Bay Area Engine Modelers Club, Branch 57 of EDGE&TA

The Crank Calls

June 2011

President	Don Jones	(510) 566-3153	dj712@sbcglobal.net
Secretary	Bob Kradjian		bkradjian@comcast.net
Treasurer	Ken Hurst	(707) 257-2481	icengine@comcast.net
Events	Ken Hurst	(707) 257-2481	icengine@comcast.net
Tech Topics	Carl Wilson		toolcarl@comcast.net
Editor/Printer	Larry Zurbrick	(408) 448-5752	lz_m57@pacbell.net

MEMBERSHIP $25.00 US
Contact Ken Hurst at
(707) 257-2481
2650 Indiana Street
Napa, CA 94558

NEXT MEETING
June 18, 2011 at
Chabot College, building 1500
25555 Hesperian Blvd, Hayward 94545
Doors open at 9:00 AM
Meeting starts at 10:00 AM

Upcoming Events

Palo Alto Concours, June 26, Stanford Medical Center

Elections are to be held at the June Meeting!

MEETING NOTES

May 21, 2011
Bob Kradjian, Secretary

President Don Jones called the meeting to order at 10:00 am.

Vistitors were Zack Sublett and Dario Mecchi's son, David. Congratulations are in order to Dario for his lovely Corliss being featured as a centerfold for the latest Model Engine Builder. Three of his other fine engines are also pictured. Zack helped us out by running engines at the Brizio Open House this May 7. Also visiting was Darrel Flint, a guest of John Gilmore. Darrel is involved with CAD and machine shop programs and we would welcome his expertise and input to our group.

There were no "first-pops".

Treasurer's report: Ken Hurst has paid the hosting fee for our club web site and has paid for a quarter page ad for Home Shop Machinist announcing our August WEME Show.

Secretary's report included mention of the Palo Alto Concours scheduled to take place the day following our June club meeting, June 26 at Stanford. See the details at www.paconcours.com

Elections are to be held this meeting! Please think about our elected offices and consider volunteering for a while. It's a rewarding experience, and medical studies reveal that people involved in club activities live longer. No joke! Positions to be filled include:

Member-at-large for the Board of Directors (one)

President

Treasurer

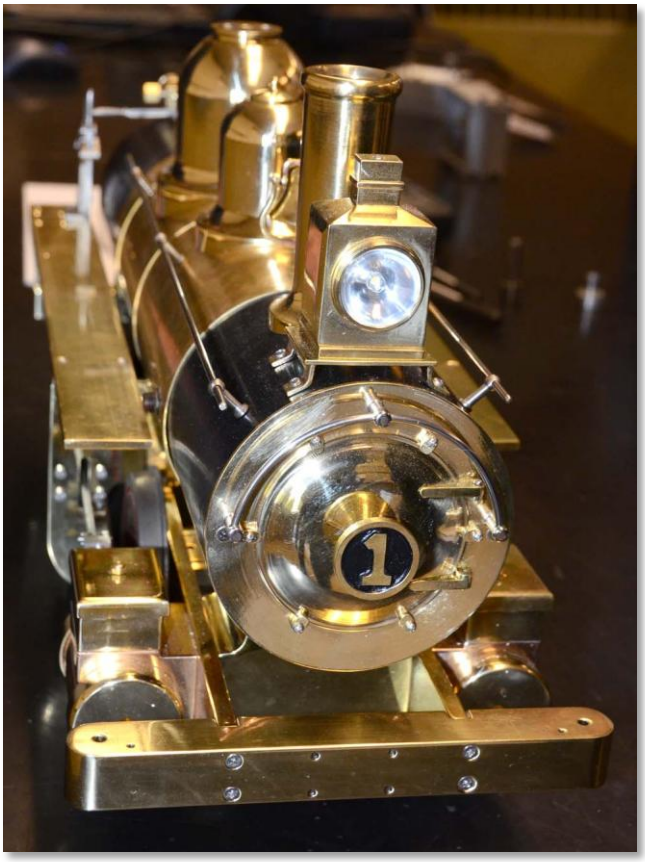
Secretary

Event Coordinator

Discussion centered about our annual WEME show followed. We have eight vendors signed and a possibility for several others. In addition to the fine invited modelers from other states (Lou Chenot and Jim Moyer), there is a possibility that Rich Carlstedt may bring his Monitor and that the World's Fastest Indian may make a repeat appearance. A fine full-page announcement for the show went out to the more than 3,000 Model Engine Builder subscribers recently.

