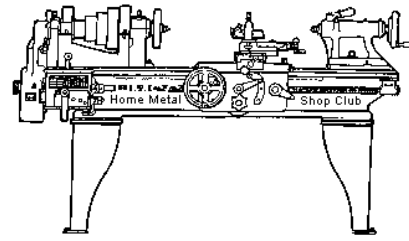




## June 2011 Newsletter

Volume 16 - Number 6



<http://www.homemetalsclub.org/>

Since its founding by John Korman in 1996, The Home Metal Shop Club has brought together metal workers from all over the Southeast Texas area.

Our members' interests include Model Engineering, Machining, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members always like to talk about their craft and shops. Shops range from full machine shops to those limited to a bench vise and hacksaw.

If you like to make things, run metal working machines, or just talk about tools, this is your place. Meetings generally consist of a presentation with Q&A, followed by **show and tell** where the members can share their work and experiences.

President <i>Vance Burns</i>	Vice President <i>John Hoff</i>	Secretary <i>Martin Kennedy</i>	Treasurer <i>Emmett Carstens</i>	Librarian <i>Dan Harper</i>
Webmaster/Editor <i>Dick Kostelnicek</i>	Photographer <i>Jan Rowland</i>	CNC SIG <i>Dennis Cranston</i>	Casting SIG <i>Tom Moore</i>	Novice SIG <i>Rich Pichler</i>

### About the Upcoming July 9 Meeting

General meetings are usually held on the second Saturday of each month at 12:00 noon in the meeting rooms of the Parker Williams County Library, 10851 Scarsdale Boulevard, Houston, TX 77089. This month's meeting will be held on July 9<sup>th</sup>. The meeting space has been reserved through August. Visit our [website](#) for up-to-the-minute details.

Cris Leard will talk about restoring cars, coke machines and gas pumps.

### Recap of the June 11 General Meeting

By Martin Kennedy, with photos by Jan Rowland and Martin Kennedy

Twenty-five of our 53 members and five visitors: Mark Heatherly, Keven Kernsey, Robert Williams, Allen Carruth and David Stafford attended the 12:00 noon meeting at the Parker Williams County Library. President *Vance Burns* led the meeting. Vance began the meeting with several topics of club business:

July is the time for annual club officer elections. A motion was made to continue with the present slate of officers for another year. The motion was carried by a majority of the members at the meeting.

The June 12<sup>th</sup> casting session to be hosted by Dennis Cranston was postponed due to heat, and will be rescheduled for a later, and hopefully cooler, date.

Several members indicated they were interested in the trip being planned to Chappell Hill to visit *Ray Ethridge* to see his collection of oil field engines.

An appeal was made for additional web content, especially short instructional machining videos. If you would like to provide such a video, please contact the webmaster, [Dick Kostelnicek](#).

Three 5 gallon buckets of Petrobond casting sand were successfully auctioned off. Thanks to our *Albert Muller* for his winning bids for the sand!

A video of the meeting will be [available on the club's web site](#).

## Presentation

Albert Muller, with the [Houston Inventor's Association](#), spoke about the association and his own interesting inventions. The Inventor's Association was created as a non-profit organization in 1983 to assist inventors in navigating the complicated path starting with an idea and ending with marketing. It is the world's largest inventor association. The Houston chapter has about 250 members, and meets twice a month.

Al has degrees in aeronautical engineering and geology. He recounted highlights of his career as an Air Force engineer, working both with airplanes and rockets. He is a licensed pilot, and currently owns two airplanes. He is heavily involved in the [Young Eagles](#) Program for 8-18 year olds. Like many of us, he has a home shop.

Al briefly discussed several examples of inventions from their local membership:

- A stake and pole pulling tool
- A flatware sensor to filter out flatware in trash for restaurants, preventing losses of as much as \$2,500/month)
- The [Bayou Classic Beercan Chicken Rack](#), a very popular device to hold and steam the inside of a chicken while cooking
- A new pivot device to reduce weed eater cord breaking
- A lubricated suit to assist in putting on a diving wetsuit
- A sure step with tool holders for working on trucks
- The [Frog Pad](#), which allows one hand telephone use
- The smart gun, which requires a coded ring the user wears that arms the gun
- Al's own invention – the Bigfoot vacuum cleaner nozzle, which uses a constant velocity across the inlet which allows better pick-up of objects
- The [Go-kid by Rocket 6](#), a fast kid-powered scooter popularized at sporting events
- An adjustable hinge that allowed easy adjustment of sticking doors

Al passed around a several page [handout](#) that he had developed that listed the steps to what it takes to get your invention patented, developing a prototype, and most important, marketed. Marketing begins with a one page publicity release. He recounted several examples of how creative ideas, including catchy names, were used to successfully sell products.

## Show & Tell

*Joe Williams* brought two tools that he made to cut keyways with his shaper. One of his challenges was to cut through the center of a shaft without the use of a mill. He did this by making a ring or drill bushing on his lathe with the same diameter as the shaft, and clamping this in a vice to drill the shaft through its exact center.

*Mike Hancock* showed a video that explained in simple terms the operation of a [Turbo Encabulator](#).

*Joe Scott* passed around pictures of a new (to him) machine he acquired for engraving rifle barrels. The machine used round leather belts, which had degraded to the point where they could not be repaired. Joe made new belts out of rubber windshield wiper hose which he super glued together using a lap splice aligned with an o-ring stuck in the center of the hose, and then chain stitched for strength.

*Dick Kostelnicek* passed around a holder he made for sharpening hand woodworking chisels on his surface grinder. Plans will be included in a future newsletter.

*Jan Rowland* again brought in miscellaneous hardware to give away



*Martin Kennedy* brought in the control system for his CNC mill, and described the various components. The conversion will be described in more detail in a future article.

*Mike Gibson* talked about a 36 hour hand scraping class being given in California. He was looking for a company to host the class locally.

## Problems and Solutions

A member asked for advise on how to fix a loose ax handle. Soak the handle in water or room temperature linseed oil were given as possible solutions, with one member recommending using epoxy.

An attendee wanted to know how aluminum could be hardened. He realized that it would get softer when heat treated, and that it could be work hardened. He wanted to harden a long thin strip. No one had an immediate answer, and consulting the internet was suggested.

