FREE ELECTRICITY

GEN WITH NO GASOLINE

Here is FREE all the info to run a gen on waste and waster.

Website: WWW.DRIVEONWASTE.COM

With an initial investment gasoline can be easily replaced using certain carbonized waste and water, to obtain electric power.

Watch and share:

The videos of the **Youtube:** https://www.youtube.com/@DriveOnWaste

Facebook: https://www.facebook.com/driveonwaste

Website: WWW.DRIVEONWASTE.COM

Eddy Ramos. Set 2024. Version #6. ***For the Glory of God***. Patent pending.

FREE ELECTRICITY or GEN ON CHARGAS with water.

Here is all the information and the plans. It is an electric generator fed by chargas that is carbon monoxide produced by the incomplete combustion of waste and hydrogen by water thermolysis, inside a thin sheet metal drum. This “chargas” with water has the same power as the CNG (compressed natural gas) 9,500 kcal/m3. It is not free energy or perpetual movement because when combustible waste is finished the generator goes out and must be recharged. After an initial investment, electricity is free and (almost) infinite because waste is free and (almost) infinite. The use of “chargas” in a generator is the same as the use in an engine of a car, that is, the same original 4 stokes engine of the equipment is used, it is not a special engine for this “chargas”. You just have to make an adaptation or "T" plus a valve at the carburetor input, for the entry of the air-“chargas” mixture (AFR). It can also be used only with gasoline. This system can also be used in diesel engines. With this system you can recharge the batteries of an electric vehicle. It is recommended to watch the YouTube videos: **@DRIVEONWASTE** and DOWNLOAD THE MANUAL: “DRIVE ON WASTE” at the web site **WWW.DRIVEONWASTE.COM**

In small generators, less than 300 cm3, the flow of gas is so low that the output temperature of the “chargas” of the gasifier drum, measured by the thermostat is 50/60º during normal operation. This temperature should not exceed 70ºC. So, there is no need for electric welding to assemble the gasifier. Metal accessories could be used at the exit of it. All plastic material, aluminum and silicone rivets can be used. A thermometer must be placed that measures the temperature of the “chargas” at the exit of the gasifier and/or better a thermostat that warns with a bell and/or light when this temperature reaches 70ºC. When it reaches that temperature, it is time to recharge waste or change to gasoline. It is explained at the end in "procedure."

POWER: The generator of the example is a Honda, Model EZ3000, of 196 cm3 that can generate 2.0KW continuous to gasoline, but can generate up to 1kw on this “chargas” + 1 drop of water every 2 seconds. It will consume about 2.5 kilos of carbonized waste by each KW-H. To have an idea, 1KW of electric power can feed a medium house or two small houses so the cost of the electric generator could be invested by one or two families, it is suggested that each one has their electric consumption meter. This power can be improved advancing ignition time about 6 to 10º degrees.

VERY IMPORTANT WARNING: This “chargas” is carbon monoxide, which is a fuel and very toxic gas. It is a criminal gas because it has no color or smell and can kill. Never operate this system in closed spaces as garage, etc. Just operate outside or in very well-ventilated areas. **It is very poisonous**. You just have to breathe it. Extreme precautions! Thousands of people die inside their room when falling asleep with a defective heater that emanates carbon

THE APPOPIATE WASTE: In the manual "Drive on waste" (driveonwaste.com), in the "Introduction" section, the types of waste that can be used are detailed. They are carbonized organic waste sieged to a certain measure. For example: Charcoal powder; Oak seeds; Shells of: nut, pistachio, almond, etc.; Bones of: peach, damascus, plums; olive without salt, etc.; Pruning remains; tree bark; wood pieces; all carbonized and sieged for a measure between 3mm (1/8") and 20mm (3/4"). It is industrial wasted coal that does not have tar. Not carbonized organic waste has tar. The carbonized load could be added up to 5% of non -toxic non -carbonized plastics such as PET, polyethylene and polypropylene. Never use PVC, or olive pits from pitted olives because it has salt, or coke coal because it has a lot of tar. In my manual "Drive on waste" there are two methods to carbonize waste, and on the Internet, there are more methods.

This guide shows how to turn on a generator with a little gasoline and then pass it only to "chargas", but in the end it is shown how to turn on this same generating system for those places where there is no gasoline at all.

The whole system has: 1) A **GASIFIER** drum, 2) The **NOZZLE** at the bottom of the drum, 3) A **WATER DRIPPER**, 4) A **FILTER**, 5) A type **"T" ADAPTER** to the carburetor input with its spherical **Valve (AFR)** and 6) The **GENERATOR**. All in that order and explained below.

*** 1) THE GASIFIER**: it is a thin sheet metal drum AWG #20 (0.9 mm) vertical and a lid with a hermetic rubber gasket and better if it has a closing strap. On the base of the drum is the nozzle that is shown below. The output is up with a thermometer 12VCC of car or a thermostat to ensure that the output temperature of the "chargas" does not exceed 70ºC to prevent plastic accessories from melting. But attention, because when this output temperature of the "chargas" passes the 65ºC increases very fast to 90ºC. All accessories are 25mm (1") polypropylene or better metal. In this example, a 65 -liter gasifying drum is used with a 2000KW generator, it has a generation autonomy of approximately 4 to 6 hours. It is a drum of 38 cm diameter by 58 cm long, 65 liters of capacity. A 200 Liters (50 Gal) honey drum can be used because it has a large lid with 50mm (2") threaded exit, with a rubber joint and closing strap.

View of the Nozzle from bellow with a plug.

Outlet elbow with the thermometer bulb inside.

View of the thermometer bulb onside the elbow.

*** 2) THE NOZZLE**: it is the heart of the system. It is very important to respect this measure. The interior diameter is calculated according to the RPM and the size of the motor by the following formula.

