

**Following on from their successful 'Samerai' kit. Marui present another martial artist. John Cundell investigates the 'Ninja'**

**N**INJA — a sinister Japanese assassin whose trademark was courage, fighting skill, stealth and speed; a leader of men in those far off ferocious times.

**NINJA** — an ultra modern Japanese 1/10th scale Off-Road car for radio control.

No doubt manufacturers, Marui, hope they will have included many of the above qualities in their latest 1/10th release.

They might well be right. With two differential geared axles and shaft drive 4WD system, three-speed forward and one speed reverse sealed mechanical controller, one piece abs resin wheels with wart pattern semi-pneumatic tyres, double wishbone independent sprung and damped suspension, full width bumper and a beautifully streamlined polycarbonate body, 'Ninja' has a lot going for it.

#### Boxes and Bits

The packaging is the

acceptable face of Japanese commercialism; attractive and glossy colour artwork, with all the goodies either vacuum packed or in very well sealed bags and boxes. The packaging is nearly becoming too good!

The initial foray into construction necessitates the opening of what seems like hundreds of plastic bags (12 in fact), but I wish they wouldn't use at least three tiny staples in each one!

Anyway, I suppose it is better than having every component floating around loose which would be the alternative.

Identification of all bags and components is excellent as Marui supply a separate Parts Sheet with all screws, etc., shown full-size — very useful as there are over eight different sizes of tapping screws, nine of bolts and seven washers used.

#### Tools of the Trade

Tools required, apart from the wrench and allen key included in the kit, are long nosed pliers for handling the circlips (not a lot of the latter here which will be a bonus for those who tend to launch circlips anywhere but on the shaft in question, and I am definitely one of those), a knife, scissors, two drills for the body post holes and rear airfoil attachment. Tweezers also might come in useful, some Superglue for the tyres, a hair-dryer for heat shrinking wire connector sleeving, and a large and middle-sized Phillips screwdriver. The Marui instructions call for Phillips, but I found that the screws are of the slightly different Posidrive shape and my blue-handled tools worked better. Readers who read the review in March

RCMC of the 'Mini-Mustang' will recall that Messrs Stanley Tools code their screwdrivers, blue for Posidrive and red for Phillips.

#### Workshop Practice

A blow-by-blow account will not be given as the instructions are very comprehensive. Exploded view drawings, full-size component identification, and use of spot colour to denote application of lubrication, all feature in the instruction booklet.

There are one or two areas where some care is required to avoid problems at a later stage. The only real area of criticism emerges right at the start — the assembly of the gearboxes.

All the complicated parts such as the differential and spur gears go together with ease, as does the part which could give

trouble later. The component in question is the centre drive shaft cup which transmits the power between the two boxes by means of the centre shaft. This drive cup, together with its plastic support bushes, thrust washer and counter bevel gear sits in a moulded plastic extension sleeve, mounted onto the side of the gearbox case halves. Mechanically it meshes beautifully, and is the very first item in the car to be assembled and installed. The trouble is every time you hold the gearbox in anything approaching a vertical position the drive cup drops out, leaving the counter bevel gear and thrust washer floating free.

The washer then drops into the gearbox which is a wee bit frustrating once assembly has moved on. A hi-tech answer in the form of a length of adhesive tape or some other form of

restraint is necessary to prevent this happening, until the centre-shaft is positioned.

Make sure that you use a lasting restraint. I didn't, and yes, you've guessed it, the shaft dropped neatly out of the front box just prior to final assembly and insertion of the centre shaft. 60 minutes later... back to the basic gearbox format... and a further 60 minutes later, back to square one.

