

[Federal Register Volume 76, Number 77 (Thursday, April 21, 2011)]  
[Rules and Regulations]  
[Pages 22311-22316]  
From the Federal Register Online via the Government Printing Office [www.gpo.gov]  
[FR Doc No: 2011-9285]

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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. FAA-2010-0233; Directorate Identifier 2009-NM-014-AD; Amendment 39-16665; AD 2011-09-03]**

**RIN 2120-AA64**

**Airworthiness Directives; Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 382, 382B, 382E, 382F, and 382G Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** We are adopting a new airworthiness directive (AD) for all Model 382, 382B, 382E, 382F, and 382G airplanes. This AD requires repetitive eddy current inspections to detect cracks in the center wing upper and lower rainbow fittings, and corrective actions if necessary; and repetitive replacements of rainbow fittings, which would extend the repetitive interval for the next inspection. This AD results from a report of fatigue cracking of the wing upper and lower rainbow fittings during durability testing and on in-service airplanes. Analysis of in-service cracking has shown that these rainbow fittings are susceptible to multiple site fatigue damage. We are issuing this AD to detect and correct such fatigue cracks, which could grow large and lead to the failure of the fitting and a catastrophic failure of the center wing.

**DATES:** This AD is effective May 26, 2011.

The Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD as of May 26, 2011.

**ADDRESSES:** 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, Georgia 30063; telephone 770-494-5444; fax 770-494-5445; e-mail [ams.portal@lmco.com](mailto:ams.portal@lmco.com); Internet <http://www.lockheedmartin.com/ams/tools/TechPubs.html>.

## **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 AD, the regulatory evaluation, any comments received, and other information. The address for the Docket Office (telephone 800-647-5527) is the Document Management Facility, U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590.

**FOR FURTHER INFORMATION CONTACT:** Carl Gray, Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta Aircraft Certification Office (ACO), 1701 Columbia Avenue, College Park, Georgia 30337; phone: (404) 474-5554; fax: (404) 474-5606; e-mail: [Carl.W.Gray@faa.gov](mailto:Carl.W.Gray@faa.gov).

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

We issued a notice of proposed rulemaking (NPRM) to amend 14 CFR part 39 to include an airworthiness directive (AD) that would apply to all Model 382, 382B, 382E, 382F, and 382G airplanes. That NPRM was published in the Federal Register on March 23, 2010 (75 FR 13695). That NPRM proposed to require repetitive eddy current inspections to detect cracks in the center wing upper and lower rainbow fittings, and corrective actions if necessary; and repetitive replacements of rainbow fittings, which would extend the repetitive interval for the next inspection.

### **Comments**

We gave the public the opportunity to participate in developing this AD. We considered the comments received from the three commenters.

### **Support for the NPRM**

Lynden Air Cargo (LAC) stated that it concurs with the intent of the NPRM.

### **Request To Extend Comment Period**

LAC requested that we allow at least 60 days for the comment period. LAC stated that Executive Order 12866 provides for comment periods of "not less than 60 days." LAC pointed out that the comment period for the NPRM closes 45 days after it was published. LAC stated that it does not see a justification for a reduced comment period because Lockheed Service Bulletin 382-57-82 was originally published on December 7, 2004, and because it was not an alert bulletin, and was approved by the FAA.

We do not agree with the commenter's request to extend the comment period. While Executive Order 12866 does not specifically require a 60-day comment period for AD actions, the FAA has established a standard 45-day comment period for AD actions issued as NPRMs. In addition, the Administrative Procedure Act does not prescribe a specific amount of time for comment periods. No change to the final rule is necessary in regard to this issue.

## **Request To Clarify Reporting Requirements**

LAC requested that we clarify the reporting requirements. LAC stated that the NPRM would require sending the inspection results to Lockheed, but LAC stated that it could not find the requirement in the regulatory requirements of the NPRM.

We find that clarification is necessary. While this AD does not require reporting inspection results, operators are encouraged to report their findings to the manufacturer. We have not changed the final rule in regard to this issue.

## **Request To Clarify the Meaning of Interim Action**

LAC requested that we clarify the meaning of interim action. LAC asked why the FAA considers the NPRM to be interim action and if any other requirements are under consideration that may override or change the proposed requirements.

