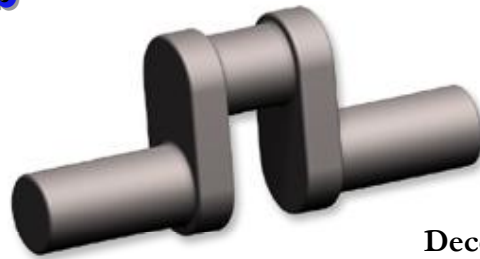


# Bay Area Engine Modelers Club

## The Crank Calls



December 2016

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### **MEMBERSHIP \$25.00 US**

Contact Paul Denham at  
pedenham@comcast.net

### **NEXT MEETING**

**December 10, 2016 at  
Golden Gate Live Steamers  
Tilden Park  
Berkeley, CA**

Doors open at 10:00 AM  
Meeting starts at 11:00 AM

### **Upcoming Events**

**ANNUAL POTLUCK LUNCHEON on  
December 10th - Bring a food dish to share**

BAEM meetings: 3rd Saturday of the month *except  
for the December meeting which is the 2nd Saturday of the  
month.*

### **MEETING PLACE FOR December 10th**

We will meet this month (December) at the Golden Gate Live Steamers meeting room in Tilden Regional Park, Berkeley, CA.

### **MEETING NOTES**

November 19, 2016

Bob Kradjian, Secretary

President Paul Denham called the meeting to order at 10:08 am. We are privileged to again meet in the Redwood City Tech Shop's spacious conference room.

**VISITORS:** There were no visitors.

**FIRST POPS:** Paul recounted his efforts in resuscitating a very old (1915) Holt Tractor engine from a Coles kit. It was originally constructed in the late 1940's or early 1950's as best can be determined. Dwight put in all new rings and it was quite stiff. The addition of WD-40 to the fuel help greatly in loosening the fit, and with additional running time, it's turned into a nicely restored runner. The distributor was created by Dwight Giles and is the same as he is employing on his current Wall Four.

Paul also restored an old hit and miss engine he had built with his father's help in 1982. It had

previously been a cranky runner, but is now fully reliable after Paul's up to date ignition and other improvements.

**EVENTS:** We had an excellent reception and engine show at the Golden Gate Live Steamers facility on October 23. The cordial relationship between our two groups is a delight.

**CHRISTMAS MEETING:** We will have our annual Potluck dinner at the Golden Gate Live Steamers meeting room. We will provide utensils and paper goods. We can start meeting and socializing at 10:00 am. Bring your favorite dish and we have a great time if all past meetings are a guide!

**VISUAL AID DISCUSSION:** An overhead projector or large LCD screen was discussed as an adjunct to our audiovisual needs. Mike Rehms volunteered to check out the available options with or without an additional camera. The Tech Shop has their own system. The projector could be used at the Golden Gate facility and left there for their use.

**CORRESPONDENCE:** Jim and Bonnie Moyer sent the club a lovely letter of thanks for our help in their attendance at the WEME show in August. Truly, we are the ones who should thank them for

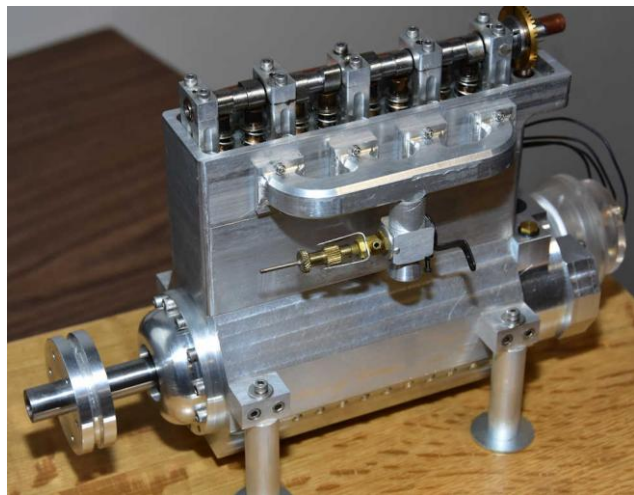
their wonderful display of the 1/6<sup>th</sup> scale Corvette engine, his four-cylinder Coyote, and his original test for micro bore and stroke feasibility with a tiny vertical single. All these have bores substantially less than a half-inch! In addition he brought a friend's T- Bucket with a Challenger engine, period correct. He totally rebuilt the Challenger to turn it into a reliable runner. The car has full suspension, differential, steering, and gearbox to go along with the bodywork.

