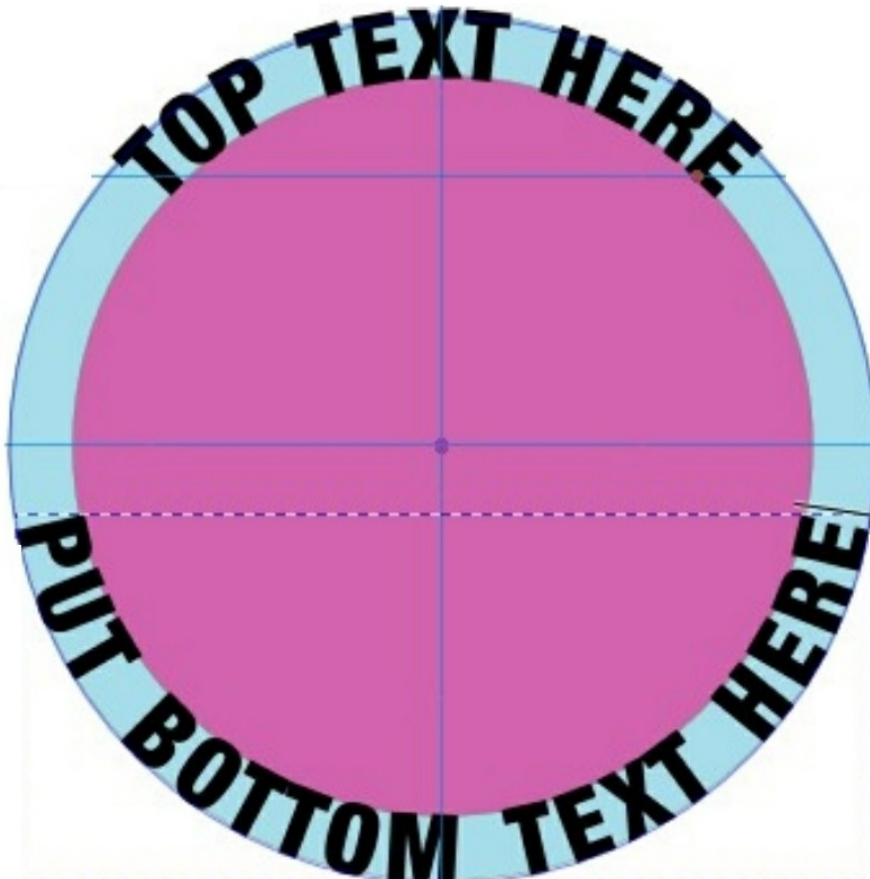


CandCNC Round Personalized Clock Template Instruction Manual

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CandCNC Round Personalized Clock Template



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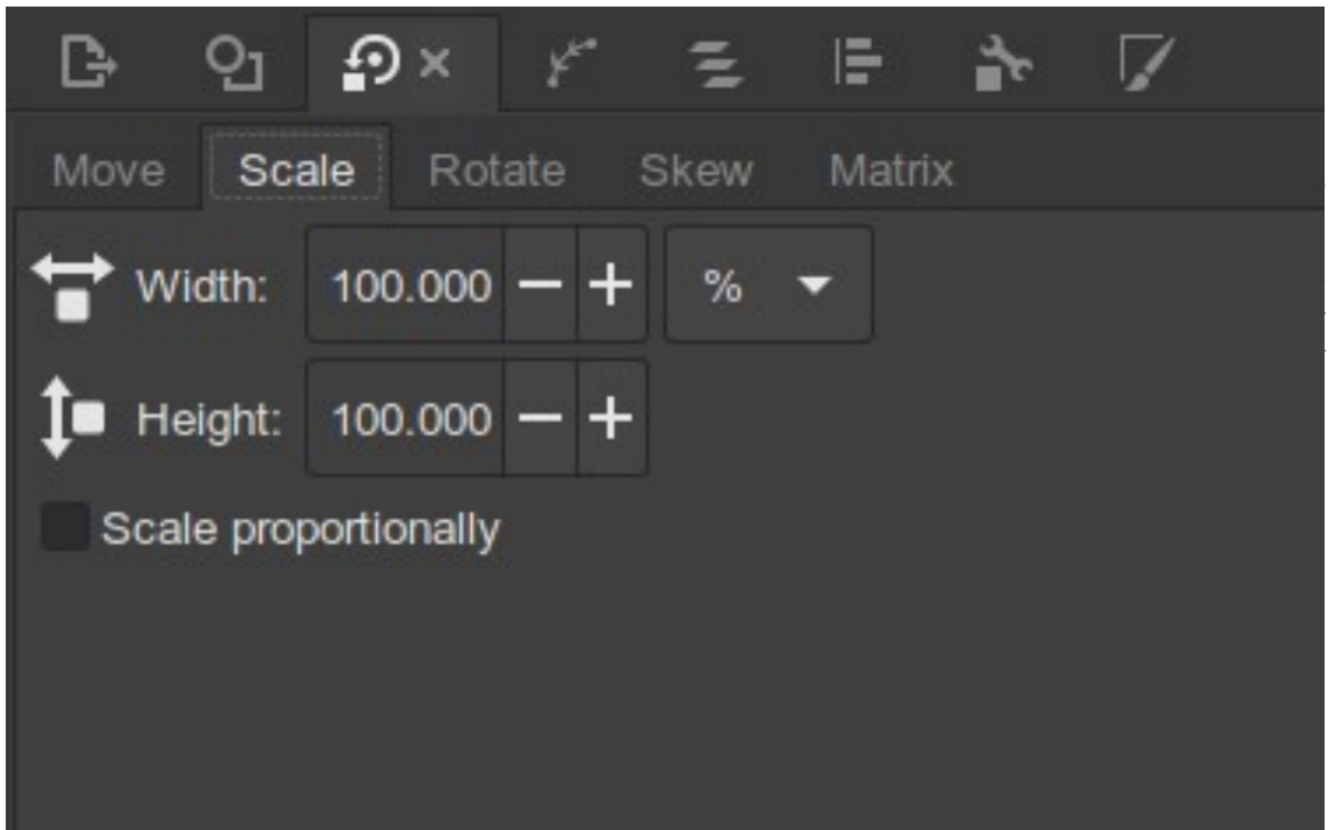
How to Use the Master Clock Design Template

Preliminary Instructions:

1. You will need to use Inkscape version 1.3.X or higher that supports MULTIPLE PAGES. The template relies on a basic layout page of concentric rings and a separate page of properly sized text and clock elements in concentric circles.



2. Note that Page 1 is BASE RINGS and defines the Outside RING one .and Ring 2 as closed shapes The overall outside size (diameter) of the design is 22" . Ring 1 is designed to hold TEXT and automatically wrap it around the TOP and the BOTTOM of the ring. If you want bigger or smaller designs you can SCALE BOTH pages of the design by using the drag-select (left mouse button and drag a box) to select every thing on the page and then using : OBJECT/TRANSFORM and SCALE on the Top Menu to resize all selected items.



You can change page size as well by using FILE/DOCUMENT PROPERTIES top menu and setting the Width and Height of the page larger than your target size.

Note that the SCALE is by default in % and it is best to leave it like that. 100% is 1:1 (full size) where as 200% on both dimensions will scale it 2 : 1 (44" outside ring). 50% would reduce ti by ½ smaller. Keep in mind EVERYTHING selected in the page is scaled including the width of the rings.

3. After you SCALE PAGE 1, you MUST select everything on PAGE 2 and SCALE it **BY THE SAME EXACT % or the text will not fit correctly in the finished design.**
4. This process uses the concept that in Inkscape you can use the TEXT tool to PUT IN PATH and assign a line of text in a specific FONT and size to fit along a PATH. In this case to get properly left to right reading text top and bottom they are assigned to different circular Paths . They are separate lines of text.
5. In the Master Design the outside edge of the blue ring is one circle while the inside edge of it (actually the outside of the Pink Ring) is the other circle. The Text is sized to extend slightly past both circles so once it's joined (UNION) to the rings its fully connected. On both ends (more on that later).
6. Once a Line of text is assigned to an Object or PATH (in this case a circle) it stays associated with that PATH even if you select either one of the two separately and move it . The TEXT has it's FONT and structure (size, spacing and location) and stays as an actual TEXT element . That is an important part of this tool because you can do things to the text like:
 - a, Change Type face (Font name) using the Text tool (left toolbar) in Inkscape
 - b. Change Inner-letter spacing (aka Kerning)
 - c Change the content by editing the text.

This allows you to rapidly customize the Text to fit the requirements.

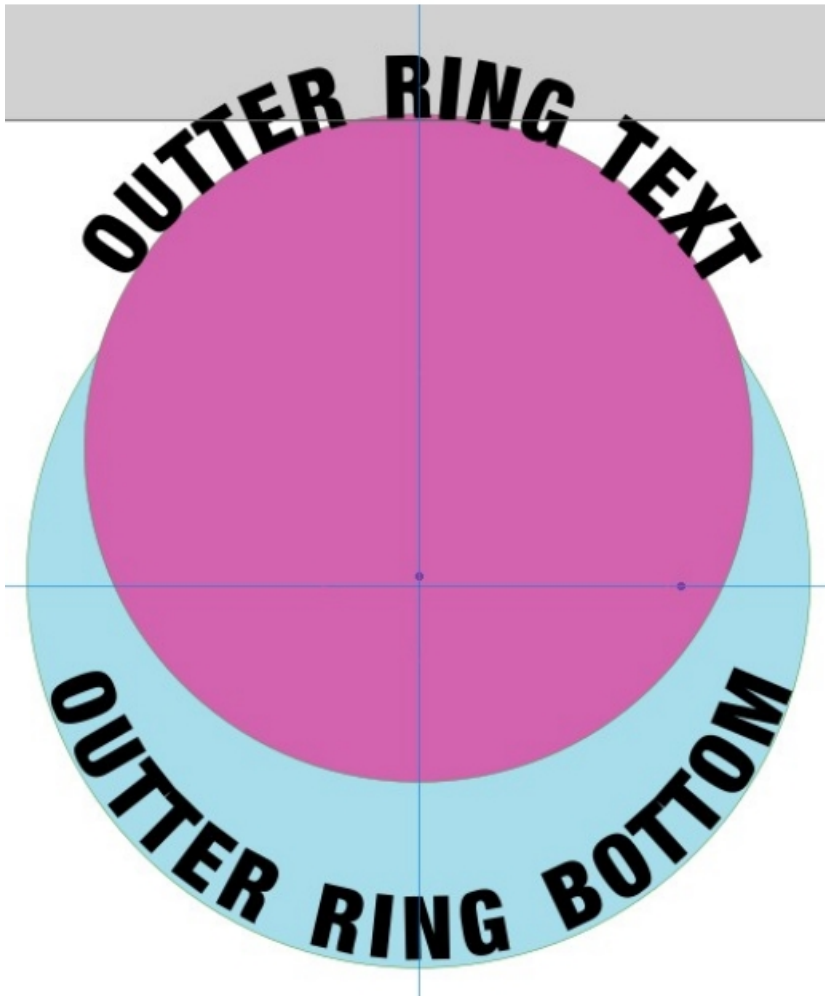
NOTE: The bottom text has been spaced out since the top gets condensed and it needs to better fit the arc with more spacing on the text.

