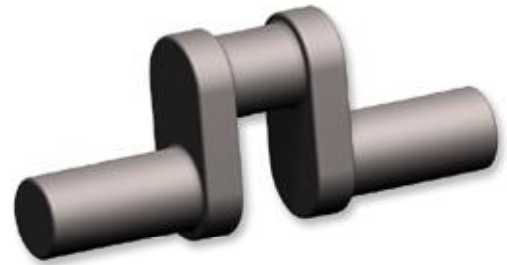


# The Crank Calls



December 2013

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## **MEMBERSHIP \$25.00 US**

Contact John Gilmore at  
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### **NEXT MEETING**

**December 14, 2013** at  
Chabot College, building 1500  
25555 Hesperian Blvd, Hayward 94545  
Doors open at **10:00 AM**  
Meeting starts at **11:00 AM**

### **Upcoming Events**

BAEM meetings:

3<sup>rd</sup> Saturday of the month except December  
**December 14<sup>th</sup> Meeting & Annual Potluck**

## **MEETING NOTES**

November 16, 2013

Bob Kradjian, Secretary

FIRST OF ALL, HAPPY 20th BIRTHDAY TO BAEM!

Our first meeting was December 17, 1993

President Don Jones called the meeting to order at 10:00 am

**VISITORS:** There were no visitors.

**FIRST POPS:** There were no first pops.

### **EVENTS:**

There are no scheduled shows. The Goodguys Gazette just out, had a nice two-page spread on our August WEME showing.

**TREASURER'S REPORT:** John Gilmore reports that we are solvent with no substantial changes. Annual dues will be coming up soon.

## **CHRISTMAS POT LUCK LUNCHEON!**

Please note that our December meeting will be at 11:00 am on the 14<sup>th</sup> one week early. Please follow our long-standing tradition of bringing main courses, deserts, or other goodies as you wish. For some magical reason, this has always turned out to be a well-balanced feast and we invariably have a fine time of eating and socializing.

**NEWSLETTERS BY E-MAIL:** Our fine newsletter editor reports that there were several "bounce-backs" on e-mails sent. There are also about a dozen members who do not have e-mail addresses on file. Please let Larry Zurbrick know of your e-mail address if you wish this method of delivery. We hear rumors that several of our fine members do not have e-mail service in their caves!

**CLUB BADGES:** If you need a badge, contact Mike Rehmus who has offered to produce them.

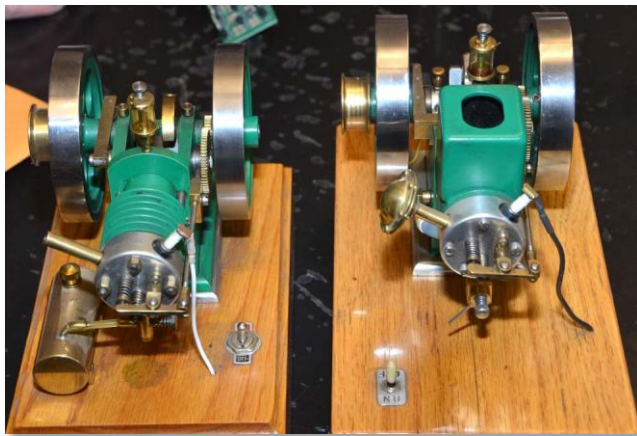
### **TUBE BENDING MADNESS !**

Computer-controlled tube bending is now a well-developed technique using a single die. There is

near-perfect roundness and a smooth and even finish with this amazingly fast machine. Sharpe products bought this from Nissin, and it's remarkable! Treat yourself to a short video on YouTube if you haven't seen it. Find it under: Sharpe Products NISSIN 3D Tube Bender Video.

It is with sadness that we report the passing of Bob Haagenon many months following a stroke. His prodigious talent as a builder and his friendly and optimistic attitude made him welcome at our yearly shows. He and close friend, Roger Butzen, often made the long trip from Southern California.

### **BITS AND PIECES:**



Dwight Giles showed two Upshur farm engines he fashioned about 12 years ago. One finned, the other cooled with a hopper. He discourages building the air-cooled version as the design resulted in flexing at the base of the cylinder. The hopper version is a far sturdier design and resulted in a fine-running engine. If the bore is increased to 7/8ths from 3/4 inch, the engine runs even better.



Dwight generously donated two cylinder and hopper assemblies that were silver-soldered together along with plans to complete the engine to club

members who will pledge to actually build the engine. He recommends a five-thousandths taper in the sleeve, so that the sleeve contacts only during the last quarter inch of the press fit.

