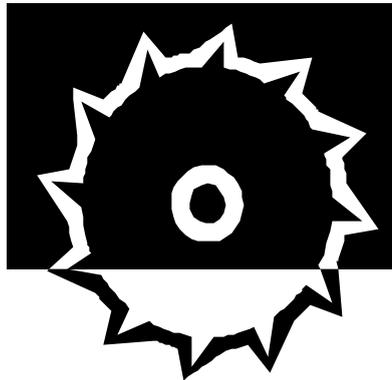


DYNO QUARTERLY

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Horse power? What's all the fuss about

Is it just me or does everyone run into this type of person at some stage. "Na, it must be me". The person I am referring to will be bragging about how much horse power his big fat arse mothership has got, and as he's saying this to you, you hold out your arm to stop him from tripping over his shoe lace's, which of course he doesn't notice and just carries on bragging about how much it all cost, all the while sounding like he should have been working as one of Mick Doohan's mechanics, sorry "technicians". Then after you've wiped all the bullshit off his chin you're left scratching your head in wonder because your stock standard Hirepoofta just blew him into the weeds, and now you think he's just a W..ker. Does this scenario sound familiar? But there's more so don't be too judgmental yet.



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Inside this issue:

Horse power, how important is it?

WR 400.
Cam timing

Pointers and
Tech tips

Free Dyno Day
and Exhaust Sale

Yamaha WR400, fine tuning the mark everyone's trying to beat

On the tip of everyone's tongue when they buy a WR400 is Quote "what do you think about the cam timing?" unquote. As with so many hot up tips and performance mods it is often like reading the gossip column of this week's Woman's Weekly with little or no hard facts to back anything up except for the bloke around the corner who said bla bla bla. One day I'd like to meet this guy, man does he have a lot to answer for. Well as it turns out for once he is right, cam timing on this bike is worth looking at if you want that

little bit extra power but don't want an unreliable bike. As many will be aware there are two versions of this model, one designed for Enduro and one for Motocross. Among other things they have quite different cam timing settings. In light of all the gossip we decided to investigate and see if there was any substance to it all.

As Steve had recently bought an Enduro model at the 1st service we checked the cam timing and reset it to the spec's given to us from Yamaha Australia which the motocross bikes run. Having already run the bike

on the dyno as it comes we have a reliable base with which to substantiate all these claims. The final result was I must say a little surprising but very positive. As the graph on page 3 indicates there is an improvement in power throughout the entire rev range, and the other good thing is that not re jetting was necessary either.

The next issue was the exhaust note. The muffler does hold back a couple of ponies too so we later found out. Don't be fooled into thinking any old muffler

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Well let me help to explain this phenomenon. There are a lot of explanations that can explain this puzzle but for now I'll just cover the motorcycle aspect of it.

Explanation no.1.

As any long term enthusiast knows a fireproof ta is a lot lighter than a Fat Arse Mothership, meaning that if your bike weighs 20 kg less than his, then he's going to need a lot more hp (horse power) just to keep up. But stop right here, he may also weigh 10 kg more than you so now we're talking 30 kg difference and your leaving him behind to wipe up his own shit. On average every kg shaved is worth about one hp at maximum rpm. More importantly on an acceleration run, eg wide open throttle in a high gear, from low rev's to redline the power to weight ratio will in most cases determine the result not the maximum power output. This is why any race team half serious will spend a lot of time removing excess weight and secondly it's cheaper than the bill he'll get from his engine man.

Explanation no.2.

Mr. Fat arse Mothership may be geared for highway cruising, while your Hire-oofta is geared down for maximum torque and acceleration. Are you getting the picture yet? It's quite common when comparing 2 different manufacturer's bikes with different power outputs that the lesser of the 2 is actually quicker on the road due to different internal and external gear ratios. Even the boys at AMCN are sometimes tricked into thinking that the bike which is quicker on the road must have more hp on the dyno. Not necessarily, seat of the pants can be very misleading. If you have a power to weight advantage and gearing more suited to torque and acceleration then you have to be in front both in speed and hip pocket.

Explanation no 3.