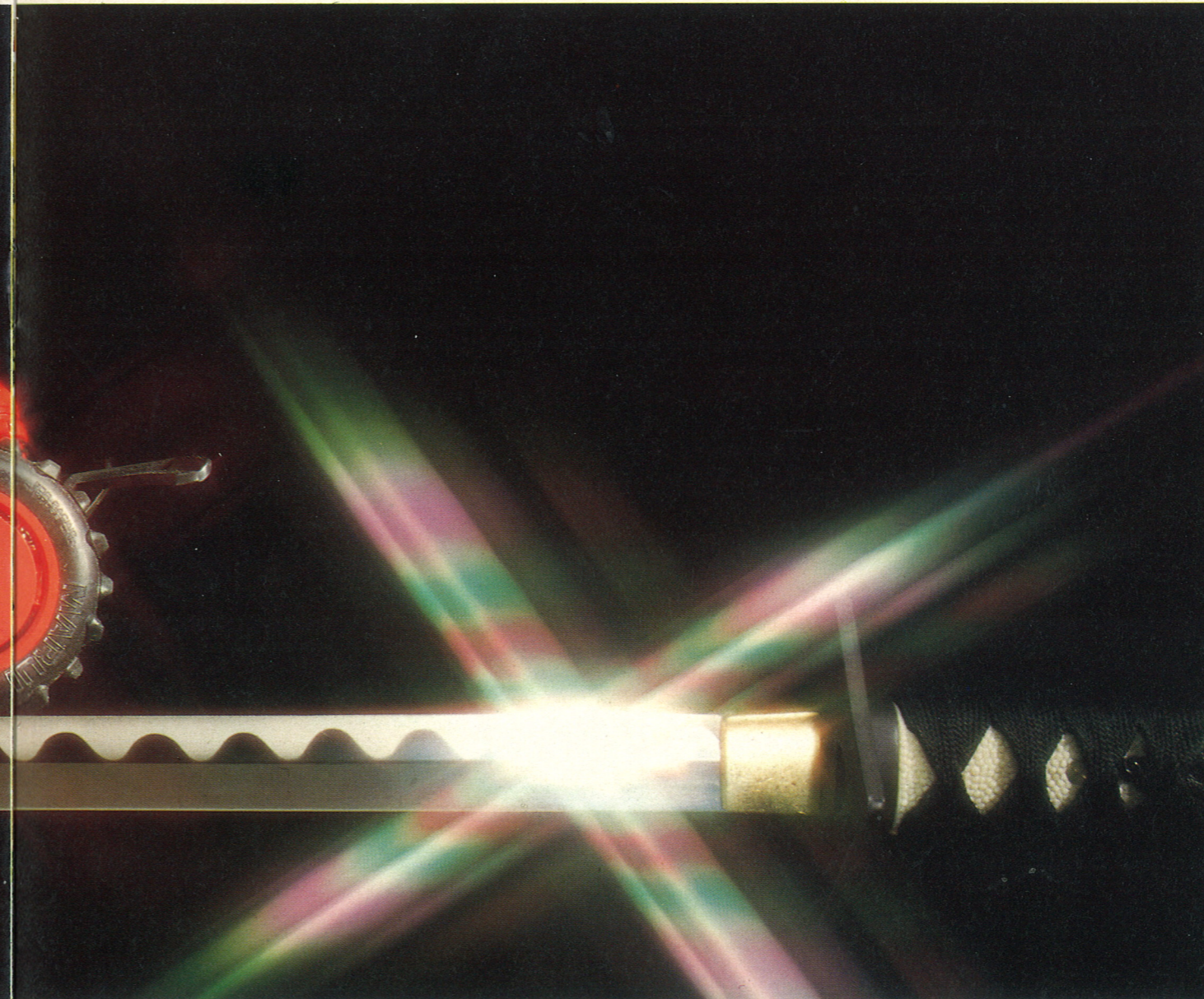
You have been warned. I can see no easy way of preventing this situation unless you have the facilities to pin the counter bevel gear on the end of the shaft. You could always use Superglue, but the time may come when you want to upgrade to the ball-raced version which is available for the gearbox units.

Not a very inspiring start to the assembly, and this was quickly followed by problem

number two. The rear gearbox has two plastic brackets screwed onto its sides to support the rear suspension vertical main frame.

