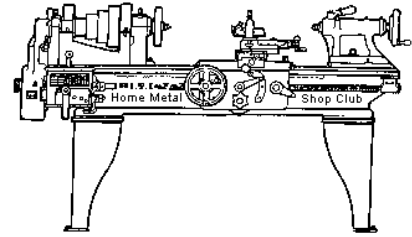




October 2020
Newsletter

Volume 25 - Number 10



<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>Brian Alley</i>	Vice President <i>Ray Thompson</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Gary Toll</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>John Cooper</i>

This newsletter is available as an electronic subscription from the front page of our [website](#). We currently have over 1027 subscribers located all over the world.

About the Upcoming 14 November 2020 Meeting

The next general meeting will be held on 14 November 2020 at 1:00 P. M. on-line via Zoom. A week before the meeting invitees will receive from the webmaster the meeting ID and passcode to join the on-line meeting.

General Announcements

[Video of the October meeting](#) can be viewed up to 30 days after the 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 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 Ray Thompson](#).

Members are requested to submit to the club secretary the name, address, telephone number, and website address, if any, of any metal or other material stock supplier in the Houston TX area with whom the member has had any favorable dealings. A listing of the suppliers will appear on the homepage of the club website. Suppliers will be added from time to time as appropriate.

The club is looking for a member to serve as webmaster. After over ten years of service, our current webmaster would like to pass the webmaster torch to a successor.

Recap of the 10 October 2020 General Meeting

By Joe Sybille



Fourteen participants attended the 1:00 P.M. virtual meeting on Zoom. There were no visitors.

President-emeritus, Vance Burns, led the meeting.

Presentation

Edited by Joe Sybille

Club member, Martin Kennedy (right photo), gave a presentation on several types of **Lathe Chucks** and their uses. He broadcasted the presentation from his home metal shop in real time via the video and audio conferencing software application Zoom.



Lathe chucks are workpiece holding devices without which it would be difficult to perform useful work with the lathe.

Kennedy began his presentation showing different dedicated chucks and work holding devices. Among those shown were a three-jaw self-centering chuck, a four-jaw independent chuck, a Sjogren collet chuck, a drive plate with slots one of which receives a lathe dog fastened to a long workpiece that cannot be chucked, and a face plate. See photos below.



Kennedy used his restored vintage Monarch 10EE lathe as a demonstration platform. He uses a D1-3 connection on his lathe to mount chucks to his lathe spindle. Other spindle connections types include tapered key drive, threaded, and cam-lock, among others. Foremost when mounting onto the lathe spindle a chuck or work-holding device is the avoidance of marring the lathe ways by dropping the chuck or work-holding device. A wooden platform built to straddle the ways serves to assist in mounting the chuck or work-holding device (hereinafter collectively called 'chuck') and to protect the ways if the chuck is dropped. After mounting the chuck, the wooden platform is removed from the ways. One thing to note is to mount the chuck on the spindle the same way each time. There are key drives and dowels to facilitate doing so.



When mounting a chuck, all contact surfaces should be free of swarf and other debris that could prevent a solid mounting. Clean the contact surfaces with a brush. The jaws of the chuck can

be reversed depending on the shape of the workpiece. To facilitate this reversal Kennedy uses an electric screwdriver in conjunction with a shop made key.

Kennedy demonstrated the mounting of a 4-jaw independent chuck and the centering of a piece of round stock. Since safety is paramount when using a lathe, after mounting the chuck, always remove the chuck key from the chuck. Inadvertently rotating under power a chuck with the key still engaged is an unsafe practice. Kennedy recommends retaining in one's hand the chuck key after tightening the chuck onto the lathe spindle and after tightening the workpiece in the chuck. When done tightening place the key in a safe place. Whether one uses one or two rounds of tightening is left to personal preference. After the initial rough mounting of the round stock in the chuck using reference marking on the chuck, he used a dial indicator to precisely mount the round stock.

Next, Kennedy showed the mounting of a rectangular workpiece in the 4-jaw chuck. This proved a bit more challenging to do than mounting the round stock. As before, reference markings on the chuck served to mount roughly the workpiece. Other methods to mount the rectangular workpiece involved using a Blake coaxial indicator, parallels, and a 'spider'. To use parallels and a 'spider' one should remove the chuck from the spindle and mount the workpiece as the chuck is laid flat. Both parallels and the 'spider' allow uniform placement of the workpiece within the jaws of the chuck. The parallels must be removed before re-installing the chuck; otherwise they will be slung from the chuck when it is rotated. The 'spider' may be left in the chuck, for it is positioned around the chuck jaws and constrained.

