Tuning Basics

Tuning is all about getting fuel timing and fuel amount, spark quality and spark timing correct under all conditions. Understanding how the ECU works with these values is important to adjust them correctly. The Spitronics ECU's are designed to be easy and user friendly and will do many calculations in the back ground to simplify tuning.

A Dyno is always the best way to tune with and then do fine tune other settings on the road. In some cases, a Dyno Map from a similar engine could be used and tweaked on the road to near perfection. No two engines are exactly the same and will always need some refining. Main differences come in to play with fuel pressure from a mechanical regulator and then Injector sizes etc. The help of a Lambda in loop control usually sorts this out while driving.

For racing engines with different fuels and boost pressures it is always recommended to tune with a professional tuner on a Dyno. A good rule is, always if you hear detonation or see lean mixtures, back off the throttle and adjust the maps. The GP output could be set on lambda with a bright light to warn when mixtures are lean. For a Turbo or racing engine it is recommended to make use of one of our agents who has a Dyno and can tune your engine properly.

Instruments used for tuning is a timing light and wide band lambda instrument with display. If you have set knock ears this will also be very helpful. If you are just tweaking an existing map on the road you may use the lambda wired into the ECU. If you do not have a lambda sensor on the engine you need to put a temporary lambda tuning instrument in the exhaust.

Adjustable timing lights can be confusing due to the wasted spark firing of the ECU. It usually shows double the actual timing. On wasted spark rotary coils it shows 4 times the actual value. Rather mark the degrees on the engine pulley and put the timing light on zero. They are not always accurate especially the cheaper timing lights.

See the individual folders for detailed explanation of the different tuning sections. Before tuning make sure you set the ECU in the modes explained in ***Settings before Tuning***.