

PROP CARVING SATISFACTION

By Karl Gies

aka Captain Cornell Crawford, Neighborhood Hero

Performing random acts of heroism and minor miracles on an almost daily basis in far north Lewiston, Montana



What could be more satisfactory than carving a balsa propeller or whatever you do to make one. This ranks slightly higher than making a laminated noseblock. You study the model, and if it has the block layout I generally follow that unless of course they were delusional or the printer made a mistake.

One goes through his wood stash and sometimes you find a suitable block for your prop or, if not, some lamination is in order. After that, of course, you use an appropriate pen/marker and mark the lines to follow in cutting the block. These measurements are determined by being pretty scientific and, desiring a proper p/d ratio, you play around with your calculator using the time honored formula of prop diameter times pi times the depth of the prop block at the tip. This number is then divided by diameter and the result is divided by prop block width at the tip. (Most expert modelers use something more sophisticated along the lines of a variation of $E=mc^2$ or some similar formula. Ascertaining the p/d ratio sometimes ranks right up there with alchemy.) (Ed Note: The reader would be wise to also go to www.pensacolafreeflight.org, look in the "Articles Index, and read two articles: "Beginner's Prop Design" and "Prop Pitch Pictured" for seeing how to mark the block.) These results are marked on the block. I like to score these lines so that the cheap, affordable band saw I have will somewhat follow the scored lines. Locate the exact center of the block to drill the prop shaft hole and this will be done **before** any sawing of the block.

After this is all done it is the moment of truth, the actual carving of the prop. At this point, to bolster my courage, I remind myself that I have done this before many times. But if it has been several months since carving the last prop all is forgotten in your memory. Starting the carving is akin to watching a movie where some poor chap has appendicitis and there is no doctor available at all. The best scenario is someone on a radio walking the actor through it or having a book called "Surgery For Beginners." For most of the guys who do this in the movies, previous experience of any kind was dissecting frogs in high school biology lab. They always succeed though, notably in the movie "Ensign Pulver."

The first cut is the hardest and then it all comes back to me. I carve the back first to a finished state and never mess with it again. Prominent modelers have told me that to do so will change the pitch. I carve to a diagonal line that was drawn on the prop tip but quit carving at least an 1/8" back of this line to leave room for sanding. I then wrap sandpaper around a CA kicker bottle which is 1 1/4" diameter and a nice smooth surface. (Editor's note: Gizmo Geezer "Grit Tubs" are also great for this.) This pretty much ensures that both blades will be pretty much the same. As for proper knives for carving, I like the utility knives with snap off blades that are sold at hardware stores. My favorite is a brand called "Olfa" and I bought one online at www.olfaproducts.com. These are extremely sharp and you can put the blades back to extreme sharpness by using a butcher's steel and an old razor strop.

Now comes the blade fronts and I draw lines a little back from the leading edge w/a felt pen so as not to carve right to the edge. I rough shape the blade and then finish it by starting with coarse sandpaper, say 80 grit and finish with finer grits. I now mark the blade shapes and remove the excess blade and finish the prop. Others do this blade shaping much earlier and maybe someone can weigh in on the correct time to do this. I don't bush the prop shaft hole but glue on facings cut out from thin brass or aluminum sheet. It is easy to line up the prop shaft to be perpendicular to the prop by positioning the last face

plate (front) to be glued on and using a jig. Not to forget balancing and this can usually be done by doping one blade more than the other. Other decisions to be made before this though are is the prop to be a free wheeler and what sort of free wheeling device to use or is the prop to be a folder. I have gone to fiber glassing all of my props using 3/4 ounce fiber glass cloth and Z-Poxy. Before this though I glue a scuffed up nylon fishing leader material all the way around on the prop edges. When all of this is done and the prop finished it is time to have a drink of whatever you drink and admire your handiwork. Always remember that the worst prop you carve will be better than any plastic prop you purchase. Friends who know me pretty well look at my props and I can always read the word bubble over their head "Do I really know this guy, he is the worst klutz in the world." My younger brother is a highly skilled finish carpenter and he told my cousin Tony "I know Karl carved that prop and built the model but he could not build a crude dog house."

Ed. Note: The photo at the top of this article is a sample of Karl's prop carving. He covers his props with fiberglass, then coats that with a couple of coats of nitrate, then Design Master Floral Spray for color. He always CA's the piece of scuffed up nylon fishing leader on the prop edges before adding the fiberglass.