

CONFESSIONS

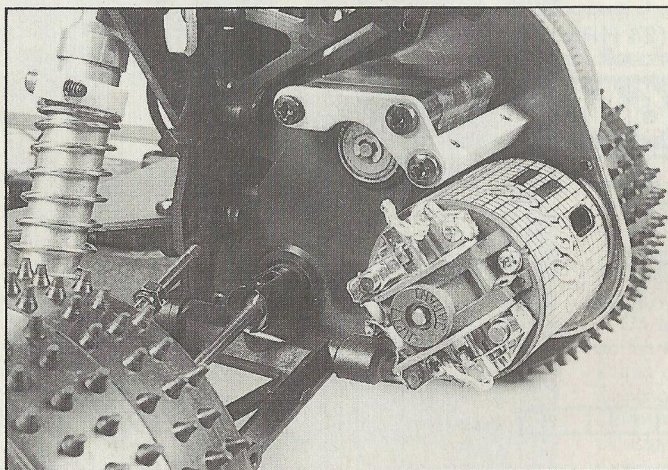
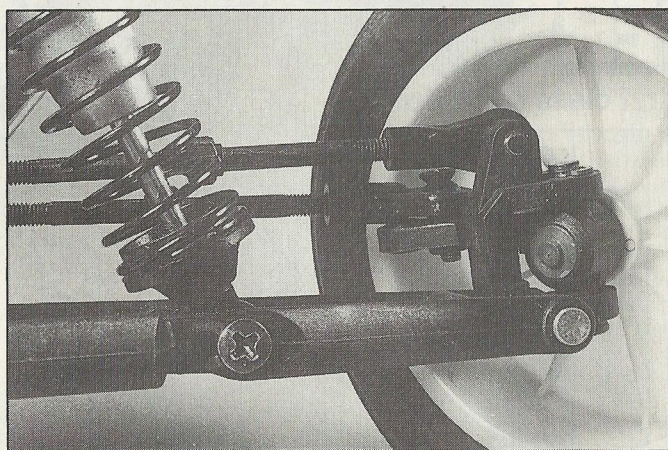


Andy Carter - Kyosho Team Member outlines the latest specification Team Cars and gives a set-up guide

From Team Kyosho

A couple of months ago, we reviewed the Kyosho Lazer ZX-R and, before that, we tested the Kyosho Triumph. As was mentioned then, Ripmax, the UK importer and distributor for Kyosho, have decided to go racing in 1992 and have enlisted the help of several top drivers in order to do battle with the Lazer and the Triumph. As the cars have already been reviewed, there is no need to go into the basics of how they work but, over the winter months, the team have been very busy making and trying out several subtle modifications to their cars which, in their opinion, will make them even more competitive during the season. Therefore, it is these modifications and the reasoning behind them that is the subject of this article.

Many 'team' drivers have, in the past, been very secretive about the subtle modifications they have done in order to make their cars go even better than anybody else's but, is this entirely fair? Perhaps, these drivers have



The Triumph with carbon chassis and Team mods.

lost sight of the fact that they too needed that extra help once when they were only novices and looked up to the then expert 'team' drivers. Well, now the cat is out of the bag (excuse the pun) and the Kyosho cars are about to be revealed.

Lazer ZX-R (a la team Kyosho)

As was stated in our review, this car is very competitive straight out of the box but, in the past six months, the team have been experimenting with several different areas of the car in order to enhance its performance.

Chassis

The main change has been to the chassis. The new team chassis has a different cell distribution. The cells are still

Revisions to the rear end include the motor guard.

in normal saddle pack configuration but now, the cells are 5mm further back. This makes the car jump better than the standard chassis which, over severe jumps, can make the back of the car pitch up therefore making the car nosedive. Normally, moving the weight further towards the rear of the car makes it understeer more but, surprisingly, this doesn't seem to be the case with the Lazer. Not having tried my car with this new chassis, I can't comment but, having raced (and lost) against Ellis Stafford and Danny Conway who have both been using this chassis, I can say that their cars' certainly turn in as well as mine does. The new chassis and top-plate are also made from a carbon fibre laminate which increases the torsional rigidity of the car. Another spin off from using this chassis is that there is now more available space with which to install the radio equipment. Not a lot more space but, if you have a small speed controller and receiver, then it is possible to mount both on the bottom plate. In order to move the cells back, Kyosho have also shortened the motor plate by the same amount. This does mean that the gear cover has to be re-cut out and that there is not as much available room for motor movement but, so far this has not appeared to be a problem when considered against the advantages of using the chassis.

