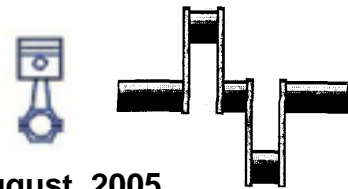


# The Crank Calls



August 2005

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Tech Topics....Pat O'Connor.....(408) 733-3710.....pat1650@yahoo.com

**NEXT MEETING August 20, 2005 At  
Robert Schutz's Shop, 366 40th St. Oakland, CA  
Doors open at 9AM  
Close at noon**

**TO JOIN THIS CLUB OR  
RENEW YOUR MEMBERSHIP**  
Contact Lewis Throop at  
27272 Byrne Park Ln.  
Los Altos Hills 94022-4324  
Phone 650-941-8223  
Email: lthroop@aol.com

## Meeting Notes

July 16, 2005  
Bob Kradjian, Secretary

President Ken Hurst called the meeting to order at 10:05. BAEM wants to thank brother Dwight Giles & brother George Gravatt for there unselfish time they give to make the club so successful. Thank you Ken Hurst

Guest: Jim Stewart came a guest of Mike Rehmus.

Treasurer's Report: Lew Throop says our balance is at a three-year high, \$2200.

Presentation: In honor of Robert Schutz's outstanding and sustained hospitality to our group, he was presented with a handsome Galloway hit and miss engine. It is a one third scale model of a five horsepower engine. The bore is 1 3/4" and the stroke 2 3/8" making it a substantial piece. The construction was by our sterling builders George Gravatt and Dwight Giles. They did their usual excellent work and the engine runs great! As usual, there were modifications necessary to make the engine right. The built-in check valve in the carburetor was abandoned and a standard in-line unit was used. The atmospheric intake valve is cleverly concealed in a hollow tube that supports the exhaust valve rocker. The entire engine and base are nicely done with the engine in traditional red enamel.



Thanks to George, Dwight, and Robert!

Last month's newsletter featured a report on the building

activities of 15 of our members. If you would like this type of reporting to continue, please e-mail with news of your latest efforts and it will be shared with our group.

Also, don't be shy about bringing "works-in-progress" to the club meeting. We all want to see your latest efforts.

Special Events Coordinator, Dick Pretel has scheduled an engine show for an August 13 fund-raiser in San Mateo. On August 19 he also has scheduled a small show at the Historic Auto Races in Monterey at the Quail Lodge. The big one for the year is always the GoodGuy's West Coast Nationals in Pleasanton (Alameda County Fairgrounds) on August 26-28. A possible engine show on the aircraft carrier "Hornet" in September is being discussed as a possibility. Member Matthew O'Connor gave several members a tour of the ship last month.

## **Bits and Pieces:**

George Gravatt showed a freshly finished "Little Devil". After breaking two crankshafts, George beefed-up the crank webs by an eighth of an inch. This little water-cooled design was Bob Shore's last design before he died. The club was given the rights (by Bob) to sell the casting sets for the club treasury. Ken has castings and plans available. Down in Southern California, Bob Haagenson has also finished another "Little Devil," but hasn't run it yet as he on a cruise to Alaska.



Continued on page 4

## TECH TOPICS

7-16-05

Carl Wilson

Steve Jasik presented the Tech Topic for the July meeting: Various Shop Notes. His first topic was solvents in the metalworking shop. Steve uses naphtha for various cleaning tasks. It has a medium solvency combined with a medium rate of evaporation and it doesn't eat plastics. Steve recommends naphtha for cleaning computer keyboards and removing price tags and other labels. Sources for naphtha include lighter fluid, Coleman stove fuel, and the paint department of hardware stores. Discussion from the floor included the suggestion by Scott Overstreet that BBQ lighter fluid is a useful solvent, aluminum cutting fluid and Glendo diamond



wheel lubricant, and is considerably less flammable than naphtha.

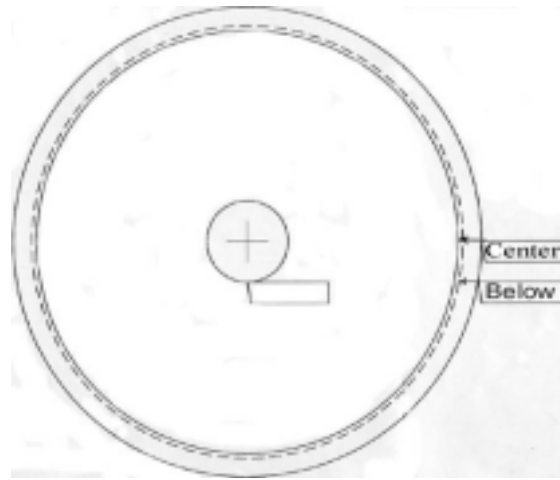
Steve uses the Glendo diamond grinding/lapping machine for sharpening carbide tools. It has a plate type wheel revolving at a slow speed, a table that is adjustable for a wide range of angles, and a protractor miter gauge adjustable for a second angle. The table is mounted

on guide rails so that the work can be passed across the face of the grinding wheel. This basic configuration can be enhanced by a variety of special fixtures to allow for accurate sharpening of many tools.