A discussion of paint and powder coating for these little engines followed. Dwight used automotive acrylic enamel that is no longer for sale in California. John Gilmore favors powder coating and uses an inexpensive unit (about \$60.00) from Harbor Freight. I purchased a similar unit from Eastwood. Powder coating does require baking in a small oven at about 300 to 400 degrees. Our late member, Carmin Adams, sent parts for a large Stirling engine out for commercial coating, and the process resulted in warping of the aluminum cylinder. Mike warns against powder coating aluminum parts that need to hold close tolerances.

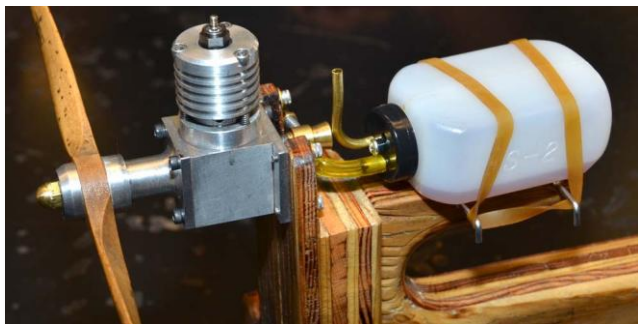
Jim Piazza reports that the Sunnyvale Library will actually do some 3-D printing tasks at no cost.

John Palmer is quietly rebuilding a John Bean opposed twin engine originally used for orchard spraying in San Jose before World War I. It has a 4 3/4" bore and 6" stroke. The engine can be started on gas and converted over to kerosene after warm-up.



Mike Rehmus reported on problems with the "Humbug" single cylinder two-stroke (0.09 cubic inch) compression-ignition engine previously featured in his magazine. The design is by Ron

Chernich and is "...designed for the beginning Model Engineer. " The build articles started in issue 21 (November-December, 2009 of Model Engine Builder. It was designed to run either as a glow plug engine or with compression-ignition head. Mike described the problems with obtaining batteries for driving a glow plug and even greater problems with "diesel" (compression-ignition) operation. Fuel is very expensive and hard to obtain for both glow and diesel operation. He has also experienced problems finding propellers for these small engines. As a result, he is not promoting the widespread building of this type of engine.



Another approach for the beginning machinist is to attempt the Schroeder "Simple Single". This engine uses a Cox .049 cu. in. cylinder, piston, rod, head and glow plug assembly. The beginning machinist is left with the crankcase, crankshaft, and rear intake rotor to finish. This may be an alternate approach to early attempts at machining and fitting. There will be one such engine at the December meeting. Due largely to the amazing fit of the Cox piston and cylinder, they run quite well. As we think of Ron Chernich and his wonderful "Model Engine News", he sadly reports that the December issue will be his last due to his deteriorating health.

See: [www.modelengineneeds.org](http://www.modelengineneeds.org) if you are a lover of model airplane engines or miniature engineering in general. Browsing through his Editorial Index and reviewing the topics will yield a wealth of nostalgia and knowledge.

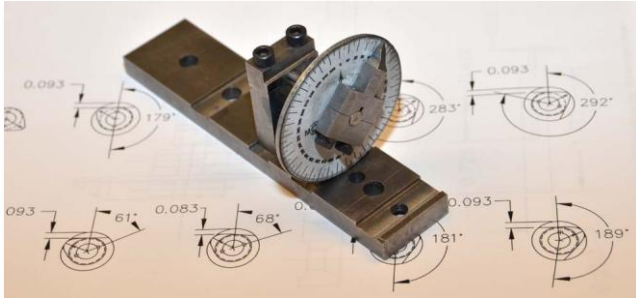
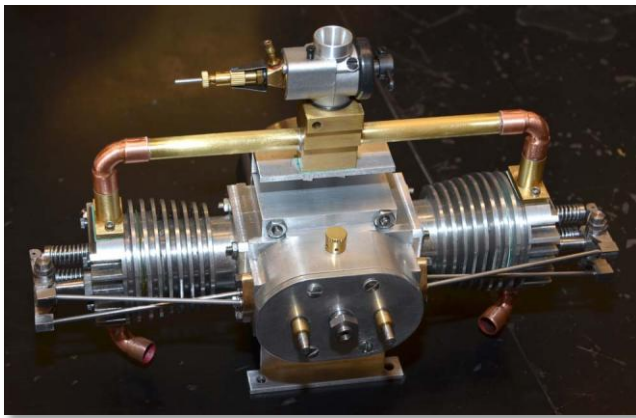
Don Jones told us about the "Mini Metal Maker" which is to be marketed for around \$1,000. For details, see: [minimetalmaker.com](http://minimetalmaker.com). This will be available as a kit or a fully formed machine with installed software. This device combines the use of metal clay and 3D printing. The metal printer is not for precision work, possibly best for art objects, but can create any small detailed metal object. It is

small; the object will be 2.4 inches per side or smaller. The resolution is up to 1600 steps/mm. The line trace is 450 microns. They are attempting to reach the 200-micron threshold. Check out "metal clay" on Wikipedia for details on this medium. It is essentially a matrix of metal as clay with a water binder. The metal can be copper, brass, bronze, iron, or steel. After formation, an oven to melt the clay is needed at 600 to 900 degrees centigrade.



