

The Don C. Williams Steam Engine

Mr. Don C. Williams, of Huntington Park, California attended the steam car meet at Upland, California, October 17-18-19, 1969, and had his steam power system there. He was kind enough to send us the following story and accompanying photographs.

It could be said that I caught the steam bug first in 1922. This was in Burley, Idaho. A neighbor, Fred Anderson, had a Stanley Steamer and I got to ride in it. The steam bug caught up with me again in 1967. I joined the Steam Automobile Club of America, Inc. and read what I could find on steam cars. I met and talked with Richard J. Smith about steam, and he showed me his work. I got the idea to build an engine of my own design, somewhat larger for a bus camper.

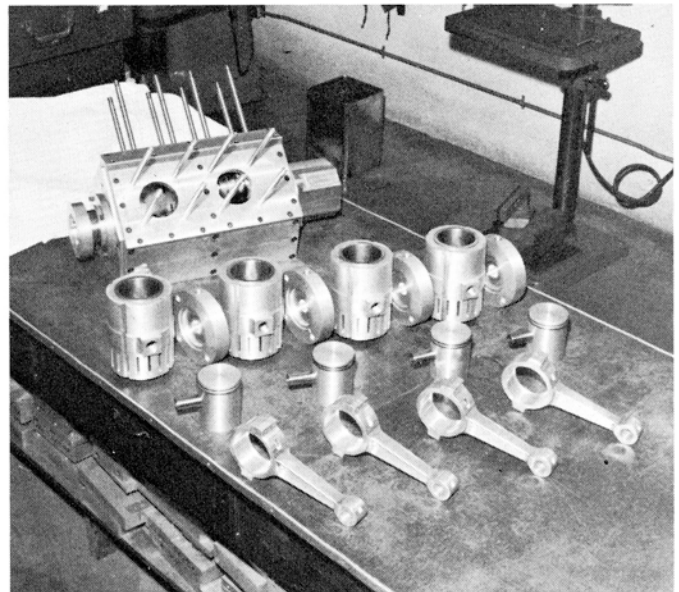
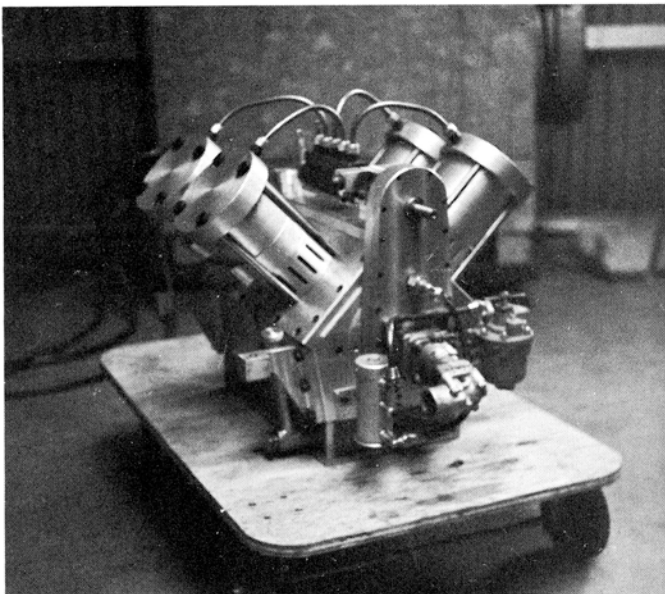
My experience over the years as automobile and aircraft mechanic, machinist, tool, die and mold maker and designer comes in handy on a project of this kind.

After making sketches of engine types such as wobble plate, inline, opposed, V type and radial

engines, I decided on the V-4 engine. The reason (except for the radial engine) the crankshaft is simpler. Also, the type of construction I used is more adaptable. My next engine may be a radial. It would be more compact and less weight.

This engine is 107 cubic inch displacement, $3\frac{1}{8}$ bore, $3\frac{1}{2}$ stroke, (will stand 4 inch bore). All major parts of engine are 7075 St aluminum.

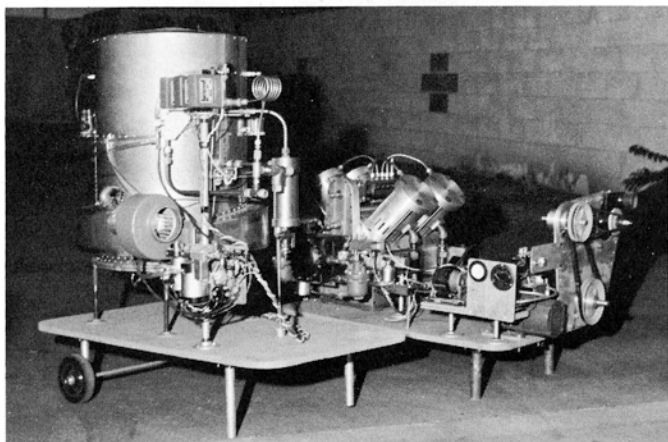
The crankcase is made of milled and turned plates, secured with soc. head capscrews. The cylinder jackets are made in sections, turned and milled. Exhaust ports are in the cylinder walls covered by the manifold, which is the center part of the jacket. Steam inlet is by rotary valve, Richard Smith design. The vents in the lower part of the cylinder jacket is to keep excess heat away from the crankcase. The cylinder sleeves are chrome nickel iron pressed in the jackets. Pistons are full skirt 2 rings., lin pins. Connecting rods are milled from plates. Cylinders and heads are held on by four $\frac{1}{2}$ inch stainless steel rods and soc. head nuts.



Crankshaft parts are milled and turned from large square stock. The crankshaft was assembled by pressing the inner races of the roller bearings (including the bearings and spacers) over the crank journals and using Loctite compound and through bolts.

Water pump drive is at the end of the crankshaft. The rotary valve and speedometer is driven by chain and sprockets, extended shaft for other accessories. Oil system by spray, Bendix Electric Pump, Cuno Filter, wetsump.

An electric (battery) driven water pump is also part of the system, along with the controls. Controls designed by R. Smith. The exhaust lines from the cylinders go to the water preheater, then to the turbine that drives the generator, fan, condenser, circulating pump, etc. The water pre-heater contains 35 feet of $\frac{3}{8}$ copper tubing in 2 coils, one inside of the other. The engine and water controls are ready for testing and adjusting.



The steam generator and controls (Richard Smith design) are ready for test at this time (October 20, 1969). The engine and steam generator was a lot of work and time, but, there is a lot of satisfaction in the accomplishment. I don't know what it cost, I don't dare add it up. I might pass out.

