection to detect cracking of the fastener rows; and replace the original fasteners with new, first oversize fasteners; in accordance with the Accomplishment Instructions of Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014. If any cracking is found during any inspection required by this paragraph: Before further flight, repair the cracking, in accordance with the Accomplishment Instructions of Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014.

(1) At the applicable time specified table 1 of paragraph 1.E., "Compliance," of Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014. Where table 1 of paragraph 1.E., "Compliance," of Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014, specifies "Flt. Hrs," this AD specifies "total flight hours."

(2) Within 365 days or 600 flight hours after the effective date of this AD, whichever occurs first.

(h) No Reporting

Although Lockheed Martin Electra 88 Service Bulletin 721, dated April 30, 2014, specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(i) Alternative Methods of Compliance (AMOCs)

(1) The Manager, Atlanta 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 (j)(1) of this AD.

(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.

(j) Related Information

(1) For more information about this AD, Carl Gray, Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta ACO, 1701 Columbia Avenue, College Park, GA 30337; phone: 404-474-5554; fax: 404-474-5605; email: carl.w.gray@faa.gov.

(2) For service information identified in this AD, contact Lockheed Martin Corporation/Lockheed Martin Aeronautics Company, Airworthiness Office, Dept. 6A0M, Zone 0252, Column P-58, 86 S. Cobb Drive, Marietta, GA 30063; telephone 770-494-5444; fax 770-494-5445; email ams.portal@lmco.com; Internet http://www.lockheedmartin.com/ams/tools/TechPubs.html. You may view this 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 March 12, 2015.

Jeffrey E. Duven,
Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

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