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Desk Top Roulette by Kris Coyan

Items required (other than the lathe and live center):

(2) $\frac{3}{4}$ " x 5 - 8" square board, ideally a cut-off (kiln dried)
 Metal faceplate secured to $\frac{3}{4}$ " x 5" - 8" dia. piece of wood
 Drill Press/ $\frac{1}{4}$ " - $\frac{3}{8}$ " drill bit (chisel point)
 Spindle Gouge
 Cut-Off tool
 Double-stick pressure sensitive turner's tape
 Calipers
 * $\frac{1}{2}$ " Round Nose Scraper
 * $\frac{1}{8}$ " thick clear plexiglass
 (*Optional items)

Steps for the 'Arena':

- Mark the center on one side of the cut-off, on the other side put 3-strips of turners tape.
- Use the live center to center-up and secure the wood to the faceplate. Press the live center tight against the piece, pressing it against the faceplate. Clean off the first inch or so of the face of your wood piece.
- Using a spindle gouge, Round-off outside of piece to establish the max diameter.
- Using the cut-off tool, make a push-cut, about an $\frac{1}{8}$ " wide and $\frac{1}{8}$ - $\frac{3}{16}$ " deep around the outside edge to create a tenon.
- Make a second push-cut about $\frac{1}{4}$ " deep, and about $\frac{1}{4}$ " inside of the tenon cut.
- Using a spindle gouge, create a slow curving cut from the inside edge of the second push-cut to the center (like it was a shallow bowl).
- Continue curved cuts until the outer edge of the curve meets up with the depth of the second push-cut, creating the 'arena' for the spinning top. The center of the cut (middle of the piece) should be about $\frac{3}{8}$ " - $\frac{7}{16}$ " lower, gently sloping the entire way. Since the live center is still secure against the piece, you will not be able to finish the cut, but with the remaining stub, you will have a gauge for the depth of the arena.

- Remove the live center, allowing the double-stick tape to hold the piece against the faceplate, and finalize the curved cut to finish off the center of the arena.
- Sand (and finish as desired) the curved arena floor, outer wall and top faces of the arena piece (not the outer edge, yet).
- At this point, use a pencil to mark a circle around about 3/8" inside of the outer wall of the arena. Then, make 8 - 12 marks around the penciled circle...this establishes the center points for the holes that will be drilled into the arena floor.
- Carefully remove the arena piece off the faceplate, remove the tape and, using a drill press, drill shallow holes into the arena floor at the marks that were made. The Drill bit diameter should be slightly larger than the beads that will fit into the holes, approx. 1/4" - 3/8" in diameter.
 - Note: due to the slope of the arena floor, the back edge of the holes will be higher than the front edge. Stop drilling into the arena floor as soon as you see a full circle created from the drill bit...do not drill too deep, but drill deep enough to see the complete diameter of the drill bit.

Steps for the 'Stadium':

- Mark center on one side of the 2nd piece of wood and put 3-strips of turners tape on the opposite side. Note, make sure that the two outer pieces of tape are placed on the outer diameter of the circle that will be created. The third piece should be in the center of the piece.
- Using the live center to center up the cut-off using the center mark you added. Secure the live center tight against the piece, pressing it against the faceplate.
- Using a spindle gouge, round off the outside of piece to be equal to or slightly larger than the outside diameter of the arena. Be careful not to make it smaller in diameter than the arena piece.
- Using the spindle gouge, clean off the first inch or so of the face of the piece to provide a flat face for the arena piece to sit against. Note, the center of this piece will be cut away in the end.
- Using calipers, determine the outer diameter of the 'tenon' created on the arena piece and transfer this diameter on the stadium piece in pencil. Do the same with the inside diameter of the tenon and transfer onto the stadium piece, marking it in pencil. Remove the live center at this point allowing the tape to hold the piece to the faceplate.
- Using the cut-off tool, create a push-cut into the face of the stadium, on the inside of the pencil mark that matches the depth of the tenon on the arena. Slowly widen the push cut between the two pencil marks to match the width of the tenon on the arena, ultimately making a friction fit between the arena and stadium pieces.
- Fit the arena onto the stadium piece. Note: if the fit is not tight enough to hold when the lathe is turned on, go ahead and use the live center (with a 'spacer' to avoid puncture on the piece) to apply pressure.
- Using a spindle gouge, make cuts to make the two pieces equal in diameter.
- Shape the bottom of the arena, adding a foot around the base and any goo-ga's desired. Sand and finish the arena's outer diameter and bottom.
- The Arena is now complete. Remove the arena from the stadium piece.
- Use the live center to, once again, secure the stadium against the faceplate.
- Pencil a circle about 1/2" inside of the inner-most cut on the stadium and use the cut-off tool to make push-cuts inside of this marked circle, ultimately cutting all the way through the piece. The double stick tape will hold the outer edge of the stadium to the faceplate when the center is cut all the way through.
- Using a 1/2" round nose scraper (or tool of your choice), create a curving cut that goes from the inside edge of the tenon face inward toward the faceplate. This curve should ultimately match up with the outer 'wall' of the arena piece.
 - Note: if planning to add a plexiglass lid to the game, you will need to create an inside 'lip' on the inner diameter of the stadium. The lip should be at least a 1/16" wide and will need a clean 1/8" deep, 90-degree outer wall to fit the plexiglass into.
- Sand and finish the outer diameter and the inside and bottom faces of the stadium.
- Remove the stadium from the faceplate and make a cut into the faceplate to function as a jamb chuck for the stadium, using the tenon on the stadium that was created for the arena. Secure the stadium to the jamb chuck (faceplate).

