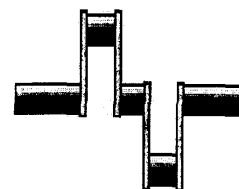


The Crank Calls

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

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September 2002

www.baemclub.com

**NEXT MEETING
21 Sept., 2002
AT 10 AM**

**AT
Robert Schutz's SHOP
366 40th St.
Oakland, CA**



PRIME September 27, 28, and 29

Next months meeting will be at the **San Francisco Model Yacht Club** at Spreckel's lake.

Novmber 16 will be at **Blackhawk Automobile Museum.**

Meeting Notes

August 17, 2002

Bob Kradjian, Secretary

Our August meeting was well attended with 53 present. Jeff Millen from Vallejo and Jan Paul from Salt Lake City were our visitors. Welcome to new member Gerald Baxter who lives in North Carolina. Gerald is a retired machine shop owner from South Africa, now an American citizen. We hope his travel schedule will allow a visit to one of our meetings in the future.

Treasurer Lew Throop tells us that we are still operating in the black and now have reached a record 85 members.

Our third—yearly—Blackhawk Auto Museum “Post Pebble Beach Open House” appearance went well. If you haven't visited the museum, be sure to attend our November 16 club meeting there. It is truly a world-class facility. Steve Meyers, Ken Hurst, Dwight Giles, and I displayed our engines to a small, but appreciative, group.

The next weekend was our 5th appearance at the GoodGuys show in Pleasanton. This involved three tiring, but exhilarating, days with thousands (no exaggeration) coming by to see, hear, and smell the little engines.

Stars of the show were BAEM's Southern California contingent of Bob Haagenson and Roger Butzen. Bob's original V-8 patterned after a small-block Chevy ran reliably all weekend. It is a real workhorse with a commanding exhaust note. The large block was carved out of billet. He also had his nifty Volkswagen engine and a Challenger. Roger ran his highly modified and spectacular supercharged, overhead valve, Challenger. It ran great, but some lower end trouble kept it out of action Saturday.

Dick Pretel, Lew Throop, Ken Hurst, George Gravatt, Pat O'Connor, William Nickels, Steve Meyers, Karl Van Dyk, Jim Piazza, and I showed our engines. At one point, I counted 34 engines on display. Giving a great helping hand was Shannon and Irene Lile. Also making an appearance was Steve Jasik, Chris “Senior Chap” Leggo, Paul Bennett, and even our founding treasurer, brother Steve Zimmerman. Officials from the GoodGuys staff were thrilled with our contribution, but it is difficult to deal with the huge crowds, especially when several hundred vendors are trying to get their cars and trucks in to pack up and leave at closing time.

Coming events are the PRIME show, September 27, 28, and 29. We plan to have our usual, large contingent there.

Remember that the October meeting will be held at Spreckel's Lake in Golden Gate Park. This will mark our third outing with the San Francisco Model Yacht folks. This occasion is in conjunction with their wooden boat show. A map and further details are in this newsletter.

We may make a smaller appearance at Gotelli's Speed Shop later in the year. The date is not settled at this time.

Bits and Pieces:

Lew Throop has made remarkable progress on his Jemma 7 cylinder radial. He fabricated the 14 valves, finished the pistons, rings and rods. The ignition system is next.

Dick Pretel gave us a peek at his four-cam, overhead V-8. It has hemispherical combustion chambers, 30-degree valves, and belt-driven cams to be ground by Roger Slocum. This will be a truly spectacular engine with a front-mounted external blower with ducting to the intake manifold.

George Gravatt showed a neat Bob Shores Silver Bullet with a magneto adapted from a commercial engine. It sparks nicely at 400 rpm on the starter. George joins Carmen Adams and John Vietti as our magneto specialists. George showed us his Upshur engine using a cd board and an exciter coil.

Jim Piazza brought his Upshur project with a built-up crankshaft secured with Lokset (a ceramic based type of Loctite.)

Irv Stephenson formerly worked for a company that made facing machines for surfacing large pipe flanges. He brought a hefty sample for us to check out.

Ken Hurst showed the John Vlavianos supercharger rotors, housing, and end plates. It's coming along nicely, and the castings needed only a skim cut to make them functional.

Kurt Van Dyk updated us with the progress on his pulsejet.

Pat O'Connor amused us with a "whatz-it?" It proved to be no problem for John Palmer to identify the unique, slotted, Hyatt axle bearing for a Ford model "T".

Tom Armstrong is working on his Mery Explosive Engine. He showed two crankshafts that were spoiled in manufacture. They both warped, even after an attempt at normalizing. A member suggested the use of a restraining fixture.

I showed a miniature Dooling (1/2 scale) and one of the smallest tether cars in existence featuring a 0.010 cubic inch Cox nestled tightly in the body.

Dan McRae brought another "whatz-it". This proved to be a drill-sharpening device. Oscar Ortiz and Carmin Adams immediately nailed it. Oscar said that he owned one, found it too complicated to use and gave it to a friend—who hasn't spoken to him since.

See you September 21. I may bring a new, sweet-running, Red Wing hit and miss. Finally solved the slow-running problem by removing the flyweight springs altogether. It made a huge difference and now it just ticks over.

For Sale

Measurement tools, mikes, file and many more miscellaneous items. These items will be available at the next meeting.

