

Volunteers Give Engine New Life



The late Roger Vaglia of Springfield helped to lead the group of former Superior and Cooper Energy Service employees who brought this integral engine-compressor back to life.

Tom Stafford My Opinion

"Only in America," said Roger Vaglia's superbly written obituary, "could the grandson of barely educated European immigrants, son of a father who quit school after eighth grade to work in the mines, end up at Harvard and then see both his children get Master's degrees in their chosen fields."

Vaglia's rise from a coal company house in McCullough, Pa., to early success on the athletic field, to an engineering degree at Harvard and a career and a life that took him to 122 foreign nations, could be filed at the Library of Congress under the heading: American Dream, stories of.

And when he died Dec. 17, he did so having helped to bring back to life a piece of the machinery that helped to power his era of that dream.

His obituary identified it as a 1936 Superior engine-compressor, manufactured when he was 3 years old at a Springfield factory then owned by the National Supply Co. the year it left the loading docks, Adolf Hitler was watching Ohioan Jesse Owens make history at the Berlin Summer Olympics.

The company begun as Superior Engine, founded by Patrick J. Shouplin, an Irish immigrant, to provide power for machinery in the oil fields of Ohio and Indiana. Far away from what power sources were available long before grid existed, the machine could use natural gas in the oil field as a source of free fuel. The same qualities eventually put descendants of the original Superior engine in service all over the world.

In 1962, when the 29-year-old Vaglia came to work in Springfield, the engine plant belonged to the White Diesel Engine Division of White Motor Co., then in 1976 was purchased by Cooper Energy Services.

Work friends from that era joined Vaglia almost four years ago to resurrect the integral engine-compressor that had worked for 50 years at a natural gas plant in Kentucky compressing gas for transport, then sat outside 30 years outdoors, acquiring a patina of rust.

"The most difficult and time-consuming part of this restoration project was disassembling the parts and cleaning them." Writes engineer Bruce Chrisman in his summary of the project.

The engine and compressor pistons were so solidly rusted into their cylinders that even soaking with kerosene and solvents didn't help. The cylinders had to be removed with pistons still locked inside them before tons of force applied by a hydraulic press could separate the parts.

Vaglia and Chrisman were joined in the effort by the brilliant and talkative Mike Murphy, Gary Pope, Tom Flach and Mike Thompson, all Superior or Cooper veterans. After Flach died from injuries suffered in a motorcycle accident, two other retirees, Tom Blake and Gary Statler, joined the effort.

Longtime fans of "This Old House" - or those who watch any of the current spate of home remodeling and flipping shows and are aware of the problems lurking in old homes - might have some idea of what the crew faced in their efforts to restore "This Old Machine."

On weekends and in their spare time, the resurrection crew did its work in space Springfelder Jack Palmer set aside in his manufacturing plant tucked between the railroad tracks and Main Street just east of Bechtel Avenue. Palmer also purchased the engine, largely because his late father's history with Cooper and his father's friendship with Vaglia, but for another reason, too: To celebrate an earlier generation of manufacturers, who, long

before computers arrived, managed to produce things with their brains and brawn - or, as Palmer puts it, "slide rules and sledge hammers."

Gary Bear, who works for Palmer, also got in on the fun.

Resurrecting the engine meant going back to a time before ignition coils and distributors when magnetos ignited the spark plugs in a cylinder; a time when air pressure was used to rotate engines until the pistons drew in enough gas and air pressure for the magneto and spark plug to ignite the fuel; a time when the spinning balls of governors controlled the engine speed; and a time when gas/air throttles mixed the fuel in that era before carburetors.

Because many of those necessary bits of equipment had migrated to the scrap yard since the 1930s, the Superior volunteers, as they deserve to be called, often found themselves fabricating the devices as they went along. Duct tape and bailing wire were, for the most part, avoided, but the problem-solving process constantly called on their mental equivalents.

In late 2016, Chrisman emailed Murphy telling him: "I have two new power cylinder head gaskets, which were made to the original drawing. I'll bring them to our next work session."

Over the course of the project Murphy wrote dozens of impeccably clear emails, explaining what had been done and had to be redone. In the process, he managed to capture not only the complexity of the task at hand but the excruciating patience the project required.

This slightly edited email from last February is among my personal favorites.

Gents,
Gary Pope, Bruce and I met at Jack's shop this morning and put another day in on the engine project. Bruce cleaned up the crankshaft on the

auxiliary shaft side, and Gary Pope did some more polishing in the hub bore of the wheel. Several areas were left rather shiny after our attempts to get the wheel on Wednesday evening, so removing a little material in those regions would help the wheel slide over the shaft better.

I was given permission by Gerry B to cut a few inches off of the small end of the large wedge at the shop, and this allowed it to be driven into the gap in the hub perpendicular to the crankshaft. Using the modified large wedge and a handful of the small ones, the hub was split sufficiently that the wheel slid right into the shaft using hand force only. Once in position, the wedges were removed and used to get the off-side wheel further into the crank, as it was out of position by about 1/2 to 3/4 of an inch.

Once the wheels were in position, Garry B cut some one-inch threaded rod to length for the pinch bolts, and they were installed in the hubs with new nuts and tightened up. Bruce cleaned up the keys on the disk sander, and then he drove them into the hubs, completing installation of the flywheels.

And there was more: Gary Pope attacked the control valve for the air start system, giving it a final cleaning and then he reassembled it and fitted it back into position on the bed plate. He then set the position of the cam that operates the valve on the auxiliary shaft, and, driving in the key to lock the cam in place.

I was able to repair the on-side flywheel hub, replacing the chunk broken out Wednesday evening when Gary Pope and I struggled with installing the wheel. I drilled a tap size hole for a 5/16-inch countersunk bolt into the main part of the hub, through the broken piece. Then, a clearance hole was drilled through the broken

piece and the hole in the hub was threaded with a tap. The hole in the broken part was then countersunk so the head of the bolt would end up just below the outer machined surface of the hub.

Once the countersunk hole in the broken piece was "adjusted" with a die grinder and burr, the broken piece and hub were cleaned with solvent and JB Weld was mixed up and smeared over the broken surfaces. The broken part was then placed back in position and the bolt was installed to complete the repair.

The project is starting to look like an integral engine/compressor again!

How someone could add a smiling exclamation point after even writing that email, much less completing the tasks involved, is beyond me. But "Murph" did.

Vaglia's obituary concluded in the usual fashion, with suggestions for memorial contributions in lieu of flowers. One suggestion was the Coolspring Power Museum, a collection of buildings on the edge of a small town not far from State College, Pa., where the old Superior machine will take up residence with 275 stationary engines of the era. But it will not sit idle there, because Coolspring is not a machine bone yard. It's a place where those machined, including many manufactured in Springfield, are fired up at least a couple of times a year, bringing to life equipment that once powered the American Dream.

Although the project's completions will help Roger Vaglia rest in peace, his hope - one shared by all who worked on the project - is that the 1936 Superior they resurrected never will.