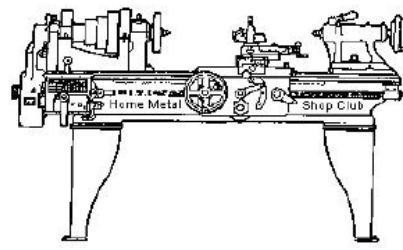




February
2006

Newsletter

Volume 12 Number 2



Visit Our Home Page www.homemetalshopclub.org

Statement of Purpose: *Membership is open to all those interested in machining metal and tinkering with machines. The club provides a forum for the exchanging of ideas and information. This includes, to a large degree, education in the art of machine tools and practices. Our web site endeavors to bring into the public domain written information that the hobbyist can understand and use. This makes an organization such as this even more important. -- Founder - John Korman (deceased)*

President	<i>Doug Chartier</i>	Secretary	<i>Dennis Cranston</i>	Webmaster	<i>Gene Horr</i>	SIG	<i>Dennis Cranston</i>
Vice President	<i>Jan Rowland</i>	Treasurer	<i>Emmett Carstens</i>	Librarian	<i>Dennis Cranston</i>	Coordinators	<i>Richard Pichler</i>

Next Meeting March 11, 2006

Doug Chartier shop video.

Minutes of the February 11, 2006 Meeting

by Dennis Cranston

Business Meeting

The business meeting was held at Lyndons BBQ prior to the regular meeting. During the previous month on the tinkering list, several options on meeting times were brought up. Some of the options were starting

the meeting earlier, limiting meeting length, etc. The advantages and disadvantages of each were discussed and it was decided to bring the subject before the full membership.

General Meeting

The president, Doug Charter, opened the meeting.

For the main program Jan Rowland, VP, introduced Ron Rhead of Exxon Mobil lubricating oil division. Ron discussed the various types of cutting fluids used in machining metals. One area he pointed out is the difference in cutting fluids for ferrous and non-ferrous metals. The use of the wrong one can stain the material. Ron mentioned that if a person has a specific problem with the choice or use of cutting

fluids, they can call the Mobil Tech Hotline 1-800-662-4525. The local distributor of Mobil products is J.A.M. Distributors 713-844-7788

After the presentation, Doug Charter reviewed the emails concerning meeting protocols with the general membership. This discussion also included ways to get more members involved with the presentations. Some of the ideas were to require members to make at least one presentation, have short or mini

presentations, have newbies research a topic to make a presentation, etc.



Article

Gear Hub

by J. R. Williams

This started out to be a simple project - Make a replacement gear for my lathe. Further investigation into the gears shows them to be Metric 1.5 Module gears in my old Clausing-Colchester lathe. A few quick measurements determined the gears to be Module by measuring the OD and counting the teeth.

Then the difficult item came up - the pressure angle of the teeth, 14-1/2 or 20 degree? Back to the old reliable reference, Machinery's Handbook. They have a couple tables for this purpose. By measuring over either three or five teeth and with a little math you can determine the pressure angle. In this case the angle came out at 14-1/2 degrees.

So far so good and now comes the hub. It is a six tooth spline. Careful measurement shows the teeth are very close to 1/4" in width and could be cut with a 1/4" key way broach and a little file work would produce a working hub. I thought about using my Shaper but had no means of support for my large dividing head. Next idea was to make a prototype broach pilot to hold the broach and at the same time be able to index the part to cut the teeth. The pilot

was slotted to fit the broach and the depth set to provide the depth of cut close to the required depth. It works out to cut one groove for the broach and two for an indexing key. The operation is to first broach one slot, rotate the pilot 180 degrees, insert a pilot key, and make another cut. Then rotate the broach pilot 45 degrees and insert the holding key and broach another slot. Continue until the hub has the six slots.

The first cut was made without the shims and a second pass made using the shims.

The photo shows the hub in a working gear, a key way broach hub in brass, an indexing key, a couple broach shims and the key way broach. The next version would have the pilot key ways cut to only about 1/8" deep to provide a stronger pilot. The pilot blank was held in the mill, in a 5C collet, in a Hex Block for the 5C collets.

Now I have the basic tools for the project and plan on purchasing a correct Module gear cutter. I priced a new gear from Clausing and it was \$329. This was a good exercise in shop work.



Milling Machine Vise Handle Extension

by J. R. Williams

After installing a new Kurt Vise on my milling machine, it became apparent that the supplied break over handle had to be replaced. I designed and built the extension handle around a standard deep six point 3/4" socket. The socket has the end machined to pilot inside the extension tube. The connection has a steel insert with a 3/8" square drive to fit the socket, silver soldered in place, and the socket is held in place with a washer and a flat head screw.

The other end of the tube is split in three sections to permit expansion with the internal collet section. There is a SHCS in the end washer to actuate the collet.

The three handles are 1/2" diameter and 6 inches long

with a 1-1/2" Plastic Ball on the ends. They are set at about a 15 degree angle to the body to provide clearance for the operators hands.

The outer end of the shaft is supported by a 1" thick section of HDPE that is attached to the chip guard housing. The chip guard has two sliding doors that can be closed up to the handle. One other part in the photo is a large aluminum collar that prevents the handle moving out away from the vise.

If I was to make it over I would make the unit about 1-1/2" longer to provide a little more hand room. The socket should be replaced with a half inch drive unit as the 3/8" drive end shows a little torque stress (or use a higher strength steel).