Inner diameter at mm = rpm x 0.000145 x √cm3 Where:

RPM: They are the generator engine revolutions to regime; they are usually 3,600 rpm.

CM3: It is the size of the engine in cubic centimeters.

√CM3: It is the square root of the motor size in cubic centimeters.

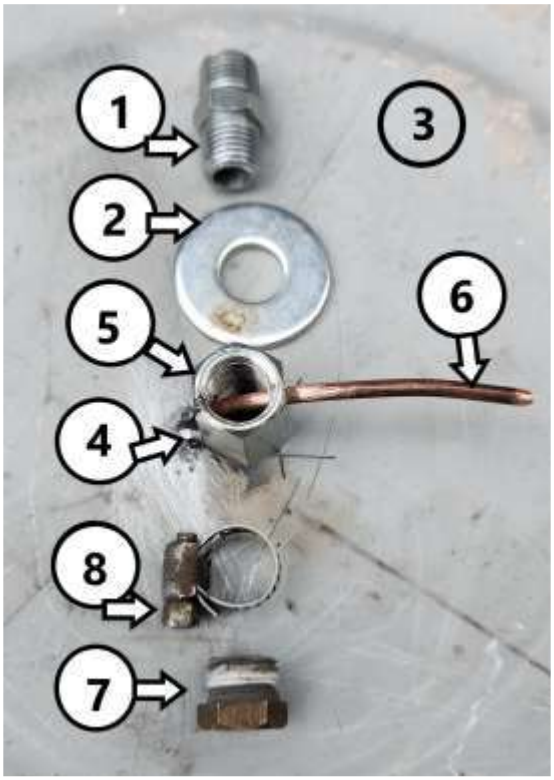
If you have the engine size in cubic inches, then **multiply the Cu Inch by 16.34,** to obtain the engine size in cm3 (cubic centimeters). The nozzle diameter will be in millimeters.

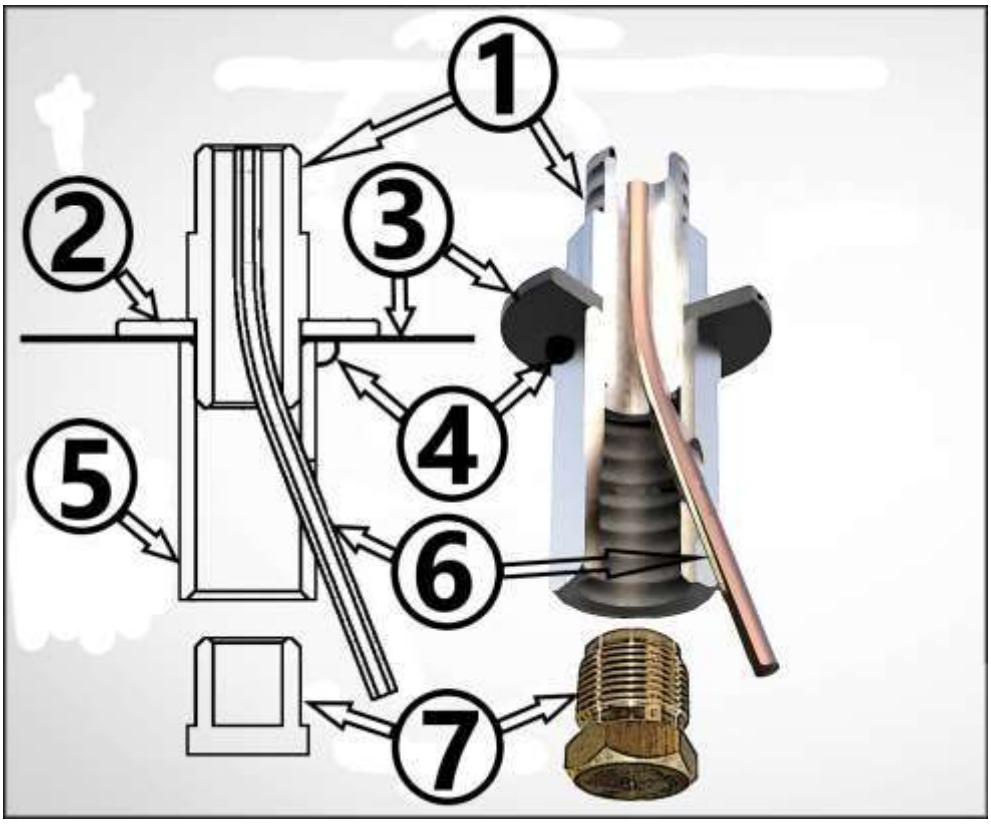
The calculation diameter is not accurate, it can vary between + or - 10%.

When using water drip, you have to increase the inner diameter of the nozzle to compensate for the section occupied by the water dropper. If a dismantled copper thermocouple is used for this, whose diameter is 3mm (1/8") then the calculation of the inner diameter of the nozzle should be increased about approximately 0.6 mm. The generator of the Honda brand, Model EZ3000 is 196 cm3 and an average regime speed of 3,600 rpm. The calculation of the dial of the nozzle da 7.3mm. To compensate for the section that this tube occupies it must increase this diameter by 0.6mm so, the final diameter of the nozzle will be 7.9mm + or - 10%. Was used 8mm.

Bless Lord to those who invoke you with sincere devotion regardless of religion.

Disassembled pieces of the nozzle:
1. A nipple 6.25mm (¼") gas thread with the inner hole enlarged to 8mm, screwed in the coupler inside the gasifier.
2. A washer between the nipple and the inside base of the gasifier, as a shoulder for the tack weld at the bottom in the fine sheet of the gasifier.
3. Bottom of the gasifier drum.
4. Tack weld.
5. Steel coupler fixed to the gasifier base with a tack weld.
6. Copper tube of the water drip, inserted in an inclined hole in the couple.
7. A 6.25mm (¼") metal plug.
8. Clamp to hold the copper tube.





