

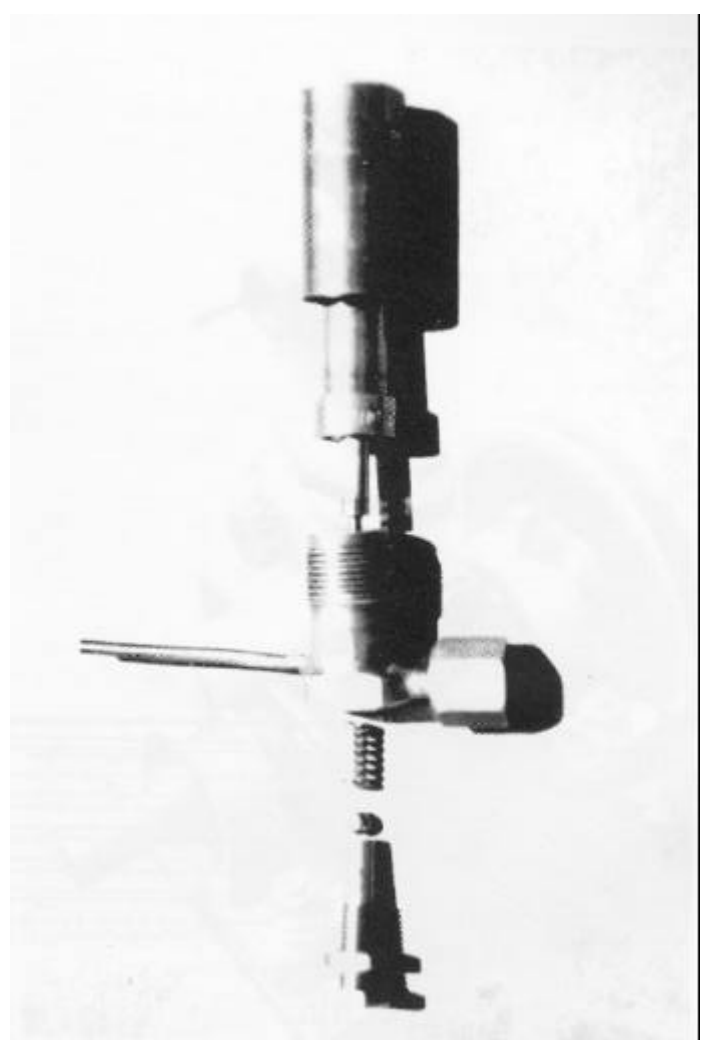
The pot burner is fed by the boxy oil control valve which controls pilot flame size. The central injector has been added and is fed combustion air above the pot burner.

be my fuel injection burner made from standard stock diesel pump and injector. This burner will handle heavy waste oil and I have one running every day heating my own domestic hot water using waste oil from ammonia compressors and waste sump oil. This burner was originally used on my steam generator to run a four cylinder steam conversion I made on a Ford pick-up truck.

The pump has to be modified to do the job and I get many requests from steam buffs all over the world for information. One of my professions is the repair and service of all makes of diesel pumps and injectors and my original profession is steam engine driver of locomotive engines on two-foot gauge sugar mill engines and extends to power house work operating steam turbines.

As the diesel engine appears to have been the most efficient engine on the scene for many years now, I thought: why not build a burner using diesel pump and injector? Why is the diesel so cheap to run? The answer lies in the action of how the fuel is finely atomized to mix with inblown air to burn every scrap of fuel (and not toss it out the exhaust pipe as we see on many diesels on the road today). Diesel smoke is from lack of injector servicing and too much fuel from the pump.

The smallest and lightest way is to use a single cylinder element aluminum A size pump, made by English CAV and called a flange mounted pump. It can be mounted on a cam box which can be made up of light material. The secret, of course, is the number of injections with every turn of the camshaft and this must be three. I have experimented with four injections per



A Bosch 15S2 pintle nozzle is used in this modified injector. This is used in direct firing burners and in conjunction with the pot burner.

revolution of shaft and find better results are given as three impulses (at approximately 50-200 rpm) give a pulsing flame effect allowing the heavy oil to vaporize and mix with incoming air.

The burner can even be cranked by hand to start to raise steam to 10 psi--an ideal arrangement for marine use.

The Bosch A size CAV type aluminum body makes ideal burner nozzle. It can be driven by old 12 volt generator converted to a motor drawing little current, or it can be run by steam engine at low speed or can be hand cranked to raise steam to 10 psi when the engine can take over. The camshaft can run at high speed, but that is not necessary as constant speed is best from 100 to 500 rpm.

Fuel output is variable and can be adjusted while running, a good point as many burners need this. The output can be fitted with electric solenoid shut off as well.

The original heavy plunger spring is replaced by lighter type as rpm is low and motor uses less amps.

A three lobe cam will open the nozzle three times with every revolution, so at pump speed of 200 rpm,