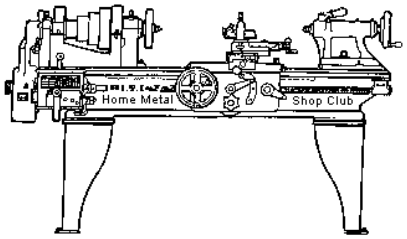
Home Metal Shop Club

February 2015

Newsletter

Volume 20 - Number 2



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

Our members' interests include Model Engineering, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members enjoy getting together and talking 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 ***general announcements***, an ***extended presentation*** with Q&A, a ***safety moment***, ***show and tell*** where attendees share their work and experiences, and ***problems and solutions*** where attendees can get answers to their questions or describe how they approached a problem. The meeting ends with ***free discussion*** and a ***novice group*** activity, where metal working techniques are demonstrated on a small lathe, grinders, and other metal shop equipment.

President	Vice President	Secretary	Treasurer	Librarian
Vance Burns	*Norm Berls*	*Joe Sybille*	*Emmett Carstens*	*Ray Thompson*
Webmaster/Editor	Photographer	CNC SIG	Casting SIG	Novice SIG
Dick Kostelnicek	*Jan Rowland*	*Dennis Cranston*	*Tom Moore*	*Unfilled*

This newsletter is available as an electronic subscription from the front page of our website. We currently have over 800 subscribers located all over the world.

About the Upcoming 14 March 2015 Meeting

The next general meeting will be held on 14 March at 12:00 noon at the Parker Williams Branch Library, which is located at 10851 Scarsdale Blvd., Houston, TX 77089. Click on this link for a Map and a satellite view of its location. George Carlson will give a presentation about his "CNC Router".

The Business meeting will be held in the 9er's Grill located at 9865 Blackhawk, Houston, TX at 11:00 a.m. Click here for a location map.

Visit our website for up-to-the-minute details, date, location, and presentation topic for the next meeting.

General Announcements

Videos of recent meetings including our recent tour of the shop floor at the ARC Specialties welding and machining facility can be viewed on the HMSC website.

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. The library is maintained by the Librarian, *Ray Thompson*. These books can be quite expensive, and are not usually available at local public libraries. Access to the library is one of the many benefits of club membership.

The club has funds to purchase new books for the library. If you have suggestions, contact the Librarian.

We need more articles for the monthly newsletter! If you would like to write an article, or would like to discuss writing an article, please contact the Webmaster Dick Kostelnicek. Think about your last project. Was it a success, with perhaps a few 'ugh ohs' along the way? If so, others would like to read about it. In the September 2012 HMSC board meeting, the board elected to waive membership fees during the next membership renewal cycle for those providing newsletter articles.

Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone that could make a presentation, please contact Vice President Norm Berls.

Recap of the 14 February 2015 General Meeting

By *Dick Kostelnicek*, with photos by *Jan Rowland and Dick Kostelnicek*

27 members, including 3 guests, Norman Gouger Sr., Gary Klopp, and Mike Wilkens attended the noon meeting at the ARC Specialities Co. research facility in west Houston, TX. There are 49 members in good standing with the club. President *Vance Burns* led the meeting.

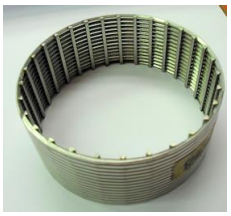
President Vance Burns gave a eulogy to recently deceased member J. R. Williams. Joe Williams was instrumental in setting up the meeting and tour of ARC Specialties.

Presentation

Dan Alford of ARC Specialties Corp. gave a presentation describing the products and processes used by his company. This was followed by a walking tour of the research facilities.

ARC Specialties was started by Dan in his garage in 1983 and has grown to become a premier worldwide welding and cladding company. Dan gave a history of arc welding and cladding starting from the atomic hydrogen torch (right photo) to the robot positioned MIG and laser arc welding techniques that his company is famous for implementing. ARC Specialties both manufactures specialized welding equipment for other manufactures and performs welding on a job shop basis. All welding processes are automated using robotic arms and in house built fixtures, all under computer control.


