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

The Crank Calls

May 2004

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NEXT MEETING
May 15 – 10AM
At Robert Schutz's Shop
366 40th St. Oakland, CA

Upcoming 2004 Club & West Coast Events on Page 8

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

TO JOIN THIS CLUB
Contact Lewis Throop at
27272 Byrne Park Ln.
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lthroop@aol.com

MAKE $25.00 CHECK PAYABLE TO LEWIS THROOP

Meeting Notes

April 17, 2004
Bob Kradjian, Secretary

President Ken Hurst called the meeting to order at 10:08.

Guests were Art Gibson, Matt Peck, and Stewart Slocum, Roger Slocum's son. Welcome, and please visit again.

Treasurer's Report: Lew Throop sent $845 to EDGE & TA for our insurance. This leaves about $1900 for the year. This is to cover the approximately $100/month for the newsletter expenses and $20/month for the website. We now have 97 members. If anyone wishes to donate equipment, tools, supplies, etc. to be sold at the club swap meet in June the funds will be added to the club treasury. Simply mark the items as "Club" and Lew will collect the money.

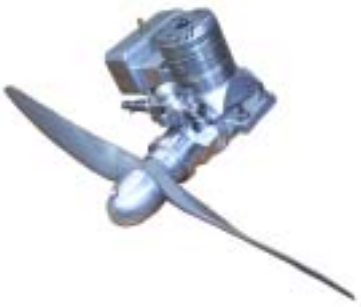
Secretary's Report: I confessed to losing some notes from last month and Dick Remington built the nice John Deere that was rudely presented as an orphan. As announced in the last newsletter, Eugene Corl will be running his Chevy engine at NAMES. Tom Armstrong will also attend and has promised to phone a report, which I hope to add to this newsletter.

Special Events: Coordinator Dick Pretel gave out passes to the members exhibiting at the Hillsborough Concours, May 2. This is our first show of the year.

George Gravatt gave an additional report on the visit to The Mazda R and D convention in Irvine. Ken's son works as a technical writer for Mazda. They ran 17 engines to a very savvy and appreciative group. Maybe the most appreciative was Mrs. Hurst; Ken bought her a new Mazda!

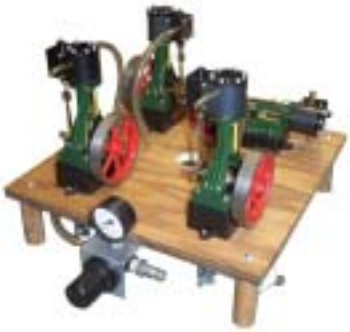
Bits and Pieces:

Al Vassalo dipped into his bag of goodies and came up with an 0.80 cu. in. 2-cycle single that he flew in various aircraft in the past. This was an entirely original design from billet with a nifty built-in muffler. This is a very modern and competent-looking design similar to the Austrian Profis of the 70's. The lapped piston is a bit worn and Al is planning to make a new one. This is a departure from convention where lapped pistons are generally seen in the smaller engines and ringed pistons in the bigger ones. The carburetor uses a needle valve "slide" for the wider settings.



Pat O'Connor brought in another original. This one is truly unusual. It is a twin-crankshaft, 2-stroke, opposed piston, spark ignition, uniflow engine. Five, one and half inch, gears will connect the two cranks. An external

blower will provide fuel flow and pressure. The bore and stroke is one by one inch, but that makes it one by two inches for both sides. The whole project looks to be CNC machined, but Pat is doing it on a conventional mill with a Volstro head. Please keep bringing the engine in so that we can see the progress, Pat.



Carl Wilson had four nicely constructed Stuart steam engines mounted on a base with connecting line for air-pressure. A 10H and a 10V were included. He also shared his technique for making nifty little "Builder's Plates" using a Gorton pantograph and a tiny homemade engraving cutter.

