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Instructions for your H2 Pure Power Hydrogen Generator

Thank you for participating in the effort to reduce harmful emissions, make your vehicle perform better and get more out of your gas mileage. The benefits to the H2 Pure Power generator you have just purchased should be noticeable from just about the minute you turn it on. Your motor will probably start to idle down as it is adjusting to the hydrogen supplement. When hydrogen mixes with the air and fuel at the burn point, you get a more complete burn with less waste of fuel. The results are better engine performance, lower emissions, and more gas mileage by implementing new driving techniques. Different makes, years and models of vehicles will give different results. Your vehicle should adjust automatically to the new air fuel mixture. Older models may require a carburetor adjustment. As with anything else, please make sure that you follow the maintenance schedules and driving tips outlined at the end of this manual.

Steps for Installation

- 1) Be sure that you have purchased the items needed to complete the installation and operation of your H2 Pure Power generator. If you haven't, then here's what you need to get going. These parts should be available at your local auto or hardware store.
 - a) 10 gauge wire for Pulse Width Modulator install with 12 or 14 gauge for "engine on" wire. Buy enough to supply Positive and Negative feeds. The amount you need is based on where you install the generator. Buy colored wire (red/white/black/green/blue) for easier diagnostics and easier visual inspection of the installation. Purchase 7 - 1/4" 10 gauge wire eyelet connectors and 8 - 5/16" 10 gauge wire eyelet connectors.
 - b) The electrolyte, Potassium Hydroxide in the flake form is available from local chemical suppliers or online at <http://www.thechemistrystore.com>. You will have to fill out a routine hazard substance release form. Remember, Potassium Hydroxide is caustic to the skin and eyes. Use rubber gloves and proper eye protection when handling it.

Keep vinegar on hand to neutralize it. Use common sense, and handle it with care. Since you will only need a very small amount at a time (teaspoons), you do not have to purchase much to last a long time. We provide it in the kit.

- c) Distilled Water, get a couple of gallons. Make sure that you are using only distilled water so that there are no chemicals or minerals to interfere with the process, coat your plates or damage your unit.

- d) Enough 3/8inch (Inner Diameter) fuel line to go from the output of your H2 Pure Power generator to the bubbler unit to the Flashback Arrestor, then to your Air Filter box (or other air intake) on your engine. Buy hose clamps for hose connections (approx. 8-10)
NOTE: Do NOT use vacuum line as it will break down with the units use.

- e) Depending on your specific install, you may want to buy some metal “strapping” to make some support mounts, I also recommend picking up some kind of vibration dampening material to lessen the vibrations from your vehicle on your generator and bubbler. Use rubber spacers or insulation to cushion.

- f) Freezing: In cold weather, avoid freezing by purchasing a heat blanket such as Napa sells and plug it in to a 110 outlet at night or while setting for any period of time. Do not use any substance such as alcohol, windshield wiper fluid or methanol as you will get no production of hydrogen combustion as the oxygen is disintegrated.

- g) Make sure you have all of the other basic shop supplies, electrical tape, clamps, wire connectors and have a good assortment of tools available to you, although most likely you will only need the basics, an electric drill and bits, crimpers, pliers, wrenches, hacksaw, etc.

2) Unpack your generator and accessories.

- a) Remove the generator from the box. Make sure that you have all parts. You should have the generator, the bubbler unit, a Flashback Arrestor, a toggle relay, a circuit breaker, ammeter, switch, and Pulse Width Modulator.**
- b) Remove all of the accessories, and the ammeter, and set them aside.**
- c) After removing the accessories and meters, carefully set the generator to the side.**

3) Identifying and understanding each component (accessories).