View of the nozzle from below the drum.

View of the nozzle from inside the drum

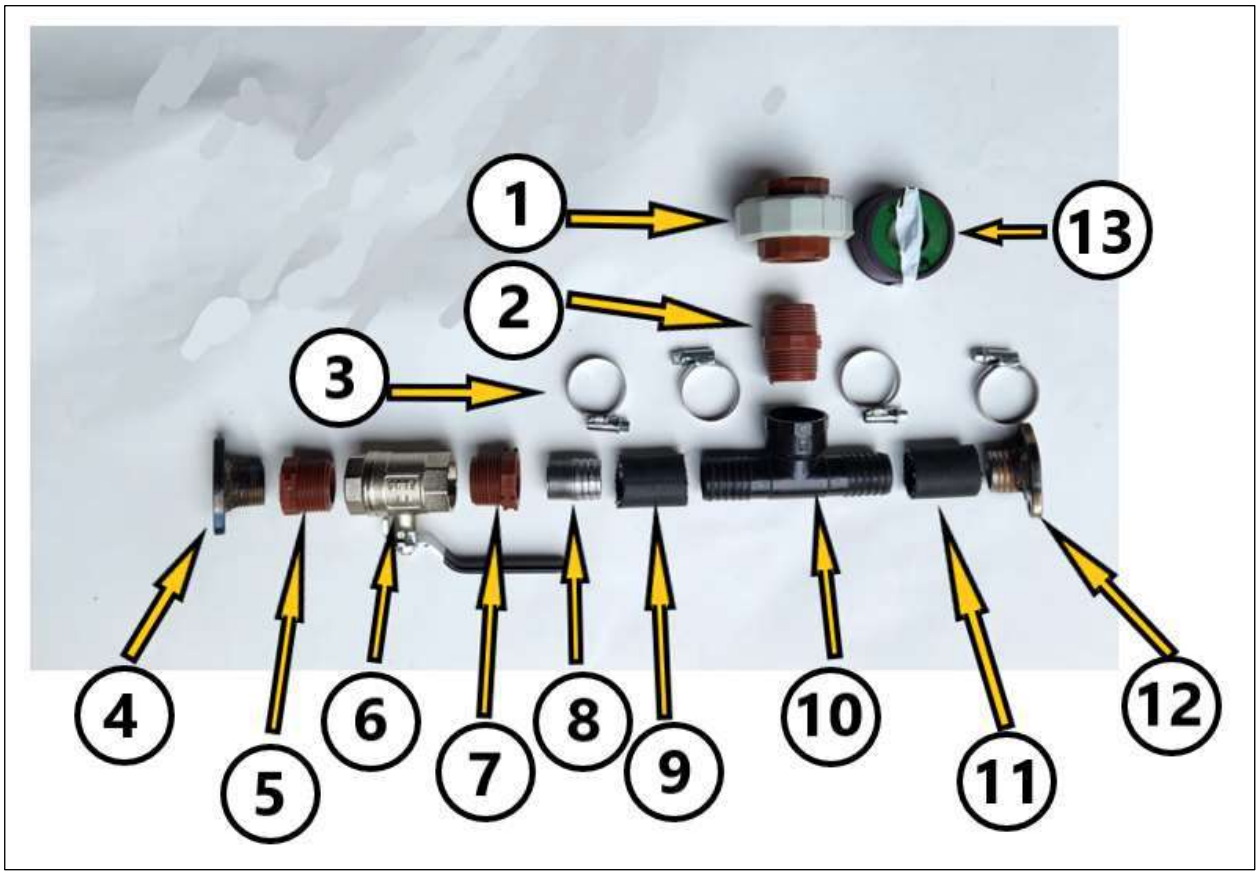
*** 3) THE WATER DRIPPER**: Water dissociates by THERMOLYSIS in hydrogen and oxygen by increasing the power of the "chargas" by 50%, cools the gasifier drum because with water the temperature can be raised up to 140ºC, but without water It can raise up to 240ºC, reduces waste consumption by 50%, increases autonomy for the same load and prolongs the useful life of the entire gasifier: nozzle, drum, stainless funnel, etc. See photo **#2** = It is the plastic bottle, full of filtered non - salted, contaminated, or potable, but filtered water, better without chlorine. **#1** = Under the lid thread there is a breath hole. **#3** = In the base an "IV" is inserted, which is the serum regulation system, it is used in hospitals and purchased in pharmacies. #4 = Wheel regulation is better than regulation by aluminum sheet. It connects to the copper tubing that enters the nozzle. For a 200cm3 generator, a drop of water is put every 2-3 seconds. Measure the time with a chronometer, 10 drops take between 20 and 30 seconds. More water does not mean more power, because excess water or a wet waste load is not good.

*** 4) THE FILTER**: The filter is a 10 - liter plastic bucket with plastic mesh in the bottom and several layers of high-density rubber-foam moistened with light mineral oil. The "chargas" entry is at the hermetic cover and the exit is by the bottom of the bucket. —. bucket you have to be use lying down because here it may accumulate part of the excess water of the dripper or if the charcoal load is very humid and thus prevent this condensed water from entering the engine.

I thank you Lord for your love, do not abandon the works of your hands.

*** 5) TYPE "T" ADAPTER:**

Adapter parts. For the example generator.