Castor Blocks

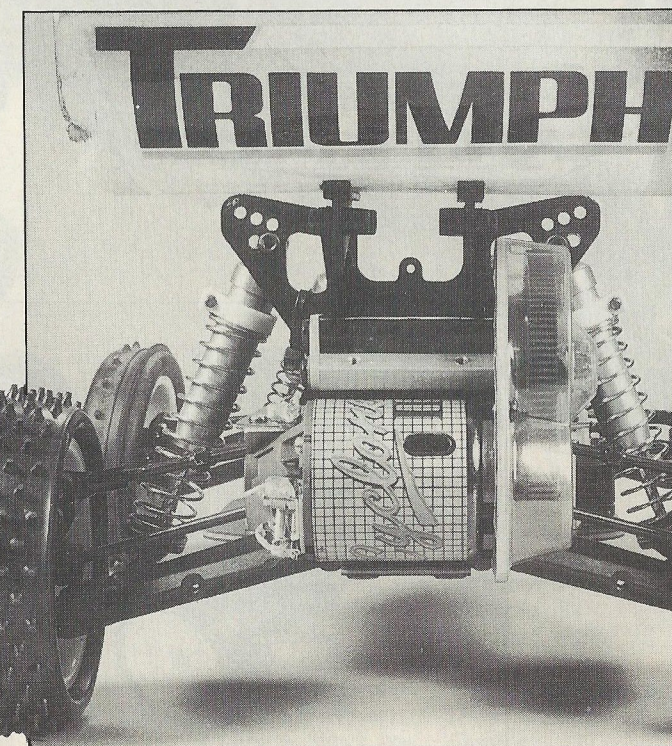
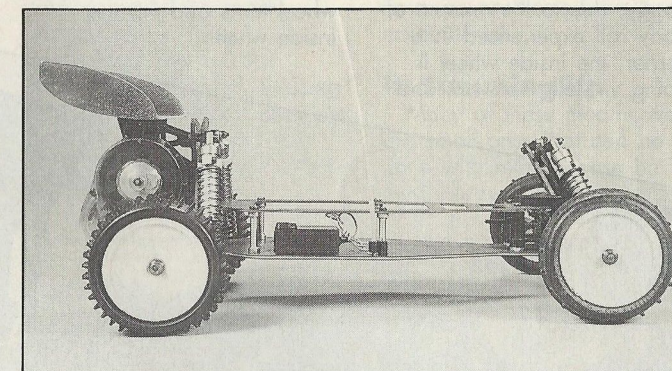
Another area under development is the front uprights. The team have been experimenting with different width front uprights of differing amounts of castor. Castor is the term used that describes the angle that the kingpins make perpendicular to the direction of travel (the ground). Increasing this angle has two effects. The main effect is that it increases the car's resistance to change direction. This means that the car seems lazy upon

turning into a corner but it enables more power to be used earlier in the corner without the front of the car pushing wide (understeering). The other effect is that the car becomes more stable over bumps as the bump is absorbed by the damper more effectively as the castor angle increases. Enough of the theoretical reasoning behind why castor is used, now for the results obtained in the field. As was mentioned earlier, different blocks have been tried. These have included 5 degree wide blocks 5 degree standard blocks 0 degree wide blocks 7.5 degree wide blocks 7.5 degree standard blocks. Results obtained so far have indicated that the best compromise is found with the standard width blocks with an extra 5 degrees of castor. The widened blocks make the car very stable due to the extra width but, in many

cases, it was found to be too stable and the car didn't turn in very well at all. The added castor on the standard width blocks has made the car better on rougher areas of tracks whilst still allowing the car to turn in. There is no doubt that this added castor enables the car to accelerate earlier out of tight corners (i.e. indoors or hairpins) but more brakes had to be applied before the car turned in when compared with the kit blocks.

