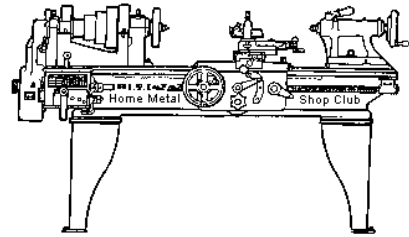




September 2015 Newsletter

Volume 20 - Number 9



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

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 <i>Vance Burns</i>	Vice President <i>Norm Berls</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Emmett Carstens</i>	Librarian <i>Ray Thompson</i>
Webmaster/Editor <i>Dick Kostelnicek</i>	Photographer <i>Jan Rowland</i>	CNC SIG <i>Martin Kennedy</i>	Casting SIG <i>Tom Moore</i>	Novice SIG <i>Unfilled</i>

This newsletter is available free via an electronic subscription from the home page of our [website](#). We currently have 880 subscribers located all over the world. Our subscriber growth during the past year is illustrated in the graph at the right.



About the Upcoming 10 October 2015 Meeting

The next general meeting will be held on 10 October at 12:00 PM (Noon) at the [Parker Williams County Library](#) located at [10851 Scarsdale Blvd. Houston, TX 77089](#). Club member *Dan Harper* will give a presentation on "Indexing – Part 2".

Visit our [website](#) for up-to-the-minute details, date, location maps, and presentation topic for the next meeting.

General Announcements

[Videos of recent meetings](#) can be viewed on the HMSC website. Click the following web link to view a recording of the [September meeting](#).

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. These books can be quite costly 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 Ray Thompson](#).

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/Editor Dick Kostelnicek](#). Think about your last project. Was it a success, with perhaps a few 'uh ohs' along the way? If so, others would like to read about it. And, as a reward for providing an article, you'll receive a free year's membership the next renewal cycle!

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](#).

The historic Battleship Texas is looking for docents for the metal shop located inside the ship.

Reminder: Yearly club dues were due at the September meeting. Dues are fifteen dollars (\$15.00) and payable to Treasurer Emmett Carstens. He will accept cash or a check made payable to him.

Recap of the 12 September 2015 General Meeting

By Joe Sybille, with photos by Jan Rowland

Twenty-three members attended the meeting at the Parker Williams County Library, 10851 Scarsdale Boulevard, Houston, TX 77089. There was one new member, Matt Greer. Welcome to the club Matt. Also in attendance were two visitors, Pete Linkins and Lupe Aguirre. There are 23 members in good standing.

President *Vance Burns* led the meeting.



Presentation

President Vance Burns gave an overview of the [Bay Area Maker Faire](#) which took place on 16 and 17 May 2015 in San Mateo, California. Touted as 'The Greatest Show & Tell on Earth', the Bay Area Maker Faire is host to a showcase of projects made by tinkerers, hobbyists, farmers, science clubs, students, engineers, artists, crafters, and anyone with a knack for making something and with unbounded imagination. All age groups of 'makers' from the just getting started to the seasoned veteran were represented and shared ideas about their projects.



There were presenters and speakers giving talks on things both high and low tech. Commercial exhibitors were there too with their latest inventions for the marketplace. If one enjoys innovation and novel applications of technology, this maker faire was the place to visit.

Noticeable among the displays were robots small and large, quad copters and drones, and remotely operated vehicles of all sorts. CNC (Computer Numerical Control) was employed to direct the operations of telescopes and kayaks and were novel applications of this ever expanding technology. 3D printers were ubiquitous and models on display ranged from the basic entry level to those with the latest technological features. A fire breathing dinosaur, rhino, and octopus were among the large exhibits unlikely to be missed. There was no limit to the size of the projects, for some were over one storey tall.

For those who enjoy seeing and experiencing creativity at its best, plan to attend a maker faire soon. Vance's presentation slides are at this [web link](#).