They also use electrical arc processes to clad (left photos) or coat pipes, valves, and drill bits for the oil industry where erosion due to the entrained sand and corrosive chemicals would shorten the lifetime of unclad tubulars. They manufacture precise sand screens for insertion into down-hole oil producing wells. These screens require hundreds of minute resistance (spot) welds per second as can be seen in the right photo.



Among the metal working techniques that Dan employs are Gas Metal Arc (MIG), Gas Tungsten Arc (TIG), Plasma Arc, Laser, Submerged Arc, Electro Slag, Ultra Sonic, Resistance (Spot Welding) and Flame Cutting.

Click on the following tour link in order to accompany Dan on a guided video tour of his research facility. Following are photos taken during the tour.

Show and Tell

Dan Harper showed a magnetically held eye shield and his innovative cam lock tail stock clamp (left photo)

Martin Kennedy gave away his electric hot pot for Parkerizing steel. He distributed a few books he no longer needed and demonstrated a magnetic pickup fixture.

Burnell Curtis showed a carbide tipped drill for making holes for rebar in a concrete slab that is to be bound to another subsequently poured slab.

Safety Moment

Vance Burns showed a safety video concerning the follies of not removing the electrical connection to a machine that is being serviced. In this case a pizza machine operator was pulled into a dough kneading machine that a coworker thoughtlessly energized while the operator was cleaning it.

Problems and Solutions - *Ask the Blacksmith*

Warren Gloss described his fixture to chop of the heads of a large number of stainless steel bolts that he is welding to the side of this home built boat.

Rich Pichler asked how the tool shown at the left is used. The comments ranged from nipping off the edges of cut glass panes to drilling holes in the edge of sheet metal.

Gary Toll queried about why the color of brass changed from part to part as he cleaned an old balance scale. The comments concerned different alloys of brass and how much zinc was leached from the metal by aging and the cleaning solution that was employed.

