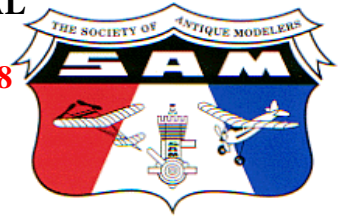




**THE NEWSLETTER OF SAM 26, THE CENTRAL
COAST CHAPTER OF THE SOCIETY OF
ANTIQUÉ MODELERS. FEBRUARY 2021 #358**



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OUR NEXT BUSINESS MEETING date, time, and agenda is still undetermined. This presents little problem since nothing in particular is planned for the immediate future until the rest of the country gets settled down over the Covid flu thing.

WE HAVE A VOLUNTEER! After putting out a notice asking for on-field help in running the next, or future SAM 26 contest(s) [whenever that might be], **Mike Myers** has stepped forward. There couldn't be a better choice, as Mike is a seasoned contest director who enjoys interacting with others of our unusual persuasion. Mike will basically do the on-site work of registration, pilot briefing, score recording, trophy presentations etc., allowing yours truly to fly, time, and chat whenever he wants to during the "action" part of the event. And yours truly will continue doing behind the scenes preparation and windup by setting dates and venues, getting sanctions, forms and field equipment in place, making banquet arrangements (if any) and processing the paperwork before and after the event, publishing results, etc.

Tentatively, we may again hold the John Pond Annual in the fall this year, before shifting back to spring for next year. And let's hope that this year we may not once more be the only Chapter in California to put on a SAM R/C event.

But wait, there's more. Not long after Mike signed on, **Jim Wiseman** also volunteered without knowing whether or not we had anyone else. So now we have someone who can spell Mike as needed, or take his place if for any reason he can't make it. That insures that I can get some flying in, as contests become scarcer than good running Thor and GHQ engines.

FINALLY FOUND! Easy Sand 5. This potentially useful product was reviewed in newsletter #340 from July 2019. Information came from Dave Harding and Angelo Fattoracci, via Mike Myers. It combines the qualities of common spackle and two part epoxy, but uses water as the activator for a 5 minute working time. At the time I had an upcoming use for such a product.

At the same time, I had an old container of a similar product called Dowman's Fix-All, which had a slower 20 minute working time. It was contained in just a small non-airtight cardboard box and hadn't been used for some time. As you might expect, since it was water activated, it was anhydrous and may have absorbed moisture from the air and would probably be useless. It was.

After that test, I started looking for the Easy Sand 5 product whenever I was in a hardware, or Home Supply store. I had no luck for over a year, but recently it showed up at Lowe's, where they'd declared it out of stock just a month or so earlier. If anyone else has been looking for the product with no luck, it should now be available there. - Continued -



Here's what the 3 pound zip-lock sack looks like. When hardened, the product is quite sandable as the name implies.

3 lbs. would probably be a model builders lifetime supply as long as you keep it completely dry. Current price \$6 at Lowe's.

I've not always had good luck zipping those containers and often find them popped back open. You have to be slow and careful with a tight squeeze.

You might want to put all or some in a more sealable container such as a glass jar.

A few more words of directions and recommendations from Mike Myers appeared in that July 2019 newsletter.

USING SOLDERING PRE-FORMS: Like some of you, I'd never heard of solder pre-forms until I saw them in use years ago when Gil Henry gave me a tour of the VECO manufacturing plant in southern California. I believe it was also once called HECO, standing for Henry Engineering Company. I think the name VECO probably came later, but I don't remember what VECO stood for.

Among other things, I watched fuel tanks being assembled from pre-formed tinplate parts. Along with things like stamped out end plates they also used thin little pre-formed solder wire pieces which were shaped to drop inside the outer edges of those end caps. They were mated onto each tank end in-turn and soldered with a foot switch activated induction heating machine. In about one second the solder melted into the assembly, forming those perfect joints you see on VECO and other metal fuel tanks.