## Novice SIG Activities



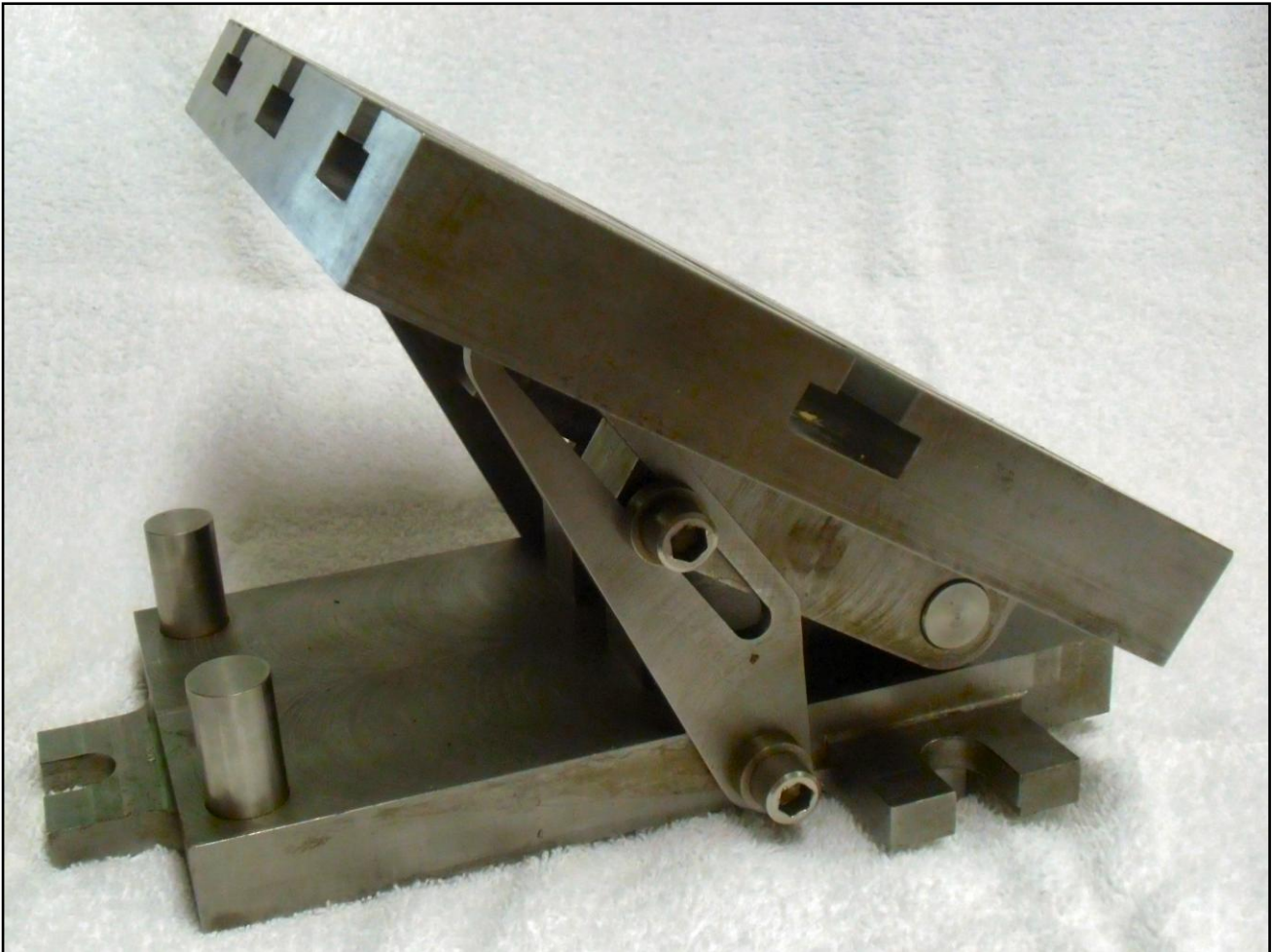
*Rich Pichler* described the diagnosis and repair of the tailstock on the club's lathe.

During the months of August and September, Rich will not be able to attend the club meetings. Martin Kennedy and Dick Kostelnicek volunteered to lead the Novice group for those months. Dick will demonstrate how to disassemble / clean a 3 jaw chuck, while Martin has no idea what he'll demonstrate!

## Articles

## T-Slotted Tilt Table

By Dick Kostelnicek



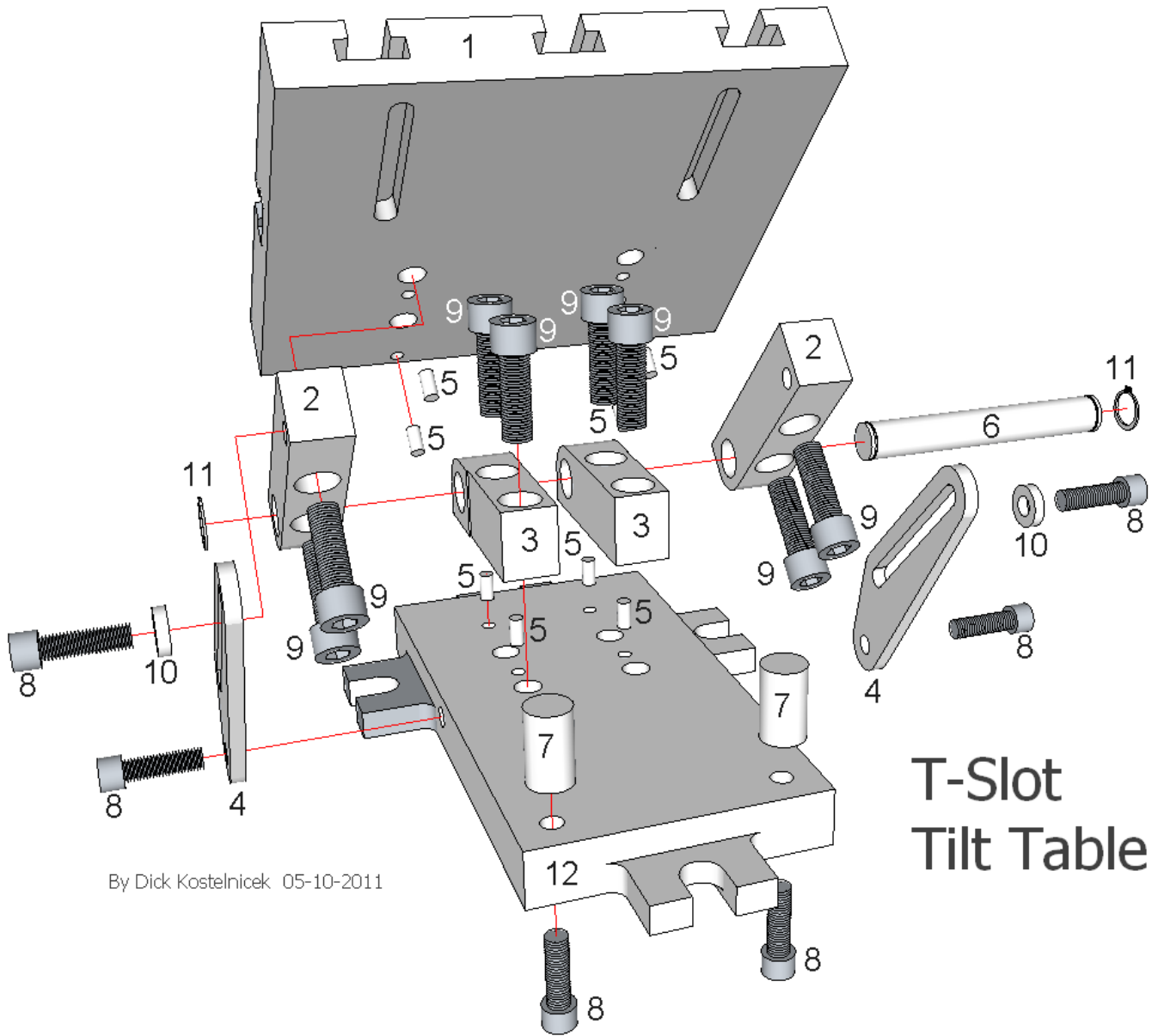
This 8 X 9 inch T-Slotted table tilts and locks in any position between 0 and 90 degrees. The T-Slots run both along and across the table's platen. It is machined entirely from mild steel plate and drill rod. Standard hardware fasteners are employed.

