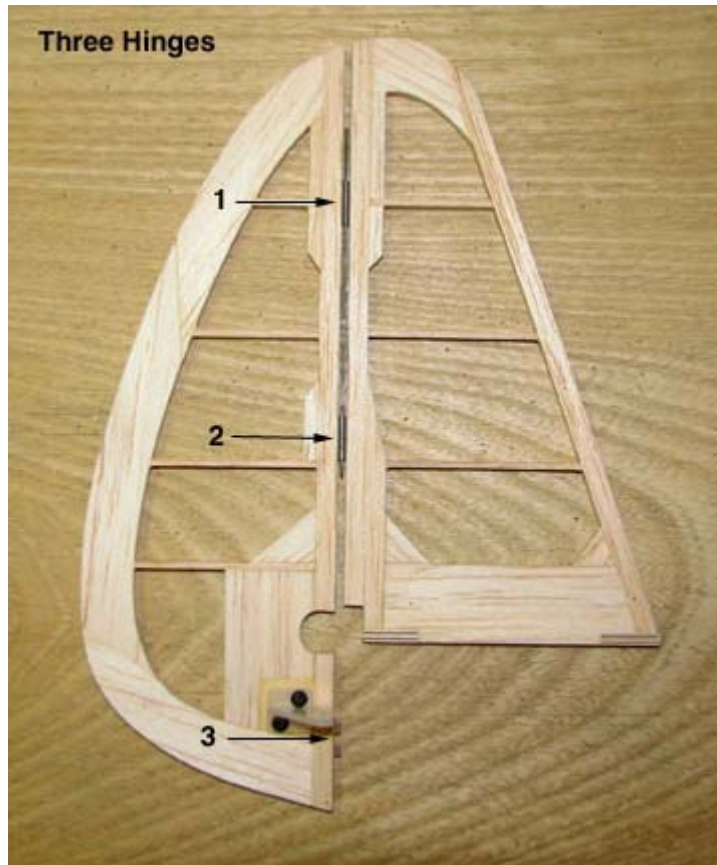


## David Harding

**From:** Tandy Walker [tandyw@flash.net]  
**Sent:** Thursday, November 19, 2009 12:55 PM  
**To:** Undisclosed-Recipient: ;@smtp107.sbc.mail.mud.yahoo.com  
**Subject:** 17 Speed 400 Cloudster - Hinging the Rudder and the Elevator

### *Speed 400 Cloudster Project*

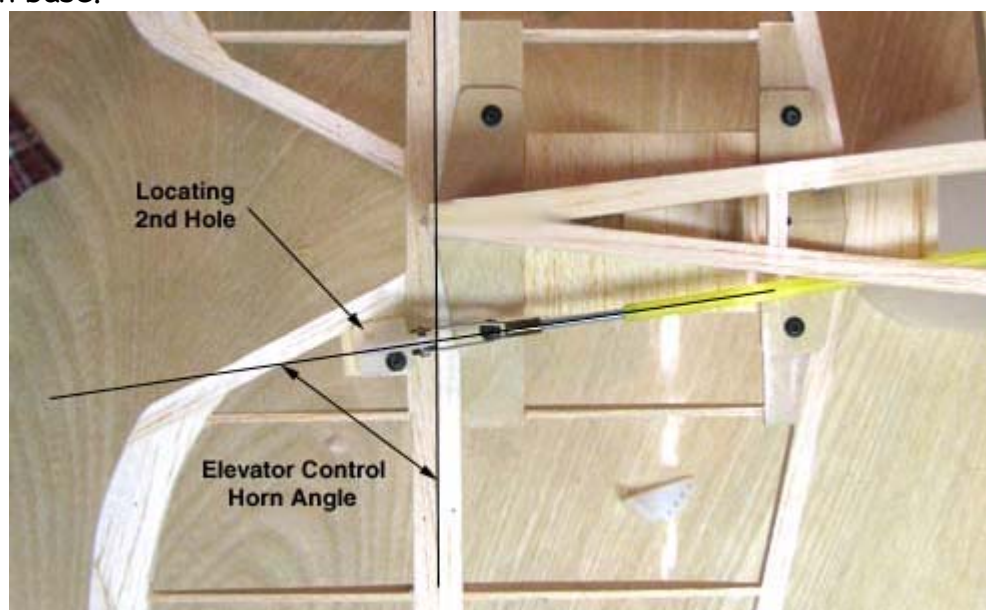
First order of business was to hinge the rudder as shown below. As you can see, three of the small Du-Bro nylon hinges were used, two up on the fin, and one down on the bottom of the rudder to attach to the fuselage's tail post. Back up pieces were glued to the inside of the spars where the hinge halves go through to reinforce the slot and isolate the interior of the surfaces from the hinge slot openings. Notice that the cut out for the elevator spar carry through is not large enough yet, but it will be finalized after the elevator is hinged. Notice the rudder's control horn is also installed.