- a) The 12 volt, toggle switch. This is your on and off switch. This component is to be installed in between the “Key ON” oil pressure sending unit and one of the coil terminals on the Relay. \ \ Connecting to the oil pressure sending unit insures that when your vehicle is off, the unit is turned off as well. Find a place near or under your dash where you can reach it easily, but where it won’t interfere with your driving to mount it when we reach that step.**
- b) The Circuit Breaker. This component is to be installed 1st in the series circuit from the battery.**
- c) Electrical Relay. This is your relay that controls whether there is power to the unit or not. Follow the wiring diagrams exactly when hooking up your relay.**
- d) The ammeter. Be prepared to mount it on or below the dash where you can easily see it. The ammeter is your indicator that tells you how many amps you are pulling. The amount of amps that show on the ammeter is directly related to the conductivity level created by the electrolyte solution. The electrolyte solution is simply the distilled water and a small amount of Potassium Hydroxide. It takes 2 teaspoons of Potassium Hydroxide to one gallon distilled water to bring a large generator up to 20 amps, in the winter use 3 teaspoons to one gallon distilled water. It is not recommended to exceed 20 amps when warm.**

e) The water intake; add distilled water and electrolyte to the bubbler and to the generator and bubbler, as needed.

f) The mounting bracket and screws. You may need to create some brackets out of plastic or metal strapping, or metal sheets. You can find a wide variety of shapes and lengths at the local hardware store.

g) Flashback Arrestor. (One Way Check Valve) Allows gas to pass in one direction, only. This prevents a flashback of gas and is very important for safety. The flashback arrestor should point in the same direction to the air cleaner intake or motor.

h) Pulse Width Modulator (PWM); a PWM is an electronic switch that turns on and off at a very fast rate of speed varying the percentage of time on vs. off. To the load it appears smooth because it's so fast, just like our vision can barely detect the flicker of a fluorescent bulb even though it goes completely off and back on again 120 times a second. The duty cycle of a PWM is the percentage of on-time vs. off-time.

i) Electrolyzers naturally draw more current as they warm up. All brute force electrolyzers will warm up, even the most efficient ones. At the end of a day current can be easily three times as much as what you started with at the beginning of the day. Without a PWM the problem becomes finding the correct electrolyte concentration for an entire day of driving. If you start out weak then production is very slow to start out with and you lose the benefits until much later in the day. If you start out strong enough to see benefits right away, by the end of the day you're blowing fuses or greatly stressing your alternator.

With a current limited PWM you set your electrolyte for the target operating current at the beginning of the day. To start the output duty cycle is nearly 100%. Half way through the day as the cell is getting warm it may want to draw twice as much current from straight DC. The PWM, sensing that twice as much current is flowing every time it switches on, rolls back the duty cycle to 50%, thus maintaining the same average current. At the end of day when the cell wants to draw three times as much current the PWM is operating at 33% duty cycle.

****If, at this point you do not understand these instructions. You may want to consider calling us to get a qualified installer or mechanic to install this unit for you.**

Let's Install the H2 Pure Power generator: Now, let's begin the installation process. With the knowledge you now have about each component, you should be able to begin the installation of your new H2 Pure Power generator! Diagrams are included on page 7 and 8.

Before you begin, and as an extra level of safety, we recommend that you disconnect your vehicle's battery prior to doing any installation to avoid potential of electrical shock, and electrical shorts.

Mount the generator and bubbler units

Begin by determining the best location for the units. Most of the time you should be able to find room under the hood, however, a mount in the rear of the car or bed of pick-up will work as well. Look for a place under the hood where you can mount the generator vertically, and where you can access it for maintenance. You must be able to see the generator and bubbler so that you can check the water levels. In finding a perfect mounting location, keep in mind that you will have to run wires to it, and run the fuel line to it. Mount the units using brackets, or battery box, by using supplemental plumbers tape, plastic ties, metal strapping or metal sheets. Again, try to mount it in a vertical, stable position and use some sort of vibration absorbing material to minimize vibration. Do not screw down the upper brackets too tightly as it could cause them to break. Use a washer in front of bracket and a rubber spacer behind it to cushion them. If you can avoid screwing in the upper mounting brackets at all, it will be a preventative measure to problematic cracking at those points. Do not position the generator where it will bounce against hard metal. A bracket around the middle of the generator could be beneficial and if you are creative, fashion a custom one to support it.