Lew Throop made his cutter from a broken carbide drill and used a tiny piece of Pergo flooring for the plaque material. It machines beautifully, says Lew.

He also described the Hilsch Vortex Tube for cooling cutters. Some discussion followed, concerning the need for substantial air volumes to satisfy the thirsty vortex. The web site to see is: http://www.visi.com/~darus/hilsch/ The web site is a bit funky, but decipherable with references to James Clerk Maxwell and the famous "Maxwell Demon." I haven't heard a reference to those two worthies in a half a century. Rudolph Hilsch is the long-dead German who tugged the idea from a Frenchman, so there you are.

Dick Pretel continues his picture-perfect work with even another version of the Wall Four. This one has nice touches including an exhaust manifold machined directly from the cylinder head. He will use Mike Neal electrics, and electric oil and water pumps. Nice job Dick.

George Gravatt showed and ran his "York Hit and Miss" engine. The kit is produced by Dick Shell and Son (2835 Camp Rd., Manheim, PA, 17545). They describe it as a semi-scale adaptation of the York full-sized engine. It runs well, but all of George's engines seem to behave.

Dwight Giles showed a shop-made, original radius-cutting table. Made with the usual Giles finesse, it operates smoothly and has cammed stops for repeated operations.

Dwight and Ken have teamed up to create another very hot Wall Four. This one sports a bright yellow crankcase and uses the overhead valve system they have perfected. The cam is "a bit wild" even for Ken with over a hundred thousandths lift, and a 110-degree lobe split. Carburetion is via a Walbro with a pump. Ignition is Hall effect using a 12-volt MSD coil that puts out 40,000 volts. The compression tests out at 120 PSI, and it tachs at 8,000.

Steve Jasik, the man with the heaviest lathe in the club, needed a wrench for his power chuck. Declining to pay the big bucks for a commercial device, he said "rubber is incompressible" and made a simple, yet elegant, draw-bar device that pulls a piece of rubber automotive hose with a threaded bolt (like a lap) that grips and allows easy withdrawal of the draw-tube. How heavy is his lathe? Well, if yours isn't over four tons, you lose.

Bob Johnson showed us two enormous cams from an engine he used to work on. It was an LSV-16 Cooper-Bessemer. Here are some stats: 23 foot shaft, 15" bore, 22" stroke, 3000 horsepower at 360 rpm, over 11 feet high, and 17 and half tons. It was used to pull a generator. The generator was 2 stories high and 110 tons (heavier than your lathe, Jasik). Back to the lobes; they had large keyway slots to maintain index, actuated 3 inch rollers and had a lot of dwell, one was asymmetrical (or worn a lot). Bob explained all of this from memory and with a delightful, dry humor.

One last thing: The radiator man in Concord is identified only as "Johnny" but here is his correct phone number: 1 (800) 525-0099. The mailing address is 2322 A Bates, Concord.

Hillsborough report:

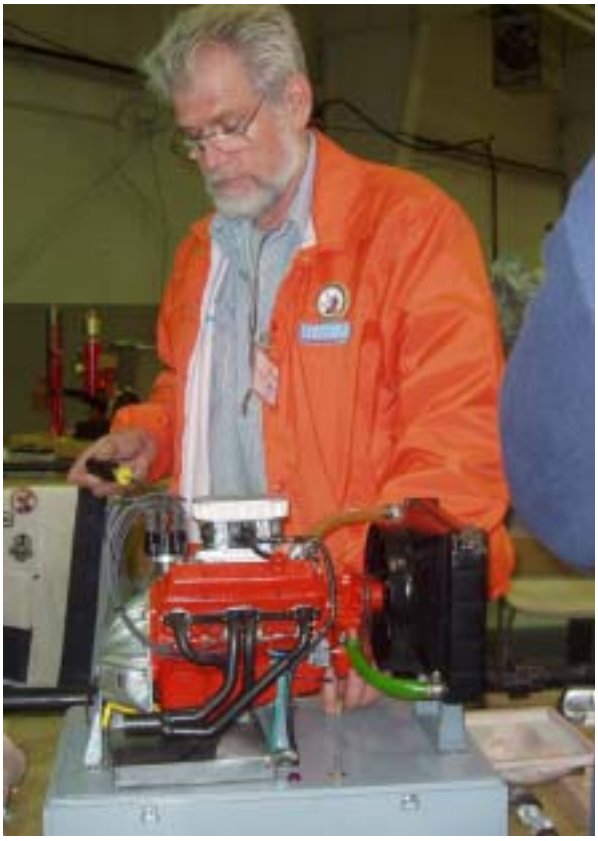
BAEM made a triumphal return to the Hillsborough Concours d'Elegance (our third showing and Dick Pretel's first as special events coordinator). We were situated in a breezeway between two school buildings and escaped the heat that made life a bit tough for the car owners on the field. The Hillsborough folk were accommodating with tables, coffee, and a catered lunch.