Several versions of the floor plan for the show were evaluated, and we settled on a plan that will increase our Vallejo 60 tables to an estimated 91 at Pleasanton.

BITS AND PIECES



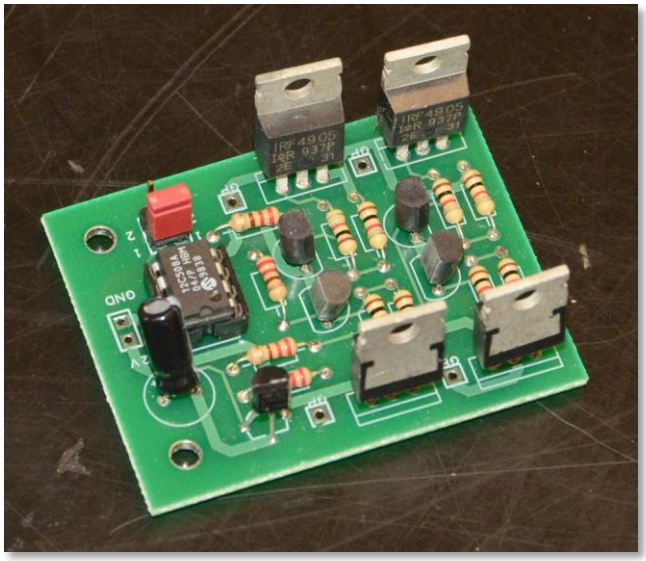
John Gilmore showed us the latest additions to his "Pennsy" Steamer. It is beautiful and nearing completion "possibly by July". What's next for John? It'll be fun to see.

John Palmer brought in a "whatz-it"? I am reasonably certain that it was not a metal-working tool, but a veterinarian's trocar for draining abscesses.

Peter Lawrence discussed his experiences with tapping and die application. He stressed the purchase of high quality taps from U.S. makers.

I recall that the late John Tatone used to give me bags of perfectly fine looking 6/32 taps he used for his engine mounts. His experience was that they would fail after a set number of applications, so his staff discarded them as that number approached. His people also used a quick swipe of bees wax on the tap prior to spinning the tap, which was done at a terrifying speed without a TapMatic and to 110 decibel Mexican music.

An excellent article on making your own hex-headed bolts is in the MEB magazine issue 24 by Rehmus, Giles, and Sayers. Shop made bolts look far better than off-the-shelf items.

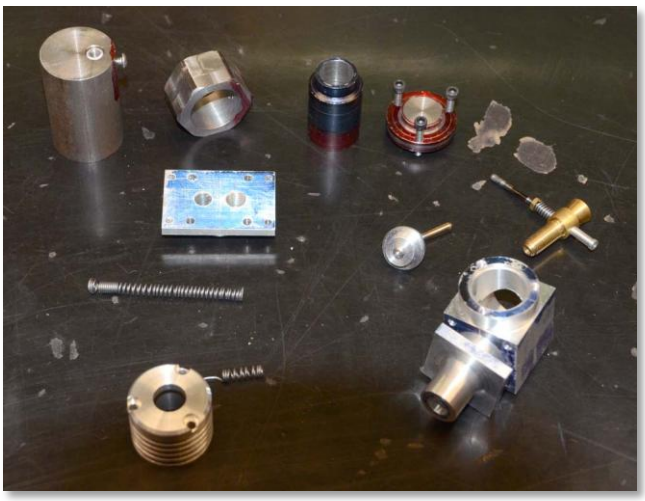


Discussion ranged to glow plug drivers and Mike had a new Jerry James developed glow driver module for use with up to four plugs. A very nice description of this unit can be seen at:

http://modelenginenews.org/ed.2006.10.html#6.

Lew Throop thinks he can use it and will take it home for a trial.

