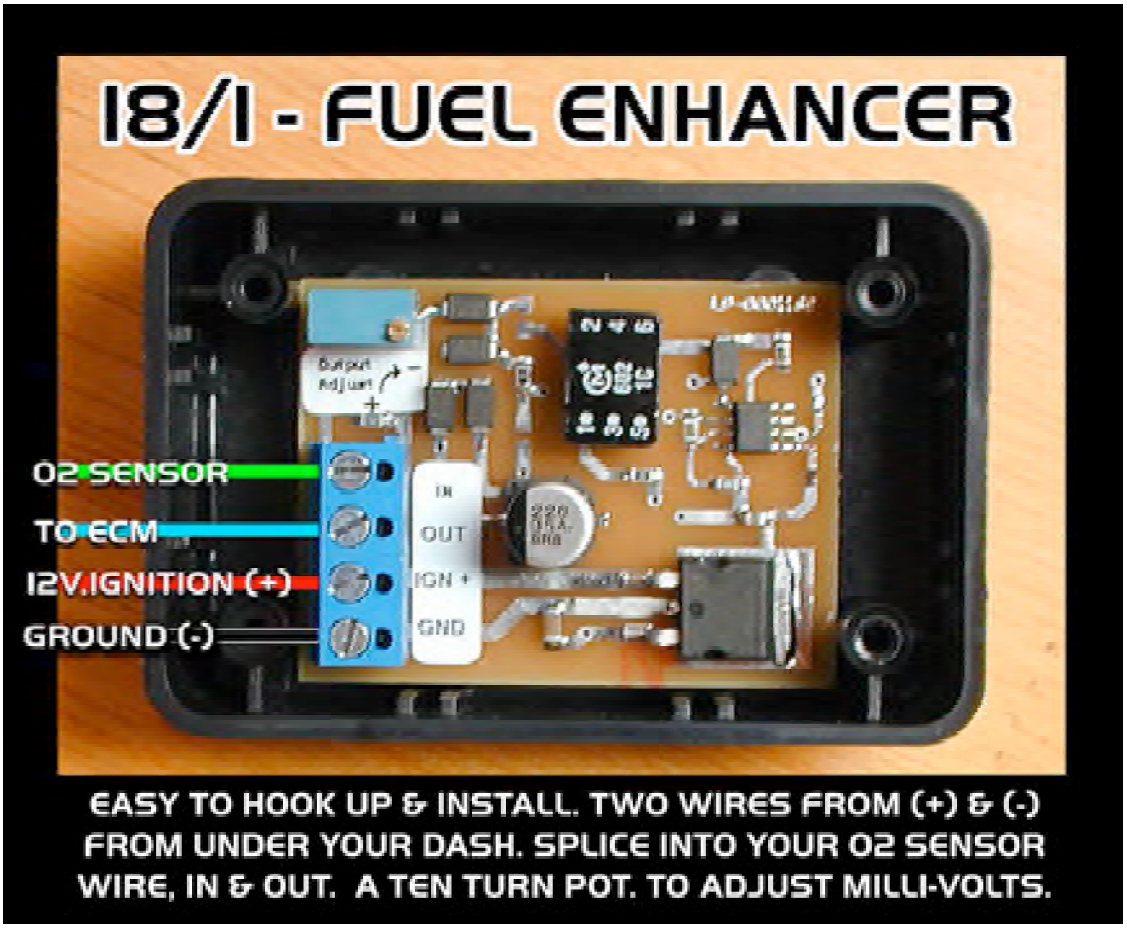



**Installing the "18/1 - O2 Fuel Enhancer"**

The **"18/1 - O2 Fuel Enhancer"** circuit that is easy to install, should take just one or 2 hours for an experienced mechanic. Longer time, for the laymen. The name 18/1 refers to the a lean mix of 18 to 1. Air to Fuel vapor ratio. Our goal - a leaner running engine with a boost from a hydrogen cell.

**"14.7 to 1"** is the ratio the car manufacturer's ratio that they like to go by, it is at that ratio when your engine is running the hottest. They designed the engines to run hot and rich so that the hydro-carbons will burn again in the catalytic converter. A very redundant system that tends to burn more gasoline than necessary. Fatting the profits rather than cleaning up the smog coming out the tailpipes.This ratio of 14.7 is a rich setting. it was designed to keep the engine from burning up by adding more gas that necessary, in a attempt to cool the engine down by dowsing it with gasoline. The air/fuel ratio goes from about 13/1, being the richest up to 18/1 being the leanest ratio.

Lean and green is our goal with this circuit. By adding a hydrogen/oxygen booster to a gas or diesel running engine, you can gain more horsepower and MPG savings and run even slightly cooler by a degree or two. NOT HOT, like most mechanics believe & are taught! A hydrogen booster works best with a lean running engine. We challenge any mechanic to prove us wrong. We also get them upset with this statement. They are passing by a big opportunity, staying ignorant & not the ego to obtain an open mind and heart.