I believe the VECO tanks, were originally the Froom tank line whose business VECO bought out. There were lots of ladies doing the manufacturing and assembly at VECO, including the one assembling and soldering tanks. There's an interesting and probably true theory why

women were often hired to do soldering jobs on circuit boards and such. It's that women can be trained quicker and better for soldering tasks, because men think they already know how to solder. That theory is probably obsolete in today's world because few people, male or female, perform manual tasks or hobbies. And telling them that a nut usually turns onto a bolt clockwise might do little good in the era of digital clocks and watches.

Let's get down to some practical application of solder pre-forms: In the last newsletter we pictured a needle valve spraybar made from a piece of 1/8" brass tubing for an O&R 60. A flat washer needed to be soldered onto the tube. To get a neat joint fillet, I made a pre-form by wrapping a piece of solder around the ice pick that's kept nearby. An ice pick finds lots of uses in a workshop.



The wood block was used to keep the washer aligned while soldering. The center picture shows the round pre-form solder ring in place, ready for soldering. A propane torch flame was applied mostly to the upper part of the 1/8" brass tubing to produce the little fillet at the right.

For a smaller fillet, we'd just use thinner solder wire, or for no fillet, when little strength is needed, first drill or ream the washer to a slightly loose fit and let the small pre-form wick in.

O&R SPARK ADVANCE: Dave Bruner sent an open question to three of us. Steve Roselle and I sent responses, and Bill Vanderbeek agreed with both assessments. Here's the question:

The scale control line model I am working on will use an O&R 23 on ignition. Can you remember about how many degrees advance you set for best rpm? This is the Springfield Bulldog with round cowl so when the engine starts you cannot advance the spark without some linkage to move it. I will link to the maximum up control line when after starting up to advance the spark. It has just one-way movement. It is more of a show model but will fly it if, I can get some younger person to do it. Around and around at our age ?????? ha! All the Best ~~~ Dave

Here was your editor's answer: I've never had occasion to measure advance on an Ohlsson, but I can see the possible need in this case. If I had to guess, I'd say about 25 degrees. But that could vary by as much as 5 to 10 degrees, depending on prop load, engine condition, fuel, etc. I'd suggest just running on a test stand and manually adjusting for almost max RPM, using a tachometer, or by ear, with prop and fuel to be used. Then set up your spark to advance to that setting. But more simply, you could just tighten the two timer screws to that position and start the engine at full advance. I've done that many times, even with O&R 60's. Use a glove or chicken stick. Think about it: We start glow engines at full advance all the time, and they run stronger than O&R's. RLA

Steve Roselle's suggestion was quicker and simpler yet: Remove the cowl, set the engine timing, then adjust your linkage for that.

Jim Coffin does an excellent job editing a recently resurrected quarterly newsletter for SAM chapter 10, The Capital Area Antique Modelers, Association, or CAAMA. Jim resides in what I consider the Far East, but he obviously once lived in southern California, since he worked for Henry Orwick producing Orwick engines. Here's Jim's story courtesy of his newsletter.

Hal Howard, our resident model engine guru, has been pestering me for years to write a story about my experiences working for Henry Orwick. I worked for him for a few short months in the Spring of 1952 when I was 20, but my relations with him covered about 5 or 6 years, most as a friend of one of his employees, Lester Espolt. So here we have my take on Orwick Engines.

Henry Orwick's ENGINES

(and Me)

Among about ten or more short jobs I had between graduating High School in Long Beach, California and starting a career in marine engineering for the U.S. Navy, was several months working for Henry C. Orwick in his centerless grinding machine shop. I won't go into any detail about the centerless grinding process as the subject is covered in several web sites. It was an essential operation in the manufacture of Henry Orwick's well-known and coveted model aircraft engines in the '40s and '50s.

Henry Orwick sometimes visited Swaney's Hobby Shop in Long Beach, delivering engines and Y & O (Yates and Orwick) propellers, but maybe just to visit our club, the Long Beach Thunderbugs, and talk with us, and he loved to talk. F. L. Swaney had moved to California from Anderson Indiana about 1948 and introduced Free flight to the Long Beach Thunderbugs Model Club that was basically a control line club. A few years later, Sal Taibi moved to California and also joined the Thunderbugs club, essentially ending our control line flying. Swaney, as we called him, had an extended wing Comet Sailplane powered by an Orwick 64 and an Orwick 23 powered Korda Powerhouse 56. The idea that Swaney was one of the first to fly Orwick's engine in Free Flight may have also been the reason Henry stopped by occasionally.