The above photo shows the table tilted about 45 degrees. An end mill was used to remove most of the metal from the T-Slots while a Woodruff key cutter undercut them. The underside of the base is slotted for keys that fit standard 5/8-inch milling machine table T-Slots. Soft aluminum keys are recommended to prevent damage to the mill's table. Clamp down ears are attached to all four sides of the table's base.

The photo at the left shows the tilt table holding a model engine flywheel. A hole for an angled setscrew is being drilled in the hub over the keyway.

An assembly blow-up diagram and dimensioned 3-D drawings are shown below.

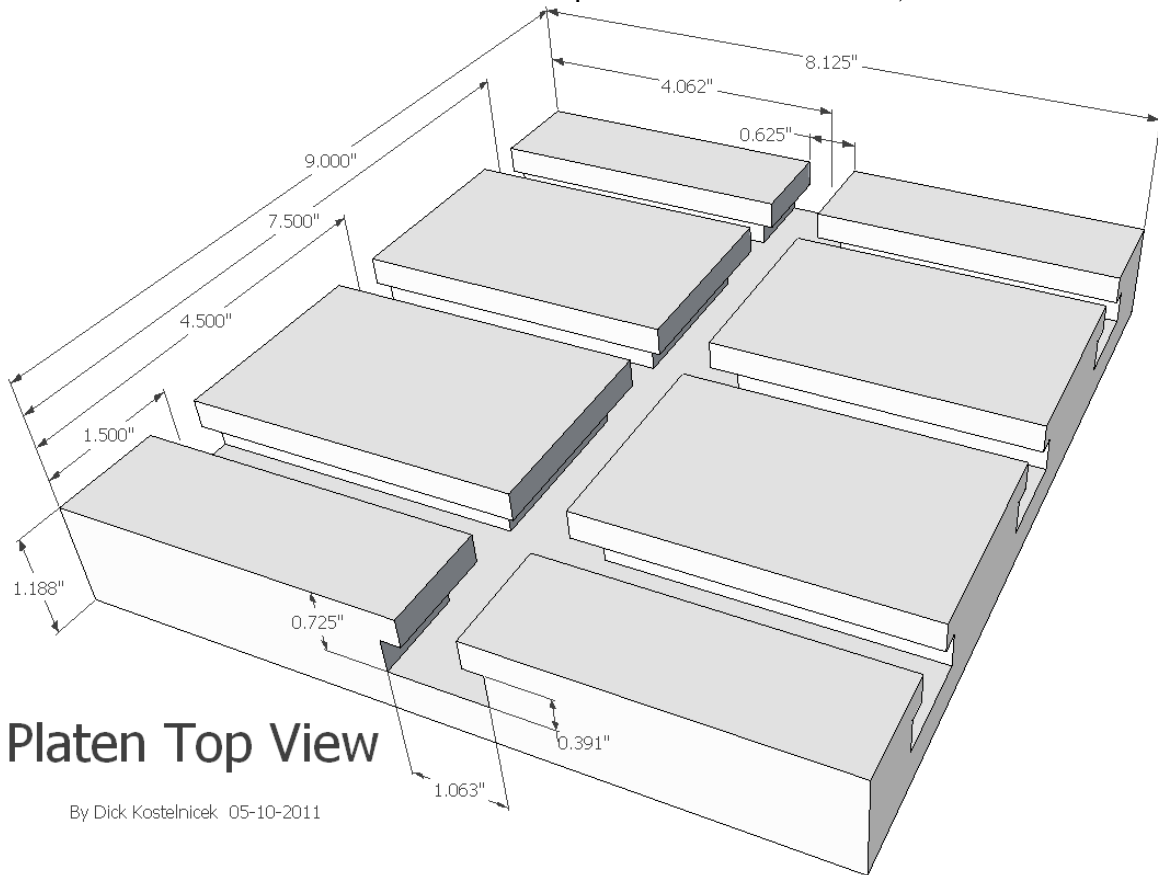




## T-Slot Tilt Table

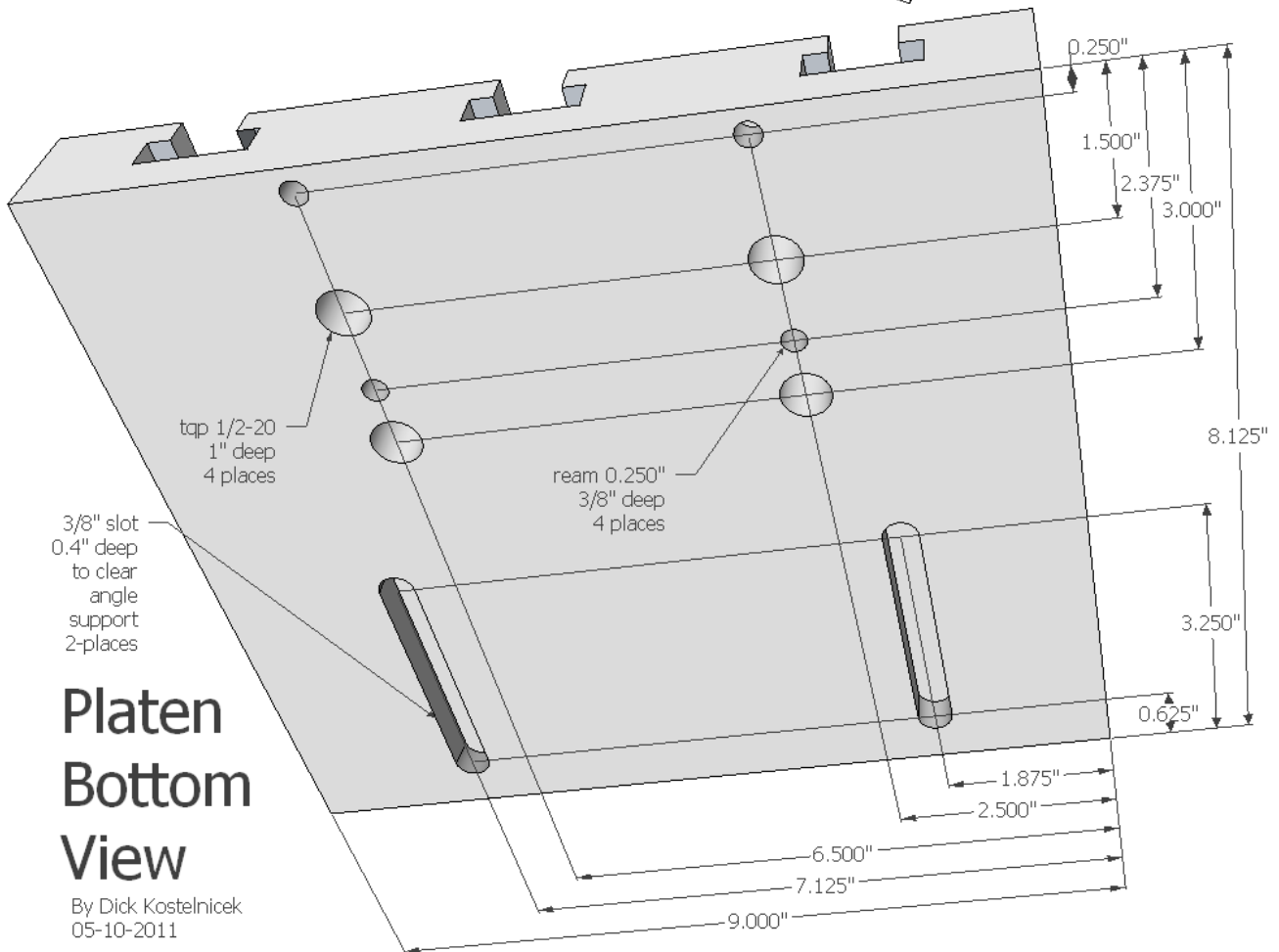
By Dick Kostelnicek 05-10-2011

Item	Description	Quantity	Material
1	Platen	1	Mild Steel
2	Top Hinge	2	Mild Steel
3	Bottom Hinge	2	Mild Steel
4	Angle Support	2	Mild Steel
5	¼ D x ½ Dowel Pin	8	Common Hardware
6	Hinge Axle	1	Drill Rod ¾ D
7	Horizontal Rest	2	Drill Rod ¾ D
8	3/8-24 x 1 SHCS	6	Common Hardware
9	½-20 x 1.5 SHCS	8	Common Hardware
10	Washer	2	Drill Rod ¾ D
11	¾ Retaining Clip	2	Common Hardware
12	Base	1	Mild Steel
NS	5/8 T-Slot KEY for Base	2	Aluminum



