[4910-13-P]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Part 39

[Docket No. FAA-2014-0749; Directorate Identifier 2014-NM-051-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 382, 382B, 382E, 382F, and 382G airplanes. This proposed AD was prompted by an evaluation by the design approval holder (DAH) indicating that the upper and lower rainbow fittings on the outer wing are subject to widespread fatigue damage (WFD). This proposed AD would require repetitive inspections of the upper and lower rainbow fittings on the outer wing to detect cracks propagating from fasteners attaching the fittings to skin panels, and related investigative and corrective actions if necessary; and replacement of the upper and lower rainbow fittings on the outer wing. We are proposing this AD to prevent fatigue cracking of the upper and lower rainbow fittings on the outer wing and skin-panel-to-fitting fastener holes, which could result in reduced structural integrity of the airplane and possible separation of the wing from 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 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-2014-0749; 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: 404-474-5606; 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-2014-0749; Directorate Identifier 2014-NM-051-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 rainbow fittings of the outer wing are subject to WFD. Analysis of in-service cracking has shown that these fittings are susceptible to multiple site damage, and actions are required to ensure that cracking does not occur in the skin-panel-to-fitting fastener holes, resulting in an unacceptable reduction in residual strength. Fatigue cracking of the upper and lower rainbow fittings of the outer wing and skin-panel-to-fitting fastener holes could result in reduced structural integrity of the airplane and possible separation of the wing from the airplane.

Relevant Service Information

We reviewed Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013. This service bulletin describes procedures for repetitive inspections of the upper and lower rainbow fittings on the outer wing using an eddy current surface scan (ECSS) to detect cracks propagating from fasteners attaching the fittings to skin panels and a related investigative action of an automated bolt hole eddy current inspection to confirm ECSS inspection crack findings if suspected; and corrective actions if necessary. Corrective actions include contacting the manufacturer for instructions if cracking is found.

Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, also describes procedures for replacing the upper and lower rainbow fittings on the outer wing, which includes doing a detailed inspection of the wing faying structure for damage (e.g. damage includes pitting, and corrosion) and cracks; an automated bolt hole eddy current inspection on all open fastener holes in the mating structure, stiffeners, webs, and angles for cracking; and corrective actions if necessary. Corrective actions include repairing damage and cracking in accordance with Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013; or contacting the manufacturer for instructions.

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, except as discussed under "Differences Between this Proposed AD and the Service Information."

Differences Between this Proposed AD and the Service Information

Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, specifies to contact the manufacturer for instructions on how to repair certain conditions, but this proposed AD would require repairing those conditions 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 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Designated Engineering Representative (DER) whom we have authorized to make those findings.

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 20 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
ECSS inspection	24 work-hours X $85 per hour = $2,040 per inspection cycle	$0	$2,040 per inspection cycle	$40,800 per inspection cycle
Bolt hole inspection during rainbow fitting replacement	24 work-hours X $85 per hour = $2,040	$0	$2,040	$40,800
Replacement of all four rainbow fittings	2,060 work-hours X $85 per hour = $175,100	$28,000	$203,100	$4,062,000

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 of one rainbow fitting	515 work-hours X $85 per hour = $43,775	$7,000	$50,775

We have received no definitive data that would enable us to provide cost estimates for on-condition actions for cracking of the skin-panel-to-fitting fastener holes 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-2014-0749; Directorate Identifier 2014-NM-051-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 382, 382B, 382E, 382F, and 382G airplanes; certificated in any category; having any outer wing serial number 4542 and subsequent, or any manufacturing end product (MEP) replacement outer wing except 14Y series.

(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 rainbow fittings on the outer wing are subject to widespread fatigue damage (WFD). We are issuing this AD to prevent fatigue cracking of the upper and lower rainbow fittings on the outer wing and skin-panel-to-fitting fastener holes, which could result in reduced structural integrity of the airplane and possible separation of the wing from the airplane.

