

Track Test



'SUPER CHAMP'

BY BILL BURKINSHAW

IT LOOKS AS THOUGH *Tamiya* have produced yet another winner, that same attention to detail and engineering quality that gave us the 'Rough Rider', 'Sand Scorcher', 'Ranger', 'Sand Rover' and 'Holiday Buggy'

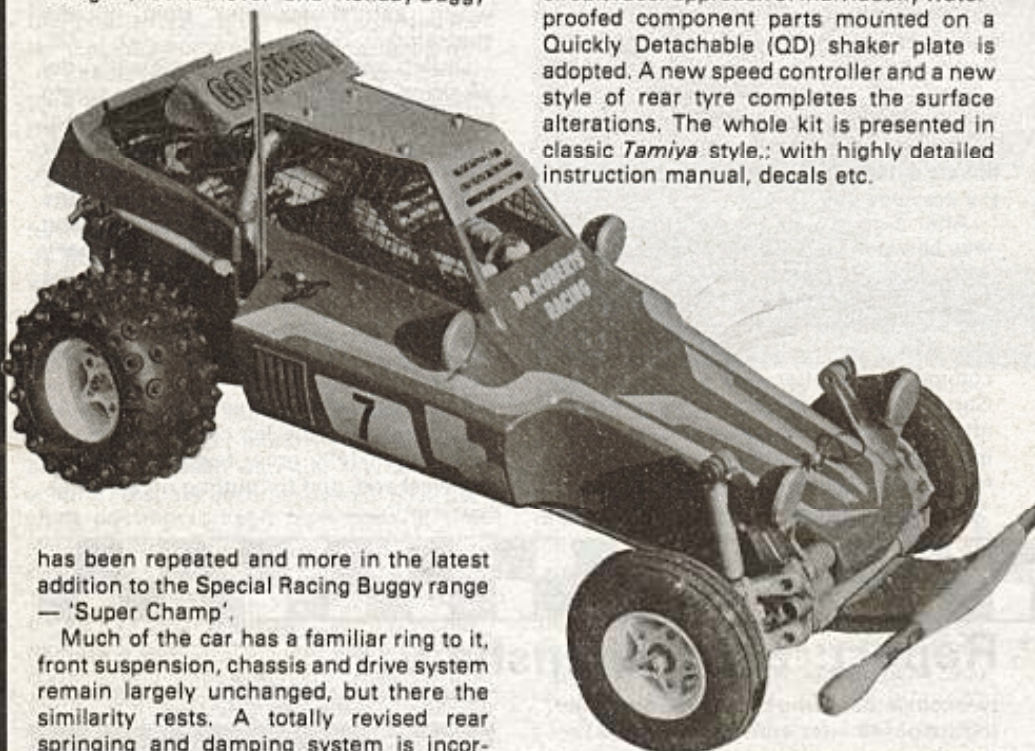
reservoir damping system. R/C equipment layout bears no resemblance at all to established kit preferences of all-enveloping waterproof crates. Instead, the 1/8th scale circuit racer approach of individually waterproofed component parts mounted on a Quickly Detachable (QD) shaker plate is adopted. A new speed controller and a new style of rear tyre completes the surface alterations. The whole kit is presented in classic *Tamiya* style, with highly detailed instruction manual, decals etc.

Assembly

With manuals as comprehensive as those supplied by *Tamiya*, it would take a real individualist to be tempted away from the logical ordered sequence recommended for assembly. If I may be permitted the tiniest of criticisms, and then only as I had both Japanese language and English instructions to hand, I would have liked the English instructions to identify the various screws by size and type as they are shown in the Japanese version.

I chose to use ball-races throughout the car and in theory 12 of these are required, but I feel that unless a small modification is carried out in the gear box, 2 of these can be dispensed with. Between the gearbox input shaft and the output shaft an idler gear machined from brass runs on a hardened and ground steel cross spindle. Unless this gear is fixed to the shaft, and here I suggest a thorough clean and then epoxy or stud-lock compound, the gear will tend to run on the shaft, rather than the shaft run in the bearings.

