

# **Diesel HHO Applications**

**I am asked on an almost daily basis countless questions regarding installation of HHO generators, CCPWM's, Control devices, etc In regards to diesel engines. Most of the time I have to give the same answers. All diesel applications are individually different.**

**First we must look at what we are actually doing when we introduce HHO ( Browns Gas, Hydroxy ) into the vehicles system. Contrary to popular belief, we are NOT using it as a fuel, but rather as a catalyst that enables much better combustion and a more complete burn of the diesel fuel that is being supplied.**

**We know that in most engines as much as 50% or more, of the fuel being supplied to the engine is not burnt during the initial combustion process. Thus we are wasting this fuel. If we now introduce HHO into the equation, we are able to burn 90% to 98% of the fuel. This of course means that we now need less fuel being supplied to the engine, since we are burning what was previously being sent out the exhaust as waste. At this point we need to remember what is needed to improve fuel mileage. The principals are quite simple. Putting them into effect can sometimes become quite complicated.**

- 1. Supply enough HHO for your engines needs without using more amperage than 15% of your alternators rated output.**
- 2. Take what ever steps are necessary to reduce the flow of fuel to the engine**
- 3. Retard your ignition timing. The flame propagation of HHO is more than 1000 times faster than diesel fuel**

**Three basic steps, sounds simple doesn't it. Step 1 is not that difficult. It just requires a little shopping and comparing efficiency ratings of the various generators available on the**

market. Efficiency ratings are measured in MMW's. The higher the MMW rating, the greater the efficiency of the generator.

**Step 2.** Is where the real problems begin. All diesel engines are not created equal. Every different manufacturer of diesel engines is using different methods or different sensors to determine the AFR ( air fuel ratio ) for their particular engine. Some manufacturers even change this from model to model. There is no uniform standard such as the OBD II system initiated on all gasoline powered vehicles beginning in 1996. You or your favorite mechanic, must determine what is controlling the AFR on your particular engine. Then you will need to make the appropriate adjustments to reduce the fuel ( which is no longer needed ) flow, to your engine. Although it is true, that some diesel engines that are not using O<sub>2</sub> sensors ( oxygen sensors ) are capable of achieving gains in fuel mileage without modifications to any of the sensors or other devices, these gains are normally small ( 5% to 15% a few have done better).

Until such time that a uniform standard is adopted by all diesel manufacturers, no manufacturer of signal modification devices will produce a device specifically designed for improvement of fuel mileage. It would require a vehicle specific device for each and every model of diesel engine that is out there. Design and development would be too costly and require too much investment in inventory.

**Step 3.** In most cases is not advisable until you have successfully performed step 2. On some of the older diesel engines it was possible to manually adjust the ignitions timing. On modern engines this function is performed by your onboard computer, with information being supplied by various sensors.

Some of the newest model diesel engines are now using many of, if not all, of the same sensors being used in gasoline powered OBD II system vehicles. On these engines the same devices for leaning out your fuel flow on gasoline engines, will work properly to lean out the flow on your diesel engine.