

# 4x4Viper

*Backing up their recent two-wheel drive releases AYK have leapt into the fray with their own four-wheel drive concept. Bill Burkinshaw gets his hands on another slippery customer*

I HAVE WATCHED with great interest the direction of developments in 1/10th scale Buggy racing during the past couple of years, but must confess that the pressures of busy competition seasons in the 1/8th scale circus have kept me away from very much involvement.

My interest in model cars in general, and Off-Road racing in particular compels me to take a good look at all the new kits that pass through the 'Model Cars' offices and as soon as I saw the AYK 'Viper' I felt that the time had come to bring my awareness of 'State of the Art' 1/10th electric Buggy racing up to date.

During my 'fallow' season there have been great strides made in the competition Buggy world, the 4-Wheel Drive cars that took the 1/8th tracks by storm some four years ago have confounded the sceptics and proven to be workable high performance racing machines and to some extent have done the same good turn for electric racing that they did for IC racing.

Certainly the handling of 4-Wheel Drive Buggies is generally superior to 2WD machines, unless that is, you choose to pay the very high price of the Associated 'RC10', but there are usually penalties to pay for any sort of performance upgrade. As far as 4WD electric Buggies are concerned, the penalty is in complexity, occasionally fragility, more troublesome maintenance, less out and out speed and slower acceleration. As things have turned out, price has not leapt upwards to the extent that might have been thought, remember that not so long ago the competition versions of 2WD machines just nudged the £100 mark and the figure of £120 for the latest reptile to reach these shores, the AYK 'Viper', represents pretty good value.

## General description

It is fascinating to look through the manuals and parts packs of each new product and be able to recognise lineage and influence that have produced the design. Although the 'Viper' has many parts very obviously developed if not drawn directly from its earlier AYK 2WD cousins, the superbly lightweight pressed aluminium alloy bathtub chassis if not unique, is a rare sight. The production costs of such an item are staggering, relying as it must on a family of press tools to produce.

Suspension parts are die-cast trailing arms to the front with the same style trailing arms to the rear as seen on earlier AYK products, but in

this instance injection moulded plastic with aluminium alloy spring/damper unit mounting brackets. Two differentials are fitted, ratios are same front and back with *Meccano* style chain carrying the drive forward from a countershaft on the rear gearbox.

The bathtub is closed in on the top surface with a cleanly fretted out black finish GRP plate which carries the servos, receiver battery pack and generally stiffens the whole unit, resulting in a light and torsionally rigid basis for good suspension and drive train performance.

A resistor speed controller with three speeds and reverse is rear mounted and the whole complex of machinery topped off and surrounded with a

handsome combination aluminium alloy and injection moulded plastic roll cage.

