

MAKING AND MOUNTING COWL BUMPS

IN LESS TIME THAN IT TAKES TO READ THIS

By Allan Schanzle

An article published in the July 1998 issue of MaxFax, Allan Schanzle, Editor

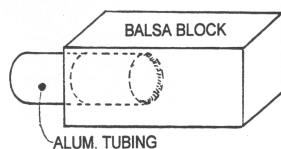
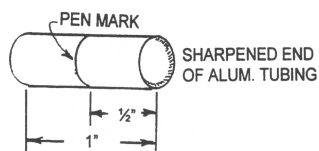
This past winter I built the Comet 25-inch span Stinson SR 7 Gullwing. Some of these aircraft didn't have cowl bumps, but when included, they sure add sex-appeal. But on this aircraft, with nine cylinders, you've got 18 "pieces" of sex appeal. Wow at my age, that's a whole years worth!

In the past, I've tried an assortment of ways to make these little devils, including making a single mold and use a Mattei Vac-U-Form to create identical bumps, but this gets tedious trying to smooth off the bottom of the formed edges with a razor or sanding block. Here's a simple way to make these little buggers, two at a time. Start by collecting the following materials:

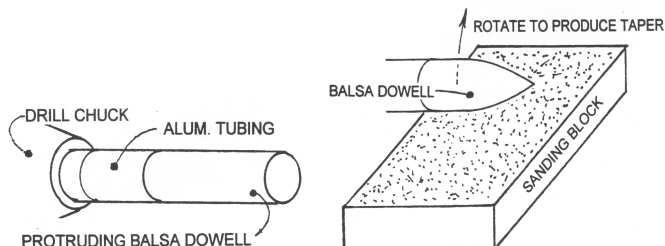
1. Aluminum tubing with outside diameter (OD) twice the height of a single bump.
2. Balsa strip that is approximately square with across section that is at least 1/8 inch longer on each side than the tube OD. Use reasonably soft balsa.
3. An electric drill or Dremel tool.
4. Sanding blocks. (ADC brand works OK, but I prefer the "RINO" brand that I've bought at model railroad shows. These are about 2"x3" and 1/2" thick with rounded corners. They come in four different grits. They also wash clean under a faucet using an old toothbrush)
5. Your favorite brand of sanding sealer. (I use clear dope mixed with baby powder - my models may not fly well, but they sure smell good.)
6. Although this last item may not be necessary for you, I don't now how I'd build anything without a 3-power magnifying desk lamp.

OK. Here we go, step-by-step.

Let's assume you're going to need 18 cowl bumps. Start by cutting 9 pieces of tubing, each about 1" long. Clean out the burrs on the inside edge of one end of the tubing with a small round file or No. 11 XACTO blade. It will help if you create a sharp edge on the end of the tube when cleaning the burrs. Put a mark, with a fine pointed permanent marker, on the outside of the tube exactly 1/2" from the cleaned end.



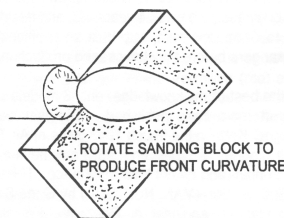
Cut 9 equal-length pieces from the balsa strip, each 5/8" longer



than the desired length of the cowl bump. Press the end of each piece of balsa onto the "sharpened" end of a tube up to the felt tip mark, making it line up with the tube as straight as possible

Insert the uncovered end of the tube into the drill, turn it on, hold the sanding surface parallel to the centerline of the tube, and gently and slowly sand the balsa to the shape of a circular dowel until the balsa is removed from the outside of the tubing.

Now use the edge of the sanding block to grind away about half of the front end of the cowl bump. Leave the balsa cowl bump in the tubing but remove the tubing from the drill and repeat the process for the other eight pieces of tubing, trying to sand each piece to the same shape. If you've been precise in marking the tubes and cutting the lengths of balsa, each sanded piece should be the same length and diameter. The shape of the curvature is something you will have to work at to get identical cowl bumps.

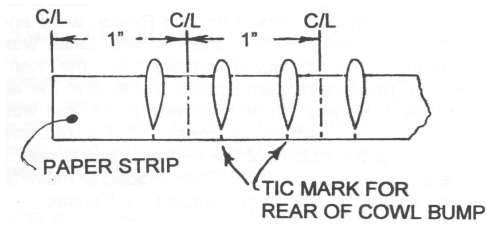


Apply two coats of clear dope to each sanded balsa form and then one coat of sanding sealer, letting each coat dry thoroughly. Place one of the tubes into the drill and use a very fine grit sanding block to smooth and polish the balsa surface.

Use a sharp single-edged razor blade to cut off the balsa at the end of the aluminum tube and hand sand to final shape. Smooth the front end with dope and sanding sealer.

Split the balsa cowl bump in half with a razor blade. Here's where the magnifying glass is really useful) and grind away a small amount of the center section of the flat surface you just cut with the razor to accommodate the curvature of the cowl surface.

After you've made all these little devils, it remains to apply them at properly spaced intervals. Cut a strip of bond paper about W' wide and long enough to wrap around the outside of the fuselage cowl, with some extra left over. Place the paper strip around the cowl where the bumps are to be located. Mark on the wrapped around end of the paper the point where the paper strip begins to overlap the end of the paper you first placed on the cowl. This tells you the circumference of the cowl. To make things easy, let's assume the circumference is 9 inches. Divide the circumference (9") by the number of cylinders (9) to give a value of "1". This is the distance (in inches) on the cowl between the centerline of each cylinder. See sketch. Lay the paper strip out flat and put 9 lines on the paper that are the computed distance (9"+9 cylinders = 1 ") apart.



Place a few sets of the cowl bumps on each side of the lines representing the cylinder head centerlines until the spacing looks right. Measure the distance of the rear end of a single cowl bump from the centerline and make corresponding tic marks on the rear edge of the paper strip on each side of each centerline. Wrap the paper strip around the fuselage cowl again with one centerline directly above the middle of one cylinder head and then mark on the cowl the location of the rear of each bump. Remove the paper, and glue on the bumps. When dry, use a three-hair brush to apply a thin bead of sanding sealer where the bump meets the cowl. And that's it!