The roar (or pop) of our engines continued all through the day and we enjoyed substantial crowds and intelligent questions. Exhibitors were Hurst, Gravatt, Pretel, Nickels, O'Connor, Bennett, Jasik, Throop, and apologies if I missed anyone. Remember, no Palo Alto Concours this June.

NAMES 2004
April 24th and 25th
By Tom Armstrong

I think NAMES is my favorite model exhibition. The show was held in a large arena in Southgate Michigan for the third year in a row. As usual, the number and variety of models was overwhelming.

Some Highlights



Eugene Corl had his Chivvy as well as all of the patterns on display. The engine was a real attention grabber. It really drew a crowd when he fired it. Congrats to Eugene for finishing such an impressive project.

Tom Arnsburger had one of his ten-wheel locomotives on display. It was about 75% complete. He's making 18 of them and they have all been sold. That is a total of between 5 and 10 ton of iron, so it is not a trivial project.

Dick Williams had his three-cylinder Fairbanks on display coupled to a dynamo with a magnetic coupler. Dick is selling the castings for the dynamo. It makes a good looking load for an engine of that size and even somewhat smaller engines.

Smithy's new CNC mill caught my eye. The model on display was a three-axis bed mill, close to the capacity of a Bridgeport, but with a smaller footprint. The show price was $11,000. That is a pretty good price for a new machine.

CNC is the wave of the future for the hobby, without a doubt. Projects on display using CNC included routers, punches and mills. While I didn't see any robots, there were probably some there.

One model builder displayed his talent for building in quick time. He displayed two Caterpillar tractors and a flatbed truck with one tractor loaded on it. He had built these in hours, not weeks. They were powered by electric motors not I. C. They were not detailed scale models, but there was enough detail to identify the prototype without any question.

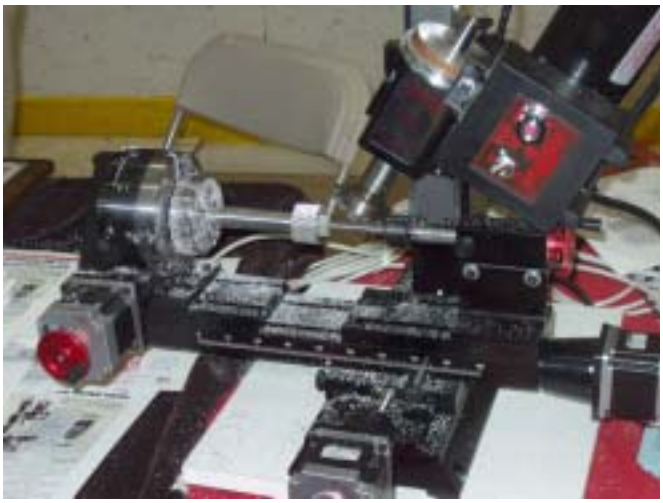
Mike Neal had his new Wall on display (running beautifully). He was really pleased with it.