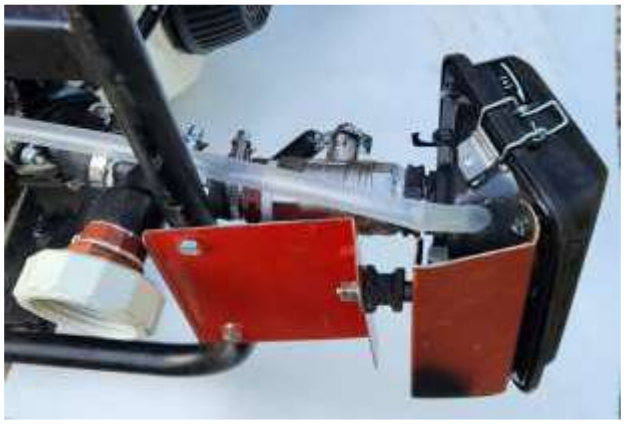
1. Union, 25mm (1") of polypropylene. Here the "chargas" enters the generator.
2. Nipple, 25mm (1") polypropylene.
3. Clamps.
4. Flange for the generator air filter. It has a 25mm (1") central hole and two side holes of 6mm (1/4") threaded, also has welded a nipple of a 19mm (3/4").
5. Reducing bushing from 25mm (1") to 19mm (3/4"), polypropylene.
6. A 25mm (1") metal ball (AFR) Valve. This valve adjusts the air-fuel ratio (AFR). See the positions **#1** for gasoline and **#2** for "chargas" of this valve in the following photos, page 8.
7. Reducing bushing from 25mm (1") to 19mm (3/4"), polypropylene.
8. A 19mm (3/4") metallic nipple thread with
9. A piece of 25mm (1") rubber hose.
10. A "T" of 25mm (1") of polyethylene.
11. A piece of 25mm (1") rubber hose.
12. Flange for the carburetor. It has a 25mm (1") central hole and two 6.25mm (1/4") and two through holes with a smooth end of 15mm to fit the rubber hose.
13. Teflon tape to seal the threads.

(AFR) VALVE IN POSITION #1 Completely open for gasoline.

(AFR) VALVE IN POSITION #2 Almost closed for "chargas".

Full armed adapter

Adapter support



For the adaptation, the generator air filter box is separated from the carburetor and in the middle a "T" adaptor is placed to allow the entry of the "chargas". Between the "T" and the air filter a (AFR) ball valve is placed to regulate the optimal amount of the air-gas ratio (AFR) for the proper functioning of the generator's engine. With this (AFR) Valve full open **#1** the generator can be used only with gasoline. With this valve almost closed **#2** it can be used only with "chargas".

*** 6) THE ELECTRIC GENERATOR.**

Power: The generator on "chargas" will deliver half of the continuous power specified for gasoline. If the ignition point could be advanced in 6 to 10 degrees, much greater power will be obtained.

Autonomy of the equipment: Find out what the autonomy of the generator is because not all are for continuous use, in general the autonomy is given by the fuel tank capacity. The autonomy of the system with “chargas” depends on many factors: the type of charcoal waste, electrical consumption, gasifier drum size, etc. In the example with a 70Liters (18Gal) gasifier drum and generating 1KW the autonomy is between 4 to 6 hours.

RPM of low or “idle”: the rpm of the engine in low should be increased because the “chargas” does not have the same reaction of the gasoline and the gen can be turned off when the requested energy increases as when an engine is turned on.

Valves and valve guides: For a longer duration of the equipment, some mechanics recommend changing the original valves and valve guides designed for gasoline, by valves and bronze valve guides suitable for LPG.

SPARK PLUG:

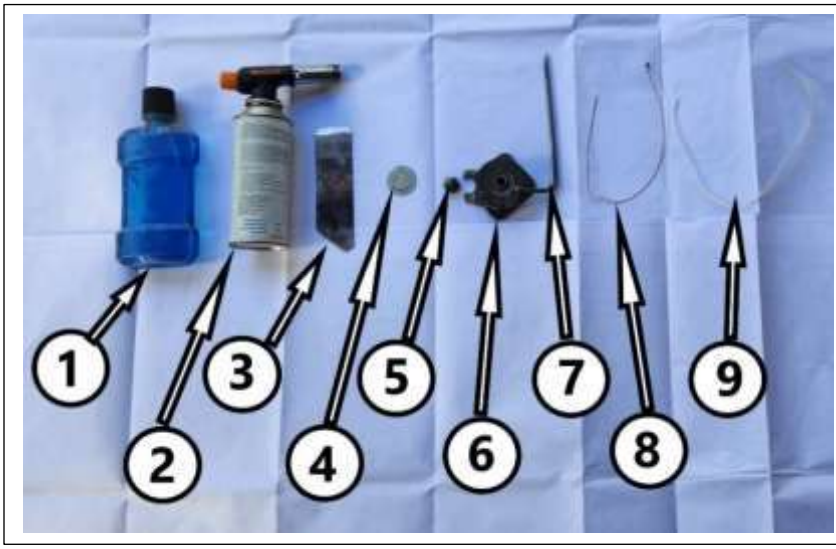
After several hours of working and generating several kW-H only on “chargas” + water, the generator spark plug is shown. It is impeccable. It is recommended to review the spark plug periodically before starting.

It is also recommended to replace the spark plug with a colder one, since the temperature measured next to the same working with gasoline is 86ºC, but with “chargas” is 104ºC.

Gasoline: In Argentina, a percentage of alcohol (bioethanol) is added to gasoline, therefore, newly bought “new” gasoline has expiration at 15 days. If gasoline in the generator tank has more than 15 days, it is convenient to empty the tank and use "new" gasoline, recently bought.