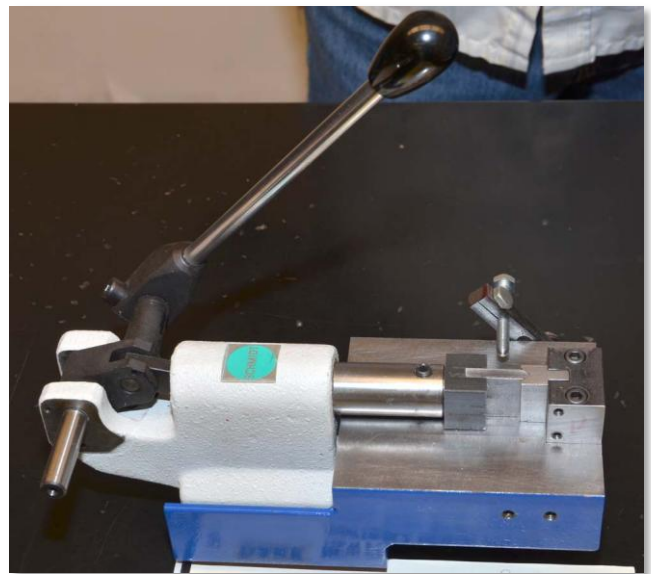
In connection with powering glow plugs, Mike mentioned our former BAEM member, Jerry James. See: [jamesengine.com](http://jamesengine.com). His glow-plug driver functions on 12 volts and modulates the current for ideal power. It's a bargain at \$40.00, \$15.00 for the plans as a PDF file. If you've attempted to operate a large model engine with multiple glow plugs, it's not always easy to keep them all "lighted" with flooding and high compression.

Mike mentioned a web site: [gearotic.com](http://gearotic.com). Here you will find a wealth of information on gear template generation and a very entertaining web site for all gadget-minded folks. On the site, I was intrigued by a reference to a 240 year-old doll in the form of a small boy. A Swiss watchmaker, Pierre Jaquet-Droz, created the boy with 6,000 parts, all contained within the doll's body. It is an amazingly complex clockwork creation, with stack of cams and three cam followers that create the movement of the doll's arm. This allows the doll to write! The master control wheel contains letters that can be changed at will. This allowed the operator to program the boy's writing. Is this the earliest hint of a programmable computer? See a fine video by "Googling" "240 year old writing doll". This artifact ranks with the Antikythera as one of man's most amazing early mechanical contrivances.



Joel Cohen showed us his twin cylinder Kiwi. This is in follow-up to an earlier single-cylinder Kiwi that he cut from solid using his own plans based on the Kiwi. At first the single Kiwi would not run, and required lapping of the valves to get up to adequate compression. The twin was also designed by Joel out of solid metal. He fitted it with a manufactured model airplane engine carburetor for an initial trial. He used cylinders and pistons purchased at a BAEM meeting. He has developed plans for both the single and the twin that others are welcome to use. He also showed a fixture he used to develop his cams and explained its use.

Steve Jasik spoke of his woes with threaded inserts on his '93 Corvette engine with five damaged threads on the plenum. Lotus and Mercury Marine were the designers of this elaborate DOHC engine marketed by GM. After replacing the inserts, he has found that the holes don't line up. He is now working on a pilot to properly center up new threads with a special counter-bore guided tap. Good luck Steve, this is why God invented rat-tail files.



Carl Wilson purchased a surplus toggle mechanism at the local electronics surplus store and converted it into a small press brake by welding a frame from channel iron and making the punch and die holders. He promptly bent a strip of aluminum as a demonstration.

Rick Levesque tells of an out-of balance lathe chuck. A very brisk discussion of the many causes of this intermittent harmonic vibration followed. Give us a follow-up, Rick.

**WANTED:**

Looking to purchase a miniature model Ford Model A engine in operating condition similar to the one pictured in the January 2012 Crank Calls newsletter. Please contact Ron at [rludford@pacbell.net](mailto:rludford@pacbell.net) or call 530-885-0171 or my cell at 530-906-6183