

The Crank Calls



May 2011

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MEMBERSHIP \$25.00 US

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NEXT MEETING

May 21, 2011 at
Chabot College, building 1500
25555 Hesperian Blvd, Hayward 94545
Doors open at 9:00 AM
Meeting starts at 10:00 AM

Upcoming Events

Palo Alto Concours, June 26, Stanford Medical Center

MEETING NOTES

April 16, 2011

Bob Kradjian, Secretary

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

Treasurer's report: We are solvent, but members not renewing their yearly dues will no longer receive the club newsletter. Mail \$25.00 to Ken at address posted.

There were no visitors or first pops.

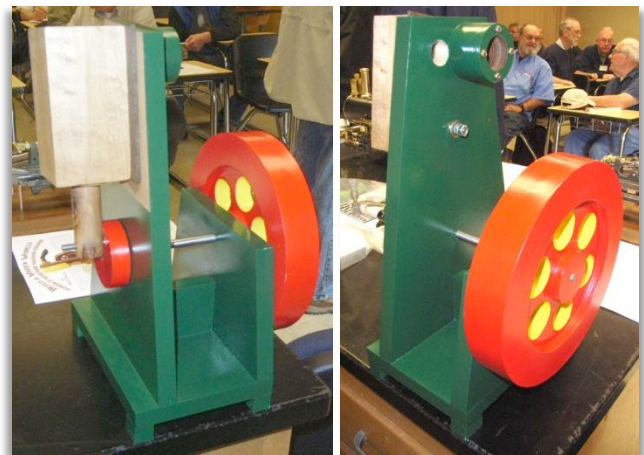
Shows: June 26 is the Palo Alto Concours at Stanford. The club plans to make an appearance again this year.

The Dream Machine show at the Half Moon Bay Airport is now history. Our John Palmer was there all day with his Rumely Oil Pull tractor and his original and reliable "J and E" hit and miss.

BITS and PIECES

Carl Wilson brought in a nicely finished model of the "Wooden Wobbler" a design by Martin Gearing.

Gearing, who is from the UK, designed this to "Experience the joy of making something that moves." Made of MDF and wood, with only five "off the shelf" metal pieces, this contrivance works on power from a vacuum! Construction is accomplished with standard wood working tools including a 7" lathe and bench saw, plus the usual hand tools.

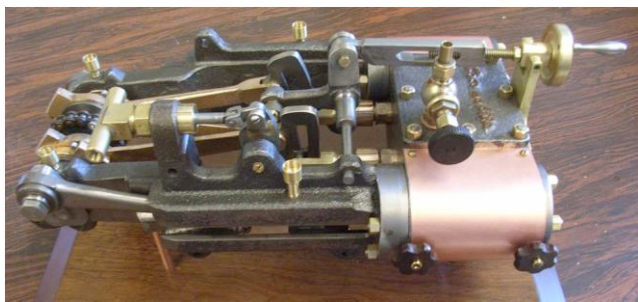


Mike Rehmus plans to hand out instructions for the engine at the WEME show. Presumably a model will be there for the public to check out. It runs at a lively clip, but I wonder if there is a muffler for the vacuum? Most men tend to clear out when they hear a vacuum cleaner. All will be featured in issue #24 of "Model Engine Builder", page 34.



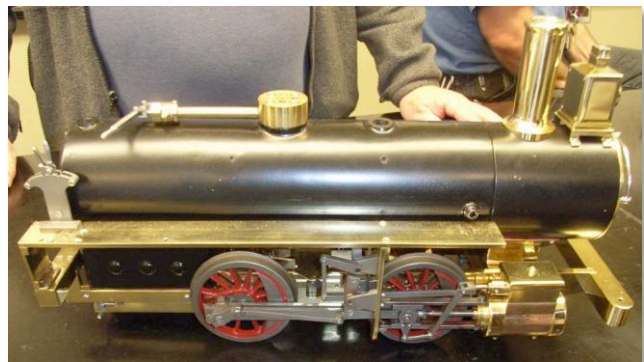
Mike also displayed a wax pattern and completed castings for a miniature vise (American spelling, vice). These are from Roland Morrison of "Mery" engine fame. The quality is excellent. The price for the casting set will be \$130.00.