- Shape the top of stadium piece, adding any decorative goo-ga's to the top face. Sand and finish any unfinished surfaces of the stadium piece.
- The Arena and Stadium pieces are complete now.

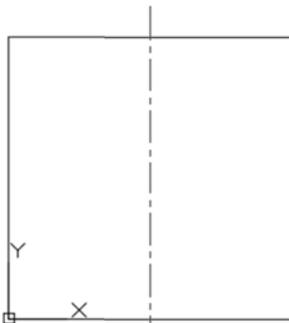
***Steps for making optional plexiglass 'Dome' window:**

- Using calipers, establish the diameter of the 'lip' that was cut into the top of the stadium piece.
- Cut a piece of plexiglass that will allow the diameter determined with the calipers, add a couple strips of turner's tape to one side and secure it to the center of the faceplate.
- Using a felt-tip marker, create a circle onto the plexiglass that matches the outer diameter of the 'lip' on the stadium piece.
- Using a cut-off tool, carefully cut into the plexiglass to ultimately match the diameter of the circle made with the marker. Make it a little large at first, using the calipers to establish the exact diameter needed.
- Use a 3/8" drill bit in a Jacobs chuck, drill a hole into the center of the plexiglass while mounted on the faceplate.
- Use a spindle gauge to create a gentle sloping curve towards this center hole, ultimately reducing the thickness of the plexiglass where the spinning top stem will fit through.
- Use fine grit sand paper to smooth the cut sloping to the center and the edge of the drilled hole. Sand as fine as possible.
- Remove the plexiglass from the faceplate and buff the center and outer edges with Tripoli on a buffing wheel to make as clear as possible.
- Push the plexiglass into place on the stadium piece, letting friction create a tight fit...the tighter the fit, the better.

Tips for turning the spinning tops:

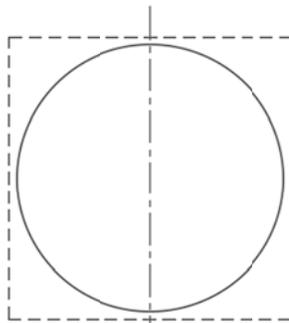
- The diameter of the top needs to be in proportion to the arena that it will be used in. Don't make the top too large or it will cover the action of the beads.
- The bottom of the spinning top should have 'ridges' cut into it. These ridges will help wedge the beads between the top and the arena floor.
- The height of the bottom of the spinning top should be based upon the size of bead you are using. Ideally, you want the lowest part of the spinning top to be slightly less than the height of the beads you will be using. This will keep the beads from 'hiding' under the spinning top and ensure contact with the ridges that were cut into the bottom of it.
- If the spinning top is to be used in conjunction with a plexiglass window:
 - Make sure that the stem of the top is small enough to pass through the hole in the plexiglass.
 - The overall height of the spinning top needs to be considered, it will need to fit within the space between the arena floor and the plexiglass window.
 - It seems to work best when the diameter of the spinning top stem is just slightly smaller than the diameter of the hole in the plexiglass window (where the stem will rub the edge of the hole in the plexiglass while spinning).
 - It seems to work best when the space between the top of the spinning top and the plexiglass window is small. This tends to make the top spinning straight up as the hole will not allow the top to lean while spinning.

