

# **Notes associated with Bob Zrebiec's Demonstration**

**April 17, 2019**

## **Designing and Making Segmented Bowls for Beads of Courage and other Applications**

This presentation and demonstration supplements that given by Alex Worcester on October 21, 2015, entitled Introduction to Segmented Woodturning. His Powerpoint presentation can be found in its entirety on the Keystone Woodturners website under the Projects Tab, Segmented Turning.

The Keystone Woodturners have been involved with making Boxes (Bowls) for the Beads of Courage Program on a yearly basis since 2015. It has been a very rewarding program for the Club and its members. New Club members especially are at a loss as to the program and how bowls can be made to meet the program requirements. This presentation/demonstration is intended to address that need.

Although all the techniques for making a Beads of Courage bowl are addressed, this presentation/demonstration focuses on a Flat Segment Bowl, on designing the bowl, cutting the segments using the SegEasy wedgie sled and wedgies, building the bowl using SegEasy Zero Plates, and on turning the bowl. Instruction for building all fixtures used, and sources for all items used are included in this handout.

Any questions can be addressed to me by email ([zbobs@comcast.net](mailto:zbobs@comcast.net)).

Bob Zrebiec

# Beads of Courage Program

History - Developed by Jean Baruch, a nurse at Phoenix Children's Hospital in February 2003.

Now a National Program [www.beadsofcourage.org/](http://www.beadsofcourage.org/)

## What is the Beads of Courage Program?

The Program is a resilience-based intervention designed to support and strengthen children and families coping with serious illness. Through the program children tell their story using colorful beads as meaningful symbols of courage that commemorate milestones they have achieved along their unique treatment path.

## How Does it Work?

Upon enrollment each child is given the Beads of Courage bead color guide with a detachable membership card. Their Beads of Courage journey begins when each child is first given a length of string and beads that spell out their first name. Then, colorful beads, each representing a different treatment milestone are given to the child by their professional health care provider to add to their Beads of Courage collection throughout their treatment as determined by the Beads of Courage Bead Guide.

## The Beads of Courage Program is available for the following:

Cancer and Blood Disorders

Cardiac Conditions

Burn injuries

Neonatal ICU Families

Chronic Illness

Beads are made and donated to the program.

Boxes and Bowls are made and donated to the program.

The American Association of Woodturners has encouraged its chapters to support the program.

Keystone Woodturners began making bowls for the program in 2015, supporting the Children's Hospital of Philadelphia (CHOP), and the Dupont Children's Hospital in Wilmington, DE.

## Beads of Courage Bowl Design

- Interior Size 5-6" Diameter, 4-5" Height Larger is Better
- Stable Base, Durable Construction
- Loose Fitting Lid Lid Finial Easy to Grasp
- Beads of Courage disc available from the Club

- No toxic materials in finishes
- Finish sealed well to prevent germs and mold
- Solid block of dry wood
- Glued up lumber
- Bowl From a Board
- Stave Construction
- Segmented Bowl

### Bowl Design Programs

- **3D Design Pro** - available free when other programs are purchased from Woodturnerpro.com. It is a graphical curve editor designed specifically for woodturners. You can draw and edit 2D curves and in realtime see a 3D shaded preview of the vessel. It contains a library of over 100 shapes and can import images. It is very easy to use.
- **WoodturnerPro** - available from Woodturnerpro.com for \$ 79 and includes 3D Design Pro. This program imports a design from 3D Design Pro, scales it to the desired dimensions and then creates a segmented vessel that can be both closed and segmented. It has 64 wood species that can be used and wide variation on the number of segments per rows and thickness of row that can be used. Each segment can be a different wood and the result is shown in 3 dimensions which can be rotated to show the effect achieved. Output consists of a Cutting Summary and several views of the vessel. It is very easy to use.

