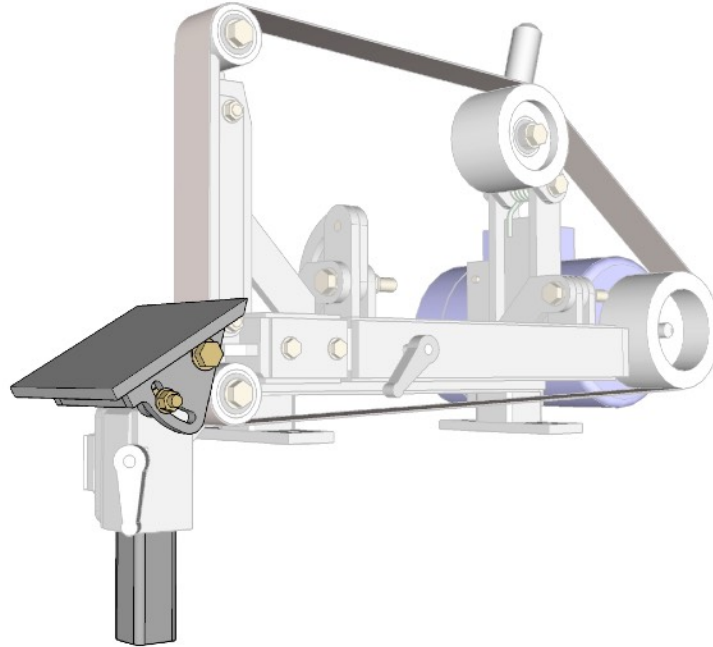


# Adjustable table plans

## A table for the 2x72" tilting belt grinder



### Some important notes:

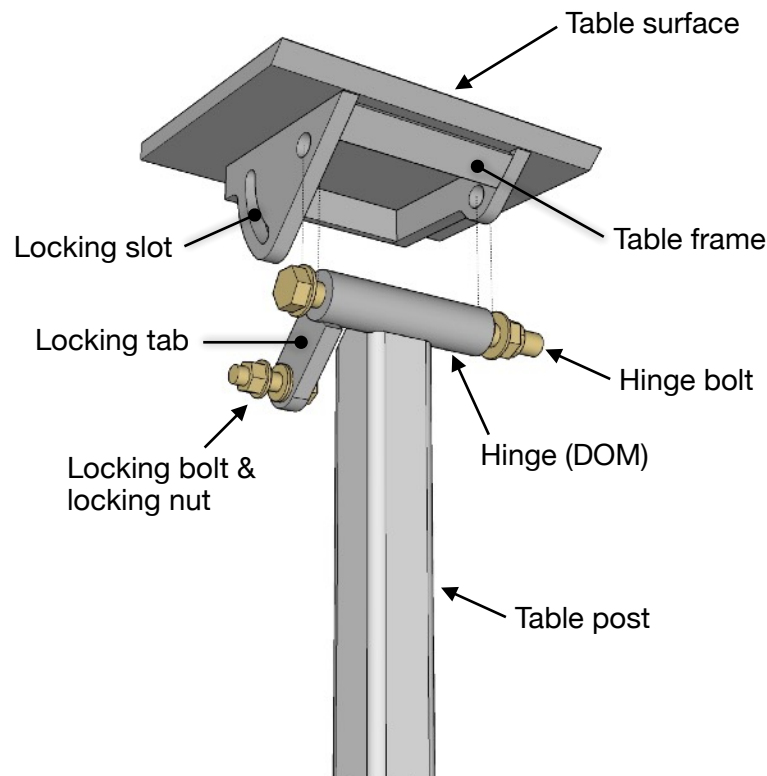
1. To use this table, you will first have to build my 2x72" tilting belt grinder. Plans for it, the platen attachment, and the table holder (the grayed out parts shown above) are available here: <http://etsy.me/2sm5uvq> Plans & Sketchup models for all other attachments & jigs are available on my website, here: <http://jerswoodshop.com/2x72-tilting-belt-grinder/>
2. It is assumed that you will build and use the belt grinder and its attachments in a safe manner, therefore, few safety precautions are set forth in these plans. Build and use at your own risk. I am not responsible for any injuries caused by the manufacture and use of the belt grinder or this attachment.
3. It is assumed that you have a basic knowledge of fabricating and metalworking. These plans will give you a few pointers and what techniques worked best for me, but they will not tell you how to set your welder, etc., since I assume you already know how to do that. All welds on the build may be ground & touched up for looks, so long as you don't grind away the structure of the weld. Everything should be checked with a square prior to welding, and all parts should be built with good precision, for best results.
4. Any drawing that says "1:1 scale" on it may be printed at 100% scale and used as a cutting template, but check the dimensions after printing to confirm it printed to scale.
5. Painting should be left to the end of the build, after testing is complete. Some parts may need to be modified slightly, so it's best to leave painting for after that's done.
6. If you haven't seen the YouTube build video for this table, please watch it prior to building the table: <https://youtu.be/OAoQLCXXbTk>
7. If you have any questions, or if you find any errors in these plans, you can contact me at [jerswoodshop@gmail.com](mailto:jerswoodshop@gmail.com).

