

Michael D. Mode
602 Laffin Rd, New Haven, VT. 05472
802-453-4002
michaelmode@gmavt.net
February, 2010

Simple method for a five ring stack laminated bowl:

Preparing Stock:

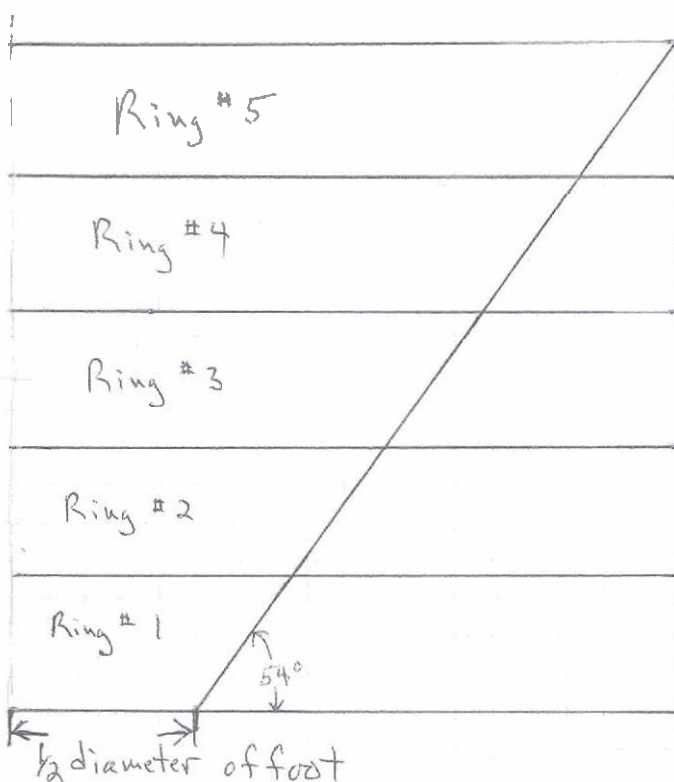
Use two 1" thick planks whose length is twice their width, or take a square and cut it in half parallel to the grain. Machine them as perfectly flat as possible, then joint one edge of each plank. Those two edges will run through the center of your bowl. Lay the two planks together with the jointed edges meeting, and hold them together with a clamp, creating a square. Note that if your planks are of different widths it won't matter as long as they form a square when laid together. Locate the exact center of one face of the square; this will be the upper side of your bowl. You are now ready to lay out the rings.

Determining the ring angle and diameters:

For a 5 ring bowl, draw a 5 layer stack as shown below. Each layer should be exactly the thickness of your planks, and one-half the width of your square. This represents 1/2 of your bowl with the left side of the stack being the centerline of the bowl. Decide the size you want for the foot of your finished bowl. I usually figure on 25% of the diameter, so a 10" bowl will have a foot diameter of 2.5". On the bottom of the stack measure in from the left side one-half of the

diameter of the foot and make a mark.