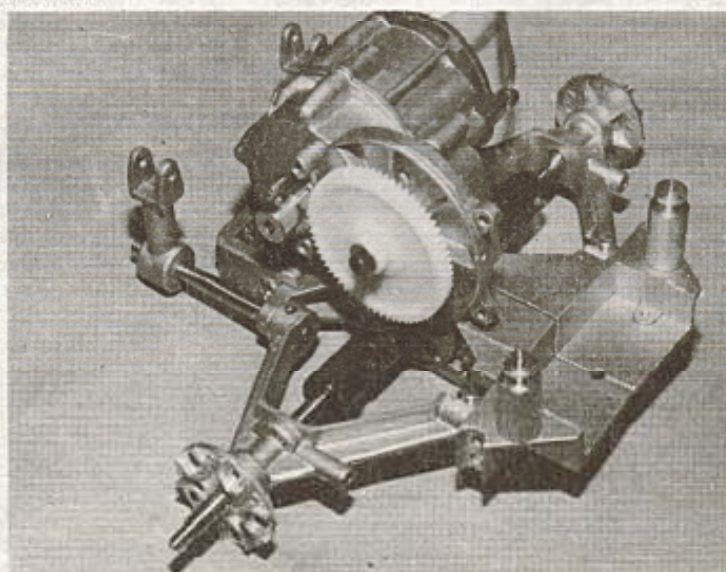
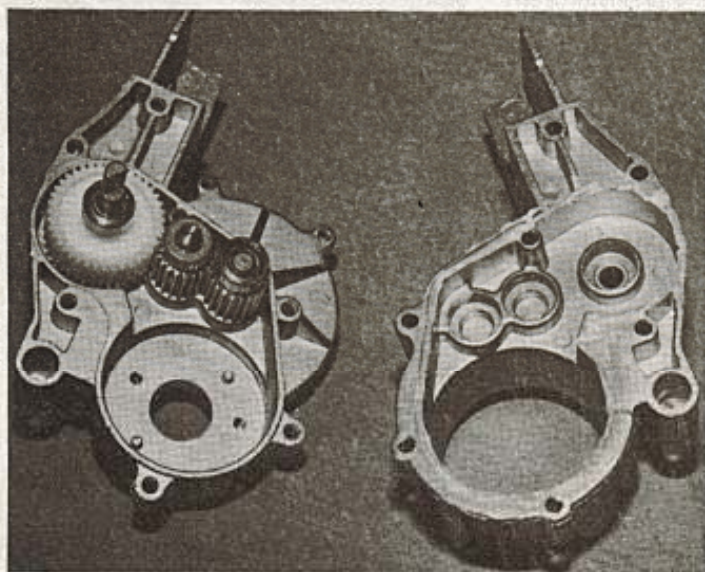
New hardened steel universal joints take drive out to the rear wheel spindles carried in the cast aluminium alloy swinging arms, the rear pivot shafts of which incorporate similarly cast bellcrank levers which couple to the mono shock damper unit. Instructions are very clear on such items as application on lubricating oil, thread lock and silicone sealant, all of which are supplied in the kit.

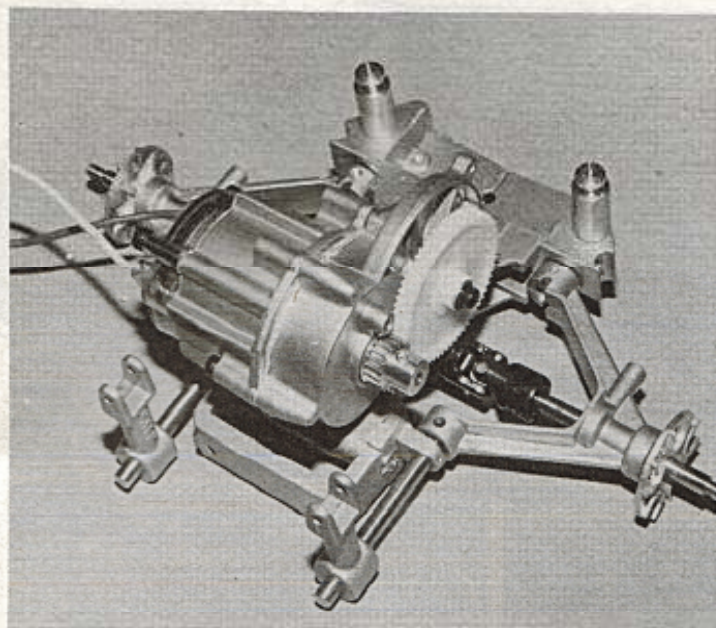


has been repeated and more in the latest addition to the Special Racing Buggy range — 'Super Champ'.

