The Crank Calls

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

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June 2001

www.baemclub.com

NEXT MEETING
June 16, 2001
AT 10 AM
AT
Robert Schutz's SHOP
366 40th St.
Oakland, CA

Don't forget we will be having our annual

Swap Meet

this meeting

BAEM Meeting Notes,19 May 2001
Secretary's Report, Bob Kradjian:

First, my thanks to Mike Rehmus for his assistance last meeting. I played "hooky" and attended the MECA Collecto in Woodland and also the Farm and Tractor Days show in Rio Linda. Members John Vlavianos and Red Garlough were also AWOL and having fun at the Collecto.

The tractor show, sponsored by the EDGE & TA branch #13, was excellent. The feature that would most appeal to our membership was the display of more than twenty hit and miss engines. One of the most intriguing was a single cylinder engine built from an old air compressor. The builder made a new rod, piston, and cylinder head. He used an atmospheric intake valve and cobbled together an outrigger camshaft carrier driven by an old set of 1:2 gears. It was ingenious and cheap. The constructor said he had less than $100 in the entire project. Compressor motors anyone? It was great to see full sized Economy, Novo, Stover, Maytag, and New Holland engines chuffing away.

The Palo Alto Concours is June 24 at the Stanford Campus (on El Camino). We will have an opportunity to discuss details at our June 16 meeting. This will be the second of our three scheduled outside showings this year. We have just received an invitation for our third appearance at the GoodGuy's West Coast Nationals in late September. Members should know that I have been declining additional invitations to show engines at smaller car shows and concours. Do we have a desire to appear at more shows? It's a LOT of work, but if you want more, let me know.

Mike Rehmus stepped up and took over secretarial duties in my absence. Thanks for an excellent job, Mike. The following is his report.

Bits & Pieces

Alfonse Garcia (new member) brought in a nice Stirling built from Home Shop Machinist Plans. He is looking for assistance in making it run continuously.

Rudy Pretti - Brought in his Economy built from a kit by Joe Tochtrop. Under construction, he warns that one should think everything out clearly before cutting metal. Contact Rudy for details.

Roger Slocum - Had four beautiful Wall 4 crankshafts plus Holt & Challenger crankshafts under construction. The method he is using to build new crankshafts includes CNC milling the shaft contours from stock that is thicker than the finished shaft. He leaves a web of material 'under' the shape. Then he heat treats the metal before removing the web. Roger reports that after removal of the web, he has a straight shaft blank that is already hardened. Normal cutting and grinding to shape finishing is required but this appears to create a superior shaft with fewer problems. This is a slick method and one could see eyebrows rising in the audience.

Dwight Giles - Upshur Farm Engines from SIC plans. Construction has advanced from last month on these engines. Each is on a base and more bits and pieces are attached. They have his usual fine fit and finish.

Patrick O'Connor - Wall 4 Single Overhead Cam custom cam. This is a many-builder engine with previous work not up to standard. So Pat is adapting, adopting and generally engineering new bits for the engine. The SOHC cam head is one.
Pat also brought in an offsettable, rotatable spindle attachment for a Bridgeport mill that allows rotating the cutter about a circle centered on the spindle. This cuts down on the number of setups required to mill contoured parts and allows the stock to be held in a regular vise. This attachment will build up your arm muscles each time it is installed or removed from the mill.

Dick Pretel - 3 carburetor progressive setup for his Challenger V-8 which is approaching completion. This is a cam-operated progressive setup with only the center carburetor operating until about 4-% throttle.

Joe Tochtrop - 2-Cylinder vertical IC engine to his own design. This is destined to be a kit in the near future. Joe was selling the aluminum castings that frame the radiator of this engine. Makes a very nice radiator when completed.
For Sale

Roger Slocum - Machinist books & Wall crankshafts.

Chris Leggo - Machinist tools, Unimat, etc.

