

Sunrise Feature Ring

A turned vessel can be enhanced in many ways and here is one that looks complicated but with patience and good equipment can produce a feature that many will talk about – a **sunrise feature ring** and here is how I make it.

I modified the sunrise design from Malcolm Tibbets (see *Lessons in Segmented Woodturning, Vol Two DVD*) so the sun rays taper. This is how I did it for the Japanese Urn with Rising Sun feature shown to the right.

I use Segmented Project Planner to design my segmented work.

For a discussion on the use of this software see my paper titled, “*Some Basics in Designing a Segmented Bowl – Part 2 – Using Software*” in the “My Turning Jig & Tips” section of <https://alswoodturning.wixsite.com/creations>



There is some Maths involved

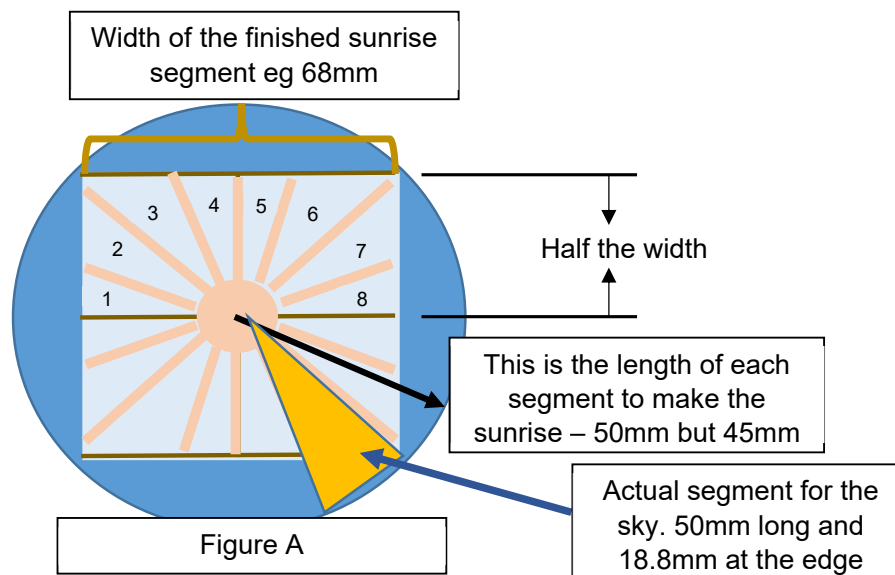
From my design the diameter of the vessel is 180 mm and therefore the circumference is 180×3.14 (Pye) = 565.2 mm. Dividing this by the number of sunrise (in this case 8) gives a length of each segment of 70.65 mm but there is a 3 mm piece of Jarrah separating each sunrise and so the length of a sunrise segment is rounded to 68 mm.

I start by working with the sky behind the sun. I want 7 rays for the sun. Therefore, there are 8 ‘skies’ per sunrise feature. As shown in Figure A, I combine 2 sunrise segments for the easy of manufacture and therefore 16 segments and a total of $8 \times 16 = 128$ for this vessel.

Draw this up on paper as shown in Figure A, starting with the size of a full sunrise segment. Now draw a circle such that it meets the corners – shown in blue. The diameter of this circle is the length of the segments that will form the sky.

The length of each segment for the sky requires a little more Maths. The diameter of the blue circle I drew is 96 mm and therefore the circumference is 301.5 mm. I have a total of 16 sky segments and thus the edge length of 18.8 mm ($301.5 \div 16$) and board width to cut these from is the radius of the circle I drew at 50 mm.

Therefore, edge length of the segments that will be the sky is 18.8 mm and 50 mm long but make it 45 mm because the segments don’t need to meet in the middle when formed into a circle.



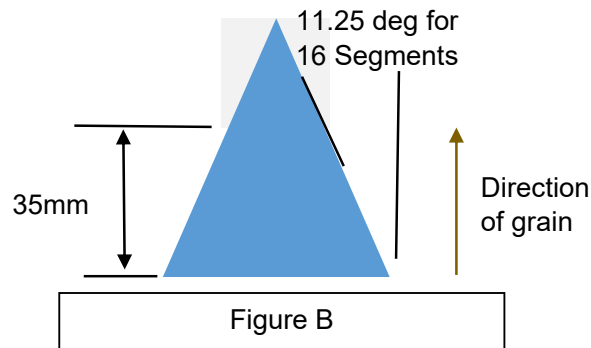
The thickness of the timber will be the wall thickness of the vessel.

The following are the manufacturing steps:

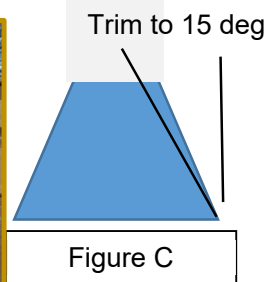
I use a sliding mitre shed for the cuts which has pre-set angles for different segment sizes but a drop saw will do the job.



