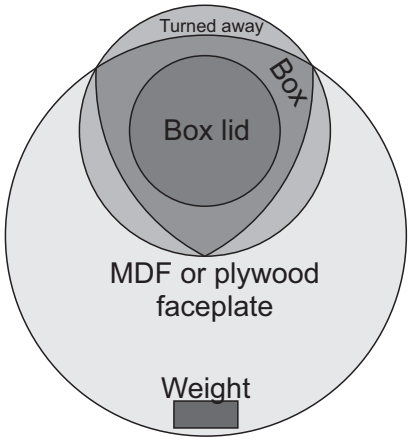
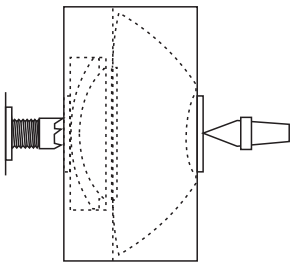
WOODTURNERS
SOUTH AUCKLAND
WOODTURNERS GUILD INC
TURNING TOMORROW'S TREASURES

Three-sided Box

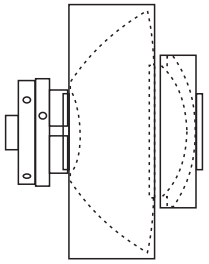
As demonstrated by Cam Cosford



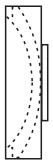
Plan the work. Decide the overall size of the box. Then decide the curve desired for each side of the box. The radius of this curve is the radius of the mdf or plywood faceplate you need to make to turn this box. Decide on the lid size for the box. Decide on the overall height of the box, including the lid, spigots and parting cut. Now you can select your wood, make it round on a bandsaw, and make a faceplate to turn the box on.

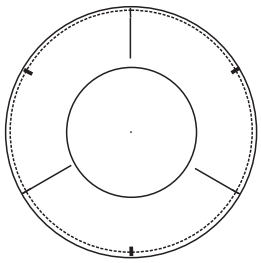


Mount the round block on a broad faceplate or between centres. Turn only a spigot for the planned box bottom. The size of this will be determined by your overall box size but a 47mm spigot for a 50mm chuck is recommended. Mark the centre of the spigot.

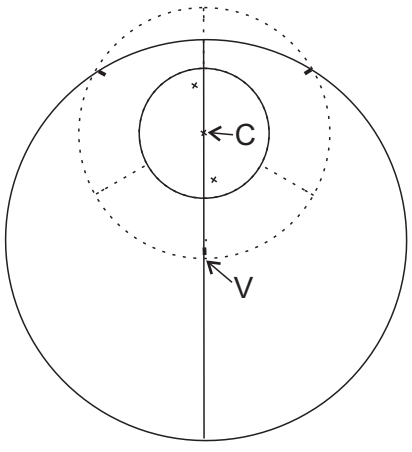


Turn the block around and mount it by that spigot. Cut the block to perfectly round. Cut another spigot on the top. Then cut the part below which is to be the lid down to the required diameter. Part the lid piece off and set it aside. Dress the face of the remaining block perfectly flat. Check the lid piece and decide on the diameter of the hole needed in the main block for the lid to fit into. Cut a shallow (at least enough to accommodate the grain raised by a screw into the wood), flat-bottomed, hole of that diameter into the centre of the main block. Put an awl hole or pencil mark at the centre. Remove the wood from the chuck.





Mark up the top of the block. Use a compass with a pencil to draw, based on the centre point of the block, a circle towards the edge of the block. Keep that compass setting and step around the line you drew to mark it into six equal segments. Continue three of those marks at the one-thirds points boldly for about 10mm down the side of the block. From the other three marks draw a straight line towards the centre of the face. Reset the compass to the radius of the block.



On the mdf or plywood faceplate draw a vertical line through the centre as shown to the left. At the top end extend the line over and onto the edge of the faceplate. To turn each side of the box it needs to be attached to the faceplate with two of the bold marks exactly at the edge of the faceplate and the third exactly on the vertical line. When you look from the back of the faceplate the top straight line on the block should align perfectly with the vertical faceplate line. With the block held in this position mark the faceplate at "V" where the vertical line vanishes under the block. Set the block aside and use the pre-set compass to mark at "C" the centre point for the turning and then draw the outline of the lid hole. At the centre point drill a hole for a screw to hold the turning. Drill two more holes for screws within the lid hole area.

