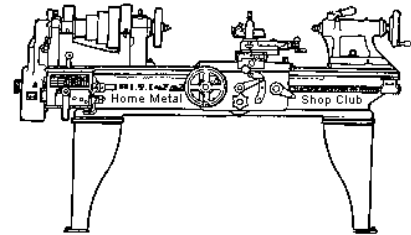




March 2014
Newsletter

Volume 19 - Number 3



<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>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>

This newsletter is available as an electronic subscription from the front page of our [website](#). We currently have over 594 subscribers located all over the world.

About the Upcoming 12 April Meeting

The next general meeting will be held on 12 April at noon at the [Young Library](#), 5260 Griggs Road, Houston Texas 77021. This location is near the intersection of Griggs Road and Martin Luther King Boulevard in southeast Houston. George Carlson will give a presentation entitled "Machining Your Own Telescope Parts Avoids Astronomical Prices".

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

General Announcements

[Videos of recent meetings](#) 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 [club librarian, Dan Harper](#). 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.

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](#). 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 welcome. If you have an idea for a meeting topic, or if you know someone who could make a presentation, please contact [Vice President Norm Berls](#).

The club has funds to purchase new books for the library. If you have suggestions, contact the [Librarian, Dan Harper](#).

Recap of the 8 March, 2014 General Meeting

By Joe Sybille, with photos by Jan Rowland

Twenty one (21) members attended the noon meeting at the Parker Williams County Library, 10851 Scarsdale Boulevard, Houston, Texas 77089. There were five guests present; Gary Winfeld, Sidney Wallace, Sergei Ognyanov, Forrest Flanagan and Jay Hova. Vice- President *Norm Berls* led the meeting.



Norm requested volunteers to serve on the novice SIG committee. The current SIG leader, *Rich Pichler*, is stepping down. Gene Rowan has volunteered to serve on the committee, but other volunteers are needed. A proposal offered for later consideration is to have the SIG group meet once every third meeting. This proposal is still pending. *Rich Pichler* thinks this proposal is ill advised, since novices want access to information monthly as opposed to every three months.

Written articles are needed for the newsletter. 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.



Gene Rowan presented the club's Webmaster/Editor *Dick Kostelnicek* (left photo) with a plaque and a cash award for exceptional service to the club. Congratulations Dick. Thanks to Gene for sponsoring the award.

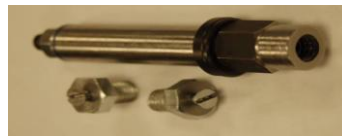
No video was made of today's meeting.

Presentation

Club member *Dan Harper* (right photo) gave a presentation entitled "Threaded Parts". He concentrated on describing fixtures that he made to hold threaded fasteners in a lathe and mill so that their heads could be machined and thereby modified. Threads on fasteners must be firmly but gently gripped. Dan described several methods by which one could grasp the threaded end of a fastener without damaging the threads (see photos below).



One can grip threads by coiling a wire of sufficient diameter over the V-groves



of the threads on a bolt, so that the thread crests are protected. A round bar with a tapped hole and slits on its side provides a clamping fixture for bolts when placed in a lathe chuck. A square or hex bar with internal threads and side slits provides a fixture to hold a bolt in a mill vice. Round collets will distribute the chucking force over the threads of a fastener being worked in a lathe..

Safety Moment

Joe Scott described an occasion when a clamped aluminum part became loose because of a short pin sheared during machining. The result was a chewed up part that could have been avoided had the pin been longer.

Norm Berls recounted an incident involving the changing of a flat tire on a heavy duty truck. The wheel fell off the jack and landed on his foot, injuring his toe. Since he was not wearing steel toe shoes, he suffered years of discomfort from the accident.

Warren Gloss told of a high performance water blasting system whereby a failed stud from the pump hit a nearby storage tank and damaged it. Had a worker been in the line of fire, he or she would likely have suffered serious injury.

Show and Tell

John Hoff showed pictures of his moving a CNC (Computer numerical control) mill from a trailer to his shop floor. John shared with the group the difficulties he and his assistants encountered during the move. He also gave the group an update on the progress made on the duplication of a magazine for a vintage M14 rifle (right photo).



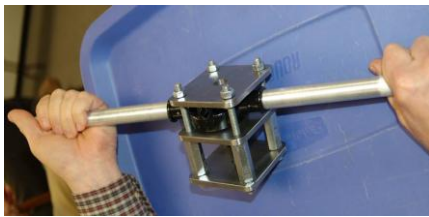


Joe Williams showed a digital caliper that had sustained damage. He replaced the battery and all seemed to work perfectly until he turned off the caliper. Upon turning it on and getting an unreasonable measurement, he realized that he needed to reset the zero set button (left photo).