### Bowl Assembly Tools

- **Cutting the segments** - the safest and easiest way to do this, especially if the segments are small is to make a Wedgie Sled. This can be used on either a table saw or a bandsaw or both. It was developed by Jerry Bennett. Instructions for making one can be found at <http://www.segeasy.com/wedgiesledplan1.pdf> instructions for using it can be found at Jerry's web site <http://www.segeasy.com/> and also on YouTube. The sled uses what Jerry calls a "Wedgie" to adjust for the number of segments in each ring to be cut. The Wedgie is a triangle with the necessary angles. Wedgies can be purchased from Jerry. <http://www.segeasy.com/buywedgies.htm> for \$ 13 each or can be made by you if you have an accurate miter jig. Note that a closed wedgie is used when there are no gaps between the segments in a ring, and an open wedgie is when there are gaps (usually 4 degrees) between the segments. Beads of Courage bowls are made without gaps using a closed wedgie.
- **Assembling each ring in a bowl** - the easiest and fastest way to do this is to use one of Jerry's plates. These must be purchased and you will need one for every ring with a different number of segments. <http://www.segeasy.com/toystore3.htm> Plates are \$ 50 each and again are available for either open or closed rings. Beads of Courage bowls are made with closed plates. Normally you only need one plate to create a vessel but if you want to be especially creative and use multi wood species in patterns you could use several. For a 5-6" diameter bowl I recommend 16

segments. I also use a 32 segment plate for decorative rings. Each plate used should be attached to a faceplate, preferably 6 "

- **Assembling the rings** - Each ring is produced in two steps. The first step involves gluing up half of the segments in a ring, the second step (10-15 minutes later) involves gluing up the second half of the segments And then compressing the ring segments. This is done with a large wooden disc (mine is hard maple, 2" in thickness, 12" in diameter attached to a 6" faceplate) that fits into the tailstock. The lathe then is used as a press to compress the ring segments.
- **Glue** - I use Titebond Original glue because it sets up quickly.
- **Leveling the ring** - 20 minutes after the second half of the segments are added and the ring is compressed, I remove the compression disk and sand the ring with 80 grit sandpaper attached to a 3/4" thick 12" diameter MDF board attached to a 6" faceplate with a handle. When the dust is removed the next ring can be added.

**Turning the bowl** - Once the bowl is completed I wait 24 hours before turning it to the final dimensions.

**Finishing the bowl** - Any non-toxic finish can be used.

**Making the Lid** - However you design the lid it should be loose fitting and have a handle. You can incorporate a Beads of Courage Bead (available from the Club) into the handle.

**Signing the Bowl** - Sign the bottom with Keystone Woodturners, your name, the wood specie(s) and the date.

- **Segmented Bowl Design**

WoodturnerPro Software available from <http://woodturnerpro.com>

### 3D Design Pro

- Creates the design by importing images or direct drawing.
- Included library has many designs for Boxes, Candlesticks, Closed Forms, Goblets, Hollow Forms, Open Forms, Peppermills, Platters, Urns, and Vases.
- Does not dimension the shapes

### WoodturnerPro

- Converts designs into segmented projects
- Stave and Segment Construction Supported
- Produces Vessel, Cross Section, Ring and Segment Views
- Produces Cutting Summary
- Supports many wood species in color

Price for these two programs \$ 79

## **Segmented Bowl Construction**

Using SegEasy Techniques developed by Jerry Bennett

<http://www.segeasy.com>

Site contains all instructions, videos and products

Make the fixtures for cutting the segments:

- Make a Wedgie Sled for Table Saw  
<http://www.segeasy.com/wedgiesledplan1.pdf>
- Make a Zero Clearance Strip for Table Saw  
<http://www.segeasy.com/zeroclearancestrip.pdf>
- Make the Saw Stop for Table Saw  
<http://www.segeasy.com/sawstop.pdf>
- Could make the above for a Band Saw rather than a table saw

Decide on the number of segments desired and purchase the following:

- A Wedgie for each segment desired. I use 16 and 32 closed segments. Wedgies are \$ 12.99 each and can be made instead of purchased but it is not easy as it requires a very accurate miter gage.
- A Zero Plate for each segment desired. Plates are \$ 49.99.

- Download the Tutorial <http://www.segeasy.com/zeromanual.pdf>
- Mount the Zero Plate on a 3/4" board and attach to a faceplate (6" recommended)
- Obtain a tailstock adaptor for your tailstock live center (threads into faceplate)
- Make a compression disk (1 1/2" thick, 10" diameter) and attach to a faceplate (6" recommended)
- Make a sanding disk (3/4" thick, 10 " diameter) and attach 80 grit sandpaper disk to it

### Cutting Out The Board Strips

- The Cutting Summary tells the Board thickness, width and length for each ring.
- It is easiest to obtain the boards in the wood species you have selected in the thickness you have selected, but you can use thicker boards and joint/plane them to the desired thickness.
- Cut the boards to the Board Width shown on the cutting summary
- Cut the boards to length shown on the cutting summary