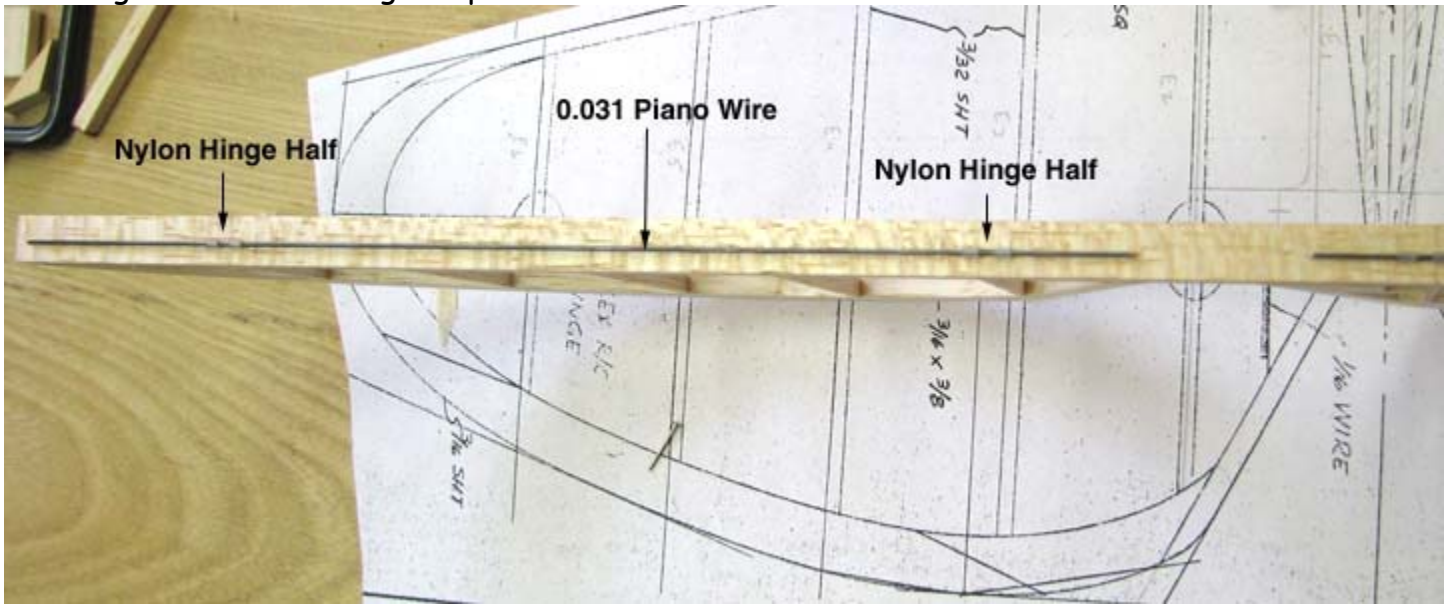
This picture shows the rudder/stab mounted to the stab platform on the fuselage. The bottom of the rudder was intentionally left wide so it could be trimmed off to match the bottom of the fuselage.



