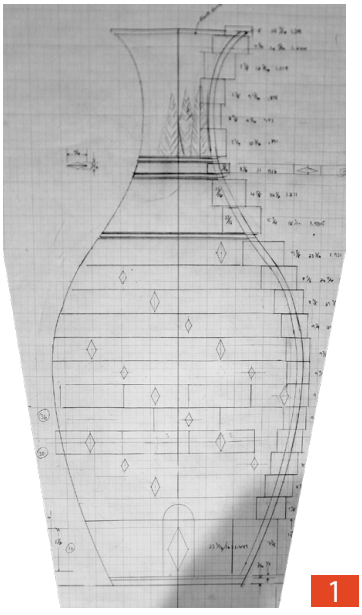
Blue Diamond

by Claude Dupuis
canterburyturnings.com

- Segmented construction—787 pieces
- Measurements—19 ¾″ tall & 9″ in diameter
- Materials—curly hard maple, black dyed veneer, maple veneer, clear polyester casting resin, catalyst, blue opaque pigment concentrate
- Finish—Waterlox, wax
- Year made—2018

I have demonstrated segmented turning several times now and I always start out with the most important part—the form. I tell people, "If you remember only one thing about this demonstration, let it be the form." The same holds true for this project.



1

One can learn to cut and glue up perfect joints, but what good would that be without a pleasing form. It all starts out with a drawing. Still, with all the programs out there I prefer to draw by hand. Sometimes I create/draw a form with a particular shape in mind from scratch and other times I search the internet for ideas. In the case of Blue Diamond, I searched the internet and entered "eighteen century vases" and with thousands to choose from, I found one I liked.

It took several attempts to get the proportions correct using graph paper and French curves. One point of reference was the neck. I envisioned that one would hold the neck in one hand and the base with the other to pour whatever was inside. After using the picture and neck's estimated size, the drawing progressed from there. The height and girth had to be proportionate in size. A motion is created by laying out the diamonds in a spiral design. Your eye subconsciously wants to follow them around the vessel (Photo 1).

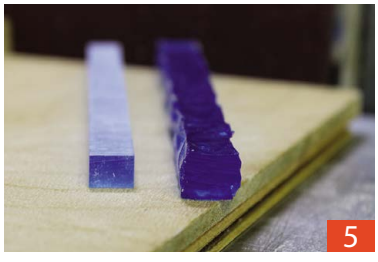
Once you have what you think is a pleasing form let it set a few days. Pick it up and or glance at it over the course of a few days. I have changed and/or made adjustments from this process.

Once you have the form, proceed with the design, wood type, accents and so on. I decided to accent the piece with diamonds and that the diamonds would be made with acrylic. I searched three or four catalogs and then the internet for an acrylic in solid blue that would

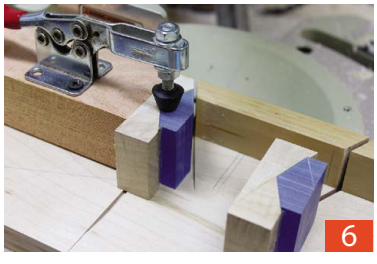
2

3

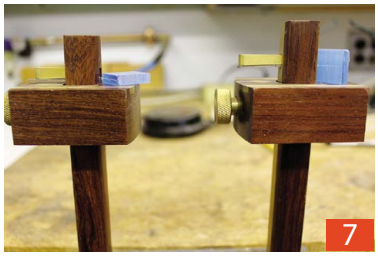
4



5



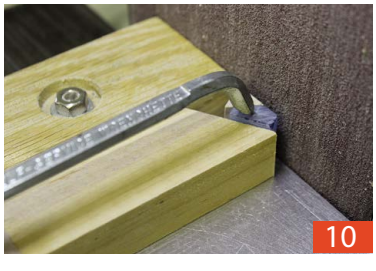
6



7

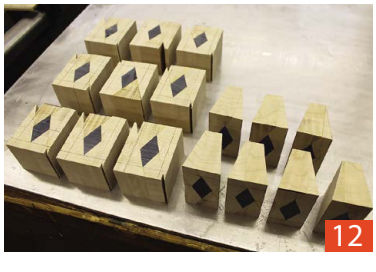
8

9



10

11



12

13

be of the right size such as pen and bottle stopper blanks.