Electrical Work

Disconnect your battery ground cable before starting electrical work. Now move on to the electrical work. At this point, and before you proceed, examine the wiring chart to see “the big picture”. Get a good mental picture of what is happening here before going on. Next, determine the best “engine on” circuit choice, whether tapping into the fuse box, or other choices, see diagram. We recommend that you mount your electrical relay in an easily accessible place as you will be running wire to it. Mount the relay, and begin wiring each line according to the wiring diagrams. We recommend using different colors of wire for easier wiring and for better visual inspection and diagnostics of your completed system. Caution: It is very important to tap into a key on/off circuit so that the generator will be off when the ignition key is off.

Inside the car

Placement of the ammeter and switch is important. You must be able to see the ammeter while driving to check the amps being pulled by the system. Placement is also important for the “on and off” toggle switch. The switch should be mounted on or in your dashboard (or similar) where you can reach it. The switch can be left in the “on” position because you are tapping into a “key on/off” circuit. It is an added safety feature in case you add too much electrolyte so you have the option to turn it off before you trip the circuit breaker. In running the wire from the engine compartment to the interior of the vehicle, look for established ways through the vehicle’s fire wall so as not to diminish the protective value.

The Generator and Bubbler

At this point measure your fuel line, and install it so that you have a line between the generator and the input of the bubbler. Then run fuel line between the bubbler and the flashback arrestor. Then run fuel line from the flashback arrestor to the air input or (air filter box). See diagram. The engine’s vacuum will pull the HHO gas into the engine with the air. Use some small hose clamps for extra safety on each fuel line connection.

Now back to the generator and bubbler. Dissolve one to two teaspoons of electrolyte (potassium hydroxide) in one gallon of distilled water, then pour it into the generator. Finish filling the generator with distilled water until $\frac{3}{4}$ full. Remember, this is a caustic solution, so use care in handling it at all times. Fill the bubbler about half way with electrolyzed water. Replace the fill plug of the generator and bubbler. Use yellow Teflon tape to re-wrap the fill plug. ***Any time the fill plug is removed use yellow teflon tape. VERY IMPORTANT DO NOT USE WHITE PIPE THREAD TEFLON TAPE.**

Start up (1st time)