Small diamond hand laps (also known as hones, files, and whetstones) are very useful for touching up both carbide and high speed steel tools. They can produce that final smooth surface and sharp cutting edge that is necessary for a good finish on the work. Diamond hand laps will remove that bit of steel that adheres to the tip of HSS tools (the built-up edge) and degrades the cutting efficiency.

Steve adjusted the gib screws on the moving jaw of his dial caliper. After he achieved the nice tight adjustment that he was seeking, he measured a gauge pin. Woops, the moving jaw was no longer parallel to the fixed jaw. Take this as a cautionary tale: occasionally check your calipers by making measurements of the same pin at different locations on the jaws.

Here is a great tip for cleaning the chips out of a blind threaded hole: remove the factory tip from a blow gun and adapt a basketball inflating tip in its place. The small diameter tip will reach to the bottom of a 3-48 hole (and larger) and the two nozzles will blast the chips out.



If your turning tool is set below the center height of the lathe, does it significantly affect the diameter of the work? This is the question that Steve set out to answer. He presented some equations but let's make do with a drawing and some words. In the drawing above one of the tools is set well below center. When the tool faces completely across the work, at the center it will pass below the axis of rotation and leave a pip with a diameter of twice the error in center height. This shows that a tool set below center will "cut large."

At the right side of the drawing is a tool at center height and one below. For example, if the tool is advanced 0.100" to take 0.200" off the diameter, the actual diametral reduction will be a little less. Steve did the mathematics and demonstrated that the error will be quite small for reasonable amounts of tool setting error. The error is smaller than the line thickness of the drawing and so the dashed circle only indicates that the difference is positive. So don't worry, be happy, set your tools as best you can and go to work.

The ensuing discussion from the floor included two very good ways to quickly set the tool height. First was to trap a thin piece of metal such as a razor blade or rule between the tip of the tool and a small diameter workpiece. If the piece stands vertical, the tool is at center height. Low and the strip will tilt toward the operator and visa versa. Roger Slocum sets the tool low and in a position to take a facing cut. As noted above this will leave a small pip in the work. Now raise the tool in several steps until it just faces the work clean. It is now at center height.

How does the radius on a turning tool affect the surface finish? Let's put words together for another mental picture. Assume that the tool has a perfect sharp tip and that it is traversing along the work at a feed rate of 0.002" per revolution. It would act like a threading tool cutting 500 threads per inch. You should be able to see and feel the roughness of this surface. One of the most common methods for improving the finish is to grind a small radius on the tip of the tool. In our mental picture let's grind a very small radius and start cutting. This tool will still leave a thread, but because it has a radius and thus is effectively broader than the sharp tool, the height between the top and bottom of the cut (cusp height) for a given depth of cut, will be less than for the sharp tool. The eye and finger will interpret this a "better surface finish." The quotation marks are there because the question of surface finish is rather more complex. For those of you with inquiring minds, the equation is:

$$H = F^2 / 8r \cdot 10^6$$

H = cusp height, micro-inches  
 F = feed rate, inches per revolution  
 R = nose radius, inches

A word of explanation about H: surface finish is usually specified in micro-inches. The factor of  $10^6$  makes this conversion.



### **TECH TOPIC for AUGUST MEETING**

Continuing with our discussion of engine design/fabrication. We will be discussing connecting rods. Dwight Giles will describe how he produces his rods for the Wall 4 and Challenger V8.



Greetings Ken, Bob, Lewis, Bill, Pat and other BAEM members --

I just bumped into the BAEM website and thought you might be interested in adding a link for another engine modeler's website to your links page.

The engine modeler happens to be my dad (we call him Mysterelly) and I just finished getting his first edition website up and running.

The site has some nice engine pictures and data and notes and such; seems like the sort of thing BAEMers might find interesting. It's at [www.mysterelly.com](http://www.mysterelly.com).

Anyway, keep building those wonderful machines!!

Todd Ellison  
[www.websbury.com](http://www.websbury.com)

Continued from Page 1

Bill Nickels demonstrated his reliable one cylinder atmospheric engine based on a Phil Duclos design. He had it running great until and alcohol spill started a nearly invisible fire, and terminated the run. And for his next trick---

It is great to see Bill back in action, nearly fully healed after a serious auto accident injury in San Diego. We always appreciated his work as newsletter editor, but when he was out of commission we realized how important he was!

I showed a 1/6th scale static, display model of a Chrysler Hemi. This 392 cubic inch monster from the early 1950's powered DeSotos and Dodges also. GMP markets these nifty models. Check out their Offenhauser, Ford V-8's, and the Hemi at [www.gmpdiecast.com](http://www.gmpdiecast.com). Look under "engines". These engines run about \$200 and are an outstanding value if you're into display engines.

Cor Langewis seems to have an inexhaustible supply of quality steam engines. The current one is a nicely machined Stuart kit built ten years ago. One member asked if he had more engines in store for us. Cor thinks he has "twelve or thirteen to go."