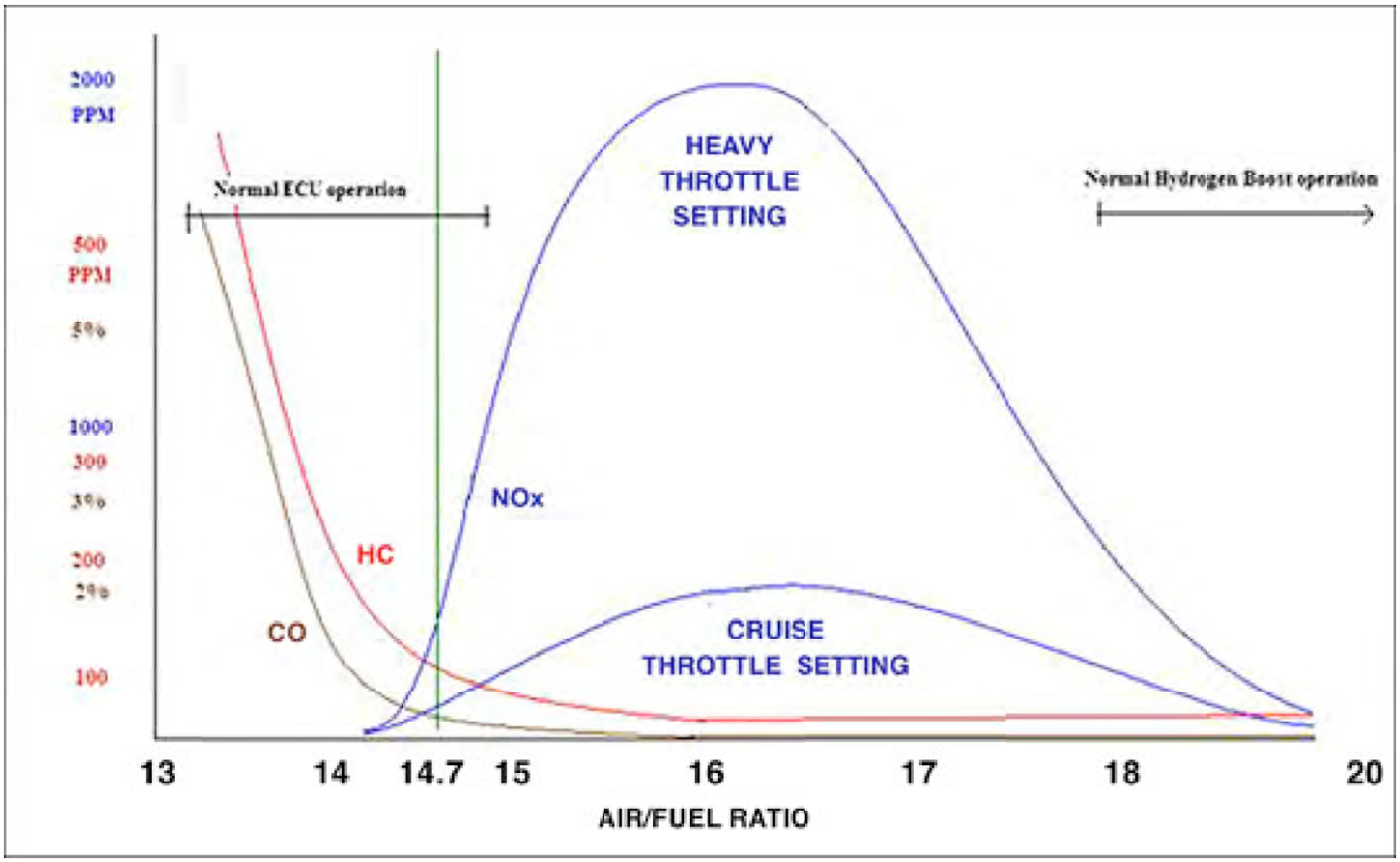
The "18/1 - O2 Fuel Enhancer" circuit is install somewhere under your dash, with easy access to the 10 turn potentiometer screw. We start by drilling 2 hole in the black plastic box provided. One in the side for the 4 wires and one hole in the lid for the access hole to the 10 turn potentiometer hole. The pcb circuit board fits snugly in the box. Cut out the " Access hole template below." Drill a 1/8" hole, then drill a 1/4" hole in the right or left side to run the 4 wires though the hole. See photo below.

