

Installation Instructions for HFS system sept 13 2022

General Installation Guidelines

Installation Instructions for cars, trucks and Gensets

These instructions are a PDF file document. It is advised to print out the document and carefully read before attempting the installation.

Then send me a message a message to glknox11@live.com, to clarify any aspects of the Installation Instructions.

Petrol and Diesel Fuelled engines can further improve the fuel savings by installing a tune-able / adjustable electronic fuel enhancer module that forces the engine to use a leaner and more powerful fuel map in your vehicle ECU.

Warning

Do not use a concentration of caustic higher than the recommended value (as shown in the chart below) (10 grams /4 liter) as this may lead to excessive electrical energy being wasted as thermal energy and seeping of the caustic powder from the joints of the sealed unit.

Having a low concentration of caustic is ideal as more energy is used into the oxidation / reduction of water into hydrogen and oxygen, rather on the “redox”. of the caustic....

Greater efficiency = more gas with less electrical load

Congratulations!

You have made a good decision in purchasing a “ Hydrogen Generator” System. Properly installing and using this device will make a significant contribution to both your own well-being and the well-being of the world you live in.

Getting started: Note!

Getting started: Note! If you are installing the “Hydrogen generator system” on a diesel engine you must route the Hydrogen transmission hose to a location UPSTREAM of the turbo, that is, on the LOW PRESSURE side of the turbo, in the air-intake cowl, or into the mouth of the air intake cowl, if you can access it.

There are two configurations of Power supply .

Configuration 1

Materials required

40 amp circuit breaker,

40 amp relay unit,

Bubbler Unit,

5 m length 10 mm pneumatic tubing,

5 m double insulated 8 mm twin core cable,

12 volt master switch,

500 gram potassium hydroxide ,

Distilled water

The latest configuration from November 2021 is a modified DC supply that does away with the PWM and uses the extra 1.5 volts used by the PWM to produce more Hydrogen gas.

This new arrangement does away with controlling the current by the electronic circuit and only controls the current flow by adding pure water to the tank .

This arrangement does away with controlling the current by the electronic circuit and only controls the current flow by adding pure water to the tank once the current reaches 35 amp or once the solution volume in the tank falls to 1 litre , This way there is no wasted heat energy generated by the PWN, there is more gas produced and the systems run more efficiently.

1. Fill the 3 litre tank to the 2.5 litre mark.
2. Measure 5 grams of potassium hydroxide = one level teaspoon full - and mix this with 100 mls of distilled water
3. Switch on the system with the pump running and add the small amounts of the 100 ml mixture to the recycling tank.
4. Watch the current rise over the next few minutes stop adding any more mixture once the current reaches 12amp.
5. The solution and system is now ready to use . As the system runs the current flow will increase and eventually reach 29 amp .
6. After 12 hours of operation add distilled water to return the water level to the 2.5 Litre level
7. 24 volt vehicles should reduce the voltage to the system to 12 volt output
8. The system will consume 1 litre of water every 10 hours. After 10 hours of operation it is time to add water to the system. Adding water dilutes the solution and the current flow will return to 15 amp
9. In the case of you forgetting to add water , the auto reset 40 amp circuit breaker opens the circuit and no current will flow telling you its time to add water.

Configuration 2

One of the advantages of using this system is that it can be provided to you preassembled with

Power supply PWM,

electrolyte storage cell,

wiring,

switches,

ammeter,

electrolysis cells and

hydraulic / pneumatic tubing all connected and mounted.

This configuration is used with the Pulse width Modulator power supply, running at 12 volts.

The circuit / solution concentration is initially set to run 15 amp.

Your only task is to mount the wiring from the battery/ alternator to the cell enclosure and connect the delivery tubing from the cell enclosure to the air / fuel intake on the engine. After that you can move the cell assembly from one vehicle to the next etc with ease.