We agree to provide clarification. We consider this final rule to be an interim action because no terminating action for the inspections exists at this time. If the rainbow fitting is replaced, that action zeros out the time for the requirements, but the initial and repetitive inspections are required on the new fitting. At this time, no terminating action exists. However, the manufacturer might redesign the rainbow fitting, which could extend the life of the fitting and change the inspection requirements, or provide a terminating action for the inspections. We have not changed the final rule in regard to this issue.

## **Request To Clarify Cracking in Paragraph (k) of the NPRM**

LAC requested that we change "any crack" in paragraph (k) of the NPRM to "any crack is detected in the rainbow fitting." The commenter did not provide a reason for this request.

We agree with the commenter's request. During inspections required by this AD, cracks may be found in the surrounding structure (i.e., not in the rainbow fitting itself). Many of these cracks can be repaired and do not require replacing the rainbow fitting. However, as stated in paragraph (k) of the NPRM, only those cracks found in the rainbow fitting require replacing the rainbow fitting. We have changed paragraph (k) of the final rule to clarify that replacement is required only if cracking is detected "in the rainbow fitting."

## **Request To Clarify Requirements for Repairing Cracking in Paragraphs (g) and (h) of the NPRM**

LAC requested that we clarify the requirements for repairing cracking. LAC stated that if cracks are found on the rainbow fitting during the inspection required by paragraph (g) of the NPRM, then it believed that the rainbow fitting should be replaced as required by paragraph (k) of the NPRM, instead of paragraph (l) as stated in the NPRM. LAC also questioned the wording in paragraph (h) of the NPRM that

states "Any cracks found during the inspections required by paragraph (h) of this AD must be repaired before further flight in accordance with the actions required by paragraph (l) of this AD." LAC stated that it believes that if cracks are found on the rainbow fitting then it should be replaced according to the requirements of paragraph (k) of the NPRM.

We agree that clarification is necessary. The commenter states correctly that if cracks are found in the rainbow fitting, the fitting must be replaced in accordance with paragraph (k) of this AD. Cracking in other areas must be repaired (i.e., "corrective actions" must be done), as required by paragraph (k) of this AD.

We corrected typographical errors in paragraphs (g) and (h) of the NPRM to refer to paragraph (k) of this AD, rather than paragraph (l) of this AD. We also changed the phrases referring to repairs in paragraphs (g) and (h) of this AD to instead refer to doing the actions required by paragraph (k) of

the AD. In addition, we changed the header for paragraph (k) of this AD to clarify that the paragraph identifies the replacement, related investigative actions, and corrective actions.

Further, paragraph (l) of this final rule specifies an exception to paragraphs (i) and (k) of this AD. Paragraph (l) requires repairing certain conditions using a method approved by the Manager of the Atlanta Aircraft Certification Office (ACO). We added a reference to this exception in paragraph (i) of this AD.

### **Request To Extend Compliance Time**

LAC and Safair Operations (Safair) requested that we extend the grace period of 600 flight hours for the initial inspection for airplanes that have accumulated more flight cycles than the 5,000-flight-cycle threshold. Any replacement, if necessary, must be done before further flight. LAC stated that 600 flight hours is not adequate to replace the rainbow fittings. LAC recommended that we revise the compliance time for the replacement to "before the accumulation of 30,000 flight hours on the fitting or within 3,000 flight hours after the effective date of the AD, whichever occurs later." LAC stated that this proposed compliance time would allow the rainbow fitting to be replaced at the next scheduled C-check, and would reduce unscheduled down time, and maximize maintenance, repair, and overhaul (MRO) efficiencies. LAC stated that its entire fleet of six Model 382G airplanes is already over the 30,000-flight-hour limit and will require rainbow fitting replacements.

Safair also stated that the 365-day or 600-flight-hour compliance time for the initial inspection is not sufficient to allow a phased-in scheduling of this inspection and potential replacement. Safair requested that the inspection and replacement be scheduled at the next 3- or 6-year structural check to allow for the most efficient use of planned downtime and least interruption to operational schedules. Safair stated that this revised compliance time would allow for the successful provisioning of the required materials and tools as the parts and specific fasteners have significant lead times. LAC also stated that it believes that only a limited number of MROs are capable of replacing the rainbow fittings with a limited number of slots available.

