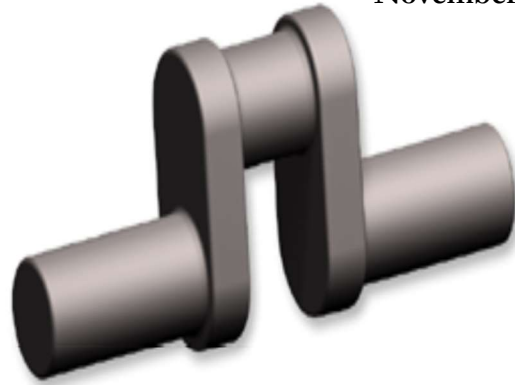


The Crank Calls



President	Paul Denham	pedenham@comcast.net
Secretary	Your name here!	Please consider volunteering
Treasurer	Deirdre Denham	pedenham@comcast.net
Events Coordinator	Steve Hazelton	steve.hzltn@gmail.com
Webmaster	Mike Byrne	mgbyrne3@comcast.net
Editor/Printer	Wes Wagon	weswag@ix.netcom.com

MEMBERSHIP \$25.00 US
 Contact Paul Denham at
 pedenham@comcast.net

NEXT MEETING

**Saturday, November 21, 2020 at the
 Golden Gate Live Steamers clubhouse in
 Tilden Park, Orinda, CA**

Doors open at 9:00 am
 Meeting starts at 10:00 am
 Meeting will be outdoors, masks required
 Social distancing will be observed

Upcoming Events

BAEM meetings are usually 3rd Saturday of the month except December. Upcoming meetings:

- November 21, 2020 at Golden Gate Steamers
- December 12, 2020 at GGLS: Holiday Potluck? Uncertain.

MEETING NOTES

October 17, 2020

Note takers: Mike Byrne & Wes Wagon

Bay Area Engine Modelers met at Golden Gate Live Steamers in Tilden Park, on Oct. 17, 2020. Meeting was held outside, observing mask/social distancing protocols. Approximately 15 members were in attendance.

NEW MEMBERS/VISITORS

None.

TREASURER'S REPORT

The 2020 dues of \$25 will be due in January. Pay now so you'll be all paid up. Give your check to Paul Denham. Dues can also be mailed to Deirdre Denham at 1937 Merchant St, Crockett, CA 94525. Make checks payable to "BAEM". The BAEM club is solvent.

CLUB BADGES

If you are a member in need a badge, contact Mike Rehmus (mrehmus@byvideo.com) who has offered to produce them.

MEETING VENUES

Upcoming meetings will be at GGLS, due to the ability to meet outdoors, reducing the risk of Covid 19 infection. Masks must be worn.

Watch Crank Calls BAEM emails and BAEM web page for updates. As this newsletter went to press, the status of the December potluck was undecided.

SHOW PARTICIPATION

Nothing to report.

FIRST POPS

Mike Rehmus showed his mostly completed GEM-1 (Giles Engine Model #1). Unfortunately, it failed to run. Mike offered his cellphone video of the running engine as proof that he was entitled to claim "First Pop" status.

Mike is, of course, the publisher of Model Engine Builder ("MEB") magazine. MEB has been publishing a series of build articles regarding the GEM-1. His build of the GEM-1 has been carefully documented.

BAEM Webmaster and Crank Calls notetaker Mike Byrne has provided us with some fascinating details regarding the GEM project history:

Dick Upshur designed a farm engine model in 1945 and updated the design in 1976. Plans were published in Strictly IC in 1988, and republished, with improvements, in 2000. Plan sets are also available at <https://rocketr.net/sellers/UpshurEngineWorks>, with several configurations of the engine: horizontal, vertical, air cooled, hopper cooled, and hit-and-miss governed. Of interest, these engines are designed for lathe/drill press only machining and can be made of mostly 1/4 inch aluminum plate.

