

Subject: [c-a] Long EZ wings

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[The Canard Aviators's Mailing list]

I am also working on the wings for my Long EZ. I used the sand down method for the wing cores. This has been discussed before: it involves making a set of over sized hot wire templates and a set of sand down templates which are the same as the original Rutan hot wire templates. My sand down templates were .060 aluminum. My cores turned out as perfect as you will get with foam.

I sanded down the 4 (2 each wing) out board cores only. I chose not to hot wire the 2 in board cores b/c of the small silver that results from the template which is slightly too big for a 7" thick foam block. If I was doing them again, I would try to find a 8" or 9" thick foam blocks to cut the inboard cores.

When I set up the wing jigs, I ran some strings to check alignment. When I did this I found some alignment problems which I traced back to the original templates (things just do not line up mathematically). I have heard that other people have had problems with fit and alignment of Rutan's original jigs (but obviously builders made them work b/c there are a lot of Longs flying). I might be a little anal but I chose to pitch my original jigs and make new ones. I figured why start with something I knew was not quite right.

I made the jigs as follows:

I used my sand down templates and lined up the water line (W.L.) 17.4 on the template with the W.L. 17.4 on the jigs. I lined up the trailing edges with a 4" mark and traced the outline of the sand down templates. I then cut out and assembled the jigs per plans except I made the vertical cuts (wing laying flat) 1" down from the spar cap trough (towards the trailing edge). I did this so I could place an aluminum extrusion along the wing to hold it straight while doing the shear web lay-up. I only needed to make 4 jigs instead of the 5 called out by Rutan (1 inboard, 1 outboard, and 1 for each joint where the 3 cores are joined).

To set the jigs up they must be at the same angle as the glue lines for the wing cores (I think it is 78.67 degrees with the trailing edge but please verify). For the shear web lay-up I used plywood gussets to hold the jigs at the proper angle.

I can't take credit for developing any of these techniques b/c the Berkut folks have been using them all along.

If any of this is unclear or anyone wants more info, let me know.

Howard Calk

Long EZ into chapter 19