The cell enclosure is available as an extra large marine battery box, Steel box or aluminium box

1. an extra large marine battery box and cover which can be placed and secured in any position in the vehicle (often there is no room under the bonnet but room in the rear of the vehicle) – 41 cm x 21 cm x 35 cm high
2. The Steel or aluminium box measure 43 cm x 30 cm x 25 cm high

Because of the thousands of ever-evolving vehicle configurations in the marketplace, we cannot offer specific, detailed, instructions to precisely fit every possible installation. The following guide is designed to present a typical installation, which the installer can use as guidance in installing the device in his/her own vehicle. This is a relatively simple process and should be handled with ease by any professional mechanic or mechanically-inclined individual with the appropriate tools.

Setting up solution

1. Fill the system so that the 3 litre recycling tank is holding 2.5 litres of distilled water.
2. Measure 10 grams of potassium hydroxide and mix this with 100 mls of distilled water.
3. Switch on the system with the pump running.
4. Slowly add the 100 mls of electrolyte to the tank till the current reaches 15 amp.
5. Adjust the current control to maximum and wind the current back 1/8th of a turn – 1 amp
6. The solution and system is now ready to use . As the system runs the current flow will increase.
7. The recycling 3 litre tanks is filled to 2.5 litres. The system will consume 1 litre of water every 10 hours.
8. After 10 hours of operation it is time to add water to the system. Adding water dilutes the solution and the current flow will return to 15 amp .
9. In the case of you forgetting to add water , the auto reset 40 amp circuit breaker opens the circuit and no current will flow telling you its time to add water.
10. 24 volt vehicles should reduce the voltage to the system to 12 volt output .

Material required for a typical car or Truck:

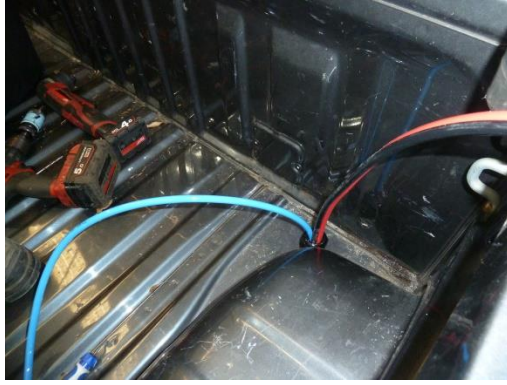
- 1). 50 amp double insulated wiring;
- 2). 10mm Ø stainless steel air brake tubing; or 10mm Ø HDPE air brake tubing
- 3). One 40amp breaker/circuit breaker ;
- 4) One 40 amp relay switch
- 5). 10 inch Gas bubbler
- 6) three 10 mm x ¼ inch BSP straight brass push lock fittings;
- 7). 500 grams Potassium hydroxide pellets
- 8) Distilled water
- 9) 80 amp double insulated wiring (double insulated , Twin core 8 mm cable)

Installation

This system is to be installed on a 12 volt system only. For Higher vehicle input voltage the input voltage must be reduced to 12 volts to be fed into the Hydrogen system.



1. You can begin by determining where you want to locate Hydrogen generator system” in/on your path to route the Hydrogen hose and electrical wires from the system device to the engine compartment. You should remember that you will most likely want to run the hose and wires together along a frame member or other similar under-vehicle location where you can attach mechanic's wire or Metal cable ties to hold them in place. You **MUST** keep both the Hydrogen transfer hose and electrical wire at least 25 cm from the exhaust pipes and exhaust manifold to prevent them from burning, shorting, or melting
2. Decide where you want to locate the Hydrogen generator. Then determine a path to route the Hydrogen hose and electrical wires from the “generator” to the power supply in the engine compartment



You should remember that you will most likely want to run the hose and wires together along a frame member or other similar under-vehicle location where you can attach mechanic's wire or metal ties to hold them in place. You **MUST** keep both the Hydrogen transfer hose and electrical wire at least 25 cm from the exhaust pipes and exhaust manifold to prevent them from burning, shorting, or melting.