I found none, so why not make my own? Using clear polyester casting resin, catalyst and blue pigment, I did just that (Photos 2 & 3). I made a form for each of four different sized diamonds. There is a diamond every other segment at twelve segments per ring. That's six diamonds per ring. The exception is the bottom ring of diamonds with sixteen for a total diamond count of 88.

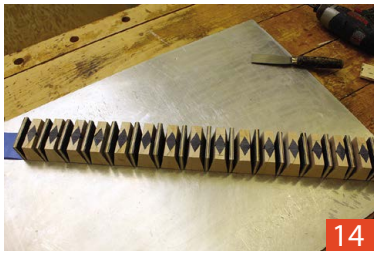
It's a good idea to prep all the wood at the same time. I keep all the orientation the same throughout. The top of board and outside edge is marked at every rip for each ring. This helps keep each segment oriented the same direction as they are cut, sanded, fitted and glued up (Photo 4).

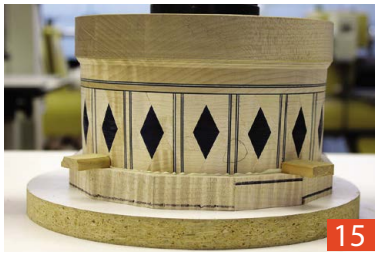
I cut, planed and sanded the polyester the same as the wood to make the diamonds (Photos 5, 6, 9 & 10). The smaller polyester blanks had to be sanded to size as they were too small for the jointer and planer (Photo 5).

Gluing polyester to wood was a learning experience. Starting with the bottom larger diamonds I got as far as having glued two wood pieces (Photo 6) to all 16 lower segmented ring segments. But the polyester and wood separated almost to the touch (Photo 8). I tried re-gluing with two-part epoxy adhesive and that too separated. Finally, by trial and error I cleaned off the polyester with lacquer thinner just prior to applying tight bond original glue. That worked (Photo 11)!

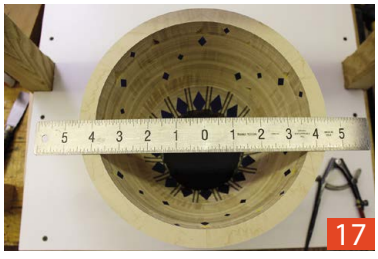
When making a diamond segment first create a block—the diamond—the exact width, height and depth per the plan. I marked out the polyester segment diamond points using a marking gauge (Photo 7), cut the bulk off on a chop saw, and sanded each segment to the connecting diamond points—four times to complete each segment.

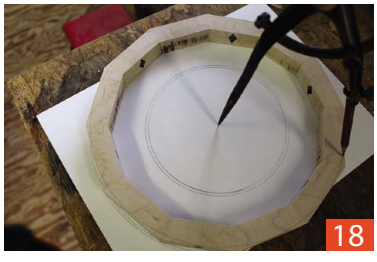
Following the project plan I proceeded to make all the diamond segments for the project. They varied in size and keeping things organized was important. The diamonds are centered


14


15

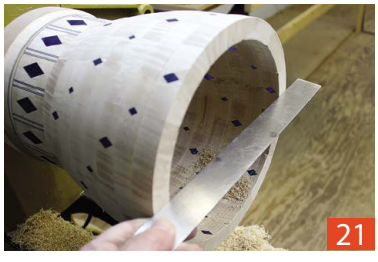

16


17

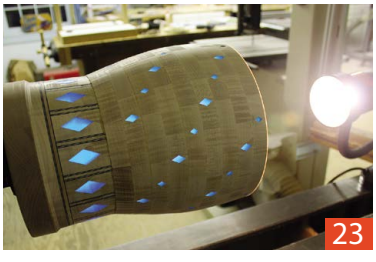

18


19


20


21


22


23


24


25

on their respective segment so they had to be trimmed at either end to the appropriate length per that ring's segment length (Photo 12).

