

The Crank Calls



November 2010

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MEMBERSHIP

\$25.00 US

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NEXT MEETING

November 20, 2010 at
Chabot College, building 1500
25555 Hesperian Blvd, Hayward 94545
Doors open at 9:00 AM
Meeting starts at 10:00 AM

Upcoming Events

Dec 11, 2010 Annual BAEM Club Potluck (note that this is the 2nd Saturday in December!)

GEARS Show report

Contributed by Karen and Dave Palmer

Dave and I wanted to let you know we had a wonderful time up at the GEARS show in Portland. They always treat us so well up there. On Friday evening the Clubs putting on the show hold a pot luck dinner for all the exhibitors and vendors, with everyone contributing something for the dinner. And the kitchen provided great breakfasts and lunches for us and the attending public during the entire show weekend. The weather this year was nice and warm. The only exception was the rain on Sunday which may have kept show attendance down a bit. I donated one of the two Raffle Quilts for the show. And I believe there were close to 60 quilts displayed in the Quilt Room of the Armory, with several items being for sale this year. (Quilts are made by Exhibitors spouses/guests only.) The Show dates for next year are September 24-25, 2011, and I think several of us have already registered for next year!

Several of our BAEM members were grouped together, and we thought you might want to know who exhibited up there:

- David/Karen Palmer
- Dario/Angela Mecchi
- Dwight Giles & his brother
- Randall Cox
- Tom/Eunice Armstrong
- Jim Moyer & Son
- Mike/Toni Rehmus
- Pat/Carolyn O'Connor (Pat was a "floater" & filled in where ever he was needed)



MEETING NOTES

Bob Kradjian

October 16, 2010

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

Our visitor was Bob Machin, an old friend of Steve Hazelton. He was the BCRA (Bay Cities Racing Association) Midget racing champion in 1956. He was hoping to connect with Jay Eitel, as they were friendly track competitors after W.W.II.

First Pops: a member reported that he now has a Tochtrop "Economy" hit and miss engine running.

Treasurer's, Secretary's, and EDGE & TA (John Palmer) reports were "all quiet".

The major issue for member discussion was the proposed move to combine our yearly WEME show with the GoodGuy's Show in Pleasanton. And, if we did join with them, which one of the four annual events would we choose?

A lively discussion followed with most of the members voicing their opinions.

The result was a club decision to agree with the merger. The show chosen was the August West Coast Nationals. This arrangement is to be tried for one year. If agreeable to all parties, it can be continued. The West Coast Nationals always takes place on the last weekend of the month. In 2011, it will fall on August 26th through the 28th. It is important to stress that this is a three-day event, not our customary two days. For new members, it is also important to know that we have exhibited at this exact show for over ten years. Our new arrangement, if it is followed through, will simply be an extension of previous highly successful outings.

I will attempt to summarize most of the Pros and Cons discussed concerning this change.

PRO: IN FAVOR of combining with the GoodGuys:

- Our hard-working WEME staff is tired of the time, stress, and hard work of putting on the Vallejo show. There are many tedious details involved in our previous shows, and the excellent group that has done most of the work is "worn out".

- The publicity efforts are difficult and expensive at Vallejo.
- The visitors to the Vallejo show have expressed disappointment over "Seeing the same thing every year".
- Vallejo is not a highly attractive tourist destination.
- The cost of the show is considerable, and we have lost money each year.
- WEME in Vallejo has not been well supported by other model engineering groups from out of state.
- The total number of visitors is small relative to the huge crowds at the GoodGuys Show.
- A move to the GoodGuys would not be an irrevocable move. We could return to Vallejo at a later date.
- We have a long history of congenial relations with the GoodGuys staff.
- We have gained valuable new members from our exposure at the Good Guys shows.
- We will contact MANY more people than ever possible at the Vallejo site.
- We will be combining with an established car show that has many features and attractions. This includes music, numerous food choices, attractions for the family including children's activities and crafts. And of course, it is the biggest automobile event on the West Coast with thousands of great cars. To access their web site, go to: www.good-guys.com.

CON: AGAINST combining with the GoodGuys:

- We will disappoint our "hard-core" Vallejo visitors
- It will be more costly to attend the GoodGuys show.
- It will be more time-consuming to exhibit for three days instead of two.
- It will be more difficult to unload engines during the show days. A golf cart from the GoodGuys staff will have to bring us in, unless we download on Thursday the 25th.
- We do not, at this time, have a policy for vendors. We assume that they will be

subject to the standard fees that will be much higher than our Vallejo charges.

- We're breaking a three-year tradition.

These are just few of the comments brought up at the meeting.

For those who did not attend, feel free to e-mail me your thoughts at: bkrdjian@aol.com and they will be added to the mix. We want all opinions to be aired.



For members who need club badges, contact Mike Rehmus at:

www.modelenginebuilder.com/contactus.htm



November Raffle!

