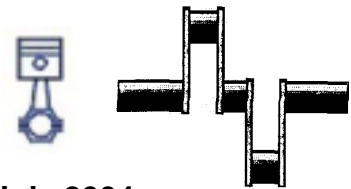


The Crank Calls



July 2004

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NEXT MEETING
July 17, 2004 – 10AM
At Robert Schutz's Shop
366 40th St. Oakland, CA

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

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Meeting Notes

June 19, 2004

Bob Kradjian, Secretary

The June meeting was happily made up of a swap meet combined with the display and running of engines. There was no formal meeting to report. This annual event is not only great fun, it's a great time to sell articles no longer needed and to pick up a good deal on something that you do want. Many items were exchanged, and there were happy faces as the latest treasure was carried out to the car. Sixty people attended our June meeting.



On the engine table there was a terrific assortment of fine engines, but we must start with the

main attraction.



After many years of work by Eugen Corl (see previous newsletters) his wonderful one-third scale, cast-iron, small block Chevy is a run-

ner---and a darned good one at that. Corl's engine is an historic first. No one has made anything quite like it. It dressed out in red paint on the block and valve



covers. Starting is effortless, and it definitely signals its size with an authoritative exhaust note. This is a big engine with a 1.25" bore. When he had initial running problems, he switched to a Mike Neal ignition system with a big coil. He is using two carburetors with compensating linkage. The Bay Area Engine Modelers have had the privilege of seeing this engine

develop. The patterns, castings, dies, tooling, fixtures, and components in the long process of development have all been shared with us. He even brought in his crankshaft balancer. Thank you Eugene, for sharing this fabulous engine with BAEM! For those who may not know, this is Corl's FIRST engine. We will be thrilled to have it displayed at our engine shows. Eugene's justly proud father was also able to attend the June meeting.



Ken Hurst showed, and ran, his latest V-8. This engine has a solid sound and transitions smoothly through the full throttle range. Like his other V-8's, this engine has solid state ignition with a crank trigger, the distributor is driven by a helical gear pinned to the camshaft, it has a Roots-Type blower, a built-in starter, and pressurized "weed-eater" carburetors which share progressive linkage. This linkage set-up is very simple and yet effective with the front carb kicking in first. It's worth a close look the next time Ken brings the engine.



Al Vassalo came with an original Sterling engine that he built in the 60's. All of Al's work shows remarkable innovation and solid engineering.



Carmin Adams fine Economy ran well, as usual. Carmin is working hard on his very complex three-cylinder Fairbanks Morse and has also offered to help out with my DeBolt Perkins Model "B" which was displayed at the meeting. I was able to get it to run for only a short time. So far, Carmin has identified three problems. The ignitor material was too soft, the timing shaft had a bind, and the piston simply had too little clearance. It's great to have experts in our group that are willing to help out. Thanks, Carmin.



George Gravatt brought his 1911 Aeromotor with a water pump. This became a good runner after George made several modifications.

Robert Schutz shared his Bob Shores Eagle and his nice green Upshur. Speaking of Bob Shores, he was on our minds as we had a set of castings for one of his engines on display, a Silver Bullet,



Shannon Lile ran his neat little Jerry Howell designed "coffee-cup" Sterling. Naturally, it runs one way on heat and the other on cold. Why not? Shannon also brought his nice Arco, which is based on an Economy.

Pat O'Connor brought two engines. The first, his highly modified overhead-cam Wall Four. The other, his latest progress on an original opposed-piston, two-cycle engine. The current work centers on the two crankshafts and the gearbox. Pat is a bit like Eugene Corl, he doesn't do things the easy way. He claims that he was inspired to build this engine by Clen Tom-



linson and his fabulous Deltic.

A rumor is circulating that Clen may make the trip to the Good-Guy's West

Coast Nationals in August. For those who haven't attended this three-day show, it's a terrific way to share our engine hobby and to see the most fabulous pieces of contemporary automotive art on the planet. The Good Guy himself (Gary Meador) told me that Leroy and Rod Sabbatini would be showing a full-sized, brand new Offy powered Kurtis midget racecar next to our display. I have seen this car several times during its construction, and it is fabulous. (The Sabbatinis showed a number of fine tether cars across from our table at Visalia show.)

