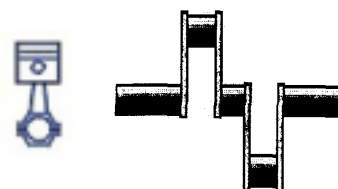


The Crank Calls



President.....Ken Hurst.....(707) 257-2481.....icengine@mcihispeed.net
 Secretary.....Bob Kradjian.....(650) 343-7585.....bkradjian@aol.com
 Treasurer.....Lewis Throop.....(650) 941-8223.....lthroop@aol.com
 Events Coordinator...Dick Pretel.....(408) 732-6507...RPM10K@SONIC.NET
 Editor.....Bill Nickels.....(408) 739-2407.....whnickels@aol.com
 Tech Topics....Pat O'Connor.....(408) 733-3710.....pat1650@yahoo.com

March 2005

NEXT MEETING

March 19, 2005 At
 Robert Schutz's Shop, 366 40th St. Oakland, CA

Doors open at 9AM
Meeting Starts at 10 AM

DUES ARE DUE
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
MAKE YOUR \$25.00 CHECK
PAYABLE TO LEWIS THROOP

Meeting Notes

February 19, 2005
Bob Kradjian, Secretary

President Ken Hurst called the meeting to order at 10:07.

The Treasurer's report was deferred to the March meeting in Lew Throop's absence.

Visitors included Steve Gordon, David and Mather McGraw, Scott Riders, and Tom Hare.

Special events coordinator, Dick Pretel, announced our first engine show of the new season, May first, at Hillsborough. Details coming as he finalizes details on passes. The details of the Blackhawk show are also in the works. It will be a combined appearance with a street-rod group from Danville. Jon Hart at the museum wants the show moved to mid-year from our usual November date in hope of better weather.

Bits and Pieces

Dirk Tollenaar, "I wanted to take a few moments to update BAEM on the progress of the little V-4." Last week, Feb 10, I took the match plates to the Foundry. They will cast 12 sets and have them heat treated. The alloy will be 356, which is the good stuff.

I have also made a pattern for the Head, and have been able to start to make the Repro patterns to make the match plate. I should have that completed soon and then it will be taken to the Foundry.

I expect to have the Drawings, and Picture CD finished by early March. With that said, I could start shipping Casting Sets by mid March.

I feel that with the extras, that the best price I can make on this set is \$145.00 to BAEM Members, and \$165.00 to non Members.



Please see the attached photos for an idea of what the Head will look like. The actual part that the casting will be made from is the Blue item in one of the photo's.

Dirk Tollenaar
1251 Alto Vista Loop
McKinney, TX 75069
(214) 543-5202 Mobil
DTollenaar@AOL.COM



Dick Pretel showed a highly modified Gannett Single. As you know, the Gannett was a highly regarded English boat motor that ran well, but was noted for less than lovely machine work. Dick solved this deficiency by machining an extremely fine four-valve head. The result is not only attractive; it runs far better than the original two-valve arrangement. These engines came as either magneto fired or with breaker points.



Dwight Giles showed two engines, an Upshur hit and miss engine, and a Little Devil, which is in progress. The Little Devil is one of Bob Shore's late designs. This one will be finished as an air-cooled unit. Both engines show



the typical Giles fine finish.

I showed the Perkins Model B that was displayed last July. I say displayed because it wouldn't run. Carmin Adams said "I can fix that" and so he did! He identified numerous, severe structural problems and solved them one by one. These included binds in the side shaft and the crankshaft, a too tight piston-sleeve fit, frozen piston rings, an out of balance crankshaft, insufficient intake valve spring pressure, improper ignitor contacts, an inoperative carburetor set-up, and a variety of lesser problems. Carmin diagnosed and solved these, one by one. Now, it runs great! My deepest thanks to Mr. Adams and it shows what a great group of people we have in our club.



George Gravatt brought in another Bob Shores design, The Little Devil. I believe this was Bob's last engine. For those wishing to build one of these little gems, George has the plans and castings for \$85.

Dick Remington decided to make his own 5C collet closer from a \$93.50 casting set, shipping not included. The set is available from Metal Lathe Accessories and is called the "The Loop Collet. MLA-21." A quick look via Google gives the phone number as (814) 234-3543. It is described as simple to construct and has no gears. Dick is happy with its operation.



Mike Rehmus showed a “wobbler” steam engine that is slated for a construction article in his magazine. Called the David II Wobbler Steam engine, it by Alan Marconett. Mike says that the actual building of the engine highlights issues that are not always seen when surveying the plans.