**** IMPORTANT NOTE:*** If before lighting the cold gasoline generator, the carburetor accelerator curtain is stuck, maybe it is because of some cold tar. In this case, before lighting the cold generator verify that the accelerator works smoothly. If it were stuck, remove the adaptor to access the mouth of the carburetor. Then, inside the mouth of the carburetor, use a syringe to wet the curtain and the axis with solvent, leave a while for the solvent to dissolve the solidified tar and start manually move the accelerator until it is moves smoothly before starting the generator. Then see what is the reason for possible tar in the carburetor: check that the plastic bucket filter is acting correctly, perhaps it is dirty or missing, broken or poorly placed the layers of rubber foam, etc. Also verify that the load is well carbonized as a poor carbonized load produces tar. Or stop using plastic waste, because plastic has a lot of tar.

TOOLS AND ACCESSORIES FOR IGNITION AND TURNING OFF.



1. Bottle with alcohol.
2. Propano torch.
3. Mirror.
4. Round thin sheet metal.
5. Metal plug.
6. Embers catch holder.
7. Nozzle cleaner.
8. Wire to clean the water dripping tube.
9. Plastic hose

DESCRIPTION OF EACH ELEMENT:

1. Bottle with alcohol. **Only when there is already aspiration in the nozzle**, it is used to wet with alcohol carbonized waste that is inside the gasifier drum through the nozzle to facilitate ignition.

2. Propano torch. **Only when there is already aspiration in the nozzle**, it is used to light the gasifier. The charcoal turns inside the drum through the nozzle.

3. Mirror. It is used to see that there are embers on the gasifier through the nozzle

4. Round thin sheet metal. It is used to turn off the gasifier. It is placed between the union at the exit of the plastic filter of “chargas” to plug it.

5. Metallic plug. It is to turn off the gasifier plugging the air entrance of the nozzle.

6. Embers catch holder. It screws under the nozzle to prevent embers from falling through the nozzle to the floor being able to cause a fire. It has a kind of fixed key of the plug to be able to loosen it if it is hard to remove.

7. Nozzle cleaner. It is an iron rod that is useful for cleaning the nozzle from the bottom up. It has a slot to avoid touching the copper tube of the water dripper that crosses the inside of the nozzle. If the last time the gasifier was used and the load was not empty to clean the ashes, with this bar the ashes are removed in the nozzle to be able to turn on the gasifier. Also, to restart the gasifier if it was stopped for a while and to see if still there are embers on the nozzle with the mirror.

8. Wire. It is used to clean the copper tube of the water dripper that enters the nozzle because it can be clogged with dust or ashes.

9. Plastic hose. After using the wire to clean the copper cane, this hose is used to blow through this copper cane and verify what passes air.

***IGNITION, RECHARGE AND TURNING OFF PROCEDURE.**

In this manual two forms of ignition are detailed. **A)** The ignition with gasoline which is better for the engine, but requires some ability to pass it from gasoline to "chargas" and
B) It is for those places where there is no gasoline at all. The ignition only with "chargas" that is easier, but requires a 12Vdc starter fan and a vent.

A) IGNITION OF THE GENERATOR WITH GASOLINE AND THEN PASS IT ONLY TO "chargas".

1. Check the state of the spark plug.
2. See positions **#1** and **#2** of the (AFR) Valve in the photos of page 8.
3. If gasoline inside the generator tank is "old", that is, it has a lot of time in it, it is convenient to empty the tank and use newly bought gasoline.
4. See that the accelerator curtain is not stuck by cold tar, in an ***IMPORTANT NOTE** on page 9, says how to clean it.
5. Remove the nozzle plug, remove off the Round thin sheet metal that could be in the union at the exit of the gasifying drum. Remove the lid and the rubber foam from the generator air filter, this helps to ignite the generator.
6. Open the gasifier lid, fill with well carbonized and **dry** waste, clean the edges of the drum where the lid is going to seat. Place the lid and the strap.
7. Preheat the generator. Open the (AFR) Valve in position **#1** completely open for gasoline. Open the gas tank valve. Turn on the generator for 3 minutes.
8. Without turning off the generator, close the (AFR) Valve in an intermediate position between the **#1** position completely open and the **#2** position for "chargas". Go closing this (AFR) Valve little by little until it is noted that the engine begins to miss air. In this way, the generator carburetor will be taking part of the outer air and part of the air through the gasifier nozzle. **This produces a suction of air through the nozzle.**
9. Inject alcohol through the nozzle. Turn on the gasifier load with a torch through the nozzle. See with a mirror that there are embers on the gasifier through the nozzle. See photos bellow.

Bottle with alcohol

Alcohol in nozzle

Torch

Fire in nozzle

Embers in the mirror

10. After 3 minutes, close the gas tank valve. The generator will continue to function due to the remains of gasoline in the carburetor tank.
11. **The air of the system will be purged** and it will generate “chargas” in the gasifier, two fuels will enter the carburetor: gasoline and "gas." The engine may begin to fail due to the two fuels. You have to open or close the (AFR) Valve to maintain the optimal mixture of the two fuels and the air so that the generator does not stop.
12. When gasoline ends in the carburetor tank there will be a sudden and short acceleration, the (AFR) Valve should be **quickly** placed in position **#2** for “chargas”.
13. If at any time the generator stops then turn on with the electric starter or with the starting rope, closing or opening the position of the (AFR) Valve to find the optimal fuel-air mixture. Mark this position of the valve for future starting.
14. Only when the generator is already working only with “chargas”, open the drip of water in the nozzle. Place the lid and the rubber foam of the generator air filter.
15. If with prolonged use the rubber foam of the “chargas” filter begins to dirt, turn on the starter fan (if it is still installed) or start closing the valve to compensate for resistance to the passage of “chargas” through this filter and achieve the optimal air-”chargas” mixture.
16. Make sure not to use the most recommended generator of autonomy.