Art Shulenberger a Mechanical Engineer and friend of Karl van Dyk was at our previous



meeting with a plastic mock-up of a highly unusual and original engine. Carl Wilson described this in the previous newsletter.

This meeting, Art brought the prototype in metal. It is a three-cylinder, four-cycle, axial-piston engine. He describes it as a variable compression axial piston engine. It has a unique

double-articulated connecting rod. Using sleeve valving, it has the potential for greatly reduced vibration compared to reciprocating engines. The throttle setting changes the compression ratio! Bet you haven't heard of that before. It is easily the most unusual engine that I have seen. We would love to see it as development progresses.

Even though we didn't have a formal meeting, I have a "first pops" to report. Shannon Lile found a 1937 Unitrac tractor some time ago. He brought it back to life on June 6, after 30 years of neglect. This remarkable farm implement used an Indian motorcycle engine that was frozen solid and had broken and cracked parts. Congratulations to the Liles!



The show ended with Robert Schutz driving John Palmer's famous half-scale Rumley Oil Pull tractor out to the street. John built this tractor

in 1983 and it has been seen by thousands of enthusiasts. There is over 2,000 hours of running time on the engine which has had only one light rebuild with new rings, wrist pins, and a light taking up of the rods.

The exodus to Oregon continues. First it was Peter Brooks, then Gordon French, and now Alan Ingersoll has moved north. Best wishes to our Northern members. Present at our June meeting after an illness was John Vlavianos. We are glad you're up and about, John.

Photos by Bill Nickels

Fellow BAEMers,

I'm considering getting back to Model Engineering as my main video production focus in the following manner:

In addition to covering almost all of the ME exhibitions and producing a 'show tape,' I'd publish a model engineering video 'magazine' six times per year. DVD or VHS tape format.

The magazine would contain exhibition highlights of events I've covered, Model Engineering Club activities around the U.S. and Canada (maybe other countries too), visits to other modeler's shops, instructional visits to suppliers (like a little tutorial on how to use their products), perhaps a little bit of travelogue, contributed content from modelers, promotional video spots about vendor's products (like seeing an assembled and operating model made from a vendor's kit and images of the contents of their kits), visits to museums, and any thing else I can find that may be of interest to folks like us.

It may also be practical to include Internet links to WEB sites and other information on the DVD that would be available to the subscriber if they have a DVD player on their computer.

Length? At least one hour of content per issue and probably quite a bit more.

Price? I'm considering an annual subscription rate of somewhere between \$60 and \$100 for 6 issues per year with an issue delivered about every 60 days.

What do you think? Any and all comments are welcome.

Email: mrehmus@byvideo.com

US Mail: 737 Elmwood Av., Vallejo, CA 94591-6641

Phone: 707- 643-6396

Best regards,

Mike Rehmus
ByVideo

TECH TOPICS BY PAT O'CONNOR

TECH TOPIC AT THE JULY MEET

Introduction to crankshafts.

Check out this web site. Recommended by Pat O'Connor

http://www.enginehistory.org/model_engines.htm

Tech Topics: Fits, Allowances and Tolerances

By Carl Wilson

I know, I know, there wasn't a Tech Topic at the June meeting, so this is not a report. The last report was on cylinder liners, and if you remember I used a lot of words and numbers to describe Dwight Giles' method of making and fitting them. Some of you probably thought, why didn't he just make a drawing. Well, it's no secret, but I have to confess that I'm a terrible draftsman and that it was easier and quicker to use words. There were some words that I would like to have used more often: fit, allowance, and tolerance. They would have made it easier to write last month's Tech Topic, but I did not have room to give their definitions and some examples. This month I'm making up for this lack. I'm not going to give this subject the full treatment, just some basic knowledge. If you want more, see Machinery's Handbook or some other technical manual such as a drafting textbook.