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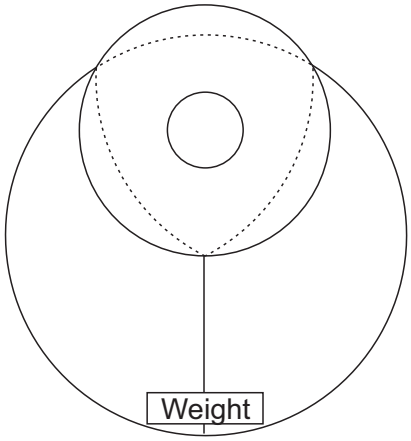
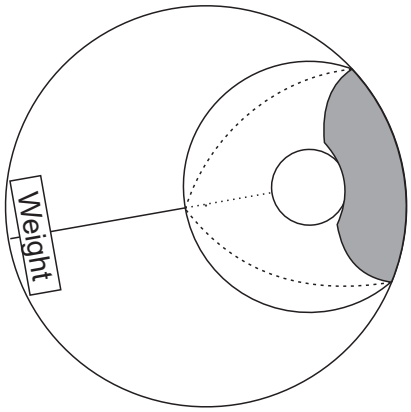
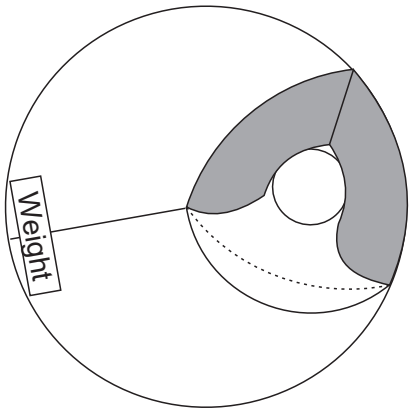
Three-sided Box P2



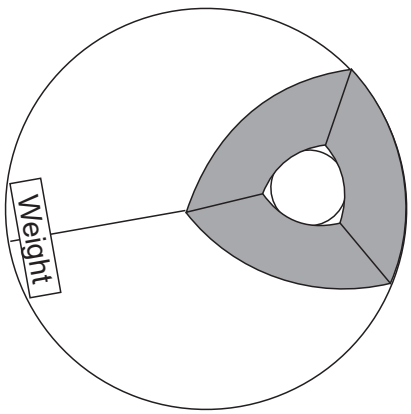
Turn the block over and align it by the marks on the sides and on the faceplate. Use the holes drilled in the faceplate to secure it firmly to the faceplate. The bottom of the box is now visible. The sides will slope from the edge of the faceplate towards the chuck spigot on the bottom of the box. Decide on the diameter of the foot and draw that on the bottom of the block.
Mount the faceplate on the lathe and add a counterbalance weight. As wood is removed from the block this weight may need to be reduced.



Cut the block that extends beyond the faceplate away to a curve between the faceplate edge and the foot of the box. A template for this curve is recommended so that the next two faces will be the same curve. The cut at the foot will be partly inside the circle you drew there earlier. Hand sand this cut area while it is supported on the lathe.



Remove the two outer screws holding the block to the faceplate. Loosen the central screw. Rotate the block so that the bold marks you made earlier again align with the edge of the faceplate and the central line on the faceplate. Tighten the central screw and replace the two outer screws. Change the weight so that the work is balanced. Cut the block that extends beyond the faceplate away to a curve that matches the template between the faceplate edge and the foot of the box. When this cut is the same curve as the previous cut the join line between the two cuts will be straight. Hand sand this cut area while it is supported on the lathe.



Repeat the action to rotate the block. Cut, sand and finish the third face. You can now remove the block from the faceplate.

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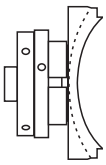
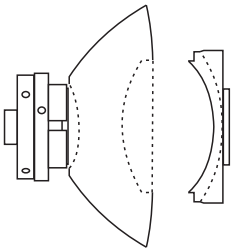
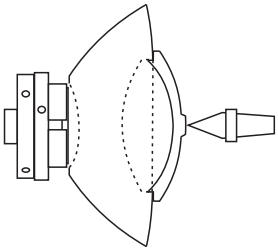
Three-sided Box P3



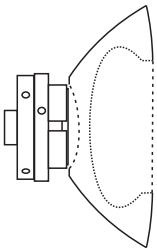
Mount the lid piece in a chuck. Cut a rebate at the edge which will make it fit a cavity a little larger than the shallow cavity you cut into the block earlier. Cut the edges of the lid. Cut a curve for the underside of the lid. Sand and finish these surfaces. Remove the lid from the chuck



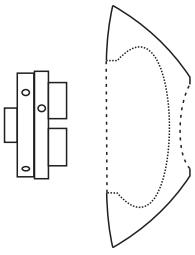
Mount the main block on a chuck. Cut the upper side to a slight curve. Cut inside the shallow cavity you cut earlier to a greater depth. Cut and sand the edges of this cavity to fit the lid nicely.



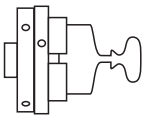
Fit the lid and bring up a small live centre to hold it in place. Turn the lid to shape. Sand and finish this surface. Tape the lid to the main block. Remove the tailstock. Prepare the centre of the lidd for the addition of a knob or finial. Sand and finish this surface. Set the lid aside.



Hollow the block. Sand and finish the inside.



Mount the block on a jam chuck or a larger chuck with the jaws expanded into the lid opening. Cut away the spigot on the bottom and then cut a slight concave so that only three feet remain. Sand and finish this area. Take the block off the chuck.



Make a knob or finial of your choice with a little shaft to fit the hole you made earlier. Sand and finish. Then part off and fit it to the lid.