7. The inner section in this case is a custom set of text and shapes to indicate a clock face .

If you do not have the specific Fonts on Used in Master that are installed on the computer with Inkscape, it will

default to a common Font . The font used in this template is Basic Sans Heavy SF. There are several others we have found over years of design work that work best. Heavy bold fonts are preferred. Avoid thin, decorative fonts and especially script type fonts that are difficult to read in an arc format . The Text has been carefully sized to fit the rings and the spacing **so if you change the Font size it will impact how it fits on the space and may not connect on both sides properly.**

8. The first thing you want to do is NEVER work with the Master File and keep a backup of the Master in case the primary gets corrupted. Open the Master template and save it off as a new file name to reflect the project. There are some steps in the process that once completed are difficult to undo. Once the TEXT is converted to a PATH (much later in this tutorial), it's no longer a text object and can no longer be edited or moved as a line of text.

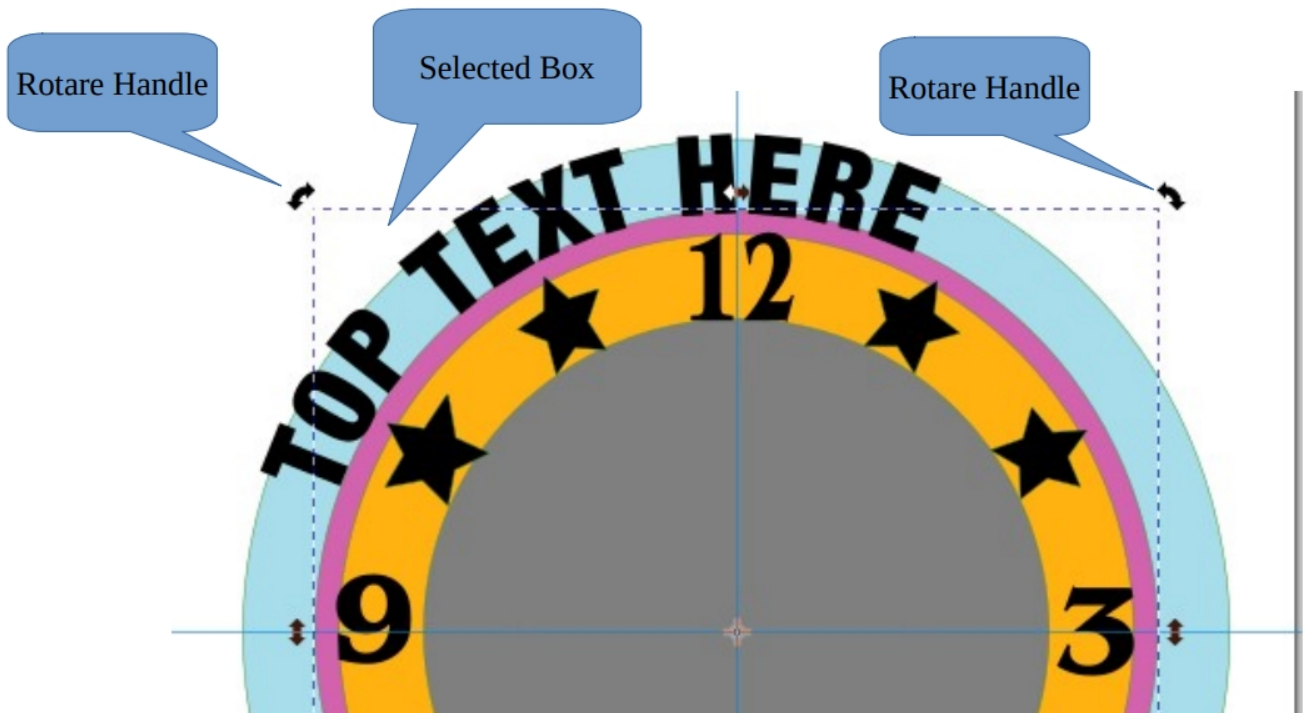


Using the Template

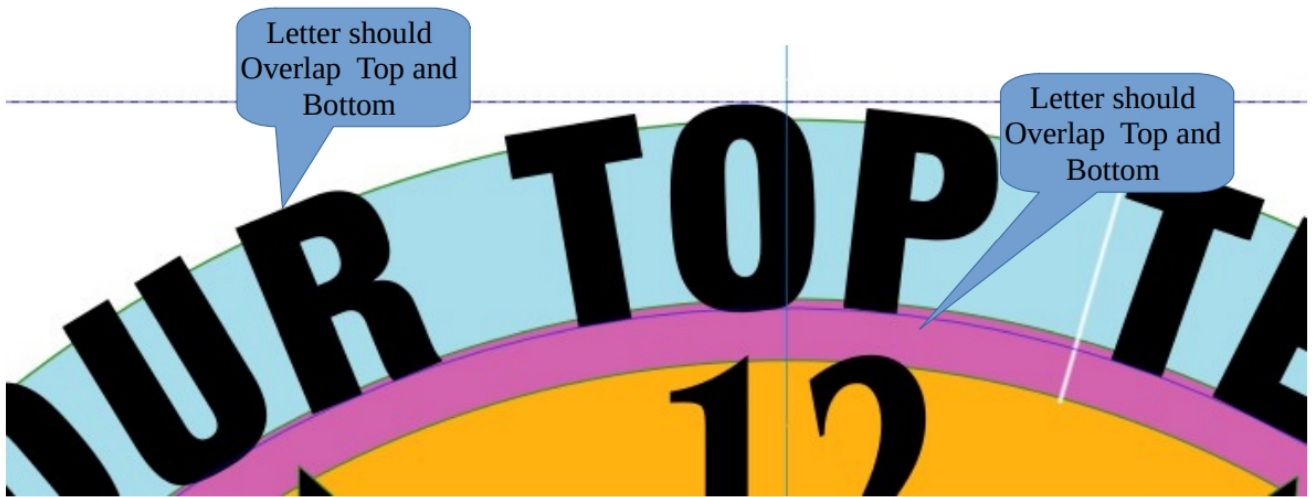
1. **Note** in the Master Page 2, the top text line is associated with a circle Object (Pink circle) and will move with it. Also note that the text, after it was arced using the PUT ON PATH, was moved down some to slightly overlap the broom of the letters to the circle Path edge. THIS IS IMPORTANT! If you change Font size it is important to zoom in and check that overlap . Keep in mind that while the text is associated with the circle path , it's placement around the edge and in relation to the edges is something that can be edited . If you use the Master Template as is, you should not have to deal with moving the Text Object (NOTE : Text is an "OBJECT" that has object features until it is changed into a PATH) . Once it is a PATH, It is simply a series of connected nodes and lines/arcs.. Attributes like Font size, Typeface, Kerning, and Spacing all go away. In this process we do not convert the TEXT into a PATH until we are ready to do the final placements and build the cut file cut file.

Editing the Upper Text.

1. Select the Upper text by left-click of the text line . That should form a selection Box around the entire line Move the cursor inside the box and over a letter in the line and left-click ti go into edit mode. With the flashing cursor you can edit the text simply by using the delete key and typing to change You can move the whole object or even resize it. To SELECT objects use the Arrow Tool (top left menu bar) and single left click. . You can select any where along the line of text. If you place it at the beginning (left end) of the line , you can use the DELETE key to delete each character in the line and then type a whole new ine.The text automatically center on the circle. You can use this same process to edit or change letters or the entire line at any time. If you want to change the text font then use the Text tool (Left Menu Bar) and you can sect a different Font, change the TYPE (Normal / Bold) and use the upper right second Menu bar to adjust SPACING (between letters)



2. Once you have the new text in place, use the center roller on your mouse in Inkscape to zoom in close to the text and check that the top of all the letters sticks slightly above the outside blue ring AND that the bottom of the letters stick down into the pink part of the ring a small amount. The letters should be larger and placed so they overlap on both top and bottom or they will not weld (UNION) to the rings properly. Too much overlap and the shape of the letters may not look correct . Too little overlap and there will be gaps where the letter may not connect tot he ring, To adjust the size of the letters to make the taller and wider use the Text Tool (left menu bar) to increase the Font size. You have to select the entire line of text to do all of the letters.

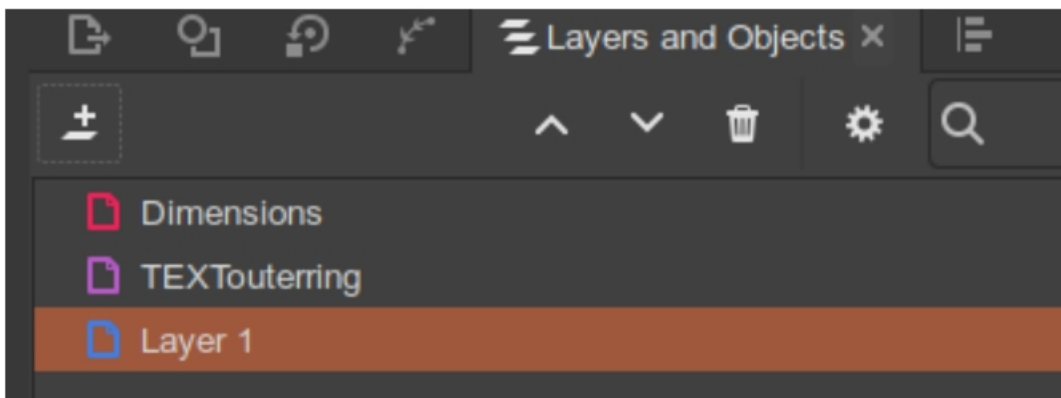


3. If you put the Inkscape VIEW/DISPLAY Mode into OULINE (top menu) Mode, you can see the unfilled circles and the outlines. Fonts show up as solid letters



