# EMERGENCY AIRWORTHINESS DIRECTIVE

Aircraft Certification Service
Washington, DC

U.S. Department
of Transportation
**Federal Aviation
Administration**

**www.faa.gov/aircraft/safety/alerts/**

**DATE: August 31, 2006**
**AD #: 2006-18-51**

Send to all owners and operators of Raytheon Aircraft Company (RAC) Models 1900, 1900C, and 1900D airplanes. This AD applies to certain RAC Models 1900, 1900C, and 1900D airplanes.

**Discussion**

The FAA received recent reports of cracks found in the wings of two RAC 1900D airplanes. During routine maintenance, the wing rear spar lower caps and rear spar web were found to have significant cracks.

The RAC Structural Inspection Manual requires a thorough inspection of the wing rear spar at 17,500 hours time-in-service (TIS) with repetitive inspections at intervals of 3,000 hours TIS.

One airplane had 19,126 hours TIS when cracks were found. The cracks were in the lower aft spar cap flange, but the cracks extended upward into the web and terminated at the lightening hole in the spar web. Fasteners were also found missing in the spar cap and wing cove splice plate. There were no discrepancies recorded from the initial inspection at 17,500 hours TIS on this airplane.

Early indications show similar cracking on the other airplane. We continue to gather information on this airplane.

Analysis shows that similar cracks could also develop in the wings of the Models 1900 and 1900C airplanes.

**FAA's Determination**

After careful review of all available information related to the subject presented above, we have identified an unsafe condition that is likely to exist or develop on other products of this same type design. For this reason, the FAA has determined that AD action should be taken to detect and correct cracking in the wing rear spar lower caps of the affected airplanes before the cracks grow to failure. Such a wing failure could result in the wing separating from the airplane with consequent loss of control.

**AD Requirements**

This AD requires the following:

- A one-time visual inspection of both the left and right wing rear spar lower caps for cracking and other damage such as loose or missing fasteners.
- Repair of any cracks or damage found.
- Report of any cracks or damage found to the FAA and RAC.

Provisions are included in this emergency AD to position the airplane to a home base, hangar, maintenance facility, etc. with limitations.

This is considered interim action. The FAA will use the data from the reporting requirement to determine what additional action is necessary, which could result in future AD action.

**Presentation of the Actual AD**

This rule is issued under 49 U.S.C. Section 44701 (formerly section 601 of the Federal Aviation Act of 1958), pursuant to the authority delegated to me by the Administrator, and is effective immediately upon receipt of this action.

**2006-18-51 RAYTHEON AIRCRAFT COMPANY (RAC)**: Directorate Identifier 2006-CE-48-AD.

**Effective Date**

(a) This emergency AD becomes effective upon receipt.

**Affected ADs**

(b) None.

**Applicability**

(c) This AD applies to the following airplane models and serial numbers that are certificated in any category:

| Models | Serial Numbers |
|---|---|
| 1) 1900 | UA-3 |
| 2) 1900C (C-12J) | UB-1 through UB-74, UC-1 through UC-174, and UD-1 through UD-6 |
| 3) 1900D | UE-1 through UE-439 |

**Unsafe Condition**

(d) This AD is the result of extensive cracks found in the wing rear spar lower caps and rear spar web of two of the affected airplanes. One of the airplanes also had missing fasteners. We are issuing this AD to detect and correct cracking and other damage in the wing rear spar lower caps of the affected airplanes before the cracks or damage lead to failure. Such a wing failure could result in the wing separating from the airplane with consequent loss of control.

**Compliance**

(e) To address this problem, you must do the following:

| Actions | Compliance | Procedures |
|---|---|---|
| (1) A one-time visual inspection of both the left and right wing rear spar lower caps for cracks and other damage such as loose or missing fasteners. | At whichever occurs later after receipt of this emergency AD:<br>(i) Within 24 hours; or<br>(ii) Prior to further flight. | Follow the procedures in the Appendix to this AD. |
| (2) For the inspection in paragraph (e)(1) of this AD, you may return/position the airplane to a home base, hangar, maintenance facility, etc. | For this repositioning, you may operate the airplane up to 3 hours time-in-service provided the flight(s) occur(s) no later than 30 days after receipt of this emergency AD. | The following limitations are imposed for such a repositioning flight:<br>(i) ONLY THE PILOT AND ANY ADDITIONAL FLIGHT CREW MEMBER REQUIRED FOR SAFE OPERATION IS ALLOWED FOR THIS FLIGHT;<br>(ii) FLIGHT INTO KNOWN OR FORECAST MODERATE OR SEVERE TURBULENCE IS PROHIBITED; and<br>(iii) INDICATED AIRSPEED IS LIMITED TO 175 KNOTS MAXIMUM. |
| (3) Repair any cracks or other damage such as loose or missing fasteners found during the inspection required in paragraph (e)(1) of this AD. Do this by obtaining and incorporating an FAA-approved repair scheme from RAC. | Before further flight after the inspection required by paragraph (e)(1) of this AD. | Contact RAC at Post Office Box 85, Wichita, Kansas 67201-0085; phone: 316-676-8366; fax: (316) 676-8745; email: tom_peay@rac.ray.com. |

| | | |
|---|---|---|
| (4) Report the inspection results to the FAA and RAC. For the reporting requirement in this AD, under the provisions of the Paperwork Reduction Act, the Office of Management and Budget (OMB) has approved the information collection requirements and has assigned OMB Control Number 2120-0056. | Within 72 hours after completing the inspection required in paragraph (e)(1) of this AD. | Send your report to Steven E. Potter, FAA, 1801 Airport Road, Wichita, Kansas 67209; fax: (316) 946-4107; email: steven.potter@faa.gov; and Tom Peay, Raytheon Aircraft Company, Post Office Box 85, Wichita, Kansas 67201-0085; fax: (316) 676-8745; email: tom_peay@rac.ray.com. Include in your report the following information:<br>(i) aircraft model and serial number;<br>(ii) number of cycles;<br>(iii) aircraft hours TIS;<br>(iv) left and right wing lower spar cap hours TIS;<br>(v) hours TIS on the spar cap since last inspection;<br>(vi) answer yes or no whether cracking, missing fasteners, or other damage was found; and<br>(vii) if cracking was found, identify size and location of cracks |

**Alternative Methods of Compliance**

(h) The Manager, Wichita Aircraft Certification Office, FAA, ATTN: Steven E. Potter, FAA, 1801 Airport Road, Wichita, Kansas 67209; telephone: (316) 946-4124; fax: (316) 946-4107, has the authority to approve AMOCs for this AD, if requested using the procedures in 14 CFR 39.

**APPENDIX TO AD 2006-18-51**

**Inspection Instructions – Raytheon Aircraft Company 1900 Series Wing Rear Spar**

Step 1. Lower the wing flaps to provide visual access to the wing rear spar cove area. Although the pictures show the flaps removed, this AD does not require flap removal to do the inspection.

Step 2. Using a strong, high-intensity light visually inspect the area of the wing rear spar identified in Figure 1. There is ample visual access from above the upper surface of the flap. Look for cracks (like those shown in Figures 2 and 3) and loose or missing fasteners.

Step 3. Clean the wing rear spar area 10 inches inboard and outboard of the buttock line (BL) 114 area.

Step 4. Repeat the Step 2 inspection.

