



## **Team Benwell Go Bike Racing...**

### **Part 3**

(Last of a series of articles written for Racer magazine 2002)

#### ***Intro***

For the concluding part in our series of articles on RC Bikes, Team Benwell take bike racing a bit more seriously.

We concentrated the first article on learning to ride. The second helped you understand how it all worked and encouraged you to consider racing, this month we look at what you can buy!

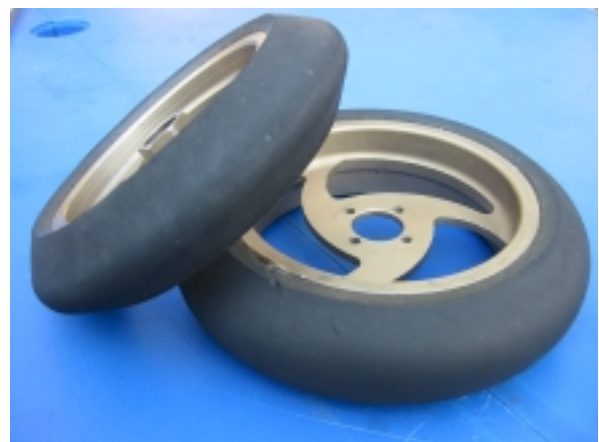
#### ***First things first***

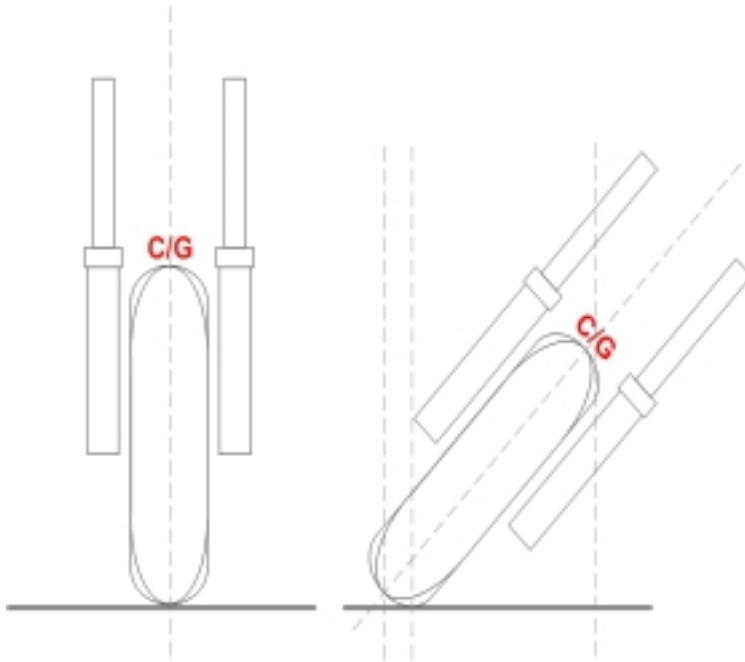
Throughout this article reference will be made to things you can spend your money on but it needs to be stated that you don't actually need any of it. Some of the things are bought to improve the strength, some make it look better and some actually can make you quicker. But it's not chalk and cheese. A good rider could still win any round of the Racer national series riding a standard bike and you can't say that about many other forms of model racing

#### ***Tyres***

Just as in any form of motor sport the single most important components on the vehicle are the tyres. You can be as quick as you like in a straight line but if it won't go round corners.....

To start with we'll talk about the tyre profile. One of the first things you'll notice when you unpack your bike for the first time is the strange shape of the front tyre.





This triangular profile serves two purposes. Firstly It makes the front tyre less stable allowing it to lean into a turn quicker and easier, and secondly in a turn it helps to keep the tyre's contact patch away from the centre of gravity, this holds it into a turn better. See Diagram. However, there is a trade off. This same shape can make the bike less stable in a straight line, less predictable going through a turn and reduces the amount of braking you can use if you have a front disc brake fitted.