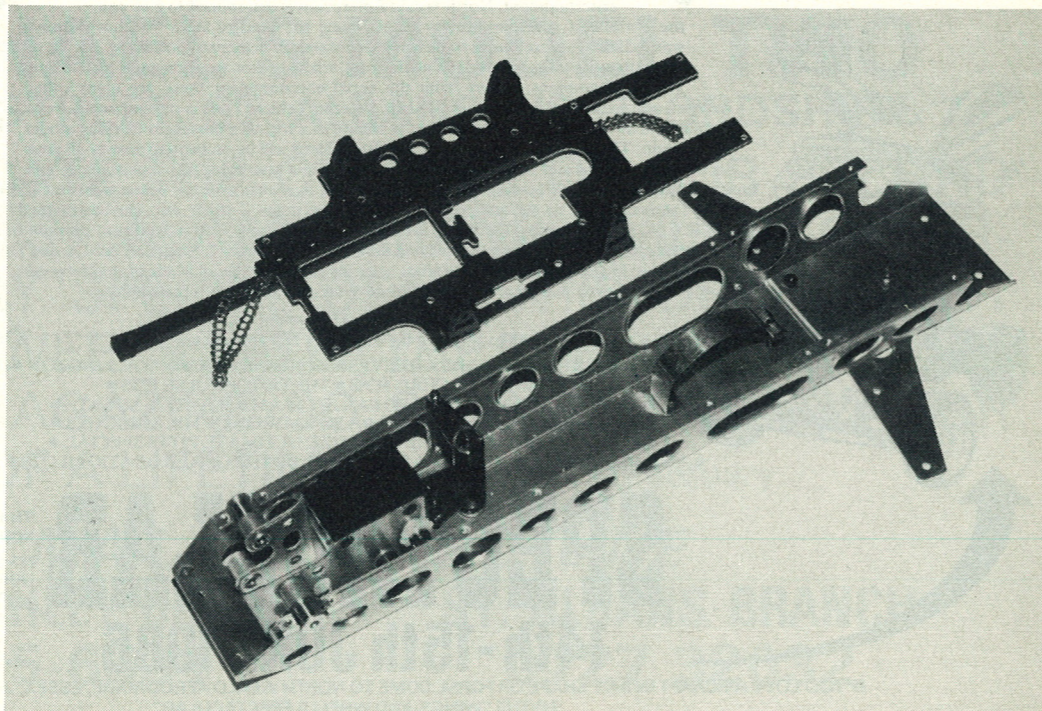
## Getting down to it

All the individual parts packs are letter keyed to pages in the instruction manual which includes English language notes alongside the Japanese. Pictorial representations of the different screws used are given which certainly help to sort out the right screw for the job, but those without specially calibrated eyeballs, a ruler helps to select the correct length as indicated in the manual.

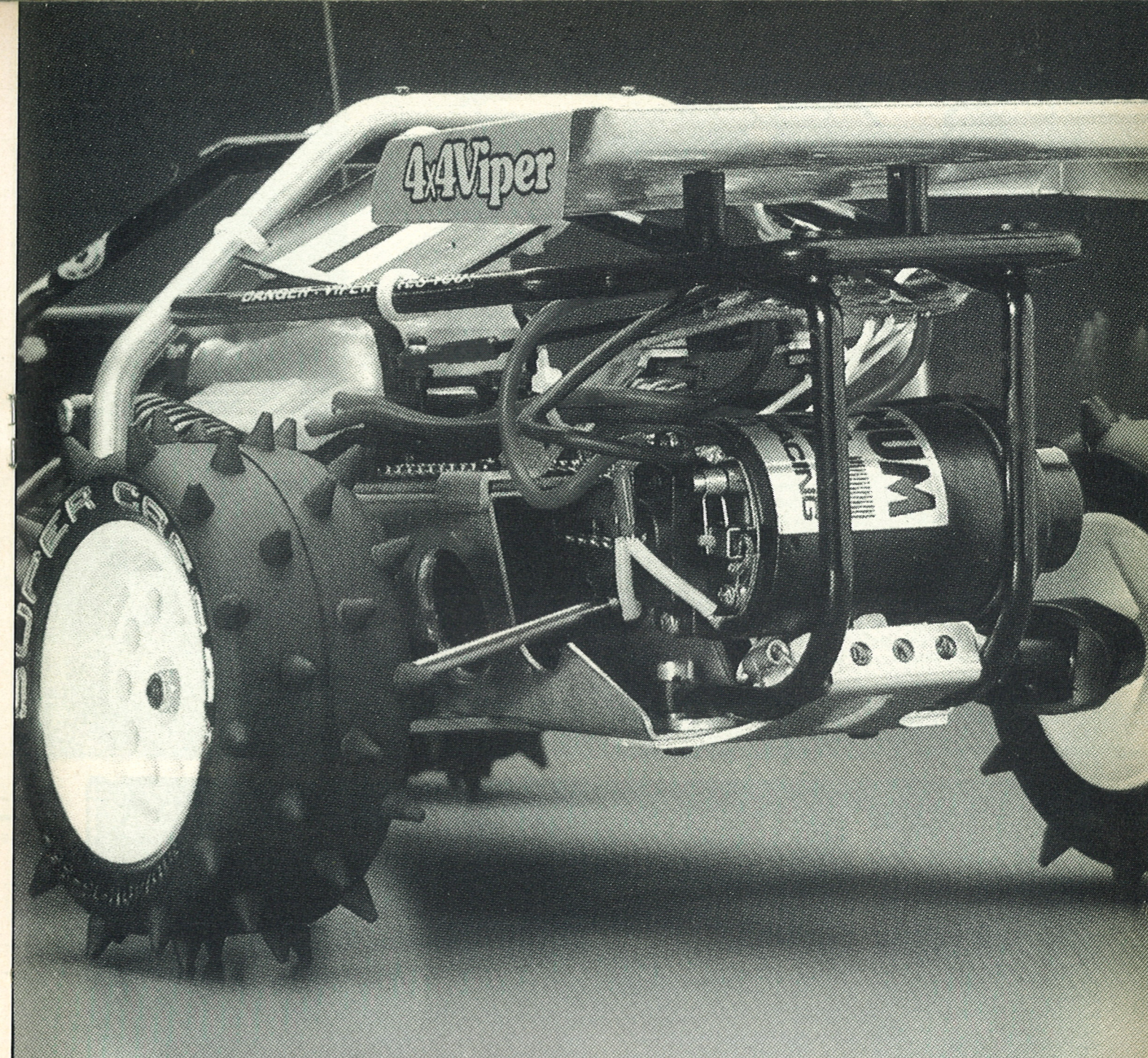
The front and rear gearboxes which are both equipped with bevel gear differentials are already loosely fitted to the chassis with the GRP plates adhesive taped into position. I suggest that at this point the small socket cap screw which bolts through one of the output shafts to link the two drive outputs together is removed and then re-fitted after application of a small amount of thread locking compound.