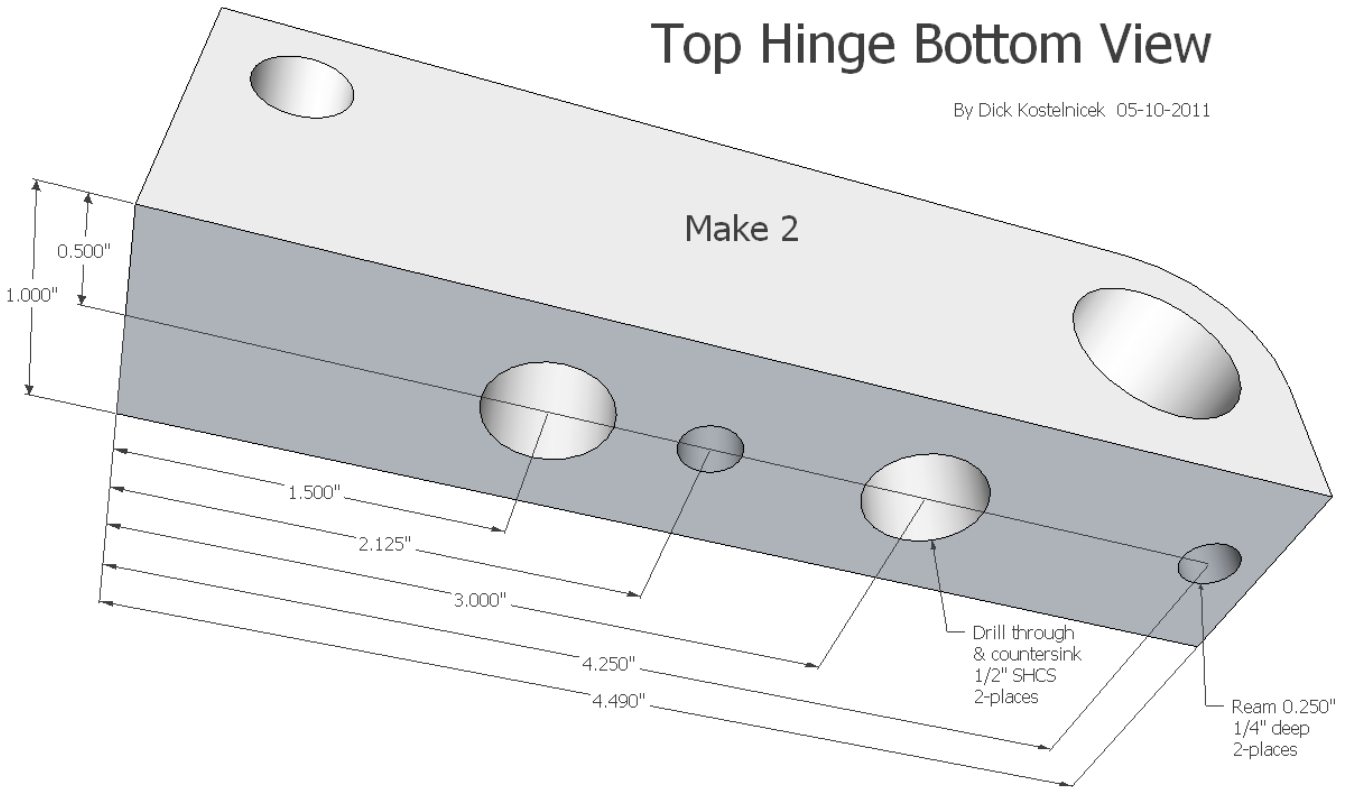
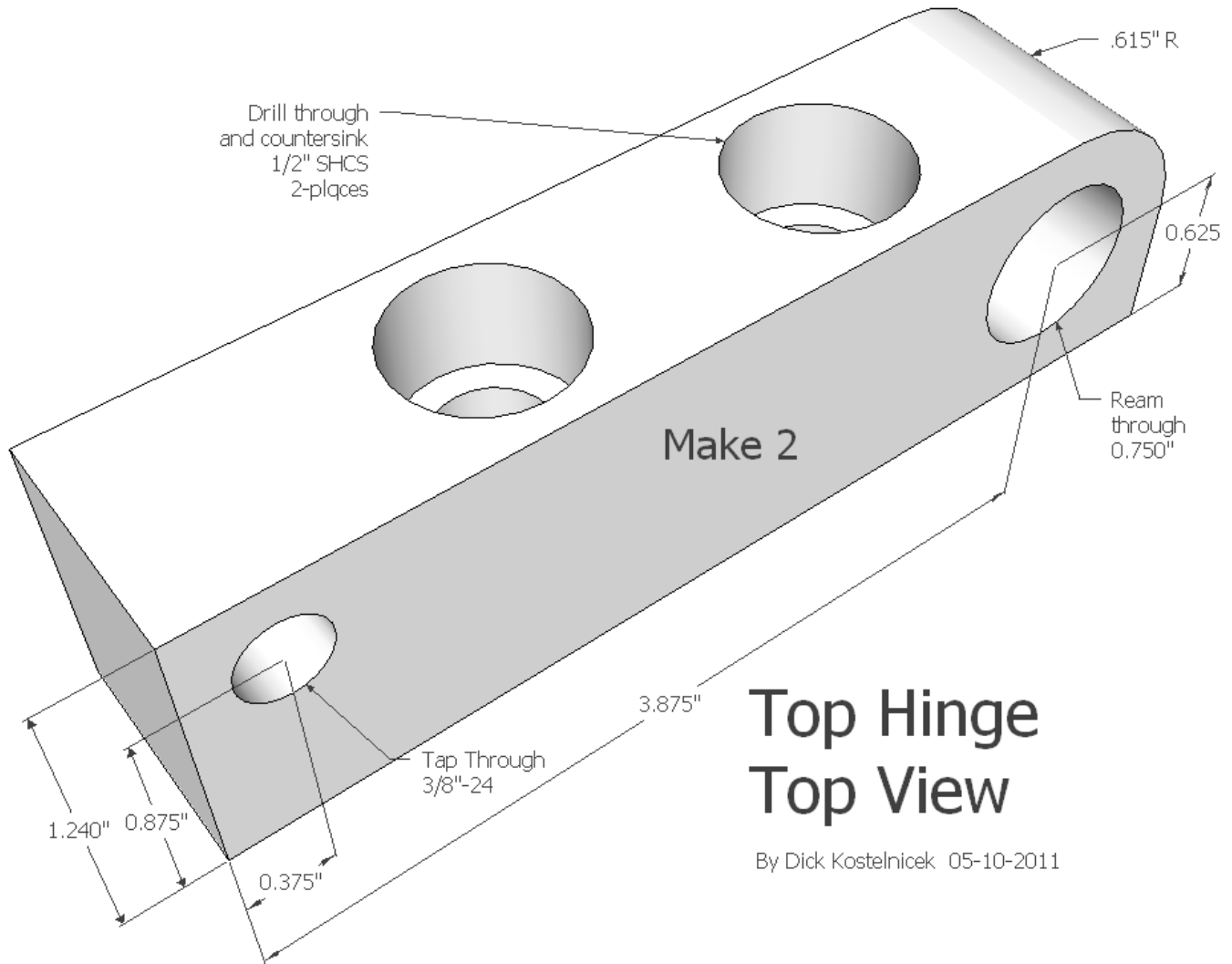
### Platen Top View