Seminars
A total of eleven seminars were held on Saturday and Sunday. I attended the following three:

Rudy Kouhoupt -- Non-Compressive I. C. Engines
Rudy described the history of this type of engine (they proved to be very impractical). It used a two-stroke cycle, firing at about 80 degrees after TDC. Rudy has designed and built a small engine of this type. The plans are for sale. No castings used.

Bill Huxhold – Model Building
Bill is a master craftsman. He likes to build models that are quite small and has won many awards at NAMES. He showed some tricks to use in fabricating flywheels and handwheels.

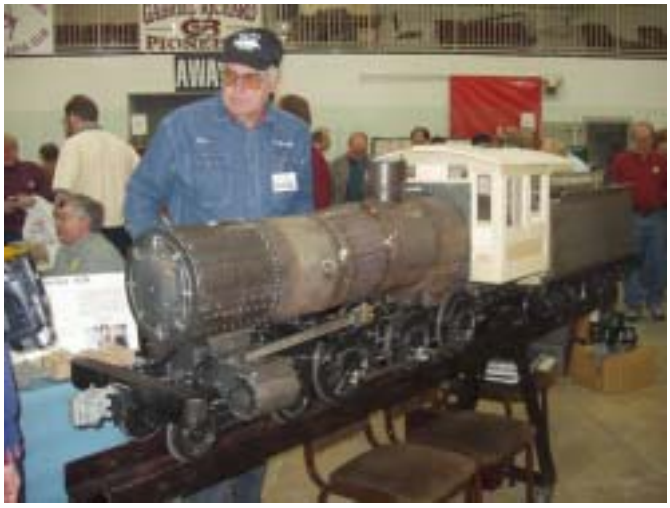
Roland Friestad – Using CNC in the home shop
Roland acted as the MC for a program with several speakers each of who gave a little different slant for applications in the home shop. Topics included a CNC punch (low budget); rack and pinion motion, driver/controller components and sources of free or low cost software.



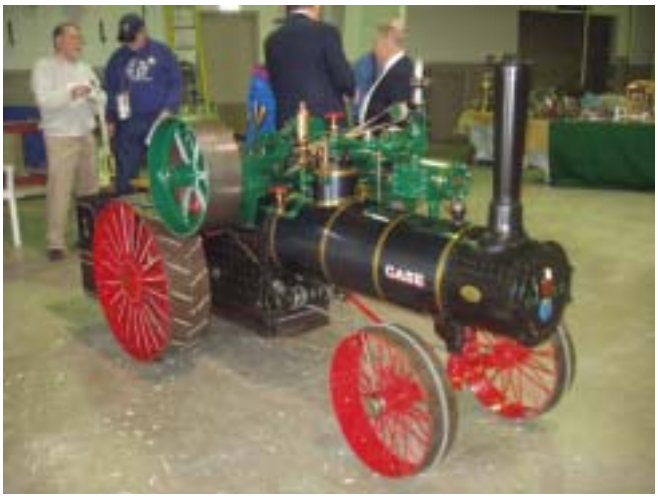
The following paragraphs are highlights and pictures of NAMES engines.

One table had a number of different castings which caught my eye. The man had a block for a V16. He said it was a Lincoln V12 block to which he had added 4 cylinders. He was pretty vague about the engine. I don't know that block, as cast could be used to build a working engine. The same is true of the Buick straight eight casting beside it.

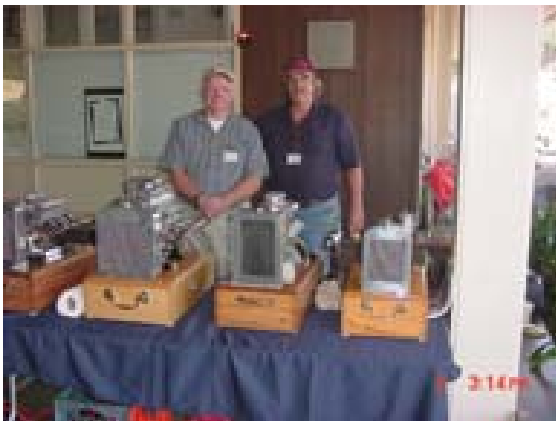
I am interested in steam powered tractors. The Case, in approximately 6 in. scale is a beauty. It has been to the show before. The owner keeps it in immaculate condition.