(f) Compliance

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

(g) Repetitive Eddy Current Surface Scan (ECSS) Inspections

At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD: Do an ECSS inspection of the left and right outer wing upper and lower rainbow fitting-to-skin-panel attachments to detect cracks propagating from fasteners attaching the fittings to skin panels, and do all applicable related investigative actions, in accordance with the Accomplishment Instructions of Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraph (j)(1) of this AD. Do all applicable related investigative actions before further flight. If any cracking is found during any inspection required by this paragraph, before further flight, repair the cracking, using a method approved in accordance with the procedures specified in paragraph (m) of this AD. Repeat the inspection of the left and right outer wing upper and lower rainbow fitting-to-skin-panel attachments thereafter at intervals not to exceed 2,000 flight hours, except as provided by paragraph (l) of this AD.

(1) Before the accumulation of 30,000 total flight hours on any wing.

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

(h) Rainbow Fitting Replacement and Inspections

At the time specified in paragraph (i) of this AD, do the actions required by paragraph (h)(1) and (h)(2) of this AD.

(1) Do a detailed inspection of the wing faying structure for damage and cracks, and do an automated bolt hole eddy current inspection on all open fastener holes in the mating structure, stiffeners, webs and angles for cracking, in accordance with the Accomplishment Instructions of Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraph (j)(1) of this AD.

(i) If any damage is found during any inspection required by paragraph (h)(1) of this AD, before further flight, repair the damage, using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(ii) If any cracking is found during any inspection required by paragraph (h)(1) of this AD, before further flight, repair the cracking, in accordance with the Accomplishment Instructions of Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, except as provided by paragraphs (j)(1) and (j)(2) of this AD.

(2) Replace the left and right upper and lower rainbow fittings of the outer wing with new fittings, in accordance with the Accomplishment Instructions of Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013.

Note 1 to paragraph (h) of this AD: AD 2012-06-09, Amendment 39-16990 (77 FR 21404, April 10, 2012), is related to the rainbow fitting replacement. AD 2012-06-09 references the Lockheed Martin Model 382, 382B, 382E, 382F, and 382G Series Aircraft Service Manual Publication (SMP), Supplemental Structural Inspection Document (SSID), SMP 515-C-SSID, Change 1, dated September 10, 2010; which contains inspections for the entire Model 382B-H airframe, not just the outer wing. Since installing new rainbow fittings, as required by paragraph (g) of this AD, resets

the accumulated service life on certain parts to zero, certain compliance times specified in Table 3 of this SSID would be affected by the installation of new outer wing fittings.

Note 2 to paragraph (h) of this AD: AD 2011-15-02, Amendment 39-16749 (76 FR 41647, July 15, 2011), has requirements for fuel system limitations (FSLs) and critical design configuration control limitations (CDCCLs) which might include configuration or parts limitations on areas affected by accomplishment of this AD.

(i) Compliance Times for Paragraph (h) of this AD

At the later of the times specified in paragraph (i)(1) and (i)(2) of this AD, do the actions required by paragraph (h) of this AD.

(1) Before the accumulation of 50,000 total flight hours on any wing.

(2) Within 60 days or 100 flight hours, whichever occurs first, after the effective date of this AD.

(j) Exceptions to Service Information Specifications

(1) Although Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, specifies to submit certain information to the manufacturer, this AD does not include that requirement.

(2) Where Lockheed Service Bulletin 382-57-95, including Appendix A, dated December 16, 2013, specifies to contact Lockheed for repair instructions, before further flight, repair using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(k) Parts Installation Limitation

After replacement of the left and right upper and lower rainbow fittings of the outer wing with new fittings as required by paragraph (h) of this AD, any subsequent rainbow fitting replacements must be done using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

(l) Outer Wing Flight Hours Adjustment

For any wing on which the left or right upper and lower rainbow fittings of the outer wing have been replaced with new fittings as required by paragraph (h) of this AD: Before the accumulation of 30,000 flight hours after accomplishing the replacement, do the inspection required by paragraph (g) of this AD and repeat thereafter at the times specified in paragraph (g) of this AD.

(m) 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 (n)(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.

(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 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Designated Engineering Representative (DER) that has been authorized by the Manager, Atlanta 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.

(n) Related Information

(1) For more information about this AD, 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: 404-474-5606; 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 September 23, 2014.

Dionne Palermo,
Acting Manager,
Transport Airplane Directorate,
Aircraft Certification Service.

[FR Doc. 2014-24549 Filed 10/15/2014 at 8:45 am; Publication Date: 10/16/2014]