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

The Crank Calls

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MEMBERSHIP $25.00 US
Contact John Gilmore at
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NEXT MEETING
August 15, 2015 at
Chabot College, building 1500
25555 Hesperian Blvd, Hayward 94545
Doors open at 9:00 AM
Meeting starts at 10:00 AM

Upcoming Events

BAEM meetings: 3rd Saturday of the month

WEME Show - August 21 - 23, Alameda County Fairgrounds, 4501 Pleasanton Ave., Pleasanton, CA in conjunction with Goodguys

MEETING NOTES

July 18, 2015
Bob Kradjian

Pro-tem President, Mike Rehmus called the meeting to order at 10:00 am.

VISITORS: Ron Snyder of Alameda, an accomplished tether car builder, paid us a visit. He may not decide to build a fully functional engine, but has built some very realistic static engines in the past. His Miller front drive and Oldfield "Golden Submarine" cars are lovely.

Jerry Franklin is an EDGE & TA member who also visited. He is designing and building his first engine using only a bench top lathe and a drill press. This is an original engine featuring dual crankshafts. Jerry told us that his father was the designer of the Volkswagen VR6 narrow-angle engine. That was the amazing V-engine with a 10 or 15-degree bank separation with only a single cylinder head. Of course, the cylinders were closely intertwined so that it simulated an in-line engine. Imagine the tilted piston heads! See wikipedia for a concise explanation and diagrams of the VR6.

FIRST POPS: None reported.

WEME SHOW: John Gilmore plans to use the same table assignment as last year. If you had a table last year and are not planning to use it this year, please contact John.

Steve Hazelton has found a shirt provider that will make us shirts with the club logo and member's name nicely embroidered. See him if interested. Club name badges are also available from Mike Rehmus if you need one.

John and Steve Hazelton are doing the heavy lifting on our upcoming WEME and GoodGuy's show in Pleasanton. They deserve our gratitude (and cooperation) for their many efforts. Vendors, The Little Machine Shop and our Edge Finder friends will be there; but we will also have the opportunity to see the Tormach 3D CNC Mills. See tormach.com

GEARS SHOW: We have received a report that the GEARS show has been cancelled.

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A member brought up the topic of our former EDGE & TA membership. "Have they contacted us concerning our dissolving Branch 57" was his question. I did receive a phone call July 20 from an

alarmed board member trying to find out why seventeen EDGE & TA branches across the country have turned in their badges. Our main beef was the sharp increase for the insurance. Other branches had the same complaint. He was alarmed at the lack of young members in his organization. This is not a unique concern.

The Pacific Coast Machine Tool Expo is scheduled for September 23 and 24 at the Santa Clara Convention Center. Although this once great show is contracting, it's still a great experience to see some of the latest offerings from the industry. The web site is: www.MachineToolsExpos.com to register.

TREASURER'S REPORT: John Gilmore tells us that we are still solvent and have paid our insurance. He looked for the trailer to transport our show material as had been authorized by the membership. He found none in our price range that satisfied him. As a result, he and his wife purchased a nicer one with their own funds. They will donate it to the club! Stunned gratitude and silence was followed by applause.

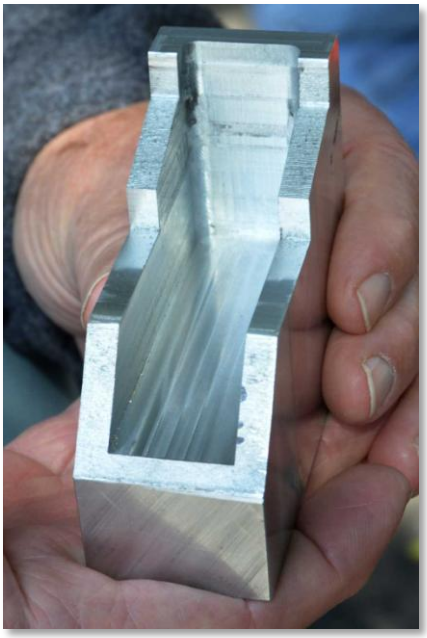
CLUB BADGES: If you need a badge, contact Mike Rehmus (mrehmus@byvideo.com) who has offered to produce them.

BITS AND PIECES:

Dwight Giles made a nice set of gasket cutters that will be featured in an upcoming MEB magazine article.

Mike reminded us that smooth surfaces are ideal for metallic gaskets, roughened surfaces for paper gaskets

Peter Lawrence showed us his "proof of concept" four-cylinder overhead cam engine. This is in preparation for the completion of his long term V-12 Merlin project. Peter used the five main bearing approach for the crankshaft, which is harder to manufacture than the three bearing approach used by Wall and Challenger. The overhead camshaft is mounted directly over the valves. Are there buckets? A brass bevel gear driving the cam will be severely challenged; there are steel gears for the crankshaft. He is favoring the original Merlin gear practice that is very complex and even a bit cluttered. He uses Stock Drive Products as the provider for the gears. He fashioned his distributor base and cap out of clear plastic. The result is nicely done, and it incorporates a Hall pick-up. He decided to make it larger than scale for ease of construction. He also plans to make his own circuit board for ignition system! His intake manifold was made of two halves "TIG-welded" together. Peter's discussion of his woes learning the vagaries of TIG welding was instructive and even amusing. We have at least two master welders in our group for consultation: John Gilmore and Dwight Giles.

