



## Tuning Hints

The Easi-tune led colours are intended as a guide, to enable you to run your engine at what you determine is the optimum mixtures, with repeatability, to ensure your testing is valid, and not just that you ran slightly different mixtures that test session.

As a general guide, air cooled engines need to be run at a much richer setting, than what is possible with a water cooled.

In situations like speedway, even richer settings are necessary, due to the constant load on the engine with no "back off".

The "perfect" mixture is when the richest red and the "lean" green are on at the same time. HOWEVER, if you ran an aircooled two stroke at this mixture setting, it would rapidly get hot and seize, whereas four stroke water cooled could potentially run quite happily.

For asphalt Kart motors, an aircooled needs to run much richer all the time to achieve sustainable lap times, without "going off" or seizing.

### A typical ideal scenario for an acceleration run would be:

- back off/brake,
- lights will go red,
- accelerate,
- lights flash amber,
- lights go to "rich green"
- as revs go thru power peak, turns to "lean green"
- flashes between rich red and rich green for a short period
- Ending back in the rich green for the last portion of the straight, and preferably just going into amber as you brake for the corner.



This gives you, all things being equal, and a sustainable lap time. If used in conjunction with a head temp/tacho, and a lap time, you can work out where you have to run the mixtures, for your best lap times.



A water cooled engine can be run potentially leaner, on a constant basis, but a good idea if you want to push the envelope, would be to wait till you are due for a top end rebuild, and do it then.

Generally, if you are a little lean, the head temp starts to climb, and the engine goes off, losing bottom end as the first symptom.



WHEN YOU HAVE A PROBLEM, both engine and chassis, it often becomes apparent during the acceleration period, showing up as a "lean out" or a very rich area.

A chassis binding up will cause lean out as you exit the turn, as the extra load on the engine, causes the engine to need more fuel, which the carbie can't supply on its present settings.

Car carbies have a power valve fuel supply circuit, to cope with extra load situations, but the concentric two stroke carbie relies on the back off time to load up the

crankcases with excess fuel, which is why the lights flash amber on initial acceleration, if the carbie is right.

When a situation arises, due to the track nature, or a chassis problem, and the engine is observed with a low speed lean out, choking, or more roll time, or not closing off the throttle fully, can help alleviate the problem.

Midrange lean out is a big problem, in Karting, as the carbie is asked to meter fuel over a wide rev range, and as your midrange is the power peak area, and the area of most fuel requirement, it is sometimes impossible to "get it right" all the time.

When you have problems, tell your engine builder ALL the info, including the problem areas, what the lights are doing at all points thru the rev range, so he can determine what to do.