RECHARGE OR CHANGE OF FUEL:

1. When the output temperature of the “chargas” reaches 70ºC, it is time to recharge or change to liquid fuel. Be aware that: When the temperature rises to 65ºC it increases very fast to 90ºC. Also, when the generator goes out, as there is no aspiration, it can drop embers to the floor thru the nozzle and may produce fires.
2. If you are going to RECHARGE: Cut the electricity, turn off the generator, cut the drip of water. Be careful when opening the gas lid, there may be a soft explosion as a “puff”, recharge, clean the edges of the gasifier before placing the lid and the strap. Do not take long. Open the water drip, turn on the generator without purging the entire system.
3. If you are going to CHANGE FUEL: Cut the electricity, turn off the generator, cut the drip of water. Turn off the gasifier by plugging the air entrance to the nozzle **first**. Then open the union at the output of the “gasura” filter, place the round sheet metal between the union and close it. Open the (AFR) Valve to the position **#1**. Open the gasoline valve and turn on the generator. If it costs to light it is because the spark plug is wet due to an excess of moisture of the "gas." Then, take out the spark plug, dry, place and turn on gasoline.

In this world let's leave a good footprint so that humanity does not leave a waste footprint in this world.

DEFINITIVE TURNING OFF**.**

1. Cut electricity. Then turn off the generator. Cut water drip. Turn off the gasifier, plugging with a plug the air entrance to the nozzle **first** and **then** the exit of chargas at placing the round sheet metal at the union. If one forgets to plug the gasifier, the next day it is very likely that only ashes of the entire load are left.
2. To clean possible tar remains that could have been deposited in the carburetor produced by poor carbonized waste: Full (AFR) Valve to the maximum to position **#1**, open the gas tank valve, turn on the generator for 3 minutes. If it costs to light it is because the spark plug is wet due to an excess of moisture of the "gas." Then, take out the spark plug, dry, place and turn on with gasoline. Close the gas tank valve and leave the generator on until it turns off only due to lack of gasoline.
3. Gently pull out the starting rope until it starts to do resistance. This means that the two valves inside the cylinder are closed. This is the best way to leave the generator off because it will not enter moisture into the cylinder while it is off.
4. With pressurized air clean inside the connection from the gasifying drum to the filter.
5. Open the plastic/filter bucket to see if there is any water accumulation and drain it. Check the state of rubber foam. If they are dirty or broken, change for new or wash them with detergent, let the sun dry, then moisten with light mineral oil. Place them inside the bucket and clean the edges before placing the lid.

B) IGNITION OF THE GENERATOR WITHOUT GASOLINE USING A STARTER FAN AND A VENT.

In those places where there is no gasoline at all, the generator can be ignited using a 12Vdc starter fan that generates the initial suction in the nozzle to be able to turn on the gasifier drum with alcohol and torch. This starter fan can be **AXIAL** as an extractor of Bilge Blower type for a RV or nautical bath. It can also be assembled with three 12Vdc stacked coolers, which are cheap if new and may be free as used in electronic equipment repair shops. You can also get a used **CENTRIFUGAL** car heating fan car in wrecking cars places, but in the latter case the air flow must be restricted because a lot of air flow is harmful. The aspiration must be between 25 and 60mmca. If it is below 15mmca then it will be difficult to turn on the gasifier. If the aspiration is well above 60mmca then the air flow through the nozzle will be so intense that at the exit of the gasifier the “chargas” will have so much air that it will not be ignited.

THE FAN STACKING OF 3 COOLERS, FAN OR 12Vcc TURBINES OF CPU OF 80MM (3”):

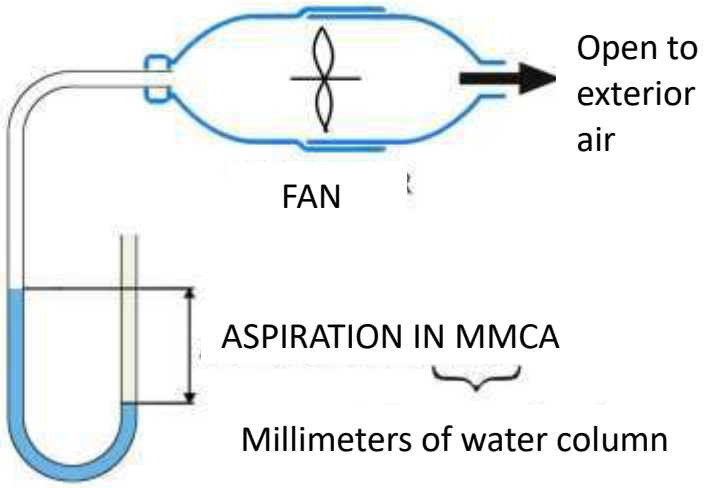
Buying new ones are very economical and in electronic equipment repair workshops they may give for free. Make sure the coolers are identical and that when stacking them they are all blowing in the same way. They are fixed with two threaded rods and lock nuts or with Grower

type pressure washers. At the entrance and exit of the three coolers already stacked and together, half bottles of PET are placed that when they will shrink and adjust to the coolers by heating it. Electrically are connected in parallel.

The flow must be barely a breeze.
For example:
Bilge Blower of 3" gives 31mmca.
Bilge Blower of 4" gives 64mmca.
A 79mm cooler give between 13 and 21mmca.
Two stacked coolers give between 18 and 35mmca.
Three stacked coolers give between 23 and 48mmca.
Four stacked coolers make no sense because they no longer add more aspiration.

