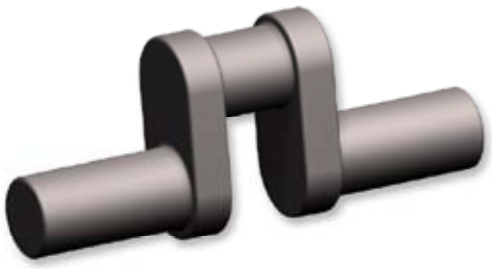
Bay Area Engine Modelers Club, Branch 57 of EDGE&TA

The Crank Calls



President	Don Jones	(510) 812-7006	dj712@sbcglobal.net
Secretary	Carl Wilson	(650) 967-7715	talleyho123@yahoo.com
Treasurer	Ken Hurst	(707) 257-2481	icengine@comcast.net
Events	Ken Hurst	(707) 257-2481	icengine@comcast.net
Tech Topics	Paul Bennett	(510) 247-3106	paulbennett01@comcast.net
Editor	Larry Zurbrick	(408) 448-5752	lz_m57@pacbell.net
Printer	Larry Zurbrick	(408) 448-5752	lz_m57@pacbell.net

July 2009

MEMBERSHIP
$25.00 US
Contact
Ken Hurst at
(707) 257-2481

NEXT MEETING
July 18, 2009 at
Vallejo Veteran's Building
420 Admiral Callaghan Lane
Vallejo, CA 94591
Doors open at 8 AM for exhibitors
Show starts at 9 AM

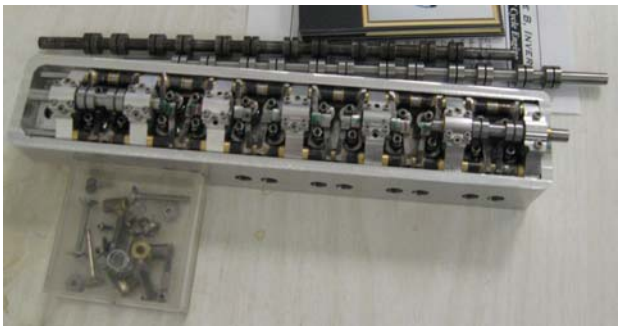
Upcoming Events

July 18-19 WEME in Vallejo

MEETING NOTES

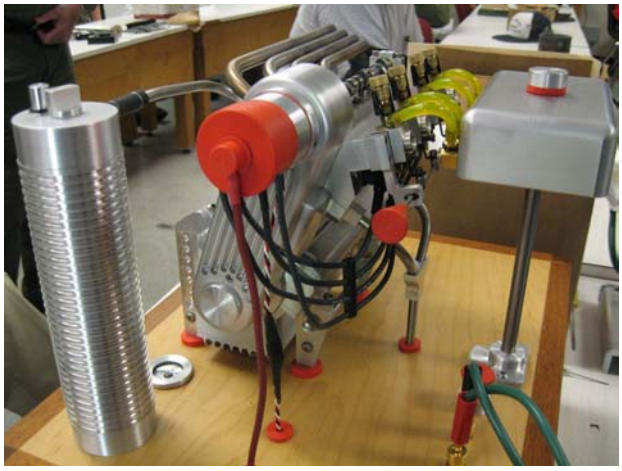
6-20-09
Carl Wilson

June is the end of our fiscal year and the term of office for our fearless leaders. The only change for the forthcoming year is editor of the newsletter: Steve Jasik has taken the photos and assembled them with the text for about 4 years. Thank you, Steve, and well done. Larry Zurbrick has been printing the newsletter and will assume the additional task of editor. Thank you, Larry. Paul Bennet will continue with Tech Topics and needs your help: please volunteer to pass your knowledge to the members of the club. Paul is also interested in obtaining videos of engines and related technical topics for our entertainment. Help him out if you know of sources.