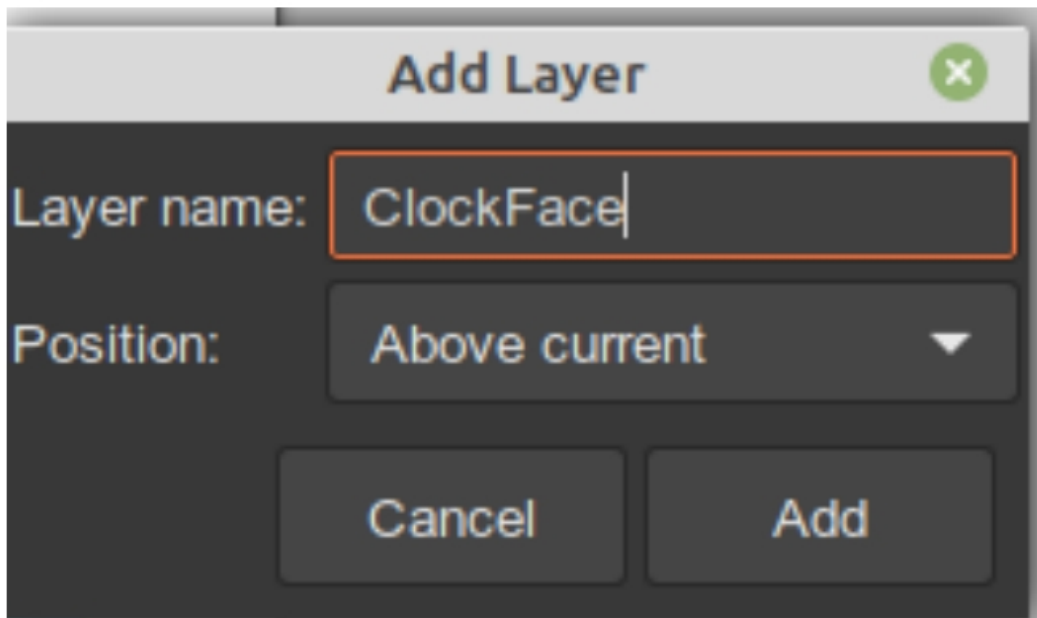
NOTE : If you have problems selecting just the Pink or the Blue circle, it can help to use the **LAYERS** tool in Inkscape. You can assign any element to a different layer. Then you can: **Lock** it so you cannot select anything on that layer (but you can see it) OR you can turn off the **VISIBILITY** so it's out of the way. To move objects from one layer to another :

a. Open the layer tool using the OBJECTS/LAYERS and OBJECT in the TOP MENU bar . It opens an information and settings box on the right and in that box you will see the layer(s) listed. You can add a layer by hitting the + symbol on the window and typing in the name of a new layer and save it.

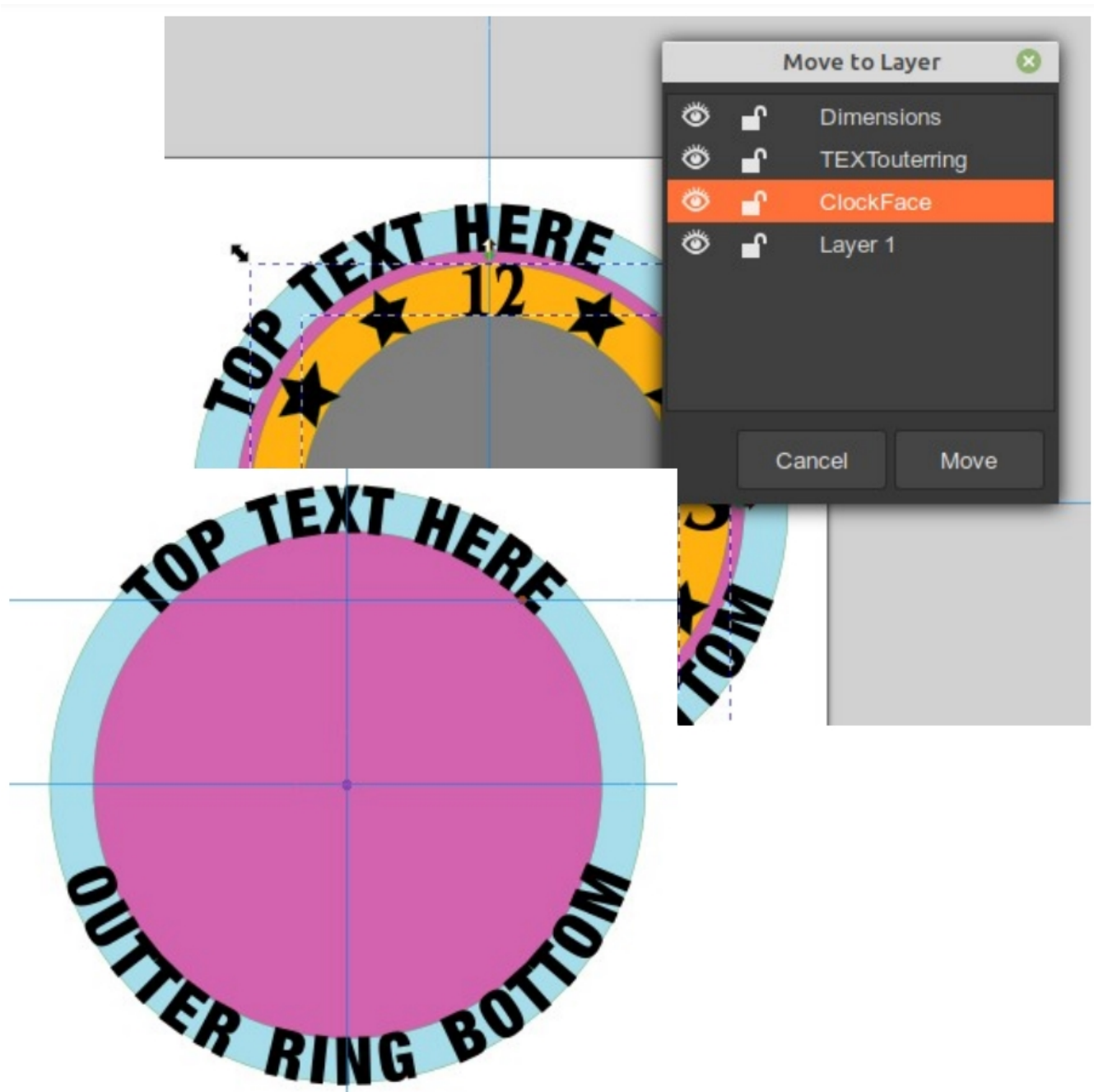


We have named the new layer "ClockFace". Then we can select the clock face elements which are pre-joined using Union) . **Note: if want to break the elements apart you can select and in PATH Menu find the Break**

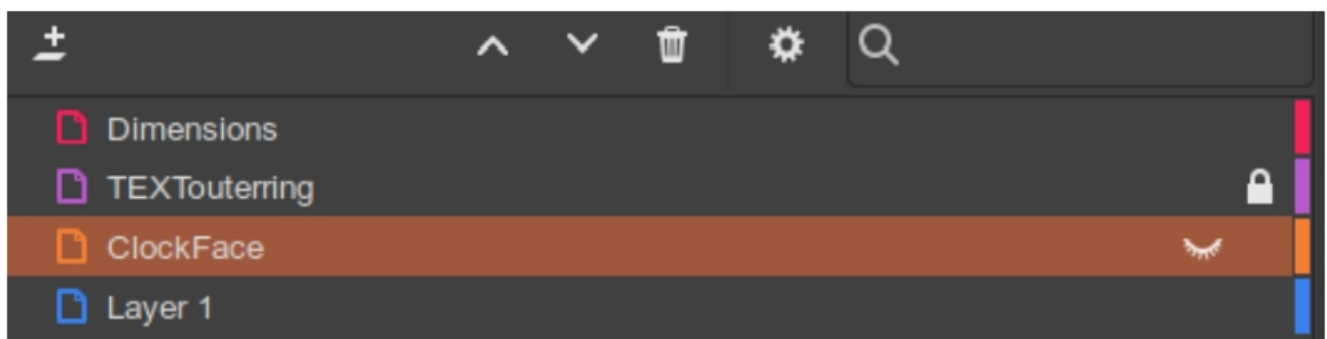
Apart button.



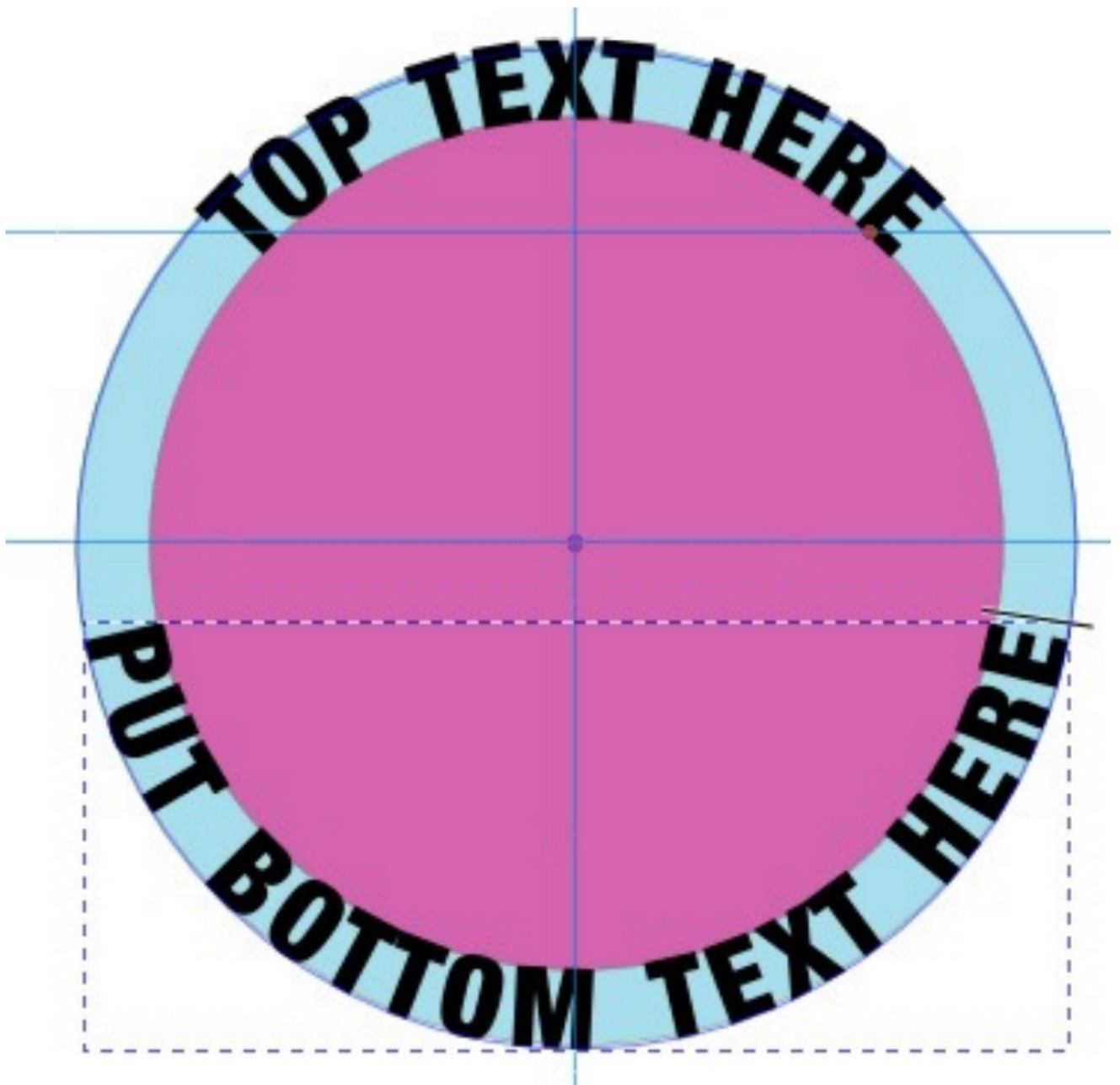
To Move a selection to another layer you select the objects and right-click and get the option box and pick MOVE to LAYER. You will get a box showing all of the available layers and you can select the one (even if its locked) and move that object/path or set of elements to that layer. Once they are on the new layer you can use the layer tool to either Locks (small padlock icon) or to turn off of the EYE Icon to turn ON/Off visibility. The Template has several layers that can be turned on and off to help in the layout. LAYERS s is a useful tool in Inkscape for doing design work.