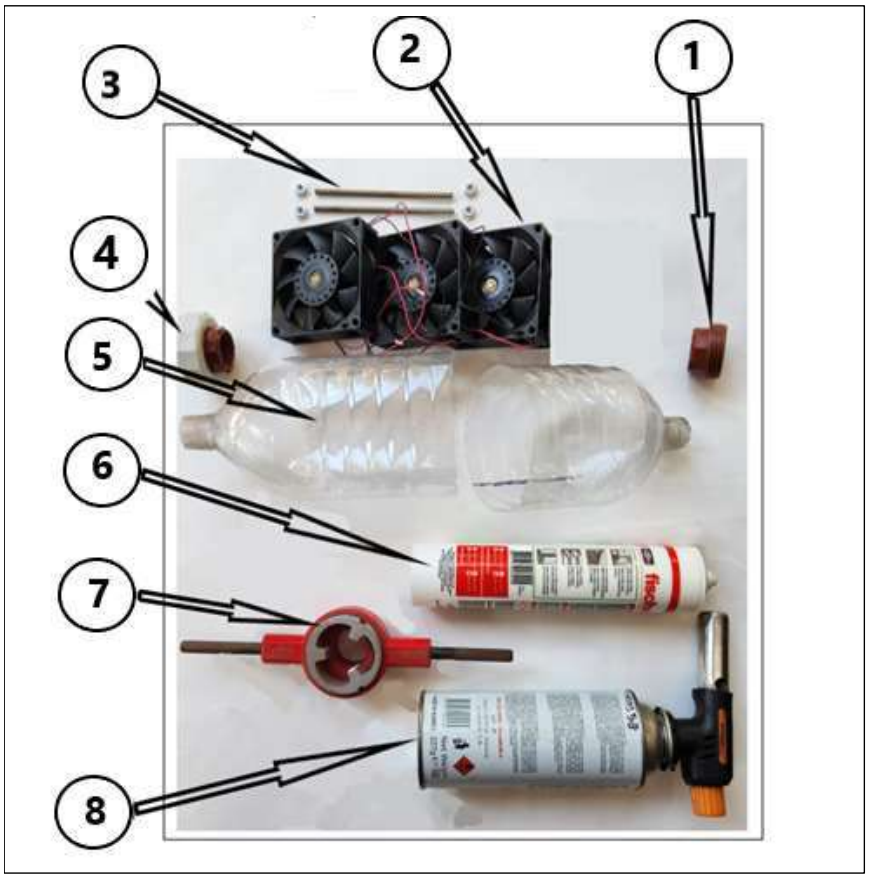
MEASUREMENT OF THE ASPIRATION OF A FAN.

In millimeters of water column (mmca) with a transparent hose full of water.



PARTS OF THE ARMED ASPIRATOR FAN WITH 3 COOLERS.

1. Male union.
2. Cooler x 3.
3. Threaded rods with lock nuts to stack the three coolers.
4. Female union.
5. Half PET bottles.
6. To seal the unions to the threaded mouths of the bottles use silicone or epoxy.
7. Use a threading die to thread the bottle mouths tailored to the unions.
8. Torch to shrink PET bottles.



FINISHED FAN MADE WITH THREE COOLERS.

THE VENT: Is placed at the exit of the starter blower. It is a union with a metal nipple where all the air of the system is purged outside at the beginning of the ignition process. When all the air of the system was expelled the "chargas" can be ignited, the flame must be transparent, blue or clear yellow. If it is strong or orange yellow it means that “chargas” has tar and can dirty carburetor.

When the flame is stable, only then the water drops are injected into the nozzle. After a minute, the hydrogen of water thermolysis is expected to come out of this vent. The blower is disconnected with this vent and replaced by a pipe to connect the filter output directly to the generator. See photo below. The generator is started only with "chargas". The function of the nipple of **metal** is so that it does not melt with the heat of the flame.

IGNITION, RECHARGE AND TURN OFF WITHOUT GASOLINE.

Here it is explained how to light the gasifier starting the generator without gasoline.

1) Check the state of the spark plug. Remove the rubber foam from the gen air filter. This will help to start the gen on “chargas”.

2) See positions **#1** and **#2** of the (AFR) Valve in the photos on page 8.

3) See that the accelerator curtain is not stuck by cold break. Above, in ****IMPORTANT NOTE*** page 9, it says how to clean it.

4) Open the gasifier lid, fill with well carbonized and **dry** waste, clean the edges of the drum where the lid is going to seat. Place the lid and the strap.

5) Remove the nozzle plug, remove the Round sheet metal at that may be placed in between the union at the exit of the “chargas” filter.

6) Connect the starter fan and vent at the exit of the gasifier drum or to the output of the “chargas” filter and turn it on, this produces a SUCTION of air through the nozzle.

7) Inject alcohol through the nozzle. Turn on the gasifier load with a torch thru the nozzle. See with a mirror that there are embers on the gasifier through the nozzle.

Bottle with alcohol

Alcohol in nozzle

Torch

Fire in nozzle

Embers in the mirror

8) **The air of the system will be purged** and replaced by “chargas”. After 3 minutes it can be light in the vent.

9) When the "chargas" can be turned on at the exit of the vent and the flame is stable, this indicates that the entire system is already purged. Just then add the water drops on the nozzle. After minutes turn off the fan. It can be left on. But it can also be disconnected from plastic/filter bucket or gasifier output and replace it with a “by-pass” type hose. See photo on the right.

Purge and vent with the blower

Generator running only on "chargas" and water.

10) Turn on the generator fed only with “chargas” with the choke, then remove it.

11) Replace the rubber foam and the cover at the gen air filter.

12) If during a prolonged use of the generator, the rubber foam in the “chargas” filter begins to dirt, start closing the (AFR) Valve so that the suction of the carburetor compensates for the

resistance to the passage of "chargas" through this filter and achieve the optimal air-“gas” mixture.
13) Make sure not to use the generator more of the recommended autonomy time by manual.

