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## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

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

**[Docket No. FAA-2009-1022; Directorate Identifier 2009-NM-163-AD; Amendment 39-16078; AD 2008-11-02 R1]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Lockheed Model L-1011 Series Airplanes**

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

**ACTION:** Final rule; request for comments.

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**SUMMARY:** The FAA is revising an existing airworthiness directive (AD), which applies to all Lockheed Model L-1011 series airplanes. That AD currently requires revising the FAA-approved maintenance program by incorporating new airworthiness limitations for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. That AD also requires the accomplishment of certain fuel system modifications, the initial inspections of certain repetitive fuel system limitations to phase in those inspections, and repair if necessary. This AD clarifies the intended effect of the AD on spare and on-airplane fuel tank system components. This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

**DATES:** This AD is effective December 18, 2009.

On June 25, 2008 (73 FR 29410, May 21, 2008), the Director of the Federal Register approved the incorporation by reference of a certain publication listed in the AD.

We must receive any comments on this AD by January 19, 2010.

**ADDRESSES:** You may send comments 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: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this AD, contact Lockheed Continued Airworthiness Project Office, Attention Airworthiness, 86 South Cobb Drive, Marietta, Georgia 30063-0567; 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 street address for the Docket Office (telephone 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Robert A. Bosak, Aerospace Engineer, Propulsion and Services Branch, ACE-118A, FAA, Atlanta Aircraft Certification Office, 1701 Columbia Avenue, College Park, Georgia 30337; telephone (404) 474-5583; fax (404) 474-5606.

## **SUPPLEMENTARY INFORMATION:**

### **Discussion**

On May 8, 2008, we issued AD 2008-11-02, Amendment 39-15524 (73 FR 29410, May 21, 2008). That AD applied to all Lockheed Model L-1011 series airplanes. That AD required revising the FAA-approved maintenance program by incorporating new airworthiness limitations for fuel tank systems to satisfy Special Federal Aviation Regulation No. 88 requirements. That AD also required the accomplishment of certain fuel system modifications, the initial inspections of certain repetitive fuel system limitations to phase in those inspections, and repair if necessary. That AD resulted from a design review of the fuel tank systems. The actions specified in that AD are intended to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

Critical design configuration control limitations (CDCCLs) are limitation requirements to preserve a critical ignition source prevention feature of the fuel tank system design that is necessary to prevent the occurrence of an unsafe condition. The purpose of a CDCCL is to provide instruction to retain the critical ignition source prevention feature during configuration change that may be caused by alterations, repairs, or maintenance actions. A CDCCL is not a periodic inspection.

### **Actions Since AD Was Issued**

Since we issued that AD, we have determined that it is necessary to clarify the AD's intended effect on spare and on-airplane fuel tank system components, regarding the use of maintenance manuals and instructions for continued airworthiness.

Section 91.403(c) of the Federal Aviation Regulations (14 CFR 91.403(c)) specifies the following:

No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitation section unless the mandatory \* \* \* procedures \* \* \* have been complied with.

Some operators have questioned whether existing components affected by the new CDCCLs must be reworked. We did not intend for the AD to retroactively require rework of components that had been maintained using acceptable methods before the effective date of the AD. Owners and operators of the affected airplanes therefore are not required to rework affected components identified as airworthy or installed on the affected airplanes before the required revisions of the FAA-approved maintenance program. But once the CDCCLs are incorporated into the FAA-approved maintenance program, future maintenance actions on components must be done in accordance with those CDCCLs.

### **FAA's Determination and Requirements of This AD**

The unsafe condition described previously is likely to exist or develop on other airplanes of the same type design. For this reason, we are issuing this AD to revise AD 2008-11-02. This new AD retains the requirements of the existing AD, and adds a new note to clarify the intended effect of the AD on spare and on-airplane fuel tank system components.

### **Explanation of Additional Changes to AD**

AD 2008-11-02 allowed the use of alternative CDCCLs if they are part of a later revision of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008. That provision has been removed from this AD. Allowing the use of "a later revision" of a specific service document violates Office of the Federal Register regulations for approving materials that are incorporated by reference. Affected operators, however, may request approval to use an alternative CDCCL that is part of a later revision of the referenced service document as an alternative method of compliance, under the provisions of paragraph (k) of this AD.