## **Rubber**

You would think that you would want to use the stickiest tyres you can find but you would be partly wrong. Yes a stickier tyre will let you lean over further and thus corner faster, but that's not the whole story. If you read the first article we told you the importance of cornering under power and the fun and speed that can be gained from drifting the back tyre, into and out of corners.

Team Benwell choose their tyres based on a completely different criteria. The front tyre is nearly always picked for its profile, round or triangular. Grip is not often an issue at the front but significant gains can be made with the steering response obtained from the different tyre shapes.

The rear is based on the rubber compound (all the rear tyres are the same shape). We run a rear tyre that is just grippy enough for the track and conditions and no more. You need enough grip to make the bike ride able but you want to be able to slide the rear when required.

Options?

At the moment there are only two ranges that we have experience of.

## ***Nuova Faor.***

The factory makes two types of tyre, the kit ones and a treaded wet tyre.

The kit tyres offer sufficient grip for most occasions and are hard wearing but the rear is only really useful on high grip tracks like Brookland. Elsewhere the bike is better off with a stickier tyre. The front tyre is used as a useful tuning aid for tracks such as Drakelow, Derby where the bumps mean that a significant amount of rake is required for stability and the triangular profile of this tyre then helps to make the bike turn-in better.



The treaded wet weather tyres are a must for the wet, but are also useful in the dry. They can grain-up quite badly on some surfaces but never appear to over-heat and the grip always remains constant. On a relatively low grip track like Halifax they are a must, but they can also be useful on bumpy tracks where you are not able to slide the rear. In situations like this you may as well plant the rear of the bike to the track surface as much as possible.

## ***GRP Gandini***

Looking at them it would appear that GRP make the wet weather tyre for Nuova as their range are identical as far as we can see. However GRP sell theirs in two different compounds, quoted as having a hardness of 45 and 50 shore. Both of these come treaded with a foam insert, and a front tyre with a normal rounded profile. Everything written about the Nuova wet tyres apply here as well.

## ***Tyres in brief***

To conclude this brief summary of tyres, the kit tyres are a great starting point but everyone racing should really consider getting a set of the Nuova or GRP treaded tyres to complement them and help them get the perfect balance. Also, you never know when it is going to rain.

Build them as per the instructions (note the kit tyre doesn't use a foam insert) and make sure they are really well glued on. A thin cyno is ideal. Don't be tempted to just tack them on. The first time you have a big high-side the front will dig in and peel itself off and every time you spin up the rear it will balloon up and distort, leading to some very peculiar handling traits!

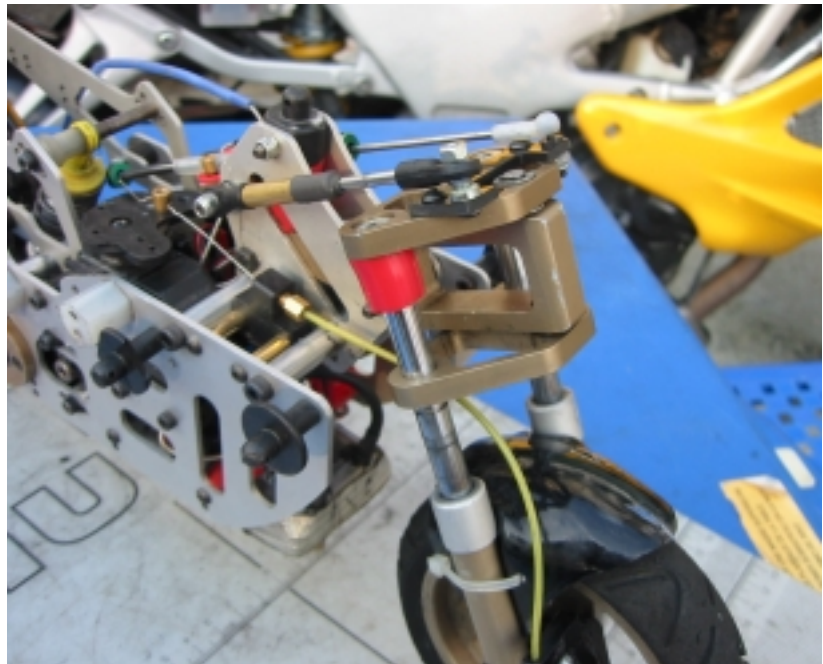
And remember at the front, generally if you need to run a lot of rake angle to keep the bike stable then the triangle profile helps, other wise you will want a conventional rounded tyre.