## Parts list:

“Used in...” indicates which step(s) in the plans use this part. Refer to that step or steps for more information about that part.

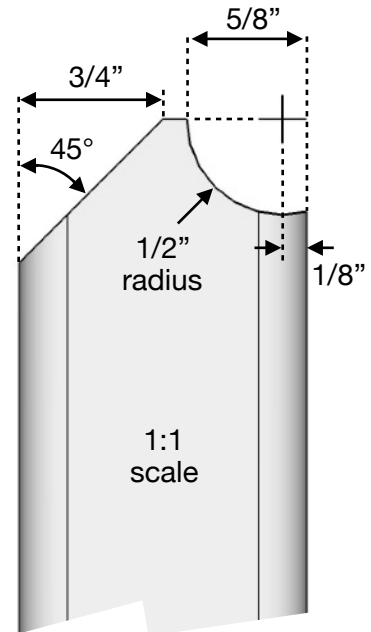
Part/material name	Size	Quantity	Used in...
Steel square tube	1-1/2" x 1-1/2", 1/4" wall	9"	Step 1
Steel DOM	1" O.D., 1/2" I.D.	4"	Step 3
Steel plate or flatbar	3/8" thick	5-1/2" x 12"	Steps 5, 7 & 10
Steel flatbar	3/16" x 3/4"	9-1/2"	Steps 2 & 6
Grade 8 bolt	1/2"-13 x 6"	1	Step 6
Flat washers	1/2"	2	Step 6
Grade 8 locknut	1/2"-13	1	Step 6
Grade 8 bolt	3/8"-16 x 1-1/2"	1	Step 7
Flat washers	3/8"	3	Step 7
Grade 8 nut	3/8"-16	1	Step 7

## Nomenclature:



## Step 1

Start by shaping one end of the 9" long section of 1-1/2" square tube to the profile shown on the right. You do not need to make the radius perfect, as you'll be able to fill in imperfections with weld later.



## Step 2

Cut a 1" long piece of 3/16" x 3/4" flatbar to cap the sloped side of the square tube. Chamfer the edges that will be welded together, then weld the flatbar in, flush with the 45° end of the tube as shown below. Grind the end smooth so it looks like one piece.