Dwight Giles developed an engine design of much the same scale as the Upshur farm engine. Significant changes included machining the base from 2 inch aluminum stock and welding up the hopper from steel plate. Dwight provided early pencil drawings (dated 2004) to BAEM members, along with Upshur plans and prototype square hoppers. John Gilmore and Paul Denham both built this version. John did his to practice machining before starting his bar stock V-8 project. Paul built an early throttle governed engine, and then a GEM-1 version with his own very creative hit-and-miss governor design.



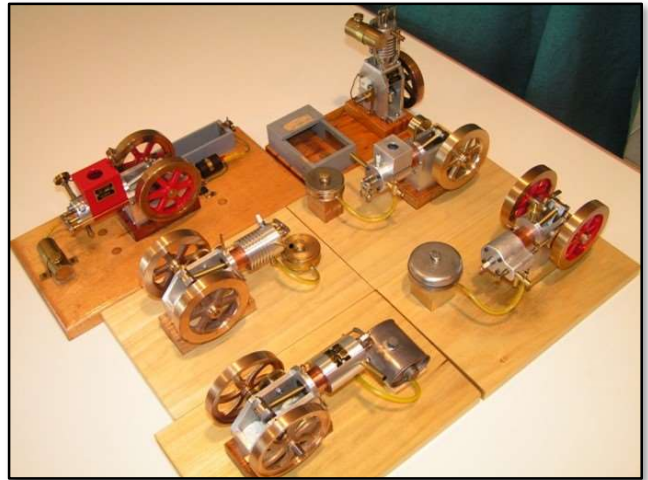
Upshur's 1976 Farm Engine



John Gilmore's build of Dwight's early design with square hopper



Mike Rehmus' GEM-1 with new hopper per MEB build articles



Metal Butcher's inspiring 6 engine multi configuration batch process build (posted on HMEM site)



Snip of Upshur plate base assembly in process for an air-cooled engine

The GEM-1 is just one example of Giles/Rehmus project collaboration. Mike takes Dwight's engineering designs and produces spiffy Alibre CAD drawings, suitable for publishing in Model Engine Builder. This collaboration, as documented in MEB, captures a significant amount of model engineering design and technique lore.

To date, four MEB articles have been published regarding the GEM-1, starting with Issue 35. The final build article will be in Issue 39, which is promised "very soon". The series includes lots of "how to" discussion with extra features like head drilling guides, fixtures, and cross references to earlier Dwight articles about machining crank shafts, connecting rods, valves, fly wheels, etc, etc. Dwight has at least 3 flywheel versions: machined from steel, cast lead, and built up with a welding jig.

Here's an outline of the MEB GEM-1 build articles:

Issue #35	Hopper, cylinder, sleeve, frame, crank, rod, bearing caps, rod taper jig
Issue #36	Piston, gears/gear cutting, cam, piston, rings, lapping the sleeve
Issue #37	Head, head drill guide, rocker arm, rocker post, push rod & guide, valve seat cutters
Issue #38	Spring winding, flywheels, throttle/needle valve, head leak test fixture, gasket punch
Issue #39 (due soon)	TBD; maybe: ignition, assembly, timing, display box (since the project thus far has been titled "Throttle Governed Single

	<i>Cylinder Engine</i> " we probably won't see a hit-and-miss governor. Downloadable Kerzel and Webster plans include hit-and-miss governors.
	Banggood is now selling a Chinese Kerzel with a fly ball governor (https://usa.banggood.com/Eachine-ET6-Horizontal-Hit-and-Miss-Complete-Engine-Model-STEM-Upgrade-Gas-Engine-Toys-p-1720034.html?rmmnds=search&cur_war ehouse=CN).

Finally, Mike Byrne warns GEM-1 builders to be sure to use the latest drawing dimensions for the crank shaft and connecting rod. Mike suggests readers ask him why.

BITS AND PIECES

Need a nice display box for your engine? Talk to Dwight Giles. Dwight related how he sold 10 Black Widow castings to Jim Kipp in Southern California, who in turn gifted Dwight four beautiful wooden engine display boxes, fabricated by a professional cabinetmaker out of solid red oak. These include elegant solid brass handles that are very costly. Dwight is willing to sell each one for a \$200 donation to the club. Steve Ridgway bought one for his V8 in progress.