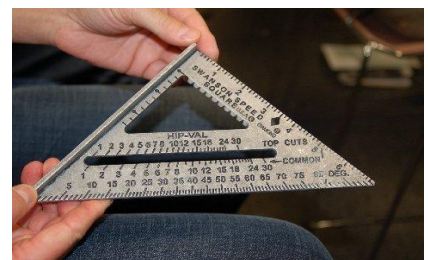
Safety Moment

Vance Burns showed a [video](#) on shop safety. *Overconfidence, rushing, and mind not on task* were emphasized as behaviors to avoid during the presentation.

Ray Thompson remarked on the appearance of numerous safety warnings included with the assembly instructions for a wheel dolly he purchased recently from Northern Tools.

Show and Tell

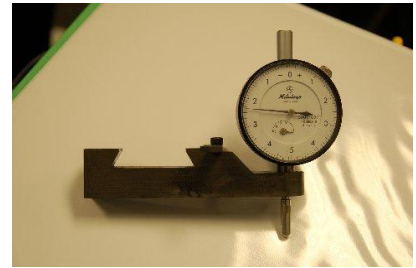
Tom Moore exhibited a carpenter's speed square that he repurposed for precision metal work (right photo). Tom milled the edges of the square to ensure accurate surfaces.



Joe Scott described a series of 5 short books “Echoes from the Oil Patch”. Several tips within the books had useful applications for machinists.

Gene Rowan showed a laser locator he had for sale.

Martin Kennedy showed a tool holder sporting a rotatable dial indicator. This is the third version of an indicator holder he has made for his lathe. Each version has been an improvement upon the preceding one (photo at right). See Martin’s article at the end of this newsletter for details.



Dick Kostelnicek showed a fuel pump from the tank of his Ford F-250 pick-up truck. Dick replaced the pump because it stopped working. He attributes the failure to overheating of the pump caused by driving the vehicle with a low fuel tank and hot days (photo at left).

John Cooper shared his opinion of a workshop practice series book on milling.



Tom Darraugh showed a classic wooden machinists tool chest that he recently acquired. He also displayed a set of small storage cabinets he wanted to sell (right photo).

Problems and Solutions - *Ask the Blacksmith*

A member requested recommendations on a three channel digital readout including the z-axis of his Bridgeport mill. A fellow member suggested that he consider DRO’s from Ditron, Inc.

Another member wants an open source computer program to both scan and scale a picture of an item he would like to make into a dimensioned drawing. Several suggestions were offered, all with costs though. One program suggestion had a free limited trial period that may be of use.

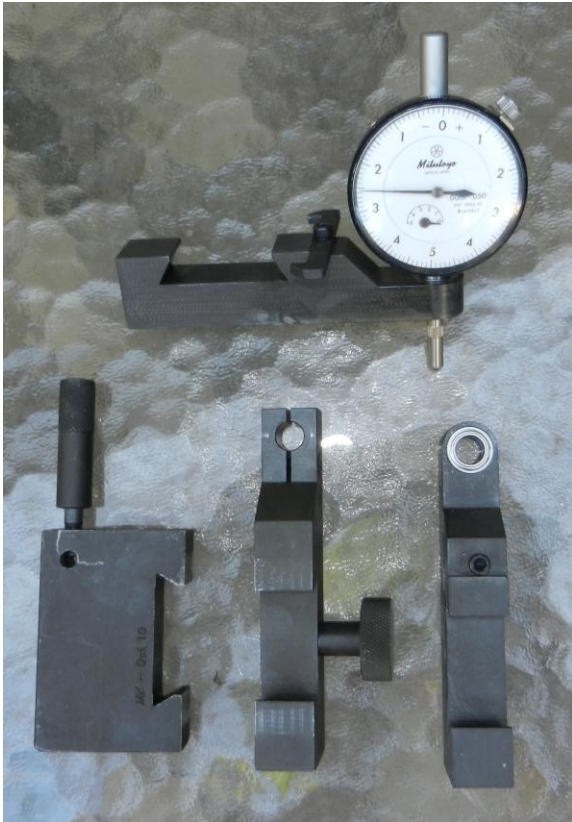
A member has trouble making straight cuts with his horizontal band saw. According to another member, the saw blade is dull. Replacement of the blade will resolve the problem.