We have revised paragraph (g)(2) of this AD to remove information on certain approved methods. Instead we have added Note 3 to this AD to specify that guidance on certain CDCCLs can be found in the documents identified in Table 1 of this AD. We have re-identified subsequent notes accordingly. We have approved the documents in Table 1 of this AD. Operators may contact the Manager, Atlanta Aircraft Certification Office, for guidance regarding the use of the documents in Table 1 of this AD.

### **Explanation of Further Change to This AD**

We have revised paragraphs (g), (g)(2), (h), (h)(1), and (h)(2), Note 4, and Tables 1 and 2 of this AD to remove the term "the service bulletin," which is defined in paragraph (f) of this AD. We have provided the full service bulletin citation throughout this AD to avoid any confusion about which specific service bulletin is being referenced. However, we have not removed the "Service Bulletin Reference" paragraph from this AD. Because this AD revises AD 2008-11-02, we cannot change paragraph references, which would adversely affect compliance. Therefore, we have determined that leaving paragraph (f) of this AD unchanged is a less burdensome approach for operators, while still adhering to standard drafting guidance.

### **Costs of Compliance**

This revision imposes no additional economic burden. The current costs for this AD are repeated for the convenience of affected operators, as follows:

There are about 108 airplanes of the affected design in the worldwide fleet. The following table provides the estimated costs, at an average labor rate of \$80 per work hour, for U.S. operators to comply with this AD.

### Estimated Costs

Action	Work hours	Parts	Cost per airplane	Number of U.S.-registered airplanes	Fleet cost
Maintenance program revision to incorporate FSLs and CDCCLs	4	None	\$320	63	\$20,160
Removal of auxiliary fuel tank No. 4, if applicable	40	None	\$3,200	8	\$25,600
Modification and inspection of the wiring harnesses of the fuel level control switch	19	\$974	\$2,494	63	\$157,122
Inspection of the airplane fuel tanks, vent boxes, and bonding jumpers, and the addition of bonding jumpers to the fuel/vent tube fittings	370	\$18,491	\$48,091	63	\$3,029,733
Identification and inspection of the FQIS wiring harnesses	4	\$336	\$656	63	\$41,328

#### FAA's Justification and Determination of the Effective Date

This revision merely clarifies the intended effect on spare and on-airplane fuel tank system components, and makes no substantive change to the AD's requirements. For this reason, it is found that notice and opportunity for prior public comment for this action are unnecessary, and good cause exists for making this amendment effective in less than 30 days.

#### Comments Invited

This AD is a final rule that involves requirements affecting flight safety, and we did not provide you with notice and an opportunity to provide your comments before it becomes effective. However, we invite you to send any written data, views, or arguments about this AD. Send your comments to an address listed under the ADDRESSES section. Include "Docket No. FAA-2009-1022; Directorate Identifier 2009-NM-163-AD" at the beginning of your comments. We specifically invite comments on the overall regulatory, economic, environmental, and energy aspects of this AD. We will consider all comments received by the closing date and may amend this 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 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 have determined that 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 the 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); and
3. 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.

We prepared a regulatory evaluation of the estimated costs to comply with this AD and placed it in the AD docket. See the ADDRESSES section for a location to examine the regulatory evaluation.

### **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 part 39 of the Federal Aviation Regulations (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 removing Amendment 39-15524 (73 FR 29410, May 21, 2008) and adding the following new AD:



**2008-11-02 R1 Lockheed:** Amendment 39-16078. Docket No. FAA-2009-1022; Directorate Identifier 2009-NM-163-AD.

**Effective Date**

(a) This airworthiness directive (AD) is effective December 18, 2009.

**Affected ADs**

(b) This AD revises AD 2008-11-02, Amendment 39-15524.

**Applicability**

(c) This AD applies to all Lockheed Model L-1011 series airplanes, certificated in any category.