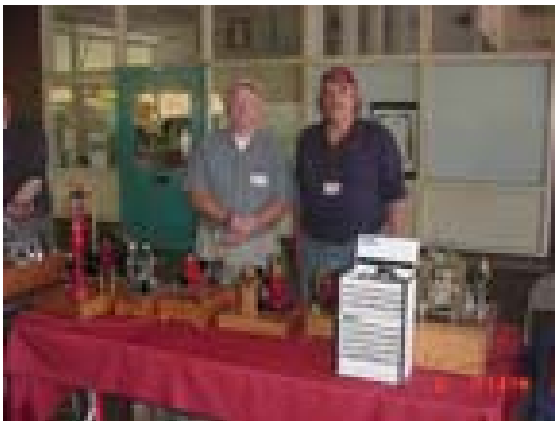


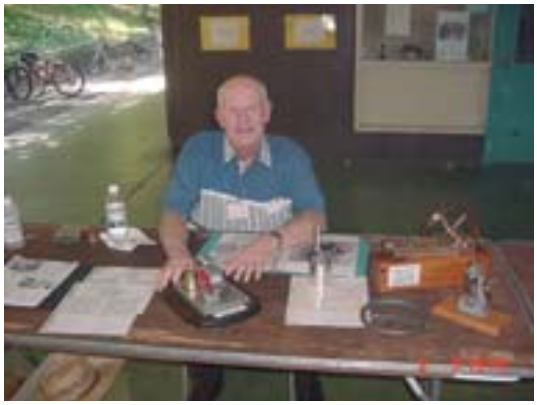
One of the advantages of a four-axis CNC mill is that it can be used for special operations such as cutting a spiral gear. Sherline demonstrated this with their CNC milling system.

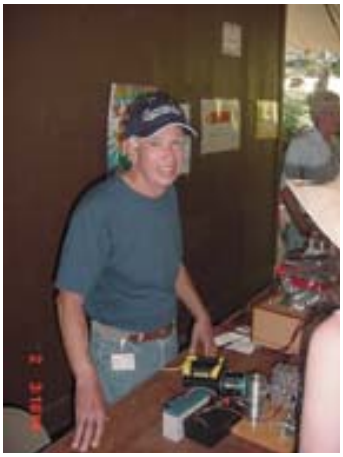


BAEM Club Event Hillsborough Concours d'Elegance on May 2, 2004









Photos By Ken Hurst

TECH TOPICS BY PAT O'CONNOR

TECH TOPIC AT THE MAY MEET

Almost all of our miniature engines, especially wet liner types, use a cylinder liner of iron or steel. This month, to complete a series on the basic engine block construction, we will have an open forum discussion on, what else, liners. The goal will be to examine materials, design, wall thickness, honing and installation. Please bring, for show, any relevant tools, jigs, hones, etc.

Tech Topics: LOCTITE
April 17, 2004
By Carl Wilson

Our guest speaker was Sam Bail, the local sales representative of the Loctite Corporation. He gave us hints and tips for the use of the Threadlocker and Retaining Compounds. Loctite takes up the space between mating parts and thus controls vibration, movement, and corrosion. Loctite can be used to lock threaded fasteners and to assemble round parts such as bearings, shafts, collars, and pulleys. Some of the compounds will fill large gaps and are useful for repair of slightly worn machinery parts.

What Sam said:

Loctite will not work on plastic.