The plates need to be set to one side whilst one or two oddments such as the servo-saver and battery mounting clip are fitted. This latter item is a neat metal strap which clamps the battery pack into

Below: the two halves of the 'Viper' chassis, the aluminium bathtub chassis and the GRP top deck brace.



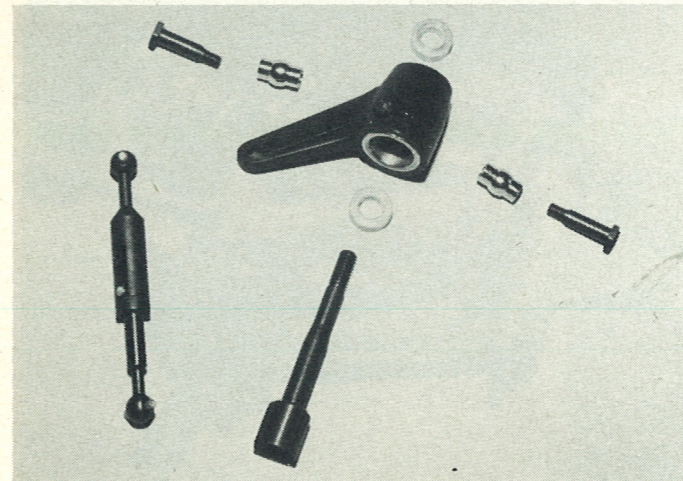
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place by tightening a single screw enabling the pack to be simply removed for charging, changing or maintenance. The dimensions of 20mm quoted for the track rod

lengths were too long; to get the toe-in to a respectable amount required the ball joints to be screwed in quite a lot more than the stated amount. I also needed to dress the inside

edge of the servo mount plate with a file to enable this to be fitted, as supplied it fouled the rear gearbox. Once fitted, the servos are very simply attached with



Left: one of the front steering/drive stub axle blocks, suspension pivots drive sockets and shaft. The drive shafts are spring loaded to ensure their correct length during suspension movement and steering. Bronze bushes support the drive sockets in the axle block.

nylon tie-wraps. At this stage it definitely helps to jump ahead in the instructions and locate the rear bumper and the roll cage rear mounting pins as these are combined with gearbox fixing and serve to space the gearbox up from the chassis to ensure correct chain tension. Nor would I recommend attacking the chain as shown in the book, by carefully jiggling the gearboxes about it is quite possible to fit the chain onto the sprockets and by undoing a few screws, remove it totally if needed.

One of the disadvantages of reviewing kits made itself apparent as assembling the suspension progressed. I received an early production sample of the 'Viper' and hasty consultation with importers *Irvine Engines* revealed that the construction niggles I encountered were already engineered out of subsequent

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kits. The problem areas were in the tolerances of several parts and needed simple 'fixes' to enable the 'Viper' to perform as its designers intended. Because of the addition of steering stops to the front suspension, clearance for the track rods is inadequate, this was simply cured by placing washers between the suspension arms and the gearbox mounted spindle bushes.