We do not agree with the request to extend the compliance time. We are aware that some operators use the Model 382 airplanes for aid and relief missions. We do not intend to interfere with these missions, and that is why we have provided a grace period of 600 flight hours to replace the rainbow fittings. We consider this safety issue resulting from the fatigue cracking in the area to be serious enough to require that replacement of the rainbow fittings be accomplished at the required time. We find that exceeding the limits required by this AD would not provide an adequate level of safety. We have not changed the final rule in regard to this issue.

### **Request To Justify the Requirement for the Manager of the Atlanta ACO to Approve Repairs**

Lockheed Martin Aircraft and Logistic Centers (Lockheed Martin) requested that we provide justification for requiring repairs to be approved by the Manager, Atlanta ACO, as required by paragraph (l) of the NPRM. Lockheed Martin stated that this requirement creates an excessive regulatory burden for operators and the FAA, and it could result in excessive down time. Lockheed Martin stated that it accomplishes maintenance and repairs around the clock, using designated engineering representatives. Lockheed Martin also stated that this requirement would require operators to essentially work the same schedule as the ACO, which would result in loss of airplane availability and subsequent loss of revenue, and that would be an excessive regulatory burden.

We agree to explain the rationale for this requirement. Lockheed Service Bulletin 382-57-82, Revision 4, including Appendixes A, B, and C, dated May 20, 2009, specifies to contact the manufacturer for disposition of certain damage that exceeds certain repair limits. However, in such cases, requiring in an AD that operators contact the manufacturer for disposition of damage would be delegating our rulemaking authority to that manufacturer. Instead, we require that the action be done in accordance with a method approved by the FAA, as specified in paragraph (l) of this AD.

If operators notify the FAA immediately when a crack is found during an inspection, the FAA should have adequate time to respond. Operators also should contact Lockheed Martin with any finding, and work with it to develop a repair to support the request for approval of an alternative method of compliance (AMOC). The sooner the operator can provide us with the recommended repair, the sooner we can review it and approve it. If we find an issue with the proposed repair, we will notify the operator as soon as possible to resolve the issue and to limit potential airplane downtime. We have not changed the final rule in regard to this issue.

### **Request To Clarify Testing**

Safair requested that we clarify the details of the durability testing that resulted in reports of fatigue cracking. Safair pointed out that the Summary paragraph of the NPRM states "the proposed AD results from a report of fatigue cracking of the upper and lower rainbow fittings during durability testing and on in-service airplanes." Safair stated that it is not aware of any durability testing carried out on civilian airplanes. Furthermore, Safair asked if the details of the testing and the results can be shared with industry. Safair noted some operational civilian airplanes have airframes that have accumulated more than 90,000 flight hours, so they have actually served as a real-time durability test.

We agree to provide clarification. Safair is correct that no durability testing was carried out on civilian airplanes. However, there was a full-scale fatigue test performed on military airplanes based on military usage. The initial and recurring inspection intervals were based on a typical military transport usage and were referred to as "baseline usage." Recent analysis performed by Lockheed Martin on the commercial Model 382 airplane indicated that commercial operational usage has a severity relative to the baseline usage of approximately 1.0. We cannot share the details of the testing with industry because they are proprietary data of Lockheed Martin. We are aware that there are airplanes with over 90,000 flight hours still in service, but we also believe that these airplanes have already had the rainbow fittings replaced at least once. We have not changed the final rule in regard to this issue.

### **Request To Provide Rationale for Addressing Only Inboard Fittings**

Safair requested that we provide rationale for addressing only the inboard fittings. Safair stated that it has experienced in-service cracking on upper and lower fittings, both inboard and outboard. Safair stated that it does not understand why the NPRM addresses only the inboard upper and lower fittings. Safair stated if the AD will address an unsafe condition, then all rainbow fittings need to be addressed.

We agree to provide clarification. The unsafe condition, which results from a design flaw, applies only to the inboard fitting. The same problem has not been observed on the outboard fittings, which is a different design. However, the outboard fitting should still be inspected in accordance with the maintenance program. If cracks exist in the inboard fitting that exceed the rework limits, the fitting must be replaced in accordance with this final rule. The outboard side does not exhibit the same cracking because the outboard fitting has been redesigned and refit. At this time, we have not received significant findings to warrant AD action on outboard fittings. We have not changed the final rule in regard to this issue.