This one is, for us the most common because it can be measured and compared

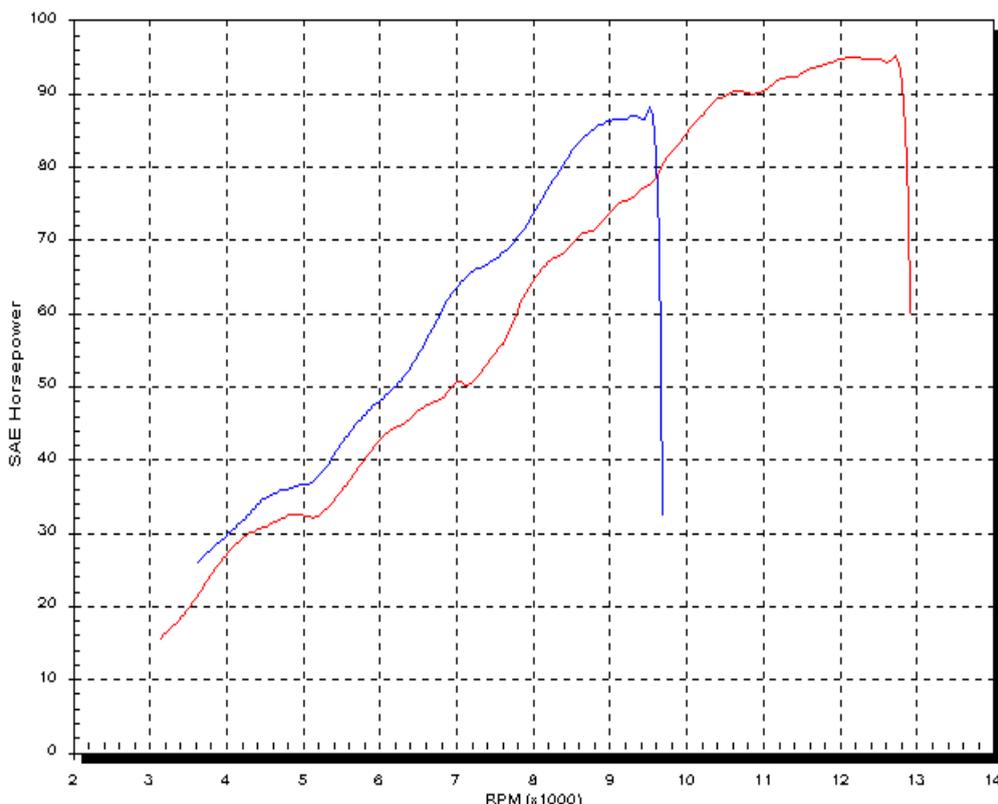
with any number of other dyno runs already on our database.

Mr. Fat Arse Mothership is most likely not bull shitting about how much hp he is making. The biggest mistake that everyone makes and I mean "everyone", is to look at the peak hp figure and nothing else, the bigger the number the better it must be right?

WRONG. Frankly it's about time everyone woke up to what's going on and started looking at the real picture. I find myself saying this a lot but for your sake

A big fat midrange is more important and useful than peak hp

A big fat midrange is more important and useful than peak hp. That's what you feel on the road, it's what makes the front wheel come up, it's what accelerates you faster than before, it's what shreds tyres, it's what makes a bike easy to ride fast and still be in control and **Win World Championships.** Dynojet kits work because they increase midrange power not top end power, sometimes by as much as 15 hp and that's what you feel and see on the



I'll say it again.

Why do you think that Ducati have owned the Superbike Crown for so long, and why is their package so successful that the Big H has adopted a similar formula?

I see magazine articles where the same mistake is made, bikes that produce over 160 hp but are left with less midrange than a stock bike off the showroom floor and produce all their hp within a thousand rpm. Some may say but that's a race bike, I say anyone racing that bike limited to a useful power range of one thousand rpm is going to be hosed by everyone or crash trying to keep it on the