Lew Throop showed us his progress on his ambitious one and quarter inch bore, Harley-Davidson project. He has the crankshaft, flywheels, pistons, fork-and-blade rod assemblies done as well as nicely machined cylinders. The fins alone must have taken a week. He is now starting to whittle the crankcase out of solid.

We received a URL for an interesting web site. It is [www.mysterelly.com](http://www.mysterelly.com). The site describes the work of a retired machinist, and shows a series of nicely made small engines described by the builder's son (a journalist). It's well worth a visit.

The Alibre CAD program described by Mike Rehmus has been delivered. I spoke to one friend who has already run a few programs and likes it. Two bits of wisdom surfaced in the July meeting. In a discussion concerning buffing equipment, Giles said that kneepads were essential. For looking for lost parts, of course!

On another subject one wag offered an opinion, and described it as a "WAG". This, he said, stands for a wild-ass guess. A far more sophisticated estimate is the "SWAG", which stands for a scientific wild-ass guess.

There will be a surprise presentation honoring two of our members at the August meeting.





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MERCED, CALIF. 95340**

**MERCED COUNTY FAIR**

Who can help at the fair and what can you bring to the fair. Please let Betty know. Call the Ag Museum ? 83-1912

**NATIONAL SHOW  
SEPT. 8 -11, 2005  
BR. 37 GENTRY ARKANSAS  
HOWARD HODSON  
(479) 248-4902**

**NW. REGIONAL BR. 77  
SEPT. 24-25, 2005  
CULBERTSON, MT.  
DAVID KROGEDAL  
(406) 963-2360**

**SHOW DATES**

July 16 & 17— Br. 6 Gas Up Koster Ranch (209) 394-3269  
JULY 19 -24 MERCED COUNTY FAIR

Aug. 20 -21 Br. 132 Carson Valley Tractor & Engine Show Minden, Nev. (775) 267-4816

Aug. 26—28 Br. 49 Horsearound Ranch Museum Sonora (209) 928-3249

Sept. 17-18 Branch 132 Swap Meet Minden, Nev. Suzanne Schneider (775-883-0238

Oct. 16 Br. 111 Swap Meet Western Gateway Park Penn Valley Carl Mehr (530) 432-1502

Oct. 30 Br. 13 Swap Meet Yolo County Fairgrounds, Woodland Smokey Stover (916) 448-3435

Nov. 6 Br. 8 Swap Meet International Ag Center, Tulare Floyd Schmall (559) 834-2594

**Upcoming 2005 Events**

By Dick Pretel,  
Events Coordinator

**West Coast Engine Exhibitions For 2005**

3<sup>rd</sup> Annual Men, Metal, & Machines!  
Visalia Conventions Center. Visalia, CA  
October 22 & 23, 2005. Phone: 1-800-789-5068.  
Web Site: [www.cabinfeverexpo.com/MMM](http://www.cabinfeverexpo.com/MMM)

**GEARS 2005**

September 24-25, 2005  
in Portland Oregon

**BAEM is invited to the following events**

By Dick Pretel, Events Coordinator

Gotelli car show Saturday Sept 24, 2005, 9AM-5PM

Good Guy's West Coast Nationals, Pleasanton  
August 26-28, 2005

**Model Crankshafts and Camshafts**

**By Roger Slocum**

Hardened and ground alloy steel crankshafts

Web Site [www.cranksandcams.com](http://www.cranksandcams.com)

Email: [roger@cranksandcams.com](mailto:roger@cranksandcams.com).

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Emco/Mier CNC lathe for sale. Compact 5  
with automatic six position indexing head  
and all accessories for operation.  
Mounted on roll around stand. Lathe has  
hardly been used and is tape  
driven. Lathe can be updated with a new  
board and software to accept G codes  
from your computer. Original cost was  
\$14,000 purchased in 1992.

Asking \$3200/best offer.

Dick Pretel 408 732 6507

**WANTED**

a Wall side draft carburetor with float to  
restore old engine. Also a bronze casting to hold ignition  
points. These were used on many wall singles.

I also need some 1 1/4 piston rings .065. to  
.070 wide to restore a old engine.

Dick Pretel 408 732 6507

**FOR SALE**

"Model Engineer" magazines, 1898 through  
2004, many bound, some hardback, 3 issues  
missing, plus 2 indexes. \$2750 Chris Leggo,  
(510)247-0961. [oinck1@aol.com](mailto:oinck1@aol.com)

Check out the BAEM Web Site at [www.](http://www.baemclub.com)

[baemclub.com](http://www.baemclub.com)

Send your project photos to the

Web Master Jim Piazza.

Phone: 408-446-4825

Email: [jpiazza@ix.netcom.com](mailto:jpiazza@ix.netcom.com)

**FOR SALE**

Tree Journeyman 310 – 3 Axis CNC Mill  
DynaPath - Delta 10M Control  
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manuals  
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David Palmer 707-938-2181

Brian Palmer [bdpalmer@sonic.net](mailto:bdpalmer@sonic.net)

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