

SURVIVAL PAPER

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Cooking With Bio-Gas

By Olin Williams

Here is a gutsy manure powered generator that does not require a thundering herd to keep it functioning. This is a small-scale unit that needs only one "charge" per month to provide the person with gas for cooking. Now a generator three times this size could provide cooking gas for a family of four. Burned up by the soaring price of natural gas, this concocted system can be made out of spare parts around a 55-gallon oil drum, pipes and fittings and a truck inner tube*.

The unit works on the anaerobic-bacteria principal. In the absence of free oxygen and at an ideal temperature of about 95 degrees, you can get methane (CH₄) from decaying organic materials.

The diagram shows the oil drum girded by the pressure regulated inner tube. Galvanized ¾ inch steel piping and valves and some lengths of garden hose and hydraulic hose comprise most of the piping. The "T" on top of the barrel feeds into both the inner tub and burner hose side so that the gas will flow into the inner tube for storage whenever the valve is closed. You can test the system with compressed air.

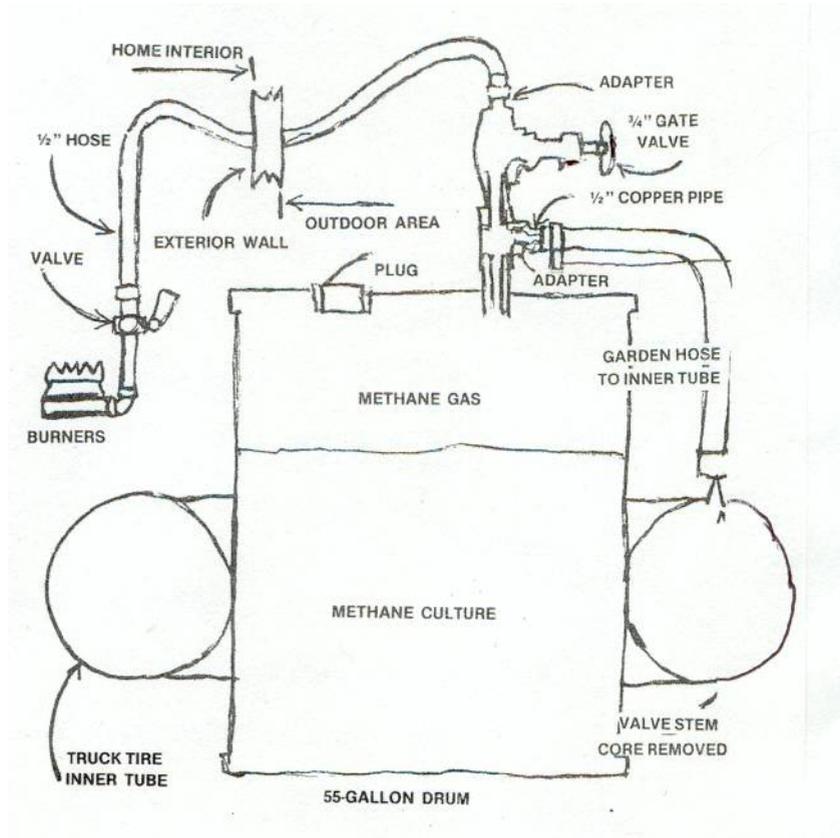
Caution! All air must be removed from the tubing before gas starts forming; methane is extremely volatile when mixed with air. The storage tank and lines should be purged by opening the valve and allowing the gas that is generated to escape for the first couple of days before there is any attempt to burn it.

Indoor: The gas is piped to a Bunsen burner. The burner holes need to be enlarged to account for the low-pressure methane. Methane will burn well in a standard gas burner that has been so modified. The flow can be controlled from low to high and the flame can burn about half an hour each day. This device will run a month on about 10 – 12 gallons of liquefied manure. Start by filling the tank three quarters full of a mixture of grass clippings, sawdust and dry shredded leaves, the add manure

To seed the culture so it will start to produce methane within forty-eight hours, add five gallons of "starter". Create "Starter" by allowing manure slurry to sit eight weeks in a seal

container to get the anaerobic process underway. Other organic waste can be used but manure should be the main constituent. You can get about 12 cubic feet of methane each day. When it comes time to refill – every month or so, simply disconnect the piping and then roll the drum to a garden and return the eighteen gallons of rich slurry to the soil. The main drawback with this is the lack of a fail-safe method for maintaining optimum production temperature, a key element in this process.

This system is easy to assemble for those who are in a stationary rural location. It is low in cost and the system can be expanded by adding more drums valves and feed connections.



*You may need to substitute some items that are not as available today.

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