Shocking!!!!

As can be seen from the photos, the front shock mount has also been changed. This item is now much thicker than the standard mount and has reduced the number of broken front gearbox housings. The new shock mount also has more holes drilled for the top mounting of the damper which will enable further fine tuning of the suspension.



Slip-Up?

One of the most niggly problems with the Kyosho cars here is that Kyosho only make one size spur gear for them - 100T 48dp. In order to gain further gear ratios, other manufacturers have made other spur gears of differing sizes - notably RW Racing (using Tufnol gears) and Wasp Products with a very ingenious idea. The Wasp system is finding many friends, amongst them being the Kyosho team. It consists of a gear centre and various sizes of gear rings that screw into this centre. The advantage of this system is that once it is in place, the centre need never be removed (except for maintenance) and, by unscrewing 3 screws, the ring can be changed in a matter of seconds. This puts an end to having to reset the slipper clutch every time the spur gear is taken off, therefore reducing the risk of having the slipper clutch wrongly set at the beginning of a race after changing the spur.

Triumph-Ant?

Unfortunately, the Kyosho Triumph has not been met with the same acclaim as the Lazer ZX-R. "It's great - until you need to turn" has been cried, "It doesn't steer" has been shouted, and up until now, the car has been the butt of many jokes around the tracks. Kyosho don't normally get things as wrong as some would lead us to believe and, those hard working team drivers, along with help from Parma and

Different rear shock mount allows more suspension movement and ground clearance.

Lazer ZXR is good standard - but the Team version is better!



Ripmax, have persevered with what seemed to be a dead duck and have turned it into a car which, just two weeks before the first National, Jamie Booth and Steve West are now happy to drive in top competition. So, what exactly has caused this metamorphosis? What little scraps of information can be gleaned by the buggy buying

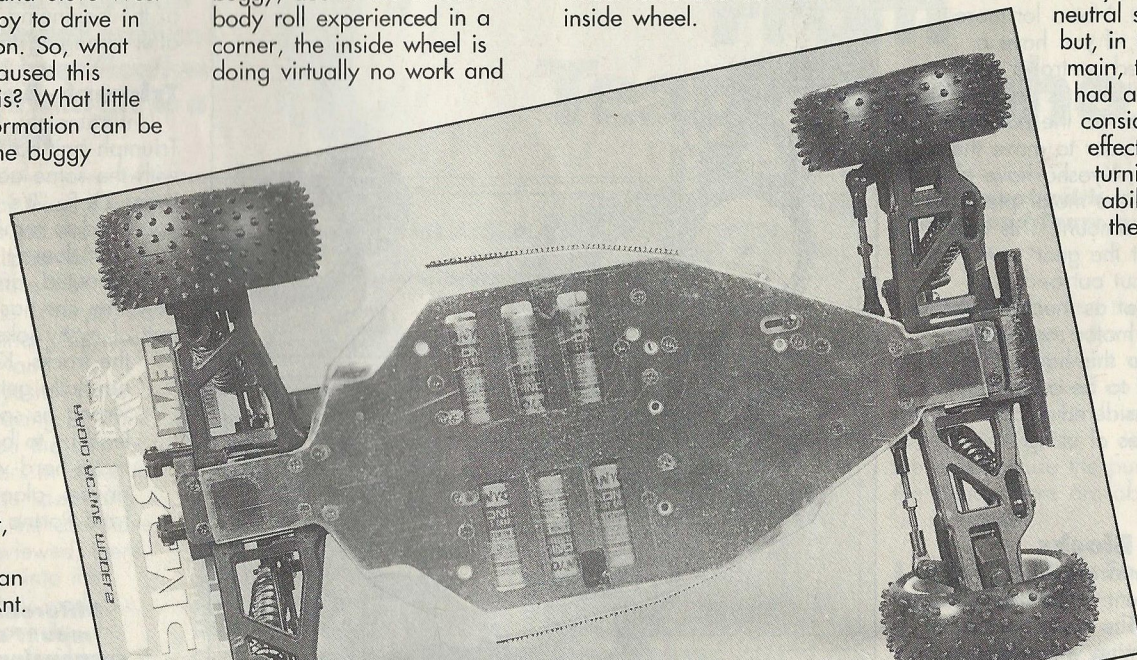
the outside wheel. This is a necessary feature on real size lorries and coaches and is used to stop the inside wheel from scrubbing but, on a buggy, due to the amount of body roll experienced in a corner, the inside wheel is doing virtually no work and

