

THUNDER DRAGON

Geoff Driver gets out of
breath building Tamiya's latest
4 x 4 Club Car

Tamiya's usual practice of producing a number of different bodies with a common chassis has been continued with the "Thunder Dragon". Based on the mechanics of the "Thunder Shot", the "Thunder Dragon" has a dart-like body

made of polycarbonate. If I were to be really economic with words the article would stop here as the "Thunder Shot" was reviewed in the March edition of RC Model Cars. This would not be fair to either Tamiya or the readers and prospective buyers of the

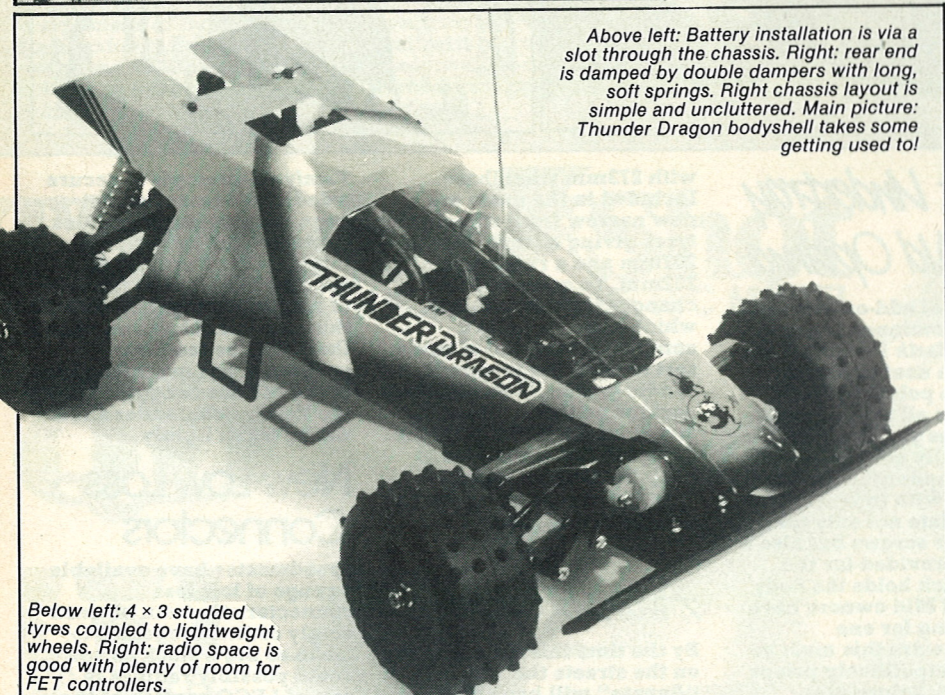
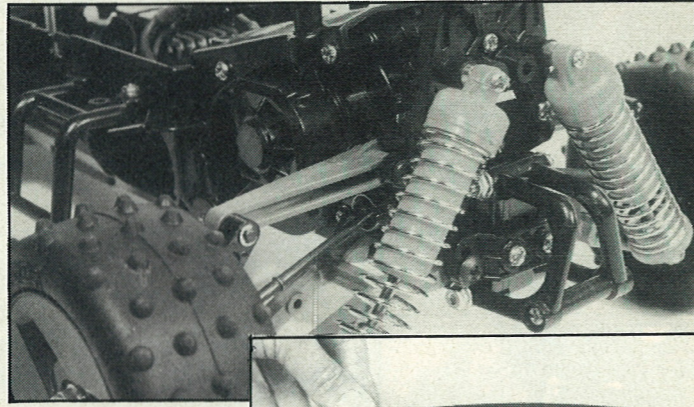
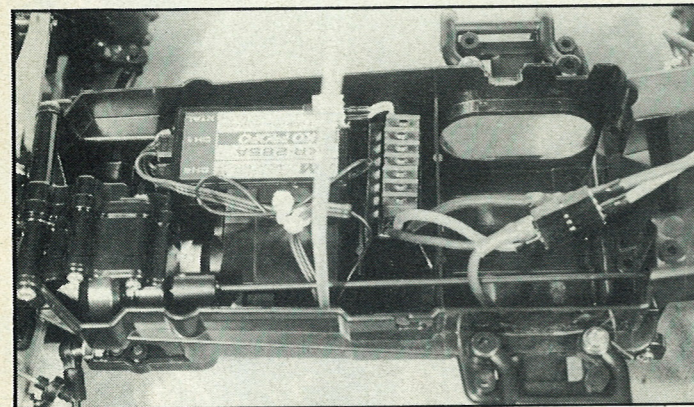
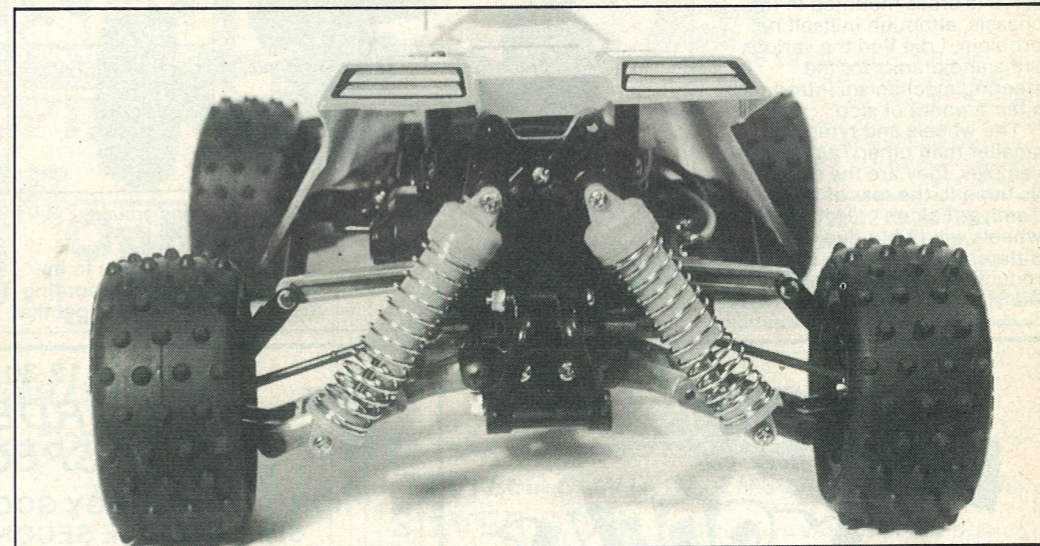
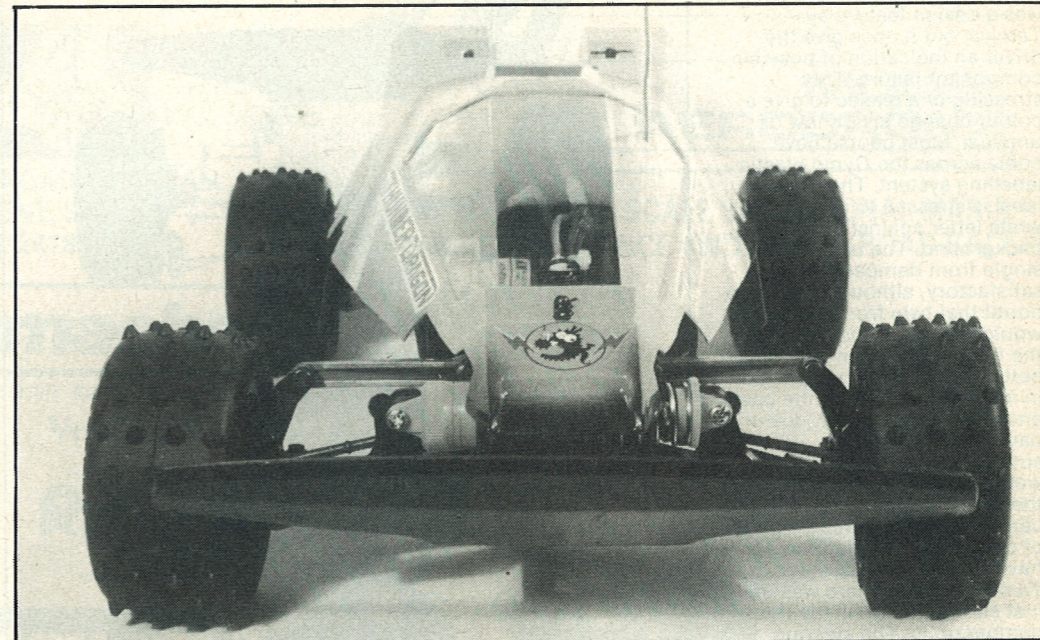
car. This review could be read in conjunction with the earlier March review and could equally apply to the "Thunder Shot" or "Thunder Dragon".

