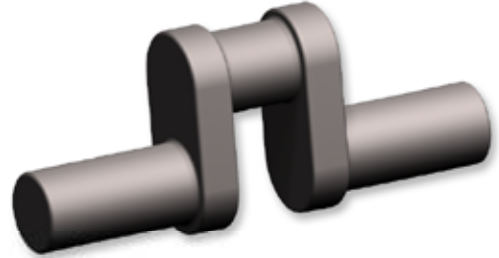


The Crank Calls



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November 2009

MEMBERSHIP

\$25.00 US

Contact

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NEXT MEETING

November 21, 2009 at
Chabot College, building 1400
25555 Hesperian Blvd, Hayward 94545
Doors open at 9 AM
Meeting Starts at 10 AM

Upcoming Events

Paul Bennett memorial tool sale @ Paul's house
immediately following the November 21st meeting.
Contact Dick Pretel (rpm11k@att.com) for directions

Annual Pot Luck Brunch at December 12 meeting.
Gathering at 11:00 AM, Pot Luck At 12:00

MEETING NOTES

Carl Wilson 10-17-09

Our guest was William Zurbrick, son of our newsletter editor, Larry. William signed the guest register: "I am a mechanical engineer and have always had an interest in combustion engines. Eventually I would like to construct a working model of a 4-stroke piston engine."

Travelogues: Gary Moore took extensive pictures of the GEARS show in Portland and we watched many of those. Pat O'Connor, and Shannon and Irene Lile toured PT658, a WWII Higgins' built PT boat. Pat showed pictures of the boat and talked about many interesting details such as the 2500 in³ Packard V-12 engines with single overhead cams on top of 4 valve heads. There were 3 of these engines developing up to 1850 hp in a boat 78 feet long!

Pat also showed photos of the Smith Collection of race cars, hot rods, and accessories in Lincoln, Neb. More info at:

<http://www.museumofamericanspeed.com/>

Mike Rehmus reported progress on the scale model of the Hicks single cylinder marine engine. This will be a build article in Model Engine Builder. Castings for this engine will be done in a variety of media including wood and stereo-lithography patterns, and hopefully low pressure injection molding of Zamak zinc alloy. His 3D CAD drawing of the crankcase/engine frame showed the complex parting line of this casting.



Mike will begin in MEB #21 a build article of the Humbug a model aero design by Ron Chernich. It is a 1.5cc beginner's engine featuring your choice of glow or diesel ignition, rotary or reed induction, and bar stock or castings. The patterns are by Roger Schroeder and Mike hopes that Paul Knapp will take over the supply of castings. (Photo on page 1.)

Also in issue #21: Mike will propose an "engine designer's challenge": what is the simplest-to-build "air engine?" The back story on this: Mike is the driving force behind the Western Engine and Model Exhibition. He would like to design a "take-away" for the kids that attend the show: something that will pique their interest in engines and mechanical devices. This could start as raw material at the casting demonstration and the kids could carry their castings to (Mike hopes) one of the CNC vendors for machining; then on to assembly and home to play with. Here I will write one of the better understatements published in the Crank Calls: Mike is fully busy with editing Model Engine Builder. He is looking for ideas and help with this proposal.

Our treasurer was away playing with dragsters so Bob Kradjian made the repost: \$10705.23.

Dick Pretel and other members gave a final memorial for Paul Bennett. Dick: Paul and I grew up together in San Francisco in the 50's. We have been best friends since then. Paul was a plank owner of Bay Area Engine Modelers and provided the club with its first home. He took care of setting up the tables and chairs, provided the coffee and donuts, and asked nothing in return except that members attend the meetings. Paul, you were the greatest guy.

Bits and Pieces



Tom Armstrong said that the major parts of the Snow engine have been machined and he figures it will take about a year to complete the cooling, ignition, and fuel systems. This picture is taken from the timing side and shows the longitudinal camshaft with the distributor at the right end. The prototype, a twin tandem gas engine, used igniters but they would be very difficult to model in this scale.



Bob Kradjian bought this slave connecting rod for a Wright radial aero engine because of the perfection and beauty of its machining. There are no machining marks, all of the surfaces blend perfectly: it is a marvel of design and machining.



Jaime Quevedo recommends buying a supply of new taps before beginning a project with a lot of blind tapped holes. This is the crankcase of a 9 cylinder radial engine to the design of Lee Hodgson, and it has lots of tapped holes. Jaime uses Moly-D lubricant: recommendations from the members included using WD-40 and using roll rather than cut taps.



When Peter Lawrence learned about Airpot pistons and cylinders, he knew that he had found the power cylinder for his low Δt hot air engine. Note the workmanship on the “skeletonized” aluminum. Peter works on several projects concurrently and he brought in a package of piston rings for the Merlin made by the approved George Trimble method and the crankcase of a multi-cylinder swash plate engine. I’ll take the liberty of awarding him the 2009 BAEM Project Juggling Award. BTW: he has others in the works.