### **Request To Explain Data Collection**

Safair requested that we explain the data collection that justifies taking AD action. Safair stated that the cracks it observed in the past were not reported to Lockheed Martin and were not signs of multi-site fatigue damage, but rather isolated single instances of cracking, apparently brought on by poor installation or milling of nodes at previous assembly. Safair stated that, as Lockheed Martin did not have an FAA-approved method of rainbow fitting replacement, it has historically used

Designated Engineering Representative (DER) approved repair schemes based on military procedures.

Safair stated that Lockheed Martin is not fully aware of all the historical events relating to rainbow fitting changes on the civilian fleet because no reporting requirement existed to provide this information back to Lockheed Martin. Safair stated that, as a result, the actual data related to civilian-operated Model 382 airplanes would appear to be contaminated by military data, and the military Model C-130 airplanes operate under a different flight regime and severity of operations.

Safair stated that the FAA's assertion that it has evaluated all relevant information is inaccurate because the full data of historical findings have not been available or collated by anyone in the industry. Safair stated the NPRM would require sending inspection results back to Lockheed Martin, and, as such, it is apparent that no historical requirement existed to send these data back to Lockheed Martin.

We find that clarification is necessary. Safair's assertion that this AD requires sending inspection results to Lockheed Martin is incorrect. As explained previously, this AD does not require reporting inspection results.

Most Model 382 operators contact Lockheed Martin for assistance when cracks are found in the rainbow fittings to request instructions for repair or replacement. Lockheed Martin maintains a database of this information. In addition, operators are required by section 121.703 of the Federal Aviation Regulations (14 CFR Part 121.703) to report the occurrence or detection of certain failures, malfunctions, or defects. Additionally, although data exist from military airplanes, significant data are collected on the civilian fleet.

Results of fatigue testing on the wings have identified this area as the location of multi-site fatigue damage. Such damage has not been identified on in-service airplanes because the single lead crack has been identified and addressed before widespread fatigue damage is detected. Once widespread fatigue damage occurs, the wing can no longer carry the limit load and can fail.

Lockheed Martin has a repair drawing, which is approved by the FAA, to replace the rainbow fitting. Safair is correct that the repair drawing that has been used in the past is DER-approved, which makes it FAA-approved. However, when it was determined that an AD was required, we required that Lockheed Martin include procedures for replacing the rainbow fitting in Lockheed Service Bulletin 382-57-82, which we approved.

No change to this AD is necessary in regard to this issue.

### **Request To Explain Benefit of Replacement Part**

Safair requested that we explain the benefit of the replacement part. Safair also noted that it is also prudent to note that Lockheed Martin has developed an "improved" rainbow fitting, which is currently in process of military approval/release. Safair asked how use of this improved part will affect the proposed AD, as the proposed AD makes no reference to part numbers of rainbow fittings, and the referenced service bulletin covers only the unimproved rainbow fittings. Safair stated as the release of this part is imminent, and if the rainbow fitting issue is of sufficient concern to FAA, it would seem to make sense to work with Lockheed Martin to release the improved fitting and mandate its use under AD to ensure the best material be built into the civilian fleet. Safair asked if the FAA considered this as a way forward.

We agree to provide clarification. Lockheed Martin has informed us that there are released drawings for a hybrid rainbow fitting that incorporates as much of the Extended Service Life (ESL) rainbow fitting as possible into a configuration that would fit on a standard center wing. This fitting has not been completely analyzed or tested and the life of the hybrid part on commercial aircraft has not been evaluated. There are no parts available or in production. If Lockheed Martin chooses to make the parts available for sale then they will be evaluated and, if acceptable, we might consider additional rulemaking. The operator can also seek approval of an AMOC to install the new approved parts. We consider this a safety issue that must be addressed as soon as possible and cannot wait for Lockheed Martin to complete their evaluation and production of the new part. Lockheed Martin has

informed us that it would be at least three years before the parts were available for sale if they started production today, and there is no plan to start production. We have not changed the final rule in regard to this issue.

### **Request To Clarify Requirements for Airplanes that Have Accumulated More Than 75,000 Flight Hours**

Safair requested that we clarify the requirements for airplanes that have accumulated more than 75,000 flight hours on the center wings. Safair asked if it is assumed that all airplanes that exceed the initial threshold for airframe flight hours are automatically assumed to have rainbow fittings exceeding the initial threshold. Safair stated that some airplanes which are in daily service have accumulated more than 75,000 flight hours on the center wings.

