TOOLS

- Personal and respiratory protective equipment (PPE & RPE)
- Bowl gouge
- Straight hollowing tool
- Scraper
- Rotary carving unit/high-speed hand piece (straight and angled head)
- Square edge
- Vernier calipers
- Pyrography unit
- Drill
- Drill bit to suit screw chuck
- Hot-glue gun
- Steel rule
- Calipers

MATERIALS

- Two square wood blanks
- Adhesive
- Wooden dowels
- Acrylic paints
- Paint brush
- Matt finish or sealer
- Pencil

Developing the Wheel

1 Take the blanks and drill them to accept a screw chuck. Mount one on a screw chuck. Take a gouge and true up the outside and front face until they are perfectly flat. Use a steel ruler to check. Cut a Tenon to suit your chuck jaws – just be sure you don't violate your inside diameter.

2 Be sure to check if your blank is square. This will make glue-up easier and allow you to get proper measurements for the second blank. Once the first blank is created, turn a second blank identical to the one just done.

3 Next, use a rotary carving tool with a depth gauge to bore many depth holes on the outside and the face but keep clear of what will be the solid edge areas. The holes will help give you a precise wall thickness when hollowing out the inside to the correct depth. Thickness of .060 - .125 inches is ideal for piercing. Any thicker and it is hard to do the piercing.

4 Turn away the bulk of the internal waste using suitable tools. A combination of bowl gouge, tipped hollowing tool, scraper and beading/parting tool will work well. You will need to work down and across the area to be hollowed out so you can leave enough mass for stability during the hollowing out. If you cut all the way across in one go, you will not be able to achieve the required wall thickness.

5 Use the hollowing tool for removing the bulk and your scraper to refine your edge until light shines through the depth gauge holes you just drilled.

6 At this stage set your Verniers to the inside dimension and mark the size on the blank.

7 Turn the inside face down to your depth gauge holes, working your way to the inside wall section. Using a set of calipers, set them to your wall thickness. Turn the outside of the inside diameter to the desired wall thickness. On the very inner section of the blank, which is still currently solid, remove some material allowing access for your calipers. At this stage you can also create a second Tenon for reversing. Continue turning the wall to the thickness. Being very

careful not to go too deep – you don't want to go though the bottom just yet.

8 Now remove the piece from the lathe, reverse it and hold the inner Tenon just cut. you can start turning through until you hear it getting thin. Be very careful to take light cuts and keep you speed slow.

9 Work until you cut all the way through and sever the ring section from the waste held in the chuck.

10 Once it breaks free you can expand your jaws with light pressure and hold it, allowing you to use your scraper or sandpaper to clean up the part you just turned.

11 Having created one section of the ring, repeat the processes for the second ring to create an identical matching half.

12 It is vital that the two rings perfectly align. To aid with this I use a hot-glue gun and apply dowels around the outside and the inside of one ring.

13 Once the dowels are in place, apply glue to the meeting edges and slide one blank on to the other. I use several hand clamps and hold it between centers using the flat face of the chuck and a faceplate held in place by a revolving center.

14 Once dry, remove the ring from the lathe and use a pencil to draw your chosen design. Drawing your pattern prior to burning helps minimize mistakes. Next use your wood burner/pyrography unit to burn the pattern on the piece. A variety of tips was used to apply the design, ranging from a thin wire to a tip that had a scalpel-type edge on it to incise deeply and act as an anti-bleed colored paint barrier later.

15 Now mark the exact position of the thickness of the inner walls on the top, back, inner and outer edges. You will be cutting windows in the wood so you need to know the boundaries within which to cut.

16 It is easier to start piercing the inner ring area. This requires the angled-head hand piece. Remembering to leave enough wall thickness between each pattern and go slowly so you do not cut through or break a section making a much larger window than required. While the shape of each window is irregular, they are all a similar size. Light pressure is a must and use pillows to rest the piece on while you cut so you don't have to hunch over.

17 Once the inside area is done, use a straight hand piece to cut the flat faces and edge areas. Again, be gentle and go slowly – one slip can ruin the piece.

18 Once the windows are cut, using your choice of colors paint in your design with a small brush. After the coloring seal the piece with a matt-finish acrylic spray or your choice of fixative.

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