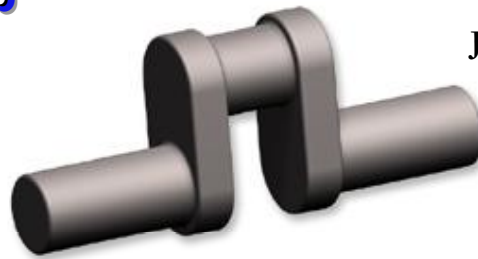


The Crank Calls



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MEMBERSHIP \$25.00 US

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NEXT MEETING

**January 20, 2018 at
Museum of American Heritage
351 Homer Avenue in
Palo Alto, CA**

Doors open at 9:00 AM
Meeting starts at 10:00 AM

Upcoming Events

BAEM meetings 3rd Saturday of the month

- January 20, 2018
- February 17, 2018
- March 17, 2018

MEETING PLACE FOR January 20th

IMPORTANT NOTE!

The January 20, 2018 meeting will be at an entirely new meeting place for us. It is the Museum of American Heritage in Palo Alto. The address is 351 Homer Avenue in Palo Alto. Go to: moah.org for driving instructions and information on this fine facility. Thanks to Steve Jasik for arranging this.

MEETING NOTES

December 9, 2017

Bob Kradjian, Secretary

CHRISTMAS LUNCHEON MEETING

President, Paul Denham called us to order for an abbreviated club meeting prior to the Christmas feast.

We discussed the sudden and unexpected loss of the Tech Shop meeting room. Alternative sites were discussed. Steve Jasik was investigating the possibility of a Palo Alto meeting place at the Museum of American Heritage (moah.org). Skipping ahead, he was successful in securing the room for the January 20 meeting. The address is 351 Homer Avenue, Palo Alto. More details will be furnished elsewhere in this report.

The President discussed methods of showing videos and photos on the large flat-screen video. It has both USB and an HDMI ports. A Google Chromecast and cables will be available at next GGLS meeting. Ray Fontaine suggests that we create pictures or videos of our shop to be shown on our flat screen video.

VISITORS: Rolf Hallberg from Brentwood is working on a Black Widow V-8 build from purchased castings. He has followed us for several years at Pleasanton and on the Internet. He is an advanced machinist and we hope he will bring his work in progress on the Black Widow to our monthly meetings.

TREASURER'S REPORT: Our excellent treasurer, Deirdre Denham, reports that we are solvent and are collecting next year's dues.

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

FIRST POPS: No first pops were reported. That is, unless you qualify a "first gush" of oil for Peter's Merlin engine.

WEME REPORT: A decision concerning our participation in the 2018 WEME show at Pleasanton is needed. Perhaps at our January meeting, we can make a decision. Peter Lawrence has committed to investigating some relief from the Fire Marshall's rulings.

BITS AND PIECES



Peter Lawrence gave us an update on the Merlin V-12 project. His first goal is to finish all the oil circuits before the next meeting. He has pumps (two), filters, pressure regulators (two) and most of the “plumbing” completed. He confessed to a broken-off high-speed drill in the crankshaft oil holes. Peter asked for EDM help, but Dwight cautioned that EDM creates burrs and left over metal after removal of the drill. We all have experienced the “grabbing” and breaking of drills just at the very end of the drill pass. Paul Knapp has shared this lengthy quote detailing his experience with this problem.