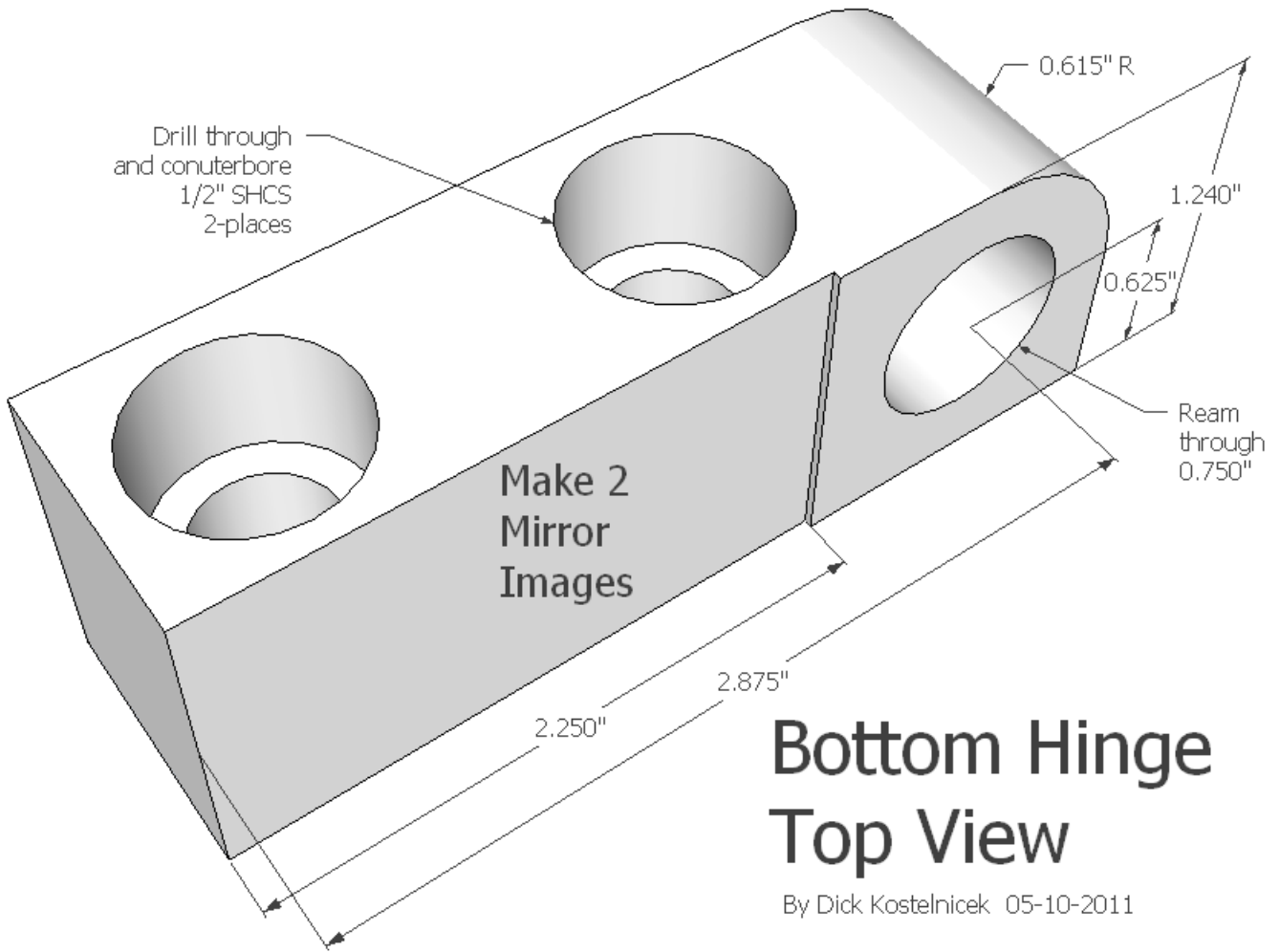
By Dick Kostelnicek 05-10-2011



### Platen Bottom View

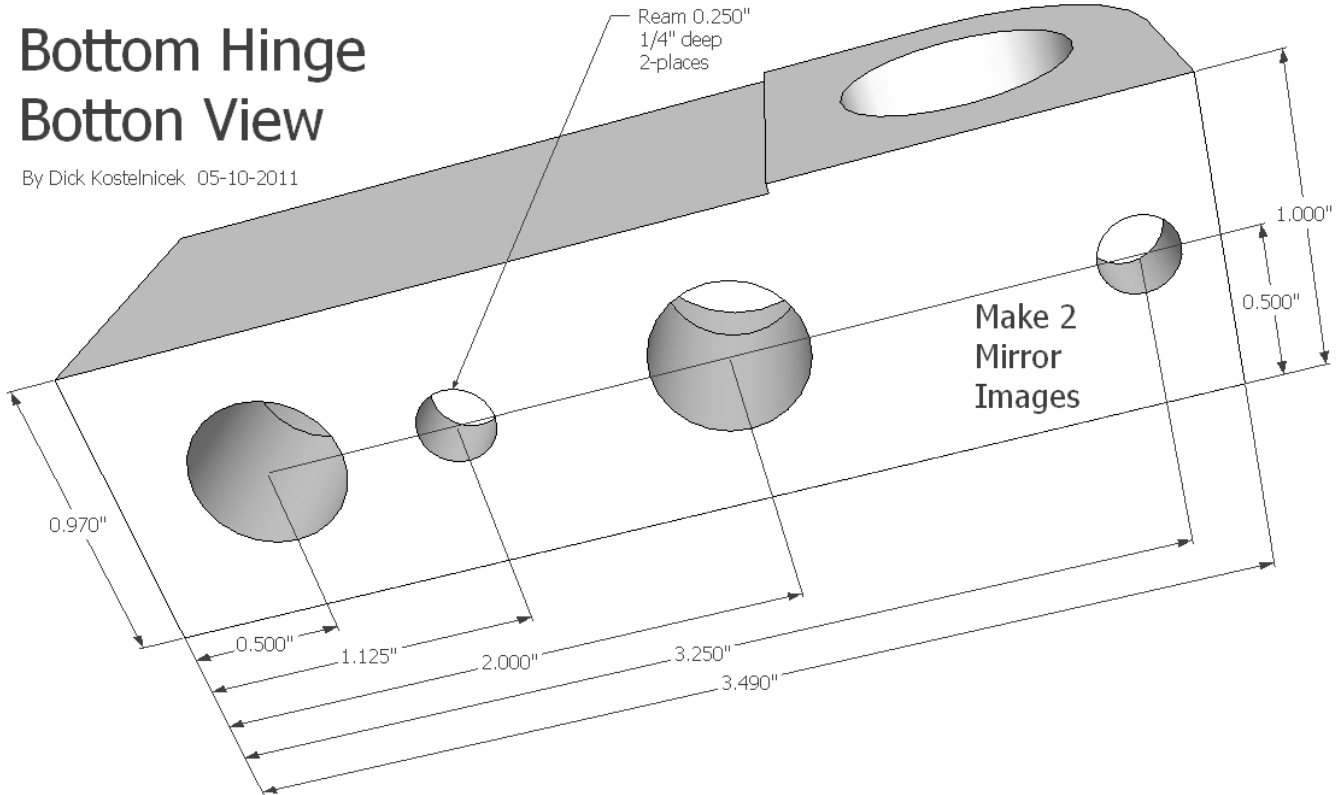
By Dick Kostelnicek 05-10-2011



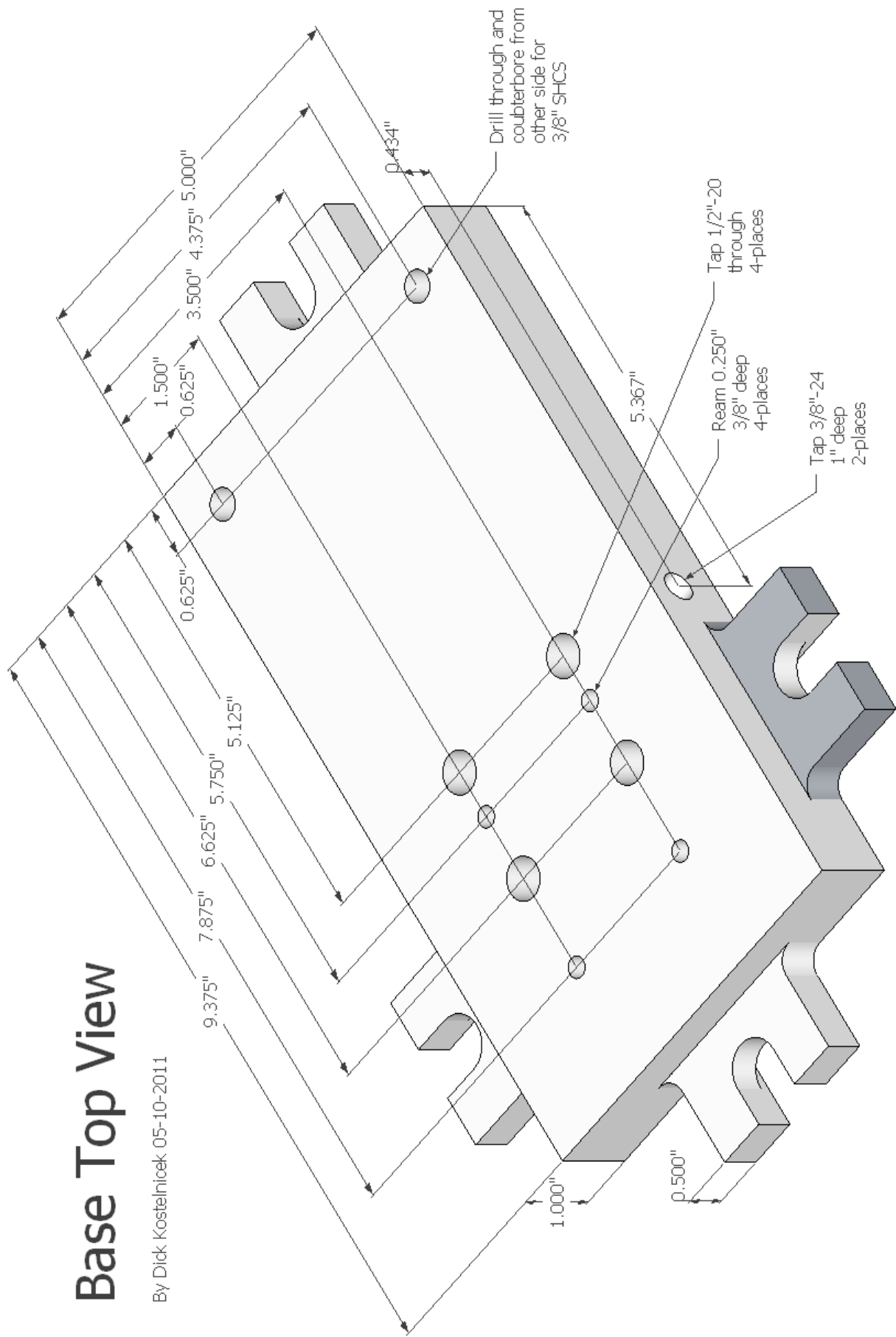