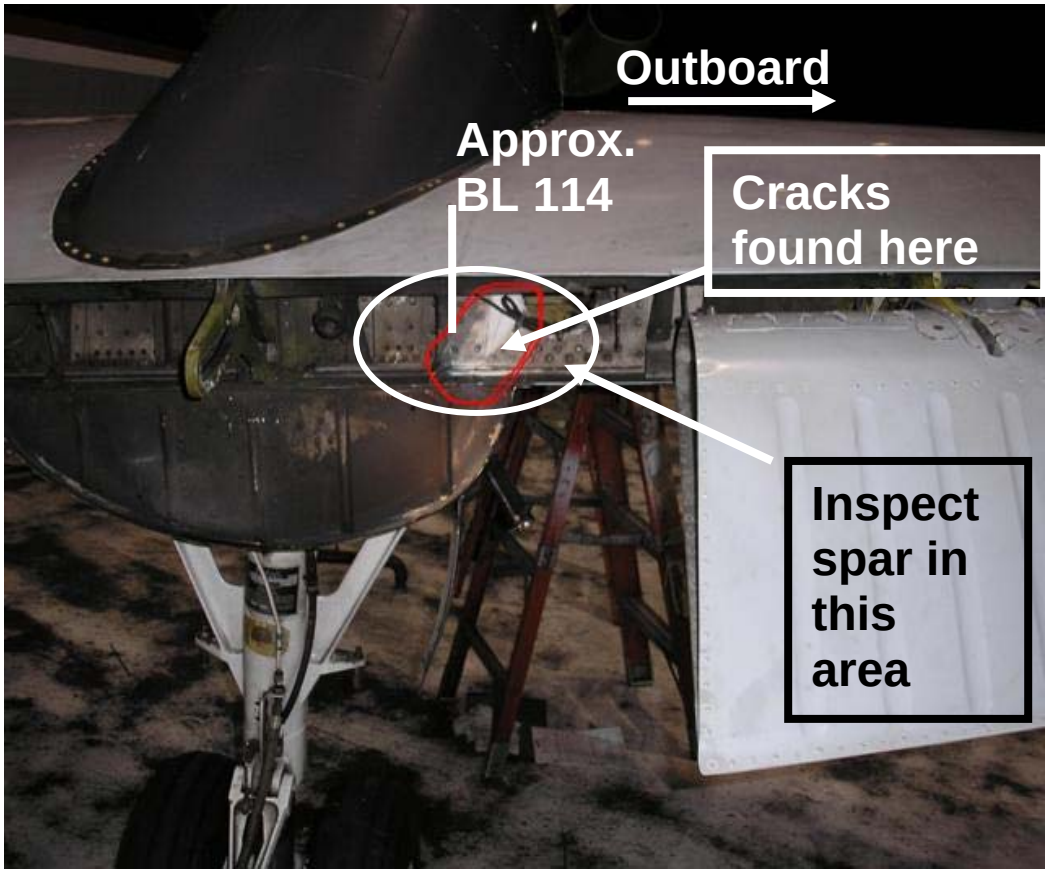


Figure 1: View of R/H wing rear spar at BL 114 area looking forward (The inboard flap is removed in this figure, but removal of the flap is not required to do the inspection).

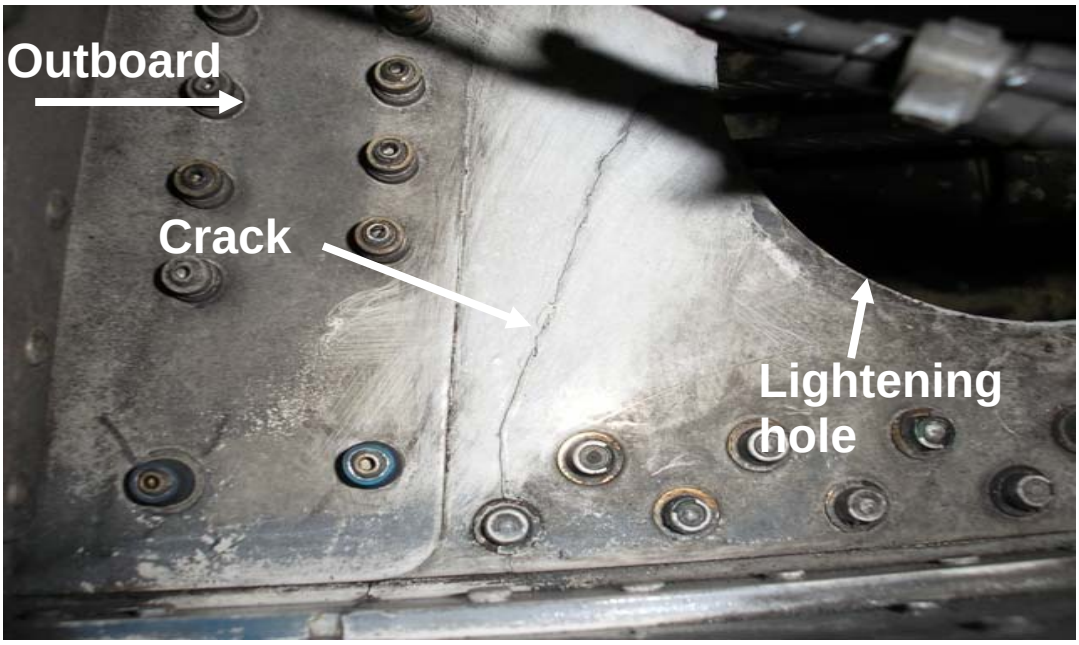


Figure 2: Closeup view of R/H wing rear spar web crack at BL 114 area looking forward (The inboard flap is removed in this figure, but removal of the flap is not required to do the inspection).

