

Free Form Laminated Calls

By Ed Glenn

“Built-up” calls (made from two or more materials distinct in appearance) can take on many forms, most of which can fit into separate categories. True “laminated” calls are composed of thin layers of wood, generally running the length of the call and spanning its diameter, much like plywood. “Free form” calls on the other hand, join materials along asymmetrical lines, generally forming no pattern along either the length or the diameter of the call.

The two concepts, “laminated” and “free form” are combined in this example.

Four blanks of solid wood, 7.5” long, form the basis for this construction. For maximum effect, I chose two light colored woods, Osage Orange and Oregon Myrtle and two darker woods, Cocobolo and Tulip Wood. The “light” and “dark” references helped in the cutting and gluing sequences.

In addition to the four solid blanks, I incorporated a large number of thin strips of a number of species (some of which I could not identify). These strips ranged in thickness from 1/16” to very thin veneer and were cut 1 5/8” wide x 8” long. They too, were generally grouped as light and dark.

I used Elmer’s Ultimate Glue throughout for two reasons. The thin strips were soaked in water for up to an hour to soften them for bending through the curves in the solid blanks. Ultimate Glue is a polyurethane glue that not only expands to fill any gaps but also sets up wet (indeed, it requires some moisture to set up at all). The bonus is that it has a relatively long open time to allow positioning and clamping but cures in a few hours. The glue up time took several days since there are 6 joints to glue in each blank (a total of 24 in the four blanks) and I only have enough C-clamps to glue two blanks at a time. I could usually get four joints glued up in a day’s time.

Allow several days after the last glue joint for the built up blank to thoroughly dry.

Cutting the Blanks

To band saw through two blanks at a time, I used two 2” x 3” scraps of 1/2” plywood and two 3” C-clamps. Stack a light colored blank on top of a dark colored blank and clamp the plywood blocks to the sides at one end. The clamps should only be tight enough to keep the two blanks one on top of the other without moving during sawing.

Mark the top of the light colored blank with an undulating line from end to end between about 20 and 30% of the blank’s width. I used a 3/16” x 10tpi band saw blade but these curves are so gentle a wider blade will handle the job. I used one cut piece to mark the second set of blanks, often reversing ends.

This sawing method is further detailed in *Turning Custom Duck and Game Calls*, pages 64-66.

Gluing up

After a saw cut, switch one light piece with a dark one and select one or more thin strips to fill the saw kerf. The two pieces will not fit together without at least one strip between them since the saw kerf has removed about .020” of wood, but along an asymmetrical line. However, with water softened strips you can add up to .070” thickness between the two pieces of solid wood and still get a good joint.



Four blanks of Osage Orange, Tulip Wood, Oregon Myrtle and Cocobolo together with a large supply of veneer strips make up this unique set of “free form laminated” calls.



The first cut has been made on all four blanks, The Cocobolo and Osage blanks on the left have been sawn, the parts switched and glued with veneer in the kerf. The Myrtle and Tulip blanks on the right have been sawn and the veneer selected for gluing. In most joints I used at least two strips of veneer, with a dark wood against a light one and a light veneer against a dark wood.

Test the joint by seeing if you can dent a squeeze out bubble with a fingernail. If not, remove the clamps and sand the joint on a stationary belt sander. I also sand the excess of the thin strips from the ends of the blanks. Cut and glue the second set of light and dark blanks before cutting the second cut on the first set of blanks.

The second cut

After the first cut is glued up on all four blanks, switch the light and dark blanks for the second cut. Don't get them mixed up: the wood descriptions apply to the major remaining part of the blank, not to the part added on. For example, if you mated the Osage to Coco in the first sawing, you'll have a Coco strip added to the Osage blank. It will still be referred to as a light blank. Since Osage was sawn with Coco for the first cut, it should be mated with Tulip for the second cut. Keep the major portion of all the blanks on the same side as you stack them for each cut. I always keep the major portion on the left so that I'm cutting away the glued up portion on the right.

Sketch the second undulating line, this time between 35 and 45% of the blank's width. After cutting the second stack, switch the pieces again and glue with veneer strips in the kerf. You will have also mated the Myrtle with Coco and switched those two pieces for gluing.

