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

The Crank Calls

March 2004

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NEXT MEETING
March 20 – 10AM
At Robert Schutz's Shop

Check out the BAEM Web Site at
www.baemclub.com
Send your project photos to the
Web Master Jim Piazza.
Phone: 408-446-4825
Email: jpiazza@ix.netcom.com

TO JOIN THIS CLUB
Contact Lewis Throop at
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Meeting Notes
February 21, 2004
Bob Kradjian, Secretary

President Ken Hurst was "in hospital" as they say in England, and unable to moderate the February meeting. At present, he is recovering nicely from an operation and plans to be back for our upcoming, March, meeting.

My thanks to Carl Wilson supplying the secretary's notes last month. Good job, Carl.

We welcome several new members: Bob Johnson, Ken Adams, Grant Savier, Paul Marshall, and Earl Mathiesen.

Visitors were: Mark Geise, Ken McNees, Julian Riccomini, Richard Tsukamoto, Karel Vystrcil (pronounced Vister-chill), and Richard Avedikian. We had 47 in attendance during the meeting.

Dick Pretel, as the new special events coordinator asked the group about which shows we wish to participate in, and asked for a commitment from the members.

I would like to take this opportunity to thank all the members who have enthusiastically participated in all past shows from 1997 to last year. You did a great job and have introduced the hobby to many thousands of people.

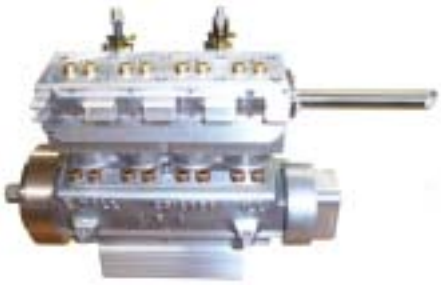
Upcoming 2004 dates are: The Hillsborough Concours d'Elegance, May 2
Palo Alto Concours, June 27
GoodGuy's West Coast Nationals, August 27-29
Blackhawk Automotive Museum, November 20 probable date.

New Products

Carl Wilson was impressed by reports from Dario Mecchi and Dick Pretel about a gasket material called FST-3. He quickly found an enthusiastic group of BAEM'ers who placed orders to make up the minimum order for this Safety-Ease product. The material is a squeeze compound that handles temperatures up to 650 degrees, can tolerate disassembly and reassembly, and fills small casting porosities well. We are waiting reports from the group on their experiences.

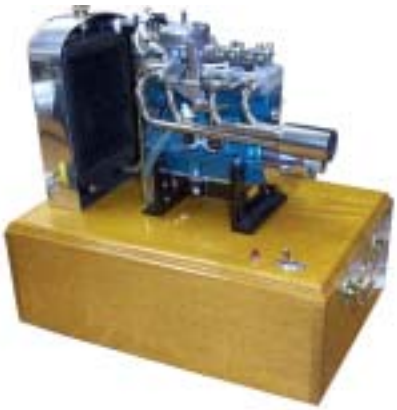
Bits and Pieces

John Meredith brought in a lovely Forrest Edwards radial built from bar stock and based on S.I.C. plans. John added a diffuser wheel. However, after finishing the engine all attempts at running it were failures. It was not until he switched over to BAEM member Mike Neal's ignition system that the engine fired up and ran well.

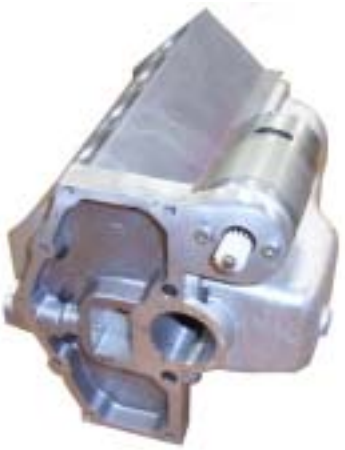


Dick Pretel showed his highly modified Wall Four again, it's a fabulous engine and running better all the time as Dick does fine-tuning.