3. **For inside-vehicle, in-trunk, in-truck-bed, or in-commercial-cargo-bay installations:**

Once you have determined where you want to locate your "Generator" system, find a place hole for the Hydrogen transfer tube and for electrical leads (80 amp double insulated cable) to the engine compartment. Drill through the vehicle deck to the underside of the vehicle





4. Make sure you stay clear of the fuel tank, brake lines, and any other obstructions which would make it difficult for you to push or pull the Hydrogen transfer hose and electrical cable through the holes you have drilled. Secure a Plastic protector into the hole as shown in the diagram.

Then either push or pull the Hydrogen transmission hose through the 3/4" hole you drilled, providing enough slack in the hose near the "Generator" system to push lock fitting on the outside of the system

5. . You might want to wrap the transmission Hose with duct tape or apply appropriate size split wire loom where it passes through the vehicle deck in order to reduce the possibility of eventual wear on the Hydrogen transmission hose. Alternatively push the tubing through 12 mm internal diameter reinforced water tubing and fix this water tubing to the underside of the vehicle with metal cable ties / connectors.

6. An experienced Automotive electrician should be used to connect the cable to the Battery /alternator so that it is activated from the alternator via a 40 amp relay switch . Thus when the engine stops and the alternator stops working , then the Relay supplying electrical Power to the Generator system , switches off. This prevents the system working if the engine is not switched on and running.

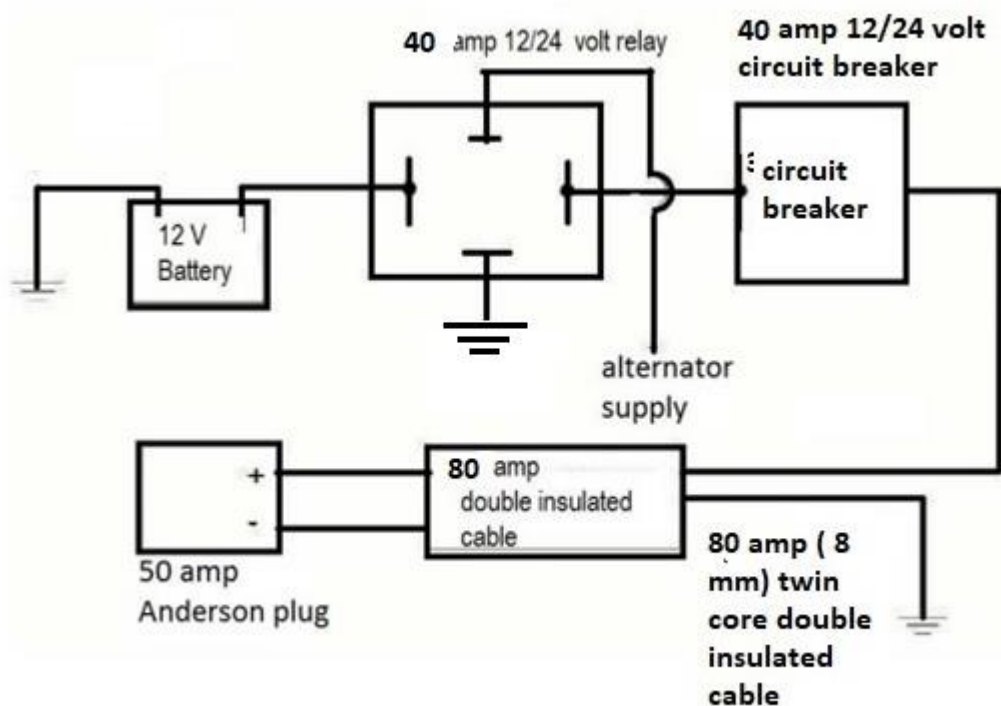


Diagram 1

7. Connect the (8mm) 80amp double insulated cable to the battery positive cable via a 40amp circuit breaker and a 40amp relay unit.

a. Connect a length of red 80amp wire to the positive terminal lug. Connect the other end of the wire to relay terminal 30.

b. Connect relay terminals 85 to the ignition switch via the a) efie thermal switch, b) master switch and 10 amp fuse (as shown in figure 2). (This will only activate the relay unit when the engine is switched on.). Alternately connect terminals 85 to be activated by the vehicle alternator .