Safair stated that several of these airplanes have a long title and previous ownership line, and it is not known when and if the rainbow fittings were previously changed because they are not serialized; and no requirement has existed to track their lives to date. Safair pointed out that this raises the question as to how the proposed AD will be implemented on those airplanes that have accumulated a high number of flight hours. Safair asked if an "assumption" is being made that all airplanes exceeding the initial threshold for airframe flight hours automatically are assumed to have rainbow fittings exceeding the initial threshold.

We agree to provide clarification. If there is no record of the rainbow fitting being previously replaced and if the airplane has accumulated more than 30,000 total flight hours, then the rainbow fitting must be replaced within 600 flight hours after the effective date of the AD. If there is a record of the rainbow fitting being replaced but the time on the new rainbow fitting exceeds 30,000 flight hours, then it must be replaced within 600 flight hours, as required by paragraph (i) of this AD. If the rainbow fitting has accumulated less than 30,000 total flight hours, it must be inspected until 30,000 total flight hours are accumulated on the rainbow fitting, and then the rainbow fitting must be replaced, as required by paragraph (i) of this AD. We have not changed the final rule in regard to this issue.

### **Request To Update Service Information**

Safair noted that Lockheed Service Bulletin 382-57-82, Revision 4, dated May 20, 2009, has been released and asked that the NPRM be revised to refer to the most current service information.

We agree. We have revised this final rule to refer to Lockheed Service Bulletin 382-57-82, Revision 4, including Appendixes A, B, and C, dated May 20, 2009. That service bulletin contains a change to the parts supply address, and does not require any additional work for any airplanes. We have added a new paragraph (m) to this final rule to provide credit for actions done before the effective date of this AD in accordance with Lockheed Service Bulletin 382-57-82, Revision 3, dated April 25, 2008.

### **Request To Clarify Repetitive Inspection Requirements**

Safair requested that we clarify the repetitive inspection requirements. Safair stated that the repetitive inspection requirements in the NPRM are more lenient than Lockheed Martin's prescribed repeat inspection periods. Safair asked if the repeat criteria automatically apply.

We agree to provide clarification. The difference in the specified repetitive intervals is that Lockheed Service Bulletin 382-57-82, Revision 4, dated May 20, 2009, recommends a repetitive inspection at 2,000 flight hours after 30,000 flight hours has been accumulated on the fittings. Paragraph (h) of this AD requires that repetitive inspections be accomplished at intervals not to exceed 3,600 flight hours on the center wing until the rainbow fitting has accumulated 30,000 total flight hours. Paragraph (i) of this AD requires that the rainbow fitting be replaced before the accumulation of 30,000 flight hours or within 600 flight hours after the effective date of this AD,

whichever is later. Where there are differences in the repetitive interval specified in the service bulletin and this AD, the interval specified in this AD prevails. However, operators may accomplish the actions specified in the AD earlier than required. We have not changed the final rule in regard to this issue.

### **Request To Clarify Lockheed Service Bulletin 382-57-82**

Safair stated that Lockheed Service Bulletin 382-57-82, Revision 3, including Appendixes A and B, dated April 25, 2008, advises that Lockheed Martin inspection cards—SP-176 (upper fitting) and SP-257 (lower fitting)—cover the intent of the inspection of the service bulletin. Safair stated that on its Lockheed Martin-developed maintenance plan, which is current with Lockheed Martin recommended practices, these inspection cards have re-inspection periods at 2,500 and 2,700 flight hours respectively. Safair stated that the NPRM requires re-inspections at 3,600 hours. Safair asked if this means the less stringent conditions of the NPRM, if adopted as proposed, should now apply. If this is the case, Safair asked if Lockheed Martin will be required to amend the Standard Maintenance Program 515 callout periods.

We agree to provide clarification. The inspections in the AD are required, but they do not affect the inspections in the maintenance program. If the inspections are identical, they can be performed simultaneously as part of the maintenance program. However, the compliance times for the specified inspections cannot be extended beyond those specified in this AD. Where there is a conflict between the compliance time in this AD and any other service information, the compliance time in this AD prevails. This could allow doing the inspections during a heavy check rather than during a special visit on a line airplane. We have not changed the final rule in regard to this issue.