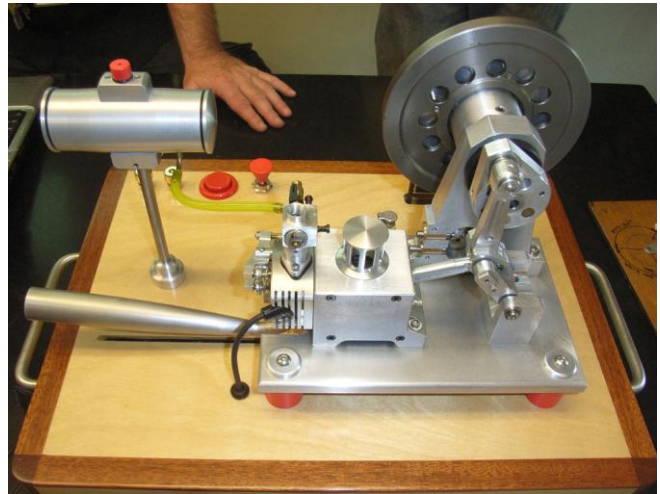
A SDA laser center/edge finder will be raffled at our November meeting. You must be present to win!



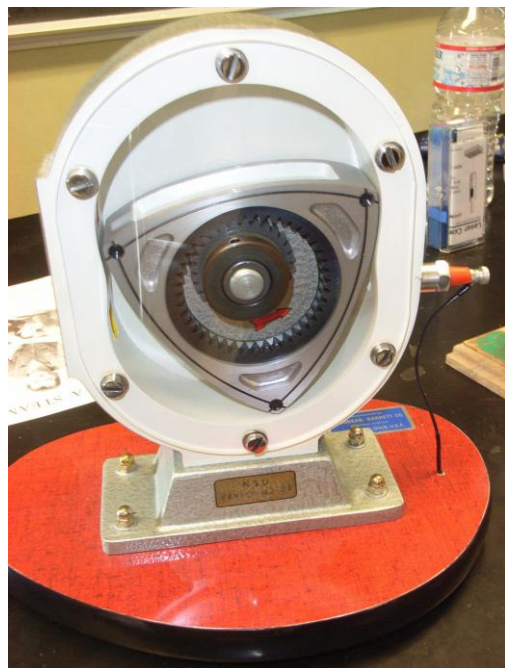
Bits and Pieces

Dick Pretel brought in a fine, original Atkinson Cycle engine built by the late Frank Kurz. It needed a lot of attention and Dick fitted it with ball bearings throughout and fabricated or re-manufactured a number of parts. Despite that, there was no major deviation from Frank's original design. It now has two nice cams ground by Carl Wilson with his new grinder. These Atkinson engines fire 10-25 degrees after top dead center. This one is at 25 degrees. This reduces

power, but also reduces heat build-up. Dick fitted electronic ignition triggered by breaker points.

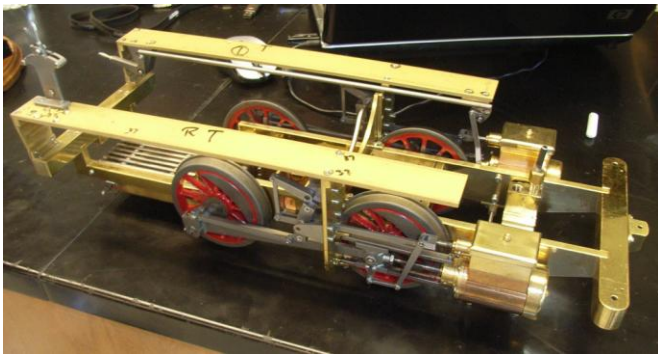


If interested in this unusual design go to "animatedengines.com" for an excellent animation of the Atkinson working. You can slow it down to see the four separate strokes of the four-stroke cycle in a single revolution of the flywheel.



Bob Kradjian showed a German built mock up of a Wankel engine found on e-bay. It's interesting to see the triangular piston rotating in an oblong chamber. Again, see: animatedengines.com. Roy Anderson identified the U.S. dealer for this device

as a company he used to provide with school shop supplies.

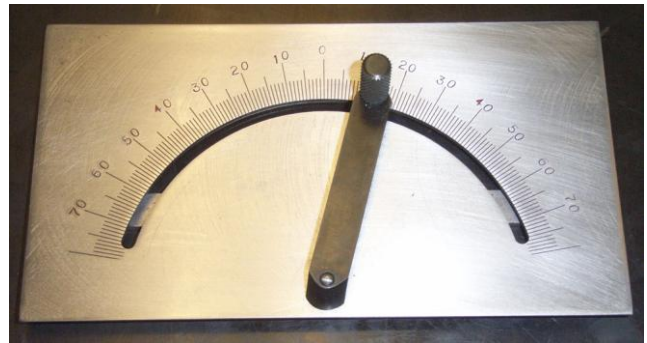


John Gilmore has completed the running gear on his Pennsylvania A-3 switcher. His next project will be to tackle the boiler. Nice work on a very ambitious project, John.

