

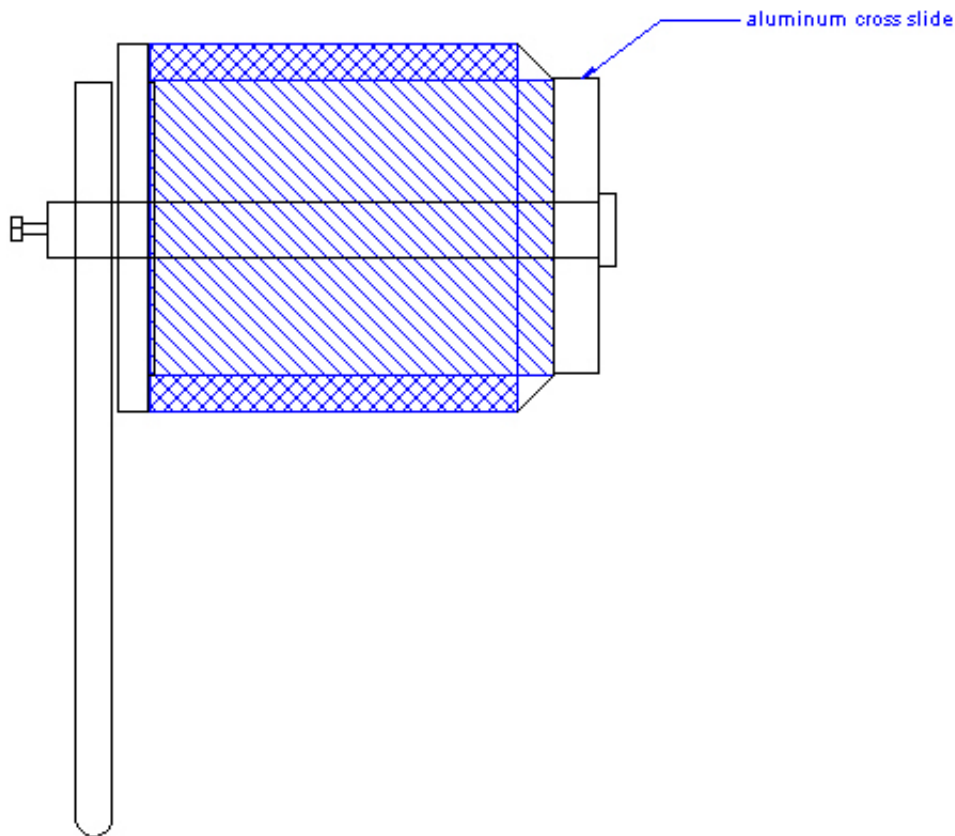
My First Try at a Shaper Table

By R.G. Sparber

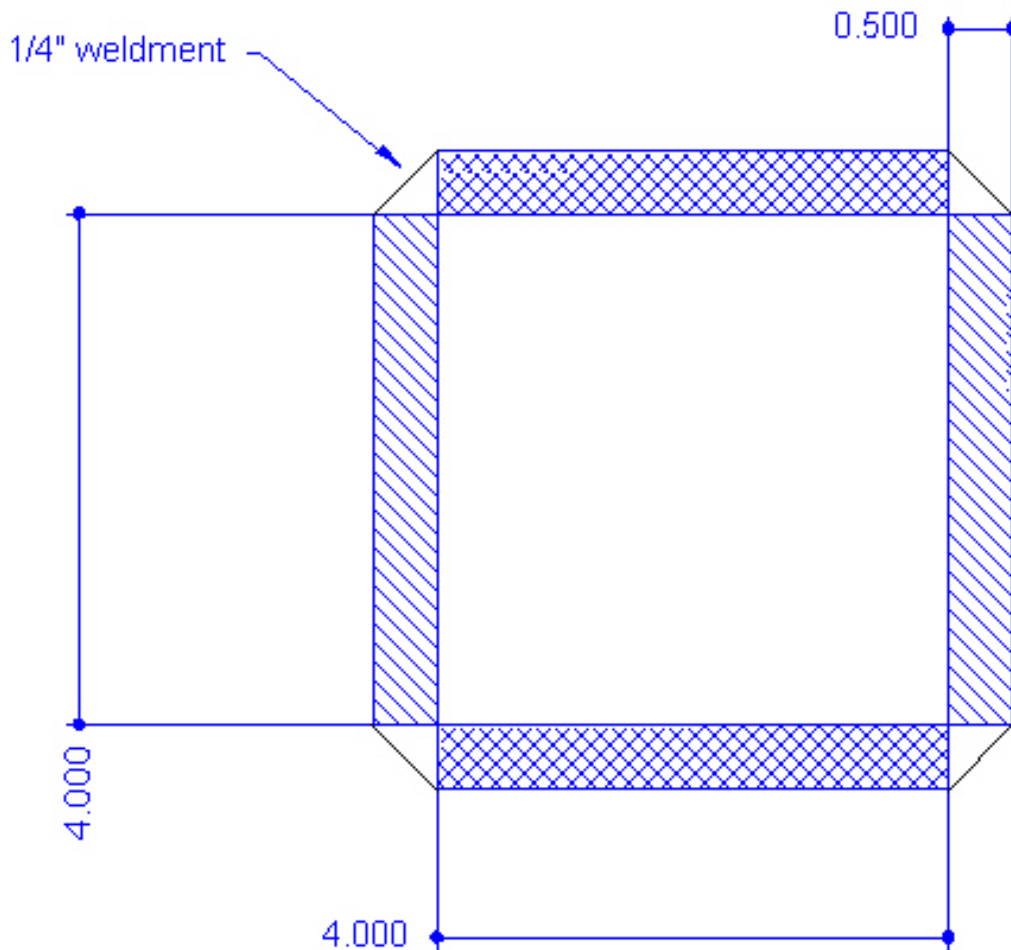
09/24/2008

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Before I start to cut metal, I sure could use at least one other set of eyes on this design. The ideas presented here are mostly taken from suggestions from the Gingery_Machines group and the Metal_Shaper group on Yahoo. Thanks guys!



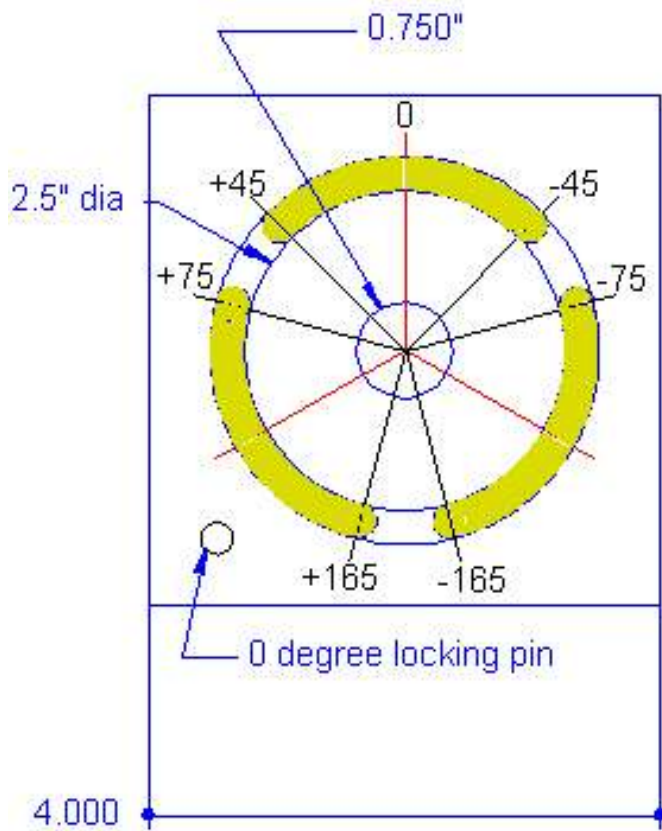
My plan is to make the table out of $\frac{1}{2}$ " thick CRS plate. The corners will be welded. Here is the assembled table with support leg. On the right side is the cross slide. On the left side is a $\frac{1}{2}$ " diameter rod that supports the table. Not shown are the 3 screws that pass through the back plate and into the cross slide.



Front View (no back plate)

Looking in the front you will see the ends of the 4 plates. A 1/4" weldment at each junction holds it together.

I plan to cut the plates on my bandsaw and mill them true. A MIG welder will be used to tack the 4 plates together. This will give me small tack welds. Once I'm sure it is square, I will use my stick welder to secure the plates. I plan to run 1" on a given corner and then run 1" on the diagonal corner to balance the stress. The cycle will repeat until all corners have an alternating pattern of 1" of weldment and 1" with no weldment. I think this will be plenty strong.