Paul Denham gave a progress report on his Black Widow 4. He described constructing and testing his gear-type oil pump. Machine work on the cylinder heads is proceeding. He described machining the ports, and using a quick and easy way to check port flow: hold it over the sink and direct water from the faucet through the port – smooth flow confirmed!

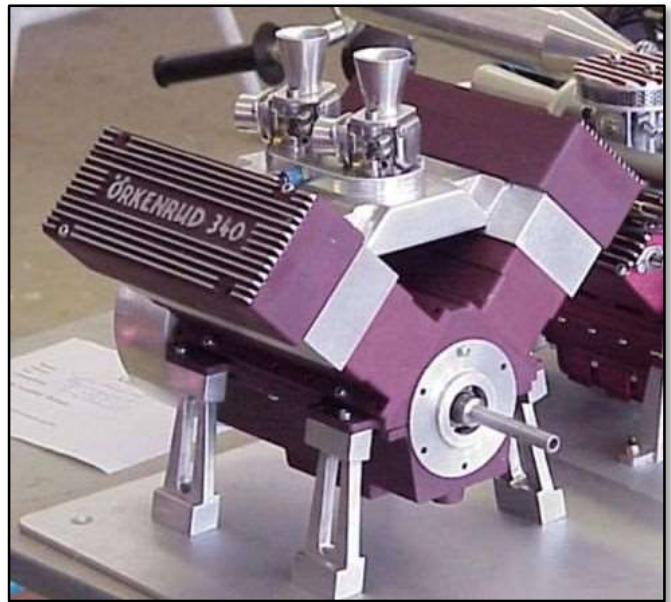
Coming up: fabrication of the intake and exhaust manifolds. Several approaches were discussed. Stay tuned to learn how he did it.

Paul also passed on a good tip for those with Bridgeport-style mills: keep that quill well lubricated. Makes the action nice and smooth.

Dwight Giles briefly passed on a couple tips. He showed an old connecting rod from a Challenger V8 he had built years ago. The remains of a broken cap screw used to hold the con rod cap showed the

importance of utilizing high quality, high strength fasteners in this critical location.

Jerry Franklin gave away a number of large pieces of ultra-high-molecular-weight polyethylene (“UHMW”). Often used in kitchen cutting boards, this machinable plastic material is tough, strong and self-lubricating. (https://en.wikipedia.org/wiki/Ultra-high-molecular-weight_polyethylene) A handy material, especially in applications where mating surfaces must slide smoothly.



A partially completed Örkenrud 340

Encouraged by Dwight Giles, Wes Wagon is building a V8 engine called the Örkenrud 340, designed by Tryggve Örkenrud from Braås, Sweden. Wes is working from a partial set of plans in metric dimensions, with annotations in Swedish. Google Translate has proved helpful. Casting set was provided by Dwight. Wes, who has no prior experience building an engine from castings, is proceeding cautiously. He described how using his laser center/edge finder (<https://lasercenteredgefinder.com/>) was useful for locating casting centerlines for machining edges referenced from the centerlines.

One of the challenges Wes faces is securely mounting the castings on the mill table. Mike Rehmus offered a helpful suggestion: as soon as possible, mount the casting on a fixture plate, making subsequent machining operations far simpler. Good tip!



Finally, Wes revealed his backup plan: if machining the castings goes badly, the crankcase and sump will make a really nice birdhouse.

FOR SALE

Dwight Giles has some stuff he is offering:

-Castings & Drawings for Örkenrud 340 V8. This is the same casting kit Wes is using for his build. Price is \$100 donation to club.

-1.5 hp electric motor. 1750 rpm. 110/220v AC single phase. Heavy! Price: Free!

-Engine Mount Box. Beautiful wooden box for mounting your larger engine. Perfect for a Black Widow V8. 3 available. Price is \$200 donation to club.

Contact Dwight at jig313@aol.com
or phone: 707-648-1481

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Got something you'd like to sell? Your ad is free and will be seen by likely customers.