the majority of the steering is loaded onto the outside wheel. Therefore, the amount of steering is proportional to the amount that the outside wheel turns and not the inside wheel.

Therefore, the team have increased the available movement of the outside wheel by inducing anti-ackerman (the reverse of ackerman).

How To Do It

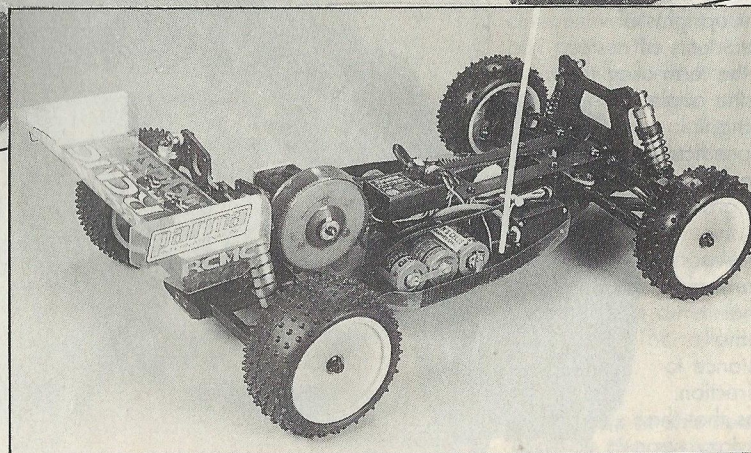
The brain power behind this was George Land who is one of the most knowledgeable people in the model car industry. By looking at the geometry of the standard Triumph steering, he developed a new centre link that has reduced the amount of ackerman in the set-up. The link has moved the inner trackrod ends 5mm further forward which puts them in front of the pivots (a la RC10 etc). A hole must also be drilled 5mm further forward on the stub axle which, as can be seen from the photographs, has considerably increased the available steering lock on the outside wheel. The car has become slightly more twitchy around neutral steering but, in the main, this has had a considerable effect on the turning ability of the car.



public so that, at last, the Kyosho car can be Triumph-Ant.

From The Front

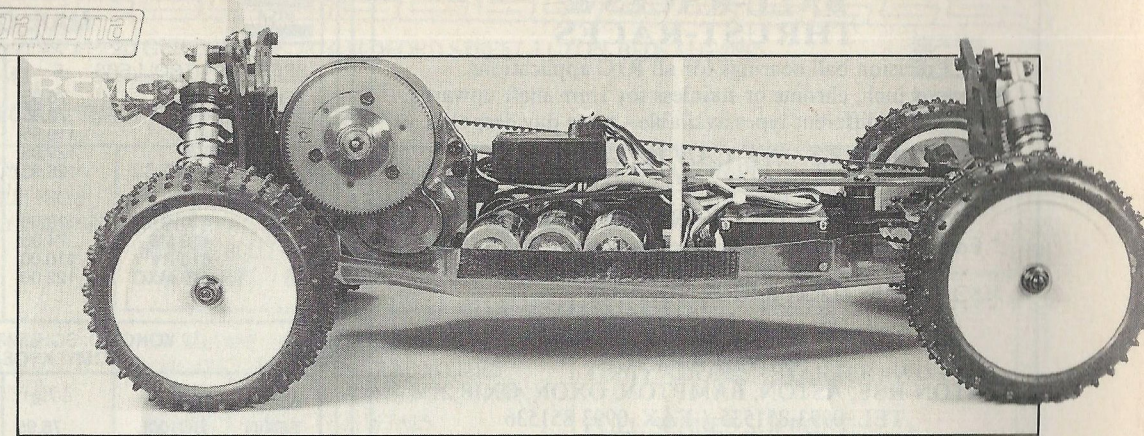
It would seem that, in the most, the car does have a tendency to go straight whenever power is applied. I feel though, before dismissing the car, the buggy drivers ought to think why the car looked so good in Detroit last year. The car has a lot of in built ackerman angle in the steering set-up. This means that the inside wheel turns through a greater angle than