Jerry's innovative series of Hex engines used these units. I ran an inline four cylinder Schillings engine with glow plugs at Bennett's place years ago. I found that it was difficult to use simple 1.5 volt power even with a large bus bar and a good power source. When one or more glow plug(s) became wetter than the others, you were out of luck. I finally, wound up buying four commercial MOSFET glow plug divers installed in a huge wooden box along with a motorcycle battery. By contrast, Jerry's solution is elegant, small, and light weight. Buy it at: jamesengine.com.



Mike Rehmus describes his Humbug engine project, "The parts show the progress from bar stock to running engine as I write a series of articles for the beginner, detailing each step of the process in machining the engine. This is a series that will go on for about 2 years as the detailing of the operations is very space (and time) consuming. The engine is being machined only on Sherline equipment, mostly the lathe but with a few operations on the mill. The engine can be built on the lathe only but I'm showing the readers of MEB use of the other tools too. I'm also making a video of the process which will be sold by Sherline when I finish it."

Carl Wilson will describe our Tech Topic, but I must say that Mike Byrne did a masterful job of describing a complex subject in a short time with superb visuals. Well done! While mentioning Carl, his brilliant series on cam grinding is finishing up in MEB magazine next issue.

Finally, here is a little question, "just for fun": "Who invented the racing engine?"

Our club members build all types of miniature engines, and some of us even attempt small high-performance engines.

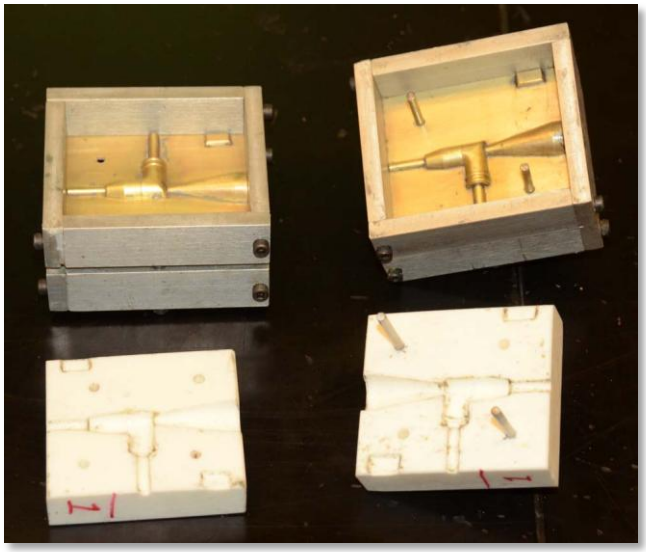
The very best of these tiny engines have common design features. These include a hemispheric combustion chamber, vee-inclined large valves, and twin overhead camshafts. This, of course, is the same arrangement found in nearly all Grand Prix engines to this day. The general thinking in the United States is that: first Harry Miller, then Fred Offenhauser, and finally Lou Meyer and Dale Drake were the originators of this highly successful design. But, those who have read further in the history of motor racing know that there is a French connection that pre-dates Miller. What is that connection?

More next month…

TECH TIP

Carl Wilson

The devil is in the details and Dwight Giles is attending to the matter of spark plug wires for the Black Widow V-8. Now to buy a set of molded cables at the local parts house ya gotta know the make, model, year, and engine: otherwise the counterman will just give you a blank look. Dwight doesn't have all that so he set out to make his own super duper custom molded OEM spark plug wire set.



At the bottom of the photo are two white blocks which are the mold halves in which the spark plug boots will be molded. The method is exactly analogous to sand molding of cast metal parts which begins with a pattern. So let's move to the flasks and pattern boards shown at the top. The flask is made from 8 pieces of aluminum bolted together to form top and bottom halves and the pattern is mounted on the plate which is captive between the mold halves.

The boot is the right angle piece – you can see the two finger-grasp ribs at the spark plug end. The small cylinder leading from the boot to the edge of the pattern board is a core print which will later have the ignition wire placed in it. The larger cylinder from the other end of the boot is also a core print which will support the metal spark plug connector which will be molded inside the boot. The tapered cylinder is the sprue into which the urethane rubber compound will be injected into the mold. The two vertical pins are alignment pins for the mold halves and the small rectangles at the pattern board edge are pry slots to open the mold after casting the boot.

