

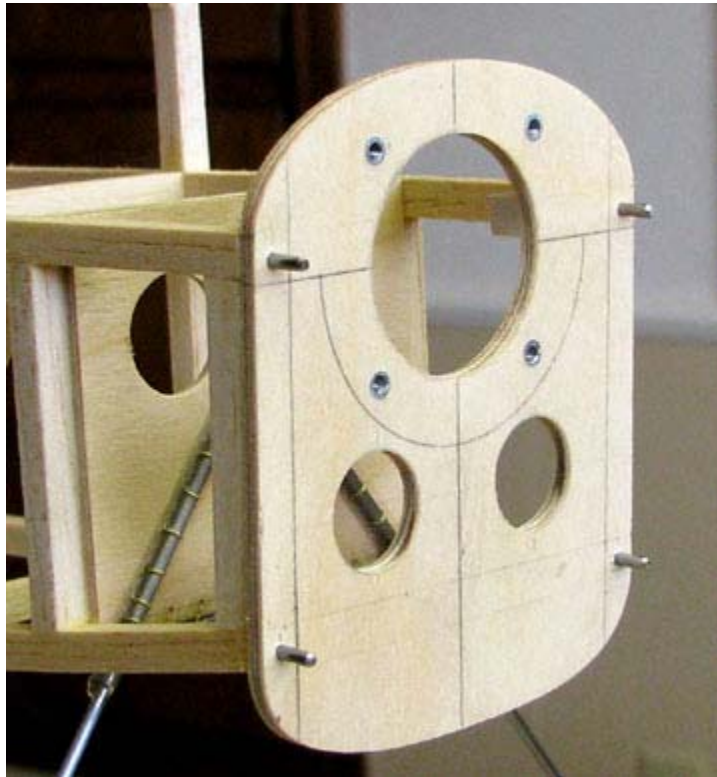
**David Harding**

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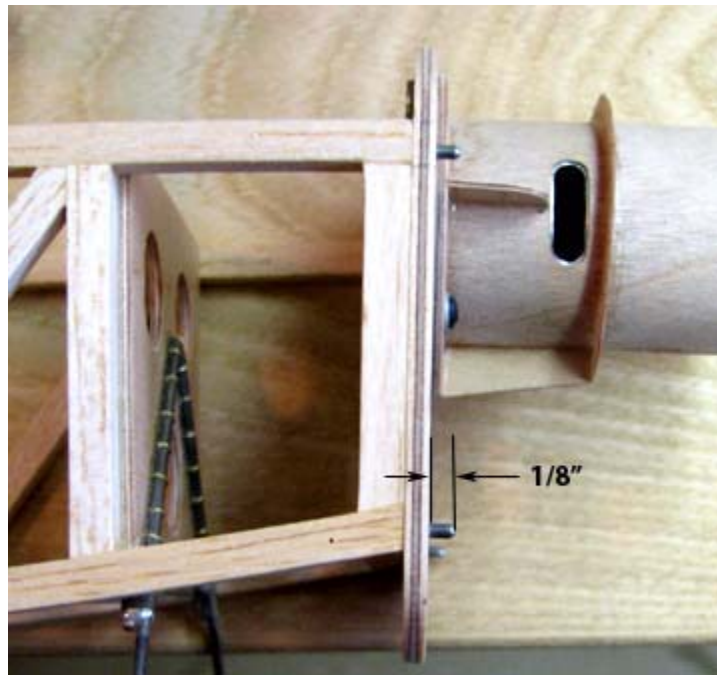
**From:** Tandy C. Walker [tandyw@flash.net]  
**Sent:** Saturday, January 30, 2010 10:40 AM  
**To:** Undisclosed-Recipient: ;@smtp103.sbc.mail.mud.yahoo.com  
**Subject:** 51 Speed 400 Cloudster - Different approach to the Cowl Frame

*Speed 400 Cloudster Project*

Three mistakes were made on the first cowl frame in Report No. 50: (1) the 7/16" cowl alignment pins shown below were too long, (2) the 3/8" aluminum tube liners for the cowl pins went into the cowl sides too far, (3) the cowl sides were made perpendicular to the firewall instead of parallel to the fuselage sides. Once the cowl was blocked in and carving and trimming of the sides started, the ends of the four embedded aluminum tube liners would quickly be exposed because they extend out too far and are too close to outside surface of the cowl.



To correct this problem, first the cowl alignment pins were shortened to 1/8" as shown below. After all, these pins only need to be long enough to engage the back face of the cowl sides.

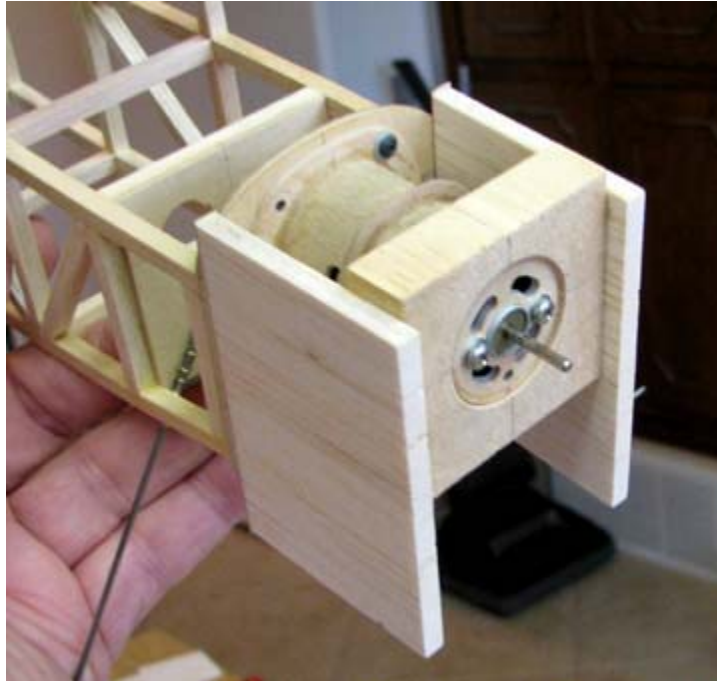


This is where the approach to the cowl frame changes. A 1/2" length of balsa was cut off the end of a 2" X 2" soft balsa block. The front and rear cross grain face were sanded smooth. Then a hole was cut out in the block as shown below and sanded so as to slip snugly over the front end of the cylindrical motor mount. Notice the end grain of this cowl nose block.



Then two new cowl sides were made using the procedure in Report No. 50, except the rear faces of the sides were beveled so that the cowl sides were parallel with the fuselage sides instead of being perpendicular to the firewall. The vertical side edges of the cowl nose block were carefully trimmed and sanded so that the cowl sides that are parallel with the fuselage sides were also tangent to nose block. Once this was done, the nose block was slipped over the motor tube, the new cowl sides were pushed onto their

respective alignment pins, and the two cowl sides were glued to the nose block with aliphatic glue as shown below. This approach insures an almost perfect alignment fit of the cowl to the firewall.



A temporary balsa brace was also added between the cowl sides on the bottom back near the firewall to hold the cowl side spacing until this can be blocked in with balsa.



Once this is allowed to thoroughly dry, then balsa will be blocked in between the cowl sides on top and bottom. Oh yes, a method for attaching the cowl has been thought out, but this will be presented and discussed in a later report.....Tandy