Joe Scott displayed pictures of the moving of a lathe and the use of a flat bed trailer to do so. Joe emphasized the importance of rigging when moving heavy equipment. Afterwards, he donated to the library three books on rigging. Also, He exhibited a die he made to form a butt plate for a vintage M14 rifle (right photo).



Norm Berls recommended a book: "[Fastener Black Book](#)" by Pat Rapp, ISBN 978-0-9580571-3-4. He then described the challenges of making a stud with two different threads on it, coarse on one end, fine threads on the other. Once the fine threads were made on the stud, he tapped a small rectangular plate with matching fine threads. Afterwards, he cut the plate and the threaded hole into two halves. These halves were placed in the jaws of a vice and the fine end of the stud screwed into the threaded



hole formed by the two plate halves. The jaws of the vice tightened the stud sufficiently to fix the stud while the coarse threads were cut on the other end. The advantage of this method avoids damaging the threads on one end while the threads on the other end are cut. Norm then made a die wrench. The wrench assists in holding the threading die perpendicular to the axis of the stud, ensuring the threads are cut squarely (left photo).

Problems and Solutions - *Ask the Blacksmith*

One member solicited comments on the utility of making metric threads with an inch defined lead-screw by using a taper attachment to thread bar stock placed offset by the tail stock in the lathe. The few comments offered on the idea revealed a lack of understanding of the underlying mathematical concepts of the idea.

Another member suggested how to avoid drilling holes off the required center mark by placing the drill bit on the center mark and then starting the drill press. Additionally, the use of a center drill has a small drill bit at its tip to act as a pilot drill. These bits are short in length and so don't buckle when pressed hard upon.

Novice SIG Activities

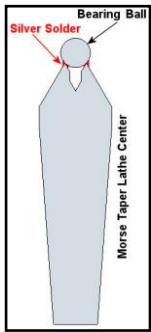
The novice group, led by *Rich Pichler*, met to discuss some of the basics of making spur gears.

Articles

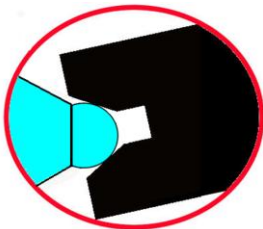
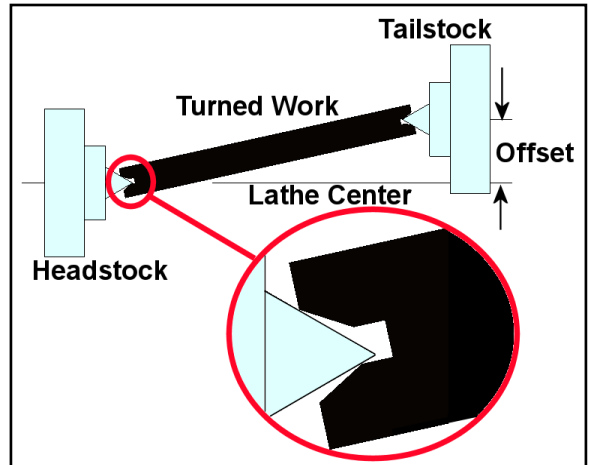
Set Over Taper Turning

By Dick Kostelnicek

The taper turning method that offsets the lathe's tailstock has a serious drawback that can prevent quality work. Both the head and tailstock 60 degree centers do not firmly seat into the work's 60 degree counterbored sockets (see right drawing).



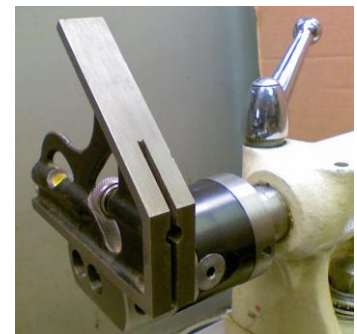
This problem is easily solved by making bearing ball tipped lathe centers as shown in the left drawing. Use a 60 degree center drill to counterbore the tip of a soft 60 degree center and then, silver solder a bearing ball onto its tip (see left and right drawings). If you'll be turning a large range of diameters, consider making several ball tipped centers having balls commensurate with the size of the center drills used.



If you use a tool post grinder on taper turned work, ball tipped centers are essential in order to obtain a perfect circular grind (left drawing). The miss fit of the conventional 60-degree centers and the work's counterbored sockets will not provide maximum stability during the grind.



