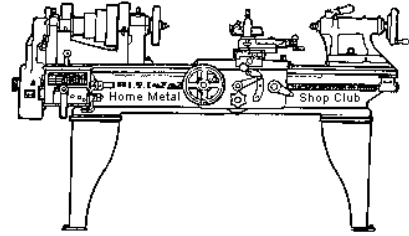




December 2019
Newsletter

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<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 11 January 2020 Meeting

The next general meeting will be held on 11 January 2020 from 12:00 noon to 4:00 P.M. (**note: new start time - good for all 2020 meetings**) at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 77074. Norm Berls will give two presentations "Animation Insanity" and "Single Point Bottom Cutting". John Cooper will give a presentation "How to operate a plasma cutter".

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.

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.

Please note. Commencing on 11 January 2020 the new meeting time will be 12:00 noon to 4:00 P.M.

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 with whom the member has had any favorable dealings. After compiling, a listing of the suppliers will be linked from the homepage of the club website.

Recap of the 14 December 2019 General Meeting

By Joe Sybille, with photos by Jan Rowland



Sixteen members attended the 1:00 P.M. meeting at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 77074. There were no visitors. There are twenty members in good standing with the club.

President Brian Alley led the meeting (right photo).



Presentation / Safety Moment

Instead of a formal presentation today, four safety videos were shown that emphasized the importance of personal responsibility in the workplace, whether on the job or at home. Appearing in the workplace impaired due to medications or chemical dependency or from lack of rest presents an opportunity for an accident to occur. One should not underestimate the influence of those conditions on judgments necessary to perform tasks safely in the workplace.

Included among the scenarios shown was a dramatization of a previous accident in which a forklift operator, impaired from a weekend of partying and excessive alcohol consumption, unloaded cargo onto the spotter causing a fatal injury. The forklift operator was an experienced employee and had worked for the company for many years; however, the spotter was a new hire and, on that day, inattentive to his duties. Unfortunately for the spotter as the operator maneuvered the forklift the spotter failed to pay attention to the movements of the forklift. At the same time, the impaired operator failed to ensure the spotter remained in view or to know the location of the spotter. The communication failure resulted in the operator unloading the cargo onto the spotter. The accident would have been prevented had the operator been alert and the spotter attentive. Was the spotter's inattentiveness due to lack of proper training? Was the spotter distracted by a cellphone call or text? Did another worker command the attention of the spotter? Distractions of any kind in the workplace can result in unintended consequences resulting in injury.

One's mood influences safety in the workplace. For example, certain foods affect the mental state and mood of a worker. When energy levels are low, accident levels and near miss accident levels are high. Accident investigations reveal workers who are on the job drowsy, sleep deprived, and fatigued are more likely than not to suffer a workplace related accident.

Lastly, each worker must make safety their number one priority. Company slogans promoting safety often change from time to time depending on company priorities. The one constant in safety is personal responsibility. No matter which safety slogan is in use at the workplace it is left to the worker to ensure their workplace behavior is appropriate for the safe completion of tasks at hand.

Show and Tell



John Hoff exhibited a flaring tool he made to shape steel brake lines on a vintage car he is restoring. (See left photo.)

Dean Eicher showed a thread repair tool he purchased to facilitate mounting of a chuck onto the threaded spindle of his lathe. A small metal chip

prevented the mounting of the chuck. It was not until he purchased the tool did he see the chip. (See right photo.)



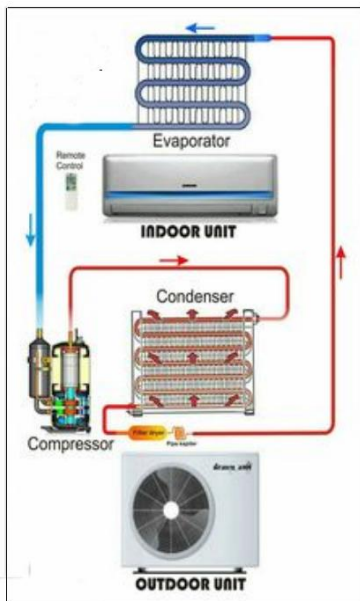
Jim Dallas described how he used several tools to make screws, one for his model steam locomotive and the other for the balance tool he made from plans offered by DownRiverTools.com. Among the tools shown is a handmade graduated indexing faceplate for his lathe. Note the fine detail of the adjustment screw on the screw cutting head (See lower two photos.)