Much of the car has a familiar ring to it, front suspension, chassis and drive system remain largely unchanged, but there the similarity rests. A totally revised rear springing and damping system is incorporated using the fashionable mono-shock with coil spring favoured by the home-tune brigade, but the *Tamiya* touch is an oil

Below left: gear case halves with gears and bearings, installed. See text concerning ball-races. Below right: main drive gears, two ratios supplied. Rear mono-shock bell-crank can also be clearly seen here.





Above left: rear view of partially completed gearbox assembly. Universal joints are hardened steel. Above right: mono-shock and oil reservoir now fitted - connecting tube has to be routed round roll cage.

Once the rear drive unit is finished, the new mono-shock unit is assembled. *Tamiya* have replaced the earlier 2 part damper piston/rod with a one piece unit which appears to be hardened steel. The closed end of the damper is fitted with a nipple which connects via a flexible tube to an oil reservoir which enables the damper to behave as a pressurised unit, and also provides constant replenishment for the oil which inevitably seeps out of the piston rod gland. It would be quite conceivable that this same system could be adapted to the front dampers as well, using the same single reservoir and a suitable 'plumbing' job done with the plastic 'tee' pieces available for model boat watercooling installations.

Over the damper, a coil spring is slipped, with provision for adjustment via a large

knurled nut. A substantial rear bumper protects this potentially vulnerable area of the car, and finally a roll cage encloses the whole.

Front dampers and the new steering servo saver assembly follow next.

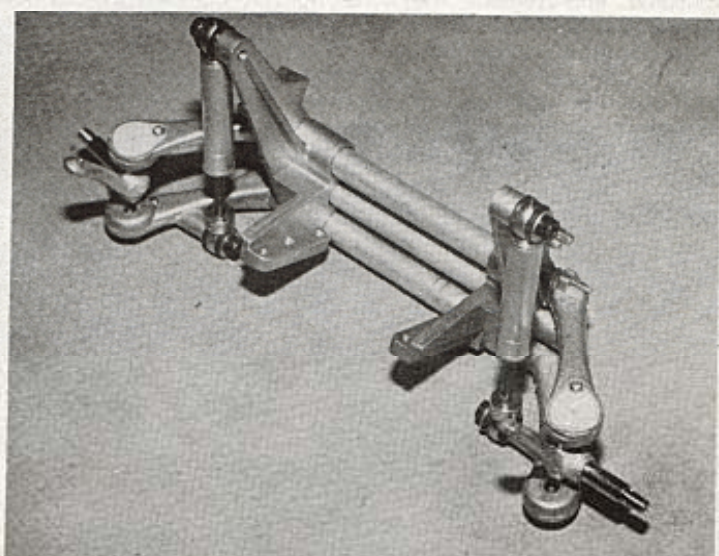
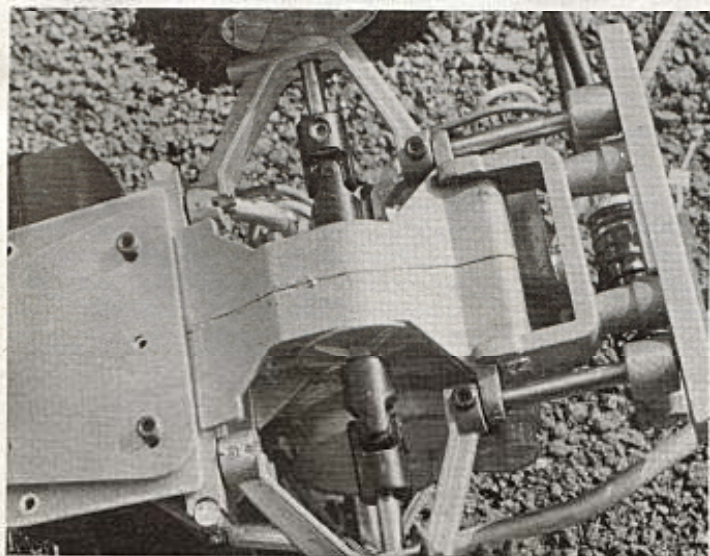
The excellent adjustable servo saver found on the *Tamiya* 'Competition Special' 1/12th scale circuit racers kits has been pressed into service on the 'Super Champ' along with the robust track rods complete with mini-rose joints used in these kits. As a result of this modification, and the solid fixing of the steering servo on to the chassis, a far more positive steering linkage results compared with previous 'Special Racing Buggies'. *Tamiya* have also benefitted from racing experience and now supply hardened steel front wishbone pivot spindles, and tie-wraps to prevent the front suspension ball joints from becoming detached.