Mike also gave us an update on the first issue of “The Model Engine Builder” along with a color mock-up of the cover and some of the inner pages. It all looks well done in the usual Rehmus style. A build article from our own Randall Cox is featured in this premier edition. The Cox engine is a six-cylinder version. Randall has made these modular engines in one, two, four, and six cylinder versions. He may even branch out into a V-8 and/or a V-6. (At our engine shows, his four-cylinder model is a crowd favorite.) Everyone comments on the “barber pole” distributor. Mike’s first issue will have an article on compression-ignition and a centerfold photo of Eugene Corl’s wonderful 1/3 scale Chevy small block V-8. Also planned for future issues are two hit and miss engines, an Upshur single, a Bruce Satra single and a Morton M-5 as well as a bar-stock V-8 and finally a build article on the BAEM generated Black Widow V-8.

For those who have not subscribed to Model Engine Builder, you can get with it at (707) 642-5381 for a mere \$29.95/year. See page 8 for details.

Dwight Giles beguiled us all with his deceptively simple, yet complex, cam-grinding fixture. The details of which will follow as described by our tech-topic experts.

However, Tom Hare, one of our visitors remarked that the device is described in the book, “Building Mastiff” by L.C. Mason. Anyone having this copy is requested to bring it to an upcoming meeting for the membership to review. I have an L.C. Mason book called “Model Four Cycle Gasoline Engines” that has a lengthy section on cams, but no photos or drawings of a cam-building fixture.

Finally, a sad note. Our long-time friend and master engine builder, Al Ingersoll passed away on March 2 in Independence, Oregon. Always unassuming and modest, Al managed to make the most remarkable and ingenious devices that most of us had ever seen. He was entirely self-taught, yet never steered away from the most complex projects. Planetary gears, ratchets and pawls, splines, threaded sleeves, eggshell thin crankcases, intricate pumps, etc. were his joy. He always was willing to help others with projects and is responsible for introducing me to this wonderful hobby, for which I am most grateful. He volunteered long hours working on the counter-rotating propellers on the swing-wing exhibit at the Hiller Museum. His masterwork was his wonderful Curtiss-Wright V-12 built from scratch in one-fifth scale. We will continue to feature this unique piece at our public showings and always with full recognition of the builder.

Al died peacefully at home, surrounded by his daughter and her family in Oregon who provided him wonderful care. The cause of death was emphysema and bronchitis. In one of my last conversations with Al, I asked if he had any messages for the BAEM group. He said: “Yeah, if they smoke, tell ‘em to stop!”

Al’s last visit to our meeting was in early 2004 where he showed two of his engines and enjoyed talking with his old friends. Al will be missed.

Tech Topics

Feb. 19, 2005

Ken Hurst

Cam Talk

Cam Grinding Made Easy

By Ken Hurst

All model engine builders strive to build the next engine better or to try to improve the one's we have already built. The heart to every 4 stroke is the camshaft. Designing a cam for your engine is easily in your ability if you have the right equipment.

In previous issues of Strictly I.C. # 39 - 40 & 41 Gene Switzer's Camshaft Grinding Machine article was published. The machine looked easy enough to make so I started looking around for a gear reduction motor for the drive system & a high-speed motor for the grinding wheel. I stuck with Mr. Switzer's org. design, but changed the way the cam is driven, stylus base & profile follower, the master cams and grinding wheel dresser.

The drive system was a DC 1/3 hp motor that I purchased at a Swap meet. The drive chain used was 1/4 pitch chain and sprockets for the drive, the chain drives the cam & cam master at the same timing. The cam & master cam rotates at 20 RPM, the grinding wheel @ 7500 RPM.

The stylus was changed by using a 1/2" travel micrometer barrel for adjustment instead of the 3/8"-24 TPI adjuster & added a roller bearing tip to follow the master cam. Roller bearing was a 3/8" OD. Trying to Grind a Cam the crown of the cam the (lift) was too sharp and it did not duplicate the master. Talking to Paul Bennett at one of the club meetings (B.A.E.M.) he told me that he experienced the same outcome and recommended using a flat piece of material to follow the master cam. I used a piece of delrin brown and is holding up nicely. The piece of delrin is 1/4" wide X 1" X 6" .It was mounted 1/2 way between wheel and stylus. The roller bearing stylus set on the delron follower. Using the flat follower the master is duplicated in a smaller size at a 4 to 1 reduction.

On the master cams, instead of one master cam I made an intake and an exhaust cam. Each with a different profile on the crown of the lift but maintaining the same lift & eccentric for driving the oil pump. The eccentric has the same lift as the master cams. I installed them to an alum block that has a setscrew for locking into position on the driven shaft. This way the master cams can be installed as a group. Making the masters is easy. I used 1/4 alum. plate, used a belt sander to shape the lobes and hand worked flanks & crowns. With good layout tools it doesn't take long.