Note 1: This AD requires revisions to certain operator maintenance documents to include new inspections. Compliance with these inspections is required by 14 CFR 91.403(c). For airplanes that have been previously modified, altered, or repaired in the areas addressed by these inspections, the operator may not be able to accomplish the inspections described in the revisions. In this situation, to comply with 14 CFR 91.403(c), the operator must request approval for an alternative method of compliance (AMOC) in accordance with paragraph (k) of this AD. The request should include a description of changes to the required inspections that will ensure the continued operational safety of the airplane.

**Unsafe Condition**

(d) This AD results from a design review of the fuel tank systems. We are issuing this AD to prevent the potential for ignition sources inside fuel tanks caused by latent failures, alterations, repairs, or maintenance actions, which, in combination with flammable fuel vapors, could result in a fuel tank explosion and consequent loss of the airplane.

**Compliance**

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

**Restatement of Requirements of AD 2008-11-02 With Changes to Compliance Method**

**Service Bulletin Reference**

(f) The term "service bulletin," as used in this AD, means the Accomplishment Instructions of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008.

## Maintenance Program Revision

(g) Before December 16, 2008, revise the FAA-approved maintenance program to incorporate the fuel system limitations (FSLs) specified in paragraphs 2.B.(1)(b), 2.B.(1)(e), 2.B.(1)(f), and 2.B.(1)(g) of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, and the critical design configuration control limitations (CDCCLs) specified in paragraph 2.C. of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008; except as provided by paragraphs (g)(1), (g)(2), and (h) of this AD.

(1) Where the FSLs specify to inspect, this AD would require doing a general visual inspection.

Note 2: For the purposes of this AD, a general visual inspection is: "A visual examination of an interior or exterior area, installation, or assembly to detect obvious damage, failure, or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to ensure visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight, or droplight and may require removal or opening of access panels or doors. Stands, ladders, or platforms may be required to gain proximity to the area being checked."

(2) For the CDCCLs specified in paragraphs 2.C.(2)(c), 2.C.(2)(d), and 2.C.(15)(a) of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, do the applicable actions using a method approved in accordance with a method approved by the Manager, Atlanta Aircraft Certification Office, FAA.

Note 3: Guidance on certain CDCCLs can be found in the documents identified in Table 1 of this AD.

**Table 1 – Approved Methods for Certain CDCCLs**

<b>For the CDCCL identified in Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, in paragraph -</b>	<b>Guidance can be found in -</b>	<b>For -</b>
2.C.(2)(c)	Hamilton Sundstrand Overhaul Manual 28-24-03, Revision 14, dated May 15, 2000	Overhauling and repairing the electrically-operated fuel boost pumps.
2.C.(2)(d)	Lockheed L-1011 Service Information Letter 28-12, dated March 17, 1998	Keeping the electrical conduit for the electrically-operated fuel boost pumps open and unplugged at the wing rear spar.

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2.C.(15)(a)	Lockheed Drawing 1527514, Revision D, dated September 26, 1981	Installing the fuel tank valves, auxiliary power unit pump, sight gauges, fuel quantity indicating system tank units, over-wing filler cap adapter ring, boost pump mounting plate, and access doors for the boost pump, vent box, vent valve, and fuel level control switch.
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**Initial Accomplishment of FSLs and Repair if Necessary**

(h) At the applicable compliance time specified in paragraph (h)(1) or (h)(2) of this AD, do the applicable FSLs specified in paragraphs 2.B.(1)(b), 2.B.(1)(e), 2.B.(1)(f), and 2.B.(1)(g) of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, and repair any discrepancy, in accordance with Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008. Any repair must be done before further flight.

(1) For the FSL identified in paragraph 2.B.(1)(b) of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, do the FSL before December 16, 2008.

(2) For the FSLs identified in paragraphs 2.B.(1)(e), 2.B.(1)(f), and 2.B.(1)(g) of Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, do the applicable FSLs within 60 months after June 25, 2008 (the effective date AD 2008-11-02).

Note 4: Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, refers to the service information listed in Table 2 of this AD as additional sources of guidance for doing the FSLs and repair.