The third cut

This time, stack the Osage on the Coco, just like

I apply glue to both solid pieces (lying with sawn sides up) and then stack the strip(s) on top of one piece. If you plan more than one strip, apply glue on all but the last one which will mate against the remaining solid piece. Then roll them 90 degrees and clamp. It usually takes three or four C-clamps to get good uniform glue squeeze out all along the joint. Check both sides. You may have to unclamp and slip one piece endwise in order to get the undulating line to mate.

Turn the clamp screws hard, wipe up the squeeze out and set aside to cure. Allow four to six hours minimum for the joint to cure.



Gluing requires 3 or 4 C-clamps to get a good joint. The polyurethane glue has a long enough open time to allow for repositioning to get the undulating lines to fit tightly. I screw the clamps up hard and allow 6 hours for the glue to cure.



The third cut along the undulating line. Don't confuse the woods you see with the names given in the text. This is really the Osage blank on top of the Coco blank. Keep the major part of each blank on the same side each time you cut.

the first cut. Oh, that doesn't seem right? Trust me, it is. After the first cut you glued a Coco strip to the Osage, but after the second cut, you glued a Myrtle (on the outside) and Tulip strip to the Osage. Now the Osage goes on top of the Coco and the Myrtle goes on the Tulip.

Mark the cut line between 35 and 45% from the left, much like the second cut. Saw, switch and glue with strips of veneer in the kerf. Complete all four blanks before making the next cut.

The fourth cut

Now mate the Osage on top of the Tulip and the Myrtle on top of the Coco. Mark the cut line 20-30% from the left, saw, switch and glue with strips in between. You can stop at this point, chop the blanks for barrels and stoppers and turn interesting free form laminations. Or...

The fifth and sixth cuts

In all four of the preceding cuts, the blanks have been oriented the same side up. The five pieces, separated by the inserted veneer, all run from one side to the other (top to bottom, so to speak). For the fifth cut, turn them 90 degrees so the five pieces are horizontal and the cut line will be vertical. Stack the Osage on Coco, Myrtle on Tulip (note that each of the four blanks have the named wood as the outside piece and the other three woods are interior pieces).

This time, mark the cut line between 25 and 40% of the width (from the right). Let your line get closer to the edge where the horizontal line is farther away and visa versa. This will give the intertwining effect seen on some of the examples. (If you are really picky about this technique, you would have planned out the turned shape of the barrel and stopper and planned just where you wanted the veneer strips to appear to intertwine. I preferred to be surprised with a random meander line.)



After four cuts, your blanks should look like this. Each blank will have the same wood on the outsides with the other three woods in different order on the inside. Note the randomness of the undulating cut lines.

I switched light and dark blanks for gluing the fifth cut, but did not switch them for the sixth cut. I did make the sixth cut closer to the center line which did not give me the intertwining as much as the fifth cut. It worked out fine, however on the smaller diameter of the stoppers.



For the fifth (and sixth) cuts, the blanks are turned 90 degrees. The Osage and Tulip blanks at left are ready to clamp and cut while the two blanks at right have been cut and are ready to glue. You'll probably spend more for the broad selection of veneer strips (left) than for the solid wood blanks.



After the sixth cut is glued, the four blanks will look like this. Notice the "named" wood of each blank now only appears on each corner, most of which will be turned away in rough out.

Chopping and turning

The 7.5" blanks gave me plenty of room to chop a 4" barrel and a 2.75" stopper. I marked the mating ends of each set to keep the lines together as much as possible. I step bored the barrels .75" to a depth of 2.75" and finished the bore .5" to the mouth piece. I used a stepped hardwood mandrel to turn the barrels, mouth end toward the tailstock (which is opposite my habit with a straight bored barrel).

I tuned the stopper (bored straight through at .5") with a .75" long tenon to fit inside the barrel with a pair of O-rings. The shoulder on the stopper is only slightly smaller than the bead on the stopper end of the barrel.

I fitted each call with a hand cut tone board 2" long plus a .5" x .5" tenon to fit inside the stopper. My tone board jig requires a .610" diameter blank and the .75" bore gives a bit of resonating chamber.

Conclusion

This set of calls not only incorporate the four woods in different ways, they each have differing patterns formed by the inlaid veneer strips. They do require several days to glue up and much more cost in veneer strips than in the solid wood blanks themselves. While each call is fitted with a tone board of different wood and thus has slightly different tone and operational parameters, it is likely the set will be broken up.