CHARCOAL RECHARGE:

1) During the normal functioning, the output temperature of the “gas” of the gasifying drum will be about 50/60º (122/140ºF). When the output temperature of the "gas" reaches 70ºC (160ºF), it is time to recharge or change liquid fuel. PAY CLOSE ATTENTION because when this temperature rises to 65ºC (150ºF) it immediately rises to 85ºC (185ºF) rubber foam starts to disintegrate and the plastics begin to deform. ALSO: When the generator stops, as there is no aspiration, it can drop embers to the floor thru the nozzle and may produce fires.
2) Cut the electricity, turn off the generator, cut the drip of water. Be careful when opening the gasifier lid, there may be a gentle explosion as a "puff." Without delay, recharge, clean the edges of the gasifier before placing the lid. Open the drip of water, turn on the generator without purging the entire system.

TURNING OFF:

1) Cut electricity. Then turn off the generator. Cut water drip. Turn off the gasifier, covering the air entrance with a plug to the nozzle **first** and **then** the exit of gas. If one forgets to plug the gasifier, the next day it is very likely that only ashes of the entire load are left.
2) Gently pull out the starting rope until it starts to do resistance. This means that the two valves inside the cylinder are closed. This is the best way to leave the generator off because it will not enter moisture into the cylinder while it is off.
3) Open the “chargas” filter bucket to see if there may be accumulation of water and drain it. Check the state of rubber foam. If they are dirty or broken, change for new or wash them with detergent, let the sun dry, then moisten with light mineral oil. Place them inside the filter and clean the edges before placing the lid.

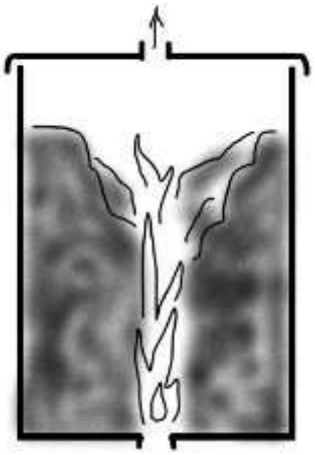
IF IT DOES NOT START:

If the gen works well on gasoline, but does not start on "chargas", here some suggestions.
1) The waste load **must be dry**, so check if the waste load is wet and replace if necessary.
2) As the entire system works airtight**, the only places** where the air should enter are the nozzle and (AFR) valve. So, it must be verified that the whole system is sealed, that is, **there is no other place** where there may be any air filtration.
3) Airtight “chargas” filter. Cover one output and blow on the other to see if there is no filtration.
4) Dirty "chargas" filter that prevents the passage of gas. So, blow through the entrance and verify that the air comes out without difficulty by the exit.
5) Some obstructed, tight or crushed hose that prevents the passage of the gas. So, review it.

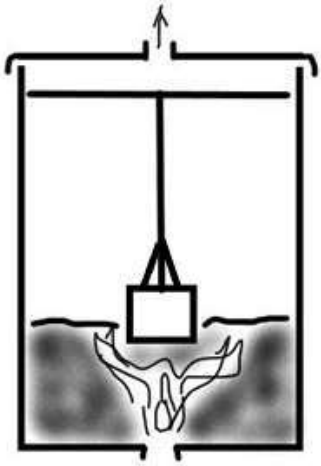
6) A lot of water vapor is bad because it wets the waste load. It may be for one or more of these reasons: **A)** Excessive water drip, then lower the drip and/or change by dry load or **B)** The drip of water was done before there was no enough temperature for thermolysis. Then make sure that the gen works well and stable **only** with dry "chargas" **and only** then open the drip of water.
8) The gasifier lid has not closed hermetically. Make sure the edges of the gasifying drum were cleaned before placing the lid.

DIFFUSOR DISK.

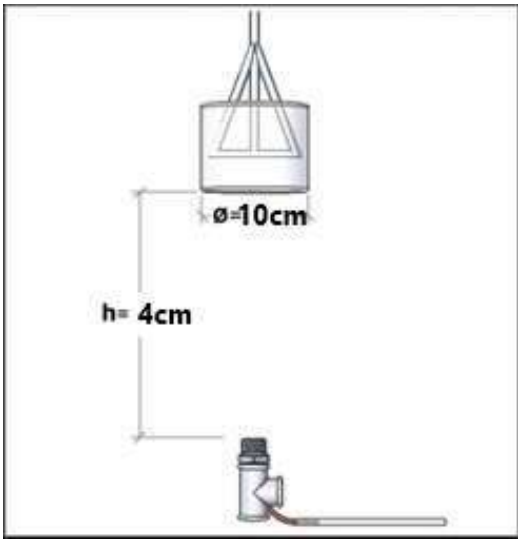
The autonomy can increase for the same load. When the diffuser disk is not, a kind of column or fire is produced from the nozzle that crosses the load vertically missing the load of the sides. Instead, the diffuser disc forces the fire to cross the entire load. It is hung a few centimeters above the nozzle. This increases autonomy, but the final power may decrease. Here is a refractory round disk with 40 to 60% of alumina, 4" (10cm) diameter, ¾" (2cm) thick located at 1 ½" (4cm) above the nozzle. In addition, the diffuser disc causes the maximum output temperature of the "chargas" to below 160ºF (70ºC).



No diffusor disk.



With diffusor disk



Autonomy or Duration of the power production. For this sample, the gen can give 1.1 Kw of continue power during 4 to 6 hours depending of the type of waste, the electrical consumption, the use of a diffusor disc, etc.

Approximate cost of adaptation for an existing 2.5KW generator to run on “chargas” u$d 300. This includes a 70Liters (18 Gal) thin metal gasifier drum, plastic filter bucket, ball valve, fittings, etc.

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Give Glory to God with doing and saying always and everywhere!