In the case of an efie not being used - Connect relay terminals 85 to the ignition switch via the master switch and 10 amp fuse (as shown in figure 2). (This will only activate the relay unit when the engine is switched on.). Alternately connect terminals 85 to be activated by the vehicle alternator

c. Connect a wire from relay terminal 87 to the first terminal of the 30 amp circuit breaker. Connect the 2nd terminal of the circuit breaker to the red wire of the double insulated 30amp cable that takes power to the Anderson plug of the system

d. Secure the black cable from the (8 mm) 80amp cable to the body /earth of the vehicle -- --
--See diagram 1.

e. Connect terminal 86 with a 6 mm wire to the earth of the vehicle

8. Then push or pull the (8mm) 80 amp double insulated cable electrical wires through the 3/8" hole. Double insulated cable is used to protect them from possible wear and shorting. This cable is used to connect the Electrolysis system to the battery/ alternator in your vehicle engine bay.

9. Pass the double insulated cable through the vehicle cabin along the line of the wiring loom.

10. Attach the free end of the power cable to a 50amp Anderson Plug to connect to the HHO generator

11. Mount and secure the 10mm Ø air pipe to the underside of the vehicle using metal ties

12. Pass one end of the pipe through the floor of the vehicle rear to connect to the HHO generator 13. Locate an area on your air-intake cowling as near the air- intake termination at the throttle throat as you can conveniently access (On diesel engines, you MUST input the Hydrogen transmission hoses UPSTREAM from the turbo, on the LOW PRESSURE side of the turbo). Drill a 7/16" hole

14. Remove the air-intake, or move it to a position where the drilling debris won't fall into the throttle throat or intake manifold. Reattach the air-intake cowling and screw a 1/4" BSPT (threaded) x 10 mm Push lock fitting (provided with your hole you drilled in the air -intake. There is no need to over-tighten the fitting(s). If you strip the threads or have trouble satisfactorily affixing the fitting into the air-intake cowling, you can clean/de-grease the area around the hole(s) and use any good plastic glue epoxy, Sumo Glue, etc., to secure the fitting

15. Attach the Hydrogen transmission hose (10 mm trucking air brake tubing) to the Push lock fitting you attached to your air-intake . You might double-check to be sure you have chosen a route for the hose and wire that will avoid the hot exhaust manifold and exhaust pipes as well as avoiding any moving mechanisms that would entangle, crimp, or rub the hose. Again, it would be a good idea to follow the same path as the electrical Cable so the hose and the cable can be bundled with electrical or duct tape as you attach and support them with plastic ties and/or mechanics wire as they traverse along the vehicle framework generator” and the engine compartment

