

Installing the Dowels

Now that we know where everything goes, let's install the dowels that we'll use for mounting the control horn bolts into the ailerons and elevators. The rudder will use a special horn manufactured by Nelson for his pull-pull system.

With the template that you made when you prepared your foam cores, find the stress-plate locations for each control surface. We marked the locations on the wood. Tape the control surface into its original shuck and check to ensure that the center points (leading and trailing edges) are equal all around (level to the work table) so that the dowels will be aligned correctly.

Because the CNC-cut wings from flyingfoam.com are cut with dihedral built into the core (cut flat instead of on center) cutting the aileron dowel holes is a bit more complicated.

We measured front to back and at the ends and found that it worked to simply prop up the trailing edge to match the height of the centerline of the leading edge. I've used reamers for cutting the holes but have found that a sharpened 1/2-inch brass tube gives a smoother cut. The only way to get a truly straight hole is to use a drill press.

Be sure to set your drill press to the slowest setting and work quickly so that the cutting tube does not heat up and melt the foam. If you do melt some foam don't sweat it, make up a thick paste of epoxy with micro balloons for setting the dowels. Clean the cutting tube between each cut.



For dowels, you need to find good quality wood, preferably maple, but a hard birch would also work fine. Avoid the pine or poplar dowels found at hardware stores.

Insert a length of 1/2-inch dowel into the hole and mark it for cutting. Notice that it will follow the contour of the control surface. Try to avoid finish sanding as much as possible because this wood is very hard to sand. When satisfied with the fit of the dowels, epoxy them in place.



Once the dowels are glued in place, you can drill the dowels for your control horn bolt. The bolt will be tapped into the dowel and the hole should not go completely through the dowel and exit the top of the control surface.

Make sure that you are drilling the dowel on the bottom side of the control surface. Be sure to use the proper drill sized to tap for the appropriate thread. Drill and tap into the dowel to a depth of about an inch.