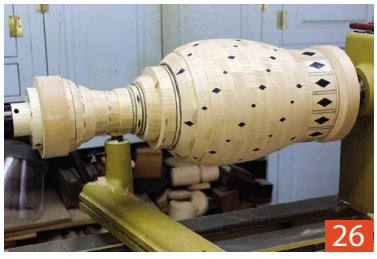
Having all the diamond segments made (Photo 16) and solid wood segments I proceeded to make the inlay segments (Photo 13) for the bottom diamond ring. I used culls covered with blue tape to aid in glue removal to avoid adhering culls to finished pieces. Then it was ready for glue up (Photo 14).

I started building the vessel with a solid segment on a face plate mounted to a glue block and glued up the lower level segmented ring building up from there (Photo 15). You need to use an axillary light for hollowing the interior. That's when it became apparent that light shined through the polyester semi-translucent diamonds (Photo 23). It was clear from that point that I was going to find a way to light the finished piece from within. This is what drove the plug design and finial. The plug was used to hang an battery powered LED light from within.

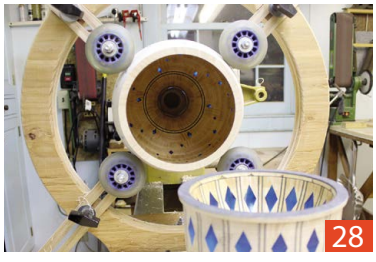
This is the tallest segmented piece I've created to date and the height exceeded the capacity of my press. I modified the press uprights so that they could be adjusted (Photo 24). I proceeded to build one segmented ring at a time. I checked flatness at the sanding plate by pencil, marking it and then rubbing it on the sanding plate until all the pencil marks were gone (Photos 19 & 20). At the lathe each ring is flattened and checked using a straight edge and sanded using a sanding stick with 80 grit sandpaper adhered to it (Photos 21 & 22).

Keeping each ring centered is paramount. Turn the vase ring round, then by using a centering ruler (Photo 17), I get the exact diameter. Using a thin cardboard and compass, center the next segmented ring and holding the segmented ring centered, adjust the compass to the segmented ring size and mark it (Photos 17 and 18). Glue the ring using tack blocks to keep it on point (Photo 25).

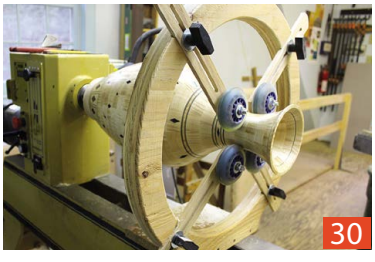
The vessel was built with two halves (Photos 24 & 25), rough hollowed and dry fitted (Photo 26). The exterior was turned to finished dimensions, separated and the interior turned to finished dimensions.


26


27


28


29


30

The interior was finish sanded and three coats of Waterlox applied. The vessel's halves were then glued together, exterior turning cleaned up at the glue joint, finish sanded to 400 and touched up with Abralon Super Sanding Pads through 12,000. Several coats of Waterlox were applied plus sanding between coats with 0000 steel wool.

The vessel's original design included an arch above each of the 16 lower diamonds. I had intended to carve in the arches after completion but the arches no longer went with the diamond theme. That said, the top end of the diamonds were missing something.

Luckily, I decided to make the change while the two vessel ends still had their face plates attached. I cut the vessel to add a segmented detail ring at the top of the diamonds to match the detail at the bottom of the diamonds. Now remember, with the exception of "finish" the vessel was pretty close to done. It was a risky operation to say the least (Photos 27 and 28).

With the segment added, the lower section was then final turned. With the aid of a shop-made steady rest (Photo 30), the upper faceplate was removed, upper section final turned and then sanded. Finish was applied while still on the lathe (Photo 29). I also eliminated the leaf design at the neck.

Even with the best of plans sometimes you have to be willing to make adjustments, whether you're making a turned piece or a chest of drawers. At least for me (and maybe some of you also) what I enjoy most about the building process is problem solving and the satisfaction it brings to finding and executing a resolution. It starts from project concept right through completion. Enjoy the journey! ■