

Multi axis bowl with handles

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This project will explore one of the multiple possibilities of multi axis turning. The following technique has been developed over several months of trials and errors and is not limited to bowls and can be adapted to hollow forms and platters as well. As you are working with an unbalanced piece, it is crucial to understand the following instructions, to secure the piece between centers and to manage the speed of the lathe. If you are not at ease with the wobbling piece in front of you, stop immediately, go over the instruction once again, check the grab of the spur drive and live center and adjust your speed. Although this project is somewhat advanced, a less experienced turner can tackle it as long as you follow basic turning safety guidelines. Always wear protective equipment, use safe and sharp tools, work on solid piece of wood and most importantly, be in a good physical and mental condition.

All you need to undertake this project is the following ,

- An sound bowl blank about 8 inches by 5 inches deep
- A big enough lathe to handle the unbalanced piece
- A good spur drive that will properly anchor the piece
- A fine control of your freshly ground bowl gouge

Step 1 roughing the blank

- Mount blank between centers with a flat face (to be the top of the finished bowl) against the headstock
- Rough the overall shape
- Make a tenon at base to fit your chuck, live center end, i.e. your right. Make sure you keep a center mark before parting off the base of the tenon for future reference as your true axis. (Picture 1a)
- Clean the left face and make a 1\2 " deep reference shoulder about 1\2 inch from the edge. A deeper shoulder will give you a smaller bowl with smaller and sharper handles.
- Highlight the shoulder area in red for future reference for the handles. (picture 1b)
- You should now have a flat surface with a red shoulder at your left and a tenon at right.
- Remove the bowl from the lathe

photo 1a



photo 1b



Step 2 establishing the secondary axis and the handles offset

- Draw a green line across the flat face (top of bowl) going through the center mark, **not on the tenon face**.
- Note. A line along the pith axis will produce a bowl with the grain rings perpendicular to the handles. To get the grain rings at the handles, you need to trace the off-axis line perpendicular to the pith axis. Handles perpendicular the grain rings are generally stronger while those with the grain lines are more esthetically pleasing. If you are looking for thin handles, you should go with handles perpendicular to the grain rings.
- Draw a red line perpendicular to the handles axis and make two marks (A and B), one inch from the true center. These will become your turning off-axis. One inch offset seems to produce well proportioned handles for a bowl this size. You can experience with different offsets but remember that as you increase the offset, the blank becomes exponentially more out of balance, the handles become larger and the Inside of the bowl becomes smaller! (picture 2a)
- Drill on A and B marks to anchor your spur drive. It is advisable to predrill those marks with a forstner corresponding to the diameter of your spur drive about 1\2 inch deep. It is important to drill in a slanted fashion aiming at the true center of the tenon. This will provide a better grab for the spur drive when turning off-axis. (picture 2b)

photo 2a



photo 2b



Step 3 turning the handles profiles

- Mount the blank between one off-axis (the A mark) in the spur drive, facing the headstock, and the tailstock true center mark. Make sure it is snug ! I mean really snug ! Retight the tailstock as you progress, the spur drive will likely dig in and become loose. (picture 3a)
- Position the tool rest along the off-axis, this will become your reference for turning. Rotate the blank by hand to ensure proper clearance of the tool rest.
- Set the speed at the slowest of your lathe and find a speed with minimum vibration. It should be around 300=500 rpm, depending on the blank itself and the stability of your lathe. Your blank is way off balance at this point !
- **You do not need to turn off-axis all the way, only the top third of the bowl perimeter needs to be offset, i.e. the headstock side.** What you are shaping at this point is the actual perimeter of the handles. Take away as little material as you can, this will prevent shearing at the spur drive and it will be easier for you ! Remember, you are cutting half wood and half air, the tool rest is your only reference line. Obviously, you cannot ride the bevel and it is important to keep the gouge well anchored on the tool rest to keep a consistent distance from the turning piece. A straight cut from the base to the top is good enough. The final shaping of both the handles and the bowl will be done between true centers later.(picture 3b)
- **Once you reach the reference shoulder in red, you are done with this off-axis.** Keep the tool rest as is, this is your reference for the other off-axis turning. Reposition the blank on the other off-axis and turn the other side of the bowl. (picture 3c)

It is important to stop at the red reference shoulder in order to achieve a balanced bowl, especially if you want a rim between the handles and the bowl inside.

- You should now have a bowl with an oval rim. (picture 3d)

Photo 3a

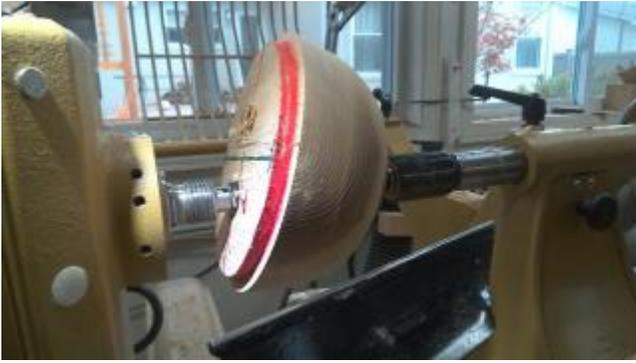


photo 3b

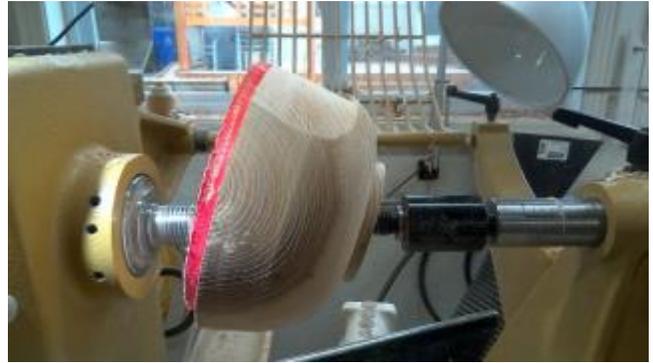


photo 3c



photo 3d



Step 4 shaping the bowl outside and the underside profile of the handles

- **Remount the bowl between true centers** with its base at the tailstock end.
- From the base up, shape the bowl and the underside of the handles. What you are looking for is an ogee shaped bowl where the top arc is tighter. Leave the handles about 1\2 " thick at this stage. You can always make them thinner later when you hollow the bowl and determine the rim.(picture 4)
- **The tighter the top arc is, the more defined are the handles underside. This also makes the bowl round almost all the way up where the transition between the multiple axis is less visible.**
- First sanding of the outside is possible at this stage.

photo 4



Step 5 shaping the top of the handles and hollowing the bowl

- Mount bowl on your chuck with the base tenon
- Shape the top of handles. This is like turning a rim on a regular bowl, but there is an unsupported area to deal with. Remember that you already turned the underside of the handles and you should ensure that you do not cut through ! (picture 5a and 5b)
- If you want a rim between the inside of the bowl and the handles, shape it now.
- Finish shaping the handles top faces. (picture 5b)
- hollow the bowl.(picture 6)
- Sand the inside, rim and both face of handles.

photo 5a



photo 5b



Photo 6



Step 6 shaping the base of the bowl.

Depending on your equipment and skills, shape and finish the base of the bowl as usual.

VOILÀ!





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