



Ignition – The 'Wasted' Spark Principle

What is the wasted spark principle?

Up until the early 1960's multi cylinder motorcycles, (and cars up until the early 1990's) commonly relied upon an ignition distributor to direct the generated spark to the cylinder which was going to commence the combustion stroke of the engine cycle.



Later and other machines used two or more sets of contact breakers (points) to trigger two or more sets of ignitions coils.

However it was found that twin cylinder engines with 360 degree alternate firing intervals could be made to send a spark to both cylinders on each revolution with no detrimental consequences.

As one cylinder was on the start of the combustion stroke the other cylinder is on the end of the exhaust stroke and the spark in this cylinder is therefore '**wasted**' and has little or no effect.

Many multi cylinder engines other than some 'V' and triple configurations can be considered as multiples of 360 degree twins.

How does this help my classic motorcycle?

- 1/. Distributor caps and rotor arms wear out and some are now becoming very expensive or simply unavailable, however by employing the wasted spark principle you can by-pass these components and save yourself the frustration and expense of maintaining them.
- 2/. It is also possible to convert an engine that runs on two sets of contact breakers to run on just one with the aid of an electronic ignition module.
- 3/. Many owners of machines converted to the wasted spark system have reported better throttle response especially with roll-on\roll-off conditions such as coming down and then up a hill or gradient and slowing to pull out of a clear junction.

Rooster Booster



What do I need to convert my classic motorcycle?



The first thing you will need is a dual or twin output ignition coil. These are available new or can be found in most motorcycle breakers salvaged from twin and four cylinder Japanese machines.

You will need to ensure that the ignition coil is of the correct voltage for your machine as most Japanese machines are 12 volt, however earlier Honda CM200\400 and CD200\400 models were 6 volt.

This new ignition coil will have two HT lead connections which should be connected to your spark plugs. The original HT leads can either be removed or tucked up under your fuel tank so that the machine retains its 'original' look.



You should disconnect your original ignition coil and connect the two smaller wires (CB & SW) to the new unit.

Next you need to open your distributor and remove the rotor arm. The distributor cap and original HT leads (if you left them on) are now for 'show' and weather protection only. In some cases it is possible to buy new distributor caps without any HT lead connections.

That's it, your now converted!