After installation, it was found that one of the screws was fractionally too long and prevented rotation of the differential drive output. After checking the instructions to make sure that the correct length screw had been chosen, and it had, it was necessary to put a washer under the screw head to give clearance.

Despite this disappointing start to the assembly, I am very pleased to report that from this point on, I never looked back. Everything else went together beautifully and confidence rapidly grew as assembly continued. Subsequently a definite feeling of 'Design' emerged which underlined the impression first gained.



### Back to Japan

Well not quite, but I was fortunate in meeting the designer of the 'Ninja' at the Nuremberg Toy Fair just a few days after finishing the car. I raised the above points with him and he was aware of them both and assured me these problems would be rectified in future versions of the car. Problem is probably an unfair word as the shaft works beautifully, so there is no reason to wait for this modification — just take care during assembly.

### Back to the Workshop

The rear suspension consists of cross-braced plastic moulded wishbones cast aluminium hub drivers; and an adjustable upper arm link made up from a steel rod and heavy-duty ball-joints.

The steel drive-shafts are 'sprung' at their inner ends by the insertion of a rubber 'O' ring into the drive cup.

The stub axles sit in plastic bearings (ball-races are available), and are tapered at their outer ends to receive

machined aluminium grooved wheel hubs. A 4mm Nyloc nut secures the wheel.

The RS540S motor bolts into the extreme rear of the rear gearbox, and is protected by a plastic underguard which curves halfway up the outside of the motor can. However this does not cover the ventilation holes in the motor can and further protection should be investigated.

Two motor pinion gears are provided, a 16-tooth for high torque operation, which I elected to fit initially, and an 18-tooth for flat-road surfaces. A neat touch is an access point in the gearcase opposite the gear mesh point to assist in setting up the backlash. This is protected by a push-in and quarter-twist plastic cap, not dissimilar to a full-size car petrol cap.

Front gearbox and front suspension assembly is very similar to the rear and features the same camber adjustment upper arm links. The only difference is that the front lower arms are fractionally narrower at the wheel ends, so don't use

the back ones by mistake or vice versa. It is possible to assemble them incorrectly and this only becomes apparent when you try to fit the front king-pins in place. I know!

### In Control

The mechanical speed controller provided is of the linear enclosed type pioneered by Marui, fully wired to suit either a non-BEC (Battery Eliminator Circuit) radio system by means of the reducing diode, or a BEC system simply by removing the diode. Wiring is clear and uses the method of twisting the bared ends of the wires together and protecting with heat-shrink tubing. I know it works, but my engineering background encourages me to make a proper soldered connection. There is no disputing that the latter gives better conductivity and a much stronger joint.

The controller is very easy to install and sits on the chassis base to one side of the raised battery compartment. It can be dismantled for maintenance. I

found it positive in operation and easy to set up to the servo movement. An engraved line on the lever arm identifies neutral setting.

The servo blocks and servo-saver provided allow for installation of most modern R/C equipment, including Acoms, Futaba, Sanwa and KO. The instructions are excellent and no problems at all were experienced with the R/C installation.

The receiver sits on top of the battery compartment, fixed with the double-sided adhesive servo tape provided whilst the aerial leads away and up the flexible orange plastic tube. A neat matching rubber plug at the top serves to both locate the aerial wire and prevent eye damage.

If your receiver errs on the large side, I suggest you don't apply the servo tape until the final assembly of the gearboxes and the centre shaft, as space is a little tight. I applied mine as instructed and then had to move it — Japanese servo tape beats the home-grown office stickers hands down!

The steering servo-saver is linked to two nylon bellcranks seated firmly on the chassis base by a ball-joint. The bellcranks transmit steering movement to the stub axle blocks by steel tie-rods and more heavy-duty ball joints. The arrangement is smooth with minimum free play and gives virtually no bump steer.

### Bits and pieces

Before screwing the rear gearbox assembly home, you need to draw the resistor and its wiring, plus the speed controller's battery connector through a number of suitably sited slots and tidy up all the wiring with the cable ties provided.

