

# **RUN YOUR CAR ON TAP WATER!**

## **Will This Work?**

We have talked with another individual who has patented a similar device, and we know by personal experience that the technology is sound. So although we cannot guarantee it, we believe these plans will enable you to build a car that runs on water. If you test it out, leave everything intact so that you can always reconnect back to gas if you have to.

We know for certain that an automobile will run on water. So this could be an interesting project for you mechanical types, with a great reward of never having to purchase gasoline for the rest of your life - and helping humanity at the same time.

## **Re The Need to Rustproof Your Exhaust System**

It is possible to make a hybrid of both gas and water which would eliminate the need to open the head and remove the exhaust system. If you are interested in trying that technology, then visit

[WWW.LITHA-SOFT.COM](http://WWW.LITHA-SOFT.COM)

## **Introduction**

It is suggested you try this out to begin with on a second vehicle you own, one that you don't need to live with everyday, until you perfect this technology.

Do-it-yourself plans allow the individual (that's you and me, folks) to make a difference. This is the easiest and lowest-cost way to convert your car to run on (relatively) free energy.

Now, with existing technology, anyone can stand up and make a difference by reducing the local automotive pollution, eliminate gasoline expenses, help restore our atmosphere, and breathe a little easier.

In putting these plans into operation, you will be making use of your entire existing system except for the fuel tank and the catalytic converter.

## **The Plan**

Build and install a low-cost alternative method for running your vehicle (internal combustion engine) on tap water, using off-the-shelf components.

This is simply an efficient way to convert ordinary tap water into gaseous hydrogen and oxygen, and then burn these vapors in the engine, instead of gasoline.

This "mini system" runs easily from your existing battery and electrical system, and it plugs into your carburetor with simple off-the-shelf fittings.

You will be installing a plastic water tank, a control circuit, a reaction chamber, a hi pressure carb/FI fitting, and 3 gauges, and then hooking into your existing carb/FI.

The simplicity comes from its being an "on-demand" system requiring no fancy storage or plumbing. You crank the gas pedal or throttle, and you electrically create more vapor for immediate consumption, on demand; low-high flow rate as needed, from idle to maximum power. The only real change is that you are using tap water as fuel, instead of the traditional petroleum-based fuel.

Given a choice, which way would you choose?

## Frequently Asked Questions

Q: Does it really work ?

A: Yes; this is well-established technology dating back to stainless steel. But be sure to follow these instructions using the proper mechanical and electrical assembly techniques, as this plan incorporates the best qualities of several techniques.

Q: How does it qualify as "free energy"?

A: If you're paying someone for the water you use, then it is not strictly free. But the alternative is to keep buying into expensive gasoline and its resultant hydrocarbon pollution.

Q: Is it safe?

A: Technically, it is safer than running on fossil fuel because you are no longer choking on your own emissions (health-wise). In general, it is practically as safe as your current gasoline arrangement. You will be installing a few simple safety devices, using current automotive standards.

Q: What kind of performance can I expect?

A: Properly adjusted, your modified vapor-only fuel system will run cooler, and at a modestly higher power level. The mileage performance expected from this design ranges from 50-300 mpg (of water), depending on your adjusting skills.

Q: Can I do the modification myself?

A: Why not? If you don't have any mechanical skills, and you know someone with basic mechanical and/or electrical skills, you can even delegate some of the construction. If you are using a fuel-injected engine, you may have to get a mechanic's opinion. [There will have to be an adapter inserted into the fuel-injection system, just as you would have to do if you were going to run on propane, hydrogen, or natural gas.

Q: What is the environmental impact that my vehicle will have?

A: It will be producing H<sub>2</sub>O steam (water vapor) and un-burnt O<sub>2</sub> (Oxygen). Hence, it will be cleaning the environment, rather than dumping nauseous toxins into it. Plus you will be helping to save our dwindling supply of atmospheric oxygen. Any excess vapor in the reaction becomes either steam or oxygen. You can also expect to be receiving more than casual interest from those around you.

Q: Isn't this really a steam engine?

A: Not Really. Exceedingly high temperature and pressure are not used. This is strictly an internal-combustion engine (burning orthohydrogen) with residual steam in the exhaust as a by-product.

There are a few things you should know about gasoline:

Gasoline as a fuel is not necessary; it is optional.

### **Gasoline versus Water**

There is a lot of thermo chemical energy in gasoline, but there is even more energy in water. The DOE (Department of Energy) has quoted about 40%, so it is probably much more than that.

Most people are unaware that "internal combustion" is defined as "a thermo-vapor process" - as in "no liquid in the reaction." Most of the gasoline in a standard internal combustion engine is actually consumed, (cooked, and finally, broken down) in the catalytic converter after the fuel has been not-so-burnt in the engine. Sadly, this means that most of the fuel we use in this way is used only to cool down the combustion process, a pollution ridden and inefficient means of doing that.

### **How It Works**

It is exceedingly simple. Water is pumped as needed to replenish and maintain the liquid level in the chamber. The electrodes are vibrated with a 0.5-5A electrical pulse which breaks  $2(\text{H}_2\text{O}) \Rightarrow 2\text{H}_2 + \text{O}_2$ . When the pressure reaches say 30-60 psi, you turn the key and go. You step

on the pedal, you send more energy to the electrodes, and thus more vapor to the cylinders; i.e. fuel vapor on demand.

You set the idle max-flow rate to get the most efficient use of power, and you're off to the races. In the big picture, your free energy is coming from the tap water in an open system, as the latent energy in the water is enough to power the engine and hence drive the alternator and whatever belt-driven accessories. And the alternator is efficient enough to run the various electrical loads (10 - 20 amps), including the additional low current to run this vapor reaction. No extra batteries are required.