Article

Sander Swing Table

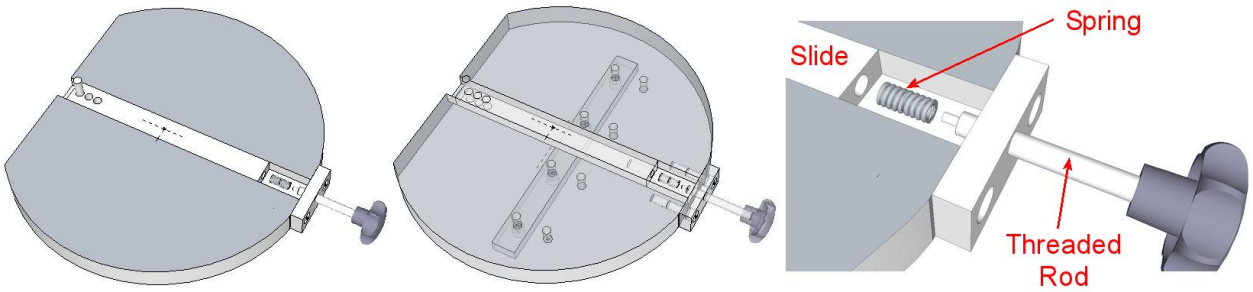
By *Dick Kostelnicek*

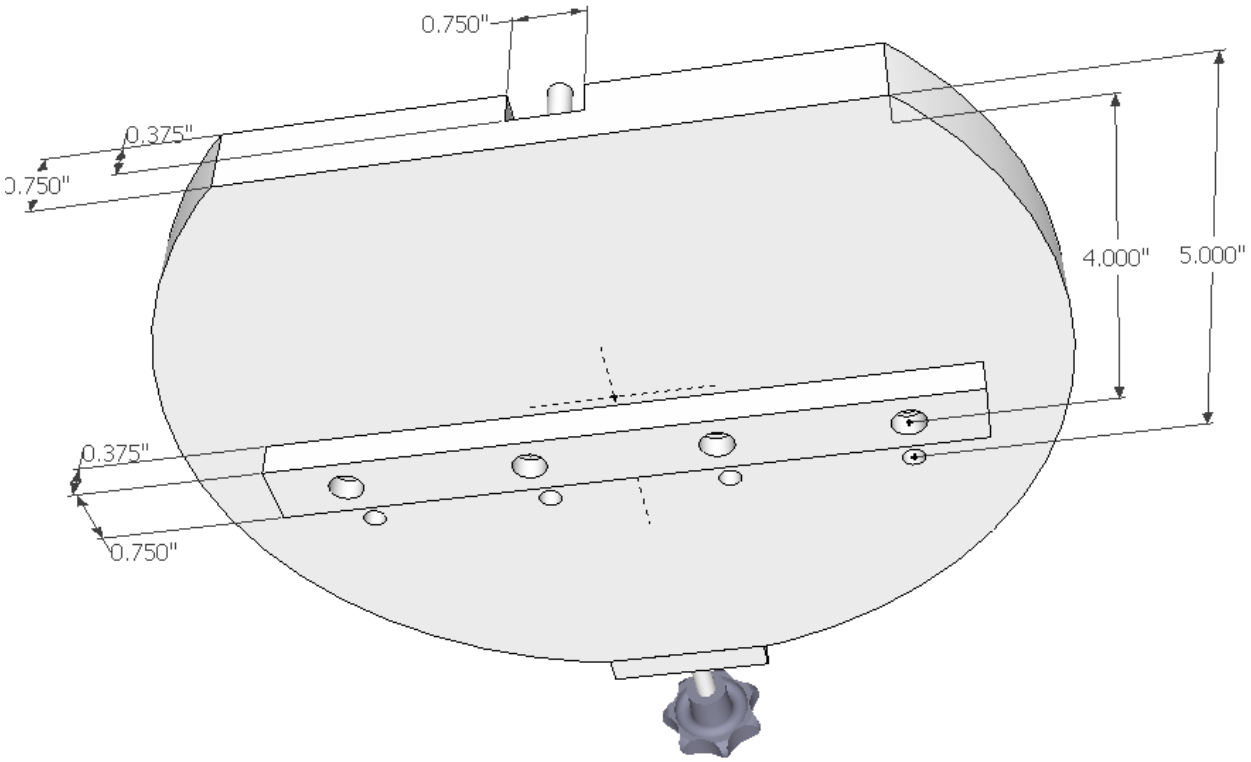
Rounding the end of a machined part was a chore whenever I used a round-over mill cutter or a rotary table and a straight end-mill. Now, I perform this task with a swing table fixture and a belt or disk sander. The trick is to carefully control the force of the part against the belt sander's surface while swinging the part through a curved arc (see above photos). This is done by adjusting a threaded rod that pushes on a compression spring that is captured inside a ¾ x 3/8 inch slide in the swing table (see right most illustration at the top of the next page). The slide is perpendicular to the sanding surface and has a vertical pin attached at one end (see left photo). The part that is being rounded swings about the pin. Turning a knob attached to the threaded rod forces the slide toward the belt. The whole table can slide sideways in order to acquire a new sanding surface without changing the distance between the part being rounded by the belt.

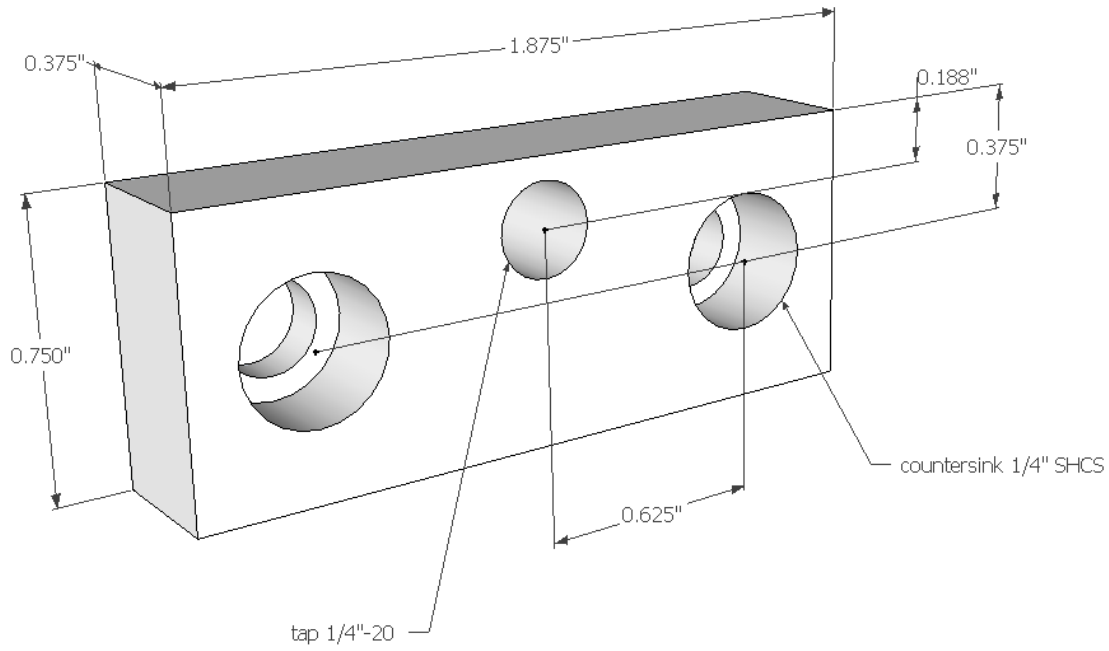
Warning! Under no circumstances should you attempt to round a part without out the compression spring installed in the slide. Doing so may cause the sanding belt or disk to tear and destroy itself. *Power sanding of metal requires that you apply a gentle force and not a positive displacement to the part against the moving abrasive*. With just force applied to the part, it can be pushed back when it encounters irregularities in the belt such as a glued seam or large embedded metal particles. If you