**MEMBERSHIP LIST:** Our President is planning a password-protected list. If members do not wish to be included on such a list, let Paul know.

**TREASURER'S REPORT:** We are solvent, and have paid our for our show compressor. Those funds will be eventually reimbursed.

**CLUB BADGES:** If you are a member in need a badge, contact Mike Rehms ([mrehms@byvideo.com](mailto:mrehms@byvideo.com)) who has offered to produce them.

### **BITS AND PIECES**



Peter Lawrence showed us his four-cylinder in-line engine that he is developing as a proof of performance. This is his first attempt at an internal combustion engine. He is making good progress on this build with excellent compression, working ignition system, intake and exhaust manifolds, a model airplane carburetor, and a functioning oil pump. The overhead camshaft is supported on five bearings. The brass bevel gear (4 to 1 ratio) to drive the cam looks possibly a bit small for the forces of



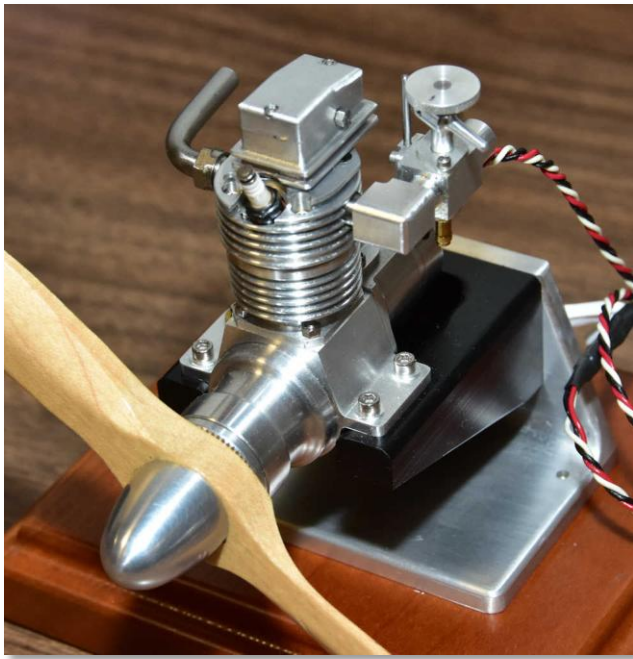
the valve springs. But he'll soon find out! Overall, this is a very nice piece of work thus far.



Peter detailed his experiences with machining his crankshaft from 144 stress-proof steel. When first assembled, it was very stiff. He used Timesaver lapping compound, a “non-charging” formulation, to polish the bearings. This resulted in a freely turning shaft and a nice satin finish on the bearing surfaces. Timesaver is available in yellow and green formulations. Yellow is for soft metals, Babbitt, and brass. The Green is for hard metals, steel, cast iron, and hard bronze. It is available as: coarse, medium, fine, and very fine. It is packaged as a powder to be mixed with oil as used.

It is also available from Brownell as: 800 grit. Their product uses garnet as an abrasive, which breaks down rapidly. The compounds are also available in 600 and 1000 grit. See: [brownells.com](http://brownells.com) for ordering information.





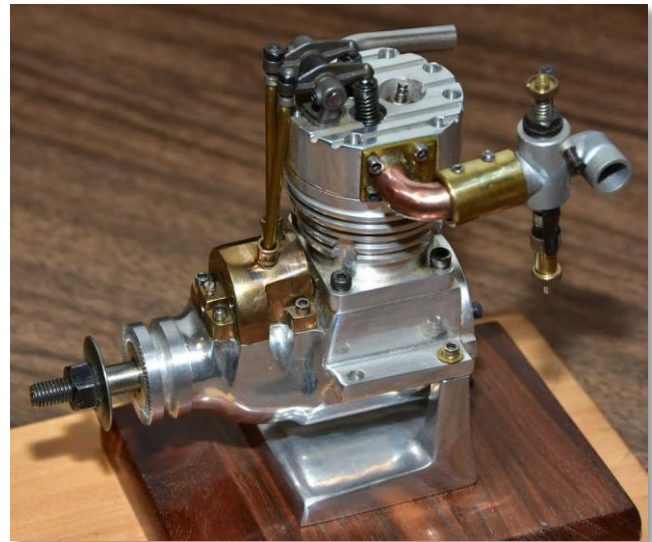
John Meredith brought two lovely engines. The first is a "Robin" single-cylinder design from the late Eric Whittle of the UK. John built the engine several years ago from plans in "Strictly Internal Combustion" magazine. Do yourself a favor and look up "Eric Whittle Robin" in your favorite search engine.