John Grant describes a centrifugal casting system using silicone rubber molds. There seems to be discussion on the topic on the Yahoo site dedicated to spin casting.

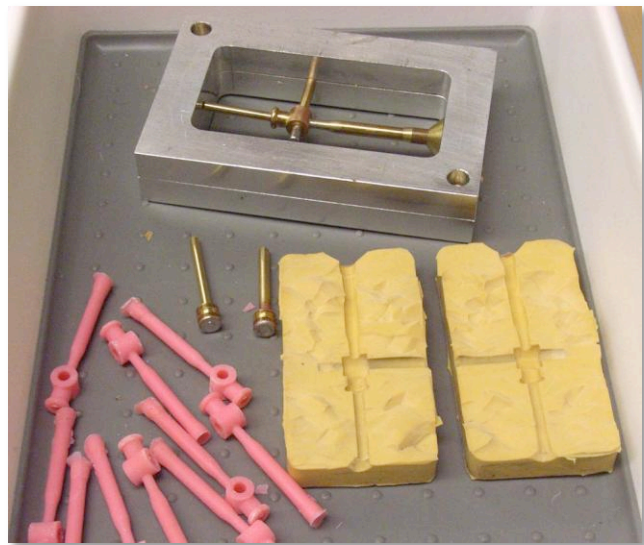


Jim Bove continues to amaze us with his inventiveness and building skills. This time he brought in a one-third scale 1899 Locomobile steam engine model. The Locomobile Company (Watertown, Mass.) marketed the first popular

steam car with several thousand (!) built between 1899 and 1903. The interesting history is available under 1899 Locomobile with Google. The name comes from a combination of locomotive and automobile. It used a gasoline-fired boiler. Not very reliable or safe, but still the first large production of steam vehicles. The design was leased from the Stanley Steamer Company. The build for this model was described in "Live Steam", Sept/Oct 1993. The engine uses a chain drive for final. The castings are provided on a single "tree". Jim runs his model on compressed air.

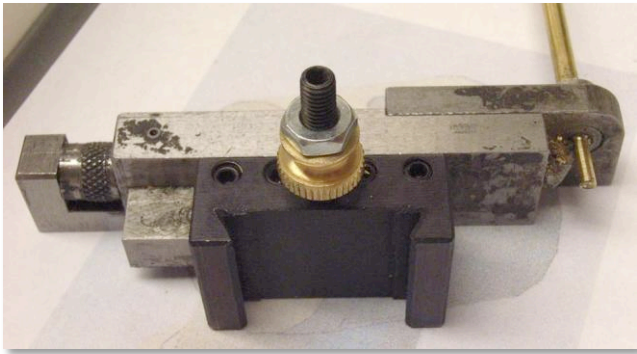


John Gilmore is soldiering on with his "Pennsy" locomotive project. The latest hurdle was finishing the fussy headlight. Here is a master builder of full sized street rods coming to grips with the "little stuff". John will be heading up our August club fieldwork at Pleasanton as facilities manager. Thanks, John!