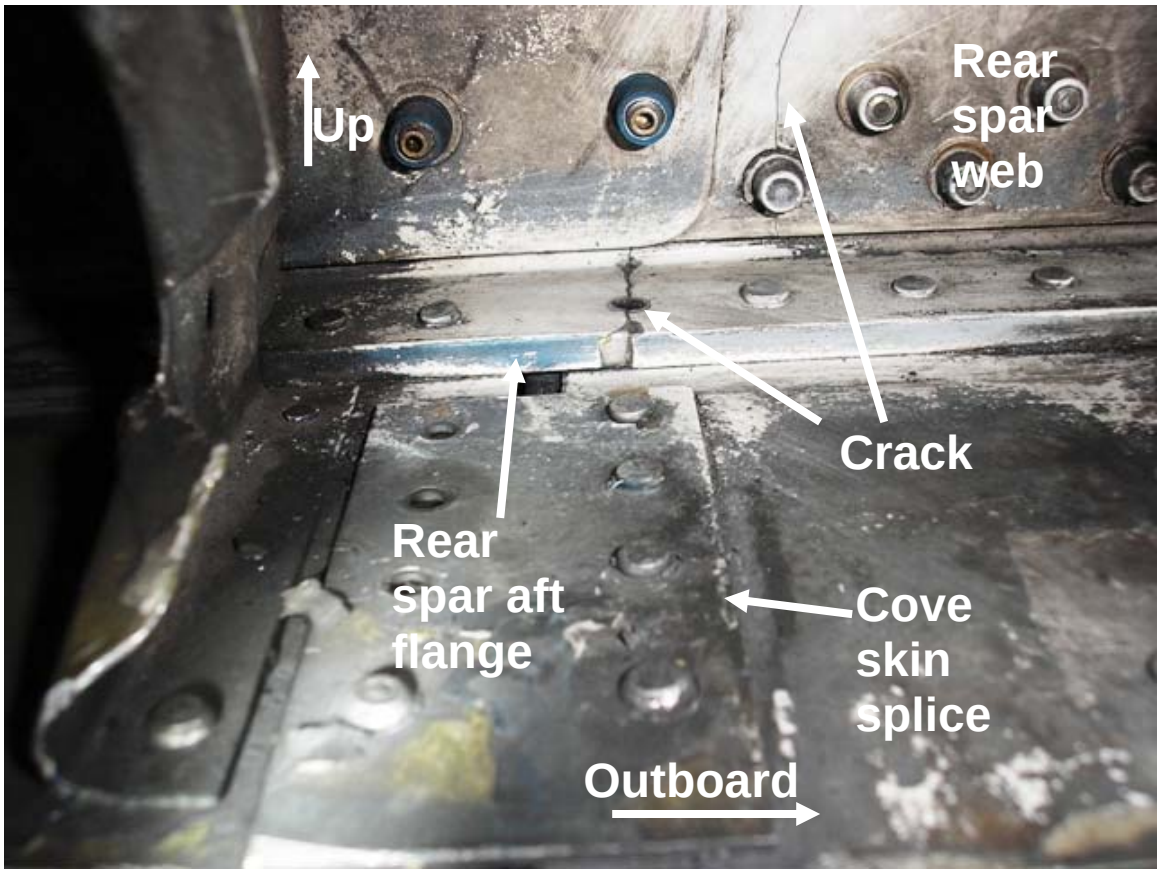


Figure 3: Closeup view of R/H wing rear spar cracks at BL 114 area looking forward (The inboard flap is removed in this figure, but removal of the flap is not required to do the inspection).

Issued in Kansas City, Missouri, on August 31, 2006.

David R. Showers,
Acting Manager, Small Airplane Directorate,
Aircraft Certification Service.