The Thunder cars are certainly not among the most expensive of Tamiya's range of RC cars. If I were to describe its position in the market place it would be in the mid-price bracket. The "Thunder Dragon" is a shaft drive 4x4 off roader with independent suspension all round. Most of the component parts are light and strong injection moulded plastic.

Looking at the various parts in more detail.

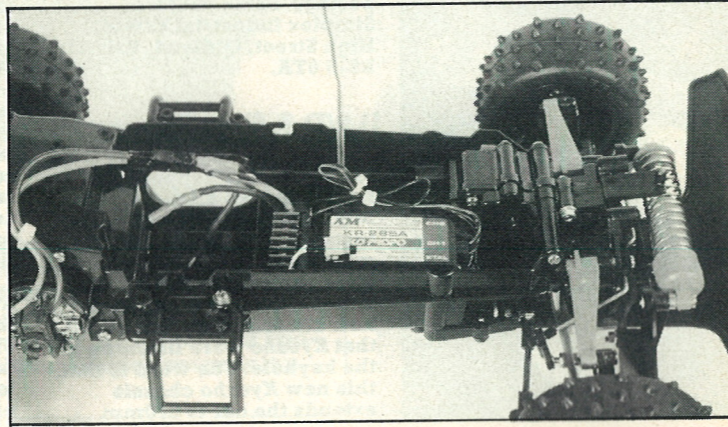
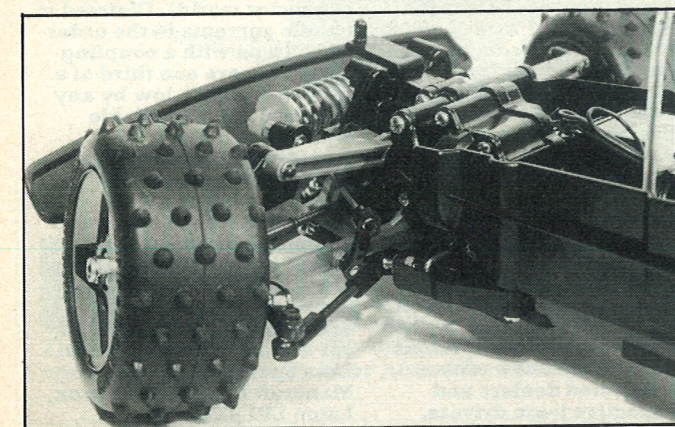
Firstly the chassis. The centre section of the chassis is a complex injection-moulded box which due to its design is very rigid. There is masses of space for the fitting of servos and other electronic parts. The batteries fit across the chassis just in front of the motor. Front and rear suspension units are sub assemblies which screw to the main chassis section.

The transmission is more efficient than the "Hot Shot" and its derivatives as it uses less gears. This is accomplished by reversing the bevel drive to the front axle, so cutting out the need for a transmission reversing gear. The now almost standard "thin" front to rear drive shaft runs to the left hand side of the chassis, and because of its small diameter is bound to act as a true torque shaft, absorbing transmission shock. There is no centre differential with this car which, in my opinion is not a disadvantage. The overall cost of the car is kept down by the inclusion of plain bearings, but as usual standard Tamiya ball races can be fitted. Another cost saving feature is the way I believe Tamiya have produced their drive shafts. It seems to me that to avoid having large stocks of different lengths of drive shafts, Tamiya are producing single-ended driveshafts, cutting them for the correct



Above left: Battery installation is via a slot through the chassis. Right: rear end is damped by double dampers with long, soft springs. Right chassis layout is simple and uncluttered. Main picture: Thunder Dragon bodyshell takes some getting used to!

Below left: 4 x 3 studded tyres coupled to lightweight wheels. Right: radio space is good with plenty of room for FET controllers.



length and then friction welding them. Friction welding is a process of spinning one shaft against a fixed shaft until the ends melt and fuse together. This gives the tell-tale ridge in the centre. Of course I could be completely wrong, in which case Tamiya may tell us.