Dwight Giles improved the dressing of the grinding wheel. I loaned him the grinding machine for use on his Panther Pup. He installed the fine grade wheel dresser diamond. He used the grinding motor



guide shaft and a bracket installed on the under side of the grinder support plate for positioning purposes. The wheel dresser just slides on the grinding motor guide shaft. It does an excellent job keeping the wheel true and clean.

This little giant does a great job. It has made camshafts for my Wall 4, V-8 Challenger & the Silver Bullets I just finished. Remember the key to making a great cam is lobe split, smooth duration & equal lift.

Carl Wilson

Dwight Giles told us that he makes his cams on the lathe. I heard some voices expressing a bit of surprise, maybe even doubt. Well, I'll tell you it works. One of the turning fixtures that he passed around had the necessary data engraved on it. I copied the data, made the fixture, and turned the cam. It took longer to make the fixture than the cam.

Monday afternoon I had a cam lobe sitting on my workbench. Piece o' cake, as they say. It is so simple that I'll challenge you to make one. There is nothing like seeing a cam take shape right in front of your eyes.



Here is Dwight's method:

1. Make the mandrel: just about anything with a outside diameter of 1 5/8" will do. Dwight made his from a disc about that size mounted to a 1" diameter shank. A short piece of 1 5/8" bar stock would also work. It needs to be flat on the working end so face it off in the lathe, then transfer it to the mill to drill the offset hole. The hole is for a stud that will mount the cam blank, so the bore of the blank will determine this size. That is, unless you are doing this just for the learning. In that case, make the hole to suit what you have in the scrap box. The offset for this stud is 0.440 from the center of the mandrel.
2. Turn a cam blank. Dwight's cams have a smaller diameter collar next to the lobe, so they are about 1/2" long. I used a piece of 1/8" acrylic plastic. The OD of the blank is 0.950". Did I forget to mention that the blank should have a hole that closely fits the stud on the mandrel? Use this hole to locate the blank while turning the blank.
3. Mount the blank on the mandrel with a small spacer between them and put the whole assembly into the lathe. The blank will be going around eccentrically. Carefully touch up your turning tool to the maximum excursion of the blank and zero the cross-slide index collar. Pay attention here. You are going to reduce the diameter of the blank eccentrically by 0.125". Because the tool is cutting on only one side of blank, the tool infeed will be 1/8". If your cross-slide dial is indirect reading, dial reading will be 125. But if your cross-slide dial is direct reading, the reading will be 250.
4. Turn the blank to 0.825" measured across the center of the arc. Your cross-feed dial should read either 125 or 250. Do not move the cross-slide during the rest of the turning of the cam lobe. Loosen the nut securing the blank and rotate it CCW 1/32" or so (looking from the tailstock.)

Make a cut, stop, rotate the work, and cut again. Note that part of the surface created in the first cut is moving away from the cutting tool and leaving a smaller rounded surface as it moves. The original turned surface is the flank circle for that side of the cam, and the smaller round surface is the base circle being generated rather than turned. The other flank is being freshly turned as the work is rotated and turned. Continue this process until the width of the remaining 0.950" diameter is about 1/16". The base circle should be completely formed to a diameter of 0.700". It will have a number of formed "flats", short segments of circular arcs, really. The cam follower does not rub on this surface so they don't matter too much. Just clean them up with a file, or deburring wheel. The nose radius can be finished with a file to blend into both of the flanks. Take some care to not remove too much material from the nose. This would reduce the amount of lift.

5. Congratulations, you have just turned a cam lobe with a lift of 0.125", base circle diameter of 0.700", and flank circle diameters of 1.500". You probably noticed that the duration of lift has not been stated. The duration will be determined by how far you turn the blank during the "nibbling" or better, "generating" process.

Standards for material used in the newsletter:

Carl Wilson

I spilled too many words last month so I held these notes for this month. Pat O'Connor presented his Tech Topic with his own illustrations as well as some taken from books and from the web. I like to include illustrations in the report on the Tech Topics. The old adage is quite to the point: a picture is worth a thousand words. It would be extremely difficult to convey the idea of, say, rotary valves, without a drawing. But the drawings or pictures must be of sufficient quality to be legible in the reduced size that we have to use in the newsletter. Several of the drawings that Pat used to illustrate his presentation would not have reproduced well. They had to be omitted.