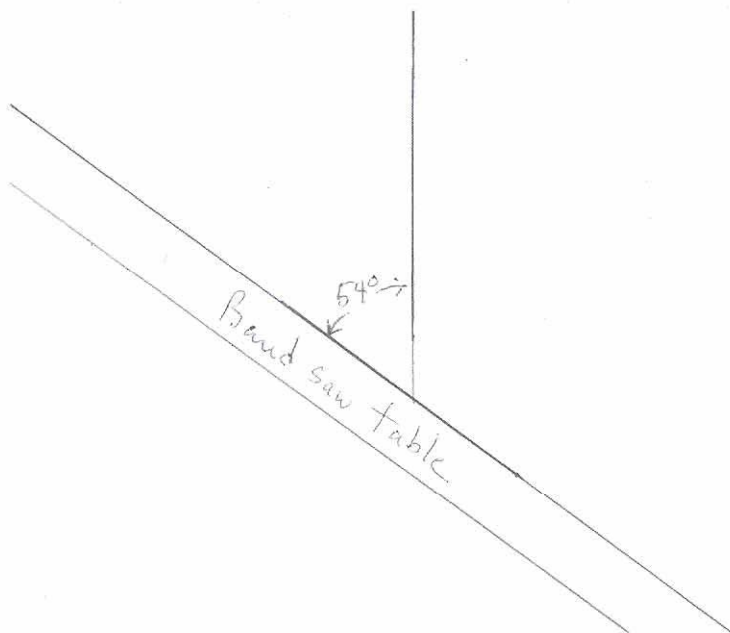
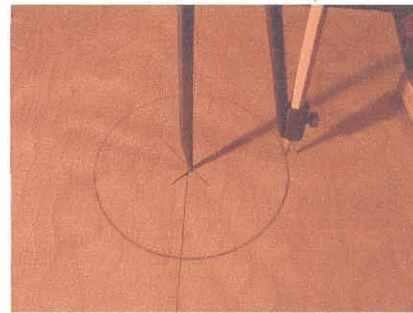
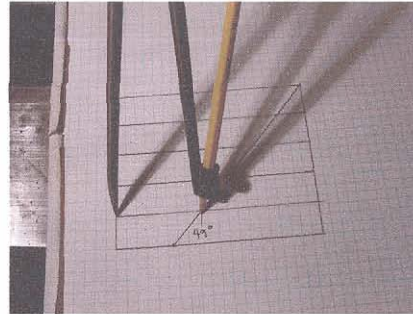
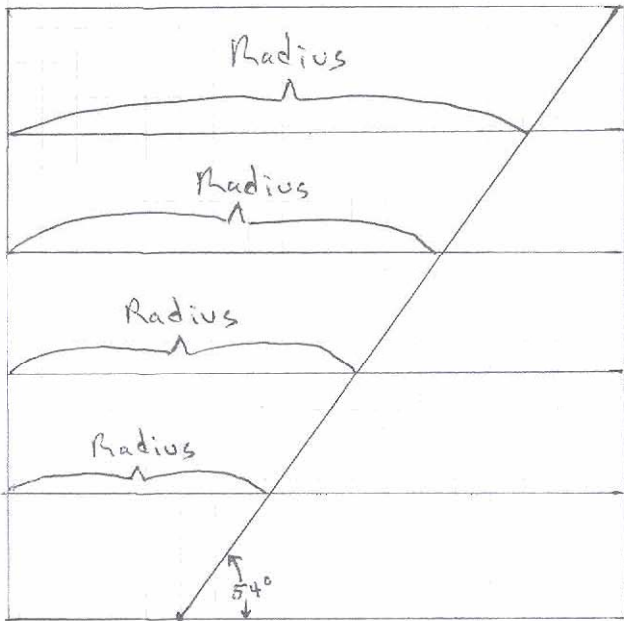
Draw a line from that mark to the upper right corner of the stack. Using a protractor measure the angle of that line as shown. This is the angle at which you will set the table of your bandsaw.



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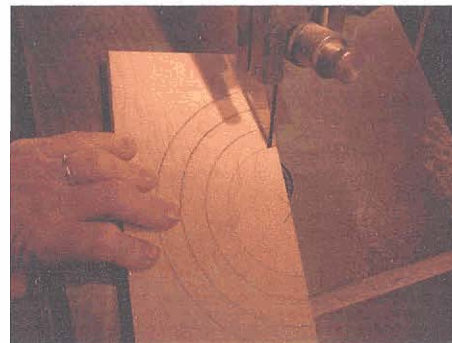
Drawing and Cutting the Rings:

Set a compass to the radius of the bottom ring, then draw a circle on your square from the center mark. Set the compass to the next ring radius and draw the next circle, and continue through all the rings. You don't need to draw the circle for the top ring at this time. You will now have a set of four concentric circles on your square. Remove the clamp and you will see the half circles which you will cut out on the band-saw.