The clever spring-loaded front drive shafts easily expand to accommodate the small amount of extra width. Likewise, the ball ends of the rear drive shafts had to be flattened slightly to allow the rear drive to run smoothly. Latest kits have deeper sockets in the rear wheel spindles to cure this problem.

All wheel and gearbox bearings are bronze bushes, the ardent competition minded owner will doubtless exchange these for ballraces at this point. *Irvine Engines* are able to supply these as an optional extra. Once assembled, even without the benefit of ballraces the drive assembly turns freely, the chain drive transmitting motion from front to rear smoothly. One little point that is worth noting concerns the illustrated method of fitting the damper unit mounting balls which shows these being tightened into place using pliers. At the very least the balls should be protected with a scrap of rag, but I would recommend tightening these in a vice using aluminium soft jaws.

The dampers are some of the best I have yet encountered in either 1/8th or 1/10th scale Buggies. They are constant volume type with a super action although the oil supplied is to my mind too high a viscosity. I also have my doubts about the strength (high rate) of the kit springs and will certainly experiment with this important area of the suspension as soon as possible. The flat mounting angle does to some extent compensate for the oil and spring types chosen, the suspension travel is considerable, the stroke of the dampers a mere 15mm. Ride height is adjustable via locking collars fitted to the damper bodies.

Take special care with mounting the two ceramic resistors for the speed controller. Firstly the instructions are none too clear on the siting of this; in fact it is mounted on top of the rear bumper with a tie-wrap but the