## Bottom Hinge Botton View

By Dick Kostelnicek 05-10-2011





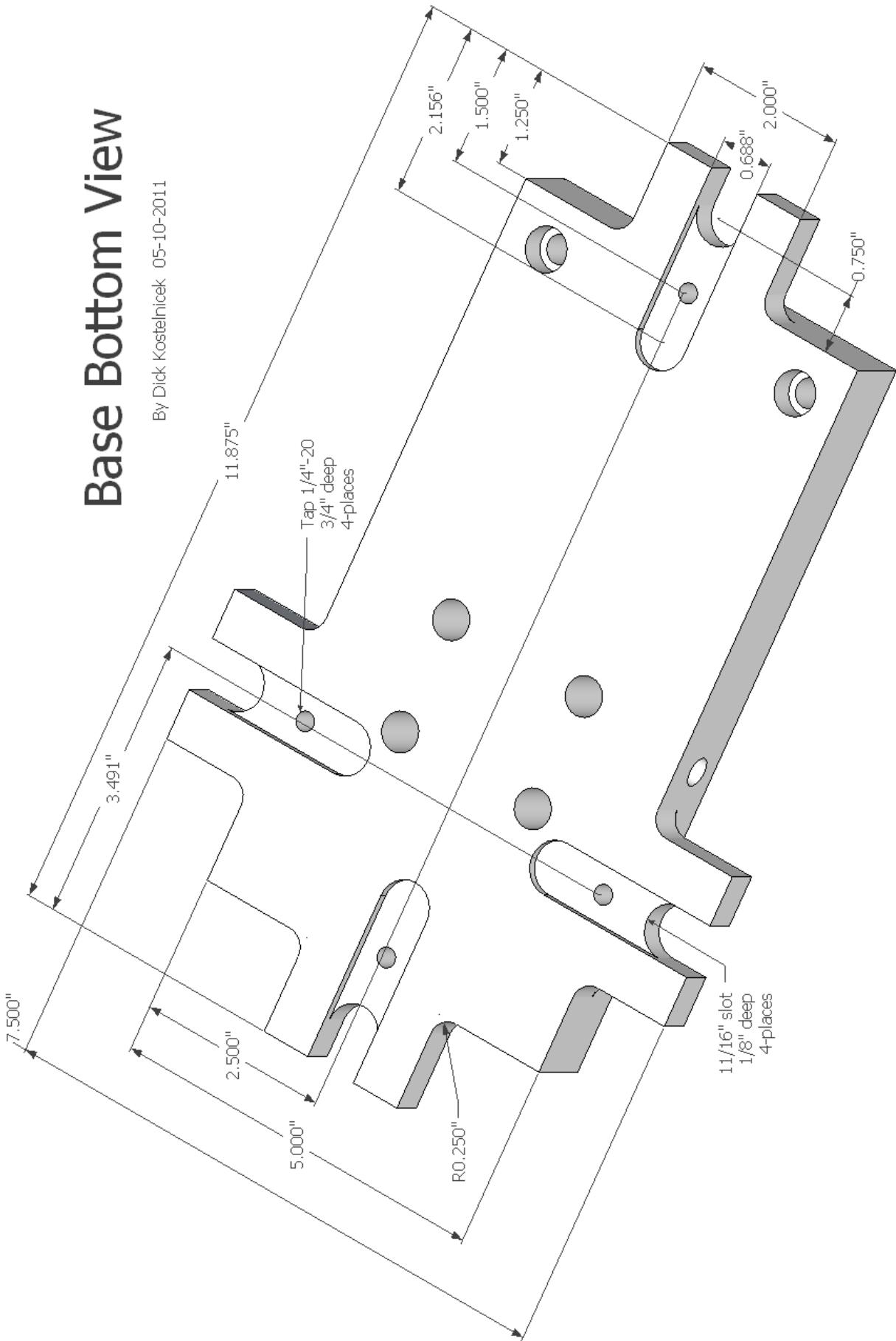


# Base Top View

By Dick Kostelnicek 05-10-2011

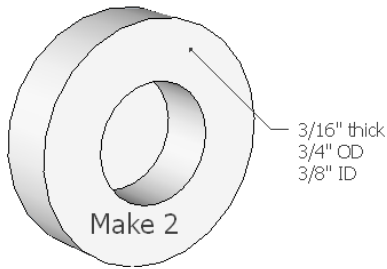