My model flying buddy, Lester Espolt, had worked for Henry while in high school, sanding Y&O propellers on a piece-part basis. The Y&O props were the go-to props for Free Flight and control line stunt, and Lester's skill in finish-sanding the blanks was the prime reason for their success. After Orwick sold the prop business and machinery to another company, the quality suffered badly. Anyway, Lester went to work for Orwick full time after he graduated high school. I had training as a machinist at the city college vocational school and, as it often happened, in early 1952, I was "between jobs." Lester said Henry and his partners would hire me at near minimum wage (\$1.10/hour), which was close to what I was normally paid.

While Henry was well known as a model engine and propeller manufacturer, his primary income came from the centerless grinding shop with job shop contracts from a number of the aircraft companies and suppliers in the Los Angeles area. He was a partner with two others and had designed and built the grinding machines that were used. These were based on a Sears Craftsman metal lathe bed that Henry modified and adapted variable speed hydraulic motors to drive the grinding wheels. He was working on the design of a sturdier cast iron replacement for the Craftsman lathe beds when I was there.

My part in engine production was limited as I worked on grinders most of the time. Running the grinders was boring and repetitive. To make it worse, I was allergic to the fumes from some of the cooling liquids. So, a good part of our work (Lester and I) was in the grinding shop, but we did spend time machining parts and hand fitting engines when needed.



Orwick 32 Sparker

To say that the Orwick engines were unique is perhaps an understatement. They were behind the state of technology in terms of manufacturing practices, but way ahead of the competition in terms of overall performance at the time. Beyond that, the original spark ignition Orwicks, in my opinion, are beautiful works of art and reflect the skills of the designer and producer. McCoy engines of comparable size were more sophisticated (ball bearing cranks, ringed pistons, rear rotor intakes) and more powerful, but they were heavier

speed engines designed originally for model race-cars. So, in control line stunt, for California, Orwicks were the engines of choice. In our Thunderbugs Club, at least, Orwicks were the choice for Free Flight. Most others flew Super Cykes, Ohlssons or K&Bs.

Orwick engines were best described as a product of a cottage industry shop. They were designed around match-plate sand cast aluminum crankcases, even though die cast parts for model engines had been in common use for many years. I don't believe Henry could afford the machinery needed for die casting or permanent mold casting, but he was an expert in the sand-casting process and so carried-on with what he knew.



Beyond the aluminum alloy crankcases, Orwick engines were made from a variety of metals. Cylinders and cranks were turned from steel bar stock. Pistons were of meehanite cast iron, centerless ground to two diameters. The upper part of the piston was ground slightly larger than the lower part. This larger diameter section was hand lapped to the honed and finished cylinder, providing the tight fit needed for cylinder compression. The lower part was undersize (0.001?) to reduce friction and to act as a guide for the piston. Other engine builders also use this feature. The steel crankshaft and wrist pin were centerless ground to tight tolerances. The rear crankcase cover and exhaust stack for the early engines were also aluminum castings. If I

remember correctly, the cylinder heads were from aluminum bar stock, though they might have been castings. Considering the extra manufacturing steps involved in castings, bar stock makes sense.

Oddly, instead of the various types of bronze bushings used in most model engines of the time, Orwicks had high strength aluminum alloy crankshaft bushings. When asked, Henry answered that, with the help of a metallurgist, he had tested various different metals and found that aluminum alloy (6061T6?) had the best wear and friction qualities. It may have also been that scrap pieces of high strength aluminum available at the aircraft company's scrap sales stores cost far less than good quality bearing bronze bars. Whatever, it worked. There is more about scrap metal used in the engines later on in this story.