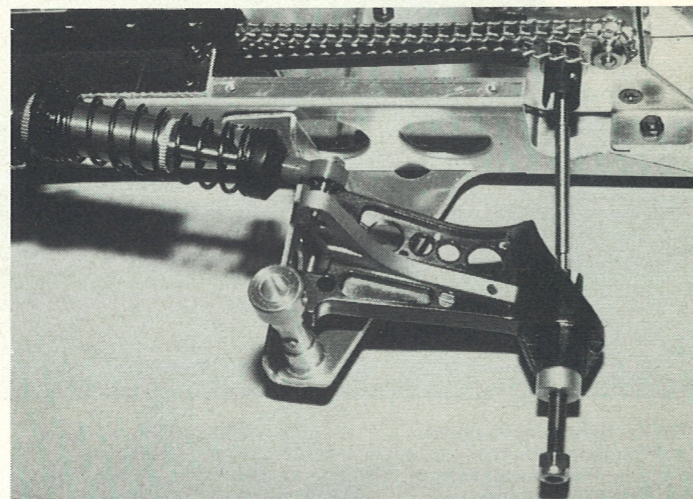
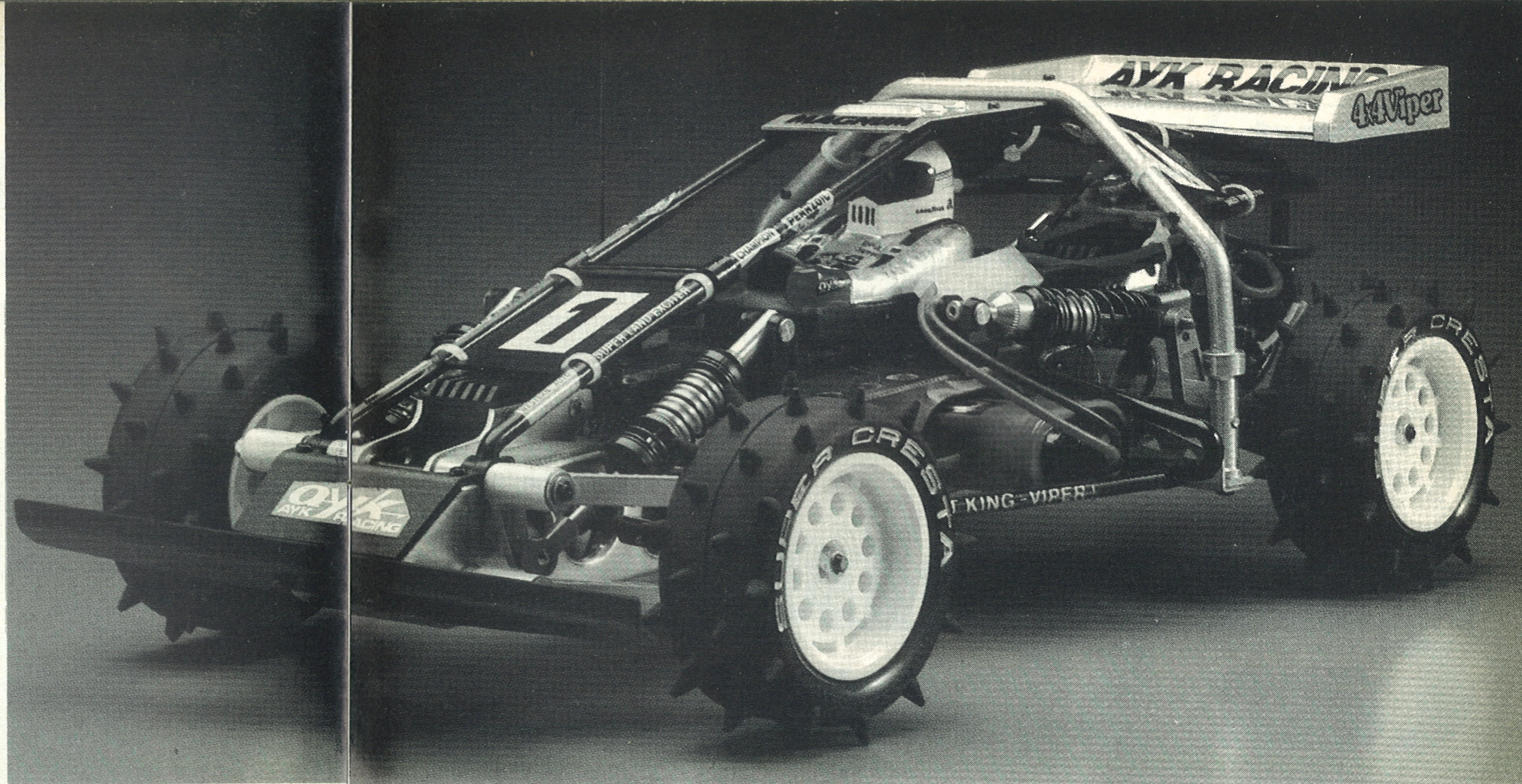
crimped on connecting leads can very easily short out against the chassis or motor case unless they are carefully bent to shape. A *Mabuchi* 540 Black end bell motor is included in spite of the instructions indicating that no motor is supplied. No soldering is needed, all connecting wires for speed controller and battery pack are terminated in eyelets with a polarised connector for the battery pack fitted.

Fitting the R/C gear is simple. The receiver is adhesive taped to the chassis bottom, the battery pack sits in a vacuum-formed tray and is retained with a rubber band and as already mentioned, the servos are fixed with tie-wraps. A piano wire mast is included for threading the aerial around. There is sufficient space within the chassis to tidy up the wiring to the extent that there is virtually nothing showing and nothing to get caught up.

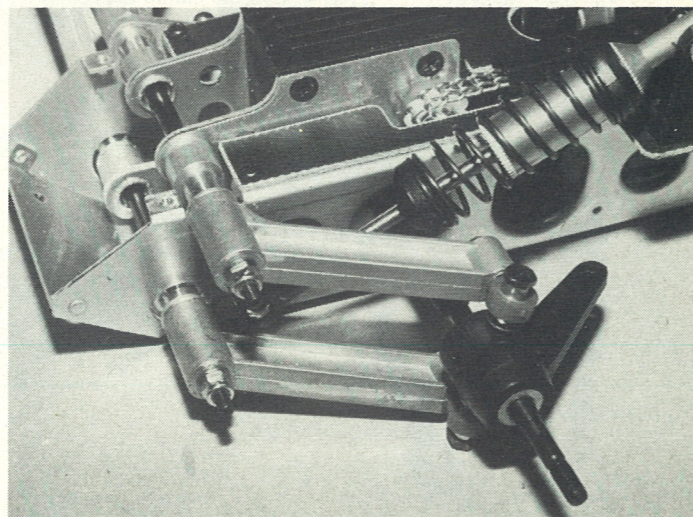
Make sure that you have a really good miniature Phillips screwdriver to hand when assembling the roll-cage, the screws are very small and engage in the plastic to a fair depth. Do rest the parts on the bench and not in the palm of your hand whilst tightening.