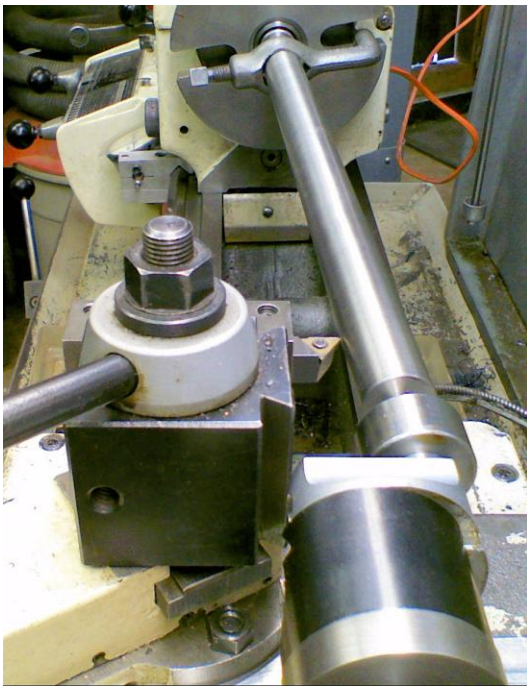
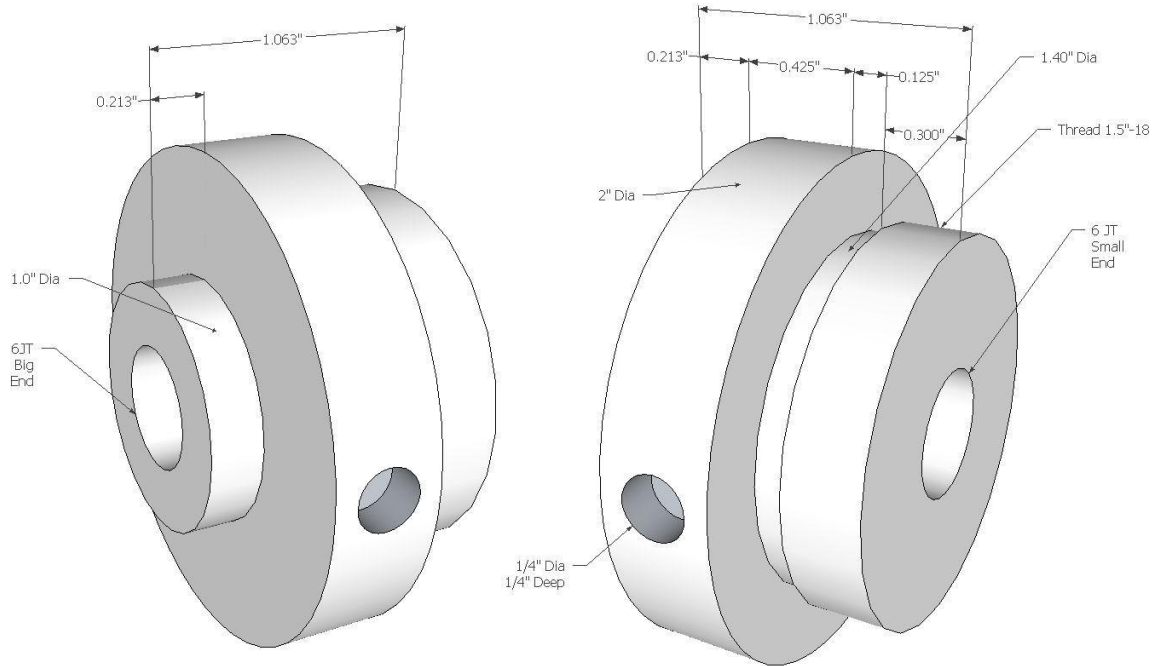
Now on a complementary note: Offsetting the tail stock may be easily accomplished, however, returning it to the lathe's center, when you've finished turning, can be challenging. Instead, use a mill's boring head to provide the set-over. Make a ball tipped center that fits into the head's straight shank boring bar hole and use the head's set-over adjusting screw to



accurately set the offset (see left photo). Make sure that the head's lateral travel is parallel to the lathe's bed by using a level (see right photo). I presume your lathe *is level!*

I couldn't locate a commercially made boring head adapter with a #2 Morse taper shank. So, I made my own by turning the head's 1-1/2 inch 18 male threads and using a #2 Morse to #6 Jacobs taper drill adapter (see dimensioned drawing below).

That way I can move over to a bigger lathe by inserting a #3 Morse to #6 Jacobs tapered adapter into the boring head adapter. The 1/4 inch hole in the side of the boring head adapter (shown below) is used to secure a pin wrench when removing it from the boring head.



Check Your Motor's Capacitors

By J. R. Williams



The capacitor in the photo was one of a pair that was from the motor on my air compressor. I recently noticed slow starting of the compressor, so I decided to physically check the capacitors. First I had to move the motor starter enclosure to gain access to the housing covering the capacitors. To my surprise, both capacitors had *blown their top*. The motor saw many years service on my lathe before being moved to the air compressor. It is a Baldor 3 HP motor that is now 30 years old.

If you have any capacitor motors of some age and service hours, it would be advisable to give the capacitors a visible inspection. Look for leaks or signs of pressure excursions. Both of my capacitors were not electrically shorted. Two new capacitors have been installed and the motor comes up to speed very fast.

Jigs and Fixtures: A jig guides a tool relative to the work. A fixture holds the work in place.