John found that it was such a good runner that he decided to take the basic cylinder design and modify it to create the entirely original three cylinder radial shown today. He extended the stroke a bit to half-inch and the bore is also at half-inch. He used bronze bearings for the cam and master rod. He incorporated a ring gear on the shaft with two idler gears for the cam with two sets of lobes. The firing order and shaft rotation are in the same direction.

The engine is now close to completion and will be the latest addition to John's stable of radial engines. He already has two nine-cylinders and a five-cylinder.

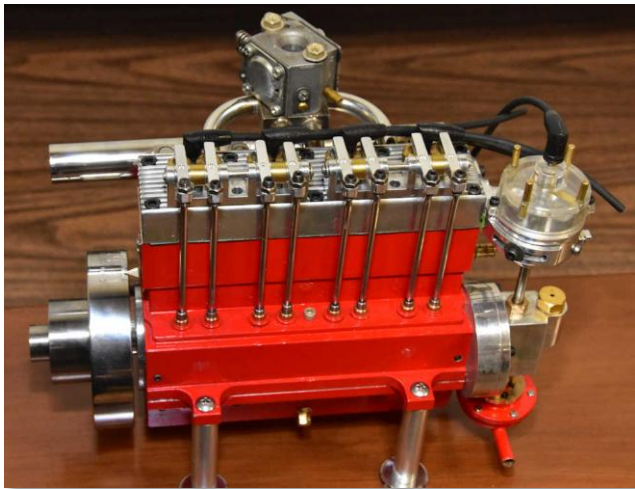
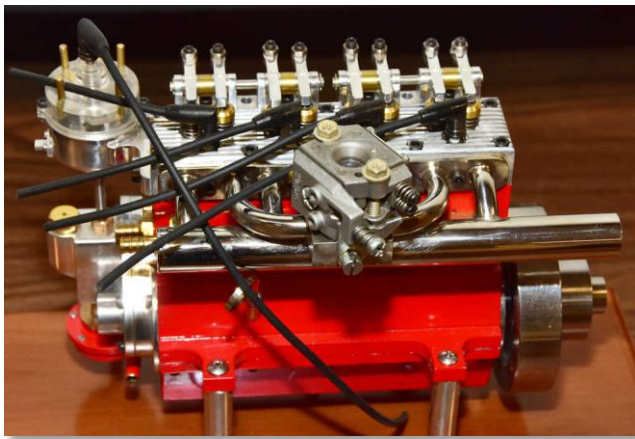
He had earlier completed another Eric Whittle design, a "PeeWitt" four cylinder horizontally opposed from SIC. Again, a look at Eric Whittle and PeeWitt on the 'net will give you lovely images of a fine design.



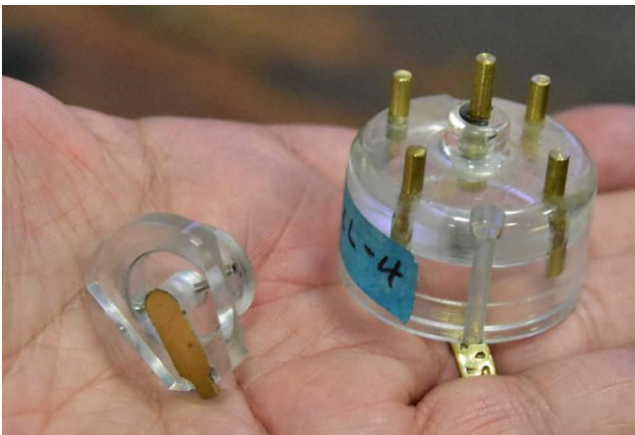
Your secretary gave a report on a Saito .91 build that used the unusual method of taking a commercially available engine and replacing it, piece by piece. The Saito is a reliable four-cycle single. First, the block was "carved" from 6061 aluminum. Then, all parts were reassembled in the new block and the engine tested by running. Next, came the crankshaft and the same process followed. In this manner nearly all the parts were replaced which resulted in two running engines with only a few small parts retained from the original pattern engine (rocker arms, cam gears, and carburetor). This method allows a neophyte machinist to proceed with a solid method of checking each step as the replacement engine develops.

