

[A Practical Guide to 'Free Energy' Devices](#)

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Simple Devices to Improve Vehicle Operation

Cam Timing: A deceptively simple way of improving mpg performance has been discussed recently in the watercar forums, and that is the adjustment of the cam settings on American cars made since 1971. This sounds most unlikely, but it is a proven fact. For example, a 2004 Jeep Wrangler 2.4 litre received a 10 degree advancement on both cams, and that gave a 70% improvement on the mpg, much more engine power and an exhaust which runs much cooler.

Over the years, one man experienced a 50% to 100% improvement in mpg over a range of personally owned cars and trucks, and the emissions were improved by nearly 90%. It is not suggested that everybody should make a cam adjustment, just to be aware that an adjustment of that nature can have a dramatic effect.

Another example: "Advancing the cam timing will make the engine run cooler. I have been messing with cam timing for about 25 years. I had a 1985 Ford Ranger with a 2.8 litre engine - it was a dog. The same engine used in the 1970 Mercury Capri had lots of power. The Ranger was a dog because the cam timing was set almost 10 degrees retarded. I gave it an 8 degree advance and the Ford Ranger came to life and hauled ass. Also, after-market ratio-rocker arms help a lot on late model cars. I changed the cam timing on my 1998 Chevy truck by 10 degrees. With it's 350 cubic inch engine and ratio rocker arms installed, it gained almost 90 horsepower and brought the power band lower giving more torque because the rocker makes the cam have higher lift and longer duration on the cam which makes it breath better."

Comment from a man with 25 years experience in this field: "Cam timing is when the valves open and close in relation to the crank shaft and piston movement. The number 1 piston is set at true Top Dead Centre. At this point the degree wheel is set to the front of the engine against the front pulley at the zero degrees mark and you install a pointer mounted to the engine block pointing at the zero mark on the wheel. When the crank is turned to about the 108 to 112 degree mark, the intake valve is fully opened. That is where most engines are set nowadays. This what I call retarded cam timing. The engine seems to run well but doesn't really to seem to have much low and mid-range pulling power. When racing, you would retard a cam for high RPMs, they also could breath and had no restriction in the exhaust. The power may come in at, lets say, 3000 - 6500 RPM and advancing a cam for more torque and power, that same cam may produce power at 1000- 4000 RPM and after all, who drives over 4000 rpm on the road?"

Another comment: "Our jeep has twin overhead cams. Advancing them does not make them stay open longer, they just open and close sooner. My reason for advancing both cams was, if I only advance the intake cam, the intake would open earlier causing more overlap if the exhaust wasn't advanced. Normally the intake valve closes after Bottom Dead Centre. Just by looking at the piston, sometimes it's almost one quarter of the way up on the compressing stroke before the intake closes. By advancing the cams, the intake closes closer to BDC. This produces higher compression. Years ago, when I did this to some of the V8s, I would switch to adjustable rocker arms and a solid lifter cam. I was able to adjust the overlap by backing off on the rockers. On an engine with one cam, advancing the cam will adjust both the intake and the exhaust. Rule of thumb is: lets say most engines are retarded by 4 degrees or more, you really don't want to advance the cams more than 4 degrees advanced. I sometimes push this as far as 6 degrees advanced for improved mpg. That is a total difference of 10 degrees from 4 degrees retarded to 6 degrees advanced. This works well with low compression engines. I also don't see a need to go to a higher compression ratio. Think about it: if you had a compression ratio of 12 to 1 and the intake closes a quarter of the way up the compression stroke, how much is compression will there be, compared to a 8 to 1 compression ratio where the full stroke compresses the mixture? If you had a engine that made it easy to get to the cam or cams by just removing a dust cover, like on our Jeep 4-cylinder, I would say to install adjustable timing gears. Then you could just remove the cover and play with the cam timing until you came up with the best power and mileage

The FireStorm Spark Plug:

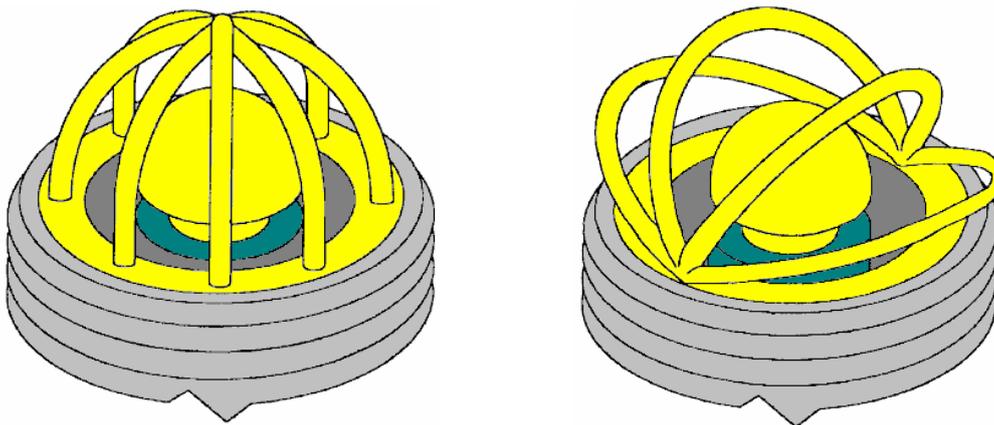
The "FireStorm" plug was developed by Robert Krupa and it is an innocuous looking spark plug which can be used to replace a standard spark plug in an ordinary production engine:



However, this plug is far from ordinary. The central electrode has been changed from a cylindrical post to a hemispherical dome, surrounded by four arched electrodes, each of which being positioned at a constant distance from the hemisphere. This allows a much greater spark area and results in very much improved performance.

The fuel/air mixture can be made leaner without any harmful side effects. If this is done using standard plugs, then the engine will run at a much higher temperature which can damage the engine. But when using FireStorm plugs, a leaner fuel/air mix actually results in the engine running at a lower temperature. Robert has measured this effect and found that under identical running conditions, the engine exhaust was 100⁰F cooler when using FireStorm plugs. A mixture ratio of 24:1 is used rather than the current 14.7:1 mix and polluting emissions are very much reduced by the use of this plug design. Mixtures of up to 40:1 can be used with this plug.

Robert has been awarded two patents for this plug design: US 5,936,332 on 10th August 1999 and US 6,060,822 on 9th May 2000. These show variations of the basic dual arch electrodes, two of which are shown here:



It is hoped that these plugs will go into production early in 2008. Robert gave Bosch of Germany a set of FireStorm plugs to test. After ten weeks of testing, their response was "This is unbelievable. We have never seen anything like this in all the time we have been building sparkplugs". When standard spark plugs fire for a long time, the spark gap increases and the spark is weakened. Bosch ran an eight-week endurance test on the FireStorm plugs and found that there was zero gap growth. They concluded that FireStorm plugs would never wear out.

Robert's first FireStorm plug was made in 1996 and he has encountered strong opposition to their introduction and manufacture ever since. This plug will not be popular with the oil companies as less fuel is burnt. This is probably a fallacy because, human nature being what it is, people are likely to keep spending the same amount on fuel and just drive more. for the same reason, the plug will not be popular with governments who tax fuel. The companies who make spark plugs will not like it as it does not wear out like standard plugs do. It uses less fuel and cuts harmful emissions dramatically, so it will be popular with motorists and environmentalists, if Robert can get it into production.

Water Vapour Injector 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 hydroxy

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.