Don't neglect this, especially around the receiver area, as the wires from the servos, etc., could easily become entangled with the high-speed rotating centre shaft, with exciting consequences!

The front and rear gearbox and suspension assemblies can be screwed home, not forgetting to install the centre

shaft, and remove whatever preventative device you used to stop the centre joint shaft dropping out during assembly.

Two protective plastic mouldings at the top front and rear of the car are screwed into position, as is the full width nylon bumper. Apart from the dampers, wheels and body, 'Ninja' is nearly ready for the off.

### Shocking

The dampers and springs are pretty standard, the former moulded from bright red plastic. The piston assemblies have to be made up, and two piston types are available, one for 'normal' effect and one for heavier damping. This is achieved by the simple process of providing plastic pistons with either one or two integral holes through which the oil is forced.

Be careful when removing these from the sprues. They are relatively thin and it would be easy to remove material from the piston which would markedly effect the oil flow. I chose the 'normal' for initial trials, especially as my local

club track does not involve any large jumps, and I anticipated that better handling would be obtained from a 'softer' set up.

'O' rings provide the oil seals and the springs surround the complete assembly. Their initial tension can be chosen by sliding a clamping ring up and down the outside of the piston chamber to the desired position.

Again I opted for a 'soft' setting, clamping the ring almost at the top of the assembly. As usual, the front units are the smaller pair. They are fixed at their tops by a metal collar and screw, and at the bottom, by a tapping screw straight into one of three suitable locations on the lower suspension arms. Moving in or out from the recommended central starting point will increase or decrease the amount of shocker travel, or stiffen and soften accordingly.

### Wheelies

The wheel mouldings are plastic and are streamlined on their outside which will facilitate cleaning. Diameters are 50mm back and 52mm front. The tyres, known quaintly as 'wart' pattern, need to go on in a certain direction as shown clearly in the instructions. Failure to do this will give handling problems.

The fronts are 32mm wide and the rears 38mm. The tyres are relatively easy to slide over the wheels, and need to be secured with Superglue. Use a thin type, and insert same through the small holes that are thoughtfully provided in the wheel rim undersides. The penetrative powers of the adhesive will flow around the tyre circumference and provide a perfect seal. A 4mm nyloc nut secures the wheels.

### Body matters

It looks very uninspiring in the box, but with the black paint and the smart red line self-adhesive decals in place, admiring comments arise from all and sundry. It is of course polycarbonate and needs trimming with scissors and a sharp modelling knife, but the trim points are clearly moulded and there are no real problem areas.

The forward driver's window was removed to provide some ventilation, and two holes are required at the rear for the dampers. Don't forget to smooth off any nicks with a fine file or better still wet-and-dry paper, as poly body splits always start from these points. Be careful not to scratch the surface though.

The four holes at the rear for fixing the airfoil, the aerial hole and the two body retaining clip holes were drilled before masking off the windows.

I used Humbrol Spray Enamel

paint. Before you all start putting pen to paper — 'Doesn't he know about acrylics or special polycarbonate paints, etc.?' — well, yes I do. However your esteemed editor who shall be obeyed said: 'Try this, it works for me!' And it seems to work for me, too. It's cheap, dries quickly, and is easily repairable, at all costs avoid cellulose paints however. Why not give it a try?

The decals are relatively easy to apply and supplied in moderation to give a very pleasing and professional finish to 'Ninja'. The box art very cleverly shows all the technical hardware in a cutaway drawing, and quite honestly does not do justice to the body. It certainly is very attractive and has that indefinable go-faster look. So there we are, off to the track, except we need some power.

### A tight fit

The battery pack, either a 6-cell or 7-cell, fits neatly into the chassis recess, and access is from the underside. There is a tight-fitting plastic cover which slots in neatly and is retained with three clips on the opposite side. Removal is by inserting a large flat-bladed screwdriver and springing the clips outward. The whole system is excellent and keeps the power pack clean and dry.

