

# Notes on How to Turn a Wood Box

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Not only is turning a box fun but it also helps to develop a wide variety of technical skills. These notes outline only the basic steps involved in creating a box - the details of each step are many, but can be learned by practicing on a few boxes. By using the same design each time, you will be able to quickly isolate and fix problem areas honing your skills on each iteration. With some persistence you will then be able to turn your own well balanced, precision fit design.

## Prepare the Blank

The first step is to create a cylinder 6 or 7 inches long and 2.5 to three inches in diameter with tenons on both sides for your chuck. Mount the cylinder and cut a slot 10% to 20% into the diameter on the headstock side, two or three inches wide. Part off the recess, leaving about  $\frac{3}{16}$ " of the slot on the tailstock side (see Figure 1).



Figure 1

## Make the Inside of the Lid

The remaining wood is the top of the box. Clean the face of the blank so that the end grain is smoothly sheared, especially near the outside diameter of the face. This is an excellent opportunity to practice using a skew chisel if you are not already familiar with it. Hollow out the inside of the blank about  $\frac{1}{2}$ " deep in the center leaving  $\frac{3}{16}$ " wall thickness on the side for the flange, and finish with a smooth concave cut across the inside-top of the lid. A small spindle gouge works well for this situation.

**Key point:** Cut the sides of the flange exactly parallel. A side-ground scraper is ideal for this cut. Verify that the sides are parallel by measuring with a set of inside-calipers placed on the inside of the flange.

Sand and finish the inside of the lid being careful *not* to sand the flange. You can put on a sanding sealer or oil finish now, it may be helpful later to mark the bottom flange. Measure the maximum depth of the lid and mark it on the outside of the blank. Part the lid  $\frac{3}{16}$ " from the mark on the headstock side, plus a little more if you are going to put the finial on the top.

## Make the Bottom

Mount the bottom blank in the chuck and true the cylinder. Clean the face of the blank going in at least 1/2". This surface will be the top of the flange and needs to be cut very cleanly so that no end grain is picked out or ragged. Rough cut the flange barely larger than the inside diameter of the lid.

**Key point:** We need to know the approximate inside diameter of the flange so that we can hollow the bottom. The lid should *not* fit at this point because the box will change shape slightly when we hollow it. We'll need a little extra material (more material if it is green) to cut away to true the flange at that point. If you cut the ramp too far, you can remove the part that is too small and start over.

Hollow out the bottom so that it is approximately 1.75" deep at the center, and a smooth rounded shape internally. Make sure that you undercut the flange so that the box does not feel heavy on the top. Measure the depth and mark it on the outside of the blank. Part the blank 3/16" from the depth mark to a diameter slightly smaller than the flange (see Figure 2). This cut marks the bottom corner of the box. Shape the outside of the box using the bottom corner as a guide (see Figure 3). The walls of the box should be about 1/8" inch thick. If any additional hollowing is required to match your outside contour, use light scraping cuts so that you don't crack the box. Sand and finish the inside and outside of the box, making sure that the inside of the flange is exactly parallel (as we did for the top piece). This will help us in the last step when we reverse turn the bottom.

**Key point:** The heat generated from sanding may slightly alter the shape of the box. Complete the sanding first so that you can cut the top flange for a jam fit. Very carefully remove material so that the top of the flange fits about right and that a slight taper (perhaps 1 or 2 degrees) will hold the lid when it is forced on. Too much taper will split the lid or make it hard to get off after the top is finished. Too loose makes it hard to complete the lid.

Jam the lid (Figure 4) and shape the top surface using the depth mark as a guide. Keep the lid thin but remember to accommodate the contour we have on the inside. It may be nice to taper and bead the outside of the top flange.

Sand and finish the top surfaces of the lid and remove the lid from the bottom. Very carefully cut away the taper that we made for the jam fit. The result should be parallel sides on the flange. You'll want to clean the end grain on the ledge created by removing the taper. A quick touch from the skew is all it takes and it makes a noticeable difference when the lid is removed.

Part off the box by completing the parting cut used to mark the bottom corner.

## Reverse Turn the Bottom

Use the remaining wood to create a tenon with a jam fit for the bottom of the box (Figure 5). As before, don't make the fit too tight or too loose. Reverse turn a slightly concave surface for the bottom. Sand and finish. Repeat the above steps 40 or 50 times, and you'll be making some great boxes!

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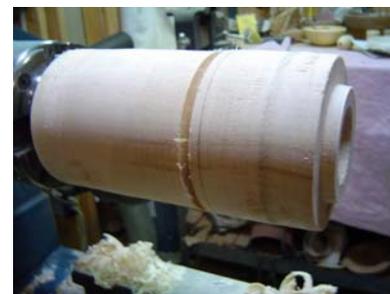


Figure 2



Figure 3



Figure 4



Figure 5