## ***Next on the shopping list!***

If we have one overriding complaint of the standard bikes it's the weight. They are just so over engineered, which means they're very heavy, however the next couple of things to consider don't help this.

The first time we ran a bike round a track and plucked up the courage to open it up, it wound up in a fence with a bent front fork leg. The standard bike comes with aluminium fork legs which although relatively light and perfectly good for most running are not necessarily strong enough for the rough and tumble of a racetrack.

Fortunately Nuova have a solution in their

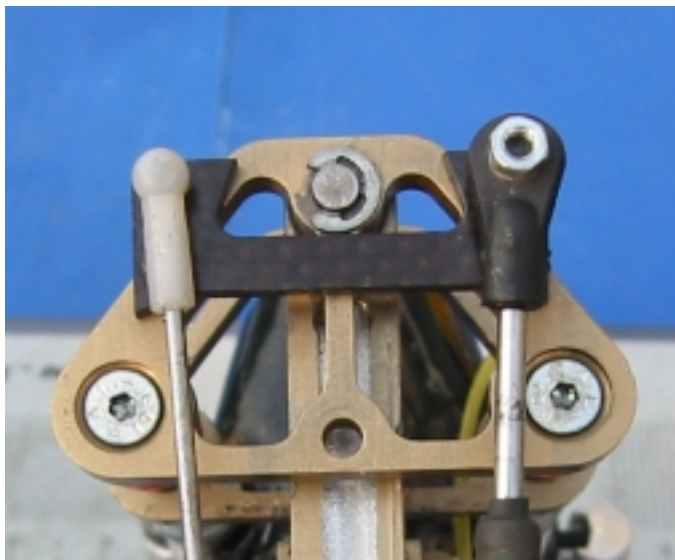


chrome plated, steel legs that you won't bend except in the most exceptional of circumstances and as a bonus they give you a fantastically smooth fork action that is both stiction free and precise.

You might also like to consider the beautifully made aluminium top and bottom yokes. These also help make the whole front end more rigid.

Making the front end more rigid helps to eliminate the cat 1 wobbles mentioned in article 2 and reduces the effect of any cat 3 ones.

### ***A bit of DIY***



Another useful addition to an older bike is a plate to provide a new mounting point for the steering rod and damper mount. This moves it in line with the headstock and provides equal steering throw on both left and right turns. Fortunately the factory have just modified the top yoke so new bikes won't need to do this and the part is a straight fit on existing bikes.

### ***Back to that front brake***

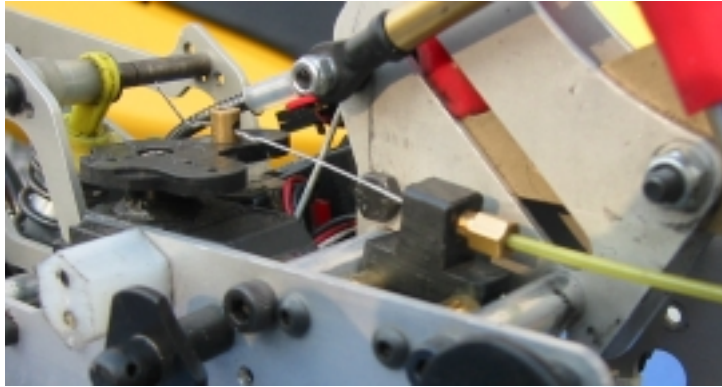
In the first article we spoke in brief about the pros and cons of a front brake kit. Now a little more detail.

When we ordered our bikes we ordered the brake kits at the same time. Then we obviously had no idea what they did and how much benefit they would be. Indeed both Graham at MM Performance and Paul Tidd at the BMMRC told us you didn't really need one. But we



ordered it any way..... Why? Because it just looks so cool.