# Base Bottom View

By Dick Kostelnicek 05-10-2011



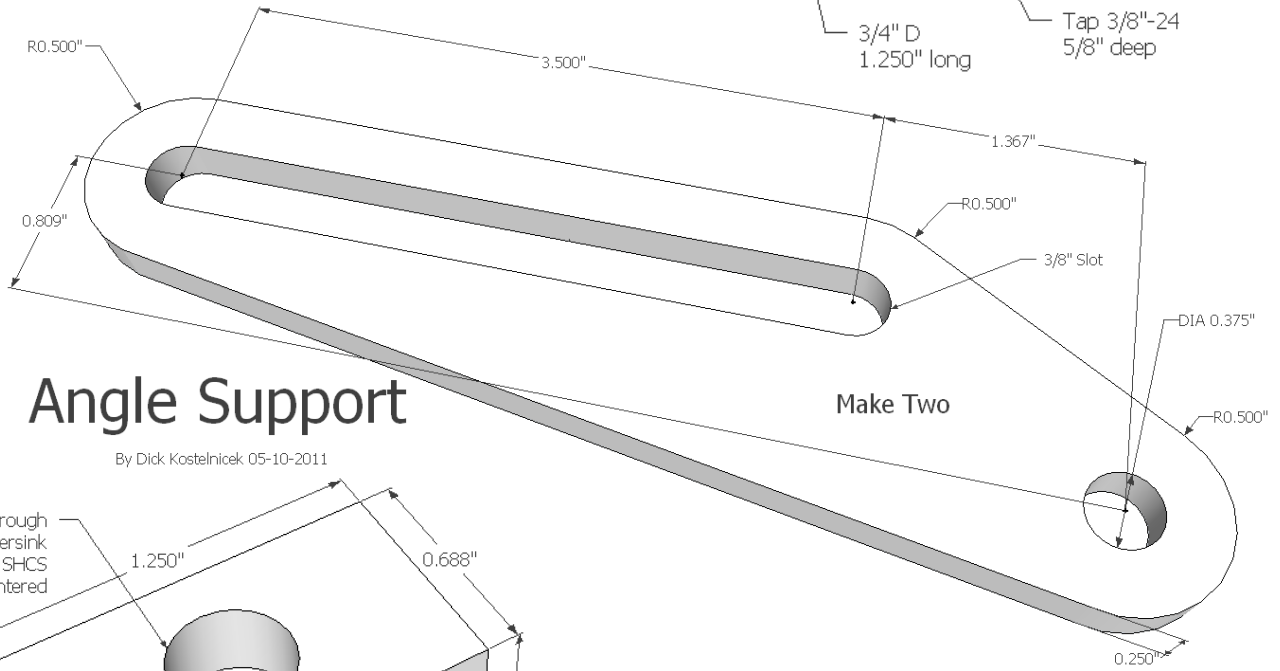
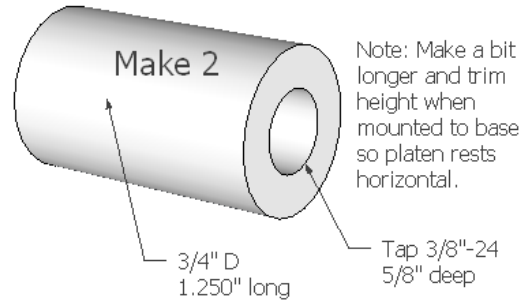
## Washer

By Dick Kostelnicek 05-10-2011



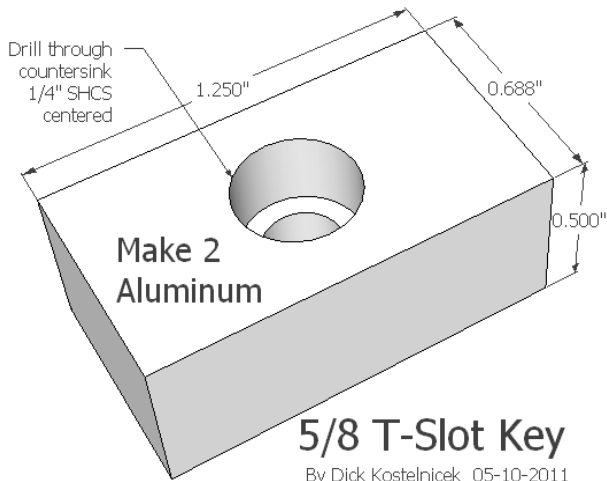