## **STEP BY STEP CONSTRUCTION**

**(Please refer to diagrams at the end of this document)**

**OVERVIEW - Here is the suggested sequence of steps:**

1. Install the CHT (or EGT) gauge and measure your current operating temp range (gasoline), for comparison.
2. Build and test the controller to verify the correct pulse output.
3. Build the reaction chamber and test it with the controller (i.e pressure out).
4. Install the tank, controller, chamber, and pressure fittings.
5. Run engine and adjust the control circuit as necessary for best performance.
6. Install the stainless steel valves and get the pistons/cylinders coated with ceramic.

7. Coat the exhaust system with ceramic without the catalytic converter (or let it rust out and then replace the whole dang thang with stainless steel pipe sections).

## YOU WILL NEED

- plastic water tank with pump and level sensor.
- control circuit, wiring, connectors, and epoxy.
- reaction chamber with electrodes and fittings.
- 3/8" stainless steel flex-tubing, fittings and clamps.
- carb/FI vapor-pressure fitting kit. - pressure, CHT (or EGT), & level gauges.
- stainless steel valves.
- copper mesh junction.
- ceramic surface treatment for cylinders & pistons.
- stainless steel or ceramic treated exhaust assembly.
- BASIC TOOLS
  - drill, screwdriver and pliers
  - hole cutter
  - wire-wrap, solder-iron and clippers
- DVM and oscilloscope.

# REACTION CHAMBER

- Construct as shown in the diagrams. Use a section of 4" PVC waste pipe with a threaded screw-cap fitting on one end and a standard end-cap at the other. Make sure to drill- and epoxy or tap threads thru the PVC components for all fittings. Set and control the water level in the chamber so it will submerge the pipe electrodes, yet leave some head room to build up the hydrogen/oxygen vapor pressure.
- Use stainless steel wires inside the chamber or otherwise use a protective coating; use insulated wires outside. Ensure that the epoxy perfects the seal, or otherwise lay down a bead of water-proof silicone that can hold pressure.
- The screw fitting may require soft silicone sealant, or a gasket; its purpose is to hold pressure and allow periodic inspection of the electrodes. No leaks, no problems. Make sure you get a symmetric 1-5mm gap between the 2 stainless steel pipes. The referenced literature suggests that the closer to 1mm you get, the better. You will want to get your chamber level sensor verified before you epoxy the cap on.
- Make your solder connections at the wire/electrode junctions nice, smooth, and solid; then apply a water-proof coating, e.g. the epoxy you use for joining the pipes to the screw cap. This epoxy must be waterproof and be capable of holding metal to plastic under pressure. You will want to get your chamber level sensor verified before you epoxy the cap on.

# CONTROL CIRCUIT

The diagrams show a simple circuit to control and drive this mini-system. You are going to make a 'square-pulse' signal that 'plays' the electrodes like a tuning fork; which you can watch on an oscilloscope. The premise given by the literature is: the faster you want to go in the future; the 'fatter' you make the pulses going into the reaction chamber.

Duty cycle will vary with the throttle in the vicinity of 90%MARK 10%SPACE (OFF/ON). There is nothing sacred about how the pulse waveform is generated; there are many ways to generate pulses, and the attached diagrams show a few. The diagram shows the NE555; circuit approach from the referenced patent. The output switching transistor must be rated for 1-5 amps @ 12VDC (in saturation). Go with a plan that works for you or your friendly neighborhood technoid or mechanic, and go get all the circuit elements from your local electronics store, such as Radio-Shack or Circuits-R-Us, including the circuit board, IC sockets, and enclosure/box.

Be sure to use a circuit board with a built-in ground plane, and to accommodate room for mounting 2 or 3 of the gauges. Mounting the reaction chamber in the engine compartment will require running a stub to your pressure gauge where you can watch it.

You can easily make 30-gauge wire-wrap connections between the socket pins and thru-hole discrete components having wire leads. Also make sure to get spec sheets on any IC you use. More details of the best circuits to use will be announced pending prototype testing. You will want to get your chamber level sensor verified before you epoxy the cap on.



# Throttle Control

If you have a throttle position sensor, you should be able to access the signal from the sensor itself OR from the computer connector. This signal is input to the circuit as the primary control (i.e. throttle level = pulse width = vapor rate).

If you don't have such a signal available, you will have to rig a rotary POT (variable resistor) to the gas linkage (i.e. coupled to something at the gas pedal or throttle cable running to the carb or FI).

If you make the attachment at the carb/FI, be sure to use a POT that can handle the engine temp cycles. Don't use a cheap POT; get one rated for long life and mechanical wear; mount it securely to something sturdy and stationary that will not fall apart when you step on the gas.

## Control Range:

The full throttle RANGE (idle-max) MUST control the vapor rate, i.e. pulse width (duty). The resistor values at the throttle signal must allow the throttle signal voltage, say 1-4 Volt swing, to drive the VAPOR RATE.

You will be using this voltage swing to generate a 10% ON 'square' pulse. The patent implies using a 'resonant' pulse in the 10-250 KHz frequency range; but it is not explicitly stated so.

In this circuit, you will simply tune to whatever frequency makes the most efficient vapor conversion. You will have to get into the specs for each IC you use, to insure you connect the right pins to the right wires, to control the frequency and pulse width. You can use spare sockets to

try out different discrete component values. Just keep the ones that are spec-compatible in the circuit, and get the job done.

You crank up the throttle signal and put more electrical energy (fatter pulses) into the electrodes; verify you can get 10% duty on the scope (2 - 100 usec on the horizontal time base).

Your averaging DVM will display the 90%-10% DC voltage across the output transistor ( $V_{ce}$  or  $V_{ds}$  or Output to Ground). Set and connect DVM in the supply current and measure .5 - 5 amps, without blowing the DVM fuse.

Now verify that you got everything you wanted.

Verify your wiring connections using your DVM as a continuity detector.

Check your wiring 1 at a time and yellow line your final schematic as you go. You can best use board-mount miniature POTS for anything you want to set-and-forget. The LEDs are there to give you a quick visual check of normal vs. abnormal operation of your new creation. You will want to get your chamber level sensor verified before you epoxy the cap on.

## **CARB/FI CONNECTION**

The diagram also shows that fittings are required to the carb/FI I. There are ready-made kits (such as by Impco) available for making your pressure fittings to the carburetor or fuel-injector as the case may be. You will necessarily be sealing the built-in vents and making a 1-way air-intake.

The copper mesh comprises the inadvertent backfire' protection for the reaction chamber. Make sure that all vapor/duct junctions are airtight and holding full pressure without leakage.

Your new 'system' is considered successful and properly adjusted when you get the full power range at lower temp and minimum vapor flow without blowing the pressure safety valve.

## CHT (or EGT)

Monitor your engine temp with the CHT (cylinder head temp) or EGT (exhaust gas temp) instead of your original engine temp indicator (if any). Your existing gauge is too slow for this application and will not warn you against overheating until after you have burnt something.

Make sure that your engine runs no hotter than in the gasoline arrangement. VDO makes a CHT gauge with a platinum sensor that fits under your spark plug against the cylinder head (make sure it is really clean before you re-install your spark plug (as this is also an electrical ground)).

## ENGINE/EXHAUST TREATMENT

Get the valves replaced with stainless steel ones and get the pistons/cylinders ceramic treated ASAP when you have successfully converted and run your new creation.

Don't delay as these items will rust, either by sheer use or by neglect (i.e. letting it sit). You could make max use of your current exhaust system by using it with your new deal until it rusts through, then have

your mechanic or welder friend to fit a stainless steel exhaust pipe (no catalytic converter is required). But it could be easier and cheaper to send your existing exhaust system out for the ceramic treatment, and then simply re-attach it to the exhaust ports.

## GENERAL

1. Do not discard or remove any of the old gasoline setup components, e.g. tank, carb/FI, catalytic converter, unless necessary. Better to always leave an easy way to revert back to something that at least runs, just in case. Some people are leaving their gasoline setup completely intact, and switching back and forth at will, just to have a backup plan.
2. Set your throttle circuit so that you get minimum vapor flow at idle, and maximum vapor flow at full power without blowing the pressure relief valve. In this way, you control how 'lean' your mixture is by the strength of the pulse (i.e. "fatness" at the optimum pulse frequency).
3. If you just don't get enough power (at any throttle setting), it means that you need to (1) change the pulse frequency, (2) change the gap between the electrodes, (3) change the size (bigger) electrodes, or (4) make a higher output pulse voltage (last resort). Always use an output transistor, such as a MOSFET, that is rated for the voltage and current you need to get the job done. OK so you might have to play around with it some. Isn't that where all the Fun is anyhow?
4. If you get any engine knock or loud combustions (not compensated by adjusting the timing), it means that you need to install an additional coil in the chamber, and drive the coil with an additional pulse signal (about 19 Hz on the .1sec time base (see diagram)). Here, you will be slowing down the burn rate just enough so that the vapors burn thru

out the power stroke of the piston. Be sure to include a board-mount POT to set the correct strength of this 2nd pulse signal into the coil. This is a stainless steel coil of about 1500 turns (thin wire) that you can arrange like a donut around the center pipe (but NOT touching either electrode), directly over the circular 1-5mm gap. You want no knocking at any power/throttle setting; smooth power only, but also no excess hydrogen leftover from the combustion.

5. Build the canister(s) as tall as you can without compromising your ability to mount them conveniently near the dash panel, or in the engine compartment, as the case may be. This way, you can always make the electrodes bigger, if necessary without undue hardship. Remember that anything in the engine compartment should be mounted in a bullet-proof, vibration and temperature tolerant fashion.

6. If you have to drill a thru-hole for wiring or plumbing thru metal, make sure to also install a grommet for protection against chafing. Always watch your chamber pressure range from IDLE (15-25 psi) - FULL POWER (30-60 psi). Set your safety-pressure relief valve to 75 psi and make sure it's rated for much higher.

7. Shut OFF the power switch and pull over if there is any malfunction of the system. Your engine will last longest when it still develops FULL POWER+ at some minimum temperature that we are sure you can find, by leaning back the Royal Vapor Flow and/or by making use of the water-vapor cooling technique (see diagram). Keep good mpg performance records, and periodic maintenance/inspection. Keep it clean; save some money; clean the air; heal the planet; happy motoring; tell a friend; enjoy your freedom and self-empowerment.

8. There lacks documented material for perfecting this vapor system thru a fuel injector; there may be some details you will discover on your own as working prototypes progress. For example, you may be restricted to inject the hydrogen/oxygen vapor without any water vapor, as it may rust the injectors. If engine temp and CHT is a

problem, then you will want to re-think your plan, e.g. ceramic-coating the injectors. There is always "replacing the FI system with a Carb."

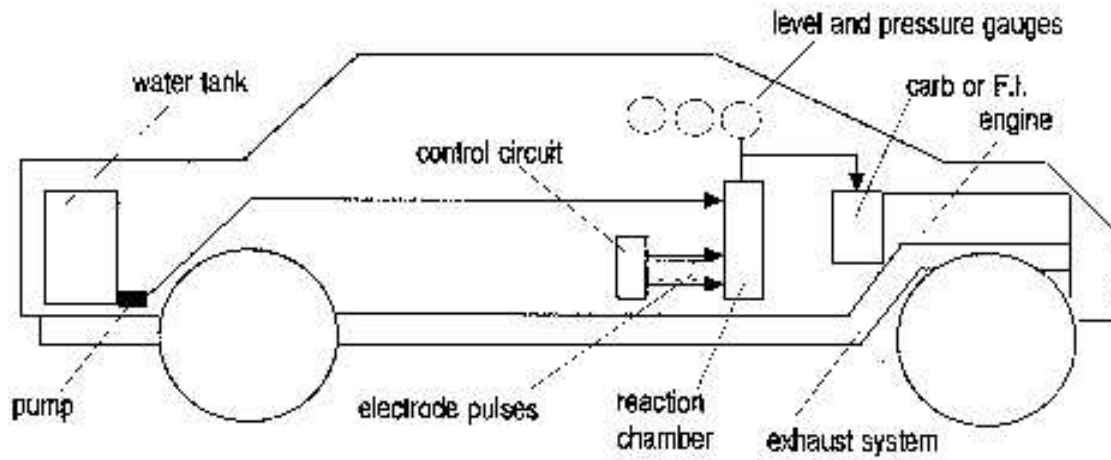
9. If you install the water-vapor system (for lower operating temp/stress), you will want to lean the mixture (vapor/air) for minimum vapor flow rate to achieve any given throttle position (idle - max). Make sure that you get a minimum flow for IDLE and a modestly sufficient flow for MAX, that does the cooling job without killing the combustion.

10. If you cannot find stainless steel pipe combinations that yield the 1-5mm gap, you can always regress back to alternating plates of +/- electrodes.

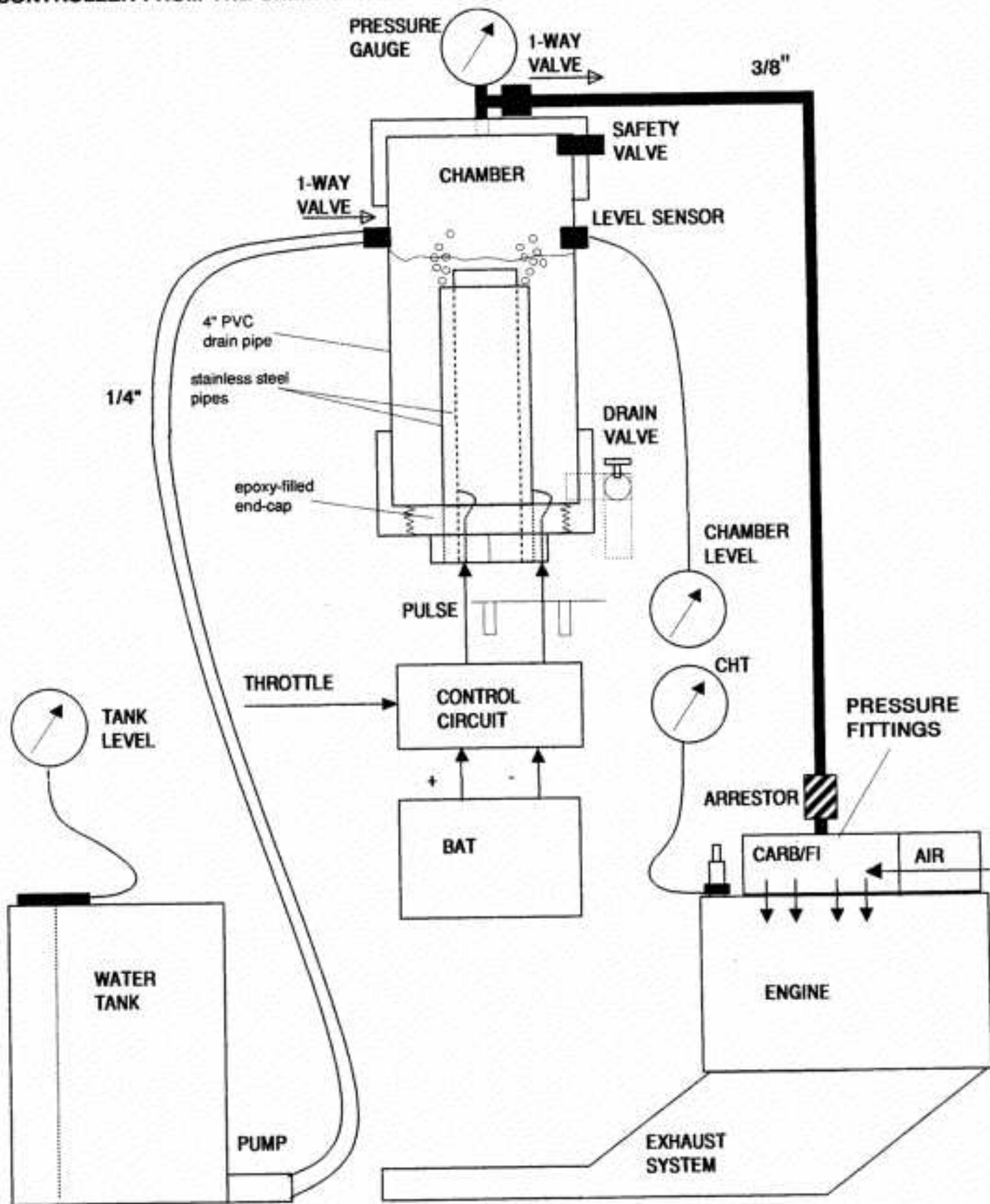
11. If you are concerned about the water freezing in your system, you can (a) add some 98% isopropyl alcohol and re-adjust the pulse frequency accordingly; or (b) install some electric heating coils.

# CONVERT YOUR ENGINE TO BURN HYDROGEN AND OXYGEN VAPOR FROM WATER..... ON DEMAND + POLLUTION-FREE

FIGURE 1



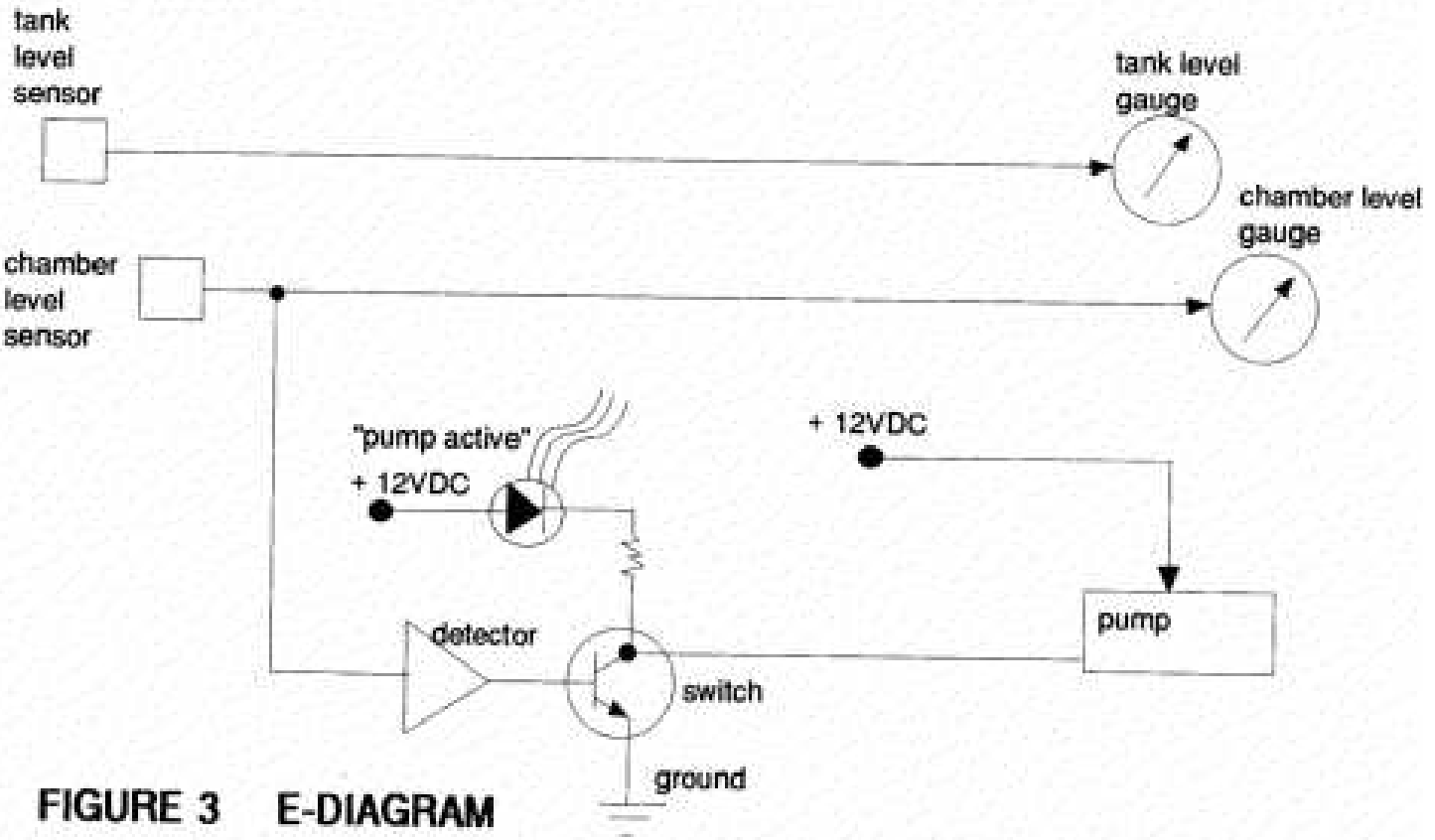
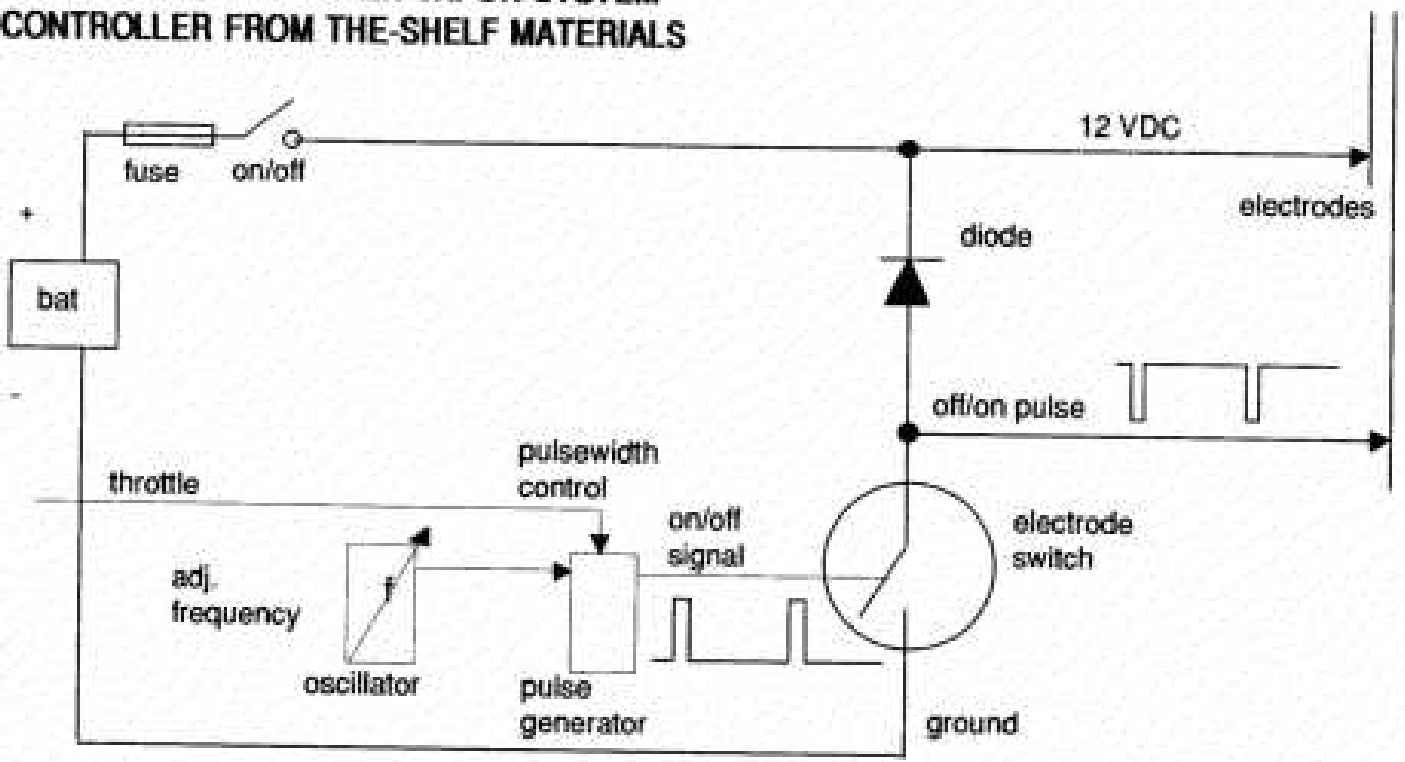
**BUILD YOUR OWN WATER VAPOR SYSTEM  
CONTROLLER FROM THE-SHELF MATERIALS**