SWAP Meet next meeting, 10 AM on Saturday, June 16th, 2001. Clean out your workshop and bring those jewels to the meet.

TECH TOPICS

BY
SCOTT OVERSTREET

I'm very happy to report that it happened again. What, you say, happened again? Well, if you were at our last meeting you already know - for those of you who weren't, we had another terrific Tech Topic session. This time the subject was the precision finishing of cylinder bores and similar holes by the honing and lapping processes. Our presenters were Roger Slocum and Dwight Giles - neither of whom need further introduction - but suffice it to say that all of us regulars have long looked up to both of these fellows due to their long demonstrated high levels of expertise. Both speakers presented their subjects in very professional manners and the audience participation was high during their presentations and then collectively with both speakers during the wrap up. I would say that not only did most of those who attended learn a lot, but all were left sufficiently familiar with the honing and lapping processes to properly use either and, in some cases, both to achieve a satisfactory end result which was, of course, the object of the session. I've asked Jim Piazza to include Roger's and Dwight's "do it yourself" tooling designs and notes in this Newsletter for your future convenience (see pg. 6). Many thanks to Roger and Dwight for a really excellent and very appropriate session.

What's next? "Loctite," that's what. Who needs to know more about Loctite? Well, probably all of us. Yes, Loctite has been around for a long time and yes, we've all used it and yes, usually successfully, but what about those unsuccessful times and then do you know which brew is really best for your application? And, do you know when not to use Loctite, and do you know what Loctite needs to trigger its bond set? You say a small crack - do you know how small is best and what else is also required? Dick Pretel has made a thorough study of the current Loctite product line and the many applications thereof. He has selected a collection of Loctites out of their seemingly hundreds of specialty products that are both optimum and available for various engine applications. Dick has agreed to tell us almost all he knows on the subject and leave us with a handout sheet and some Loctite paper (and maybe more) for our future use. Don't miss this one; paying attention to what Dick says might actually help hold a future engine of yours together better than what might otherwise be the case. What's the other case? Well, its sometimes real serious, i.e. not at all pleasant to think about, much less look at.