TECH TOPICS

BY
SCOTT OVERSTREET

All of you who were not at our last meeting missed another really good Tech Topics session. The 53 of us present were administered to by George Gravett, Ken Hurst and Dick Pretel — the subject being Ignition Systems for Model Engines — and my understatement of the day was that I learned a lot. I had no idea that so much, ready made, high tech, model size, ignition stuff is available. From the “after” questions and comments, I’m sure its safe to say that at least most others found the presentation very informative also. We received a general briefing and exposure to the details of the basic “Kettering” ignition system and its components and then some details describing various commercially available ignition modules which allow the use of solid state “Hall Effect” magnetic sensors rather than “conventional” breaker points. “Conventional” doesn’t seem to be conventional anymore — “Hall Effect,” “Variable Reluctance” and “Photo Optical” sensors (which were all talked about) seem now to be the standard in automotive as well as model applications. The importance of proper “Dwell Time” received considerable attention, too.

After the presentation, I asked the speakers to send me a few details that I might use to organize my notes and make it possible for me to document the presentation in some useful manner in this report. George sent me copies of the flyers that Mike Neal, of MjN Fabrication and Floyd Carter of Aero Ply Research hand out and Ken Hurst wrote a whole article – wow! After reviewing all received, I asked Ken if it would be OK to publish his article here. He of course agreed as it was his intention all along – and a very nice job too. Anyway, for a better education than I could give you from my notes, please read Ken’s article which follows this report and obtain and study copies of the flyers offered by the three vendors he references at the end of his article. From this point, if you need more, ask George, Ken, Dick and/or call the vendors.

Now, what’s up for our last Tech Topics of the year? In answer to personal requests received from a couple of our new members, that consider themselves beginners, for some attention to “beginner” subjects, Carl Wilson will use some of the parts of his Mery engine to demonstrate some basic layout procedures using the surface plate, rules, scribes and height gage. He will focus on finding the desired end part in a casting as received from a kit maker or foundry, planning a machining sequence, holding the casting, establishing an optimum and practical “datum” point and etc. If you have a project in construction that you think would add to the subject, bring it along and show us your machining strategy — the more the better.

And, Carl has asked me to ask you to call him at 650-967-7715 if you have a suitable projection screen, either stand up or pull down, that you could either bring to the meeting for use or better yet, donate to the group to go along with the “overhead” projector that he is donating and planning to use for his presentation. If you can’t find Carl, please call me at 650-941-3714 if you can help. Pretty good huh – a sound system, two white board easels, chairs, and now an overhead projector and screen (hope hope) — we are just about up with the 21st century now. See you there, and many thanks Robert, our club would be in tough shape without your shop which you so generously allow us to use for our meetings.

Scott

Ignition Systems for miniature 4 stroke engines

By Ken Hurst

I gave a talk at the BAEM Club meeting on 8/17/02 about an ignition system that I use. Also new systems that are available for purchase. I explained the Hall effect switch and the magnetic field (magnet) to trip the hall sensor. This is not a new area, but vendors have taken it to the next level and scaled it for the miniature engine builder.

The Hall Effect Pickup is real a neat little unit, they are fairly cheap \$1.50 and the earth magnet is \$1.00. H/E mounts easily and takes up less space than points, also it take less voltage to operate. It will operate any 2 or 4 stroke engine, singles to V-8’s. Some units require soldering the H/E to the wiring harness. With any small electronics components caution should be taken when operation high wattage solder gun or high heat. 15-Watt heat gun works great & use a heat sink. This system is just like points & require a dwell to charge the coil.

If your engine RPM is going to turn over:

1000 rpm 10 deg. dwell

5000 rpm 30 deg. dwell

10000 rpm 60 deg. dwell

Degree Rotation of the Crankshaft

Dwell is the amount of rotation of the crankshaft to charge the coil. The higher the dwell the hotter the coil will run and higher rpm the can obtained.

To figure out the dwell for a H/E it is like so. Dwell is machined into a trigger disk made out of steel.

Steel breaks the magnetic field and can be made to any size, it can one piece or sheet metal. This disk is .030 thick. I use one my Silver Bullet Twin and the trigger plate is 1" with a 3/16" slot = 40 deg dwell.



Formula for Trigger Plate:

Outside diameter x Pi 3.1416 = Circumference

Circumference divided by 360 = Per deg.

Per deg x Dwell need = Slot in trigger plate

Remember you'll only need 1/2 of the dwell on trigger plate because crank rotates 2 to 1.

Example: 20 deg slot will give you 40 deg @ the crankshaft.

Mounting the H/E sensor is up to you. The separation between the H/E & the magnet can vary up to 1/2". I use .030-air gap. on each side of the trigger plate. Alum. Material can be use to make bracket to hold sensor and magnet. I'm finding out that to strong of a magnet does not let the H/E open.

The pictures are samples of the system I use in my V-8 Challenger.





There are several vendors who sell the H/E units; you have to pick the one that fits your application.

Mike Neal
MjN Fabrication
15216 Sydney Road
Dover, Fl 33527
1-813-719-3220
Hall effect driver for 3.6 to 12.0 volts.

CH Ignition .INC
P.O.Box 1737
Riverton, Wy. 82501
1-307-857-6897

Floyd Carter
Aero Ply Research
2029 Crist Drive
Los Altos, Ca 94024
1-650-968-4246 Aeroplyco@aol.com



Dick Pretel's overhead V-8 project.



George Gravatt's Silver bullet with magneto.



Jim Piazza's Upshur project.



Bob Kradjian's 1/2 scale Dooling.



Karl Van Dyk's pulsjet thrust tube.



Ken Hurst's blower parts.

The Good Guys 2002



Dwight Giles at Blackhawk.



Steve Myers and Bob Kradjian at Blackhawk.



John Palmer's Wright engine.



Lew Throop's Jemma radial head.



Bob Kradjian's tether car with Cox .010.



V-8 block.



Irv Stevenson's flange refacer.



Tom Armstrong's cranks.



Jemma radial distributor.

Photos by Mike Rehmus, Irene Lile, Ken Hurst, Lew Throop and Karl Van Dyk.



Consult a map for directions to Golden Gate park in San Francisco.