There are occasions when one must mount a workpiece with finished edges in a chuck. To eliminate or minimize marring of the finished edges one may place edge protectors such as thin cardboard, thin aluminum cut from a soda can, or tape between the workpiece and the chuck jaws.

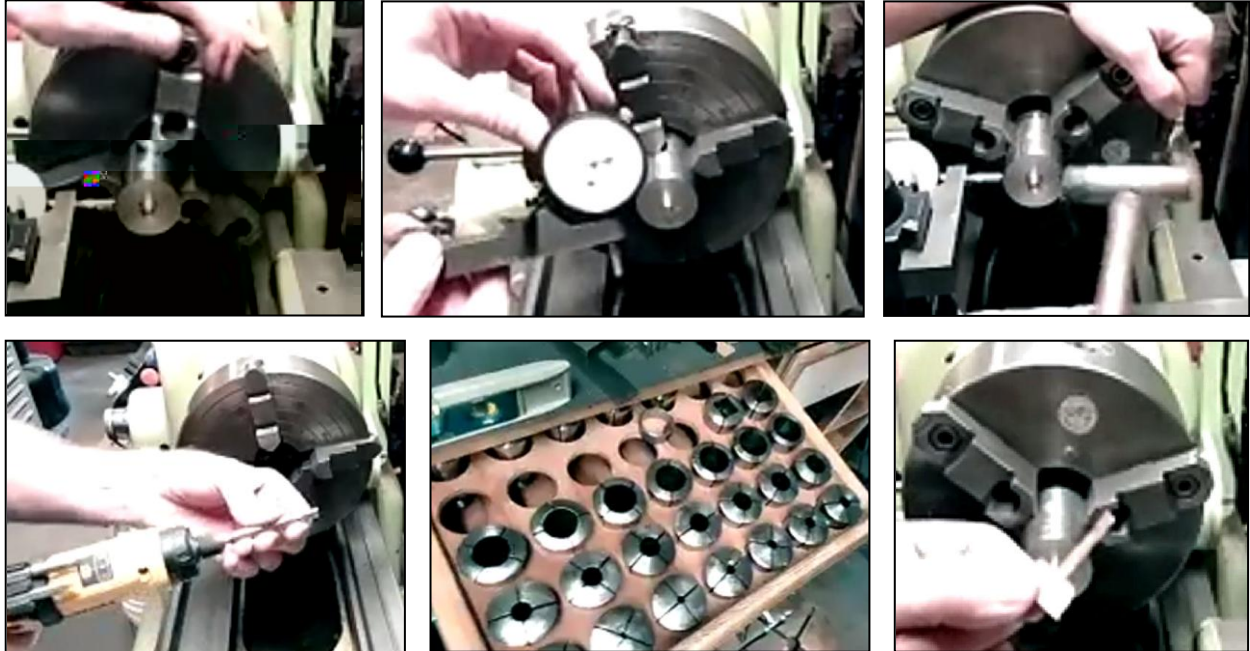


When using a self centering chuck one should always use a dial indicator to ascertain if the workpiece is actually centered. Sometimes a tap on the workpiece with a small hammer will aid in centering. The addition of a shim between the workpiece and the chuck jaws helps with centering. Kennedy uses the thin metal from merchandise security strips for shims. These metal strips are about 0.001" thick and come free with some items purchased at stores.

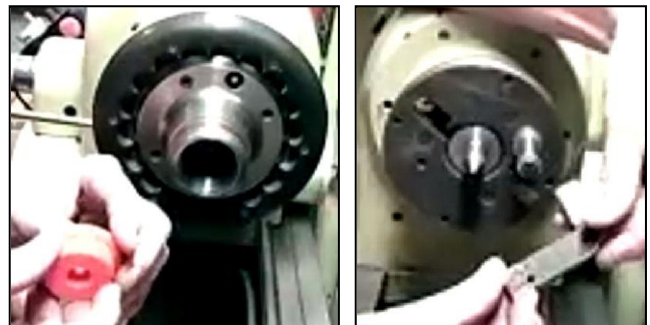
There are occasions when one must mount in the chuck a workpiece off-centered. When doing so one should run the lathe at a slower speed, for at normal speeds the lathe will incur out of balance rotation and excessive vibration. Sometimes, the addition of a counterweight attached to the chuck will minimize vibration caused by off-centered mounting of workpiece.

Many times the size of the workpiece will determine the size of the chuck to be used. In general, smaller workpieces fit better in smaller chucks. Beyond a certain size larger chucks hold workpieces better.