Scott

Roger Slocum

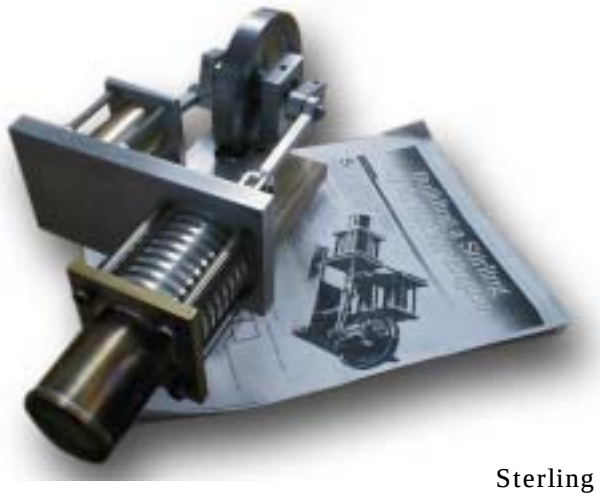
Dwight Giles

General Notes on Tech Topic Honing and Lapping Session

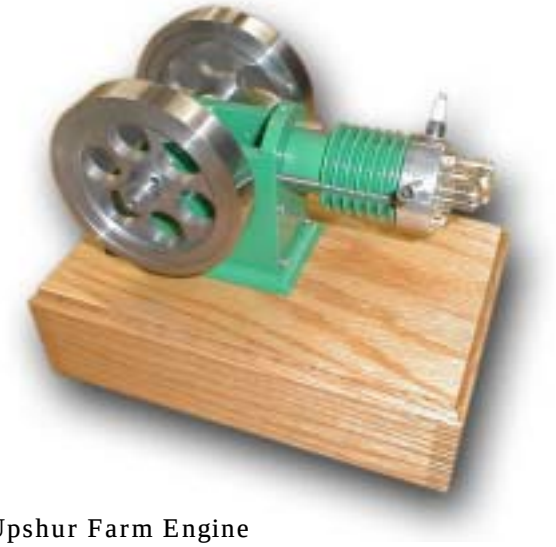
- Honing and lapping are both capable of precisions in the region of .0001 inch in the home shop when adequate measurement and process skills are used.
- Honing is considered a faster material removal process than lapping.
- Lapping is generally considered to be somewhat more precise than honing but slower.
- Either process will true an out of round hole, however, the lapping process will usually true a hole with slightly less enlargement to clean up and final cleanup is easily seen. A practical approach is to first hone and then lap when advantages of both processes are needed.
- Lapping is generally tolerant of keyways and the like in a bore whereas special honing tooling may be required.
- Machine the bore as close as possible to size before honing or lapping is started to avoid losing the machined precision of the hole due to excessive stock removal.
- In honing, aluminum oxide stones in 320 grit are good for steel, silicon carbide works better on soft metals like brass and aluminum. Long stones should be softer - remove glaze and high spots as indicated with a " trueing sleeve" with a diamond file.
- In lapping - number 45 diamond grit is about equal to 320 abrasive grit and is considered moderately aggressive. Number 30 diamond grit is about equal to 600 abrasive grit and produces a very fine finish. The "Clover" abrasives can also be used.
- The material used for a lap must be very much softer than the bore being lapped to avoid embedding the lapping abrasives into the wall of the bore - use dead soft copper, aluminum or brass.
- Don't "push" either process - operate at moderate speed and drag to avoid heat - work from both ends of a bore when possible and keep the tool moving in and out with over travel of ¼ to ½ the tool length. Use plenty of light oil lubrication. In the case of lapping, add abrasive as required.
- Either process can be used to true or make a "choked" or "belled" hole - proportionally more tool time at one end of a bore will open that end faster.

