



**METRO DETROIT  
METALWORKING  
CLUB**  
**October 2012 Newsletter**



**Treasury report:** \_\_\_\_\_

Balance:           \$767.05

**Contacts:** \_\_\_\_\_

President:   Rick Chownyk

Vice Pres:   Emil Cafarelli

Treasurer:   Ken Hunt

**Next meeting:**

November 14, 2012

MCCC – 7pm

Secretary:   Bob Farr

Publisher:   John Lee

Webmaster:   Steve/Doug Huck

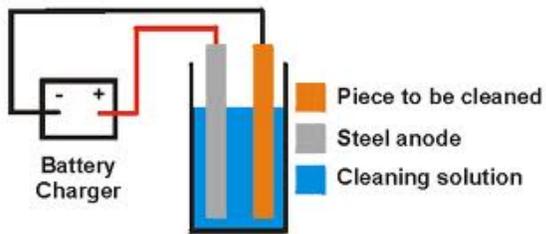
**President's message:**   Longtime MDMC member Robert Butler (aka 'Harley Bob') passed away on Nov.3, 2012. Messages from his family and friends and a video compilation of photographs from throughout Bob's life are still accessible at:

<http://wujekcalcaterra.tributes.com/show/Robert-Keith-Butler-94698381>

The video is in the 'life images' section of Bob's online guestbook.

**Club & member news:**   Ron Grimes is home from the hospital and is recovering from his stroke. Our thoughts are with you Ron!

**Show & Tell:**   Don Foren gave a demonstration about the equipment and techniques needed for electrolytic rust removal. The method uses a common household battery charger, a sacrificial positive anode (typically rebar), and the part to be de-rusted as the negative cathode:



The anode and cathode are suspended in an alkaline solution of water with washing soda (sodium carbonate) or baking soda (sodium bicarbonate) mixed at a ratio of about one tablespoon per gallon. A stronger soda solution will give a better electrical pathway, but the process works well with the suggested ratio.

***WARNING!*** This process DOES put off flammable hydrogen gas (i.e., this is probably best done *outdoors*, or at least in well ventilated spaces), but gassing can be minimized by keeping the electrical input at or below about one milliamp-per-cm<sup>2</sup> of the surface being de-rusted. It is also important that stainless steel NOT be used as the anode – it contains chromium, which is carcinogenic. Other than those two caveats this process is safe and the leftover rusty soda water needs no special handling before disposal.

Don recommended letting the calcium carbonate (chalk) settle out in order to minimize a chalky coating that

sometimes forms on the parts. The ‘soak time’ will vary, but the results are thorough and impressive:



Don notes that the process removes ‘red rust’ but leaves behind a thin coating of ‘black rust’ which is easily wiped away. The part must be protected quickly from flash rusting, either by oiling or by a protective finish. This technique is particularly useful for parts with difficult shapes, like fuel tanks or parts with internal features not easily scrubbed.

A group discussion turned to concerns about hydrogen embrittlement in previously-hardened parts undergoing this process, but Dave Zimmerman suggested that post-process baking at 400-450°F for about an hour will drive out the unwanted hydrogen.

Thanks for the excellent and *very* useful demonstration Don!

Rick Chownyk shared his experience with carbon fiber materials used in automotive and other manufacturing applications. This picture is of a product called “peel-ply” which is a very fine mesh which the liquid bonding resin can penetrate but which can still be pulled away later to leave a smooth surface:



Another product is called “pre-peg” and already has a sticky backing to help form it into difficult contours.

Rick reports that in a typical layup, the mold is first lined with “peel-ply” to assist with separation, then multiple layers of carbon fiber soaked with the bonding resin, then another layer of “peel-ply,” with everything then bagged and about 27-lbs of vacuum applied to form the surfaces of the layup to the shape of the mold.