Trim the driver figure — there just has to be a 'Driver Figure' and use him to disguise the battery pack, clip on the roll cage and charge your batteries. And don't forget those decals, there are one or two 'screamers' on this sheet, how about — 'Super Land Exciter' or if that doesn't grab you, 'Danger — Viper Bites You' is a must!

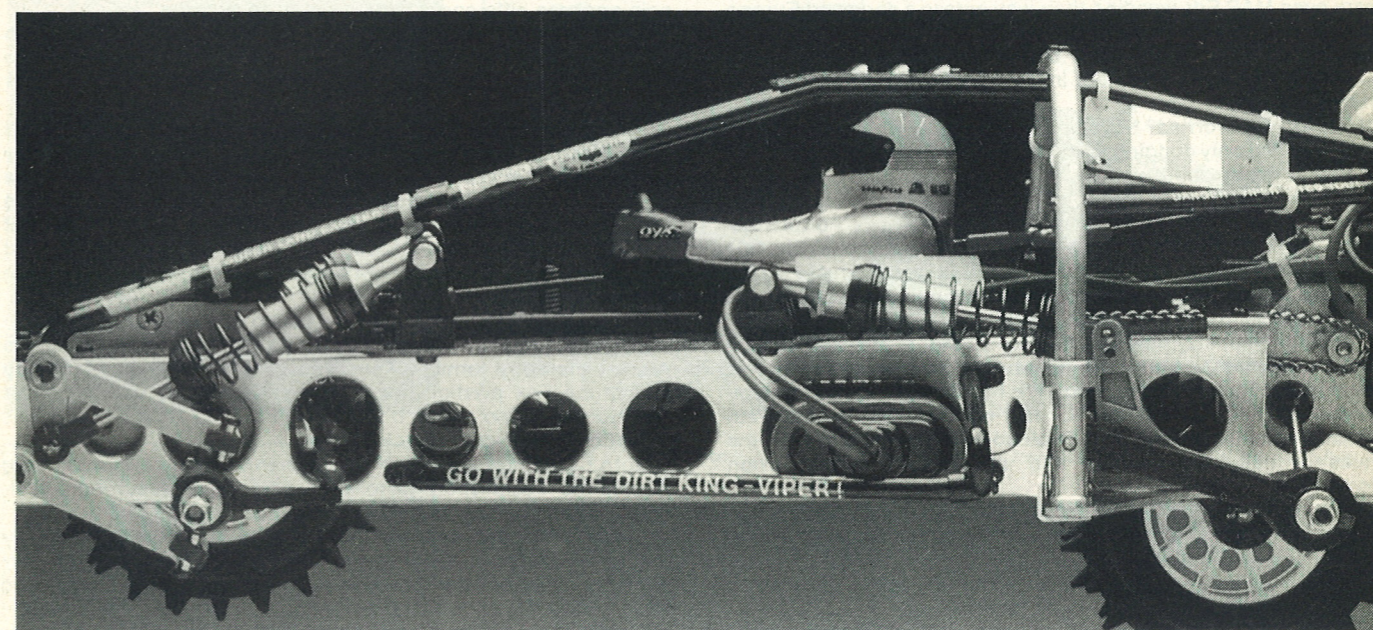
**Manufacturer** — AYK.  
**UK distributor** — Irvine Engines.  
**Price:** £120.00 approximately.



Right: the rear trailing arms are nylon injection mouldings fitted with an alloy damper bracket. Side Nerf rails project outwards from the chassis just in front of the trailing arm pivot platforms for protection.



Right: the front suspension uses double trailing arms as used on the original AYK 'Trailblazer.' The front gearbox/differential unit is the same as that for the rear.



Top side view of the 'Viper' showing the rollbar/cage and side protection rails. Right: wheels and tyres are identical front and rear. Far right: servo installation is by tie-wraps into the GRP top deck brace.