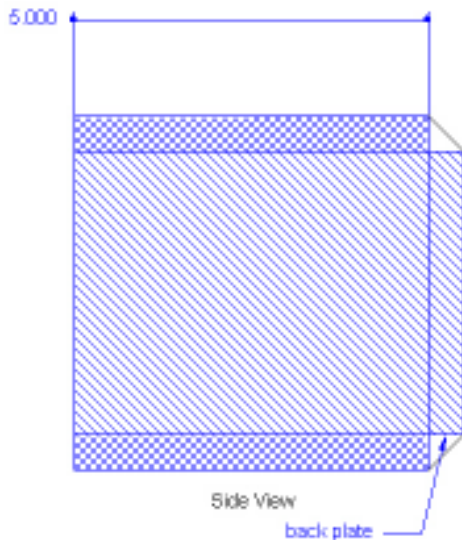
Back plate

The back plate will have three arcs milled into it. 3/8" screw will pass through these arcs and thread into the cross slide. Each arc will be 7/16" wide.

The arcs will permit the top surface to tilt +/- 45°.

In the center will be a hole bored to 0.750" to accept a pivot pin.

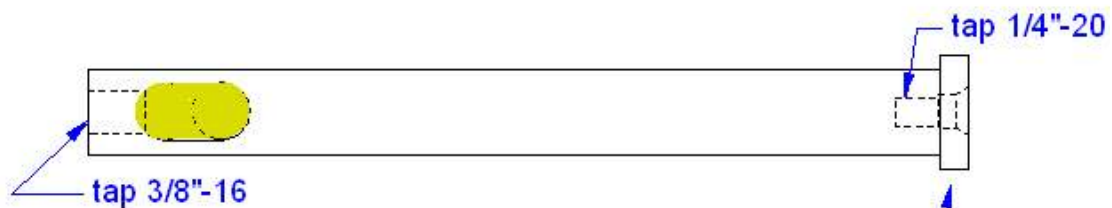
In the lower left corner of the plate will be a 0.250" hole that will accept a locking pin. The pin will go in before the shaper cuts the top face of the table.



This side view shows how the back plate fits on the table. A 1/4" weldment will secure it. When all five plates have been welded together, I can put it in my furnace and relieve the stress. There will be some warpage. I'll use my mill to square up the cube. The top face will be cut again after being mounted on the shaper.

Here is the pivot pin. It will fit through a hole bored in the cross slide and pass through the table and out the front. An elongated hole in the front end will accept a 1/2" diameter bar. The left end of the pivot pin will be drilled and tapped 3/8"-16. A screw in this end will be tightened to push the support bar against the front plate which will be shown next.

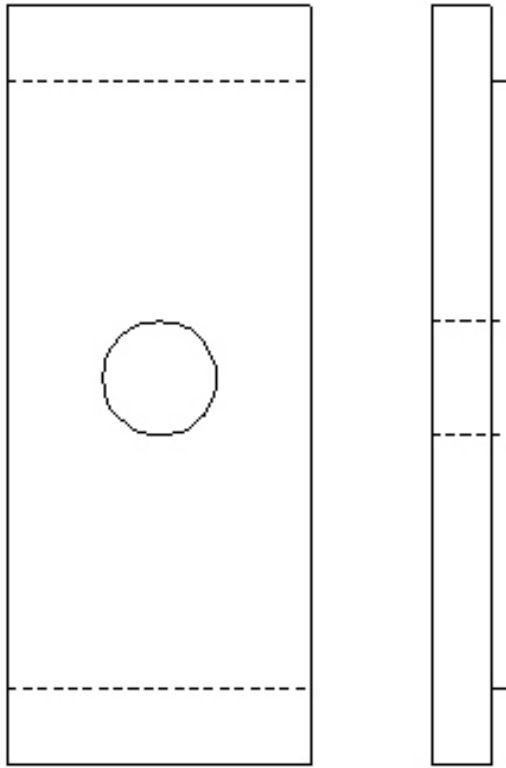
OAL must include aluminum base plate, back plate, and front plate.



Pivot Pin

Tightening 3/8"-16 bolt will lock support leg and front plate.

1/4" thick and 1" diameter
Use 1/4"-20 flat head screw



The front plate will have a lip that engages with the inside of the box. The hole will be bored to 0.750" to accept the pivot pin. As the screw in the end of the pivot pin is tightened, the 1/2" rod will be forced against this front plate so both the rod and front plate are secured.

When I want access to the bolts passing through the back plate, I back off the bolt in the end of the pivot pin, remove the 1/2" support rod and the front plate. It will then be easy to access the bolts.

Removable Front Plate

The 1/2" support rod will have its lower end rounded to minimize friction. It will ride on a plate fixed to the base of the machine.

The top surface of the table will have 3/8"-16 tapped holes on 1" centers. The right vertical face will also have tapped holes plus a V groove that I will cut on my mill.

OK, so what do you think? How do you suggest I change this design?

Rick Sparber

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