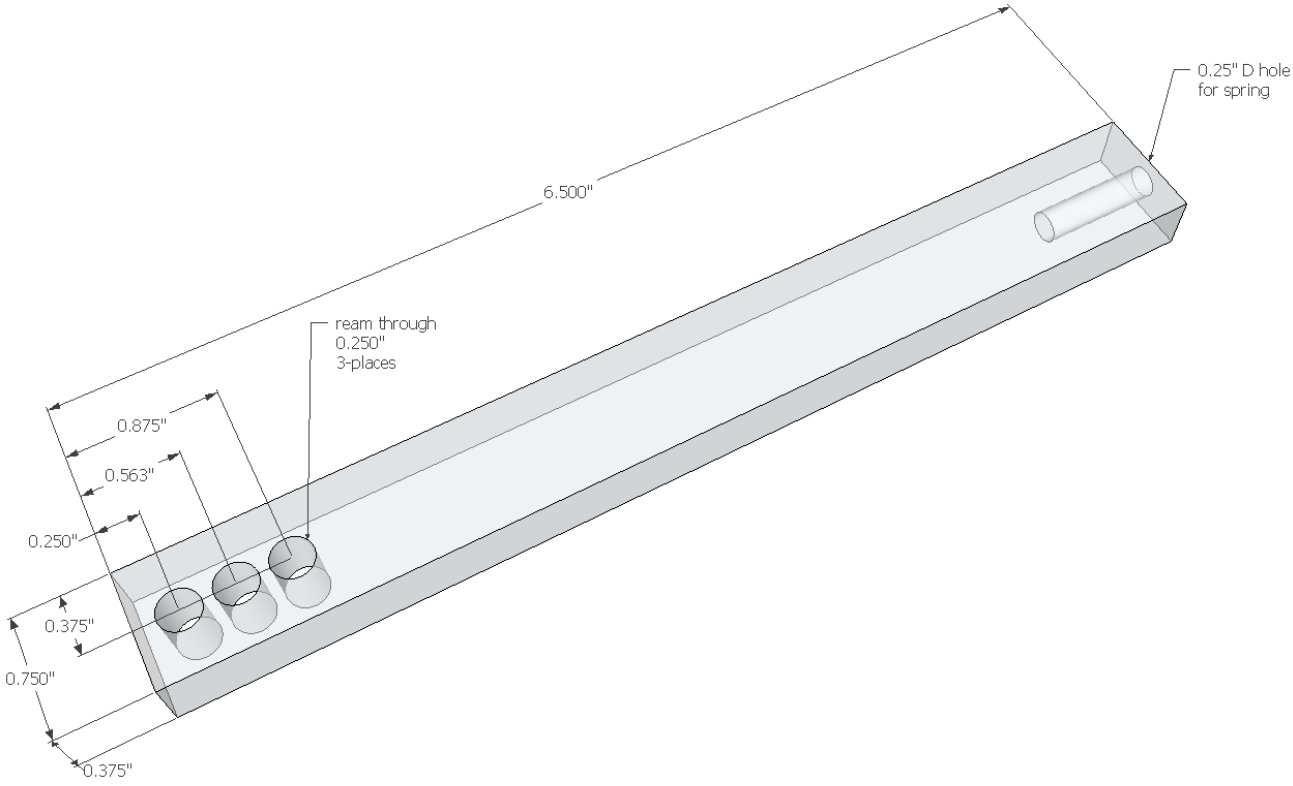
positively displace a part against the belt or disk, the part can jam and cause a tear in the abrasive's fabric backing.