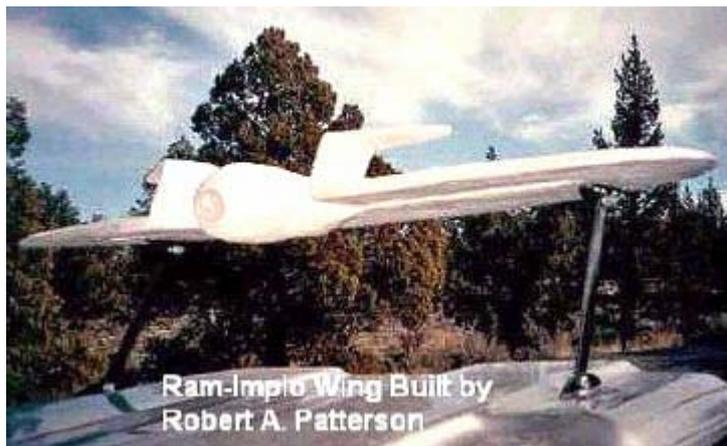
A glass jar has the advantage of not being affected by the heat produced by the engine. This is a very simple unit and it uses ordinary water which is not exactly a hazardous substance. The effect of using it is far greater than would be imagined. On Roger's 4-cylinder KIA car, the mpg rose from 320 miles per tankfull of fuel to 380 miles around town (18%) and 420 miles on the open road (31%) which is a very marked improvement. On 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.

However, 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:



Ram Implosion Wing: The next device may not be a “free-energy” device as such, but if not, it is very close to being such. It is a structure, which when mounted on top of a motor vehicle, improves the airflow to such an extent that the fuel consumption is said to be reduced by a major factor. The device was invented by Robert Patterson and is said to create a vortex which not only decreases wind resistance but may also create a forward propulsion force.



It is claimed that the effect created by one of these wings reduces the amount of dust stirred up when driving along a dirt road and if there is a paper bag sitting in the middle of the road, it is left unmoved when the vehicle passes over it at high speed. About a dozen people are testing this device at the present time. The biggest effect is at speeds of 60 mph or more. One researcher states that he installed the wing on the roof of his Lincoln Town car using a roof rack which allowed the wing to hang over the rear window by some six inches. He claims that his fuel consumption has improved from 17 mpg to 56 mpg.

Positioning of the wing, texturing of the wing surface, and the speed of the vehicle appear to be important factors in gaining an improvement. There is a research group and the website is in the ‘websites’ file and is at : http://www.pureenergysystems.com/news/2005/03/08/6900067_RamWingUpdate/

Fuelsavers: A similar system is on offer from the website <http://www.fuelsavers.com.au/> where they offer small aluminium fins which mount on top of the trailing edge of the bodywork of a vehicle. The devices are reckoned to save some 10% to 12% on fuel consumption, they can be home-made, nine per vehicle is the recommended number. The device and mounting look like this:



A "Fuelsaver"



The mounting method

Wyoming Instruments. Since 1991, Wyoming Instruments have been marketing a device called the "Fuel Atomizer 2000" which is claimed to improve fuel consumption, reduce emissions, improve performance and reduce engine wear. They are so confident of their product that they offer a 60-day money back guarantee should any customer not be satisfied with the performance of the device. They quote improved mileage for six vehicles, ranging from 34% extra on a 1993 4-litre Nissan to 140% on a 7.5 litre Ford pickup.

It is stated that one vehicle with 100,000 miles on the clock, failed its emissions test. Four weeks after fitting the device, the test showed lower emissions than would be expected on a new engine. The device can be switched from vehicle to vehicle and works on engines with carburettors and on injection engines. However, it does not work with diesel engines.

It does not produce a leaner burn but instead provides a better atomisation of the fuel entering the engine. It is easy to fit, has no moving parts and only one adjustment. The device turns the liquid fuel into vapour which is then fed into the intake manifold. The liquid fuel flow is decreased to compensate for the vapour added. It would be reasonable to expect a minimum of 20% improvement in fuel consumption when using one of these devices. The price in winter 2005 is quoted as US \$75 on their website but their Sales division states that the price is \$150 and that there is no UK distributor. Their web address is:

www.wyominginstruments.com/gas_home.htm

The device looks like this:

