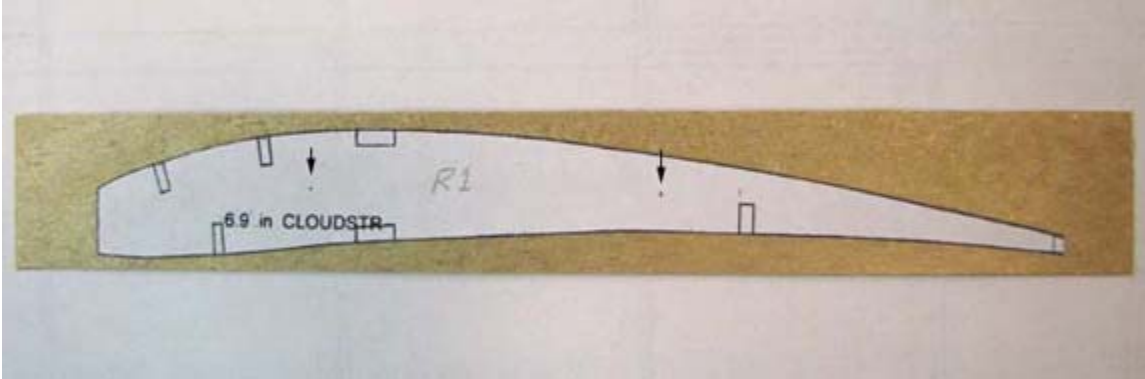


David Harding

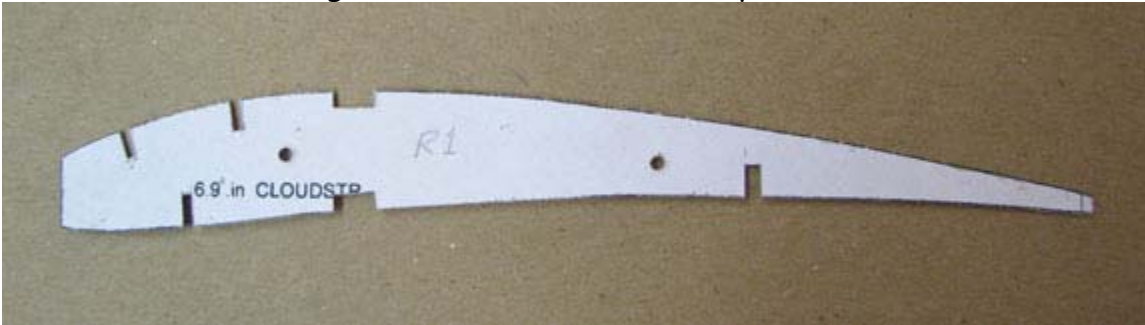
From: Tandy Walker [tandyw@flash.net]
Sent: Sunday, December 13, 2009 2:16 PM
To: Undisclosed-Recipient: ;@smtp105.sbc.mail.mud.yahoo.com
Subject: 29 Speed 400 Cloudster - Wing Ribs

Speed 400 Cloudster Project

In preparation for producing the Cloudster wing ribs, the next step was to first cut out the 1/32" plywood R1 rib template shown below.



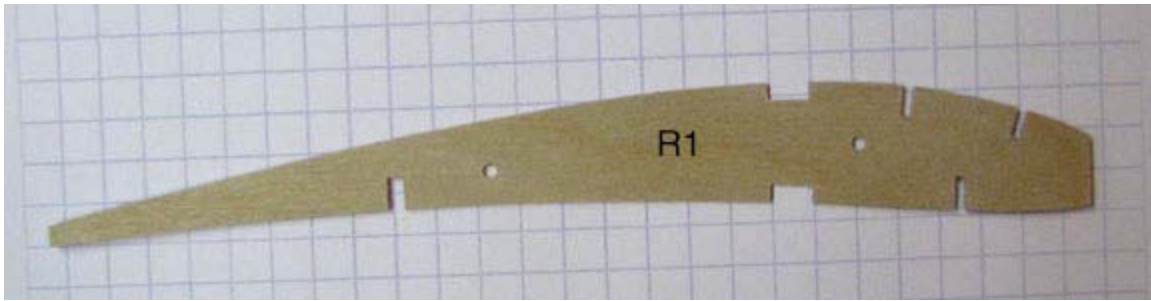
This included drilling the two alignment holes and carefully cutting out all of the spar notches and checking their fit with the actual spars selected as shown below.



As part of the Cloudster's on going weight saving effort, the sizes of the spars were reduced as follow:

Main Spars	3/32" X 1/4"
Rear Spar	3/32" X 3/16"
Turbulator Spars	1/16" X 3/16"
Leading edge	1/4" X 1/2" (<i>trimmed down later</i>)
Trailing Edge	1/8" X 1/2"

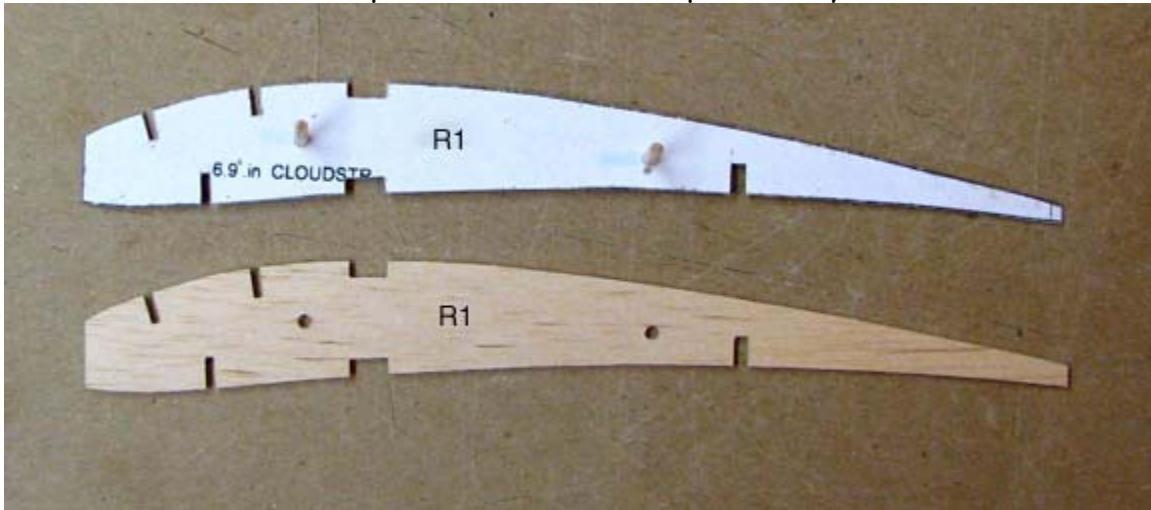
The sharpness of the plywood rib template is better seen from the back side as shown below.



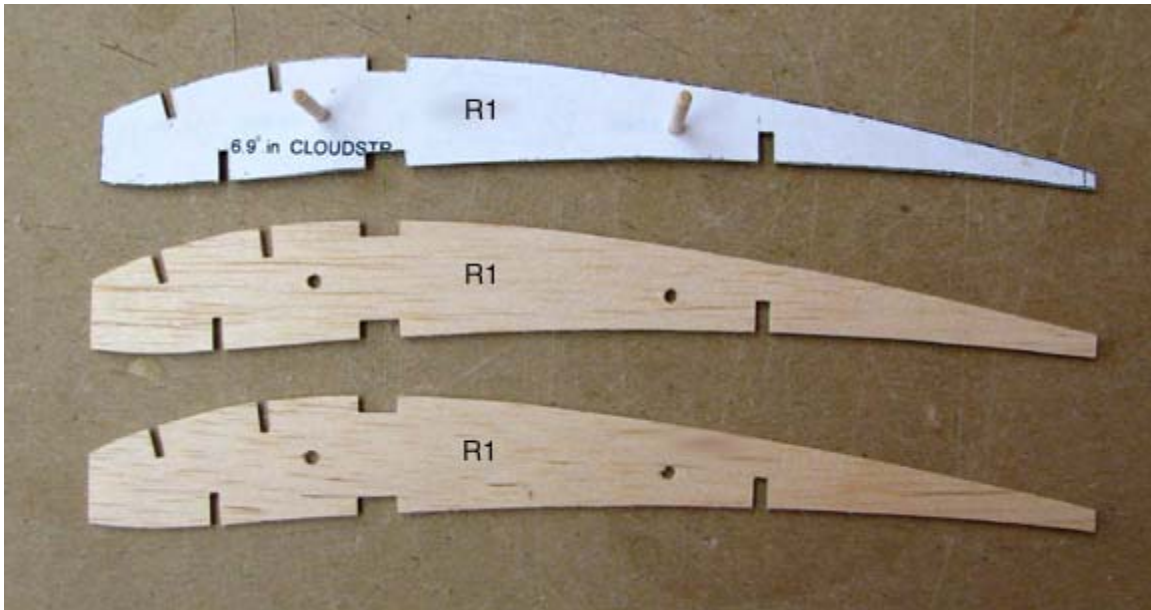
Two 1/16" alignment dowel pins were cut to length. The plywood template was placed over a sheet of medium 1/16" balsa and a No. 44 drill bit was twisted by hand through the template's alignment holes into the balsa sheet below. The alignment dowel pins were inserted through the holes pinning the template to the balsa sheet as shown below. It is to be noted that the forward hole and dowel was done first and then aft hole and dowel done second.



The first balsa rib was then cut out, notched, and sanded to shape while on the template. Then the near perfect R1 rib was removed and placed below the template for you to see below.



Just to illustrate the accuracy consistency of this method, the second R1 rib was cut out, notched, and sanded to shape. It was then placed below the first R1 rib as shown below. I know some model builders make a complete stack of wing ribs at one time using a band saw. However, for me, maintaining this kind of accuracy in balsa can only be done one rib at a time using the template method.



This process will now be repeated over and over for a day or so until all of the Cloudster ribs have been made.....Tandy