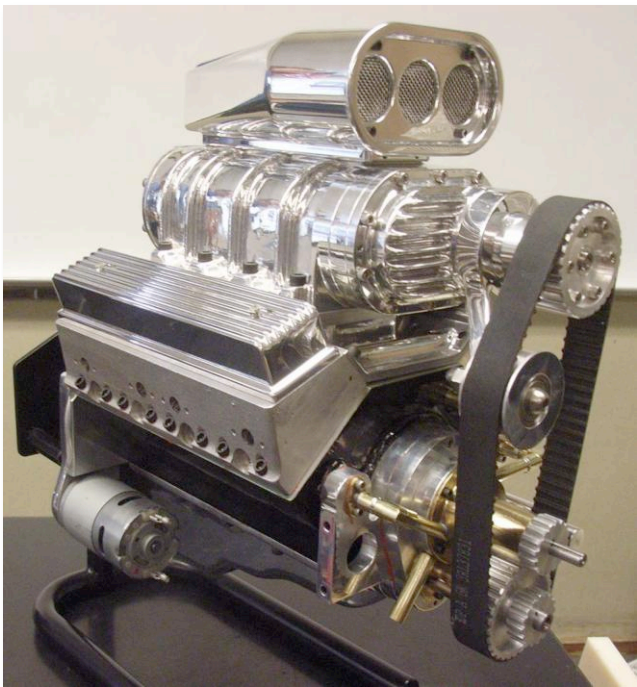
Roy Anderson gave us the inside story of how to cast a precision pushrod end for the Hicks Marine

build. It involves core pins, hand reamers, and compound threads.



Roy devised a box-tool or traveling steady to support the fragile work piece.

Peter Lawrence found an old Sherline lathe bed on e-Bay and intends to convert it into his personal version of a camshaft grinder. He will fabricate his own end stocks. It will be interesting to follow Peter's progress on this project.



Ken Hurst and Dwight Giles showed us the latest progress on the new five main-bearing "Black Widow" V-8. Ken gave us the history of the entire project including the key contributions made by the late John Vlavianos. Member Jim Kipp is providing key input with CNC machining of valve covers, and many other important elements of the build. For those not familiar with this engine, it features the two extra main bearings noted above, a bell housing,

a rear of engine distributor drive using mated skew gears, a built in 2200 rpm starter motor, an external oil pump, custom mounting stand, and numerous new variations on the earlier V-8 builds by this group of talented machinists.

This engine will undoubtedly become the new standard for home built V-8's based on the general dimensions of the venerable "Challenger" of 1969. It's easy to understand why no one has taken on this difficult project in over forty years.

The castings will be offered at \$1200 and the plans at \$250. Both should be available by our club show. Don Jones completes the team and is working diligently on the amazingly detailed CAD charts. They will amount to many, many pages and a huge amount of work.



We were privileged to show the nearly completed Black Widow V-8 at the Roy Brizio open house (South San Francisco) on May 7. It attracted a great deal of admiration from this knowledgeable group of street-rodders. Our club has been making an annual appearance at this fine event.

The June meeting marks the end of our club's fiscal year. It will be time for our annual election of club officers. Think about volunteering for club activities, it's a rewarding experience.

TECH TOPIC

By Carl Wilson



Let's take it from the top left of the photo— the red cylinder casting. It belongs to Joe Tochtrop and is one of his designs/castings for the Economy hit-n-miss engine. Its wrist pin got loose and scored the cylinder bore and Joe asked Dwight Giles for help. Dwight not only fixed the bore and rings as good as new, he brought all the bits and pieces to BAEM and told us how he did it. First, lap the cylinder clean and true; second, make new oversize piston rings to fit the cylinder and then assemble everything.

The scratches in the cylinder were not very deep so Dwight lapped them out with a brass lap using diamond compound. The lap is seen in the photo to the right of the piston and connecting rod, and the tube of diamond compound is at the far right. A "fairly coarse" diamond is recommended. Diamond is available in 50, 75, or 100% concentration – 75%

is a good choice. Squeeze out about ½" onto your finger and spread around the bore. Use lots of way oil while lapping (and little diamond): keep it wet. Excess material that is squeezed out may be wiped back into the bore. By the way, Dwight does this on the lathe running about 500-700 rpm with great care to protect the lathe. Clover lapping abrasive may be used but it takes longer. Clean the bore thoroughly after lapping. An ultrasonic cleaner works well here. The laps do not get cleaned – they have valuable diamond on them. They remain dirty and are stored in the plastic bag at the left.