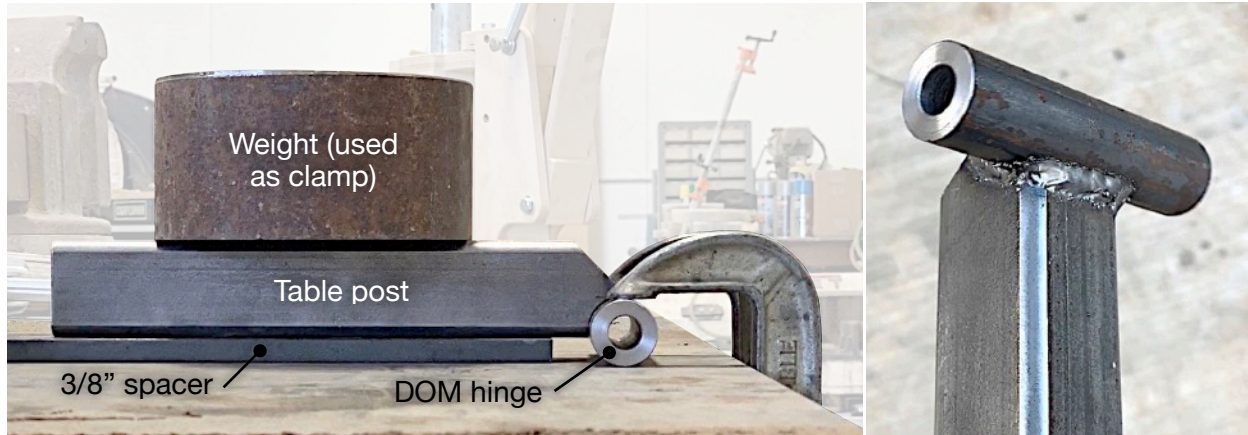
## Step 3

Cut a 4" long piece of the 1" O.D., 1/2" I.D. DOM to make the hinge. Make sure the ends of the DOM are *perfectly flat and square*. You can use the belt grinder to flatten and square the ends, using a table that is exactly 90° to the platen. Repeatedly touch the end of the DOM to the belt, rotating it between each touch. (If you have a lathe, you can simply face the ends of the DOM) Note that the length of the DOM is not as critical as the squareness of the ends, so it's ok if you accidentally make it a bit shorter than 4" while flattening the ends.



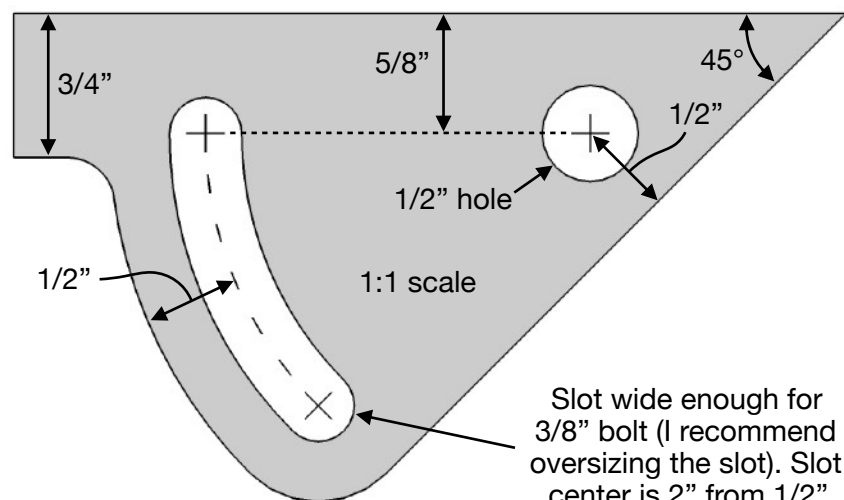
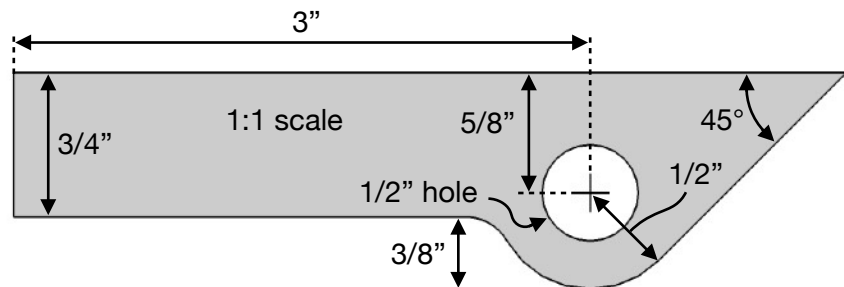
## Step 4

Set up the DOM hinge and the table post to be welded together. Clamp the DOM directly to a flat surface, then place the table post on top of a 3/8" thick spacer, so the curved cutout in the end of the post fits around the DOM. Make sure the spacer is clean and flat, so the post will sit flat. Be sure the post is square to the DOM and centered side-to-side. Clamp it down so it can't move, then tack weld the post & hinge together at the corners. Once the parts are securely stuck together you can remove the clamps and finish welding it solid.