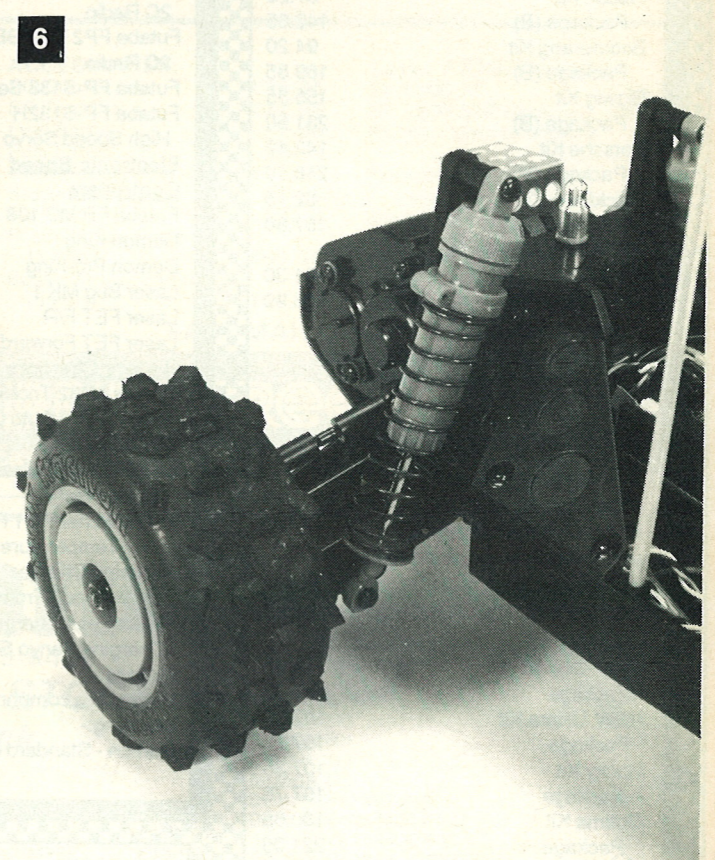
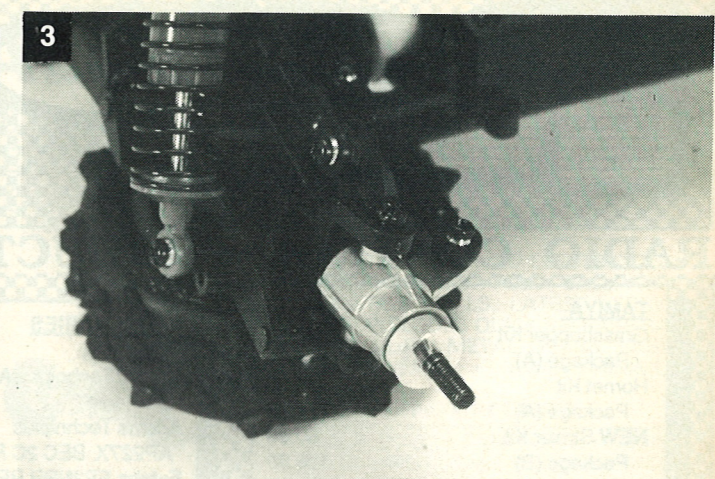
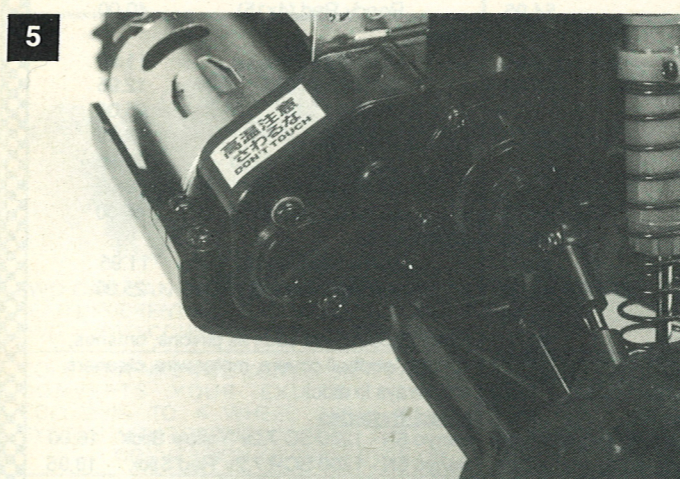
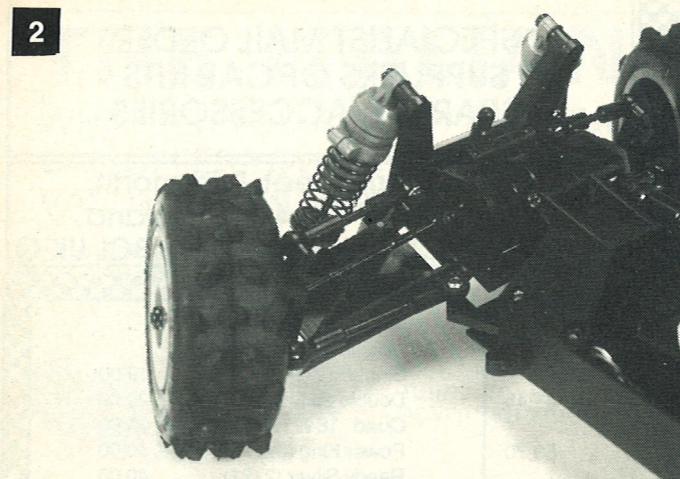
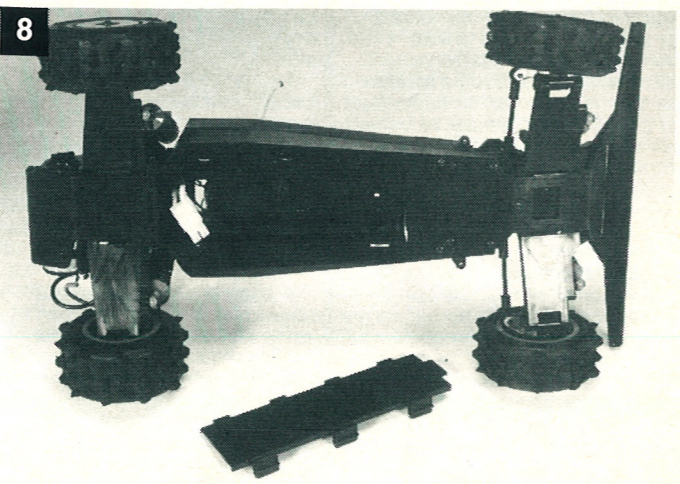
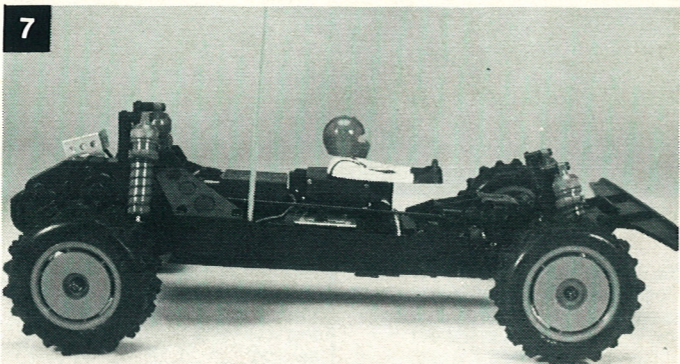
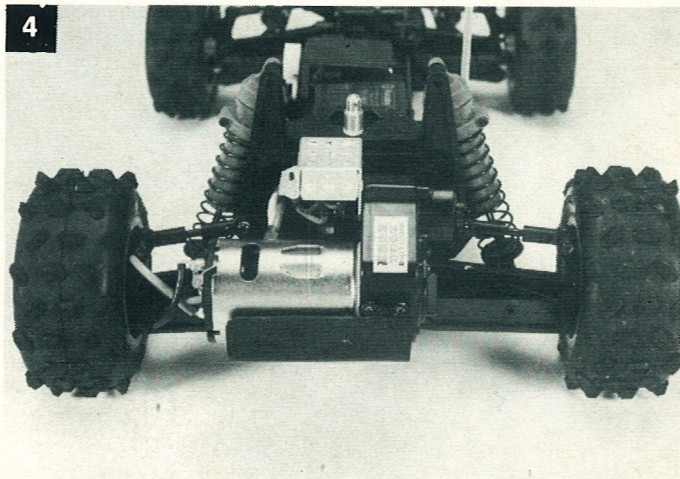
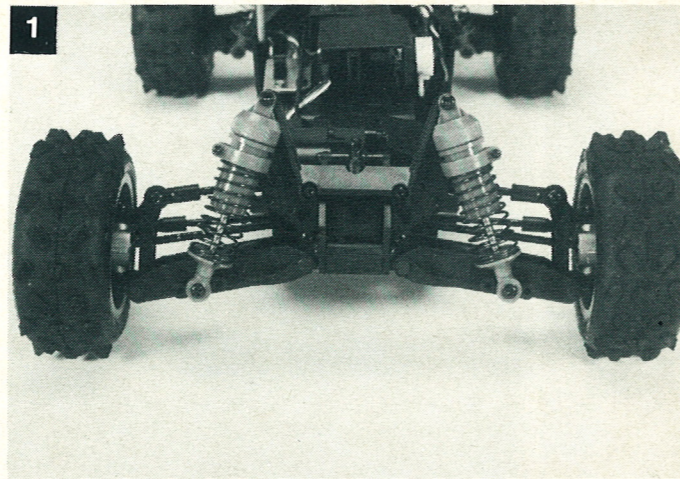
The plan is that the 7-cell pack fits straight in, but for the 6-cell pack, one needs to fit a plastic stop forward of the compartment to prevent the battery sliding around. The leads and connectors are supposed to sit at the rear of the compartment in front of the motor. Unfortunately there just isn't room for the normal type connectors in this area, and I have found it necessary to remove the 7-cell plastic stop, which allows a neat fit of the 6-cell pack, without it slopping around. The 7-cell pack connector leads will need to be extended so that they can be routed further back into the main body of the car. Apart from that, the system is well thought out and a marked improvement on the usual cable tie set up.