In addition to this, I found that the car still had a tendency for the back to slide out of line very rapidly. This was cured by using different castor blocks. Unlike the Lazer items, these are already made by Kyosho and are available (look in the back of the Triumph instructions for the TMW parts). The best castor block to use that suited my driving style was the -5 degree block (Kyosho use a different system for identifying the angle!!). This had the effect of making the car far more predictable than it had ever been before.

What the Americans Have to Say

When Jamie Booth went out to Florida to race back in January, he found that the American Kyosho team were far ahead of the UK team in terms of sorting out the Triumph. After discussions with Kris Moore (USA team driver) and close scrutiny of his car, Jamie came back and promptly moved his front wishbones back 5mm. This effectively puts more weight over the front wheels which increases the grip available to them. It is done by cutting off the lugs which protrude from the front bulkhead and putting them behind the bulkhead. This, when used with RPM steering blocks has increased the turn in to no end and now, the car will oversteer if needed which, before was asking the impossible. The RPM blocks have been installed by Jamie and Steve West only to date but they have found that they have also mounted the steering servo lengthways down the chassis rather than across it. On a more minor point, it has become evident that the standard wheel bearings become very sloppy very quickly. Whether this is due to the bearing or the wheel is not known as yet



but, after examining Ellis Stafford's car, I noticed that he had installed flanged bearings which had considerably reduced the amount of slop.

On the subject of Ellis' car, I also noticed that he had put Lazer rear wishbones on it. These are much stronger than the standard items but do not fit without modifying the bulkhead. In fact, Ellis has killed two birds with one stone as he has moved the rear gearbox forward to accommodate these wishbones. This has the added advantage of reducing the amount of weight over the rear wishbone which will decrease the pendulum effect making the car less

susceptible to weight transfer. Unfortunately, the standard chassis plate has too many holes in it which makes it too weak (as Ellis found out) once this modification has been done. The gearbox is driven by 2 belts. The team have discovered that, even with hot motors, you only need to run 1 belt which reduces the amount of drag by fifty percent. Obviously, this is an advantage as long as the belts don't slip but, up until now, no problems have been encountered.

In Summing Up

Many of these modifications are small ones that can be done with relative ease but it must always be remembered

that, at the end of the day, driving style and ability determines what effects are gained by modifying the standard cars and what works for Jamie Booth may not always work for you! Having said all this, you may want to try these things out but, in order to determine what does what, it's worth only doing one or two things at any one time because otherwise, the advantage of one modification may be lost by the disadvantage of another. A good general rule to follow is to only modify your car when YOU feel that it is no longer competitive or when it doesn't seem to go as well as another car which is supposedly the same. By the time you'll have read this, many of these modifications (if not some more yet to be found) will be available because Ripmax are introducing a new product range called Teamline which is exactly what it says. So, check out your local Ripmax stockist for the latest go faster bits and pieces available for your Kyosho car!!



Super new front shock bracket is very light, neat and well made.

Southern Team Kyosho Set Up (approx)

Car	Lazer ZX-R	Triumph
Front Shock Oil	30wt	20wt
Rear Shock Oil	20wt	40wt
Piston Holes	2	2
Springs Front	Standard Blk	Black Kyosho
Springs Rear	Standard Blk	Standard Gold
Castor Blocks	Standard width	+5 -5 (TMW?)
Toe in Rear	1	2-3
Chassis Configuration	Cells moved 5mm back	Standard - cells forward
Rear Shock Mount	Lower Outside Top	Lower Outside Top
Wishbone Shock Pos	Outside	Outside - 1in