Suspension incorporates a single front shocker mounted across the chassis, but an anti-roll bar is included with the kit. The rear suspension does not come with an anti-roll

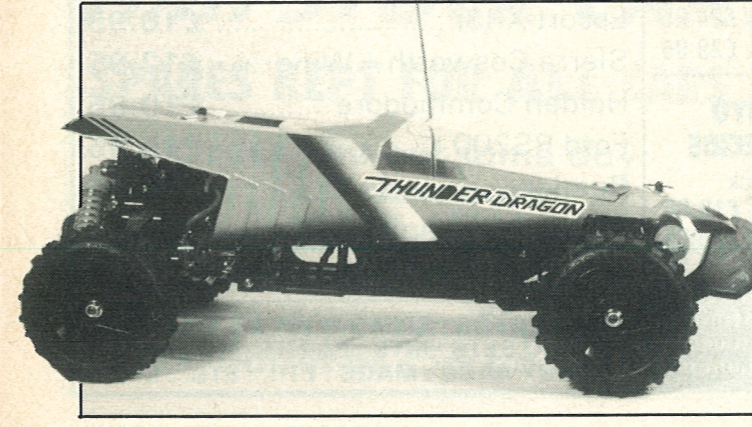
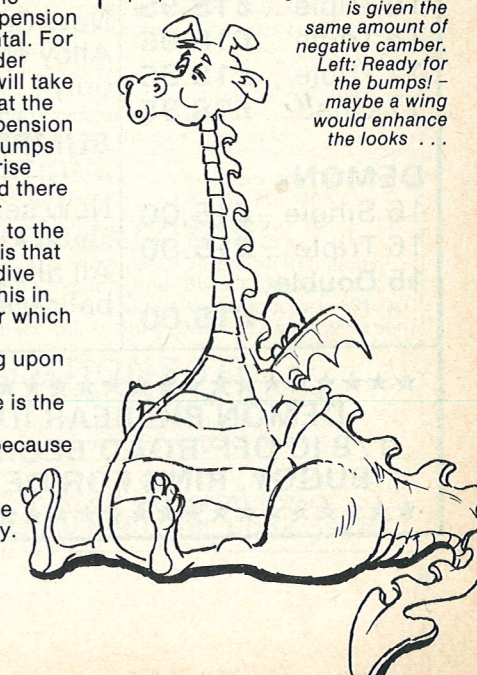
bar (this is available as an extra) but twin shockers are fitted.

The suspension geometry provides for a reasonably high roll centre, which will give fairly stable cornering performance. The front suspension has about a 15 degree kick up to the horizontal. The rear suspension is parallel to the horizontal. For those readers who wonder what this is all about, I will take a few lines to explain that the angling of the front suspension allows the car to meet bumps easier. The wheels can rise over the undulations and there is less chance of the car leaping from one hilltop to the next. The disadvantage is that the front of the car will dive under braking forces. This in turn will cause oversteer which may or may not be a disadvantage depending upon your driving skill.

An interesting feature is the use of the blue plastic suspension arms. Not because they are blue, but the choice of colour does allow stress marks in the plastic to show up easily. If for any reason you

