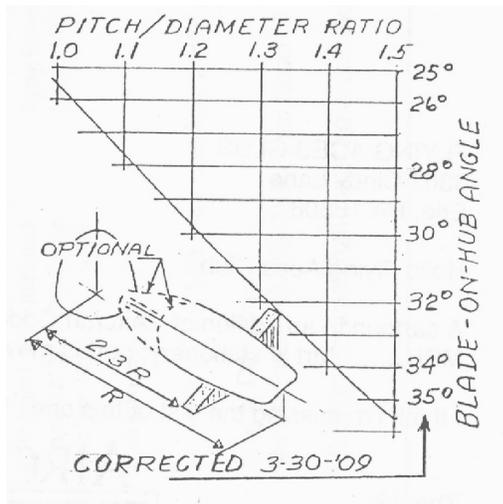
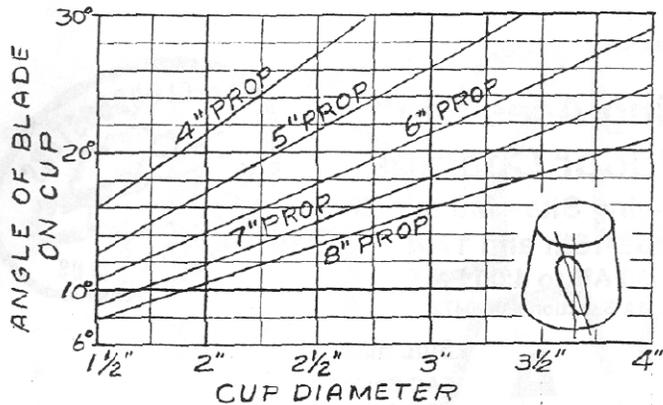


Making a Prop from a Plastic Container — Corrected Version

By Paul McIlrath as published in the *Flying Aces Club News* of July/August 2006, Lin Reichel, Editor

Paul Advises that there was an error in his original version of this article, which was republished in this rag in January 2008.

Using the chart as originally shown would result in a blade setting 3° high and a Pitch/Diameter ratio about 0.1 higher than the desired values. Correct numbering for the scale is shown below. Since a bottle prop is a bunch of approximations anyway, an error of this caliber may nothave much effect, but this will be more accurate.



To design a custom bottle prop for a given propeller diameter, pitch and container size --

1. Draw a blade pattern for the prop diameter and blade mounting arrangement you plan to use -- spinner, outrigger, whatever.
2. Find the diameter of your chosen container on the CUP DIAMETER scale. Move straight up til you hit the slant line for your PROP DIAMETER. From this intersection, move horizontally left to read the corresponding ANGLE OF BLADE ON CUP. Example: 2-1/2" container, 6" prop, 18° slant.

3. To find the mounting angle for your blades, divide the pitch you want by your prop diameter and find this PITCH/DIAMETER RATIO on the top scale of the second chart. Then move straight down until you hit the diagonal line. From this intersection, move horizontally right to read BLADE ON HUB ANGLE. Example: A P/D of 1.2 requires an angle of slightly under 33°. Whether your blades are spaced out on an outrigger or extend all the way in to a smaller hub or spinner, the BLADE ON HUB ANGLE is always measured at 2/3 of the shaft to tip dimension of your propeller, (R).

Lean the (prop blade) pattern (on the cup) toward the eleven o'clock side of vertical for a conventional right-hand propeller, to the one o'clock side for left-hand rotation. With tapered containers, use the average diameter in your calculations, and point the hub end of the pattern toward the small end of the cup. If your blades have too much camber, look for a container with a larger diameter. If blades look banana shaped, try a smaller container.

(FAC Ed Note: I've made a 5.5" yogurt cup prop using this method. I flies my dime scale better than either off two carved props I've made. It does not appear that you'll get a helical prop with this method, but it does pull airplanes.)