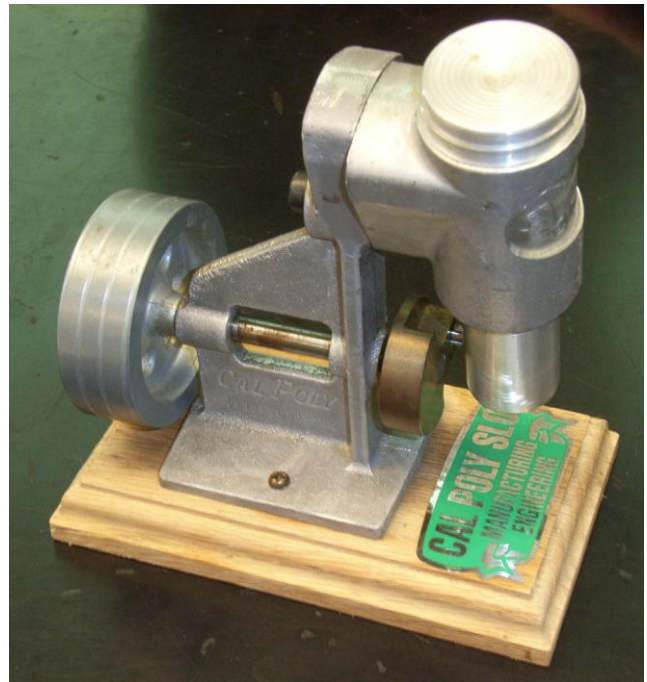


Jim Bove showed us a very pretty "Globe" steam engine. He found this in a very advanced state of rust, corrosion and decay. After extensive rebuilding, it looks lovely and runs on a low-pressure air supply. He re-did the cylinder, and repaired the connecting rod. It may have been a small, but "full-sized" steam engine for light duty application such as a sewing machine. Can someone give us a run-down on the Globe Company? It appears to be unrelated to the well-

known Globe valve. Jim makes amazing engines without drawings and this effort was a fine rebuild.



Dwight Giles made an excellent protractor to fit in the tool slot guide on a Baldor-type double-wheeled grinder. This steel plate device goes far beyond the simple miter gauges often provided with these grinders. It has machined surfaces, precise angle markings, and a clamp down to guide reproducible polishing and grinds.



Mike Rehmus showed us the extensive CAD drawings worked out by students at Idaho State University (Moscow). The nice little "wobbler" engine is from a student at Cal-Poly. He also showed us an example of what can be found for three dollars as a garage sale----a fairly nice oscillating steam engine.

Don Jones projected 3D images from SolidWorks of the Black Widow engine. This will be an

historic engine and a fine upgrade from the venerable Challenger.

When an Acme Lathe and Tool mystery device was shown to the group, Karel Vystrcil promptly identified it as a watchmaker's device to press bushings into clocks and watches.

TECH TOPIC

Carl Wilson

We didn't have a Tech Topic at the October meeting, but there is no reason not to have one for the newsletter. I was thinking about what to do when Mike Rehmus sent a link to a research paper: [In Cylinder Pressure and Combustion Measurements in a Miniature Reciprocating Engine](#) by Joseph Papac and Derek Dunn-Rankine of the Department of Mechanical and Aerospace Engineering at University of California, Irvine.

The authors used an OS FS-30S engine (0.3 in³/5cc displacement, .767" bore x .648" stroke, 0.5hp @ 10K rpm) to investigate the mechanical and thermodynamic losses in small and miniature engines which contribute to their poor efficiency. "...Through cylinder pressure measurements, we hope to gain an understanding of the combustion events that occur in a commercially available four-stroke glow-ignited engine ... so that we may propose design modifications to increase efficiency."

The cylinder head of the OS engine was modified by the addition of a fiber optic diaphragm pressure transducer and the cylinder pressure was measured vs time with the engine powered by an external motor and also in normal operation. There was a minimum discussion of the data and some questions remain about it so I will spare you those details and the calculus, and jump to the conclusions:

In this size range engine;

1. Pumping and friction losses are a large share of the total losses in the engine. (Pumping losses are the fluid friction losses caused by the flow of the air-fuel mixture into and the exhaust products out of the cylinder.)

2. The surface area to volume ratio of the cylinder is high and therefore an excessive amount of heat is lost through the cylinder walls.
3. Crevice volume losses also increase with decreasing cylinder volume. Crevice volumes are the small areas between the piston, rings and cylinder wall; the interior of the spark or glow plug; and the spark or glow plug threads. These areas are cooled by the mass of surrounding metal and some of the fuel is not burned.
4. There will be a "thin liquid wall film" on the cylinder wall: unevaporated liquid fuel which does not burn. In the OS engine this film lubricates the piston and is washed into the crankcase to lubricate the lower end parts and wristpin. In oil sump engines this fuel dilutes the lubricating oil.
5. The low efficiency of these engines may be improved by control of ignition timing.