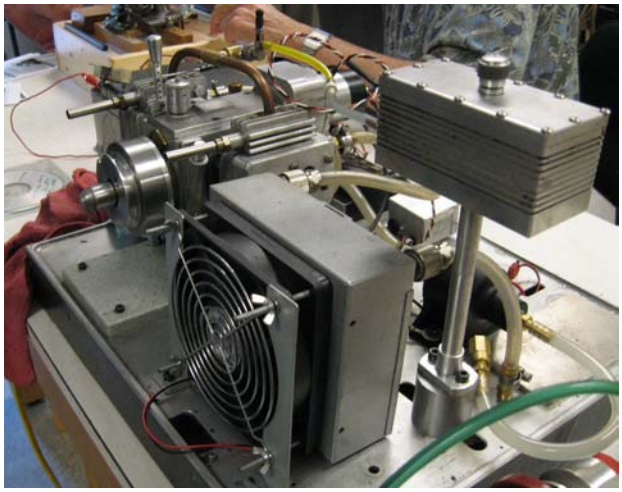


This photo of the cam side of the Merlin V-12 head by Peter Lawrence clearly shows the 4 valves per cylinder, but the rockers are a little harder to see. The cam shaft mounts in the bearings between each cylinder and the rocker shafts are visible on both sides of the cam. There are temporary camshaft stubs at each end of the head. Two cam blanks are behind the head. The rockers are a silver soldered fabrication in steel. The valve lash adjusting screws are 1-72 dog point set screws with rounded and polished ends. Peter could not locate small pattern 1-72 nuts so he used 0-80

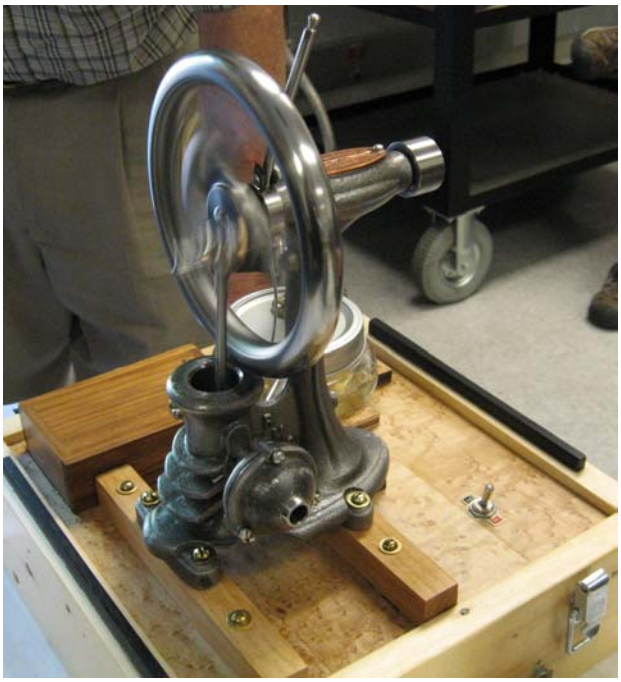
standard nuts and re-tapped the threads. The spark plugs holes are on the side of the head. They scale to 8-40 and Peter is planning to make them.



Dick Pretel says "the block is Wall 4 and the rest is mine." The "rest" is a great job of designing and building an overhead cam "Wall 4" with the block canted 30 degrees like the engine of a Peugeot that Dick once owned. This unusual version of the venerable Wall 4 utilizes high compression wedge combustion chambers fired with electronic ignition. The custom oil and water pumps are not visible. Dick used 4 carburetors but notes that he has problems synchronizing them.



