

SERVICE BULLETIN 61, Revision A

SUBJECT: FUEL LEAKS THROUGH SPAR CAPS

APPLICATION: ALL GLASAIR AIRCRAFT KITS SHIPPED PRIOR TO 12/15/88

DESCRIPTION: Some Glasair builders involved in pressure testing their wing fuel cells have reported small leaks along the binding strands in the upper and lower spar caps. The binding strands are the white colored striations perpendicular to the length of the spar cap which bind together the unidirectional rovings into a given weave or specified width. Although they are encased in a thick resin matrix, in rare instances these strands can leak fuel along or through them. When these leaks occur, they appear along the forward and aft edges of the upper and lower spar caps (See Flagnote 1, FIGURE A) where the ends of the binding strands are exposed. During the spar fabrication process, excess material is removed and the corners of the spar caps are smoothed by sanding disc (See Flagnote 2, FIGURE A). This process exposes the ends of the binding strands, resulting in potential leak sources.

We are currently investigating unidirectional roving with a different binding method for use in all future kits.

SOLUTION:

A. WINGS WHICH HAVE NOT BEEN CLOSED

Prior to bonding the upper wing panels in place, sand the spar cap edges in the areas shown by Flagnotes 1 and 2 of FIGURE (A) to remove any roughness. Sand a small radius by hand on the corners of the spar caps, as shown by Flagnote 1, so that the laminates (described below) can wrap smoothly over them. Apply a small Q-cell radius where the lower spar cap meets the lower wing panel.

Apply a one layer bidirectional laminate over the exposed surfaces of the spar caps on the forward side of the main spar, as shown in FIGURE (A). On the lower spar cap, lap the laminate down onto the upper surface of the lower wing panel. On the upper spar cap, wrap the laminate around the rounded leading edge, as shown, and trim it flush with the upper surface of the spar cap in the green cure state. When applying the laminates, allow them to be slightly resin-rich to help ensure that there won't be any pinhole leaks when finished.

B. CLOSED WINGS IN WHICH LEAKS HAVE BEEN DETECTED

Apply one layer laminates over the exposed surfaces of both the upper and lower spar caps wherever accessible: through inspection holes, wheel wells, seat pans, etc. Lap the laminates onto the inside surfaces of the wing panels. When applying the laminates, allow them to be slightly resin-rich to help ensure that there won't be any pinhole leaks when finished.



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NOTE: For closed wings, pull a slight vacuum on the fuel tank immediately after applying the laminates to draw excess resin into the leak.

C. GLASAIR AIRCRAFT WHICH ARE FLYING

During the next regular inspection, inspect the spar cap edges for signs of fuel leaks. Drain the fuel tanks and repair any leaks, using the techniques described earlier.

NOTE: Any area that has been leaking fuel must be thoroughly cleaned with acetone prior to applying the resin.

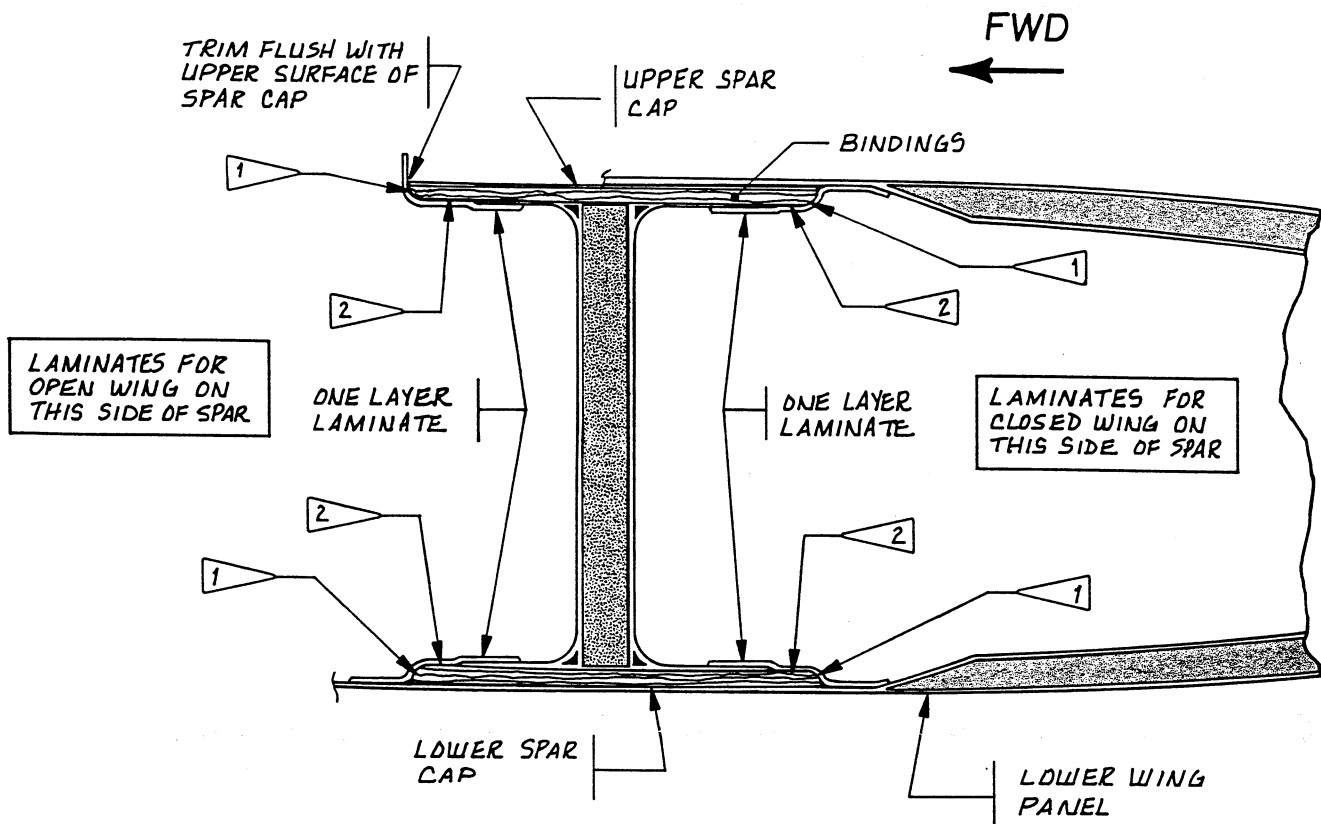


FIGURE (A)

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STODDARD-HAMILTON
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