The Visual “EYE” icon is OFF on layer Clock face so those elements are invisible and cannot be selected. Makes selecting stacked objects easier.

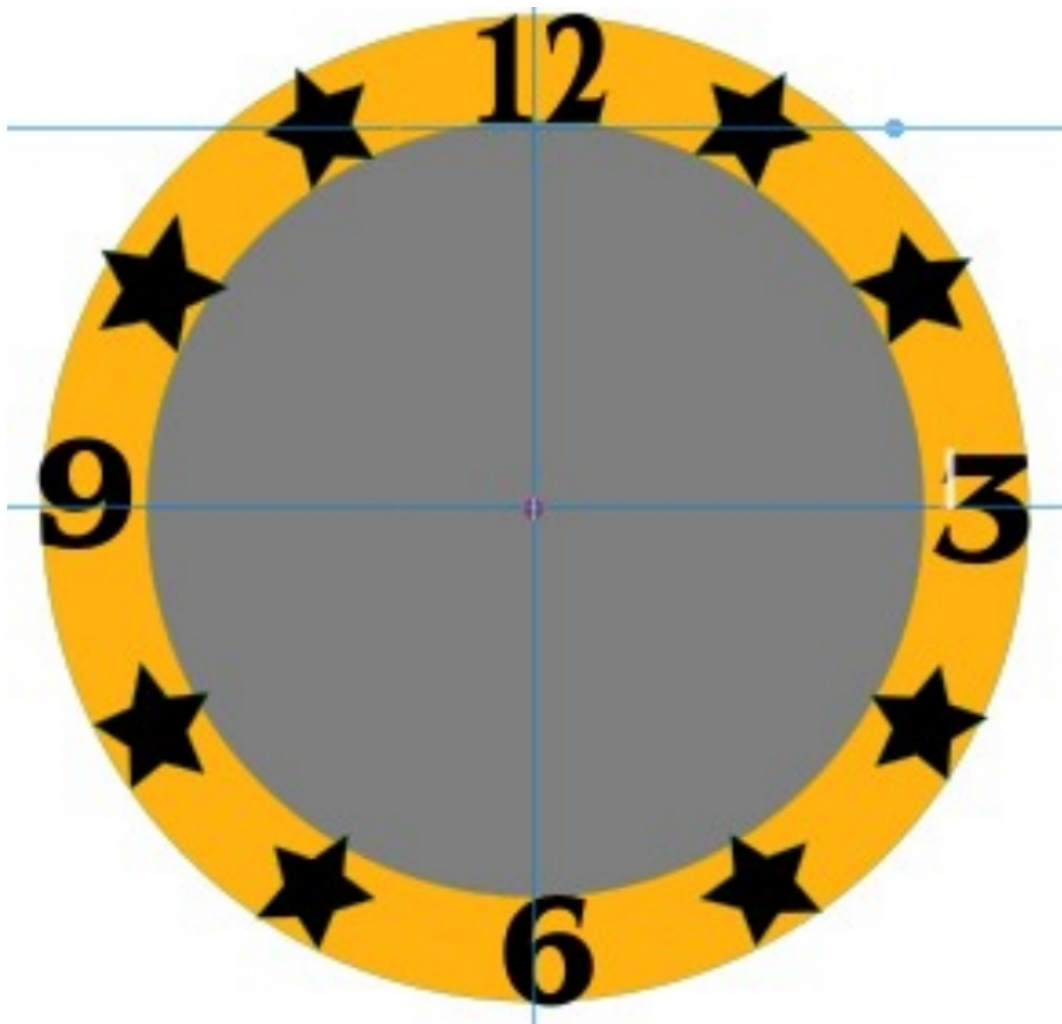


Once you edit the bottom text you can do the same as the top text . Its tied to the Blue Circle so selecting that (double click to get rotate handles) you can rotate the text (It auto centers by default). You can change Fonts or edit the text, While you can use a more condensed font on either top or bottom , keep in mind that the tighter the cuts the more detail will be lost with plasma. Also readability becomes less the more characters and the closer they are together. Plasma does not lend itself to small details like you can do with engraving and laser cutting.

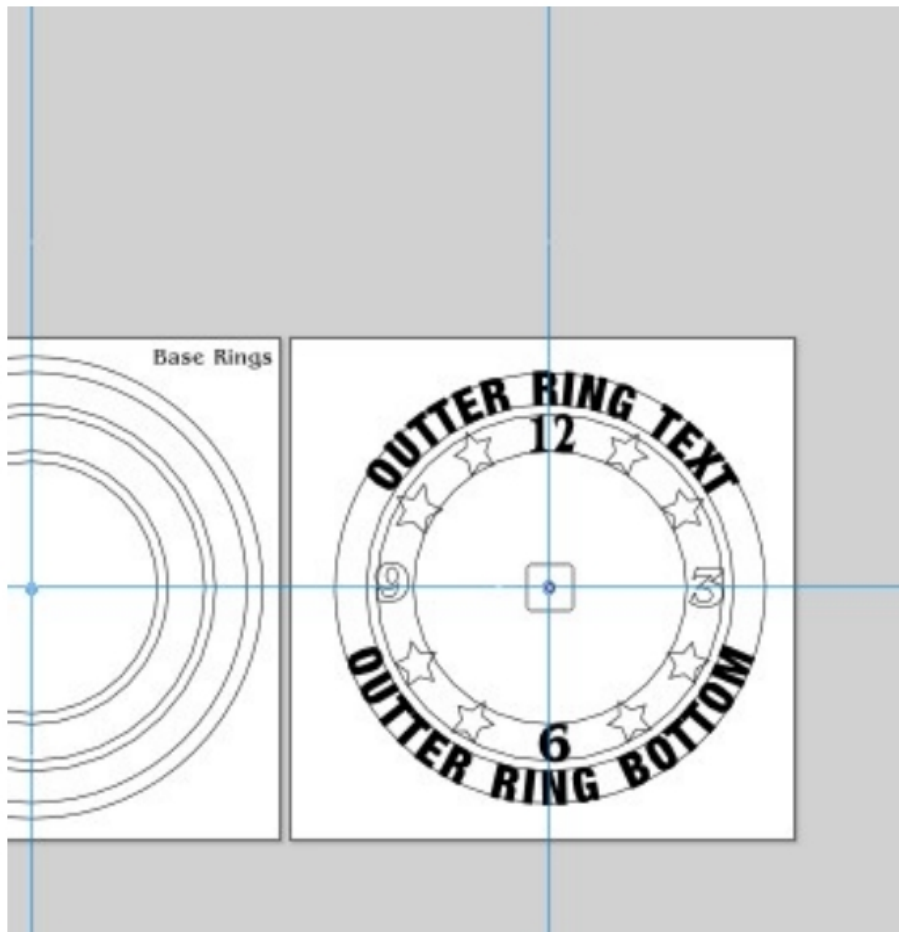


Here is the CLOCK Face layer ONLY. If wan to edit the Clock Circle element its been joined together and you will need to use the PATH?BREAK APART menu option to get separate elements. Keep in mind that the elements need to overlap into the second ring INSIDE edge so they can be welded (UNION) to that ring. It holds the entire center area in place/ About the center area.: The center area needs a round hole in exact center of the circle to be able to mount the clock mechanism.

There are several sources of quartz clock movements . Amazon .com has several pages.



of movements and dials . Note the largest set of hands on the sets shown are about 8" so they would work well on a 16" diameter When picking a clock movement it's important to pick one that has hands that will fit the clock face diameter. The default clock face in the file is 16.5 inches in diameter Outside ring.



(Yellow) so a hand between 7.5 and 8.0 long minute hand would be best. If the clock is resized the hands need to be sized to match.

Here is the OUTLINE view of the design showing the clock movement behind the Clock Circle . When you designing in the center layout (customers choice) make sure it allows enough in the center to cover the approx 2 ¼" square clock movement from the front.