Table Top Roulette: Arena (Bottom Piece)

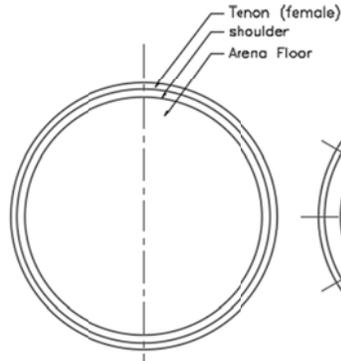


1) Starting with a Square cut-off

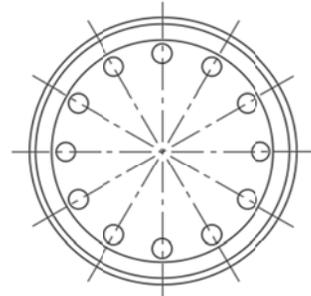
Plan View



2) Round off to slightly under max diameter



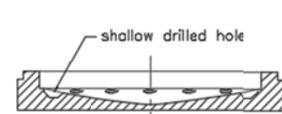
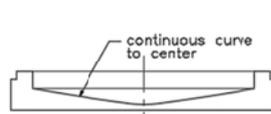
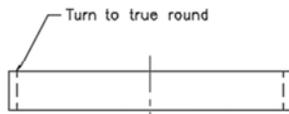
3) cut exterior tenon and interior curve



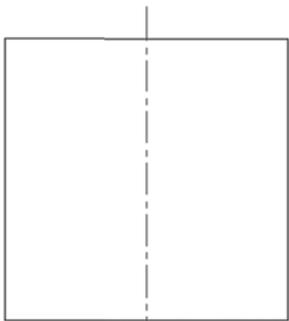
4) drill shallow drills for beads to fit into



Side Section

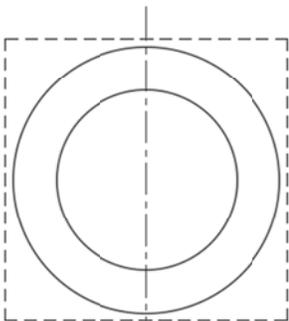


Stadium (Top Piece)

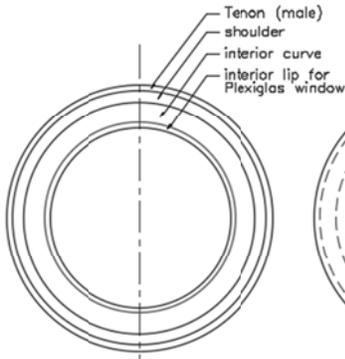


1) Starting with a Square cut-off

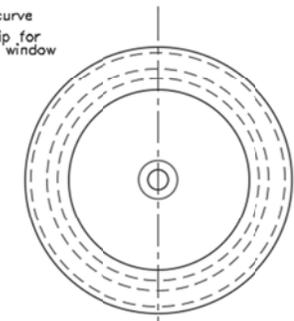
Plan View



2) Round off to max dia and cut out center (must be equal to or larger than Arena dia)



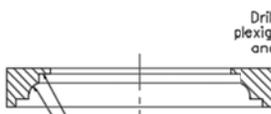
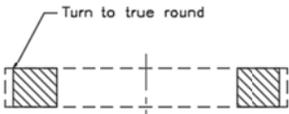
3) cut interior curve and create 'lip' for plexiglas to push against



4) turn a piece of plexiglas for tight friction fit in interior of the top piece.

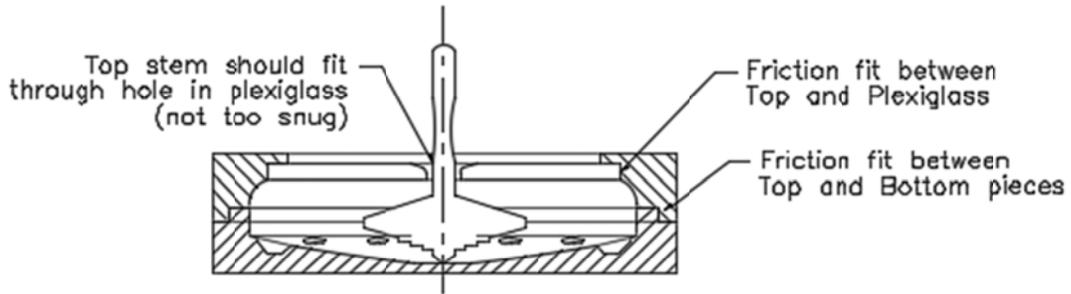
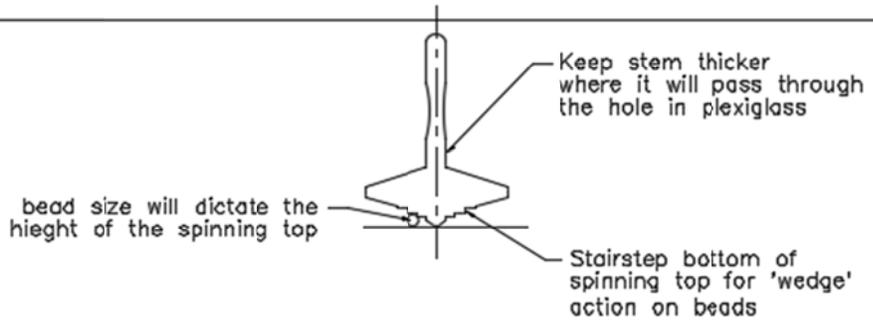