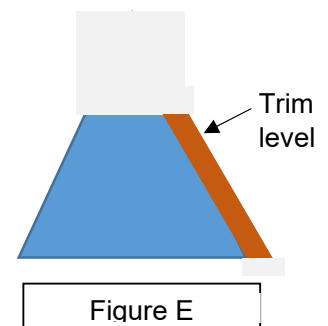
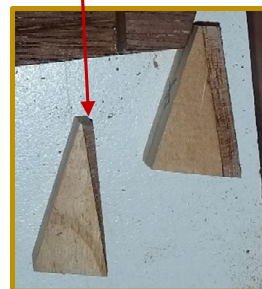
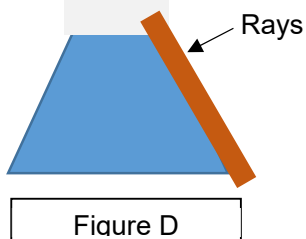
1. Cut strips 45 mm wide with grain running across that 45 mm. (My ring height will end up at 35 mm).
2. Cut for 16 segments (11.25 deg) with edge length of 18.8mm, see Figure B



3. Set the saw for a 12-segment cut (15 deg)
4. Mark the side opposite of one to be trimmed so you don't mix it up.
5. Trim the unmarked side for the 12-segment angle (15 deg), see Figure C.



6. Cut the timber for the rays to match the thickness of the rays and longer to overlap the side.
7. Glue the ray to the side, see Figure D.
8. When dry trim the long edge level and sand off any glue squeeze out as per Figure E
9. Now sand/cut back to the angle for 16 segments to create the taper on the ray.
10. Put 4 pieces aside. These will be the horizons.
11. Flip the piece over and repeat step 3 then 6 to 9 for the other side.



From here I followed the Malcom Tibbetts process:

The following photos are from the making of the sunrise bowl – photo at the end

1. Glue together using the half ring method. **Note:** the 4 pieces that were put aside earlier go on the edges of the halves, that is, the horizons.

In this sunrise bowl the rays and sun are made from acrylic pen blanks (150x20x20mm) and glued with 2 part epoxy.

The Half Ring Gluing Method

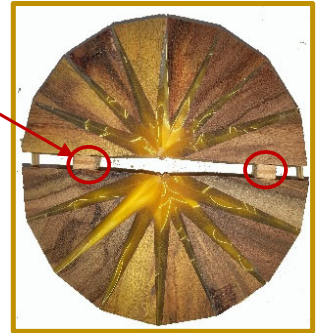
In this method you DON'T apply glue to the diagonal opposite sides, and when clamped for drying, place small blocks to separate the 2 halves.

This allows any errors due to the cutting or gluing to be sanded off before gluing to a full circle.

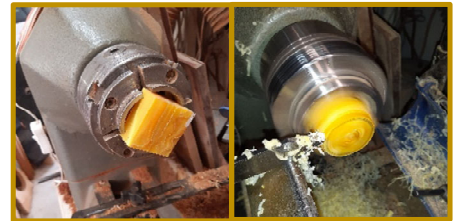
Note: for this design I leave this as two halves. The construction is done this way as it is the simplest way to glue up and create 2 sunrises in the process.

Normally if this was to be a closed full segmented ring you would sand the sides flat on a disc sander and then glue the ring together.

The 2 half circles are flattened on a disc sander.



While they are drying turn the circles for the sun.



2. My glued up circles were small enough to hold in a chuck and use a Forstner bit to drill for the sun.



3. Glue in the sun into the clamped halves and set aside to dry.

4. Cut the two halves apart.
5. Sand what is the horizon flat and then the sides
6. Cut the half circles to the height of the ring



7. Now stand the pieces upright to cut the mitre at the angle to form the feature ring. For the Japanese Urn there are 8 sunrise so the cut angle was 22.5deg
8. The pieces can now be glued to complete the feature ring.



9. This ring is then flattened in a drum sander so it can be added to the vessel.

Finished vessels

Japanese Urn, 290mm high and 145mm dia.

Lower feature represents the mountains with the sun peeping over the top then the sunrise in the main feature.

Timbers are:

- Walnut with Rose Gum for the sun, New Guinea Rosewood for the rays, Silky Oak for the sky and framed in Jarrah.

Sunrise Bowl, 240mm dia and 150mm high.

Timbers are:

- Cambia Ash on the bottom leading to Tassie Blackwood and Silky Oak on top. The background to the sun is Camphor Laurel and the sun and rays are made from acrylic pen blanks.



A different design

I think the curved 'sun' looks more realistic in this version of the sunrise design. The progress is the same as shown in this article but the sunrises were cut into circles on a circle jig on my bandsaw. Then the background Camphor Laurel is cut and shaped to fit.



Timbers in this project are:

Walnut, Quandong and an unusual red Camphor Laurel.

Sunrises are N G Rosewood, Camphor Laurel

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See samples of my work at: <https://alswoodturning.wixsite.com/creations>