Speed Controller

With mechanical assembly completed,

the speed controller begs for attention. This is an all-new unit which provides 3 forward speeds, two levels of braking and reverse, with provision for the operator to select the point at which the middle speed and braking is selected. A 'Topping Up' tapping for the receiver Ni-Cad is also provided. This latter feature is a little puzzling. It is suggested in the Japanese instructions that this output be used to power the R/C system, thus eliminating the receiver battery, but nothing referring to this feature is to be found in the English language instruction book. Instead, a small separate printed sheet shows the circuitry for using the triple Red/White/Blue lead from the controller wired into a mini receiver battery, to constantly trickle charge this from the main drive battery. A check with a voltmeter reveals that the voltage drop produced by the single diode on the controller

Below left: underside view of gearbox, substantial cast aluminium alloy rear bumper doubles as pivot pin bearing. Below right: complete front suspension unit ready to bolt on to chassis.

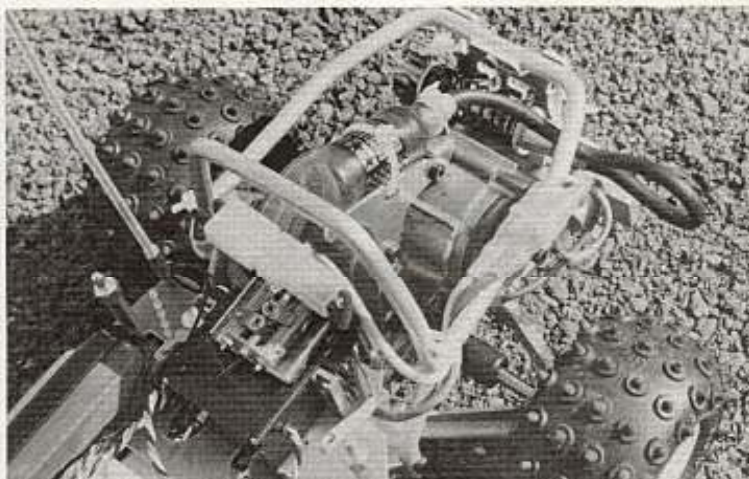


is insufficient to allow the receiver to be powered via this lead. In fact, the diode may be fitted just to prevent a fully charged receiver battery leaking back into the main battery if the topping-up mode of use is chosen. After checking this feature out, I decided, temporarily at least, to simply use an orthodox receiver battery.

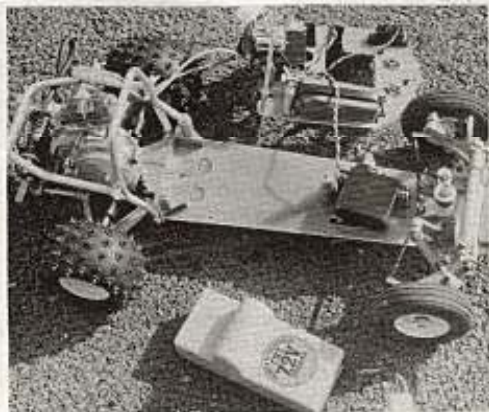
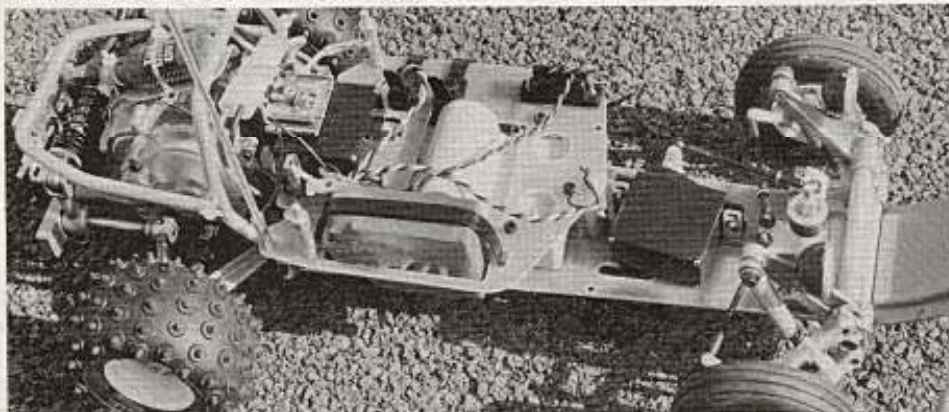
R/C Installation and Finishing