Side Section

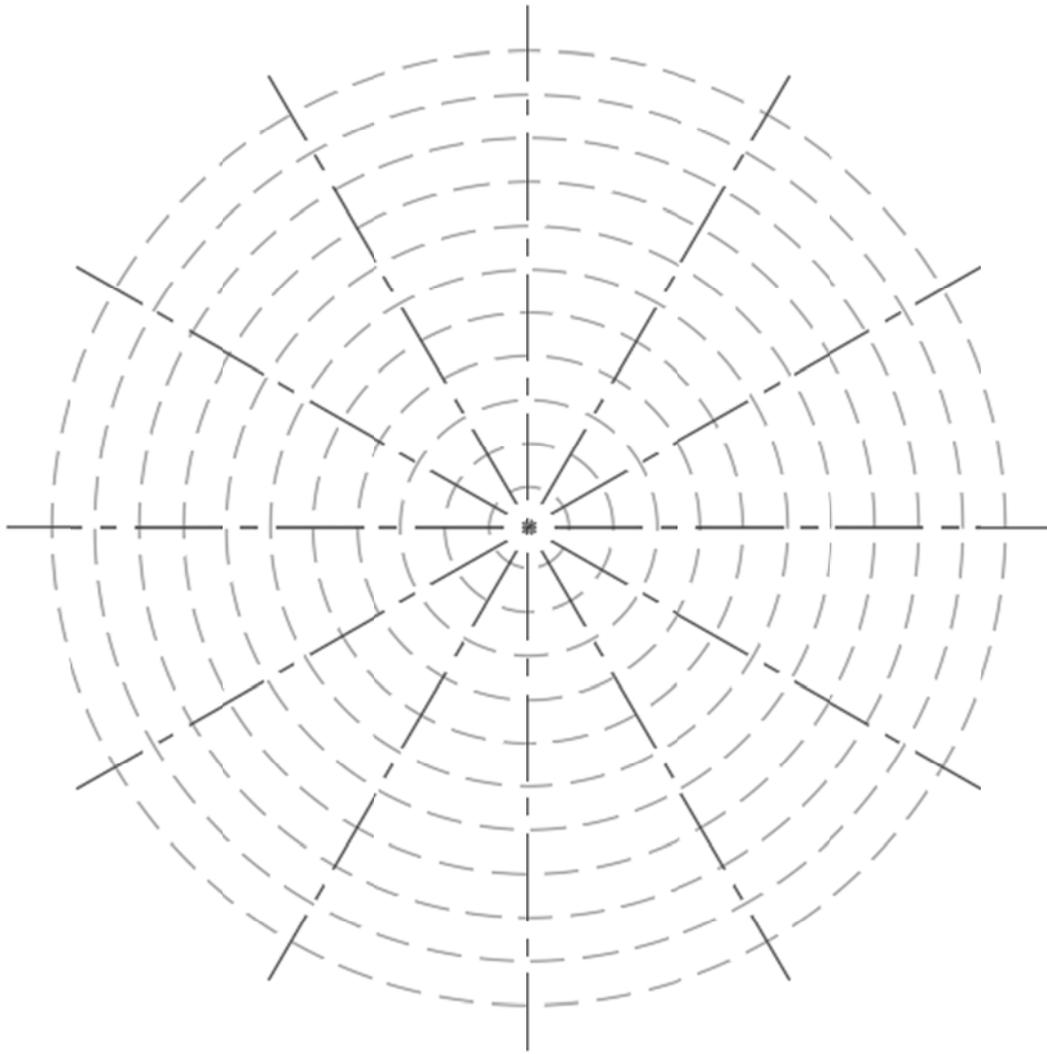


plexiglas insert

Top Notes:



Circle Guide 12-point



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