Kennedy's most used chuck is a Sjogren. This chuck grips the workpiece with steel spring collets. Collets are available for holding square, hexagonal, and round shapes. The adjusting handwheel tightens the collet around the workpiece. 5C collets are most common and are available in incremental sizes up to one inch. 2J collets are less common and are available in incremental sizes up to one and three-eighths inch. Collet sets come in increments of 1/8", 1/16", and 1/32". Depth stops for collets allow for repetitive cuts. See collets below.



Turning between centers is an operation that is required when the workpiece must be cut along its entire length. A faceplate and a lathe dog are used at the headstock end to hold one end of the workpiece; the other end is held by a live center in the tailstock. Another reason Kennedy uses the turn between centers method is to make crankshafts for model engines. He mounts a piece of flatbar on which each end he has drilled four centers in-line. The centers represent the throws of, in this case, a model V8 engine. A shop made flat lathe dog is then fixed to the flatbar workpiece to facilitate turning.



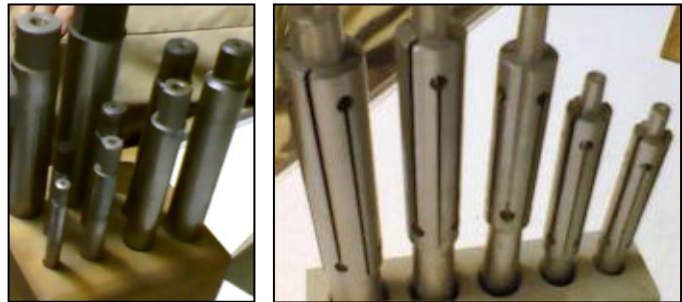
Lastly, long slender workpieces extending through the headstock tend to wobble when turned fast. To eliminate or minimize wobbling, Kennedy places 3D printed collars to help support the workpiece exiting the headstock. The collars are pressed into the exit of the spindle. Of course, even with the collar, the workpiece exiting the headstock still must be relatively short to avoid wobbling.

Safety Moment

The safety video emphasized the importance of awareness. When working in the shop or going about daily activities one must remain aware of one's surrounding and the task at hand. Several scenarios were shown depicting near misses and accidents with minor consequences that could have easily resulted in serious injury.

Show and Tell

Dick Kostelnicek showed two types of mandrels, fixed and expandable, used to hold workpieces (right photos). The leftmost photo depicts fixed mandrels with center holes at both ends to allow mounting between centers. To the right are expandable mandrels.



John Cooper exhibited a shaft and hex nuts he machined. See photos at left.

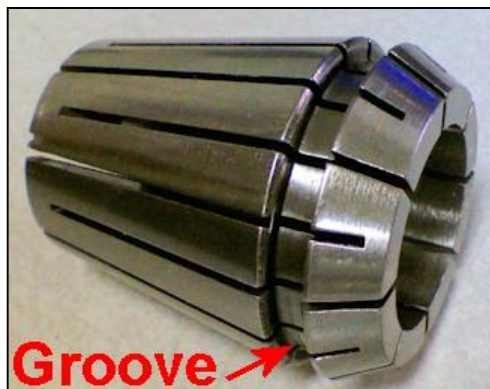
Problems and Solutions

A member requested suggestions on a source for a ¼ Acme thread die. Recommendations included purchasing Acme threaded rod and cutting it to the appropriate length.

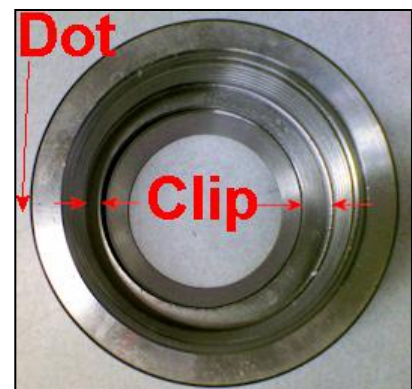
Article

The Trouble with ER Collets

By *Dick Kostelnicek*



ER collets have an external retaining groove (left photo) that snaps into a circular clip (right photo) built into the collet nut. That clip is offset to one side of the nut's center. A difficulty results when inserting the groove into the clip. Simply pushing



the collet into the nut won't allow for engagement. A further insult is that it is impossible to withdraw the collet from its nut by just pulling them straight apart.



Here is how to make the collet engage and disengage the nut. Tilt the collet relative to the nut's circular axis (left photo). Insert the collet groove into the nut's offset clip. Then, rotate the collet axis back to that of the nut. In order to locate where to tilt the collet relative to the nut, put a shallow hole ground with a carbide ball bur and filled with a **Dot** of white paint on the outside



of the nut having the farthest center offset of the built-in clip (see photos for **Dot**). Enjoy 'ERing'!