Articles

Dial Indicator Holder – Mark 3

By *Martin Kennedy*

This is the 3rd revision of my lathe dial indicator holder design. I liked the [last design](#), but wanted to make a few improvements. The previous design worked quite well, but required a wrench to rotate the gauge, and removal and reinstallation of the height adjustment screw when changing orientations. I really liked Dick Kostelnicek's swiveling gauge holder used in his [trammig indicator design](#), and wanted to incorporate it into a new dial indicator holder design.



This new design makes changing the orientation of the dial indicator holder *tool-less*.

Shown in the photo, from the lower left, are the original design, the Mark 2 design, and the latest Mark 3 design. In the top of the picture is the assembled Mark 3 tool, including a 0.0001 dial indicator and the adjustment pawl.

This holder can be made manually on the mill. There are two tricky parts - getting the dovetail exactly right, which is described in the [previous article](#), and making the hole for the radial ball bearings the correct diameter for a press fit. The best way to make the hole would be to use a 0.624" reamer (5/8" undersize). I didn't have one, so I made several CNC cuts and 'sucked up' on the dimension to get it right. An alternate way to do this would be to drill the hole with a 5/8" drill, cut a slot and use a screw to clamp the bearings in to place. A similar method was used to hold the dial indicator in my previous design.

I noticed when I was test fitting the dial indicator that it tends to rotate under its own weight so that the face is down. I made a nylon insert to fit between the two bearings, reamed undersize, so that there would be some friction and the gauge would stay in the desired

orientation. An o-ring could also be used.

The plans shown below are dimensioned for an AXA tool post. You'll have to adjust the measurement for the height adjustment pawl to put the dial indicator at the centerline of your lathe. Note that the pawl and cutout in the body of the tool are designed to result in the correct rotation where the top of the pawl engages the tool post when rotated by the bottom of the pawl pressing against the tool post. It may be helpful to make a drawing of these parts to assure the correct geometry. You could also use the Mark 2 design adjustment screw instead of the pawl.

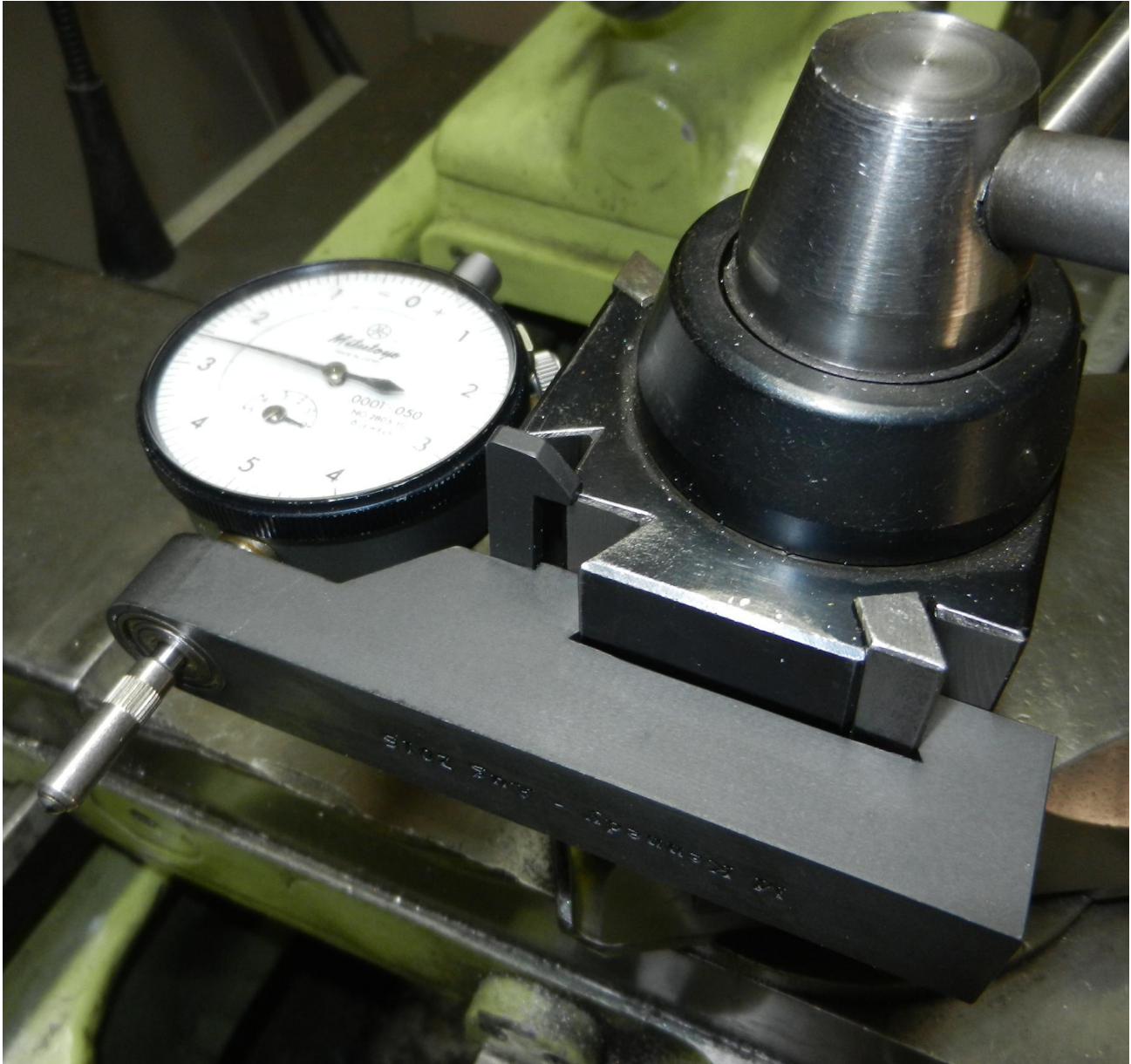
I Parkerized the tool holder components in order to resist corrosion.