We used 4 different colored 22 gauge copper stranded wire to hook up to the terminal block, 2 wires are 12 volts IN (+) & (-) and 2 wire to the oxygen sensor wire. The 2 volts IN wires can be about 24" long and the 2 wires to the O2 sensor will be about 48" long. We cut and tin (solder) the ends of the wires going into the terminal block in the box. Install the box under the dash in a place easy to access the tuner hole to the small potentiometer. A small screwdriver will be needed to intially set the voltage. Find a good ground under the dash board and a ignition (+) wire. One (+) wire that is on when you turn the ignition key and off when you turn off the car. Example a radio (+) wire or any dashboard fuse box (+) connection. You can use a 5 amp fuse on the (+) wire, but it is not necessary, the circuit only draws a light load in milli- amperage and the voltage running through the circuit is less than one volt. One way
to find a good ground source is by using one of those wire stabbers with a light bulb in the clear handle. Hook up the (+) alligator click to a (+) wire and poke around under the dash until you find an easy to access screw or nut that you could anchor a good ground to attach to your (-) goundwire.Cut wires to desired length to the box and take the 2 other wires from the O2 sensor out through an access hole
through your dash to the engine compartment, where you will run the 2 wires to your O2 sensor (pre-catalytic converter) under the hood.

You will now need to find the O2 (oxygen sensor) signal wire. We highly recommend to buy the Haynes or Clymer manual for your vehicle, they are at readily available at your local auto parts store, or online you can find them or about $15 to $20. Find the section of fuel management and fuel injection. You will learn about MAP's ( manifold air pressure) or MAF's (mass air flow) , TPS (throttle position sensor) and the location of the O2 (oxygen) sensor wires, and the color code of the wires. Some O2 sensors have one wire & up to 5 wires coming out of the O2 senor body. Or you can find the wire yourself, it will be a variable voltage (+) signal. Take a multimeter to the wires and set it for DC milli-volts you can find the wire by it's erratic signal jumping all over the place, this is the correct wire. Vehicles later than 96 have 2 oxygen sensors, you will be splicing into your first O2 sensor ( Pre the catalytic converter) post is the one after the cat. converter. Also note the car has to be warmed up before this O2 sensor wire will give off it's erratic signal. The O2 sensor works only when the engine temp. is hot ( most cars and trucks)

When you find the signal (+) wire you will need to cut and splice into it. The IN wire goes to the oxy sensor, while the OUT wire goes to your ECM. ( car's computer ) We like to solder the connections, so it will last a long time without failure. Also we tap the OUT wire to the (+) probe wire of a multimeter and we ground the (-) probe wire from the multimeter, and then Velcro the multimeter to the dash for a temporary view of the signal. We set the multimeter for DC millivolts. We want to try and set it around 350mv.s to start out. Start up the car after the install and wait till the multimeter sends out a signal. Set it around 350 mv.s and then start driving. The signal jumps all over the place so be prepared for a jumping signal. If your "check engine" light comes on you have adjusted it too low and will have to increase the volts to keep the light from going on. Most cars it has to warm up first to work. (5 minutes of driving) If a “check engine “light goes on, you will have to clear the code. You can clear the “check engine “light code “easily with a Scangauge II ( approx. 96 and newer cars only) or a Actron Code Reader. Reset the code and lower the voltage to the circuit with the a small screwdriver. OBD I cars & trucks can be reset by disconnecting the (-) battery post. Check your Haynes manual. If 350mv is too low, triggers a “check engine” light O2 sensor code, you will have to adjust to 450mv, if that works, then try 400mv. Keep trying till you get the lowest setting. Remember 250 is a lean signal, (approx. 18/1) 800mv is a RICH mix. - 13/1(mv=millivolts, set your multimeter to millivolts, under one volt)

The "18/1 - O2 Fuel Enhancer" circuit will work with most O2 sensors, even some of the newer wide band sensors. We highly suggest reading about all our products the DIY dual O2 and the EFIE. They are all located on our INSTRUCTION download page : http://hydrogengarage.com/instructions.html The EFIE instructions should be read as well to get a better understanding of these devices.




The chart above was created by Fran from Hydrogen-boost.com. I recommend reading and tests from his informative website. ( http://www.hydrogen-boost.com/newsletter.html )This chart shows the high Nox emissions, notice that the CO carbon and HC hydro-carbons and Nox ( nitrous oxide, or burnt air) are way down, just after 18/1. That is the goal of this circuit to lean your mix and introduce a nice flow of egas form your Hydrogen Cell from water. Now Fran from Hydrogen Boost goes past 18 up to 30/1, he says around 30/1 the engine finally gets hot! Most mechanics will not like this info, they say a car gets hot when it is lean.

The engine is hottest at 14.7 , it is needed to re-burn the fuel again in the catalytic converter. It effect to clean your emission one more time, and also collect platinum on the walls of the converter. More platnium comes out of a converter, when you melt it down, then it does when it was first made at the factory. That is another line, that will tweak the Smog test guy. They recycle the cat. converters and they are worth $. Google “catalytic converter recyclers” When you burn fossil fuels at 2000º the super conductive metals, come off, the platinum metals will stick to the coat of platinum on the inside of the converters.

Now back to the 18/1 circuit. Any more questions feel to call Hydrogen Garage LLC 805)995-2669 Your feed back is important to us. The more results the better, this is a new circuit and still in the testing stage. A simple circuit, that is following the senor’s milli-volt signals and changing them slightly to the ECM.