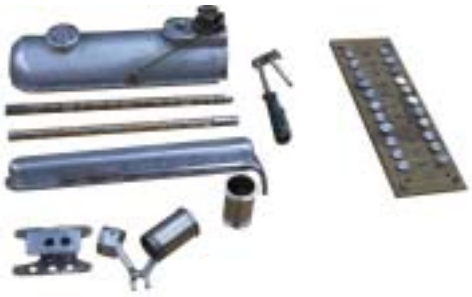
Dwight Giles brought in THREE Wall Fours that he and Ken Hurst are developing. He ran one, and it runs very well indeed. They are using Walbro carbs and they work well. These are nicely finished engines with powder coated cases and custom radiators made by the shop in Concord.



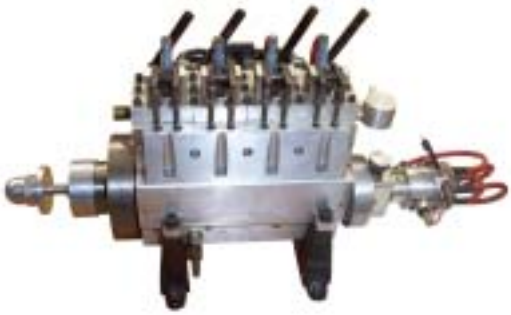
Work is continuing on the "Black Widow" five main-bearing V-8. It's really not accurate to call it a modified Challenger, although it uses many of the same components. There is provision for a starter motor to be mounted on the bell housing plate, 8:1 aluminum heads with aluminum-bronze valve cages pressed in.



I brought Alan Ingersoll's historic Curtiss Model D12D. This V-12 is a 1/5 scale model that Al carved out of billet. He cut no corners with this project which has overhead cams driven by bevel gears, a propeller drive gear ratio o 2.75:1. No plans for this engine exist, Al built it from drawings in the service manuals which he obtained from the Air Force Museum in Dayton, Ohio. The engine was featured in *Radio Control Modeler* magazine in May 1991. Chiefly on the basis of this wonderful achievement Al was awarded the "Metalworking Craftsman of the Year" by Bob Washburn of S.I.C. and the Sherline Corporation. Details can be found at sherline.com under the Joe Martin Foundation. Al had planned to come to our February meeting, but didn't feel well enough. By Monday we learned why; he had a serious hand



infection that required hospitalization and surgery. He is recovering well at present.



Jeff Miller told us the story of a Wall Four that he patiently tracked down for several years before managing a purchase. These gems exist, keep looking. The hobby is not only for building, it's for restoring. The engine was reportedly built by a "Dutch person from Benicia."

Pat O'Connor continues to surprise us. His latest effort is a Jumo-like two crankshaft, opposed-piston, two-cycle engine of his own design. It will use a 90 degree crankshaft. The crankcase is "whittled" out of billet, but it looks as clean as a CNC job. It will be great to see this engine develop.

That reminds me. Bring in your unfinished projects! Let us see the progress.

Ken Hurst has traded blower castings and other goodies for a six-cylinder in-line engine casting set. Dwight brought them in for the group to look over. The builder of the six is Tryggve Orkenrud of Braas, Sweden. I strongly recommend a visit to his improved web site at: http://fly.to/orkenrud.

His approach is quite different from U.S. practice and very clean and fresh. I especially like the way he has fabricated his starter assembly. The videos are well worth a look (and a listen).

Note that he is using Mike Neal's ignition systems. If you take the time to peruse the Guest Book, you will be rewarded with Gordon French's new e-mail and address in Oregon. Greetings to Gordon!

Club News

Shannon and Irene Lyle reported on a visit to Paul Knapp in Tempe Arizona. Paul is a much revered BAEM member and master engine builder who started a miniature engine museum at the Champlin airport. Some of his collection may be shifted to the Boeing facility in Seattle. Paul deserves great credit for his pioneering work in presenting our unique hobby to the public.

Scott Overstreet has a heavy duty 10 inch South Bend lathe that needs a new home. The price is a measly thousand dollars. Also, a standard Bridgeport Milling machine with a DRO will come on line in a month or two. More on this later.

If you need a badge, see Mike Rehmus. Also---for a rare treat, try to find someone with a collection of our early BAEM newsletters. Mike did the whole shebang; photos, writing, printing, and mailing. It was the best damn newsletter on the PLANET.

See you on the 20th!