No oxygen plus an "active" metal yields a cure. Metals differ in their ability to catalyze the Loctite curing chemistry. The most active are copper and its alloys. Aluminum and stainless steel are the least active; steel is between them. Anodized, black oxide and some plated surfaces are inactive.

Heat alone can cure Loctite. Sam showed a piece of Loctite, that is, he poured Loctite into a container and heated it in an oven to cure. We don't need pieces of Loctite, but we can use heat to initiate or decrease the curing time.

Primers are used to speed the cure and may be required on inactive surfaces. Primers contain a copper salt and a solvent. Copper ions will initiate the cure between inactive surfaces. Too much primer or too close a fit can cause an overly rapid cure. There are two main primers: N and T. The Loctite catalog gives recommendations, but in many applications either may be used.

Apply the Threadlocker compounds to at least three threads.

Insure that Loctite wets all of the assembled areas of the mating parts, eliminate air pockets, and clean off excess material from the joint. Work the parts to ensure complete wetting.

Selection of the proper Loctite compound:

- Are you locking threads or retaining parts?
- How much strength do you need?
- Will this joint have to be disassembled?
- How much clearance is there between the parts?

Less clearance requires a lower viscosity compound. It is possible to have too little clearance. Three to five thousandths total clearance is suit-

able for many applications.

The Loctite bond can be broken by force or by force and heat. If necessary heat the joint to 350 – 400 deg F and then wrench apart.

Loctite compounds will seal the joint and prevent rust, corrosion, and fretting.

Loctite Threadlockers and Retaining Compounds have a long shelf life. If they will pour, they will probably work. Store them only in the original factory bottles.

Use #222 for small screws.

#290 is a wicking sealant that can be applied after the parts are assembled. It can also be used to seal porosity in welds and castings.

Some of the Loctite compounds are available in stick (solid) form for easier application.

I received the following from Ray Monahan 17 Spruce Court Shelter Cove, CA 95589.
Ray, thanks for sharing your beautiful engine with the club members.
Bill Nickels, editor

Dear Club Members,

Since joining the BAEM Club I have enjoyed (and look forward to) The Crank Calls newsletter. Since I live 200 miles north I don't expect to attend many meetings. I do expect to hook up with my brother, Frank, and get to one or two.

I thought it might be fitting to send you photos of the Bob Shores' Silver Angel.
I completed it last December 2003.

You might note the fuel tank carved out of the support base. A 3/16 inch brass post from the points through an insulator to a cavity under the base plate replaces the exposed hot-wire. Not so obvious are the magnesium con-rod and the C-40 cast iron crank with the counterweights machined monolithically is that a word?

I am now attempting Bob's Eagle.
Keep up the good work
Ray Monahan

Upcoming 2004 Club Events
By Dick Pretel, Events Coordinator

BAEM Swap meet and Running Engines, June 19

The BAEM Club will not be showing at the Palo Alto Concourse in June. They said "they don't have room for us" Next year the show will be relocated to Page Mill road on the Stanford campus with twice as much area and a 4 story parking lot. We will decide later if we want to show there next year or some time in the future.

GoodGuy's West Coast Nationals, August 27-29

Blackhawk Automotive Museum, November 20--probable date.

West Coast Engine Exhibitions For 2004
Gas Engine Antique Reproduction in Portland, Oregon September 25 & 26, 2004

2nd Annual Men, Metal, & Machines! Visalia Conventions Center Visalia, CA
October 23 & 24, 2004 – probable date

WANTED
Small milling machine in good condition.
Contact Roger Slocum
408-866-6243
Email: okiedebby@cs.com

Surface Grinder: Free to Good Home
6 x 12 manual surface grinder needs good home and lots of care. If sweat equity is your idea of fun, this may be the project for you.
Carl Wilson 650-967-7715
Email: toolcarl@comcast.net

FOR SALE
Grizzly G1005 Mill-Drill $650
Contact Jim Piazza 408-446-4825
Email: jpiazza@ix.netcom.com