**Table 2 – Additional Sources of Guidance for Certain FSLs**

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<b>The FSL identified in Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, in paragraph -</b>	<b>Refers to Lockheed Service Bulletin -</b>	<b>For -</b>
2.B.(1)(b)	093-28-089, Revision 3, dated October 4, 2006	Removing auxiliary fuel tank No. 4, if applicable.
2.B.(1)(e)	093-28-095, dated September 13, 2006	Inspecting the airplane fuel tanks and vent boxes for cleanliness and evidence of deteriorated or damaged fuel/vent tubes and components; inspecting bonding jumpers for proper installation, corrosion, frayed or broken strands, and the condition of the environmental sealing or bonding clamps and hardware; correcting any discrepant conditions; adding bonding jumpers to the fuel/vent tube fittings; and inspecting the bonding jumpers on the fuel/vent tube fittings.

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2.B.(1)(f)	093-28-096, Revision 2, dated June 23, 2006	Inspecting the wiring harnesses of the No. 1 and No. 3 engine tank valves for evidence of damage and fuel contamination; replacing any damaged wire with new wire; and repairing or replacing any contaminated wires as applicable.
2.B.(1)(g)	093-28-097, dated August 3, 2006	Identifying the wiring harnesses for the fuel quantity indicator system (FQIS); inspecting the FQIS wiring harnesses for any visible damage, wear, chafing, or indications of electrical arcing; and replacing or repairing any damaged wires as applicable.

### **No Reporting Requirement**

(i) Although Lockheed Service Bulletin 093-28-095, dated September 13, 2006; Lockheed Service Bulletin 093-28-096, Revision 2, dated June 23, 2006; and Lockheed Service Bulletin 093-28-097, dated August 3, 2006; specify to notify Lockheed of any discrepancies found during inspection or any evidence of damage or wire replacement, this AD does not require that action.

### **No Alternative Inspections, Inspection Intervals, or CDCCLs**

(j) After accomplishing the actions specified in paragraphs (g) and (h) of this AD, no alternative inspections, inspection intervals, or CDCCLs may be used unless the inspections, intervals, or CDCCLs are approved as an AMOC in accordance with the procedures specified in paragraph (k) of this AD.

### **New Information**

### **Explanation of CDCCL Requirements**

Note 5: Notwithstanding any other maintenance or operational requirements, components that have been identified as airworthy or installed on the affected airplanes before the revision of the FAA-approved maintenance program, as required by paragraph (g) of this AD, do not need to be reworked in accordance with the CDCCLs. However, once the FAA-approved maintenance program has been revised, future maintenance actions on these components must be done in accordance with the CDCCLs.

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

(k)(1) The Manager, Atlanta Aircraft Certification Office, 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: Robert Bosak, Aerospace Engineer, Propulsion Branch, ACE-118A, FAA, Atlanta Aircraft Certification Office, 1701 Columbia Avenue, College Park, GA 30337; telephone (404) 474-5583; fax (404) 474-5606.

(2) To request a different method of compliance or a different compliance time for this AD, follow the procedures in 14 CFR 39.19. Before using any approved AMOC on any airplane to which the AMOC applies, notify your principal maintenance inspector (PMI) or principal avionics inspector (PAI), as appropriate, or lacking a principal inspector, your local Flight Standards District Office. The AMOC approval letter must specifically reference this AD.

## **Material Incorporated by Reference**

(1) You must use Lockheed Service Bulletin 093-28-098, Revision 1, dated January 22, 2008, to do the actions required by this AD, unless the AD specifies otherwise.

(1) The Director of the Federal Register previously approved the incorporation by reference of this service information on June 25, 2008 (73 FR 29410 May 21, 2008).

(2) For service information identified in this AD, contact Lockheed Continued Airworthiness Project Office, Attention Airworthiness, 86 South Cobb Drive, Marietta, Georgia 30063-0567; 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 or 425-227-1152.

(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 October 26, 2009.

Stephen P. Boyd,  
Acting Manager, Transport Airplane Directorate,  
Aircraft Certification Service.