### **Request To Clarify Repairs of Rainbow Fittings**

Safair requested that we clarify the repair requirements of the rainbow fittings. Safair pointed out that the second paragraph in the section titled "Differences Between the Proposed AD and the Service Bulletin" of the NPRM seems to allow repairs of rainbow fittings if cracks are found during visual inspections. Safair noted that the third paragraph in this section seems to require replacement for cracks found during nondestructive (NDT) inspections. Safair stated that this seems to be inconsistent.

We agree that clarification is necessary. As explained in the preamble of the NPRM, the general visual inspection is done on the wing faying structure. No corrective actions for findings during the general visual inspection are provided in Lockheed Service Bulletin 382-57-82, Revision 4, dated May 20, 2009; therefore, operators must repair any damage or cracking in accordance with a method approved by the FAA, as required by paragraph (l) of this AD.

However, eddy current inspections are done on the rainbow fitting and, if any cracking is found in the fitting, it must be replaced (as required by paragraph (k) of this AD). During any required replacement, an eddy current inspection must be done on all opened fitting attachment fastener holes in the upper and lower surface skin panel, stringers, splice, straps, and splice angles that are common to the rainbow fittings. As specified in the preamble of the NPRM, the corrective action for any findings in these other areas consists of repairing damage within certain limits, but damage outside those specified limits must be repaired in accordance with a method approved by the FAA. No change has been made to the final rule in this regard.

### **Request To Extend the Compliance Time**

Safair stated that if the inspections currently mandated by Lockheed Martin's maintenance plan continue as required, and if there are positive findings as a result of these inspections then the damaged rainbow fitting must be replaced prior to further flight. However, on airplanes where there are no crack findings as a result of the inspections, in the maintenance plan, Safair requests that the

airplane may continue in service until the next 3- or 6-year structural check before the rainbow fittings are replaced even if the time on the fittings has exceeded the threshold.

We disagree. We have provided a grace period of 600 flight hours to replace the rainbow fittings. We consider this safety issue to result from the fatigue cracking in the area that is serious enough to require that the replacement of the rainbow fittings be accomplished at the required time. We have determined that exceeding the limits required by this final rule would not provide an adequate level of safety.

Further, we are aware of the limited resources available for replacing the rainbow fittings. Lockheed Martin has informed us that there are adequate supplies of rainbow fittings to support this AD. We are also aware that Lockheed Service Bulletin 382-57-82 applies to many Model C-130 airplanes operated by the military, but the rainbow fittings on most of these airplanes have already been replaced. We have not changed the final rule in regard to this issue.

## Conclusion

We reviewed the relevant data, considered the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We also determined that these changes will not increase the economic burden on any operator or increase the scope of the AD.

## Interim Action

We consider this AD interim action. If final action is later identified, we might consider further rulemaking then.

## Costs of Compliance

We estimate that this AD affects 14 airplanes of U.S. registry. The following table provides the estimated costs for U.S. operators to comply with this AD.

**Table—Estimated Costs**

Action	Work hours	Average labor rate per hour	Parts	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Inspection	20	\$85	None	\$1,700 per inspection cycle	14	\$23,800 per inspection cycle
Fitting replacement	2,438	\$85	\$40,000	\$247,230	14	\$3,461,220

## 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**

This AD will not have federalism implications under Executive Order 13132. This AD will 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 that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866,
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979), and
- (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.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA amends 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 AD:



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**2011-09-03 Lockheed Martin Corporation/Lockheed Martin Aeronautics Company:**  
Amendment 39-16665. Docket No. FAA-2010-0233; Directorate Identifier 2009-NM-014-AD.

**Effective Date**

(a) This airworthiness directive (AD) is effective May 26, 2011.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to all Lockheed Martin Corporation/Lockheed Martin Aeronautics Company Model 382, 382B, 382E, 382F, and 382G airplanes, certificated in any category.

**Subject**

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

**Unsafe Condition**

(e) This AD results from a report of fatigue cracking of the wing upper and lower rainbow fittings during durability testing and on in-service airplanes. Analysis of in-service cracking has shown that these rainbow fittings are susceptible to multiple site fatigue damage. The Federal Aviation Administration is issuing this AD to detect and correct such fatigue cracks, which could grow large and lead to the failure of the fitting and a catastrophic failure of the center wing.

**Compliance**

(f) You are responsible for having the actions required by this AD performed within the compliance times specified, unless the actions have already been done.