Fill canister

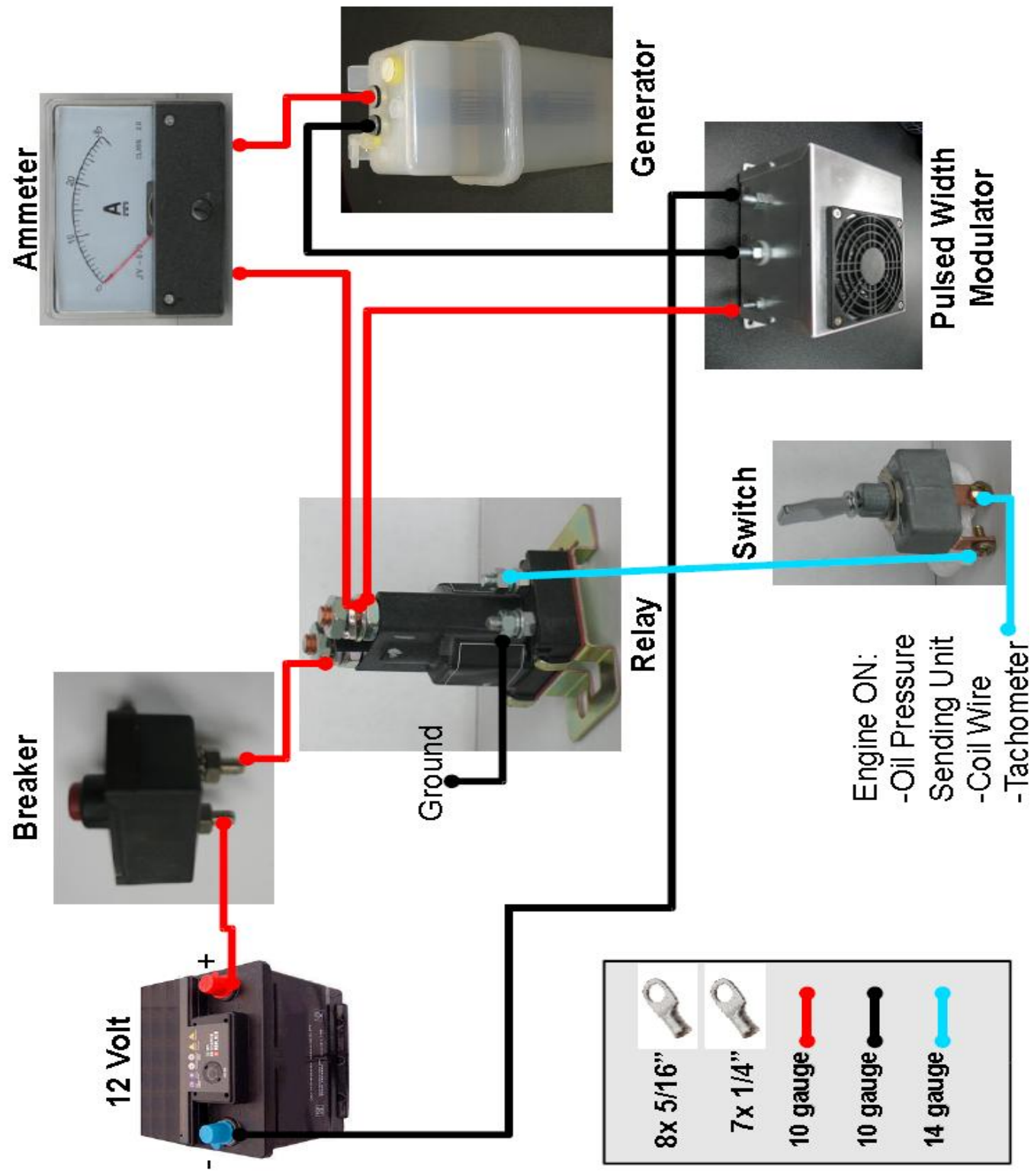
Formula: 1-2 teaspoons of POTASSIUM HYDROXIDE (KOH) electrolyte, in on gallon of **DISTILLED** water. Add KOH $\frac{1}{4}$ to $\frac{1}{2}$ tsp to the generator if the AMPS are below 10.

REFILL FORMULA: 1 teaspoon KOH per gallon DISTILLED water. Add to fill generator to 1” below top, bubbler to $\frac{1}{2}$ full.