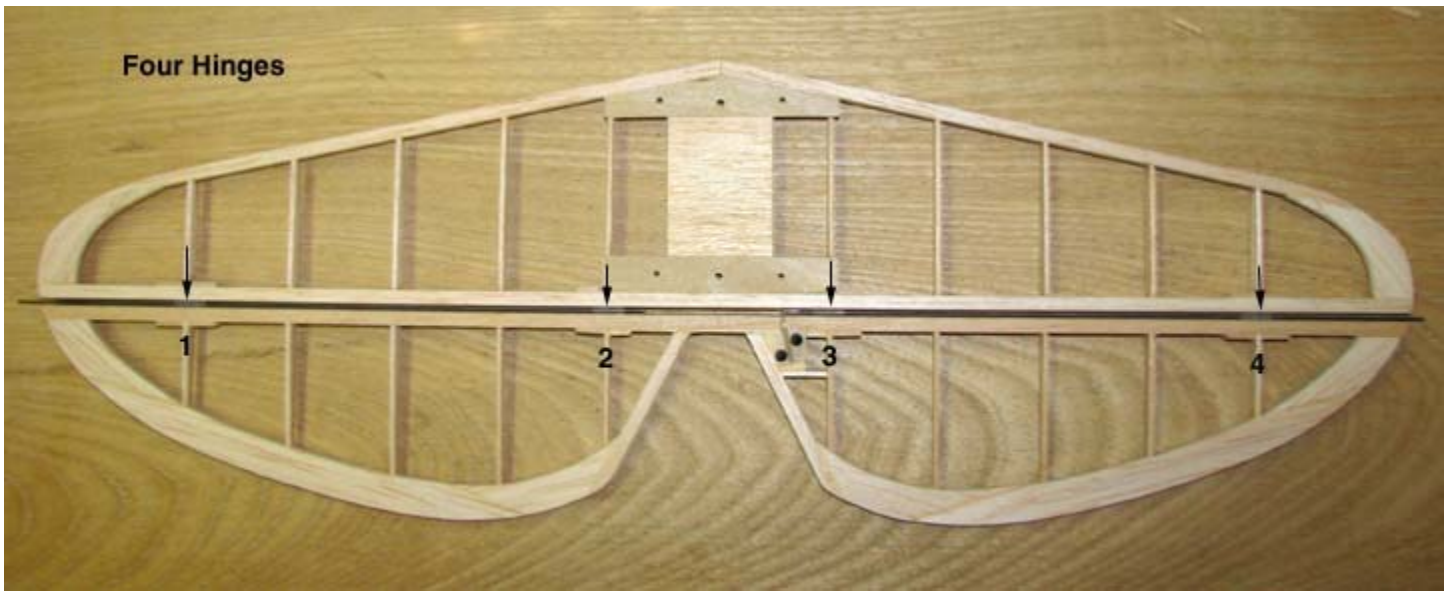
If you remember in Report No. 16, only one 2-56 hole was drilled and tapped in the spruce base for the elevator control horn. In the picture below, the elevator has been taped to the stab and a temporary push rod/clevis connected to the control horn. Then the push rod was oriented to the angle it will exit the side of the fuselage. As you can see, this allows the control horn to be turned to the proper angle to line up with the push rod, which in turn locates the desired position of the second hole in the control horn base.



The picture below is an edge view of the elevator's main spar. This shows you the two hinge halves installed with the a continuous wire pin running through the hinge loops. With a continuous wire pin, these small hinges allowed me to keep the gap down to less than 1/16". The 1/32" piano wire that I have measures 0.032" and it is slightly too tight to go through these hinge loops without a lot forcing. However, I found some 10" lengths of 0.031" piano wire that I got somewhere a long time ago that slips through these small hinge loops with ease.



This picture shows a bottom view of the hinged elevator to the stab. There are four hinges, two on a side as the plans call for. Two separate continuous wire pins are used for the right and left sides of the elevator to eliminate having to push one continuous hinge pin through four hinges down entire length of the stab. Again, back up pieces have been glued to the spars where the hinge halves go through to reinforce the slot and isolate the interior of the surfaces from the hinge slot openings. If you look close, you can see the elevator's control horn's second mounting hole has been drilled and tapped with the 2-56 cap screw now in place.



This afternoon, I will start carving and shaping the vertical and horizontal tail surfaces to form the rounded leading edges and tapered trailing edges, which will finish up the entire tail structure ready for covering.....Tandy