**Initial Inspections**

(g) At the later of the times specified in paragraphs (g)(1) and (g)(2) of this AD: Do eddy current inspections to detect cracking of the center wing upper and lower rainbow fittings on the left and right side of the airplane. Do the actions in accordance with the Accomplishment Instructions of Lockheed Service Bulletin 382-57-82, Revision 4, including Appendixes A and B, dated May 20, 2009. If any crack is found during the inspections required by paragraph (g) of this AD, before further flight, do the actions required by paragraph (k) of this AD.

(1) Before the accumulation of 15,000 total flight hours on the rainbow fitting.

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

## **Repetitive Inspection Schedule**

(h) Repeat the inspection required by paragraph (g) of this AD at intervals not to exceed 3,600 flight hours on the center wing, until the rainbow fitting has accumulated 30,000 total flight hours. If any crack is found during the inspections required by paragraph (h) of this AD, before further flight, do the actions required by paragraph (k) of this AD.

## **Rainbow Fitting Replacements**

(i) Before the accumulation of 30,000 flight hours on the rainbow fitting, or within 600 flight hours after the effective date of this AD, whichever occurs later: Replace the rainbow fitting, do all related investigative actions, and do all applicable corrective actions, in accordance with paragraph 2.C. of the Accomplishment Instructions of Lockheed Service Bulletin 382-57-82, Revision 4, including Appendix C, dated May 20, 2009, except as required by paragraph (l) of this AD. Replace the rainbow fitting thereafter at intervals not to exceed 30,000 flight hours.

## **Post-Replacement Repetitive Inspections**

(j) For upper and lower rainbow fittings replaced in accordance with paragraph (i) or (k) of this AD: Do the eddy current inspections specified in paragraph (g) of this AD within 15,000 flight hours after doing the replacement and repeat the eddy current inspections specified in paragraph (h) of this AD thereafter at intervals not to exceed 3,600 flight hours until the rainbow fittings are replaced in accordance with paragraph (i) or (k) of this AD.

## **Replacement, Related Investigative Actions, and Corrective Actions**

(k) If, during any inspection required by paragraph (g) or (h) of this AD, any crack is detected in the rainbow fitting, before further flight, replace the rainbow fitting, do all related investigative actions, and do all applicable corrective actions, in accordance with Paragraph 2.C. of the Accomplishment Instructions of Lockheed Service Bulletin 382-57-82, Revision 4, including Appendix C, dated May 20, 2009, except as provided by paragraph (l) of this AD.

## **Exceptions to Service Bulletin**

(l) Where Lockheed Service Bulletin 382-57-82, Revision 4, including Appendixes A, B, and C, dated May 20, 2009, specifies to contact the manufacturer for disposition of certain repair conditions or does not specify corrective actions if certain conditions are found, this AD requires repairing those conditions using a method approved by the Manager, Atlanta Aircraft Certification Office (ACO), FAA. For a repair method to be approved by the Manager, Atlanta ACO, as required by this paragraph, the Manager's approval letter must specifically refer to this AD.

## **Credit for Actions Accomplished in Accordance With Previous Service Information**

(m) Actions accomplished before the effective date of this AD in accordance with Lockheed Service Bulletin 382-57-82, Revision 3, including Appendixes A, B, and C, dated April 25, 2008, are acceptable for compliance with the corresponding requirements of this AD.

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

(n)(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. Send information to Attn: Carl Gray,

Aerospace Engineer, Airframe Branch, ACE-117A, FAA, Atlanta Aircraft Certification Office, 1701 Columbia Avenue, College Park, Georgia 30337; telephone (404) 474-5554; fax (404) 474-5606.

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

### **Material Incorporated by Reference**

(o) You must use Lockheed Service Bulletin 382-57-82, Revision 4, including Appendixes A, B, and C, dated May 20, 2009, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register approved the incorporation by reference of this service information under 5 U.S.C. 552(a) and 1 CFR part 51.

(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, Georgia 30063; telephone 770-494-5444; fax 770-494-5445; e-mail [ams.portal@lmco.com](mailto:ams.portal@lmco.com); Internet <http://www.lockheedmartin.com/ams/tools/TechPubs.html>.

(3) You may review copies of the 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.

(4) You may also review copies of the service information that is incorporated by reference at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to: [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

Issued in Renton, Washington, on April 12, 2011.

Ali Bahrami,  
Manager, Transport Airplane Directorate,  
Aircraft Certification Service.