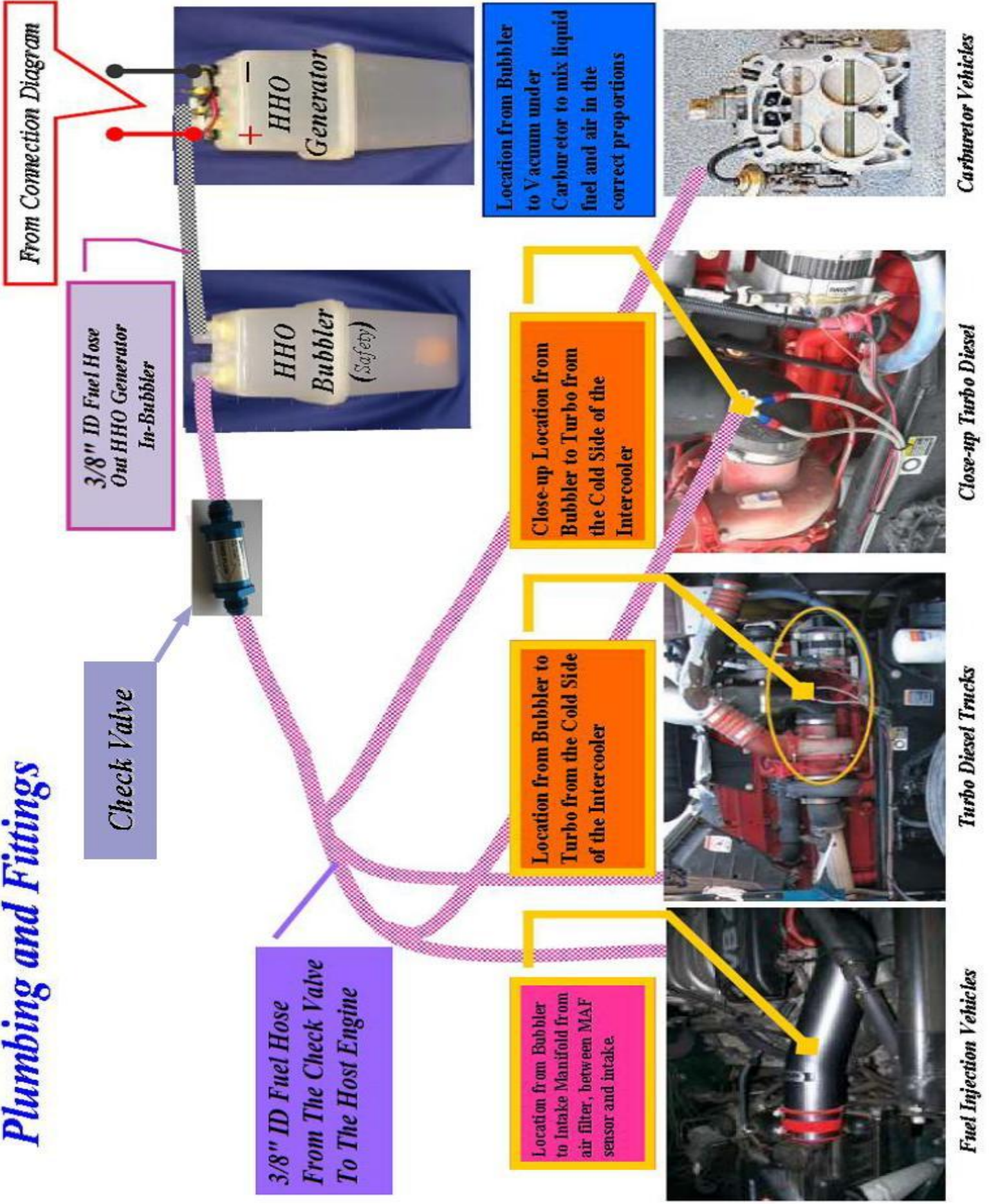
Winter temperatures: Add more potassium Hydroxide (about 3 tsp.) – $\frac{1}{4}$ to $\frac{1}{2}$ tsp. til the AMPs are up above 10.

At this point, you should be completely wired. You should have distilled water and electrolyte, in the generator. And, you should have distilled water and electrolyte in the bubbler. Your flashback arrestor should be installed. Your ammeter and toggle switch should be wired in.

Generator Wiring Diagram



Plumbing and Fittings



Now, double check everything.

- i. Make sure that you are using dedicated grounds.
- ii. Make sure that you are using “engine off” power sources. Make sure that all connections are tight.
- iii. Make sure that you did not run wires or hoses on or near any moving parts or parts that may operate at high temperatures. Use plastic straps or clamps to neatly and efficiently run all wires and hoses so that they are protected and out of the way. In double checking everything, run through the following outline one last time...

The gas output tube should be connected to the Air Filter housing after the Air Filter via a punch in or screw in nipple to be sure it is tight.

Recheck the generator and make sure it is filled to 1” from the top. The Bubbler should be also roughly 1/2 full. ****In colder climates, make sure to have a heating blanket or under the generator and bubbler.****

Re-connect your vehicle’s battery.

Now, start your vehicle. If the toggle switch is off, the ammeter should read zero. Be sure the switch is on, and look at the ammeter. If the reading is above 20 amps, at the very most, remove some electrolyte and replace with more distilled water. If the reading is very low, add a very minute amount of Electrolyte to bring it up to 12-20 amps.