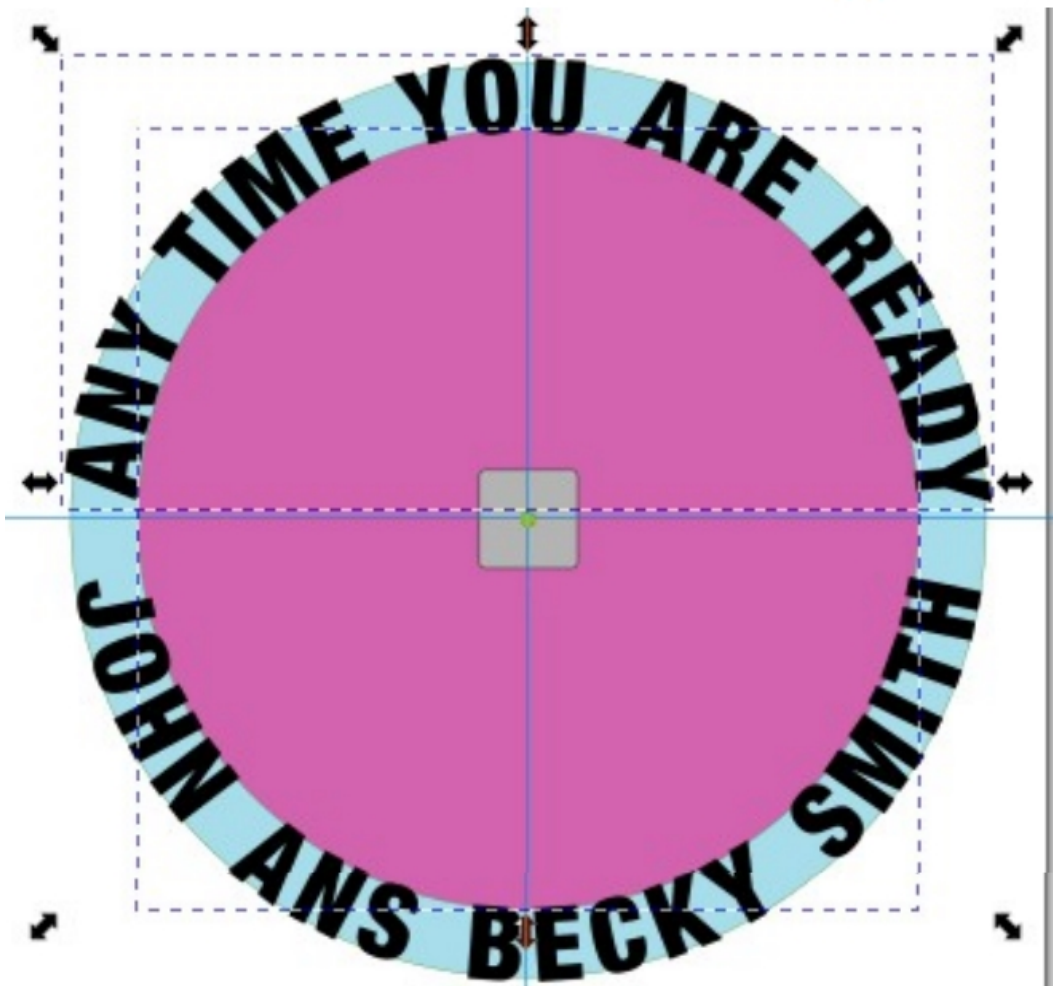


The design of the center can be any cut out up to 13 inches . If the Design if not solid it needs connector tabs to hold it in place .

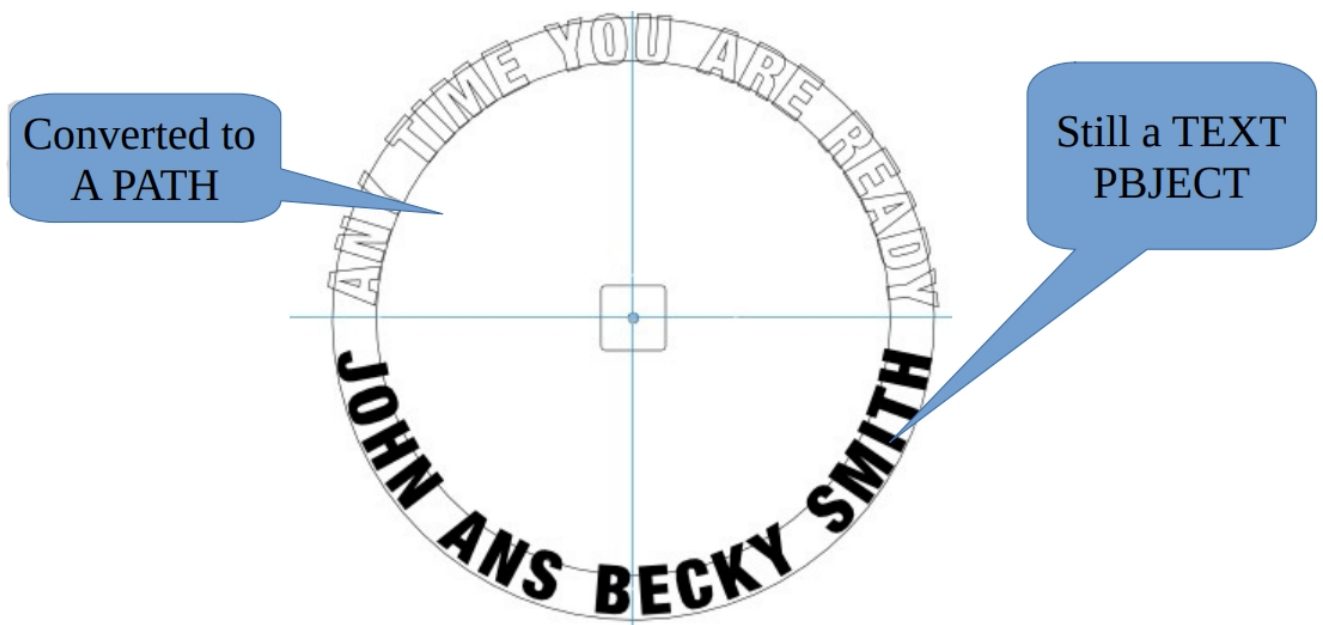
FINAL Steps to Get A Final Design

Once you have the Clock designed and the Text edited as you wan tit, you need to do a few final steps to turn it into a usable cut file for plasma. In the Final Design you will use BOTH Pages of the Template (Copy) . There are steps that cannot be easily undone

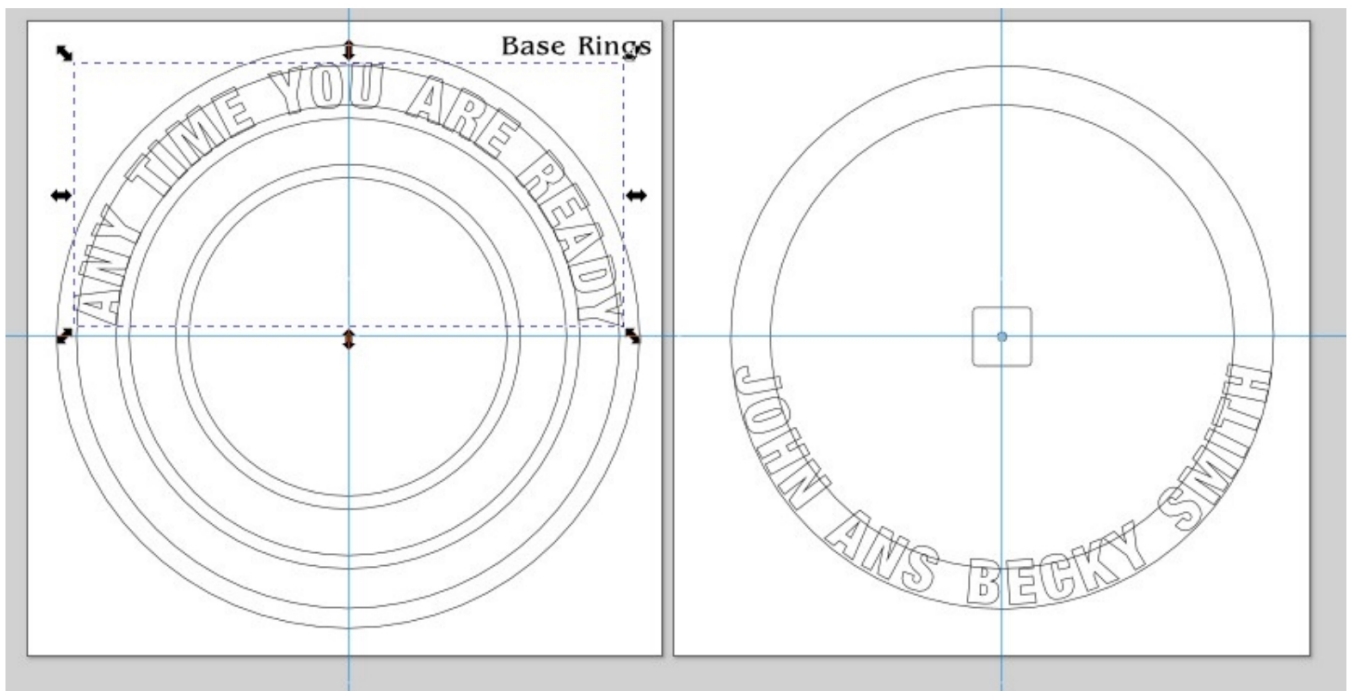
1. The first step in the design is to select the Text Objects one at a time and disconnect them from their circles. To do that you must chose BOTH the text object and (using the SHIFT Key) select the associated circle. With the Upper arc of text and its circle (Pink) selected together, both should be highlighted. HINT: Turn off the View (Eye icon) on any layers you don't need to edit)
Put Inkscape in VIEW/ DISPLAY MODE/OUTLINE mode. In hat mode Tex objects show up as Solid



Once you have them both selected move to the TOP MENU and the Path Menu and in that menu drop down select the first option |: OBJECT to PATH. Selecting that should cause the text to convert to a PATH and it will show JUST the outline of the text now



Once you have the Upper text converted to a PATH then select the lower text and Blue circle and use the same PATH and OBJECT to PATH for that pair so all of the text is now just Pathss At this point it cannot be edited as text



Now it's time for the MAGIC!. Select the top letters (path only , not the associated circle.)