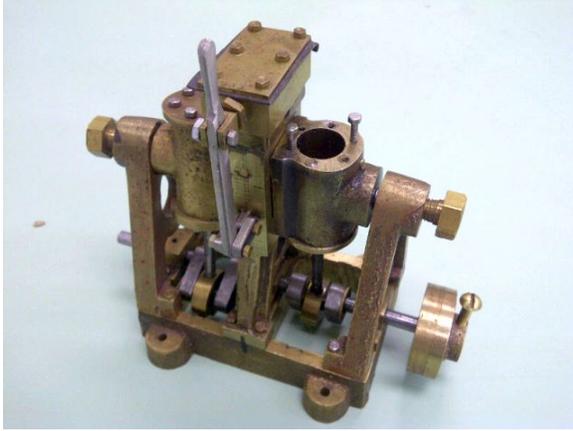
Typical layups are baked overnight, though they might take as little as 6-hours at 140°F depending on their size. A car hood uses about 6-11 layers of carbon fiber and can be lifted with one hand – a fraction of the weight of steel but with many times its strength per pound. Thanks for the presentation Rick!

Rick also shared a ‘guess this tool’ with us:

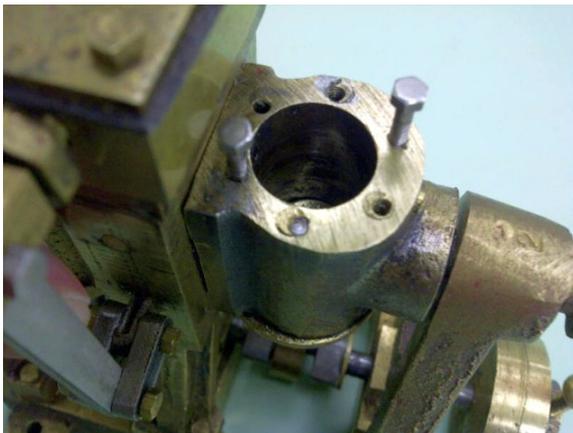


Apparently we have all become spoiled by modern no-maintenance electronic ignitions because nobody had a quick answer. It turned out to be an ignition ‘multi-tool’ used to open distributor caps for access to the breaker, rotor and capacitor ... remember those? It also appears to have a spark plug gapping feature and perhaps other uses lost to time.

Ken Hunt brought in this handsome steam engine. She's a beauty Ken!



Unfortunately, in the wee dark hours of the night a mischievous gremlin snapped off a very small tap in the blind hole of a cylinder head bolt. I neglected to record the tap size that Ken mentioned, but it is tiny – maybe 1/32". It is the one nearest the viewer in the following picture:



Of course, it broke off flush with the head deck. Please contact Ken if you can suggest how to remove the tap – or if you have a home-brew recipe for exterminating gremlins.

Brian Lawson brought in some unique 'give away' stuff for the group. Among the items was this corkscrew device:



Brian identified it as a packing-puller, used to remove packed shaft sealing material from centrifugal pump housings.

Dick Triemstra brought in some phenolic material in sheets and blocks of various sizes, some acetal, and some nice thin slitting/cut-off blades to share with the group. Thanks for bringing the goodies Dick!

There was some discussion during the meeting about collection of materials needed for the Club's cannon project. Rick Chownyk mentioned that he recently met a person who builds replica cannons for collectors and 'living history' reenactment sites. I was able to find a few similar links which might be of interest to members working on these kinds of projects.

Try [www.southbendreplicas.com](http://www.southbendreplicas.com) which may be the company that Rick was referring to. It offers several books on the topic.

You may also want to take a look at [www.hatchergun.com](http://www.hatchergun.com), in the 'black powder cannons' section, under the 'cannon builds' and 'more cannon pictures' headings. This site has lots of pictures of the machining steps needed to create cannons and mortars or various sizes.

Enjoy!

Bob Farr

*P.S. Shortly before I wrote this a link was posted in one of the machinist forums to 'The Old Motor' web site: [www.theoldmotor.com](http://www.theoldmotor.com)*

*That site is focused on automotive history and is worthy of a visit on that merit alone. However, the 'bonus' is that the owner documents the engine restorations, including methods and the unique machines used in the process. For instance, boring con-rod bearings on a LeBlond lathe adapted to the purpose for Federal Mogul:*

[http://theoldmotor.com/?category\\_name=technical-features](http://theoldmotor.com/?category_name=technical-features)

*The setup looks simple enough to adapt to any lathe using a milling attachment or similar fixture. Click through the pages to see other setups for line boring, Babbitt casting, splitting bearing shells, an extensive magneto rebuild, and a shop-made tool for cutting felt seals.*

*Maybe you will see something useful for your own project. It's at least a nice 'virtual' shop tour.*

*Bob Farr*