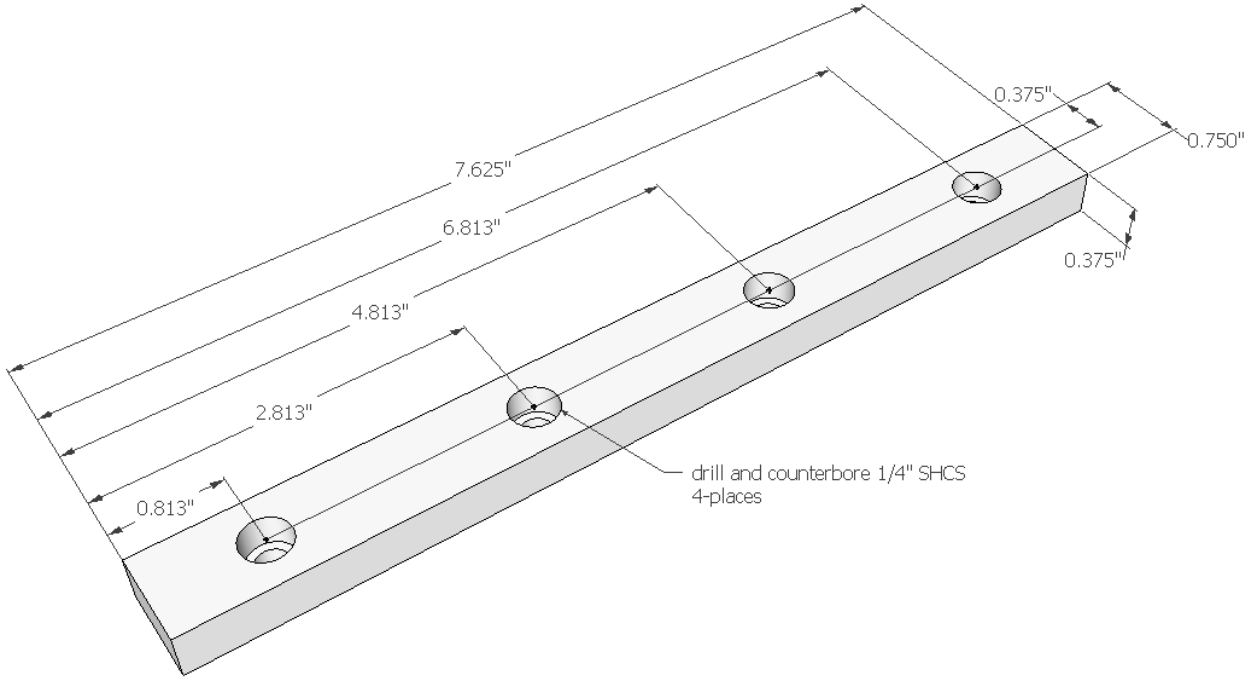
The table was made from a 9¾ Dia. x ¾ - inch thick mild steel round cutout. A ¾ x 3/8 – inch rectangular bar is bolted on the back slide. The bar slides laterally in the belt or disk sander's table groove. There are two rows of tapped holes for attaching the bar slide. Hence, the bar can be located at either 4 or 5 inches from the front edge of the swing table. This allows me to use the table on different size belt or disk sanders. Dimensioned drawings are provided below, but none of the dimensions are really critical.






0.375"
1.875"
0.188"
0.375"
0.750"
countersink 1/4" SHCS
0.625"
tap 1/4"-20


0.25" D hole
for spring
6.500"
ream through
0.250"
3-places
0.875"
0.563"
0.250"
0.375"
0.750"
0.375"


0.375"
0.750"
7.625"
6.813"
0.375"
4.813"
2.813"
0.813"
drill and counterbore 1/4" SHCS
4-places