

Note 1: The serial numbers of the Model S2R-T15 airplanes could incorporate T15-xxx, T36-xxx, T41-xxx, or T42-xxx. This AD applies to both of these serial number designations as they are both Model S2R-T15 airplanes.

Note 2: The serial numbers of the Model S2R-T34 airplanes could incorporate T34-xxx, T36-xxx, T41-xxx, or T42-xxx. This AD applies to all of these serial number designations as they are all Model S2R-T34 airplanes.

Note 3: Any Group 3 airplane that has been modified with a hopper of a capacity more than 410 gallons, a piston engine greater than 600 horsepower, or any gas turbine engine, makes the airplane a Group 1 airplane for the purposes of this AD. Inspect the airplane at the Group 1 compliance time specified in this AD.

(b) *Who must comply with this AD?* Anyone who wishes to operate any of the airplanes identified in paragraph (a) of this AD must comply with this AD.

(c) *What problem does this AD address?* The actions specified by this AD are intended to detect and correct fatigue cracking of the lower spar caps, which could result in the wing separating from the airplane with consequent loss of control of the airplane.

(d) *What actions must I accomplish to address this problem?* To address this problem, you must accomplish the following:

(1) Repetitive inspect, using magnetic particle, ultrasonic, or eddy current procedures, the 1/4-inch and 5/16-inch bolt hole areas on each lower spar cap for fatigue cracking. Reference paragraph (e)(3) and (e)(4) of this AD (including all subparagraphs) to obtain the initial and repetitive inspection compliance times.

(i) The cracks may emanate from the bolt hole on the face of the spar cap or they may occur in the shaft of the hole.

(ii) You must inspect both of these areas.

(iii) If using the magnetic particle method for the inspection, perform the inspection using the "Inspection" portion of the "Accomplishment Instructions" and "Lower Splice Fitting Removal and Installation Instructions" in Ayres Service Bulletin No. SB-AG-39, dated September 17, 1996. You must follow American Society for Testing Materials (ASTM) E 1444-01, using wet particles meeting the requirements of the Society for Automotive Engineers (SAE) AMS 3046. The inspection must be performed by or supervised by a Level 2 or Level 3

inspector certified for magnetic particle inspection method using the guidelines established by the American Society for Nondestructive Testing or MIL-STD-410. CAUTION: You must firmly support the wings during the inspection to prevent movement of the spar caps when the splice blocks are removed. This will allow easier realignment of the splice block holes and the holes in the spar cap for bolt insertion.

(iv) If using ultrasonic or eddy current methods for the inspection, a procedure must be sent to the FAA Atlanta Aircraft Certification Office (ACO) for approval prior to performing the inspection. Send your proposed procedure to the FAA Atlanta Aircraft ACO, Attn: Cindy Lorenzen, One Crown Center, 1895 Phoenix Boulevard, Suite 450, Atlanta, Georgia 30349. You are not required to remove the splice block for either the ultrasonic or eddy current inspections, unless corrosion is visible.

(2) If any cracking is found during any inspection required by this AD, you must accomplish the following:

(i) Repair or replace:

(A) Use the cold work process to ream out small cracks as defined in Ayres Service Bulletin No. SB-AG-39, dated September 17, 1996; or

(B) Ream the 1/4-inch bolt holes to 5/16 inches diameter as defined in Part I of Ayres Custom Kit No. CK-AG-29, dated December 23, 1997; or

(C) Install Kaplan Splice Blocks as defined in Quality Aerospace, Inc. Custom Kit No. CK-AG-30, dated December 6, 2001; or

(D) Replace the affected spar cap in accordance with the maintenance manual.

(ii) Submit a report of inspection findings to the Manager, Atlanta ACO, One Crown Center, 1895 Phoenix Boulevard, Suite 450, Atlanta, Georgia 30349; facsimile: (770) 703-6097. You must include:

(A) The airplane serial number and engine model number;

(B) The total number of flight hours on the lower spar cap that is cracked;

(C) Time on the spar cap since last inspection, if applicable;

(D) The procedure (magnetic particle, ultrasonic, or eddy current) used for the last inspection;

(E) Indicate if cold working has been accomplished or modifications incorporated such as installation of big butterfly plates;

(F) Indicate the time on the spar cap when the cold working or modifications were accomplished; and

(G) Indicate which bolt hole is cracked and the length of the crack.

Note 4: Information collection requirements contained in this regulation have been approved by the Office of Management and Budget (OMB) under the provisions of the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 *et seq.*) and have been assigned OMB Control Number 2120-0056.

(e) *What is the compliance time of this AD?* The compliance times for each of the actions of this AD are as follows:

(1) Any required repair or replacement: Prior to further flight after the inspection where the crack(s) was/were found.

(2) Reporting requirement:

(i) Submit the report within 10 days after finding any crack(s) during any inspection required by this AD.

(ii) For airplanes where cracking was found during any inspection accomplished in accordance with AD 2000-11-16, which is superseded by this AD; or by AD 97-17-03, which was superseded AD 2000-11-16; or by AD 97-13-11, which was superseded by AD 97-17-03, submit the report within 10 days after May 20, 2003 (the effective date of this AD), unless already accomplished.

(3) Initial inspection: Required unless already accomplished (compliance with AD 2000-11-16, or AD 97-17-03, or AD97-13-11) within 50 flight hours after May 20, 2003 (the effective date of this AD) or upon the accumulation of these hours time-in-service (TIS) on each lower spar cap, whichever occurs later:

Airplane group	Lower spar cap hours TIS
(i) 1	2,000
(ii) 2	2,200
(iii) 3	6,400
(iv) 4	2,500
(v) 5	6,200
(vi) 6:	For S/N 5010R: 5,530 For S/N 5038R: 5,900 For S/N 5031R: 6,400 For S/N 5047R: 6,400 For S/N 5085R: 6,290

(4) Repetitive inspections: The following table gives the required repetitive inspection intervals based on the work performed and the method of inspection utilized. Each time is hours TIS after the last inspection:

Work previously performed	Magnetic particle hours TIS	Ultrasonic hours TIS	Eddy current hours TIS
(i) One of the following where the airplane does not have butterfly plates, part number (P/N) 20211-09 and P/N 20211-11, installed per CK-AG-29, Part II	500	550	700
(A) No cracks found previously on wing spar; or			
(B) Small cracks repaired through cold work (or done as an option if never cracked) accomplished per SB-AG-39; or			
(C) Small cracks repaired through 1/4-inch bolt hole reamed to 5/16 inch diameter (or done as an option if never cracked) per CK-AG-29, Part I; or			
(D) Small cracks repaired through previous Alternative Methods of Compliance; or			
(E) Small cracks repaired by installation of Kaplan Splice Blocks, part number 22515-1-3 or 88-251 (or done as an option if never cracked) per CK-AG-30 and inspection of the six outboard bolt holes on both lower spars is required			
(ii) One of the following where the airplane has butterfly plates, part number (P/N) 20211-09 and P/N 20211-11, installed per CK-AG-29, Part II	900	950	1,250
(A) No cracks found previously on wing spar; or			