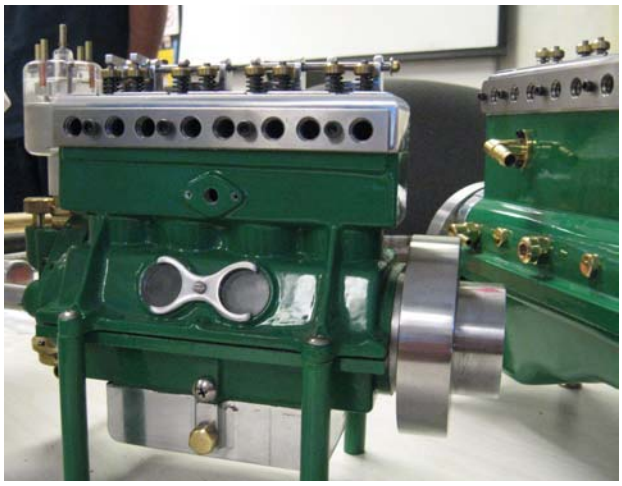
Jaime Quevedo reported First Pop a month or so ago and here it is: Mastiff, a 25cc, ¾" bore x 7/8" stroke, water-cooled, flat head, four cylinder design by Len Mason. It is almost box stock and runs well but smokes a bit. Drawings and castings are available from Hemingway Kits:
http://www.hemingwaykits.com/acatalog/The_Mastiff___L_C_Mason.html



Bob Kradjian bought this "Loyal Cycle" (also known as Systeme Loyal – the original design was French) from Nick Rowland at the recent North American Model Engineering Show. It is a 2 stroke engine of unusual design: 7/8" bore with a 1 1/8" stroke. It can be run as either a hit-n-miss or throttle governed engine and runs in reverse by shifting a lever. Partially visible behind the flywheel is the jelly jar used as a vaporizing carburetor. Nick's web site is: http://newrmc.20megsfree.com/

There is not a lot of information available on the Loyal Cycle: an excellent article available on the web is at:
http://modelenginenews.org/etw/systeme_loyal.html

Edgar Westbury designed an engine on this system and published it in Model Engineer Nov. 15, 1968, Vol. 3357. Details of the cycle are included in this article.



Dwight Giles build of a Wall 4 modified for overhead valves on the left and the Black Widow 4 on the right.

Cam side view of Dwight's Black Widow 4.

TECH TOPICS

(Photograph courtesy of Agilent Technologies)

Larry Zurbrick demonstrated an Agilent Technologies (formerly Hewlett-Packard) laser interferometer measuring system, the 5530 Dynamic Calibrator. This device uses a helium-neon laser to measure physical characteristics such as distance, length, angle, velocity, flatness, and squareness (some of these require specific accessories). Two major applications for these systems are semiconductor wafer fabrication and machine tool calibration. Calibration of machine tools allows the use of correction factors to increase the accuracy of the motion of the machines axes. This, in turn, increases confidence in the work piece and reduces the need for extensive quality control.

Measuring with light is substantially different from whipping out your trusty 1" micrometer and closing it on a part. The basic principle dates to 1887: Albert Michelson devised the original interferometer to prove the existence the *luminiferous aether.* This "substance" was presumed by the physics theories of the time to be the medium within which light waves moved much as sound waves move through air (or liquids or solids). Physicists no longer use the concept of the *aether (ether),* but interferometers of various designs have found extensive use in metrology ranging from the very small to the very large.

The name gives some clues: laser – the source of (monochromatic) light; …ometer – to measure, or in this case count; interfer*ence fringes*. Physical phenomena which occur as waves such as light may interact with each other to produce a pattern of reinforcement or cancellation. If two waves are in phase they will interact constructively and reinforce each other; if they are out of phase they will interact destructively and cancel each other. If the two waves are viewed at their point of interaction light and dark patterns will be visible. In an interferometer the light beam from a laser is split into a reference and a measuring beam by a beam splitter. They travel different paths: the reference path is a fixed length and the measuring path is variable. The two beams are returned to the beam splitter by mirrors and combine at this point. The resulting image may be viewed by a microscope or converted to an electrical signal. As the length of the measuring

path varies the measuring beam returns to the beam splitter at slightly different times and therefore different in phase. This will cause a sequence of light and dark images which can be counted electronically and converted into a distance.

References:

http://www.vaisala.com/files/HP_Laser_Interferometers.pdf

http://www.home.agilent.com/agilent/product.jspx?cc=US&lc=eng&pageMode=OV&pid=1401281&ct=PRODUCT&id=1401281