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*Survival Gasoline Engine Generator*  
*(The small 2 cycle option)*  
Ken Lent – April 2019



The Power Craft Pro – 2 cycle gasoline generator, 63 cc engine. (Bricks shown for size comparison)  
This unit is air cooled and is started manually by a hand pull cord.

There are many types of generators available for providing electric power when there is a neighborhood power outage. Most of them are relatively heavy (need a cart with wheels to move them about), and reliable ones are not cheap. Bottom of the line gasoline generators providing 4500 watts or more start at around \$500, and the price climbs quickly for ones giving ample wattage for normal daily household use. Diesel fueled generators are very good but start in the \$5000 range (up to \$30,000 for large home usage). None of them are anywhere near small enough to pick up by hand and move around. Such generators are usually used for a few days of power outage or to supplement “off the grid” systems already running on hydro-power or solar-power units. In this article we’ll look at a nifty affordable generator that we can classify as a survival generator as opposed to an “off the grid” generator. It is not intended to run your house 24/7 for weeks or even days, but it will provide emergency electricity, frugally used, for a couple hours a week. Used sparingly, you’ll have it for years.

Internal combustion engines mainly come in two basic types: 4 cycle (4 stroke), and 2 cycle (2 stroke). There’s no need to take up time here and get technical for this article. 4 cycle (stroke) engines are found in larger motor devices like your car or most motorcycles. 2 cycle (stroke) engines are found in some dirt bikes, chain saws, and many gardening equipment tools. There are pluses and minuses for each type.

The main “plus” of a 2 cycle engine over that of a 4 cycle is that a 2 cycle can do many jobs a 4 cycle can do, but at half the engine size and half the weight. However it’s running faster and harder in order to do that, so it wears out sooner. Also we need to add oil to the gasoline for using in a 2 cycle engine , while a 4 cycles take straight gasoline. The problem with 4 cycle generators (as good as they may be) is that because of their size they really suck down the gas when running. If you think you’re going to unplug from the electric company and just use a large 4 cycle generator to run your house, you may be surprised. A 5000 watt 4 cycle generator usually won’t run all your home appliances simultaneously, and will still use between 18-20 gallons of gas in a 24 hour period. Doing the math we discover that this is more expensive than staying on the grid with the power company.

But for our purposes in an all-out survival situation, a generator is needed that will power up some essentials pronto, won’t use up much gas, and is truly portable within the definition of that word. Enter the small 2 cycle 900 watt generator. It weighs in at 35 pounds, has a single plug outlet of 120 volts AC at 60 hz for home use, and gets a good 5.5 hours run time on one gallon of gas @ 50% load. A person can do a lot in an hour with that wattage. To define the power range more: This generator will run any appliance rated at 6.5 amps or less. It won’t run a big refrigerator or the well pump. But it will run things like a smaller vacuum cleaner, a ham radio, TV, fans, stereo unit, laptop or desktop tower PC, lighting fixtures, drills, small microwaves, electric saws, and anything else requiring 6.5 amps or less. For survival needs, a lot can be accomplished within that range of power at short intervals. None of the emergency generators, no matter how well they are made, are meant for long term power usage. They are all hard running units that will wear out after several hundred hours of run time. The survivalist is mentally prepared to forego having “the electric on” 24 hours a day. His need for electricity is for that crucial necessity only. There are a few 2 cycle generator models available that are closely rated at 900 – 1000 watts and cost around the \$100 range. Ours reviewed here is the Walmart “Power Craft Pro” 2 cycle gas generator. Let’s consider some operational tips that will get the most out of these economical machines:



Gas tips: Use unleaded ethanol free gas if possible. If you can’t get it, do not use gasoline that has more than 10% ethanol. Don’t use E85 ethanol or methanol gas. We need to add 2.5 oz of 2 cycle oil (on can in pic) to 1 gallon of gasoline. It is important to use a 2 cycle oil that contains a fuel stabilizer. It will be in very fine print on the 2.5 oz bottle. For the first 20 hours of run time use a ratio of 40:1 mix (gas/oil). This breaks-in the piston cylinder walls properly. After that use 50:1 mix. 2



For safety purposes, obtain a pair of jumper cables. Used or inexpensive ones will suffice.



Never run your generator inside. It puts out carbon monoxide which can kill. In a chosen outdoor area drive a “grounding rod” into the ground about 4 feet deep. You can use a copper, aluminum, or galvanized metal rod. A lot of folks do not bother grounding their gasoline generators and do not consider that the electric current being produced is the same as your household current, which can cause death if you improperly touch the generator and a ground (especially wet).



Using just one wire clamp of the jumper cable you can clip it to the ground plug on the generator as shown. Here we see the generator placed on two concrete blocks. The yellow cord is the power cord plugged into the 120 VAC outlet. The ground jumper cable runs over to the ground pole and clamped on (as in the pic above). Just ignore the other wire & clamp on the cable and let it rest on the ground.



Here is a proper set up for running your 2 cycle gas generator. It is balanced on the blocks, the ground wire is used for safety, and the yellow power cord runs back into your house or outside appliance. In warm weather this little generator will start on the second or third pull of the starting cord. On a cold winter day it takes a dozen or so pulls to get started, but runs fine once going. There's a small shut-off valve on the fuel line. Don't forget to open it after you pour in the gas (or it won't start), and close it again when not in use. One tip to mention – let the generator warm up for a minute or two before running a load (appliance), and plug in the power cord after its warmed up a bit. When shutting it down, turn off and unplug the appliance and unplug the power cord from the generator first before shutting the generator down. Several times of not doing this can damage the generator. Clean the generator's air filter regularly. This will be explained in the owner's manual, and is very easy to do. A clean air filter helps extend the engine life. Finally, 2 cycle engines are typically noisy (like a chain saw), but this generator has quite a decent muffler on it and the running noise is very tolerable and not loud. When I have my generator placed 20 yards from my house I can barely hear it when inside. All in all, these little 2 cycle engine generators are a "big bang for the buck" and could go a long way in an emergency with 10 gallons of gasoline safely stored in a garage. Renew the gas every year and a half if you don't use it. Gasoline begins to break down after about 18 months. For top performance the gasoline should be rotated to be within this time frame.