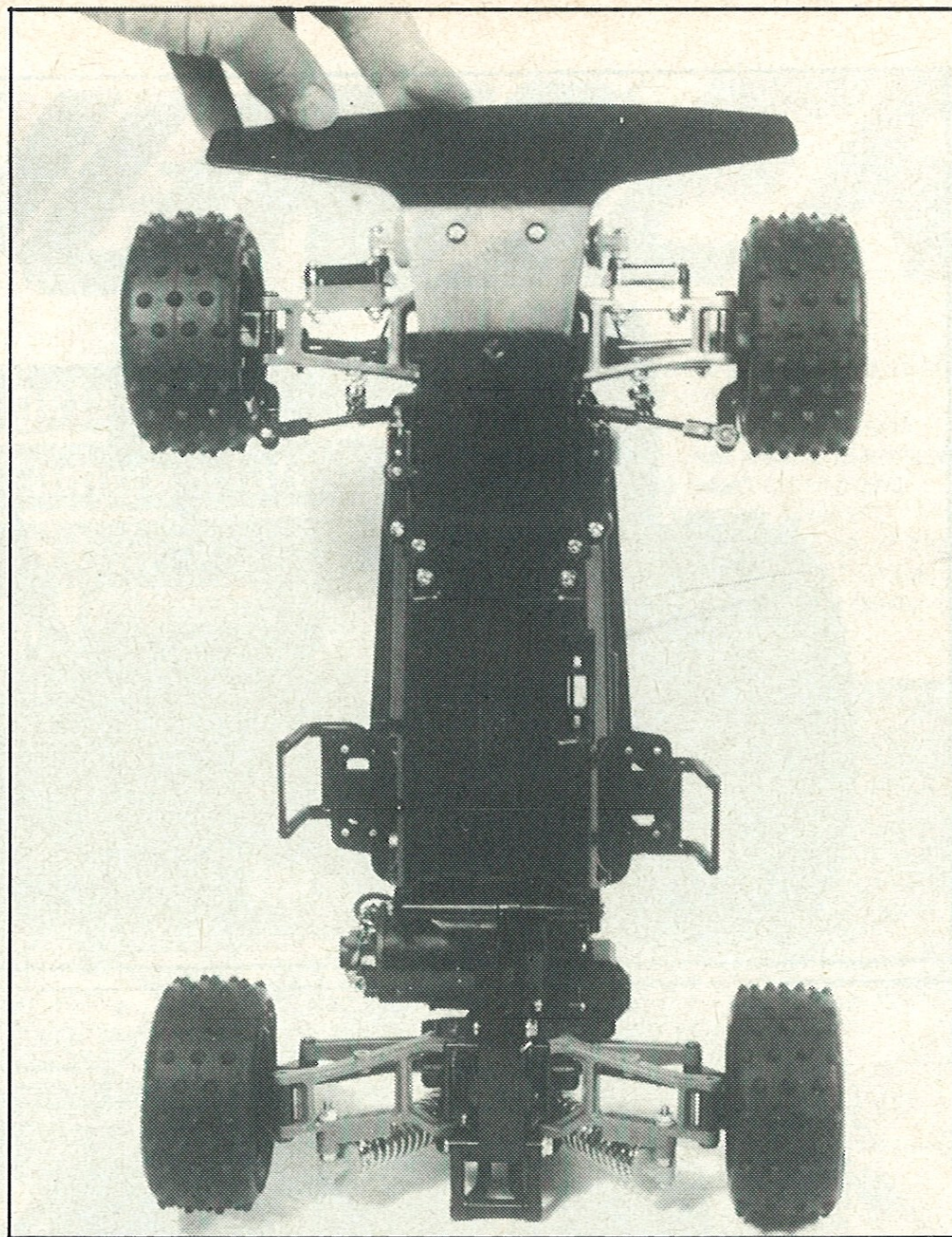
collide with something immovable and the suspension receives a knock, the flexing of the suspension arm will show up as a whitish stress line in

Top: Front end is sharp and purposeful looking. Above: The rear is given the same amount of negative camber. Left: Ready for the bumps! - maybe a wing would enhance the looks ...



the plastic. I do not think this was a design feature by *Tamiya*, but it does give the driver an indication of possible component failure. This stressing of a plastic to give a colour change is not new or unusual. Most people have come across the *Dymo* plastic labelling system. The plastic label is stressed to provide as white letter against a coloured background. The use of the single front damper is satisfactory, although I have no doubt that twin front dampers would improve handling. In fact the front suspension performs better than the rear suspension in my opinion. I found the back end to be a little frisky, due in part to the horizontal suspension arm position. I would reinforce comments in the March RCMC regarding the careful choice of suitable grade of damper oil. Incidentally I have a small complaint for *Tamiya*, namely there was only just enough oil to fill the three damper units. The steering servo is cross mounted in the chassis, although in itself no problem, I did find the various arms and cranks for the steering mechanism introduced a fair amount of slop.

The wheels and tyres are smaller than other *Tamiya* 4x4 vehicles, they are the same size as fitted to the rear of the *Tamiya* "Falcon". "Hot Shot" wheels will fit but due to a different diameter the overall reduction will be different to the standard wheels and tyres.



Above: Fairly uncluttered chassis bottom although front end ground clearance is limited.

A very nice feature is the ease with which the motor pinion engagement can be carried

out. Nevertheless, due to the design of the motor mounting it may not be possible to get the

very lowest of ratios needed on some motors. Under these circumstances it may be necessary to find an even smaller diameter tyre to compensate. The cross-mounted motor sits well into the centre of the car, in fact it is (in my opinion) better mounted than on the Hot Shot. Rear ground clearance is 40mm (measured on the centre line of the car) and 25mm at the front. This is an entirely adequate amount, the only reservation I have is the approach angle of the car to track obstructions. With the 35mm of bumper overhang before the front wheels, I think that this could cause problems on some tracks with steep and sharp inclines and descents. To counter this potential problem the bumper itself is quite flexible and should easily give on impact as well as protecting the majority of the front end of the car.

The construction of the car presented posed no problems and all the points worthy of mention were covered in the "Thunder Shot" issue.

In conclusion I see this car as an excellent value for money 4x4 racer. Its good features far outweigh the items of compromise. Enhancements and improvement can be made to performance from the range of add ons provided by *Tamiya*. Having said that, I would have no difficulty in recommending this as a first class "straight from the box racer".