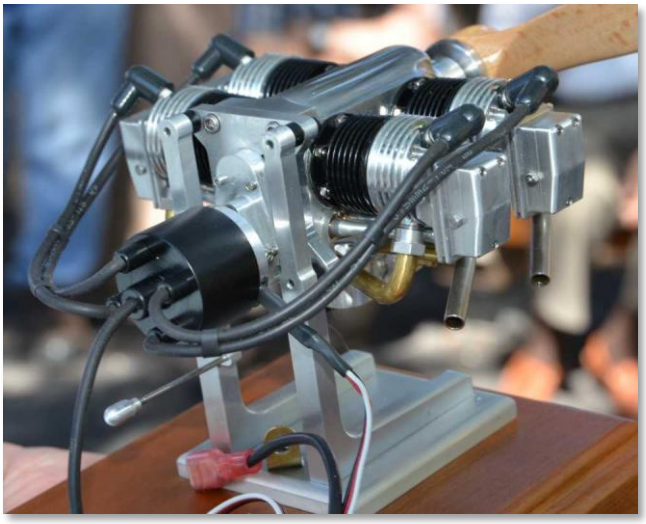


Mike Rehmus started his CNC milling adventures with a body for the GEM 1 hit and miss engine featured in his magazine. His mill is a Dynamite 2000. He has some problems to sort out with his collets.

Ray Fontaine showed us a hit and miss engine that he bought in an auction. It was roughly built, but it actually ran. I think this qualifies as "First Pops". New bearings were required, and there were misplaced and repaired holes. However, it is an interesting and unique engine. Vibration is an issue to be resolved. Let's see it at WEME!

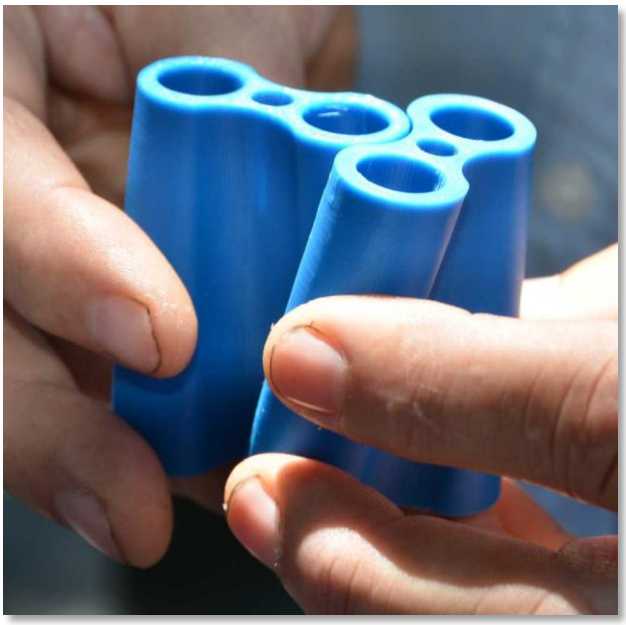
John Meredith showed us two stunning examples of the late Eric Whittle's work. They were a single vertical "Robin" and a flat four. Both set up with props. The Robin was originally designed with a remotely mounted rear-carburetor. John changed this to a mount on the cylinder head. This required a substantial reduction in the jet size. This was undoubtedly related to the use of glow fuel versus

gasoline. He moved the jet size from 38 down to 20 thousandths. Next, we revisited a familiar discussion concerning the difficulties of carburetion in our tiny engines. In these two engines, John made the tricky move of converting the engine to spark-ignition using a Hall-Effect pick up. The very sleek distributor cap behind the cam gear housing looks as though it was part of the original design. He says the Robin "runs great" and idles at 1500 rpm, but the Peewit is troubled with a spark leak from the plug cap grounding to the plug base. He also converted the Peewit to spark ignition. The "Peewitt" four and the "Robin" have the same ½" bore and .42" stroke. The valve stems are a tiny 1/16" and the heads are .2".



Both engines have good compression. The old subject of piston ring manufacturing was re-visited. John prefers the "Perfect Circle style" without stress relief or annealing. This was described in "Model Engine Builder". John decided not to use the venerable Trimble approach to making and tempering piston rings. He feels the annealing temperatures used in that method are too high. One hour at 1200 degrees is Dwight's current usage.

Jim Piazza has succeeded in making the first helical rotors for Roots blowers and as he was unable to attend the July meeting entrusted the presentation of them to Carl Wilson. Jim said that he has been asked many times "When are you going to make helicals?" and decided that he would figure it out. The solid modeling in CAD was easy: a drawing of the cross-section of his standard lobe was extruded in a 40 and 60 degree helix. The .stl file included one right hand and one left hand helix so that both rotors could be printed at the same time. The 60 deg rotors are assembled in the demonstration fixture, the 40 deg rotors are loose.



The key to making these rotors was the purchase of a Zortrax 3D printer by his workplace. Jim exported the .stl file to the Zortrax software to generate the code required for the printer, set it for 0.09 mm resolution – the layers are 0.0035" thick – and pressed the go button. Three and a half hours later he had a pair of rotors. Finishing was minimal: the shaft holes were reamed 0.250" by inserting the shank of the reamer and pulling it through while rotating it. That is, cutting was done by the flutes at the shank end not by the chamfer on the usual working end of the reamer.

Jim is working on the next step: machining helical rotors on his CNC mill. Stay tuned.

A word about the reason for helical rotors: straight rotors deliver air as a series of pulses. Helical rotors smooth out the air flow.

AUCTION RESULTS:

George Gravatt kindly donated a casting set and plans for the Cade Air-cooled hit and miss engine. Mike acted as the auctioneer and the bidding went briskly until the price was settled at a fair price of $180.00. Thanks to George for another of his fine contributions to our group.