**FIGURE 2 BLOC DIAGRAM**



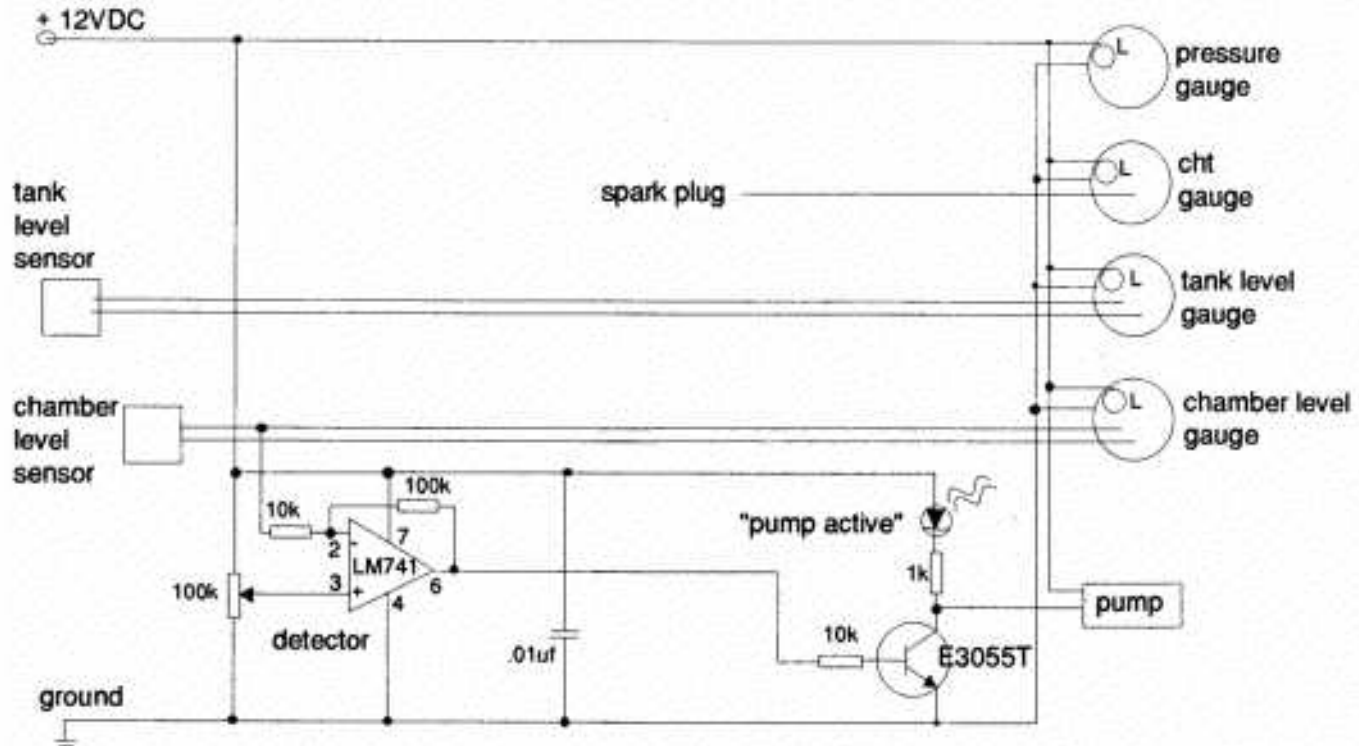
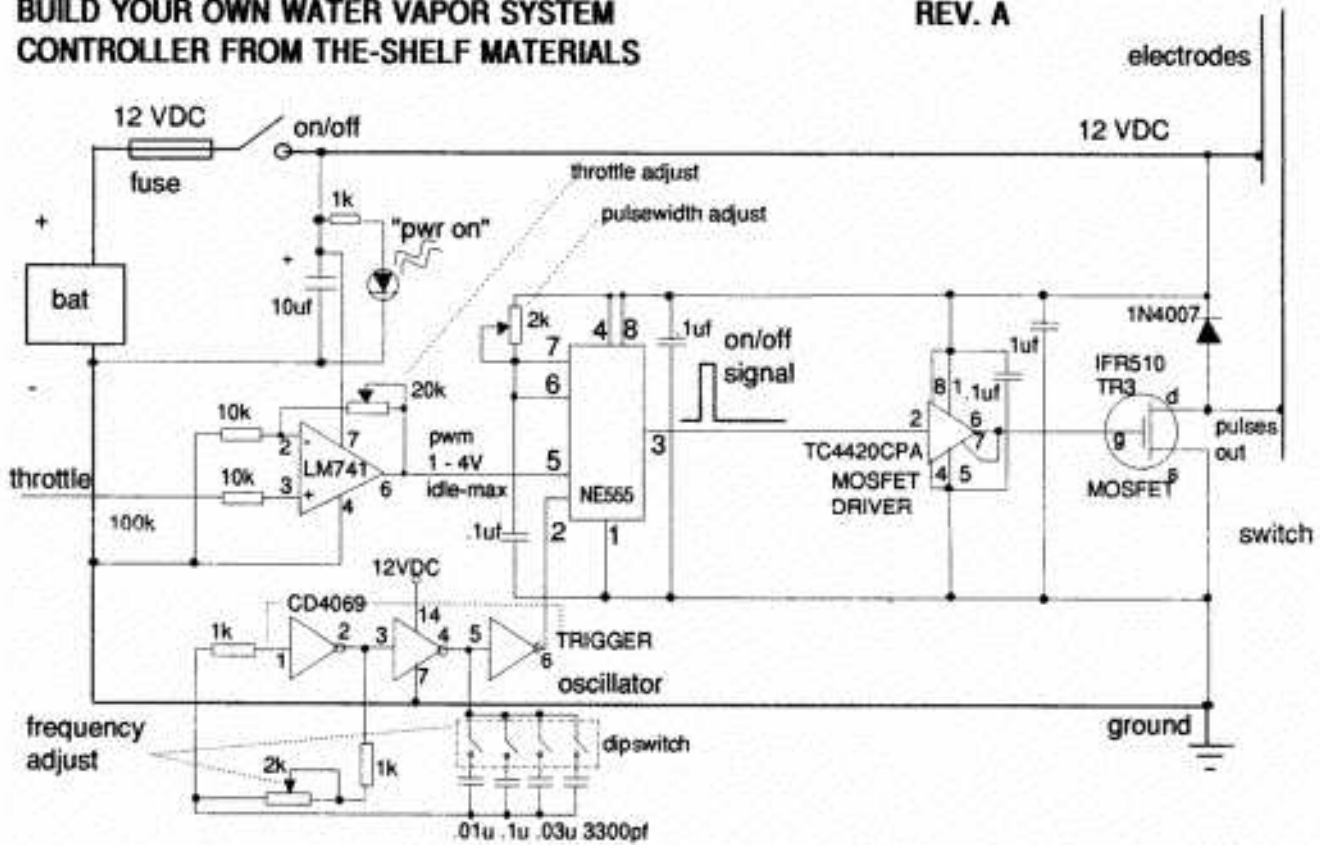
# BUILD YOUR OWN WATER VAPOR SYSTEM CONTROLLER FROM THE-SHELF MATERIALS