There is a further problem caused by our publishing the newsletter on the Web: if we use material written or drawn by others, we must include a note giving the source. Even better, would be written permission from the originator allowing us to use it. I talked with my lawyer about this. He said that it OK to use such material as a quote or a picture during the oral presentation. This falls within the "fair use doctrine." But if we publish it, we should have permission if possible or at least give a full reference to the source. Example: I liked the Rotary Cylinder Engine drawings that Pat found on the manufacturer's web site. I sent them a message asking permission to use some of their page. They assented, and asked that we include a specific form of attribution, which I did.

TECH TOPIC AT THE MARCH 2005 MEET BY PAT O'CONNOR

This month Rodger Slocum will discuss his cam grinder, three ways to produce a master cam and how the machinists of the 1920's and 30's made their masters. He will also have some examples for show and tell.

Model Crankshafts and Camshafts

By Roger Slocum

Hardened and ground alloy steel crankshafts

Web Site www.cranksandcams.com

Email: roger@cranksandcams.com.

Check out this web site.
Recommended by Pat O'Connor
Ron's Model Engineering and Model IC Engines Index

<http://archive.dstc.edu.au/BDU/staff/ron/>

Frank Marlow, Metal Arts Press
8461 Valencia Drive
Huntington Beach, CA 92647-6033
714 841 5561 FAX: 714 841 3073

New machine shop practice book out called Machine Shop
Essentials: Q&A

Check Web Site www.metalartspress.com

FOR SALE

Lathe for Sale. Rockford 1930's 14" lathe. 6' between centers. Heavily tooled including 8" 6-jaw chuck, quick-change toolholder, taper attachment, 4-jaw chuck, 3-jaw chuck, and backing plates. It is old and worn but still capable of good work. 2-speed backgear. Overhead motor conversion from flat-belt drive. Overhead motor has 4-speed gearbox and is 220 Volt, single phase. \$1,500 for everything. Can be transported in a sturdy 1/2 ton pickup.

Mike Rehmus

mrehmus@byvideo.com

707-643-1970

FOR SALE

Graziano Sag 12 Lathe
12" Swing 17" Swing in gap 30" Between centers
D1-4 Spindle Nose
3 Jaw Chuck
4 Jaw Chuck
Face Plate
Steady Rest
5C Collet Closer
Dorian quick change tool post, with 5 tool holders.
\$4000.00

Tree Journeyman 310 - 3 Axis CNC Mill
DynaPath - Delta 10M Control
Table 10" X 44"
Spindle Taper 30NMTB With some tooling & manuals
\$4500.00

David Palmer 707-938-2181

Brian Palmer bdpalmer@sonic.net

Check out these web sites. The first one is on a magnetic oil filtration setup that appears to really work.

www.magnum.com

The second is the location of an article on coolants for automobiles (and our engines).

<http://www.machinerylubrication.com/>

Recommended by

Mike Rehmus

Editor, Model Engine Builder magazine

www.modelenginebuilder.com

Check out the BAEM Web Site at www.baemclub.com

Send your project photos to the
Web Master Jim Piazza.

Phone: 408-446-4825

Email: jpiazza@ix.netcom.com

FOR SALE

Iron Fever 2004 videos now available
Call 707 643-1970 or email
mrehmus@byvideo.com
if you want a video delivered to the
next meeting. \$20 for DVD or VHS
tape, 94 minutes run-time.
Mike Rehmus

FOR SALE JAPANESE ENGINES

I have been given the responsibility of selling a dozen or so engines belonging to a friend. All engines are new, in the original box, never been opened. They are all Japanese, Saito or OS and range from single cylinder to 9 cylinder radial.

I will bring a few at a time to the club meeting where an offer may be made for the purchase. Sale will be consummated when the owner has approved of the offer.

Chris Leggo.

Upcoming 2005 Events

By Dick Pretel,
Events Coordinator

West Coast Engine Exhibitions For 2005

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

East Coast Engine Exhibitions For 2005

NAMES 16th Annual Expo

Date: April 23-24, 2005

- Saturday - 9 a.m.- 6 p.m.
- Sunday - 9 a.m.- 4 p.m.

Location: Southgate Civic Center

- 14700 Reaume Parkway, Southgate, MI

GEARS 2005

September 24-25, 2005
in Portland Oregon

BAEM is invited to the following events

By Dick Pretel, Events Coordinator

Hillsborough Sunday May 1, 2005

E.D.G.E. & T.A. Branch 113 Annual Show May 14, 2005
Held at the AG museum, 4498 E. HWY. 140, Merced, CA 95340
Free museum pass & lunch.

Blackhawk Automotive Museum, TBA

Gotelli car show Saturday Sept 27, 2005, 9AM-5PM

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

Historic's at Monterey, TBA

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First Issue March 2005

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Best regards,

Mike Rehmus

Editor, Model Engine Builder Magazine™

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