The details on making the laps may be found in the back issues of the Crank Calls and Model Engine Builder but here is a quick summary. The bore of the brass sleeve is drilled and reamed #2 Morse to fit the shank and then split with a band or hack saw. The shank has a Morse taper at the other end from

the straight shank. The sleeve is expanded by forcing onto the shank by a cap screw at the end.

When the cylinder is lapped true and cleaned up, it is time to make the piston rings. Dwight makes them by the numbers. Turn a cast iron bar to the cylinder bore diameter plus 0.001-2"; then bore to the diameter of the bottom of the ring groove plus some clearance. Dwight did not give a number here – he said that the ring must be free to move radially – that is, across the diameter of the piston. A small chamfer or radius is cut on one inside corner of the ring – that will make it easier to install and prevent scratching of the piston.

The ring is then cut off from the bar: the ring thickness is the same as the width of the ring groove. The ring is pushed into a previously made lapping pot and its thickness is reduced to provide 0.0005-0.001" side clearance in the groove by lapping its sides on a flat lap. The ring needs to be free to move in its groove. The pot is a piece of stock with a step bored to an easy fit for the ring and a depth somewhat less than the thickness of the ring. This makes a "handle" for applying even pressure to the face of the ring while lapping.

The ring is split with a 0.006" slitting saw – Dwight does not break them. Now look back at the first photo and find the ring gapping tool at the right side, second piece down from the top. It looks a bit like a small grinding wheel mounted on an arbor. That is effectively what it is: two round pieces of 280 or 360 grit emery paper glued back to back and mounted between flanges on an arbor. Dwight said 'emery" but I suspect that wet-or-dry would also work. It's been a long time since I held a piece of emery paper in my hand – do I remember that the abrasive is on a cloth back that is heavier than wet or dry? The gapping tool is chucked in the lathe spindle and a small sheet metal "table" clamped to the top of a cutting tool. The effect is much like a table saw. The table is shown in the picture diagonally down and to the left from the gapping tool. In use the ring is placed on the table with its open ends around the abrasive cloth. The ring is closed onto the abrasive by squeezing with your fingers. Dwight recommends 0.0025-0.003" gap per inch bore diameter. This is checked by pushing the ring into the cylinder bore and measuring the gap with feeler gages.

The last step is heat treatment. The rings are loaded into the fixture shown in the photo. The "key" is the gap piece which spreads the ring open while it is being heated. The fixture is placed in a stainless foil packet together with the wood part of a kitchen match while being heated to 1200 deg F. The bit of wood takes up the oxygen and reduces scaling of the ring surfaces. The fixtures and rings are allowed to cool slowly.



Last, but not least, is the ring compressor: in the first picture it is the steel cylinder immediately below the red cylinder block. The compressor has a short straight bore the same diameter as the cylinder and then a tapered section. The piston with its rings is pressed into the taper, through the straight portion, and into the cylinder bore.

Thanks for the Tech Topic, Dwight.

OUT WITH THE OLD AND IN WITH THE NEW:

Along with a new venue for this year's show we have a new Facilities Manager for the Western Engine and Model Exhibition: John Gilmore. And as I pass the baton I record my thanks to those who helped make the setup, operation, and teardown of the show so easy. As soon as I parked at the site a number of people began taking material inside, and quickly the chairs and tables were moved and covered. The hardest part for me was just keeping up and answering questions!

I'll thank several members of Bay Area Engine Modelers for help above and beyond. Rick Levesque donated much of the show material: the air system, the tools and tool box and the cart to move them. He also printed the signs. John Palmer machined and assembled the air manifolds. Al Alrich arranged for the initially the loan and subsequently the donation of the fire extinguishers from the Valero Refinery. George Gravatt donated the material and

built the fire extinguisher stands. Dennis Mead donated the material, built the “aisle closure” signs, and donated the hand truck to move them. Shannon & Irene Lile, Gene Ellerbusch, and Gary Moore assisted in various ways.

Thanks, one and all,

Carl Wilson