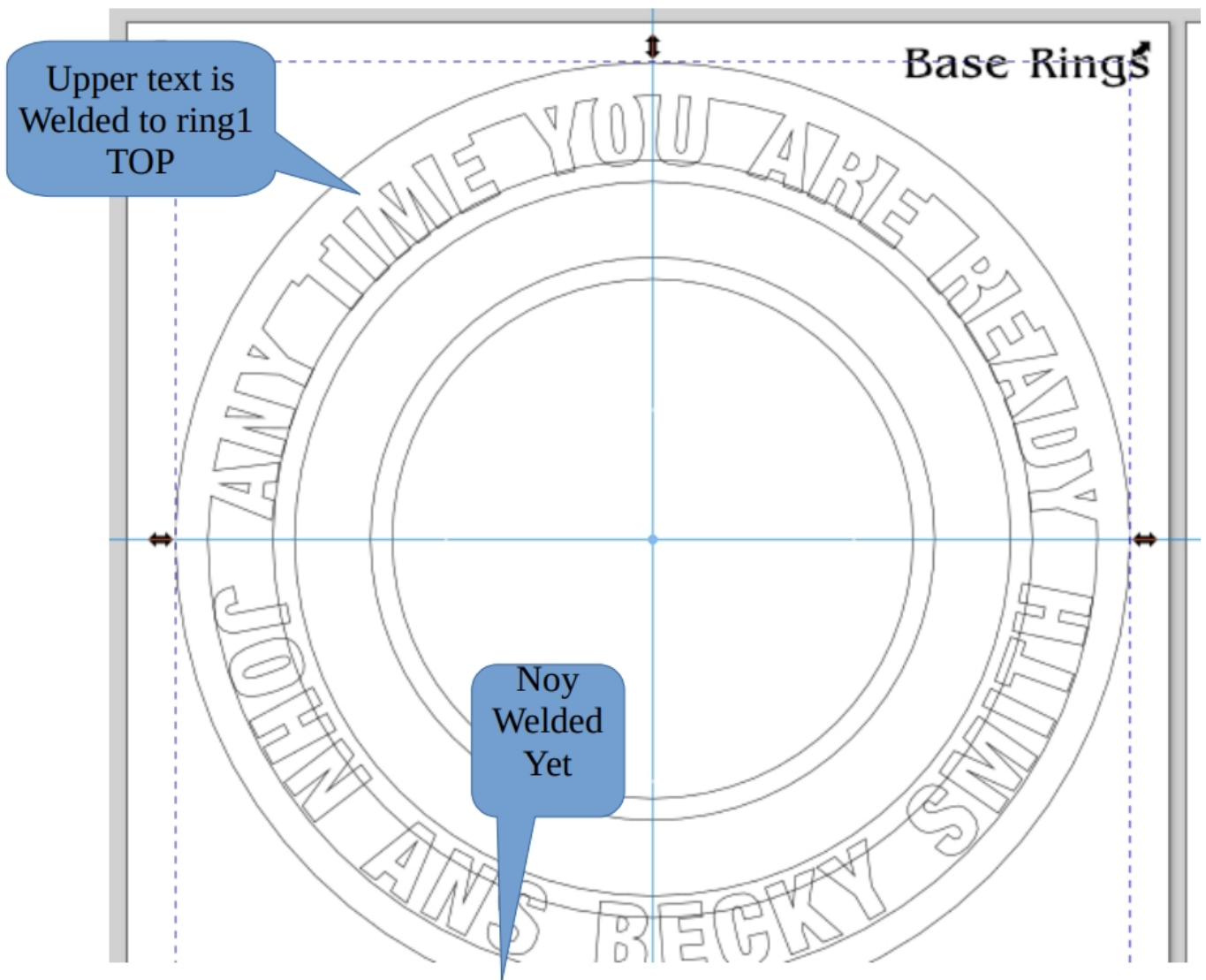
NOTE You can Group select BOTH the Upper and Lower Text Paths using the SHIFT-Left Click select and move both at the same time. Hold the CTRL key down and drag the selected Path as to the outside ring on the PAGE 1 drawing. If you have the SNAP (upper menu far right key) ON, it will snap perfectly into the space between to outer ring and the next ring in as shown. If something goes wrong then simply use the CTRL – Z (Undo) key to undo the steps . Hitting it more than once continues to UNDO actions back to dozens of levels.

Once you have the Letter Path placed correctly then do the same for the Bottom text path.. If you need to nudge the paths some , select the Path (left click) and then use the Arrow Keys to position it. The ALT key does a micro step move .

2. Now it's time to weld the paths together and drop out the overlaps. To do that we are going to use the select again and the PATH menu key but a different tool. In Inkscape you can select any two paths (or even Objects that get auto-converted to paths) and then perform a PATH/UNION function on them and it “welds” them together to form a single path. Where the two paths overlap the overlap area melts into the Path and the two become one path . Any paths inside the outer path are made into closed paths. First we are going to “weld # the upper text path to the outside ring . Select the outside ring and then holder the SHIFT key left click the arced text path and then use the PATH and out of the drop down menu select UNION . You will see the following:

Note that the top of the old text path is now part of the outer ring . Now do the same procedure on the Bottom text and the outer ring.

Once you have all of the text paths welded to the outer ring it's time to tie them to the next ring in the structure . Its done the same way. Select the outer ring (that has the text paths welded to it using the UNION tool) and SHIFT select the next ring in. Once they have both been selected then simply use the PATH tool again and UNION and weld (join) the whole thing together as one set of paths .



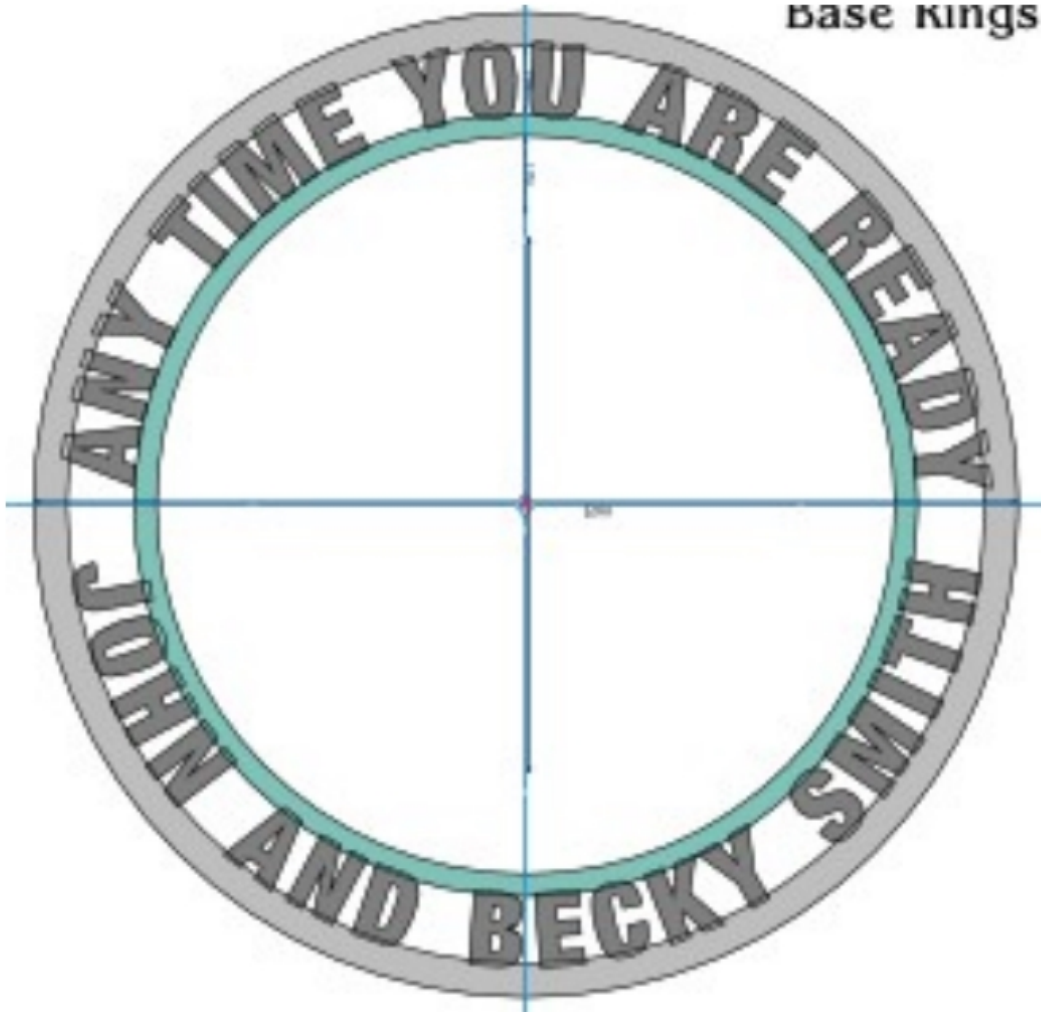
NOTE Check the alignment of the text and make sure it overlaps both the outside and the next ring . If it does not, select the path and use the arrow keys to jog it down or up so the overlap is about even.

If something messes up simply use the Ctrl Z (UNDO to undo ti and fix the issue and redo the action.

The ALT key held down using the arrow keys does a “micro” jog so can be useful to precisely position a selection. Wile you CAN use the handles on the selection box to do an overall size stretch or shrink its pretty tricky to maintain the proper arc and make everything fit.

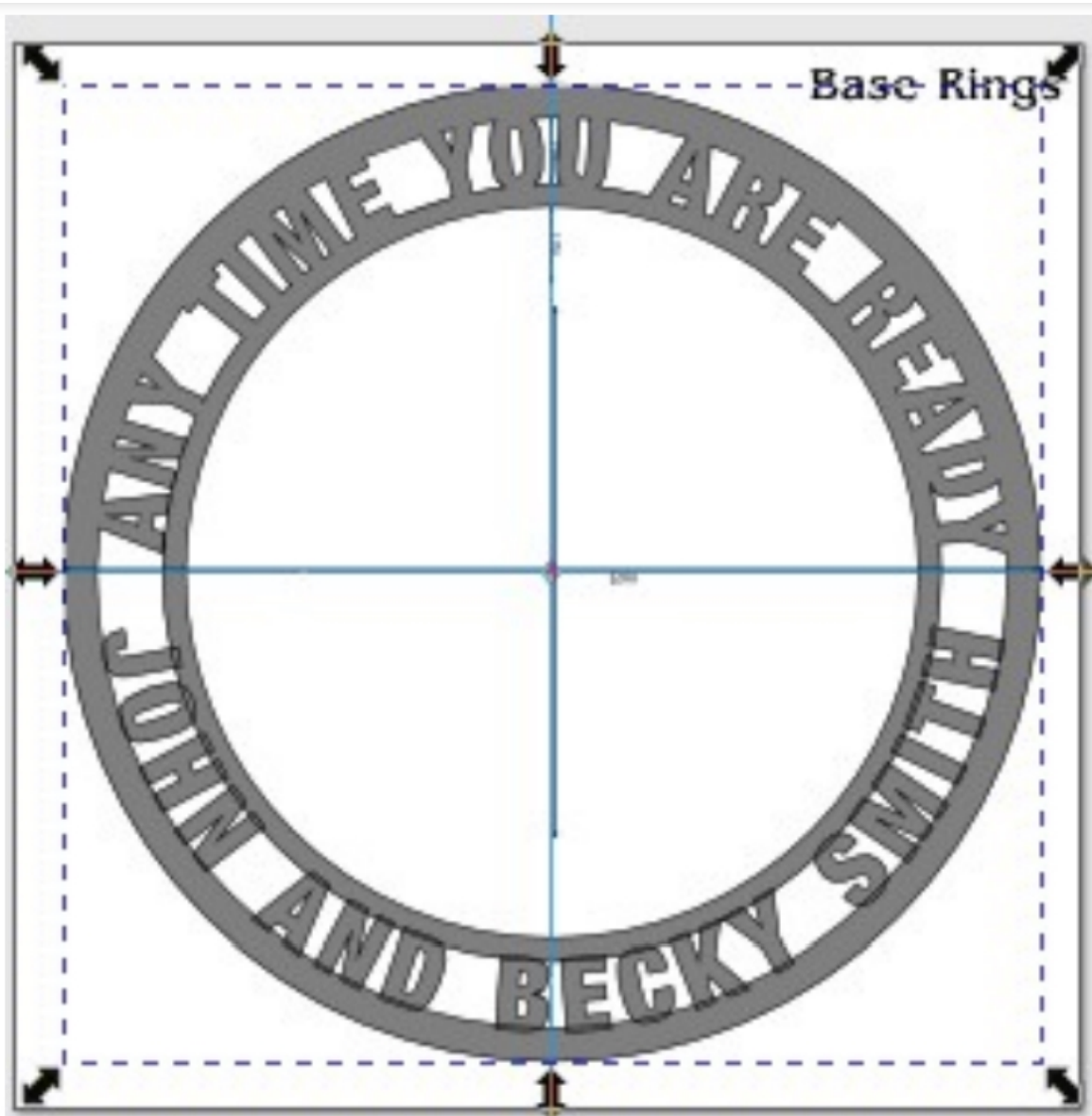
This view (Normal in VIEW) shows the letters all welded properly on the outside ring . While the letters are all connected tot the outside ring they are not yet connected to the next ring (green rin g in the drawing. If they were the green ring will turn gray like the letters and outside ring.