## Step 5

Start making the table frame by cutting out the two parts shown on the right from 3/8" steel plate. These drawings may be printed and used as a template. I made the slot in the lower part by drilling a series of holes and filing between them. The slot needs to be at least 3/8" wide so it can rotate freely around a 3/8" bolt, but I recommend oversizing it to about 7/16". This will make it much easier to make the slot, and will also give the table angle a bit of overtravel. If you are recreating these shapes from the dimensions, it works best to start with the top surface & the 1/2" hole and referencing everything from those.

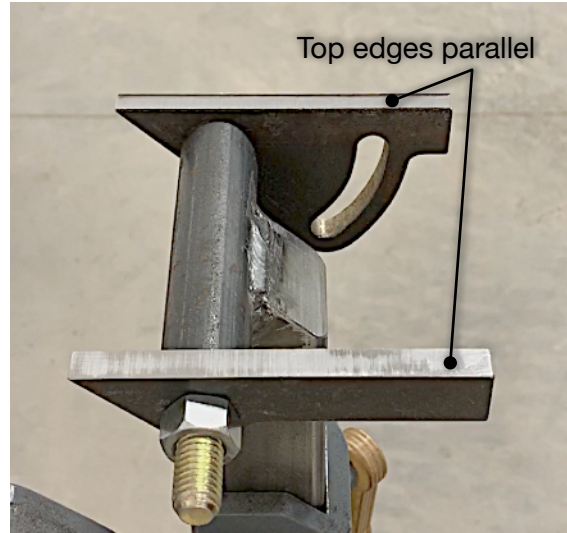


Slot wide enough for 3/8" bolt (I recommend oversizing the slot). Slot center is 2" from 1/2" pivot hole.



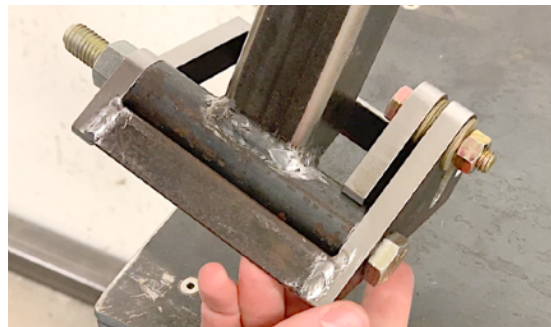
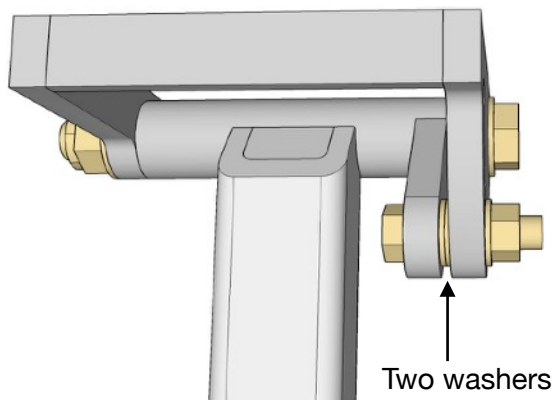
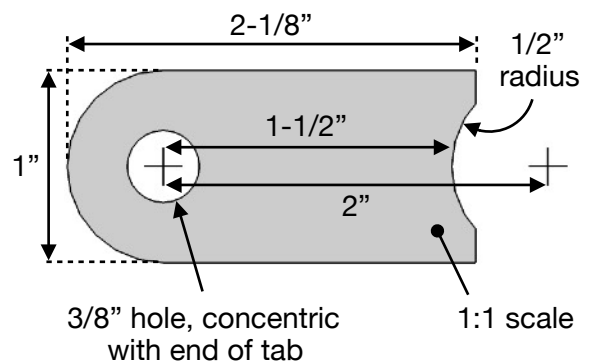
## Step 6