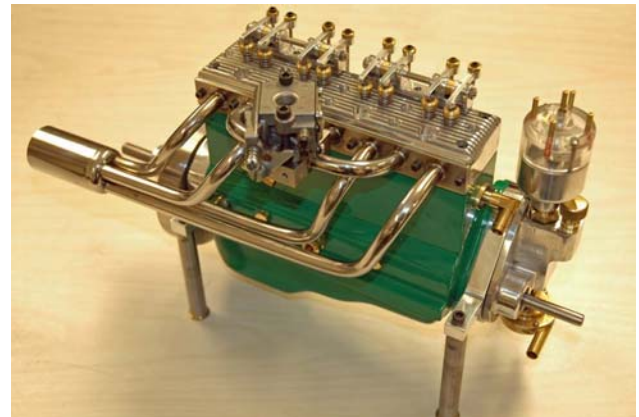


Jim Piazza is getting back to his Roots, blower that is. At the lower right are two CNC machined lobe segments (one is still on its integral “fixture” stem.) Top left is the assembly fixture, and below are two rotors of three segments assembled with thin wall brass tubing pressed into reamed holes. Top right is the mesh test fixture: the rotors in the fixture

were “seconds” but meshed quite well with a bit of drag at one point. Jim expects to have a housing to show next month.



John Meredith is building an OHV pushrod V-4 engine. This bar-stock design by Jerry Howell used lots of o-rings for sealing, but John substituted flat gaskets wherever possible to save work. Looks like John should be eligible for First Pop Honors soon.



Dwight Giles finished the manifolds for the Black Widow. He also brought the similar manifolds for the Wall 4 to show how they are made. But first, a note about the angle of the carburetor: it is rotated so that the throttle linkage is in the correct position. Dwight is also getting close to First Pop Honors.

Back to manifold construction. Dwight fills the stainless tubing with Cerrobend and bends it on his short radius bender. The intake manifold plate (bottom) is bolted to a fixture bar and the tubes have been TIG fusion welded (no filler



metal) with a 0.040" diameter tungsten by a friend. Aluminum clamps hold the exhaust tubes (top) in place for cutting to length and welding. The next step is to prepare a disc with four matching holes and welding the ends of the tubes. Finally the large collector tube will be added to the assembly. When finished it will look like the manifolds for the Black Widow.

Tech Topic



John Palmer says that, "you gotta be in the right place at the right time." And the proof of his maxim is this unusual rotary engine. John was in the scrap yard behind Mel Cotton's Army surplus store, about 1946 or '47, when two of these engines were pushed off the truck onto the scrap pile. It did not take John very long to conclude a deal for the scrap iron, collect the story, and put the slightly damaged engines in his truck. First the story, then the engine:

They were designed in the 1930's to early '40's by a lone-wolf inventor who assured his wife that they were such a superior design that their

fortune would be made when Detroit learned of them. He mortgaged his house to the hilt to have the prototypes built. Then came World War II and he did not return.

After the war the widow wanted those d**d engines gone! She called Mel Cotton and asked if he bought scrap iron. Mel sent a truck to somewhere in the Mountain View/Sunnyvale (CA), picked them up and delivered them to San Jose.

John made one out of two and it has held down a corner of his shop since then. While repairing the damage from dropping off the truck John got a good look inside. It is a 4 cylinder rotary: the center section rotates inside the outer casing. There are 4 bearing pedestals with a pinion gear: one is visible just under John's hand. The pinions mesh with a ring gear inside the casing and carry the big end of the connecting rods.

The spark plugs are clearly visible: they mark the location of the cylinder heads. The cylinders are not radial; they are at an angle to the central induction tube. The stationary intake manifold with a carburetor at the end goes in the tube and is supported on ball bearings. One of the bearings is the outboard wheel bearing from a WWII British bomber, the Lancaster. A friend of John's recently returned from England, placed a spare bearing in his hand and asked for £79 (~\$132US ed.).

A dual ignition system fired the sparkplugs via a stationary wiper; there is no distributor. John tried to start this marvel and tore up a couple of starters and batteries for the net gain of a few pops and bit of smoke. He thinks that if he could get a 50hp starter on it for a while he could figure out the adjustments and get it running.

John summarized the engine: excellent workmanship, castings, and mechanical details for a fatally flawed design. Roller and ball bearings were used extensively. But it would never have run for long. The cylinder heads and exhaust ports were crowded together at the center of the engine and there was insufficient area to dispose of the heat. It would also have had problems with lubrication. It would have never made the inventor's fortune.