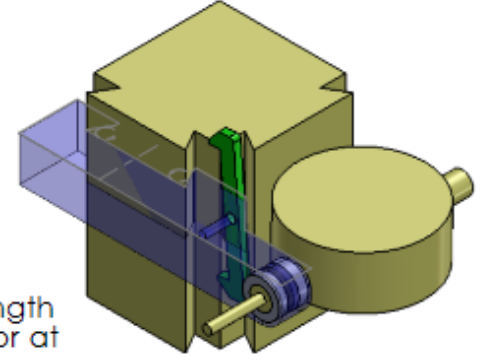
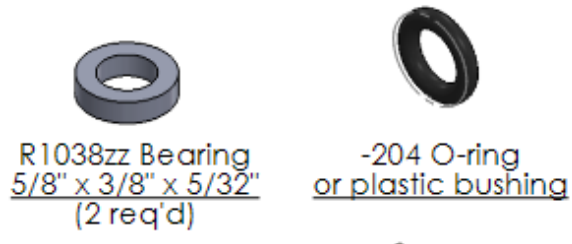
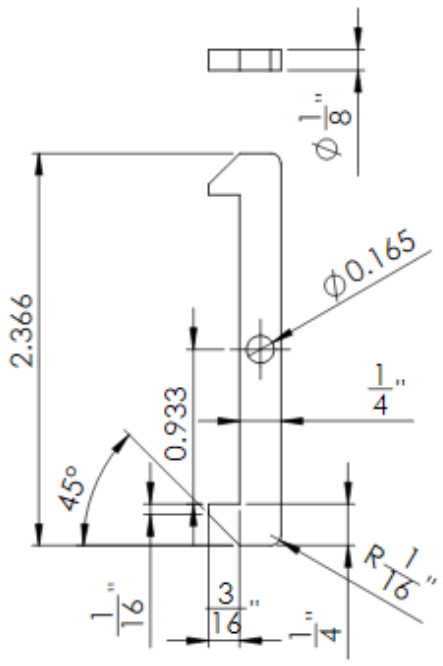
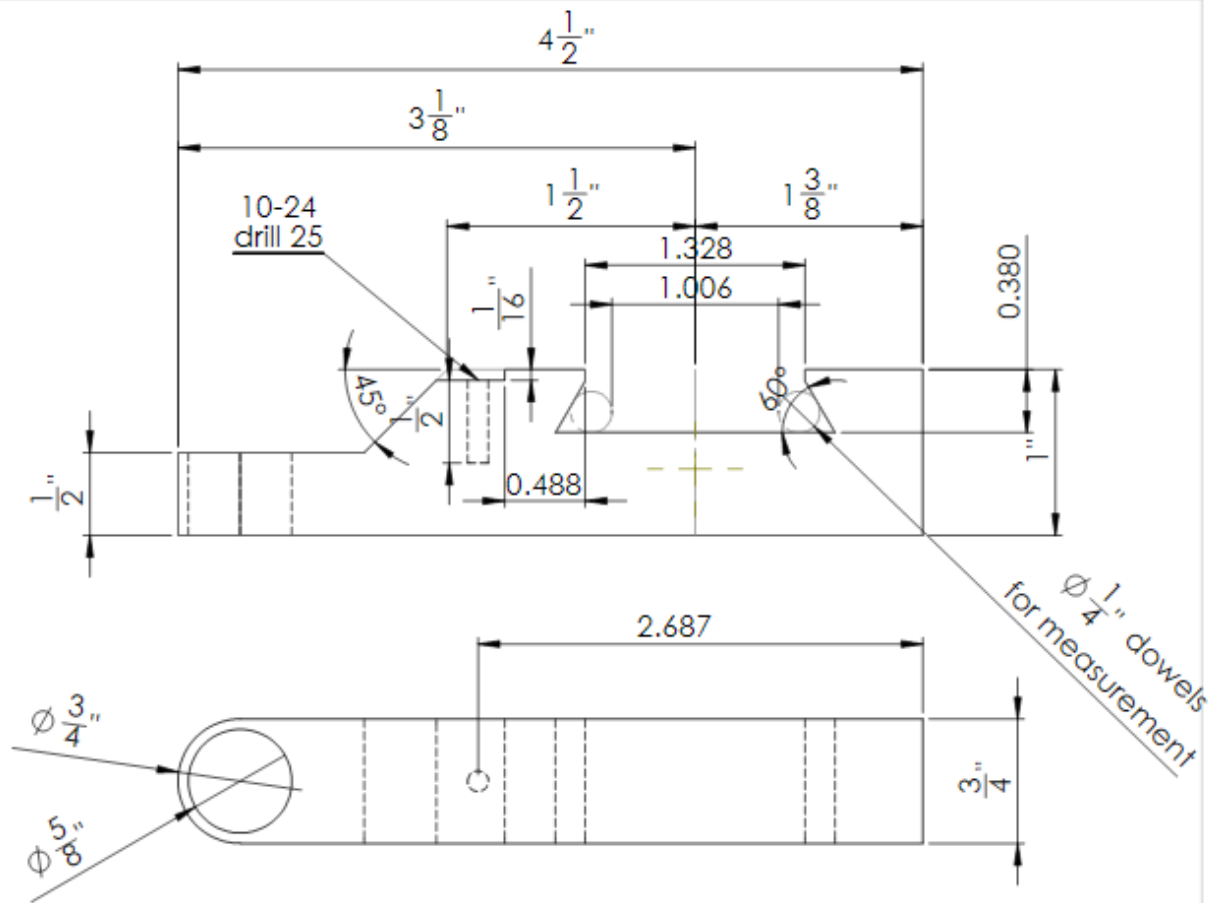
I pressed the two bearings and the nylon insert into the holder using my mill vise. To get the dial gauge pressed into the bearings, I held the backside mount of the gauge in a vise, and tapped the holder