Let's start with Fits, in particular cylindrical fits: a shaft in a hole, piston in a cylinder, or journal in a bearing. All of these, and more, in an engine utilize various types of fit between the mating parts to ensure that they function as required. We talk of running, push, slip, and press fits, and have some idea of which type of fit to use in assembling the parts of our engines. Shafts in a bearing require a running fit; a pulley on a shaft a push or slip fit; cylinder liners in the block a press fit. The various fits are achieved by making the mating parts to specific sizes, e.g., to make a running fit, the shaft is smaller than the hole; for a push fit, the shaft is just about the same size as the hole; and for a press fit the shaft is larger than the hole. This difference in size is called the allowance. The term clearance is sometimes used in place of allowance when describing running fits and interference for describing press or force fits.

That defines allowance in words, but how do we figure the actual sizes? We need some numbers. You could try Machinery's Handbook. MH has 23 pages on the ANSI standards for cylindrical fits! There are 5 standard fits and 34

classes of fit within those 5 standards. There are 9 classes of running fit alone. What's an engine builder to do? You want to do something better than drilling a hole and then filing on the shaft until it will turn in the hole, but do you need a RC 5 or RC6 or what fit? Or, you want the liner to stay in the cylinder, do you need a LN2 or FN2 fit? Let's close MH, and I'll tell you the secret that the big book only hints at: in many cases the fit and the corresponding allowance is selected on the basis of practical experience. That you can get right here at BAEM. Example: Dick Pretel uses an allowance of .002-.003 for fitting his liners into the block with Loctite. Make a note of it. There are also rules of thumb such as allow .001" allowance per inch of diameter for a press fit. As this series progresses, I'll make a point of collecting within these notes various suggestions and rules for allowances on parts of these engines.

The title of these notes promised some words about tolerances. I'll be brief, for this is a large and complex subject about which we do not need to know too much. The reason is that we do not usually employ interchangeable manufacturing where parts made in one location or machine will have to assemble with parts made elsewhere. We work to a more flexible standard: make one part, measure, and then make the mating part to fit. This lets us work around minor errors and use parts that with more stringent requirements would have to be scrapped. Most of the prints used in the hobby use few if any tolerances, so I will only give a definition.

Recall that an allowance is a deliberate difference in the size of two mating parts. Tolerance is the permissible difference in the size of a part. There are two numbers associated with a tolerance: the largest and the smallest acceptable size of the part to which the tolerance is assigned. Tolerances are used to insure that the parts will mate with the intended allowance. I will in the future give some more ideas on the use of tolerances.





Harley and Frame By
Roger Butzen



Upcoming 2004 Club Events

By Dick Pretel, Events Coordinator

GoodGuy's West Coast Nationals, August 27-29

Blackhawk Automotive Museum, November 20--probable date.

West Coast Engine Exhibitions For 2004

Gas Engine Antique Reproduction in Portland, Oregon September 25 & 26, 2004

Web Site: www.visalia.org Phone: 800-640-4888

2nd Annual Men, Metal, & Machines! Visalia Conventions Center Visalia, CA
October 23 & 24, 2004. Web Site: www.cabinfeverexpo.com/MMM

East Coast Engine Exhibitions For 2004 and 2005

Iron Fever Expo in York, PA. York Fairgrounds Expo Center
August 13th, 14th and 15th, 2004. Web Site: www.cabinfeverexpo.com/IFE

Cabin Fever Expo in York, PA. York Fairgrounds Expo Center
January 14th, 15th & 16th, 2005. Web Site: www.cabinfeverexpo.com/CFE

FOR SALE

Grizzly G1005 Mill-Drill \$650
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Email: jpiazza@ix.netcom.com

CORRECTION TO JUNE 2004 NEWS LETTER

On Page 2 Change Al Aldritch's
to Al Aldrich's

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Miller 180 amp AC welder with DC/TIG conversion
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Carl Wilson 650-967-7715

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