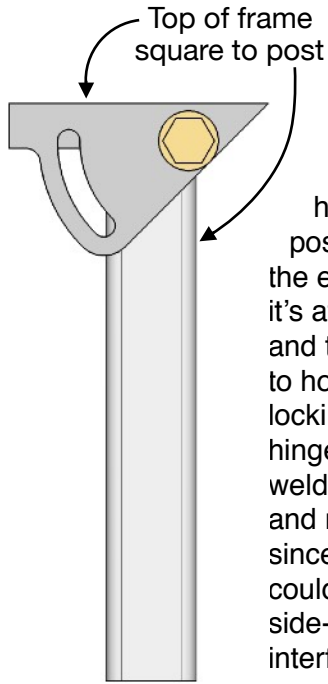
Bolt the table frame sides onto the DOM hinge, as shown in the photo on the right. Be sure you have the side with the locking slot on the right side, as shown. Make sure the top edges of the frame sides are parallel (you can press them against a flat surface to get them parallel), then tighten the bolt to keep them parallel. Cut two 4" long sections of 3/4" x 3/16" flatbar, and weld them in between the sides to serve as the crossmembers of the table frame. The front one should be flush with the angled edges, and the back one flush with the back ends of the frame sides, as shown in the photos below.



## Step 7

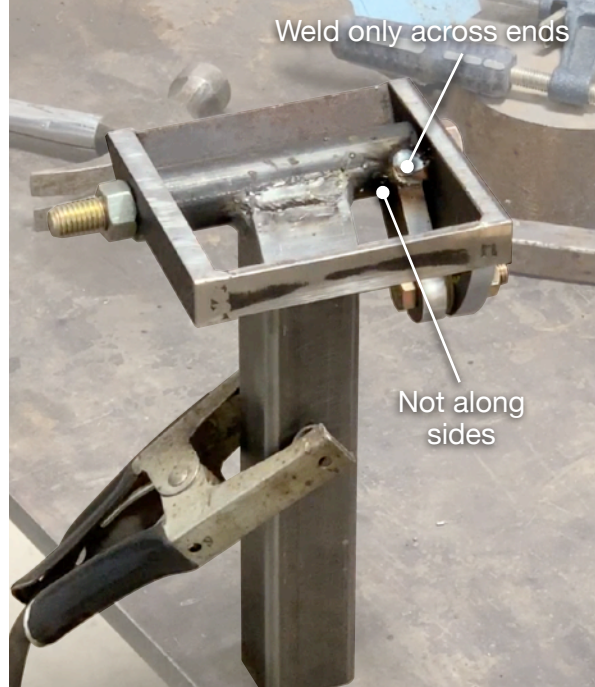
Cut out the locking tab shape shown on the right from 3/8" steel. Loosely assemble the tab onto the table frame by placing a 3/8"-16 x 1-1/2" bolt through the tab and through the locking slot, with two 3/8" flat washers between. Put a washer and nut on the outside of the slot to hold it in place as shown below. Make sure the bolt moves freely through the slot without binding.





## Step 8

Adjust the table frame so its top surface is perfectly square to the table post. I did this by placing the table frame upside down on a flat surface, and aligning the table post to a square sitting on the same flat surface. Tighten the hinge bolt to hold it in this position. Slide the tab to the end of the locking slot, so it's at 45° to the table post, and tighten the locking bolt to hold it there. Weld the locking tab to the DOM hinge. I recommend only welding it across the ends, and not along the sides, since welding on the sides could make the tab warp side-to-side, which will interfere with how it locks.