lightly with a small rubber hammer, being careful not to damage the gauge. It was a fairly tight fit. If your gauge is loose in the bearings, you could use Loctite Threadlocker to secure the gauge.

A close-up of the tool in use is shown below

. Note the position of the adjustment pawl on the top of the tool post.





Note: Adjust pawl length to result in dial inciator at centerline of lathe

Note: Design for AXA Toolpost

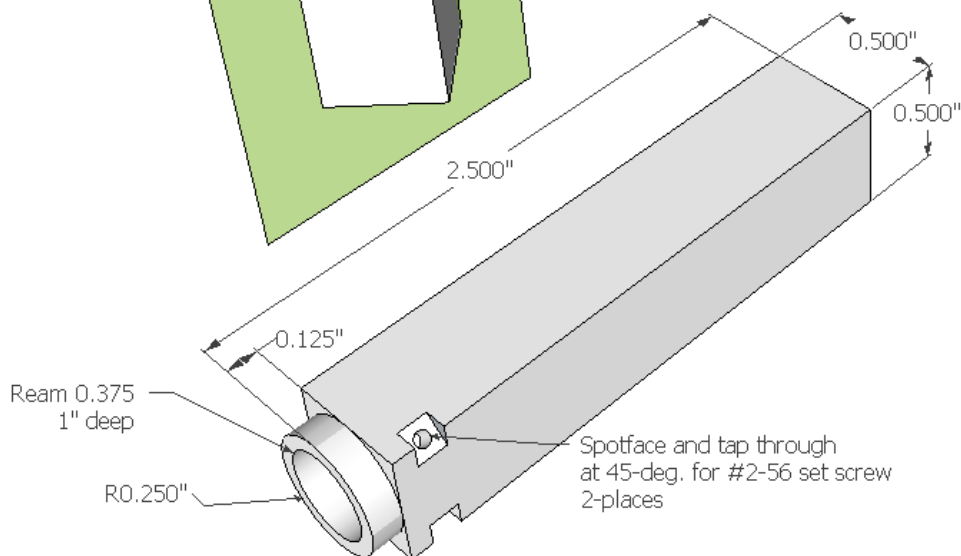
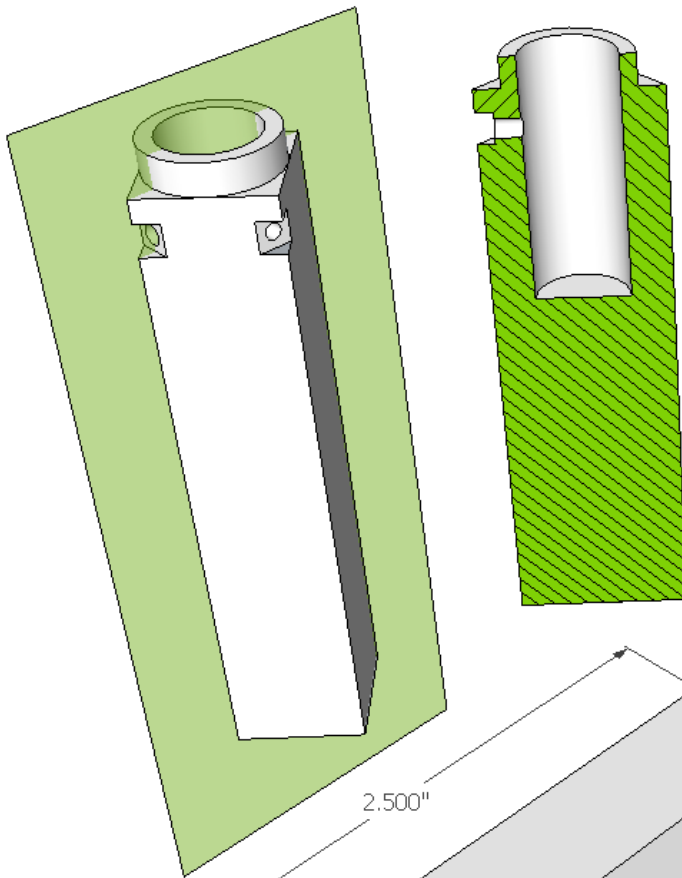
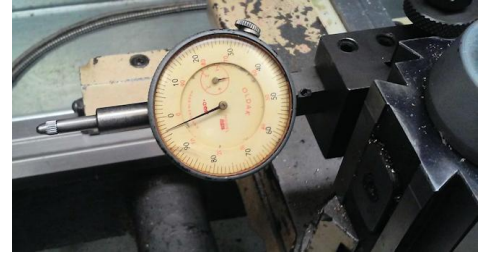
PROPRIETARY AND CONFIDENTIAL
 THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF MARTIN KENNEDY. ANY REPRODUCTION, FOR OTHER THAN PERSONAL USE, IN PART OR AS A WHOLE WITHOUT EXPRESS PERMISSION IS PROHIBITED.