First, look into your bubbler to make sure that you see bubbles coming up (the bubbler will not be frothing, it will be bubbling): This is good sign that the generator is working properly.

Final Tips and new driving habits

Even though you should notice a difference in your engines performance right away, keep in mind that this process will actually continue to get better as your engine gets cleaned out, and as your plates (in the generator) get seasoned.

Caution: The generator contains a caustic solution, use care when handling. Do NOT open generator during operation. Do NOT operate generator if it is frozen. If outlet hose is restricted pressure can build up in the generator. If you remove plug from generator when pressurized, caustic solution can spray out. If you should get on your skin use vinegar to neutralize.

Now that you are up and running, let’s talk about some new driving tips to help you maximize the use of your H2 Pure Power generator and the use of the HHO gas. One of the first things you will notice when driving will be better performance. Here’s what to expect.

A smoother idle with less vibration.

More power when accelerating.

When you hit your top cruising speed, you can back off the pedal. Try it you will notice the difference. With this in mind, now you realize you can use your gas pedal differently.

Less pedal needed for acceleration. And learn to back off at cruising speed.

If your warning lights for different systems come on your dash, first thing to do is disconnect your battery for just a few seconds allowing the computer to reset itself. Most likely, your warning lights will go off. If this continues, call technical support for advice.

If your water becomes “muddy” then replace your water and electrolyte with new. Also wash the plates with clean water. You may have to do this a few times in the first month of use. If it continues, please contact technical support at headquarters.

Technical support is available from 9:00am to 5:00pm at <http://www.info@h2purepower.com>

or call us at 866-731-7779.

Your H2 Pure Power generator comes with a warranty only on a broken or otherwise defective generator and plates. In the case the components are damaged, return the generator kit, ammeter, and accessories for a full refund or you have the option of having damaged parts replaced. H2 Pure Power LLC makes no warranty, and buyer assumes all liability. Success of the H2 Pure Power generator kit is dependent on many factors such as installation, driver’s driving habits, type of engine and even colder climates. Call the company and talk to a technician before returning the generator. Many times, the vehicle needs to be driven for about a month until the engine is cleaned and able to utilize the hydrogen at the optimum. Many times the engine has to be fine tuned after being driven for some weeks. Return to your installing mechanic for the fine-tuning.

We hope you enjoy your new H2 Pure Power generator, and hope you get the full and total benefits of it for years to come!

Magnuson-Moss Warranty Act

The Act provides that any warrantor warranting a consumer product to a consumer by means of a written warranty must disclose, fully and conspicuously, in simple and readily understood language, the terms and conditions of the warranty to the extent required by rules of the Federal Trade Commission. Warrantors cannot require that only branded parts be used with the product in order to retain the warranty. With regard to after market products, it is the responsibility of the warrantor to prove that an after market product is responsible for a defect, malfunction or failure.

INSTALL NOTES

Limited Warranty

Your H2 Pure Power Hydrogen Generator kit comes with a TWO year guarantee only on broken or otherwise defective generator, bubbler, and plates. In the case the components are damaged, crack or leak, return the H2 Pure Power hydrogen parts and HP Pure Power will replace the damaged parts. Call the company and talk to a technician before returning the generator or bubbler. If the unit cannot be repaired, the company will send the new parts with a return label to return the damaged parts to the company.

H2 Pure Power canisters makes no warrantee, and buyer assumes all liability. Success of the H2 Pure Power canister kit is dependent on many factors such as installation, driver's driving habits, type of engine and even colder climates. Many times, the vehicle needs to be driven for about a month until the engine is cleaned and able to utilize the hydrogen at the optimum. Many times the engine has to be fine tuned after being driven for some weeks. Return to your installing mechanic for the fine-tuning.

H2 Pure Power will not pay for the installation of the replacements. It is a simple thing to remove the wires from the Generator and Reservoir and replace them. The process should take about 15 minutes. If you cannot figure out how to replace them, you will need to pay a mechanic to do the switch. We will try to suggest a mechanic in your area.

For Replacements or Repair, please call: 877-731-7779.

www.h2purepower.com