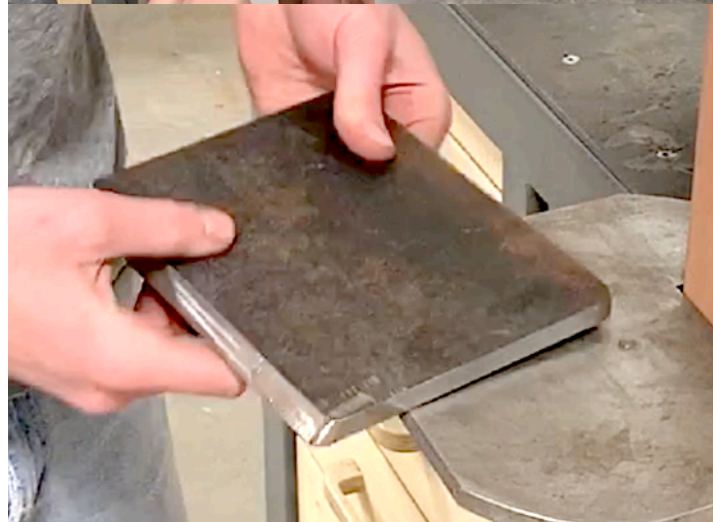
## Step 9

Remove the hinge bolt & the locking nut, and take the table frame off. The locking bolt will be captive at this point. Use a nut to hold it tight against the locking tab, then weld the bolt head to the tab.



## Step 10

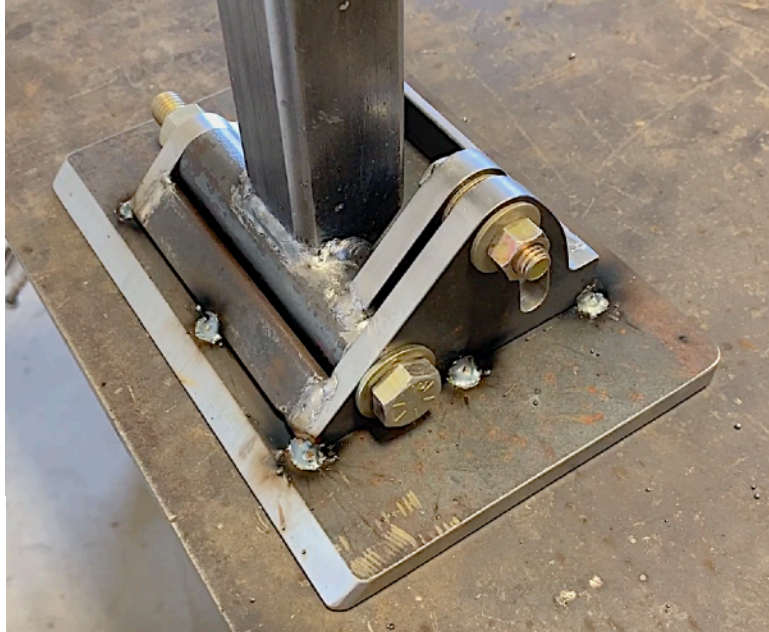
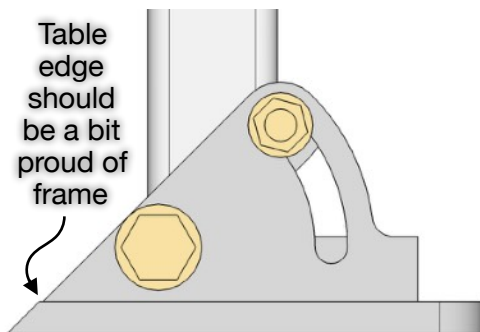
Make the table surface from 3/8" plate. You can make it whatever length and width you want, but I made mine 8" x 5-1/2" and I think that's a good size. One edge of the table needs to be beveled to 45° to fit against the belt when the table is tilted to 45°. I also put a ~1/2" radius on the corners so they aren't sharp.





## Step 11

Place the table frame upside down on the bottom of the table surface, as shown on the right, and center it side-to-side. The beveled edge of the table surface should protrude slightly from the angled end of the table frame. Lightly tack weld the table frame to the table surface at about eight points. Don't weld this solidly, or you'll warp the table surface; a few tack welds are plenty to hold it.



## Tuning

You're done building the table, but before painting and using it, you should check that it has the full range of travel. Put the platen attachment in your grinder, in the vertical orientation, and put your adjustable table in the table holder. Tilt the table as far down as it will go, and measure the angle between the table and platen to be sure it goes far enough down. Tilt the table all the way up, and check that it can travel far enough to be square to the platen. If it does not travel far enough in one or both directions, you can file the end of the slot to make the slot longer. Once it has the full range of travel, you can disassemble and paint the table. I recommend leaving the table post unpainted, as well as the contact points of the hinge, and the top of the table surface. Reassemble the table, and it's ready to use.