SIZE	FILE NAME	REV.
A	Dial Indicator Holder Drawing	A
SCALE 1:1	Sheet1	SHEET 1 OF 1

Petite Indicator Holder for Lathe

By Dick Kostelnicek

My dial indicator holder is just a piece of 1/2-inch square stock reamed out to a 3/8-inch diameter 1-inch deep hole. It is held in an Aloris style tool holder just like any other tool bit (right photo). The non-moving end of the indicator has a rigid round 3/8-inch diameter projection that is a snug fit in the holder's reamed hole. Two #2 set screws are tapped at 45-degrees at adjacent corners of the square shank. The screws hold the indicator in place at any degree of rotation desired.



New Life for an Old Saw

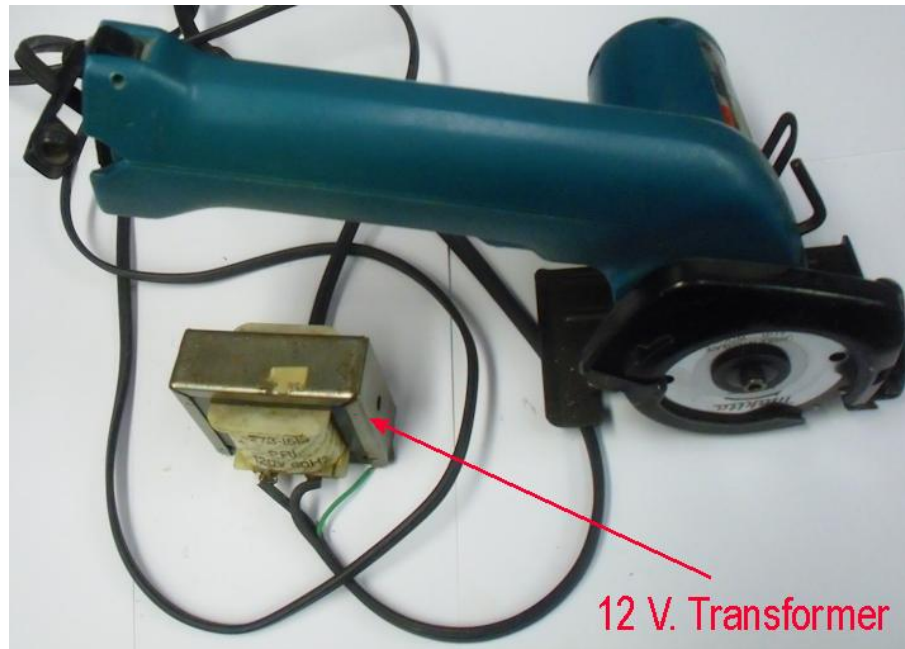
By Dick Kostelnicek



I have one of the early Makita miniature battery operated circular saws. The Makita brand 9.6 volt battery, which powered both the saw and a companion cordless drill, now costs around \$80. So, I moved on to other sawing options. However, I really love that saw with its 3.25 inch diameter carbide tipped blade. It performs well on wood paneling and acrylic sheets. It will even sever a wood 2x4, although you have to make a cut on both sides in order to completely cut

through the board.

Well, I disassembled the 9.6 volt slip-in battery pack, discarded the battery cells, and installed a bridge rectifier (see above photo). I brought a length of lamp cord through the bottom of the battery pack case and connected it to the AC terminals of the bridge rectifier. I then connected the lamp cord to the 12 volt secondary coil of a 5 amp transformer (See right photo). This allows me to plug the saw into 120 volt AC house current. The bridge rectifier and the contacts at the top of the battery pack are held in place with two pieces of round wood dowel that were sawed off from a discarded broom handle. Fortunately, the broom handle was exactly the same diameter as the battery's cells that were discarded.



So, I'm back in business with my now corded Makita miniature circular saw. Today, I'm using it to saw ¼ inch acrylic sheets in order to make some transparent display cases.