Laps
Carl Wilson

Tri carbs with progressive linkage
Dick Pretel



Sterling
Al Garcia



Upshur Farm Engine
Dwight Giles

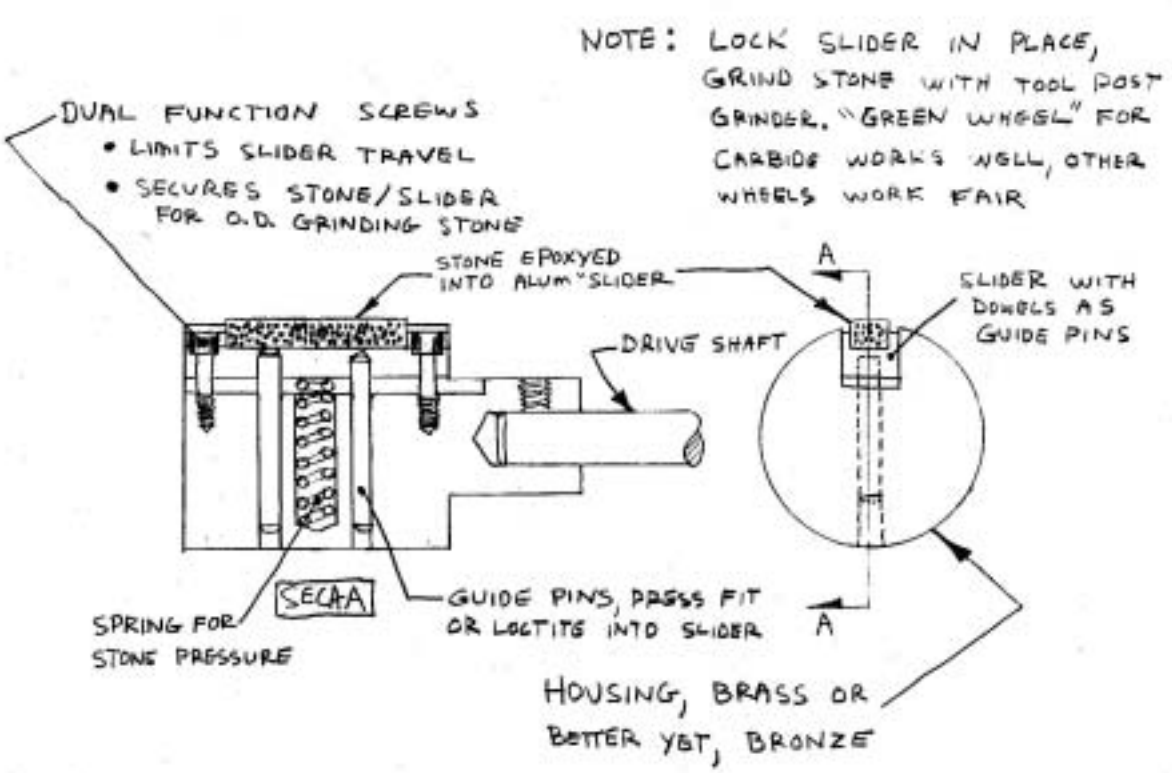
Milling Head
Pat O'Connor

Crank and crank blank
Roger Slocum

Wall SOHC
Pat O'Connor

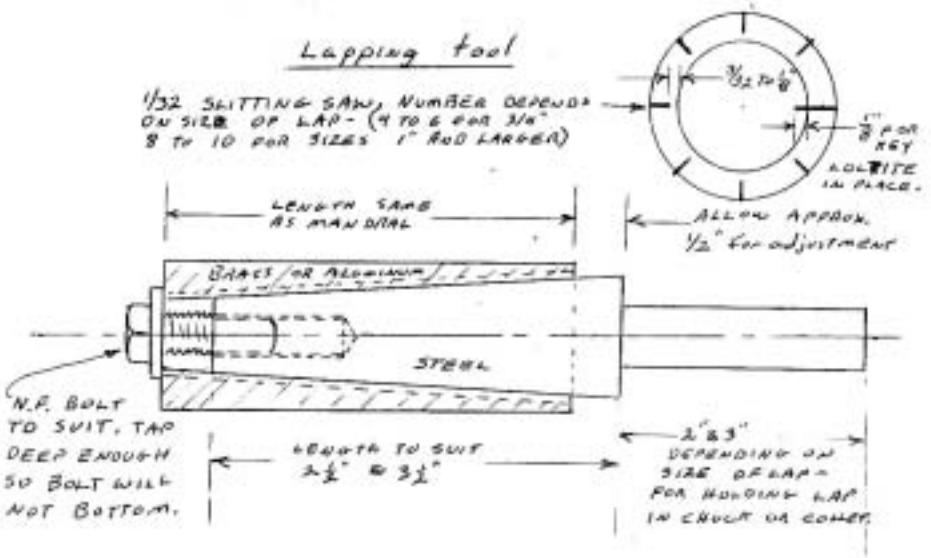
Photos by
Mike Rehmus

Upshur Farm Engine
Dwight Giles



HOME-MADE, QUICK & DIRTY HONE

ROGER SLOCUM



3/4" per/ft. TAPPER WORKS GOOD. ALSO MORRIS TAPPER REAMER WORKS WELL.

ANY LAPPING COMPOUND WILL WORK (CLOVER DIAMOND "SUPER").

MAKE ALL SLITS TO DESIRED DEPTH THEN SLIT ONE TO MANDREL, REMOVE SLEEVE AND SLIT MANDREL APPROX. 1/16" DEEP FOR KEY.

LAP AT 200 TO 300 RPM.

AFTER LAP IS COMPLETED SHIM CUT O.D. OF MANDREL SLEEVE TO .004"/.005" SMALLER THAN BORE OF SLEEVE/CYL. IN CAST IRON ALLOW .001" TO .002" FOR LAPPING.

Dwight Gilbert