Problems and Solutions

A member requested help determining if special software is required to connect the DB-25 serial port on his multi-axis lathe to a port on his PC. Several suggestions were offered.

Articles



AC Checkup

By *Dick Kostelnicek*

Soon, it will be time to switch from heating to cooling my house here in the southern USA. Some of you will task this to a service technician and others will just throw a switch on their thermostat, hoping for the best. I'm a *continuing education schooled* HVAC person, which gave this senior something to do after retirement. So, I've managed to do the yearly AC inspection and start up myself. Each year, at the end of the previous cooling season, I cover the tops of the outside condensing units with plastic sheeting in order to prevent tree leaves from falling into the units. During the Spring time, I remove those covers and hose down the unit's cooling fins with clear warm water. My new condensing units, that were installed last year, are all aluminum tube and fin. So, a soapy acidic solution is not recommended as was required for the previous copper tube units. Also, I used to oil the fans at this time, but this is no longer possible as my new units have sealed fan housings.

Now, here is where it gets technical. An AC system does two things simultaneously. First, it cools by evaporating a refrigerant, turning a liquid to a gas, just as when you perspire on a hot day as air blows over your damp flesh. This cooling process occurs in the evaporator of the AC unit which usually is located inside the house. Second, the evaporated refrigerant is compressed and air cooled to again become liquid in the outside condensing unit. This is similar to what happens high up in the atmosphere when water vapor in clouds is cooled when heat is radiated into space, thereby, producing liquid that returns to the earth as rain. This evaporation – condensing cycle is continuously repeated in my AC system with the result being that the inside of my house is cooled and the outside air is heated. The process of being cooled by evaporating on a hot day along with the condensation of clouds into rain is nature's own AC system.

For the technically challenged, stop reading here. But, for those wishing to check on the performance of their AC system, here are the two things to take note.

First, in the condensing (outside) unit the temperature of the gas returning to the compressor should be about 10 -15 degrees F. warmer than the boiling point of the refrigerant. This is called superheat. You directly measure the temperature of the gas (in the large tube) from the temperature of the tubing. You obtain the boiling point indirectly by measuring the pressure from a service valve at the same point. From a P-T (pressure – temperature) table for your type of refrigerant; you can convert vapor pressure to boiling point temperature. The difference of these two temperatures is the superheat value. What you are insuring is that you are well above the boiling point so that no liquid is returned with the evaporated refrigerant. Any liquid would be detrimental to the positive displacement compressor. Additionally, you are determining that all the cooling value has been extracted by complete evaporation within the evaporator coil inside the home.

Second, make sure that only liquid and no gas is in the line (small tube) entering the evaporator. Any gas at this point would restrict liquid from entering and subsequently evaporating and cooling inside the evaporator. Here the proper place to measure this is where the liquid line enters the evaporator. This point is usually in a confined place inside the house or often in a hot attic. Additionally, there is normally no service valve here to obtain the pressure. So, make these pressure and temperature measurements near the outside condensing unit as there will be a service valve there. Ideally, there would be a sight glass installed in the refrigerant line, allowing you to directly observe any bubbles that enter the evaporator. When the liquid temperature in the (small) tube is below the boiling point, often called sub-cooling, there will be no gas restricting liquid flow into the evaporator. By measuring the temperature and pressure of the liquid line, you can, along with the P-T table, determine the amount of sub-cooling. The liquid refrigerant should be 10 -15 degrees F. below the boiling point.

If you don't make these two measurements yourself, ask the service technician doing the system check to tell you the measured superheat and sub-cooling in degrees. Both should be between 10-15 degrees F. Watching him make these measurements and asking for the values will insure he is doing his job and will make you look all the smarter.

What to do when the superheat and / or sub-cooling are outside the 10 – 15 degree F. range? Well, it may simply be a case of too little or too much refrigerant in the system. Otherwise, check your bank account and put your trust in your AC service provider.