Once the speed controller was fathomed out, R/C installation took only a matter of minutes. All the necessary screws, mounts, clips and bands are provided and their allotted positions clearly indicated. Removal of the R/C shaker plate is very easy, a single 'body clip' at the front, and disconnection of the motor and steering servo leads allows the whole unit to be

Right: servo has speed controller directly fitted on to it. Adjustable resistors can be seen on top of servo.



Below left and right: complete R/C installation showing easily removable equipment for quick cleaning.



removed from the car for cleaning and servicing. The 7.2 volt (6 cell) 1.2 Ah Ni-Cad pack is held in place by the shaker plate and I felt some small pieces of foam sealing tape in strategic places beneficial to prevent the battery pack rattling around.

Wheel and tyre assembly is quick and simple, the new spiked pattern rear tyres are used in conjunction with the familiar 'Mr. Smoothee' sand tyres used on the 'Sand Scorcher' for the front.

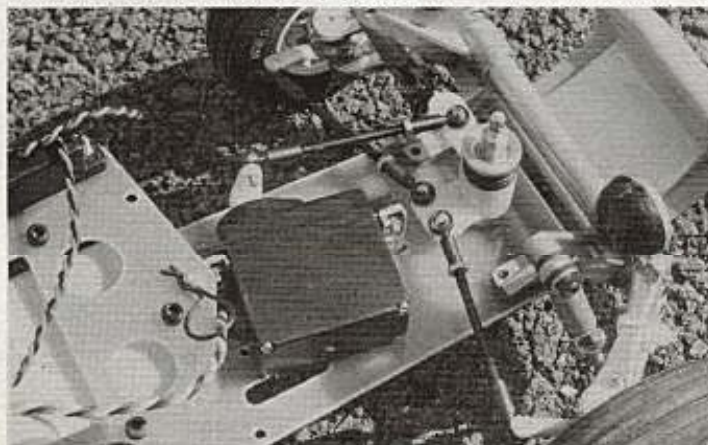
The moulded plastic bodyshell is made from the same flexible material seen on the 'Holiday Buggy' and its flexibility is a welcome improvement over the rigid plastic type supplied with previous 540 motor 'Special Racing Buggies.' Attachment of the bodyshell has also benefitted from provision of three body posts with

associated spring clip fixings. A comprehensive set of self-adhesive decals, a driver figure and window safety net material are supplied to deck out the bodyshell with.

Running the 'Super Champ'

During construction I realised that fitting ball-races had considerably freed-up the whole of the drive train but nonetheless, I still ran in the motor and gearbox on low current for several hours before subjecting it to the stress of full power operation. Initially I set up the rear spring adjustment to give the softest possible setting and tightened up the downwards limiting tie-wrap straps to almost level the suspension. This does restrict the downward travel of the suspension, but on high grip surfaces any positive camber on the rear wheels can

cause the car to tip over. With these adjustments made, the battery was charged and out it went. Straight away I discovered that this machine is quick. A combination of free drive train, more efficient universal joints, and better damping produce good power transmission right down to the tyre contact patch. As I don't have a standard 'Scorcher' as comparison, I can only guess that the weight is down a little, which should also contribute to the performance. It is also immediately apparent that the improvements to the steering linkage are of great benefit, no longer are there any differences in left and right hand turning circles and the whole car has a more precise feeling to it.



Left: heavy duty steering linkages, an adjustable servo saver and direct straight control run give positive steering.

Conclusion

Price apart, and how the £ sterling is suffering at the moment, the Tamiya 'Super Champ' represents a significant improvement over previous Tamiya buggies. They have obviously put several years of racing experience into bullet-proofing this model, although I still feel that the rear suspension is a tiny bit too hard and has too much positive camber. I liked the new R/C equipment layout and heartily approve of the front suspension improvements. Presentation and instruction were first class. I can recommend this kit to all builders and racers alike.

Price £99.99. Available from most good model shops.