

BAMBOO TIPS FOR OLD-TIMER RUBBER-POWER MODELS

By Jerome W. Klingaman

Bamboo wing and stab tips on old-timer rubber-power models are faithful to the original designs and wonderful to look at. They are very strong and light and not all that difficult to make. There are, however, three distinct steps to the building process, each of which must be mastered to produce the final result. The first step is to produce a pair of long, thin bamboo splints scraped and sanded down to round cross-section. The second step is to hot-bend these splints into the desired tip shape. The third step is to attach the completed tips to the wing or stab framework. Lets try it.

Begin by splitting out a pair of square-section splints from the flat working piece you obtained from your supplier. Sources vary, but you might try Aerodyne's Old Timer Model Supply catalog. The best material, which Aerodyne sells, is Tonkin bamboo or its structural equivalent. Clamp a piece of the flat-section vertically in a vice and position a thin, stiff blade (#11 Exacto, for instance) against the end so that the piece will split off into a square section; i.e., the width of the cut is equal to the thickness of the piece.

Tap the back of the blade with a small hammer and split the piece right down the whole length. You might try guiding the split by varying the angle of the blade, but once the split starts, it generally follows its own course. Holding the piece in your hand while splitting it is a really bad idea. The split starts suddenly and you may lose control of the blade. Also, splitting bamboo produces tiny splinters that quickly penetrate skin. If the first cut produces a tapered splint, simply make another cut and the next piece should run parallel to the working edge, giving you what you want.

Now, lay the square-section splints on a work board and scrape them round with a sharp blade. Finish them off with a small sandpaper block, sanding length-wise while twirling them around between thumb and forefinger. They can be sanded down to surprisingly small diameter. The wing tips for a Gollywock or Lamb Climber can be no more than 1/16 inch thick and still retain sufficient strength and stiffness. Stab tips can be even thinner. Place the finished splints in water to soak for several hours.

Next, bandsaw a profile outline of the wing/stab tip from a piece of 3/4 inch board, extending the squared-off base by three inches or so. This is your form for hot bending the splint to correct shape. One end of the soaked bamboo is held against the form and a large soldering iron is used to shape the splint around the form profile. This step demands fierce concentration, a steady hand, and extreme caution. Clamp the soldering iron in a wood vice and, while holding one end of the splint against the form with your finger, press the splint against the iron and move it slowly against one of the flats on the tip of the iron until you get to the other end of the splint.

You must move the assembly along slowly enough to melt the gums in the bamboo and accomplish the bending, yet quickly enough to prevent excessive charring. The bamboo will darken anyway, but don't worry about it. Just don't burn it. And do not burn your fingers. Another approach, which is probably safer, is to clamp the form in a vice with the splint secured at one end. Hold the soldering iron in your hand and move the tip along the splint as you proceed around the form. Soldering irons are not designed to be used this way, so proceed with care, and if you can think up a safer way of shaping the bamboo--go for it.

After doing a pair of splints, rubber band them around the form and let them cool. The splints will not maintain the exact profile of the wing/stab tip, but as the gums reharden, the bamboo will demonstrate a tendency to assume the desired shape when attached to the wing/stab framework. And that is the final step.

Simply stated, the bamboo splints are cut to required length and then notched into the leading and trailing edges of the wing/stab. Determine where the end of the splint is located on the leading edge of the wing/stab and make a small pencil mark. Using a pointed, round-section jeweler's file, cut a narrow channel in the wood roughly the width of the splint starting from the pencil mark proceeding outward to the end of the leading edge. The channel follows any leading edge curvature. The splint should be a press fit into this channel. With one end of the splint pressed into the channel and the other end lined up with the trailing edge, glue the splint in place at the leading edge. After the glue has set/cured/dried, pull the splint into position, establishing the desired tip profile. Cut this end of the splint to desired length. Then, cut a channel into the trailing edge, following any curvature, and glue the splint into place.

On a Gollywock, the bamboo wraps around and glues to the outer end of the main spar. On aircraft with stringered wings (Lamb Climbers, Best-By-Test Altimeters, etc.), place the wing over the plans, pull the splint into correct tip profile position, and glue in place. When the wing stringers are added later, their ends are bent down and cemented to the inside of the bamboo tips. Using a thin, fairly narrow, sandpaper block, carefully sand the splints down where they notch into the leading and trailing edges to fair them into the surfaces of the surrounding balsa.

Before covering the wing, apply several coats of dope to the bamboo to make sure the tissue sticks well. The results are very satisfying and well worth developing proficiency in this technique.