Ok so its even more weight and you have to worry about brake balance as well as control but hey, are we doing this for fun or what?



Anyway, having run extensively all year with and without a front brake we have decided its got to stay. I would say that ultimately on most tracks the extra performance of the brake is of limited use and the additional weight out weighs any advantages it brings.

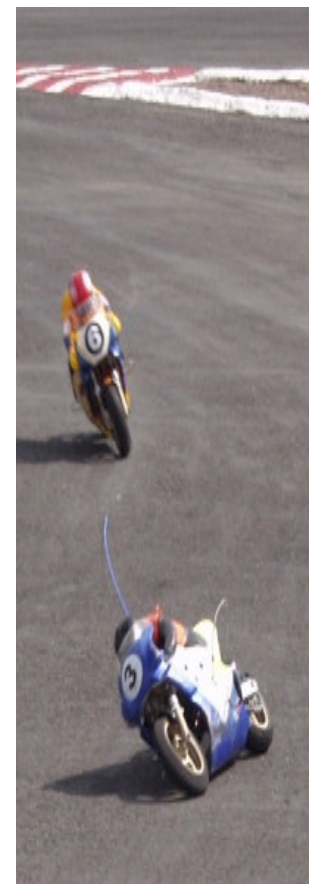
Ultimately with practice, on an empty track, you would probably be quicker without one. However.....

You'll never seem to get enough practice and when racing you will rarely be on your own and this is where a front brake scores. Having more braking than the next guy is always an easy way to overtake, and it gives you more time to avoid accidents if something happens in front of you. You also get the choice of several lines around a corner. With just a rear brake your bike spends a lot of time on corner entry as you back it into every turn. The front brake gives you an option and allows you the chance to brake harder and flicking it into the turn quicker. This reduces the corner entry time and increases the mid/exit parts of the turn.... The quick bits. Like everything it takes practice but when it clicks you'll notice the difference.

You'll notice from the pictures of Ian's bike, that the calliper is mounted on the right leg rather than the recommended left leg. We have found that this helps reduce the bend in the brake cable and that it can help with the overall brake efficiency.

### ***And that's about it***

You will note that at no time so far have we mentioned the traditional talking points of electric racing, motors and batteries. That's because they don't make such a big difference with bikes. A set of 2400's will let you run any motor you like for an 8 min race and with the Racer series adopting traditional 5min races during 2002 we





where able to run hot 12 triples on ancient old 1700's with out any difficulty. And win!

But if you do want to spend money start with something like a stock motor while you're getting the hang of it and work up to anything you like, within reason. To help keep the costs down the Racer series (at time of writing, the only national series for bikes) have adopted a 12 turn limit on motors and currently do not allow 3000 cells. Personally we run Peak motors with winds selected for their smooth power delivery rather than absolute grunt, and any old cells we can beg borrow or steal.

It is useful to run a higher gear ratio to make use of this speed and Nuova sell bigger pinions to help with this. However, these are rather expensive so Team Benwell uses a 48dp Kimbrough spur gear, which has been modified to fit. Nothing too complicated they just need a spacer for the centre. We made ours from some easily bought aluminium tubing. The result is that it does allow us to use the 48dp pinion gears which we already own.

### ***In conclusion***

So after all that what have you learnt..... Well!! A standard bike, a second set of tyres and those old 2000 cells that haven't seen the light of day for a year or two and you could be winning races..... Oh and a small amount of skill, a little determination and heaps of practice but then we can't help you with that.



## ***Help is on hand***

So if we have whetted your appetite check out the following: -

<http://www.teambenwell.co.uk>

The home of team Benwell with more info on living with your bike

Ted Longshaw

The Uk importer

Formby Models

Easily the most enthusiastic bike stockist in the country and able to offer loads of help and advice

<http://homepage.ntlworld.com/paul.tidd/main.html>

<http://www.mmperformance.net/>

Other useful sites that helped Team Benwell get up and running

Finally if your still unsure but want to have a chance to chat to other riders join the Team Benwell RC Bikes email group. You can find a link on the website.