base rings



That is the next step . The letters and outside ring now need to connect to the next (green) ring . That is done by simply using the PATH/UNION again and connecting it all together.

At this point you should have all of the old text connected to the two rings . If you move back to OUTLINE mode in VIEW/DISPLAY MODE then you can zoom in and make sure that none of the letters lack proper connections on either end to the rings, It's possible to hand edit the NODEs (Second tool down on the left menu) to disconnect nodes and delete the ring connection by inserting nodes where you want the breaks then disconnect the curve at the nodes delete the curve between and reconnect then to nodes in the letter paths . It's a lot more complicated and tedious than to get it right in the beginning . Doing Node level editing and keeping objects closed is a higher skill level and takes some practice.

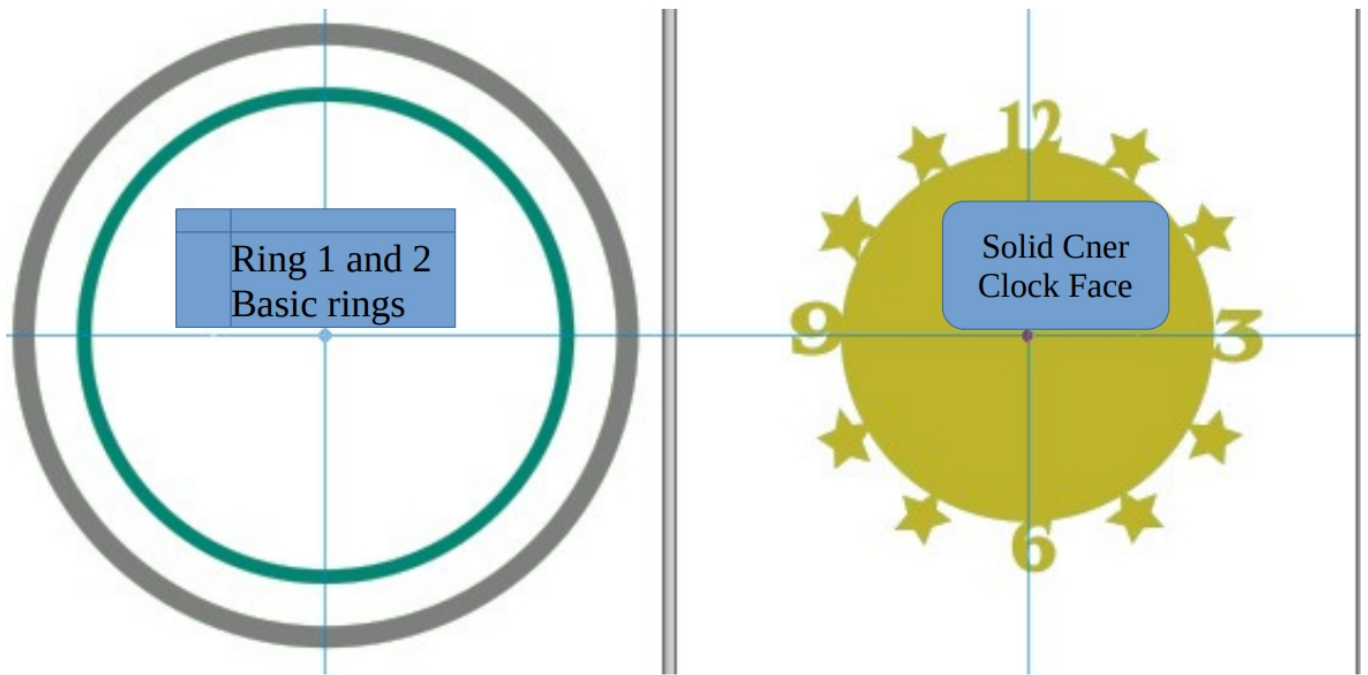


Adding the Clock Face detail

You may need to turn on the clock face LAYER to do the next step. Open LAYERS detail box .

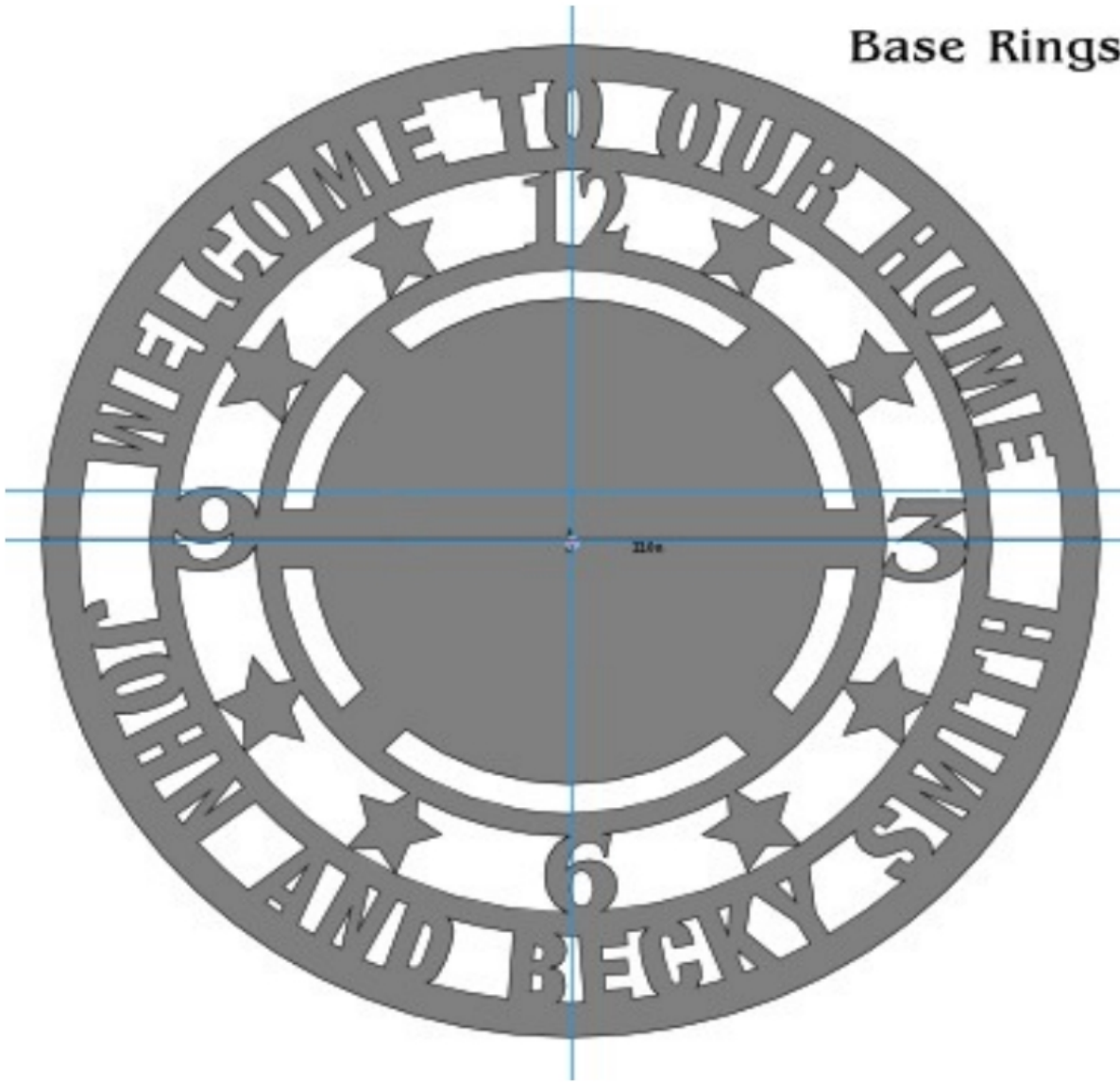
Use the upper menu and the LAYER and select the LAYERS and OBJECTS. It will open a details box and Menu on the right and lets you turn on the Clockface layer (click the eye icon)

If you LOCK the other layers You can drag select the entire Clock face and if you use the GROUP (Ctrl-G_ it will make it one entity to make it easier to drag. Enable the Layer One



The final process is to either delete the pag2 in Inkscape and clean up the page1 details and save that file off as a specific cut file SVG OR to open a new instance of Inkscape with a blank page and use the drag select to select all of the active layers and paths and use the clipboard (Ctrl-c to copy and CTRL – V to paste) in the new instance then rename and save THAT instance to a file. When you move items from one inkscape instance to another using the clapboard all active layers are transferred onto one layer in the target and makes it easy to open in SHEETCAM and generate a cut file