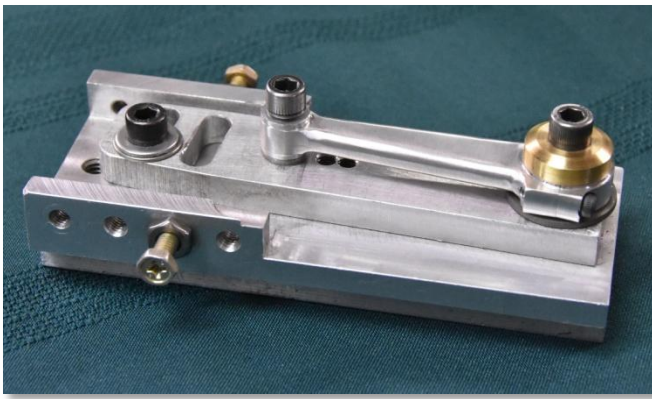
“Early on in business I was drilling .025 diameter holes in fuel nozzles for jet engines. Each nozzle had a circular groove milled into the face of the nozzle where I had to drill 24 holes about 3/4” deep. Then they broke out into cylindrical groove (like a ring groove) in the diameter of the nozzle. There were 24 chances to break a drill in these very expensive parts, so I had to come up with quick solution. I have successfully used this solution for large and small holes that intersect other holes, angles, or simply just break out on the other side. Once I know the approximate depth of

the hole when it just breaks out, I simply lock the quill before that point and crank the table up slowly. The smaller the drill, the smaller the increments, and the slower you must crank the table. For example, when drilling a .006 diameter holes I will crank no more than .0005 to .001 at a time and very slowly. The quill stop is handy so I can lift the drill up to clear the chips and then set back down into the hole to continue. One must get a feel for the quill stop so you don't over pressure the drill when returning to depth--especially with small drills. The other option is to crank the table down to clear the drill and then back up to continue. It is a slow process, but much faster than getting a broken drill out. Hope this helps at least some of the builders.”

Thanks for that, Paul.

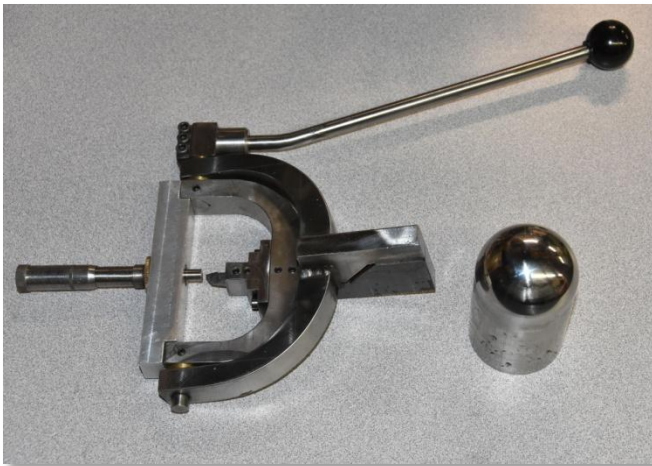


Dwight Giles showed us connecting rods and pistons for a Black Widow V-8 he wants to finish. The use of 2024 or 7075 aluminum is essential for the rods. No lubricant is needed for 2024 aluminum.



The fixtures for holding the rods were shown and explained. Round-over bits are used to contour the rods, which are “flipped-over” to machine the opposed side.

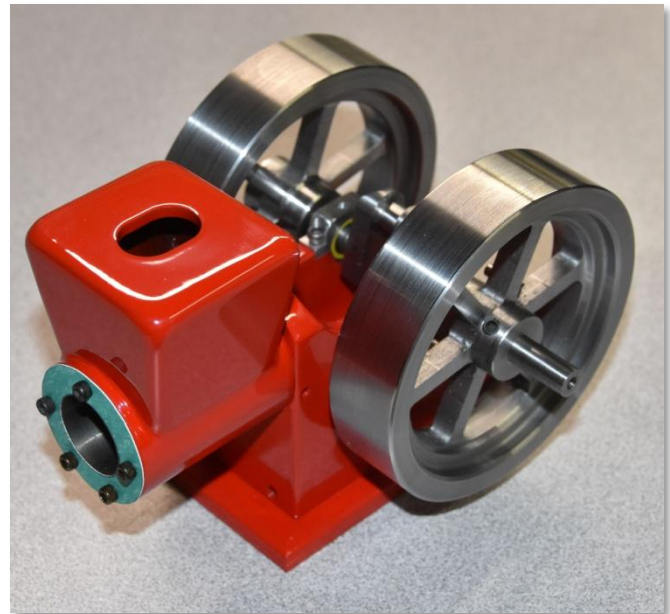
The machining of piston rings was discussed. Dwight emphasized that the grooves must be accurately machined to hold compression. His method of creating twelve 0.046-inch slits in the center of the oil-control rings was revealed. Those rings, when showed to hardened hot-rodders at the WEME show never failed to draw unstinted admiration.



