

Roger Maynard's Water Vapour Injection System

Fifty years ago car engines were not nearly as powerful as they are now. In those days it was quite common for a driver to remark that his car ran smoother and more powerfully on wet days. This was not imagination as water vapour drawn into the engine along with the air, turned to steam at the moment of ignition, and expanding provided additional thrust to the pistons while lowering the running temperature slightly.

This fact was utilised in World War II when units which were effective standard bubblers used with HHO boosters were added to the vehicles. Roger Maynard has built and used these units extensively since 1978, and my thanks goes to him for providing this information and illustrations.

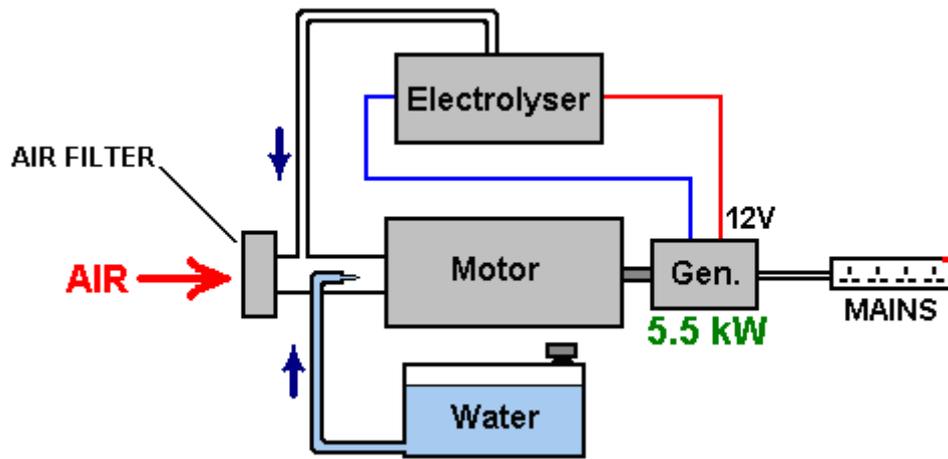


The unit is attached to the air intake of the vehicle, between the air filter and the engine. A small diameter plastic pipe is lead from there to a glass or plastic container holding water. In the above picture Roger is using a glass Mason jar with a screw-on metal lid which has a seal. Sometimes called a preserving jar, these jars are very convenient.

The air feed into the jar is by a length of the same plastic piping and terminated with a standard air-stone or "soap-stone" as used in a home aquarium, as this causes a large number of separate bubbles. It is good practice to glue the plastic fittings to the lid of the jar, but this can make the jar too airtight and if that happens it may be necessary to remove the rubber seal which is around the neck of the jar.

There are many systems which produce cheaper fuel for internal combustion engines by adding water to petrol or other fuels. The system shown here is one of the easiest ways of achieving that result without having to do anything difficult.

While it may seem strange that adding cold water droplets to the air which is being drawn into an engine, remember that this is the technique which allows the very low efficiency engine of a standard standby generator to operate, running on an HHO gas mix which was generated by it's own electrical output. The HHO gas mix is ignited by the sparkplug firing and that generates a high temperature inside the cylinder. That high temperature causes the water droplets which have a very high surface area for their weight, to turn instantly into "flash steam" which has a much higher volume, and that raises the pressure inside the cylinder to such an extent that the HHO gas mix is quite adequate to operate as the fuel source, and so the generator appears to be running with water as the only fuel:



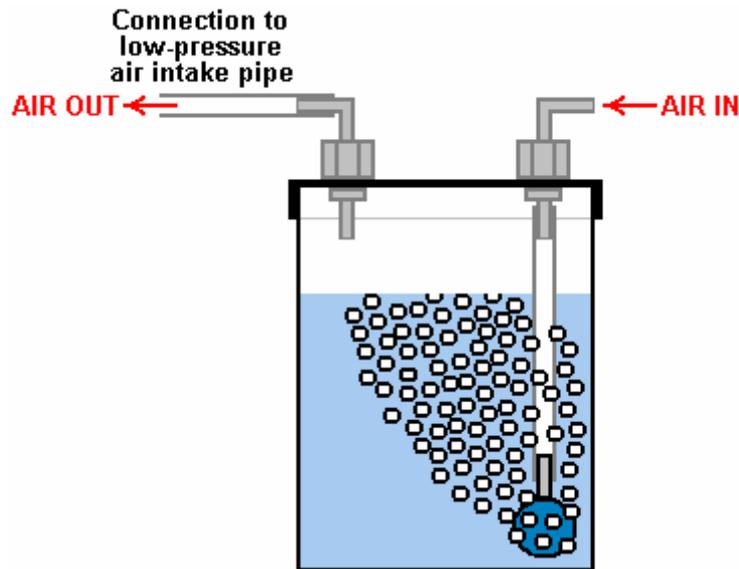
However, in this very simple system from Roger, your normal vehicle fuel is used, no HHO gas mix is needed (although, of course, you can add that in too if you choose to do so) and yet you get an energy gain from just using a jar of water.



A glass jar has the advantage of not being affected by the heat produced by the engine. This is a very simple unit and it uses ordinary water which is not exactly a hazardous substance. The effect of using it is far greater than would be imagined. On Roger's 4-cylinder KIA car, the mpg rose from 320 miles per tank full of fuel to 380 miles around town (18%) and 420 miles on the open road (31%) which is a very marked improvement. His 6-cylinder Tacoma shows an 8% increase around town and a 12% increase on the open road. The water is topped up every 1200 miles or so. Some engines are suited to the air-stone and some are not. Smaller engines may work much better if a stainless steel screw is used instead of the air-stone:



Just to clarify the operation of the device:



The container has a plastic elbow connection in the lid through which the outside air is drawn into the container. The air flows down through a plastic tube to either an air-stone from a pet shop, or a loose bolt in the end of the plastic tube. The air-stone has many small holes in it and these break the incoming air up into many streams of small bubbles.

There is a second elbow in the lid and the air, which is now very damp, is drawn out through it by the reduced pressure in the normal air intake of the engine. The lower pressure there is caused by the intake strokes of the engine and the air going to the engine now comes from two sources – the normal path through the air filter, and the new path through the bubbler. Most of the air flows through the air filter as normal, but there is now a small percentage which flows through the water, adding cold moisture to the airflow.

Some people feel that this couldn't possibly make any difference, but experience has shown that the addition of this extra stream of damp air can and usually does have a beneficial effect, improving the mpg, making the engine run a little cooler and generally improving the operation of the engine. It is a very simple low-tech device which does not cost much, so if you feel inclined, then try it out and see what effect it has on your vehicle, after all, if it does not provide a useful improvement, then you can easily remove it.

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