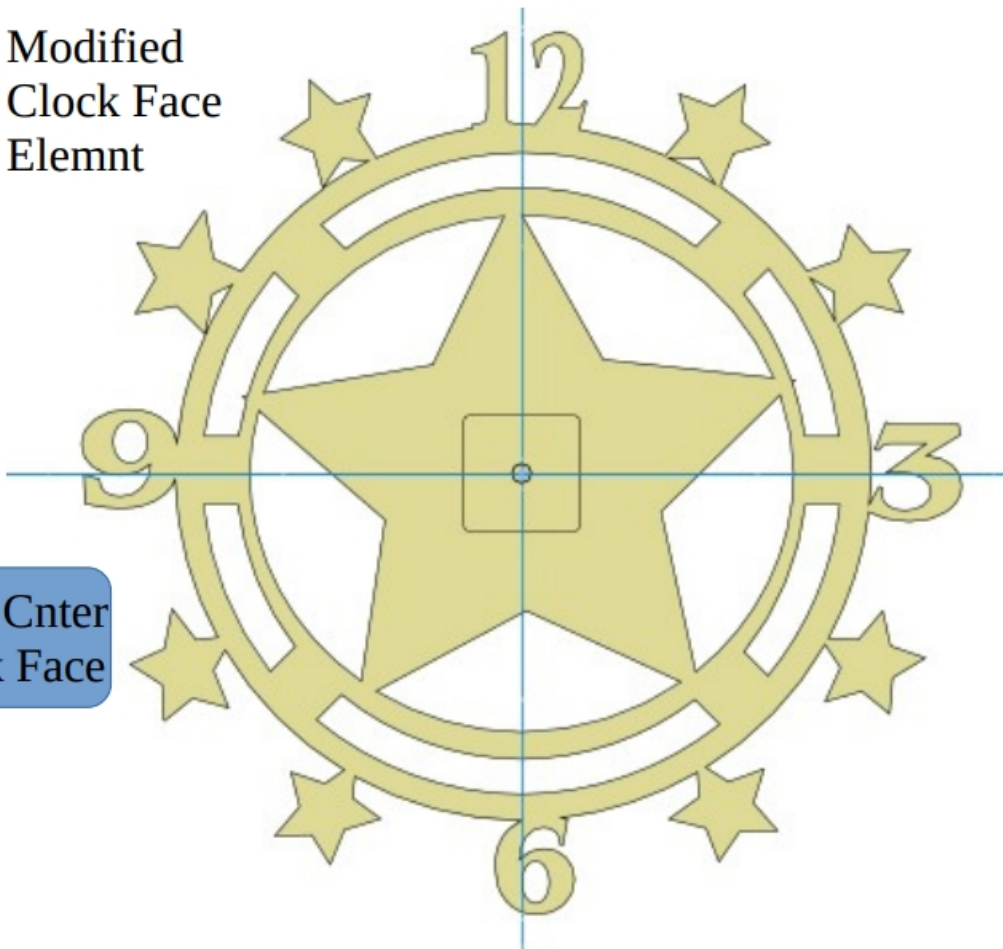
Base Rings



You will note in the SheetCAM display that the center lines have been transferred. You can either delete those BEFORE the import into i SheetCAM or just put them on a separate layer in SheetCAM that you do not cut. SheetCAM imports SVG directly with all of the shapes (lines, poly-lines, arcs circles , etc) intact . This is not a tutorial on using SheetCAM but it shows how to easily make a round custom clock and add value to a cutting with both function and personalization.

Modified
Clock Face
Elemnt

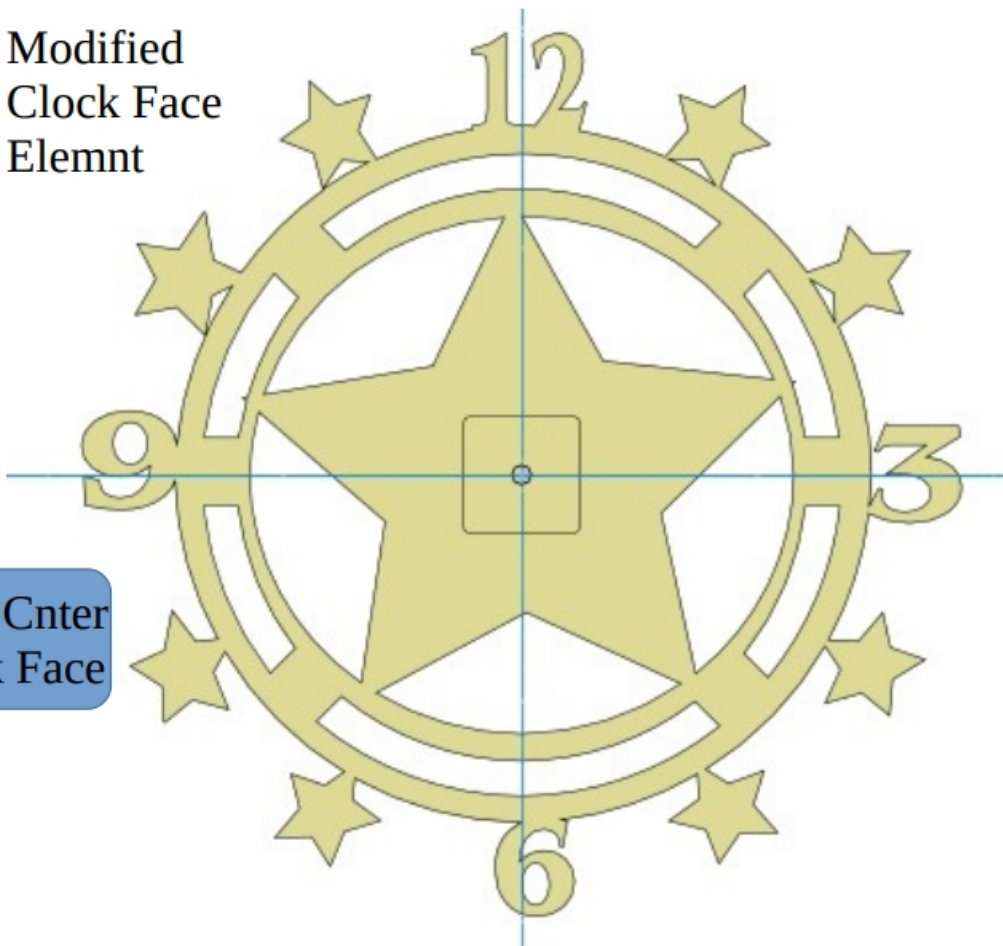
Open Cnter
Clock Face

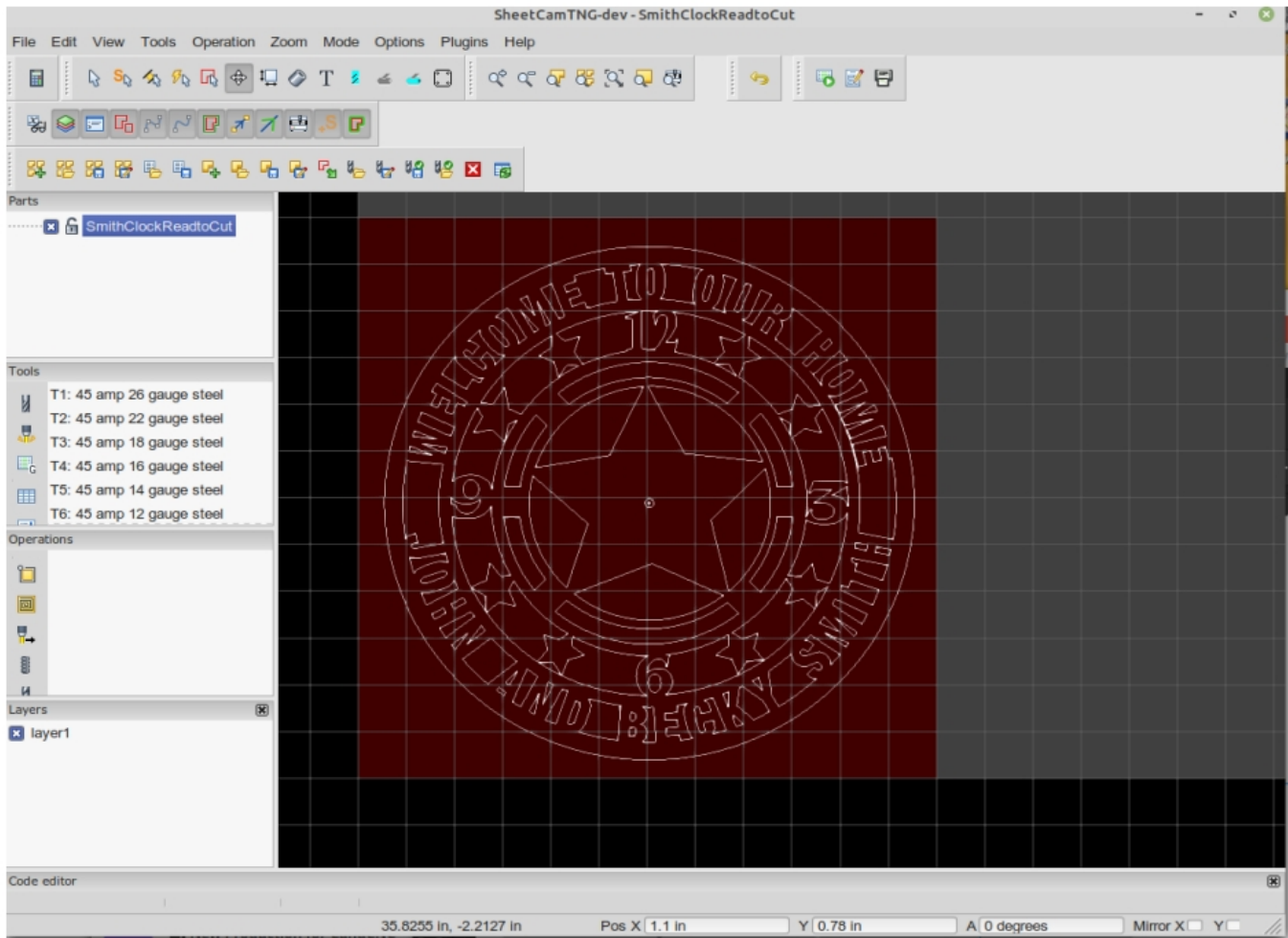


Final vector file imported into SheetCAM , Ready to assign tools and POST process for a G-Code cut file NOTE: . There needs to be one more ring that the clock cafe joins to and that can have a design that will join that ring in places to hold the center in place The center of the Clock face can be modified and a shape welded into it to use any shape/design you want.

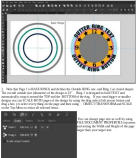
Modified
Clock Face
Elemnt

Open Cnter
Clock Face





Documents / Resources

	<p>CandCNC Round Personalized Clock Template [pdf] Instruction Manual Round Personalized Clock Template, Personalized Clock Template, Clock Template, Template</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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