Note that half of the pattern is placed on each side of the board. Dwight begins by making pattern blanks from brass which are soft soldered together at the parting line and then turned to shape on the lathe. When the pattern board is complete it is assembled into the flask and hard urethane casting compound is poured into one side at a time. The flask is then disassembled, the mold removed, the pattern removed from the mold, and it is ready for casting the rubber compound. Easy!

TECH TOPICS

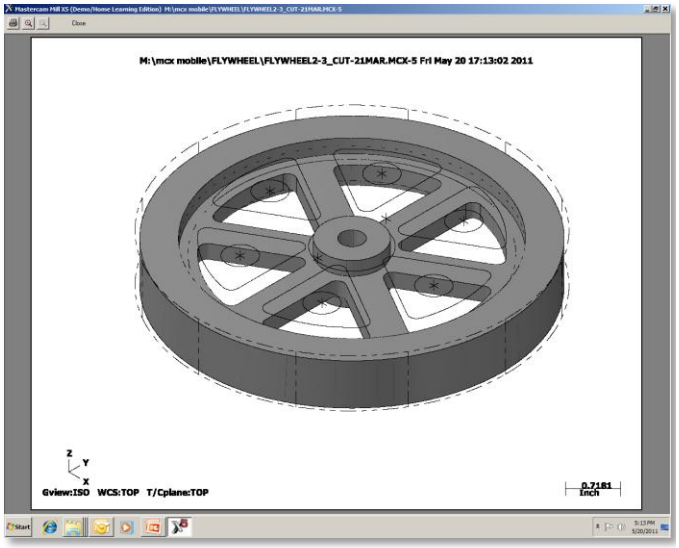
May 21, 2011
Carl Wilson

Mike Byrne gave a great Tech Topic presentation on Computer Numerical Control (CNC) machining of a six-spoke flywheel. Mike is taking the series of CNC classes at DeAnza College and selected this as his major project. He said that machining flywheels from the solid interested him more than trying to set a casting running true to machine both sides.

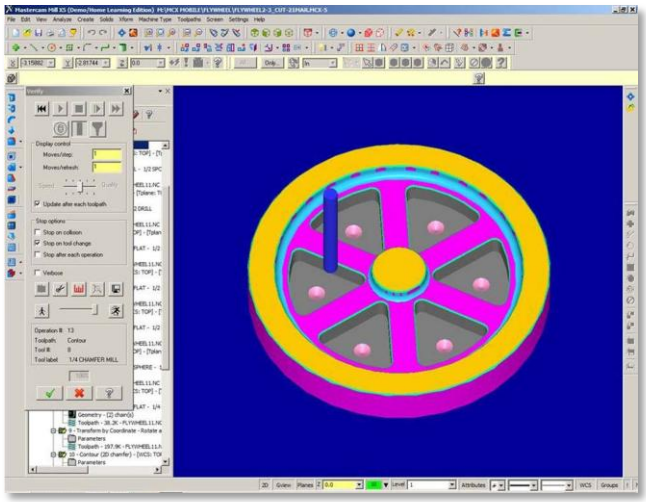
Mike demonstrated via a digital projector the development of the solid model of the flywheel using MasterCAM and then showed how the

software converted the part geometry to the tool paths required to machine it. The final step in the process is the conversion of the tool paths to the G or M codes for the specific machine on which the work will be done. This is called "post-processing" (and Mike did not present this portion of the process.) Photos of the work were shown in a Power Point presentation.

For this Tech Topic report I'm going to "drop back 10 yards and punt." The processes cannot easily be summarized in a brief report in writing. So my apologies to Mike for the brevity of these remarks, and thanks to him for supplying the illustrations used below.



This is the solid model of the six spoke flywheel as developed in MasterCAM: the first step in the CNC process.



The second step is the development of the tool path of the cutter(s). The solid blue rod is a cutter. Note that several cutters will be used: an end mill for the basic shape, a ball end mill for the fillets (blue area), and a corner radius for the spokes and edges of the rim (green.)

The tool paths are converted to G and M code and it is time to make chips. The hole drilled in the pie-shaped cutout between the spokes is a mill cutter relief hole: Mike did not plunge an end mill directly into the work piece. One spoke has been roughed out and the cutter is positioned to cut the third "pie slice."

Looks like a flywheel – unfinished but unmistakable.

Thanks Mike for an excellent presentation.