Pat O'Connor told of his experience with Gage pins and Timesaver compound to accurately size connecting rod big ends. The abrasion did not damage the hardened pins but did create a discoloration.

Paul Denham passed around a sample of Gore-Tex, a gasket material that has remarkable ability to withstand pressure, oil, and chemicals.



Dwight Giles brought us up to date on his modified Wall Four build. He completed the distributor incorporating a small lateral ramp to anchor the Hall effect sensor. The sensor can be attached with a short piece of shrink tubing for easy removal.



He passed around the nicely polished, clear acrylic distributor, cap, and rotor. Details of the stainless steel manifold TIG welding and bending process were presented.

The mounting case was made from pieces of beautiful and very old growth, fine grain, redwood. He finished it with four coats of varnish. This excellent engine is nearing completion and we are grateful to Dwight for allowing us to follow the progress of the build.

Dwight reminded us to engrave your name as builder and the date on the block when you complete an engine.

Dwight has learned of a 12" X 36" Craftsman lathe in excellent condition that is for sale.

Also for sale is a three-wheel kit car using a Gold Wing Honda engine with many of the "fixxins" to make a fine car. He wants \$2500 for a bargain project. Contact Dwight or Paul for details on these two items.

Mike Rehms shared his experiences with 3-D printing.

He decided on a QiDi Tech printer at around \$450. He purchased it from Amazon, but be warned that it is now listed as unavailable. It comes with an SD card, software, test piece elements, is all metal, and has gained solid reviews. It works on G code. It can print in "wood", carbon fiber, metal, clear, ceramic and even "rusty metal"



First, he showed us an attempt at a distributor cap with fair results. Next, he demonstrated an elaborate novelty marble device with four different tracks for steel balls to roll down. You will have to see the picture, words won't help here. Rest assured that it could only be made on a 3-D printer.



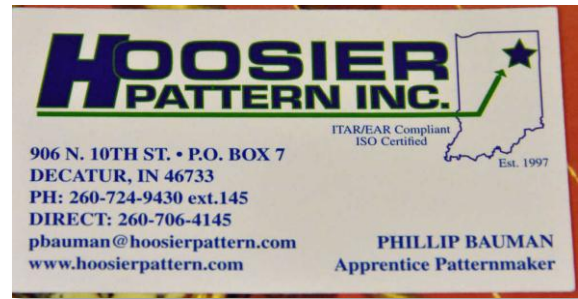


When someone remarked on a poor surface, Mike said that if one places a finished piece in a tin with acetone, the vapors will smooth the surface to a fine finish.



Finally, he is creating a LED ring light for a milling machine with his new 3-D. Held to the machine by magnets. For the light source, he is using "Angel Eyes" cheaply available DX.com and with power supplies for only \$0.92!

SEMA INFO:



Aaron Keller attended the huge SEMA show this month and told us of a group (Hoosier Pattern, Inc.) that uses a 3-D printer to make the sand casting blocks for a one fifth scale engine block (a 327 V-8). They are in Decatur, IN and answer to: [www.hoosierpattern.com](http://www.hoosierpattern.com). They claim to be the only shop in the United States to own and operate a 3-D sand printer in house.

Mike Rehms claims that Aston Martin is now planning to make their engines using 3-D manufacture. Rolls Royce is offering to print the interiors of their automobile and they already use 10,000 printed parts in their cars.

### HAPPY ANNIVERSARY BAEM!

It will be our 23<sup>rd</sup> anniversary as a club on December 17. That date in 1993 marked our first meeting at Dean Lewis associates in Hayward. Over 30 attendees showed up, but by our third meeting, we were up to 89. The group was headed up by Gordon French who also hosted the first meeting of the world famous "Home Brew Computer Club" in his garage. Thanks for launching us Gordon!

## THE PICTURE PAGE

PHOTOS FROM OUR NOVEMBER 19TH MEETING