## Horizontal Rest

By Dick Kostelnicek 05-10-2011



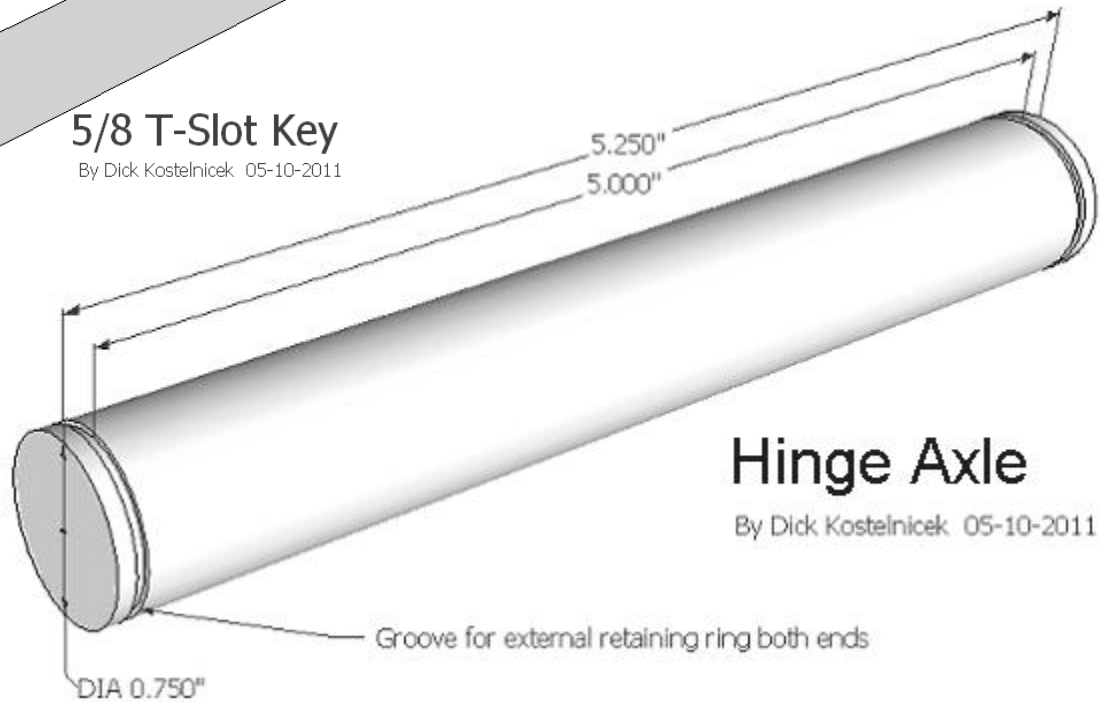
## Angle Support

By Dick Kostelnicek 05-10-2011



## 5/8 T-Slot Key

By Dick Kostelnicek 05-10-2011



## Hinge Axle

By Dick Kostelnicek 05-10-2011