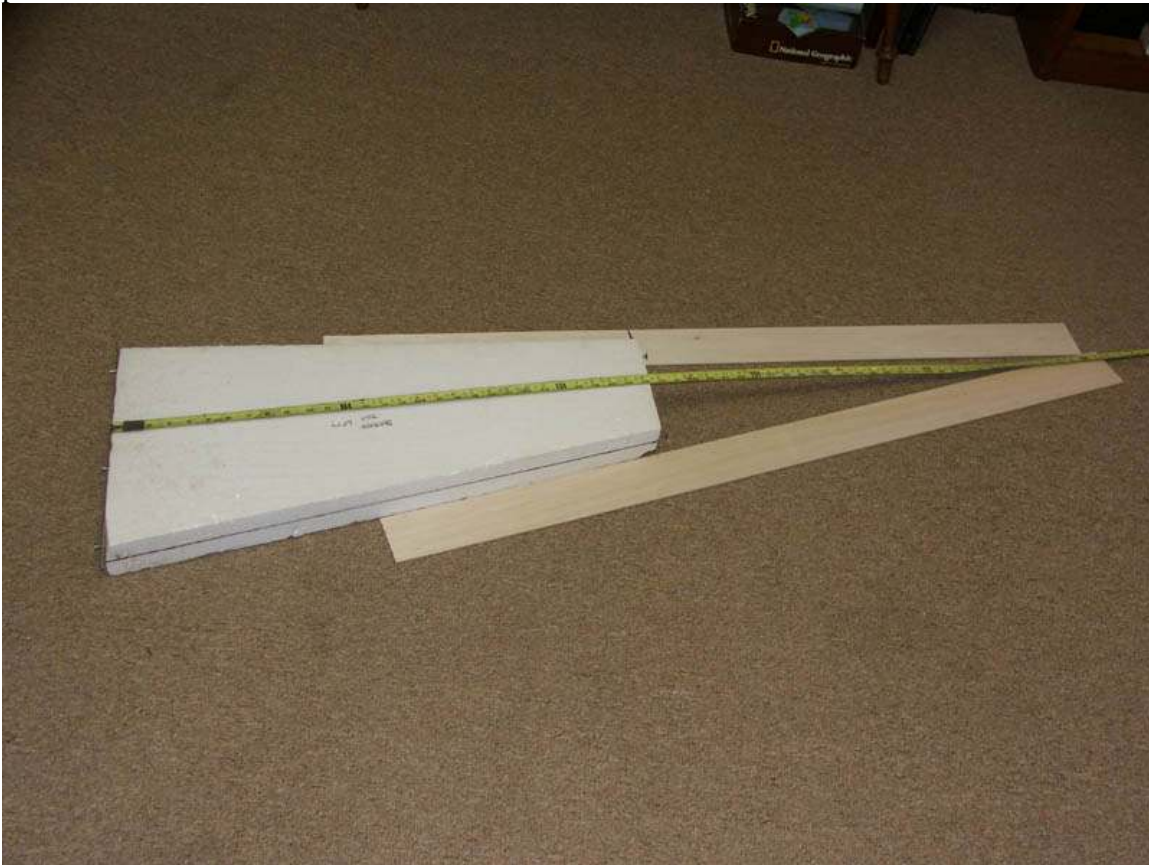


Build a One Person wing core cutting bow – by Perry Rose

For a long time now I have been toying with the idea that using an old school foam cutting bow one person could easily cut tapered wing cores. You can do it by holding both ends of the bow at once and guessing at the wire speed and location on different size templates. But I figure that by connecting the bow to the proper pivot point one person can cut a core holding only the 'root template' end of the bow.

This is how it's done. The wing 'must' taper down root to tip. Cut the foam to the plan form required for the wing. Rest the core on a flat surface, like the floor, and lay a straight edge along the leading and trailing edges projecting out past the wing tip until the straight edges cross. At the point where the straight edges cross is the pivot point for this particular wing shape. Measure and record the distance from the wing root to the pivot point.



Now you may have to make an extension to your cutting bow if the pivot point is longer than your bow. I used a 3 inch wide 60 inch long piece of 1/2 inch plywood. Drill a 1/4 inch hole through the 3 inch width at one end. Measure the distance from the cutting bow wire to the bow frame. Mine is 5 3/8 inches. Make both ends of the bow the same dimension. This measurement is how far a 1/4-20 rod has to stick out from the bottom of the bow extension. That dimension plus the width of the extension plus 1 inch is where you cut the 1/4-20 rod. Using washers and nuts, one on each side of the extension piece, insert the rod through the hole, adjust the stick out to the wire to bow dimension and snug up the nuts. The purpose of this rod is to hold the bow at the proper pivot point and hold the wire in position like you always wished your helper would. The extension piece is attached to the bow by lining up the bottom edges of each piece and drilling 1/4 inch

holes through both pieces at the same time. You could drill holes in one piece and slot the other for infinite adjustability.



The bow is ready to use.

The foam wing blank needs a centerline all around. I have found that a 3 inch thick foam blank will fit most wings. So whatever thickness your foam is draw a line exactly half way, in my case it's 1 1/2 inches, all around the blank. Place the blank on the cutting table. Measure from the root to the pivot point and place something to act as a steady rest at that spot. If the pivot point is shorter than your bow and is still on the cutting table you can clamp a piece of wood with a shallow hole for the rod in the extension piece or the object your wire is connected to, to sit in. By using 3 inch thick foam the center line is equal to the thickness of a 2x4.



If the dimension is longer than your table set up another table and build a steady rest that is as high as the centerline. This is probably the most important step so be as accurate as you can. I have found that a camera tri-pod works very well. It has a 1/4-20 stud on the mount that holds the camera and with a long nut found on some trophies you can attach the 1/4-20 pivot point rod to it. Attach the root and tip templates to the blank exactly on the centerline. Place the cutting wire along the leading edge and move the foam until the wire touches full length. Do the same at the trailing edge. The wire should touch full length also. If not adjust the blank until the wire touches end to end both sides.

The blank cannot move during the cutting operation. Marble trophy bases you have laying around from looking for the long nut can work well.



In the cupboard you may find some shallow cake pans. You can fill them with sand or used kitty litter and place them on the foam blank. The weight must be low enough so that the bow doesn't touch while cutting. (If you use the cake pans don't forget to pass on dessert. I sure don't want to make that mistake again. If you have kids or pets you can blame them.)

Set the wire on the templates, up against the foam and turn on the heat. With the first cut done you can make the second cut without moving anything or you can turn the foam over adjust the foam edges to the wire and make the second cut.

Set up the second foam blank the same as the first except for the root template. Take the pins or nails out and stick them in from the opposite side. This will give you a right and left wing that will fit together nicely.

This one man cutting technique can be used with both a root and tip template or just the root template. The tip will still be perfectly formed but will be an exact smaller copy of the root. The shorter the pivot point, like on a delta wing model, the more accurate the centerline to table top or centerline to tri-pod top must be. If it's off the wing tip won't be right. It's more forgiving when you use a tip template. And be sure the template surface is smooth for the wire to slide over. You don't want to hear the wire playing dueling banjos while you're cutting.