Diagram 2

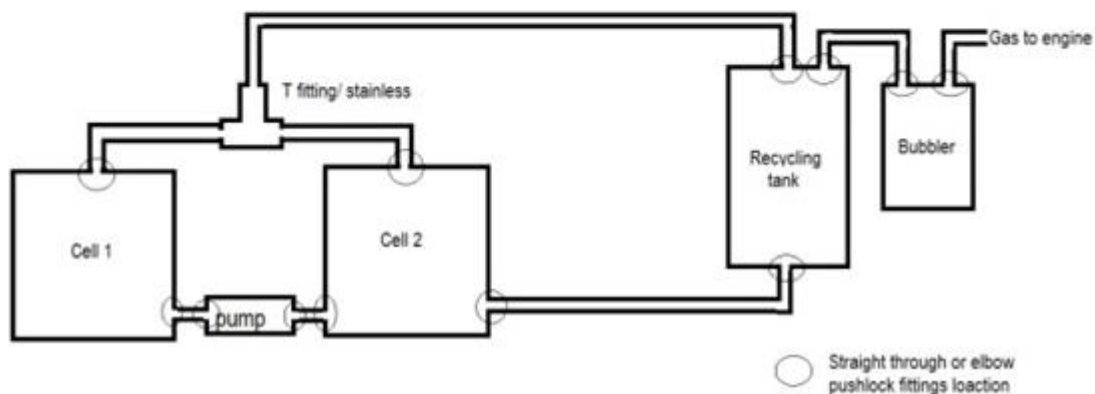
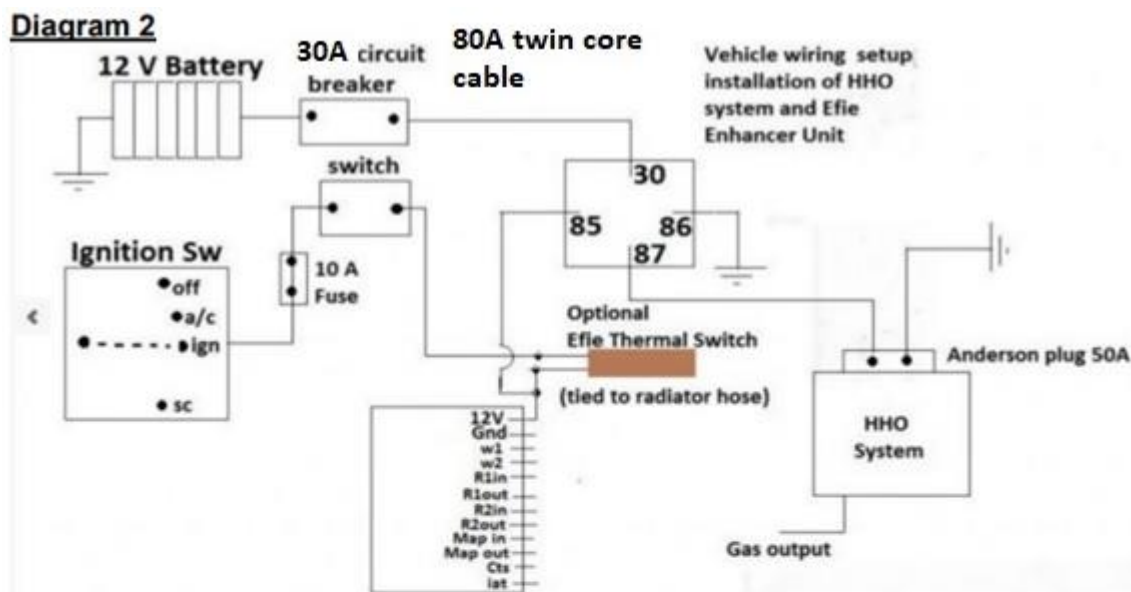


Diagram 2

Twin Gen 20 systems mounted onto truck

Setting up the bubbler

1. Locate a suitable / strong mounting position for the “bubbler” unit that is close to the gas output connection on the electrolyte recycling tank. The bubbler unit “out” connection should be at the same level ,or above the gas outlet of the recycling tank.
2. A 18 cm length of 15 mm OD reinforced nylon pipe is cut and fitted to the recess in the lid of the bubbler as shown in the diagrams below.
3. Fill the “10 inch bubbler Unit” to a depth of 18 cm with distilled water.
4. Connect a length of 10 mm pneumatic tubing from the output gas fitting on the hydrogen system to “push-to-connect” fitting on the “out” connection of the bubbler Unit.
5. Connect a suitable length of 10 mm Pneumatic tubing from the “In” connection on the Bubbler unit to the gas input position chosen to supply hydrogen gas to the engine.
6. The System is now ready to use

BELOW

Photos of Bubbler assembly with push to connect fittings and 15 mm OD hosing inserted into middle of underside of Bubbler top