TECH TOPICS BY PAT O'CONNOR

Web Sites recommended by Pat O'Connor
http://www.enginehistory.org/
http://www.histomobile.com/histomob/tech/2/menu.htm

Single and twin 56 cylinder radial diesels
http://www.zvezda.spb.ru/eng/exhibit.htm

TECH TOPIC AT THE MARCH MEET

Ken Hurst will start us on the road to building an engine from a casting kit. He will use a V-8 kit for the subject of his talk.

Tech Topics

By Carl Wilson

"Psst, buddy. Wanna hot tip?" You don't have to hang around the racetrack talking to shady characters to get hot tips: there were plenty of them (tips not shady characters) right here at Bay Area Engine Modelers. Saturday was the day and Dick Pretel, Dwight Giles, Paul Bennett, and Pat O'Connor were the tipsters. They've got the "right stuff," they've built a total of 10 Wall 4 cylinder 50cc Engines. Some of their hard won experience was passed on to us and I was there to write it down. So here 'tis. Just a reminder, these are brief tips and not full paragraphs of explanation.

First, a brief word about the Wall 4. Elmer Wall designed at least two 4-cylinder inline 4 stroke engines: a 50cc flathead and a 30cc overhead valve engine. Castings for both of these engines are available from Cole's Power Models (818-762-0272.) It is the 50cc flathead that is commonly known as the Wall 4. It has 1" bores and 1" stroke. And it is hot rod-able. It has been built as an F head (intake valve in the head and exhaust valve in the block), a pushrod overhead valve, and an overhead cam engine as well as the box stock flathead (both intake and exhaust valves in the block.) It has a water pump circulating coolant around the wet liners and a positive displacement piston oil pump. The crankshaft has 3 main bearings, two ball bearings and a center plain bearing.

Dick Pretel:
The castings are not very accurate; in particular the cores for cylinders are not always where they should be. Be very careful about your layout before cutting metal. I use thicker liners than the design (3/32" vs. 1/8") so I mill the water space to ensure adequate water circulation. The head

bolts are 8-32 (stock is 6-32.) I modify the block and bolt the center main to it rather than use the oil pan for the lower half. The timing gears are AGMA 10 (high precision) from PIC and I check the center distance of the pair of gears on a fixture before boring the camshaft. Bearings (crankshaft, camshafts, valve guides and tappet guides) are phosphor bronze. Valves seat directly into aluminum heads machined from 7075 alloy. I use 7075 bar stock wherever possible and buy only the castings that I need.

Dwight Giles:
My latest Wall 4 is an overhead valve configuration. One of the problems with most of the versions of this engine is that oil leaks at the tappet guides where the tappets emerge from the block. I use o-rings here to reduce leakage. My pistons are turned from 2024 aluminum and the rods are milled from 7075. The pistons have 3 rings. Valve guides are aluminum bronze. This material is harder than phosphor bronze and allows a .002" interference fit in the head. Because the oil pan supports the lower bearing halves, it must have a metal to metal fit. No gaskets here! And the oil pan does not have a dipstick, so checking the oil level is a bit difficult. I designed the intake manifold to mount a Wallbro carburetor and it works very well.

Paul Bennett:
I spend lots of time with the layout of the casting for the block, trying to "find the finished part that is buried in the casting." I do a layout on the casting before starting to machine it. My bearings are phosphor bronze and a good source for that material is McMaster-Carr. On of the problems with the stock design is the adjustment of the distributor drive gears. They must be measured and fit indirectly.

Pat O'Connor
My Wall 4 had 135 psi compression pressure. At full throttle the engine would cut out at any speed. I learned that I had insufficient voltage at the spark plugs to ignite the mixture at high compression pressure (at full throttle.) The small model airplane coils put out 14-15,000 volts and it isn't enough under these conditions.

Flange Seal: The order of Flange Seal FST-3 has arrived. The total cost per tube is $10.69 - call it $11 for convenience. If you will not be at the March meeting, please call me at 650-967-7715 to make arrangements. I had 26 tubes subscribed for, and purchased 24. Some of you who ordered 2 tubes will be able to purchase only 1. I will probably have a drawing to determine who will be disappointed. All tubes will be sold at this meeting.
Carl Wilson

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