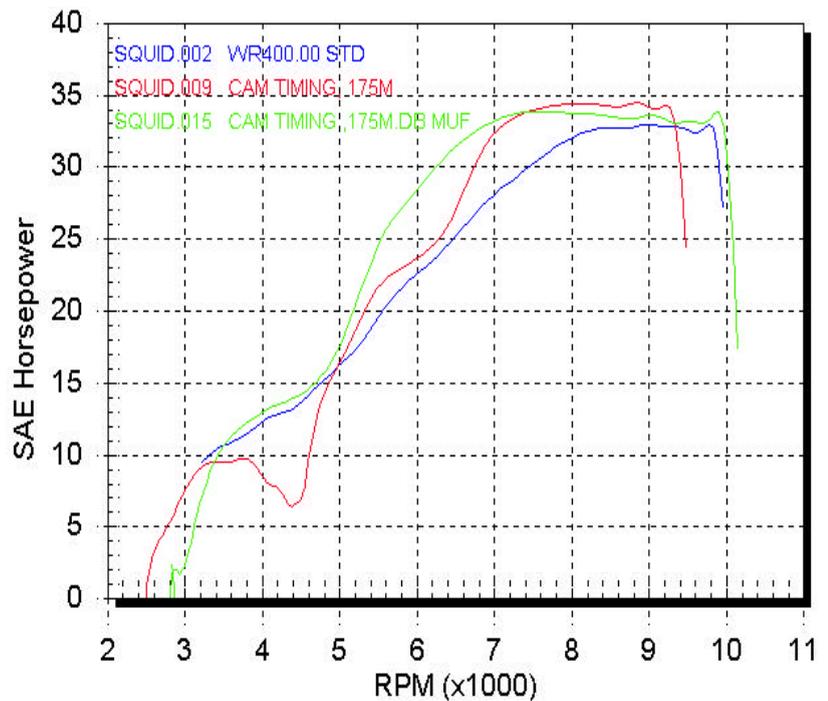
road. Anyone who can feel another 10 hp at peak revs really is full of it, even most pro's won't feel that because their already accelerating so fast anyway. Take a close look at the above graph, and read the hp difference at each 1000 hp increment all the way through the rev range and you'll see quite clearly what I mean.

In summing up, 30 kg weight advantage gearing suited to acceleration and more midrange power means Mr. Fat Arse Mothership can have as much top end hp as he likes but in the real world he won't even have enough time to read your no

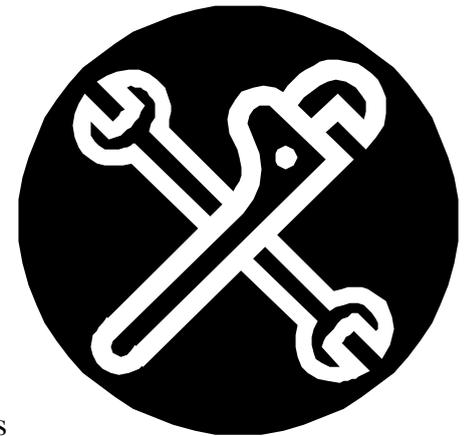
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will do, many will go backwards. Provided you replace it with a good aftermarket slip-on then you will help to improve the whole package. It makes a lot more noise than the standard unit but still quiet enough not to be annoying, and stylish in it's titanium oval design. As the graph beside shows the improvements compliment each other and can be implemented in one day at an economical price of \$595.00 without any reduction in reliability or the need for major engine work. If you want to get the coming timing spot on for an extra \$325.00 (includes fitting and degreeing) you can go all out and fit adjustable cam sprockets which will guarantee you get every last drop of horsepower. Keep watching this space because if Steve is a really good boy and lets me knock off early once in a while we may investigate piston kits and some head work.

Dynojet Research Inc.



Spanner in the works



Tech tips

How long is it since you changed your brake fluid? Over time brake fluid absorbs moisture and so becomes less effective when you use your brakes. How it works is that it lowers the boiling point so that if you are working the brakes hard enough the fluid begins to boil and your brakes start fading. Most manufacturers recommend every 2 years to change brake fluids for this reason. And as it's not expensive and is the most important working mechanism on your bike I would recommend a more regular service interval of every 12 months. Did you also know that in an emergency you can actually use water instead of brake fluid, though the boiling point is low, if you're stuck in the middle of nowhere with no brake fluid it will allow you to limp home.

While on the subject of fluids, what about your fork oil? Forks too are working mechanisms and if left without maintenance the oil goes off, loses it's viscosity rating and the front end starts feeling soft and mushy, the bushes start to wear and the seals may even start leaking. Again at your next service ask for the fork oils to be changed which may also allow you to try a different oil viscosity rating that better suits you at no extra cost. I would recommend changing fork oils at least every 20,000 km's

Metholated spirits, if your tank has water in it, is a quick way to dispel water without taking the tank apart and draining it. If your on a big trip and the servo was a bit dodgy then try putting a cup of metho in the tank. Metho breaks down the water and carries it through the fuel system to the engine where it can be burnt off. The metho also raises the octane rating so even if you don't have a problem it can only be a good thing, in small doses.