Inside the Orwicks is what I think is a hidden jewel, the connecting rod. This rather mundane and perhaps uninteresting component needed in internal combustion and steam engines is a work of art in its own right. Instead of using an aluminum casting or brazed steel assembly, Henry used a blank cut from an aluminum alloy extrusion that he designed. These were machined to the side profile and polished to a high shine. At left is a picture (next page) of the rod in a 64 size engine and next to it, one taken from a 29 that can be compared with one from a

contemporary K&B Torpedo glow 29. The polish is nearly gone on these, but you get the idea. Note that the K&B piston in the background also shows the high/low grinding marks. Incidentally, the sparkplug in the 29 cylinder is a rare item, a Blue Crown A-2. Not very many of those around!

Henry had completed and photographed his last bunch of fifty spark ignition 29s shortly after I started working for him. The glow 29 Orwicks had become the focus of his engine production. Henry did not like glow engines, but in order to carry on his part of the industry, he produced a glow 29 Orwick. The major changes in design between the ignition versions and the



glows were the exhaust stack and the intake pipe that were integrated into the crankcase casting instead of separate polished aluminum parts. Of course, the ignition timer was not used though conversion to spark ignition was simple if you had the timer assembly. Aside from the crankcase, the rest of the engine was the same. There were no plans to develop a glow version of the spark ignition 64 engine. Newer engines, such as the Anderson Spitfire, perhaps the

Atwood and probably the McCoy 60 series 20 were better. If you wanted a 64, you went to Henry; I did.

I did get some time making engine parts for the glow 29s, mostly finish machining parts such as crankcase covers and cylinder heads. All was done in fixtures that left little for the operator to do except remove and replace the parts and watch the machine do the work. A good part, but not all, of the 'good' engine work that Lester and I did was on weekends and off the clock. Lester honed the bores on finished cylinders on an automotive honing machine and I hand lapped the pistons and cylinders using Bon Ami and other fine abrasive powders. After we assembled all the parts into engines, we test ran them. These were the glow engines, 29s at first and later 32s. Obviously, those engines that ran the best found favored friends or Lester and I set them aside for us.

We tested the engines with a 10-5 Y&O prop and about 10% nitro glow fuel. An oscilloscope measured the rpm and, as I remember, an accepted level was about 12,000 to 12,500 rpm for a .32. During one of our sessions, I managed to find one that ran about 500 RPM better than the others. I still have it, of course. The weekend sessions were at Henry's own shop in Gardena. It was separate from the grinding shop, which, like many other small job shops in Los Angeles, was a storefront in west Los Angeles. Essentially, the Gardena shop was a twice length double garage that was Henry's sandcasting shop and housing for some of his machines that were specialized for engine work.

Getting to work on time in Los Angeles was sometimes a problem for me in a car that would not always start in the morning and so Henry eventually fired me. Within a week, I went to work at Northrop Aircraft for twenty-cents an hour more than the grinding shop paid! Even though I had been fired, Henry wasn't mad at me so we remained friends and the weekend engine assembly and test run sessions continued for quite a while after I left the centerless grinding job.

One project Lester and I completed at one of the sessions was to develop an oversize 29 size engine so we could fly both B and C class Free Flight power events with the same airplanes. The crank pins on the rough machined crankshafts were oversize, then finish machined and polished in a lathe fixture. By wedging the fixture and off-setting the crankpin for finishing it with a longer stroke, we created a .303 displacement Orwick. Lester and I would go to the local contests, swap engines, Lester with a Comet Sailplane while I had my Crazy Checks and we won quite often.

Unfortunately, I lost that unique engine and one of my Crazy Checks at a contest on the Mojave Desert sometime in early 1953. Shortly after I launched Crazy Checks for a hoped for 6-minute max, the wind changed from about 6 mph to 25 mph and I couldn't catch up with it in the rough desert terrain. One result of our developing a maverick 0.303 Orwick that ran equal to or better than most of the 0.29s is that Henry went one step further and made his Orwick 32 with an even longer stroke and a groove in the bottom of the crankcase to clear the connecting rod, one easy way to tell the difference between a glow 29 and a 32.

A couple of final items: Henry's spark ignition engines were painted a forest green while the glow engines were anodized a darker green. The sparkers ran on the traditional 3:1 gas/oil mix that did not affect the green paint, however, it did not hold up when glow plugs, alcohol and nitro fuels were used. Orwick solved the problem by anodizing the crankcases. The anodizing was done by another job shop and Lester sometimes went with Henry and the bare cases to get them anodized. On one occasion, Lester took a pair of crankcase castings with some minor blemishes that would not be sold and had them anodized a gold color. He finished the two and flew them in a twin-engine control line model! I heard there were several other less than perfect cases finished in other colors, purple and I think red among them. Where those odd colored engines are now is worth a look; maybe Lester's son, Ron Espolt, knows.



- 1 – Lower left, 23 Sparker, replica by Joe Klaus
- 2 – Lower right, 32 Sparker, replica by Dunham (UK)
- 3 – Middle left, 32 Sparker, Orwick glow, converted by Jim Coffin
- 4 – Middle right, 32 Glow, by Orwick
- 5 – Upper left, 64 Sparker, Original by Cunningham
- 6 – Upper right, 73 Sparker, replica by Dunham
- 7 – Top, 32 Glow, Orwick original converted to RC by F. L. Swaney, with wire mounting cage for scale Westland Widgeon.

Note the difference in the shade of green anodize between the two engines in the middle row. The replica engines and the Cunningham 64 are green.

There are a number of articles written about the Orwick engines that seem to be more focused on the engines than on where they came from. My technical details may vary from what others have written, but what you read here is based on memories from roughly seventy years ago. So be it.

One odd point mentioned in those articles are attempts to answer the question why there is a variation in the colors of the anodize on the glow engines. Some speculated that it was a change in the shop that did the anodizing. Others thought that Henry was trying to match the forest green paint on the sparkers. I'll throw my idea out for what it's worth and that is to say that the type of metal in the aluminum casting had a lot to do with the color of the anodize. As I said before, I believe Henry used a lot of aluminum from the aircraft scrap aluminum stores in his engines. In the shop there were some discussions about what ratio of 'Rivetium' or 'Pistonium' he should use with his virgin aluminum casting ingots for his sand castings.

My association with Henry was limited to about six or seven years. Lester's was longer and both are now gone. The last time I saw him, it was with Lester, and had to have been in 1955, shortly before he died. His partnership in the centerless grinding shop had collapsed, he had sold the engine business to Hi Johnson and was working in his own centerless grinding shop in Gardena using the new cast iron base centerless grinder he had designed.

Jim Coffin

Editor's notes: A little over 4 years ago, Lester Espolt's son Ron got in touch, and sent me some interesting historical Orwick notes, which I ran in issue #312 (Nov. 2016) of this newsletter. He also promised to interview his father more and send a more thorough write up. Time passed and I'd think about nudging Ron for that article, but decided not to push. I'm glad I didn't, because his dad had passed away sometime during that time.

I hadn't been aware of Jim Coffin's Orwick history until I received the exchange copy of his latest newsletter. I reconnected him with Ron Espolt, who responded with a letter explaining how his dad had influenced his own model flying interests and activities in support of the hobby.

There's more Orwick stuff available in our issues # 303 and 304. Charlie Bruce explained their innards and did his usual RPM test in SAM Speaks issue #130. And Bruce Chandler did a well-researched write-up In the Engine Collectors Journal Vol.5, issues #3 and #4 – the first two issues of 1967. Maybe I'll run a little more next issue, but will keep it shorter.

WEIRD THERMAL! Just a couple days ago I witnessed the strangest thermal conditions I've ever seen. It began with a little unusual activity on my part. There's a small nature park within maybe a $\frac{3}{4}$ mile walk from my house, in an area known as the Bradley ditch. It's located off a wide sharp dip maybe a little deeper than 100' and $\frac{1}{4}$ mile across along Bradley road. There's no parking at the entrance of the park, as the 4 lane road is fenced along both sides with Cyclone fencing and a sidewalk on one side only. The inconspicuous entry gate is hardly noticeable, so many cars pass every day never knowing it's there, and the lack of parking discourages most people from ever exploring it. It's about a mile long and averages over $\frac{1}{4}$ mile wide. The entire ditch runs for several miles East and West. A smooth 10' wide Macadam footpath wends its way from end to end, and the creek which formed the little valley runs only a short time after it rains.

Once in a while I walk over and through the park to the East end and back. Few people visit, so one can occasionally see wildlife. There are deer, coyotes, foxes, plus waterfowl on a large pond near the entrance. A cougar has been seen in and around the area, but not often. Trees are mostly oaks and eucalyptus.

I'd come down with a case of odd behavior and decided to visit the place at the crack of dawn to see what sort of things might be stirring by 6 AM. It was an unusually colder chillier and windier morning than we'd been having, but I dressed for it and set out anyway. I was about halfway along the length of the pond when I turned around and saw a gaggle of Turkey Vultures across the road to the West, and they were thermalling in the cold windy air!

I stood watching for maybe 5 minutes, wondering how they were managing to thermal in these conditions. They were dispersed from maybe 40' to 300' in altitude, but definitely in the same compact circle. A few of the lower ones were making a couple of flaps once in a while, but all were still rising faster as they moved up.

I wondered if somehow the cold wind was pushing down the slopes of the hillside and pushing upward in the middle again to create lift. But that unlikely idea was replaced with another some minutes later as I watched the show.

The flock was only 15 to 20 birds at first, but kept increasing and getting organized as others joined them. Most of the birds around here are year round residents who don't migrate in winter. The birds were drifting my way, and they, the northwest wind and, me began moving East. The circling flock was in the sun by now and slowly passed me as we moved East through the park. As I got about $\frac{3}{4}$ of the way to the East end, the formation was about a half mile further ahead and had grown to maybe 60 or more birds. Then their flight pattern changed.

The whole flock stopped circling and instead began moving all in the same direction. It was really unusual to see that many buzzards flying in formation. As a group they would slowly change the flight direction from time to time but they finally locked on to a northerly course and sort of hung there for several minutes, while advancing very slowly against what must have been a strong headwind. By then it was becoming clear as to what was happening.

A Santana wind was moving into the area. I still prefer the old term Santana, although the press has corrupted it to "Santa Ana" winds. (The press corrupts lots of things). These winds form in high pressure conditions, and are dramatically warmer than surrounding air. They are more abundant on the west coast, from Mexico and even up through Canada where they may be known by other names, such as Willy-Wahs, Devil Winds, Diablos, or whatever.

For some reason they often move downslope, so my original thought that the first thermalling birds were operating from a cold wind, was corrected to a warm wind coming downslope into Bradley ditch and pushing back up into a thermal in the middle. I hadn't felt the warm air, because it didn't quite reach the cold bottom which wasn't seeing the sun yet. And those birds down at the 40' level had to flap a little to get started up into the warmer air.

That final formation movement of the big vulture flock must have occurred when they entered a large warm river of air up high. They were pointed northwest, but kept sliding East until they were out of sight and a great altitude. I'd started out in 40 something degrees, but by the time I'd climbed back out of Bradley ditch and got home, it was pushing toward 80 degrees.



Memories from the good old days when we still had a home field!

And our departed friend Steve Remington Cranked on his Ohlsson 23 on another good morning.

And the ship is held in another departed friend Don Bishop's handcrafted launch stogie, which was given to your editor after Don crafted a more advanced model.

DUES ARE DUE OVERDUE: We hadn't put the notice out lately, but our dues year runs on an annual basis, so everyone who hasn't paid up by January 1 is technically in arrears. However, have no worries as you are in good company, as every year we have to round up all the good folks who forget until reminded. And we don't get pushy until about March or so. You should know who you are, but if not ask Jim Bierbauer at 1-805-928-0918 or jimbierbauer@gmail.com. Send your miniscule donation of a mere \$15 to treasurer Jim at his address on the front page. Make checks to SAM 26. Surely you don't want to be dropped from the rolls of this exclusive organization of fewer than 100 people on the entire planet.

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