Dwight also showed a ball turning tool of his own design. The result shown was a lovely, polished half ball. He emphasized that it was not possible to create an entire, accurate ball with such a jig.



Tim Horn displayed an oil field “nodding donkey” pump to connect by a belt to his “Odds and End” hit and miss engine. The oil field terms “horse head” and “equalizer” cropped up, and were explained by Tim. He used an eccentric bushing that he was able to rotate to accurately center a shaft. For the making of custom O-rings, he used Loctite 404 to join the ends. A butt joint worked well, but some members recommended a scarfed joint.

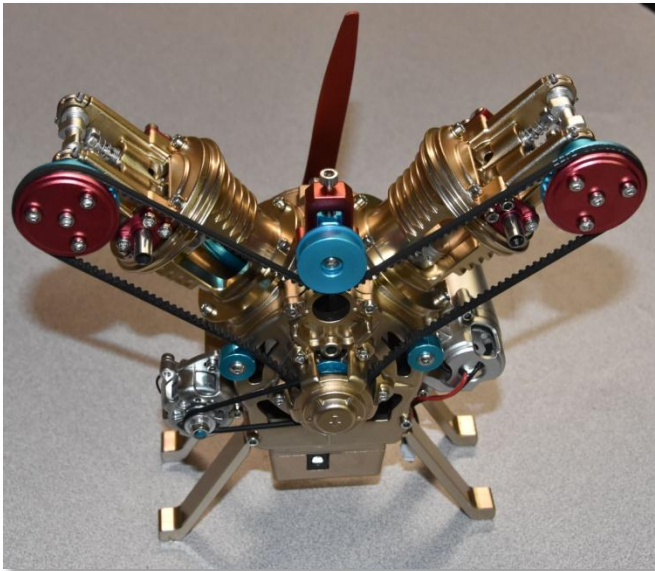


Paul Denham is busily completing a Dwight GEM hit and miss engine kit. Metric bearings for the

crankshaft were 8mm. by 14 mm. by 4mm. These were sourced from catalogs catering to high-speed radio-controlled car folks. He painted it using a “Rustoleum 2X” rattle can from Home Depot. It tolerated heat baking at 212 degrees for a lovely finish. It looked better than a powder coating finish.

Mike needed a square hole for a project. He ordered a rotary broach kit from Hemingway in the UK for the making of a square broach.

He is also developing a harmonic drive for a fourth axis on a Taig mill. “Everyone knows what a harmonic drive is, right?” said Mike. We all sat there like dummies! He showed us one, purchased from Israel, with a one hundred to one reduction. The story of harmonic drives is best shown as a video, NOT as a spoken explanation. It’s well worth trip to: harmonicdrive.net and scroll down to the short video showing how harmonic drive gears work. It will restore shattered faith in mankind’s ability to create beautiful and useful things. These gears are used on the wheels of the Mars Rover and on the arms of the amazing robots that make our cars. They have NO backlash. This is because many of the teeth are always engaged while advancing. How? See the video.



The secretary showed another Banggood display engine. This was a Vee-Twin Aero engine with high quality castings and driven by a small DC motor.

We then adjourned for another of our fabulous Christmas dinners. Much praise to those who brought the food! As in all of our past dinners, there was a terrific variety of delicious food and drink. As always, kudos to the fine ladies who coordinated the display and serving of the dishes.

Ray Fontaine and Tim Horn ran engines after the meal and the meeting to wrap up another great December meeting and 2017.



Museum of American Heritage location

Note that parking is on the street or at a nearby public parking lots