**FIGURE 3 E-DIAGRAM**

**BUILD YOUR OWN WATER VAPOR SYSTEM  
CONTROLLER FROM THE-SHELF MATERIALS**

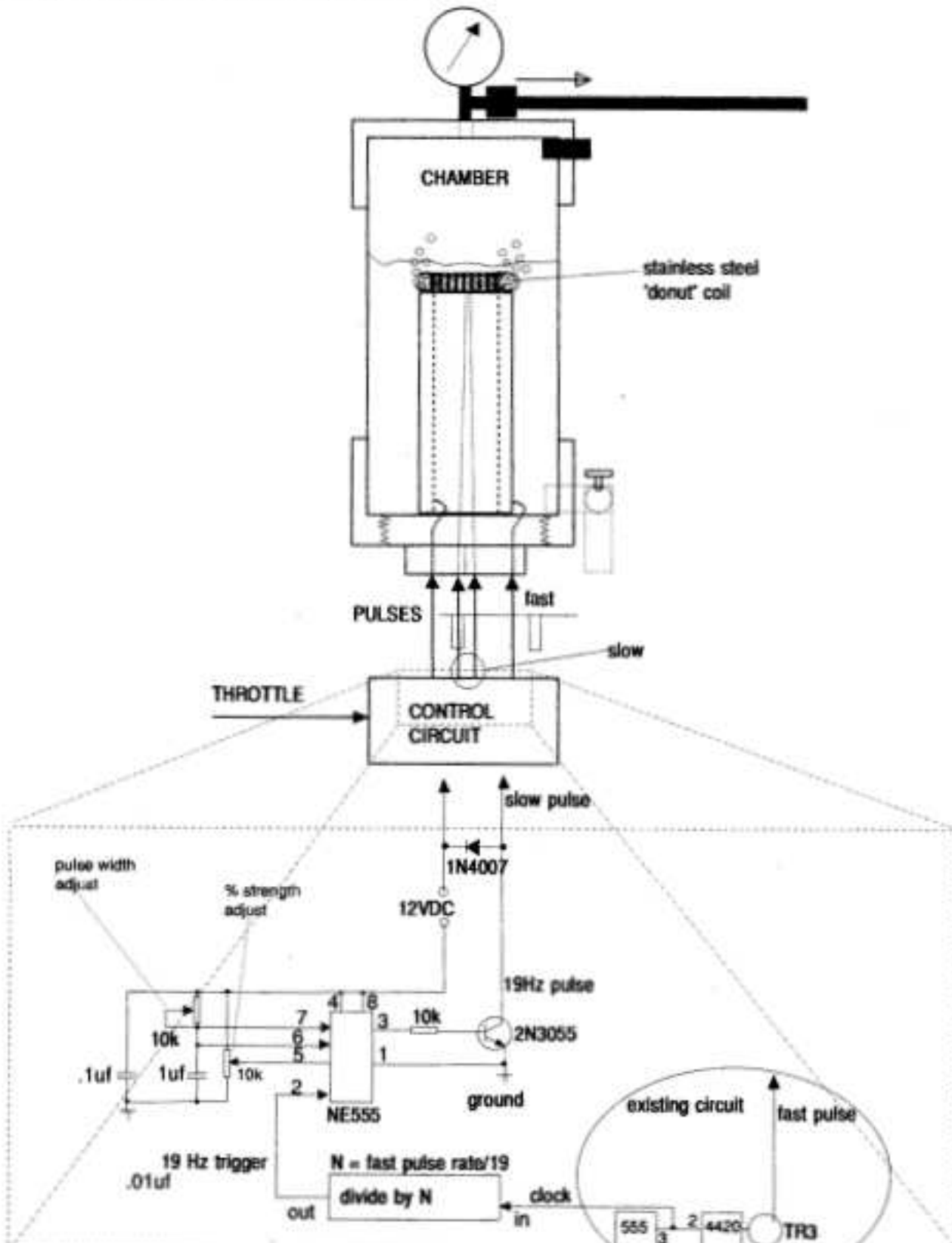
REV. A



**FIGURE 4 E-SCHEMATIC**

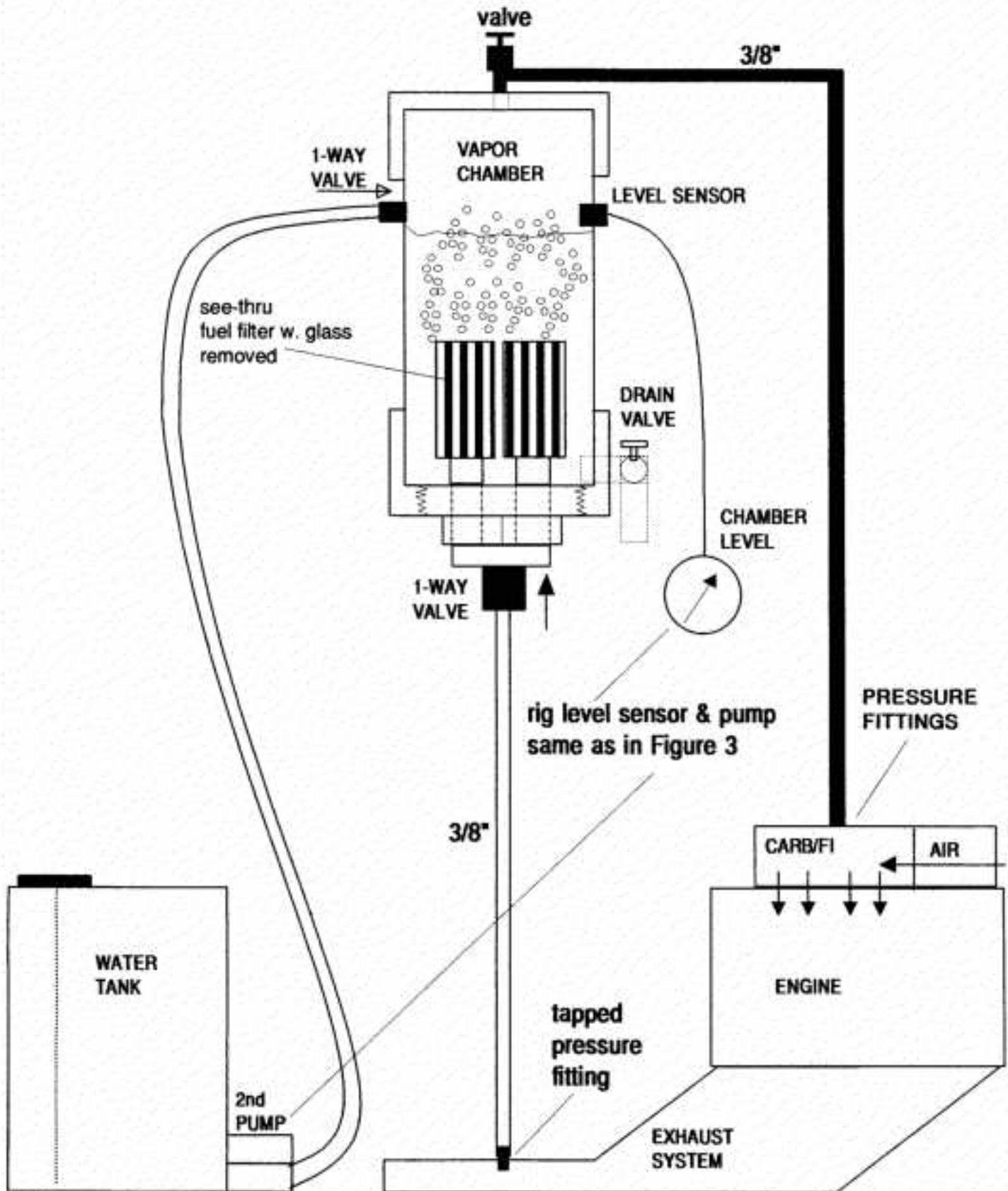
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REV. A



**FIGURE 5 OPTIONAL PRAHYDROGEN ENHANCEMENT**

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**FIGURE 6 OPTIONAL WATER COOLING**