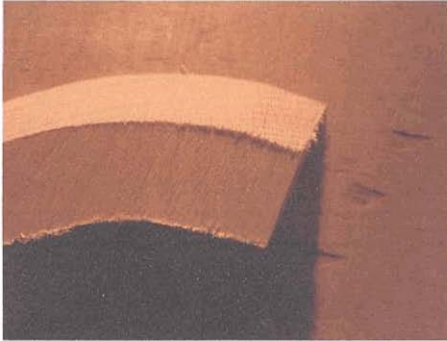
Using a protractor, set the angle from your drawing on the left side of the band-saw blade. Depending on the dimensions of your stock this angle will vary from about 45-55 degrees.

While cutting the rings try to keep the blade just to the the outside of the circle; this will help create an accurate match-up between the rings on the outside of the bowl, which helps with the stacking process.

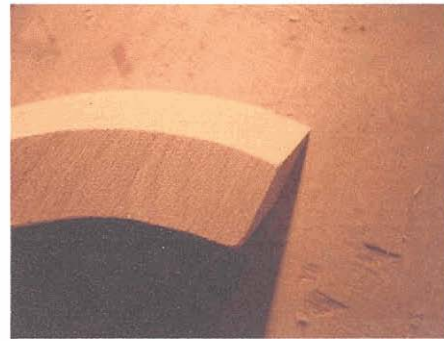


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After you have cut out all the half rings, take the time to sand off any fuzz that may occur where the blade exited the wood. Any loose chips or splinters may impede the glue job.

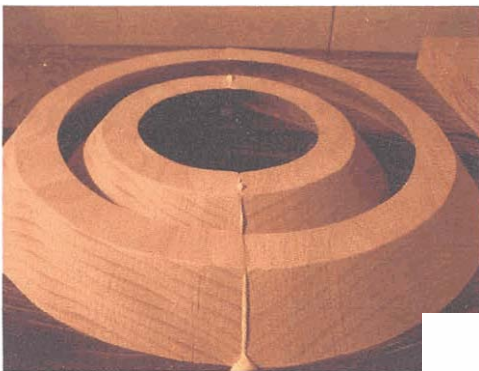


Before sanding

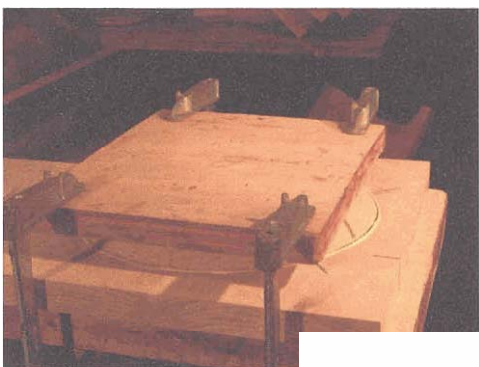


After sanding

If done carefully the half rings can be glued together without clamping. It's important that they lie flat, which they should do if you machined them well in the first place. Also you need a really flat surface on which to place the rings while the glue dries. I use my lathe beds, covering them with plastic wrap to keep the glue off the ways. Put plenty of glue on both ends of one ring half, then bring the other half against it with some pressure so that the glue squeezes out visibly on all sides. Lay it on the flat surface, being sure that the halves remain together. After an hour or so you can turn them over to help the backside dry.



When the glue is cured you will need to sand the rings flat again to remove the glue squeeze and correct any mis-alignment that may have occurred. A drum sander works well for this, but you can also do it by hand by taping a sheet of sandpaper (120 grit) on a flat surface and sliding the ring around on it until flat.



To glue the rings together in a stack, place the largest one narrow end up on a table, apply a liberal bead of glue, then place the next smaller ring on top and by sliding and pressing down make sure the glue squeezes out all around. Align the rings (making some marks in advance will help with that), then lay a square of plywood on top large enough to cover the entire ring and place clamps at the four corners, using moderate pressure. Be careful that the rings don't slide around. After drying 45 minutes or longer, glue on the next ring, and continue to the last and smallest. As the rings absorb moisture from the glue they may begin to warp slightly and sometimes I find it necessary to flatten the bottom of the second last ring before glueing on the last one. Clamp that one in place, perhaps with a smaller clamping block and just two clamps. Let the glue cure and you're ready to turn.