### On the track

An initial run prior to cover photography was tried out on a gritty road surface, without the body. I still got told off by the art editor for getting the wheels dirty! The potential with this one trial run was very encouraging. Turning circle was about 1.5 to 2 metres under a variety of speeds and there was no hint of oversteer or understeer. Our first racing outing with the car will be reported next month.

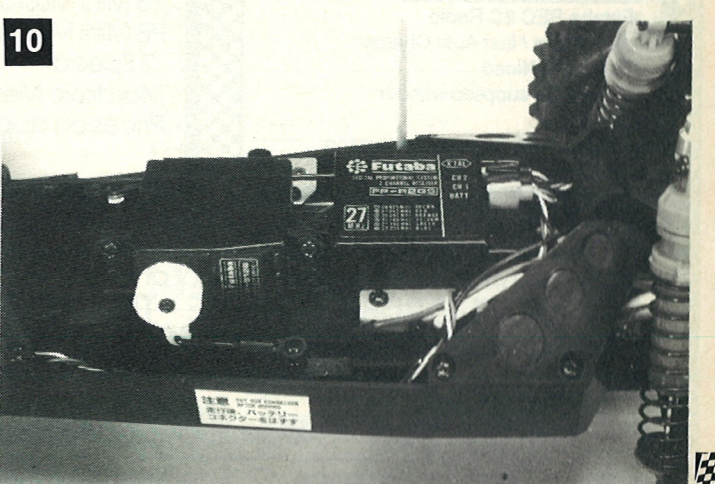
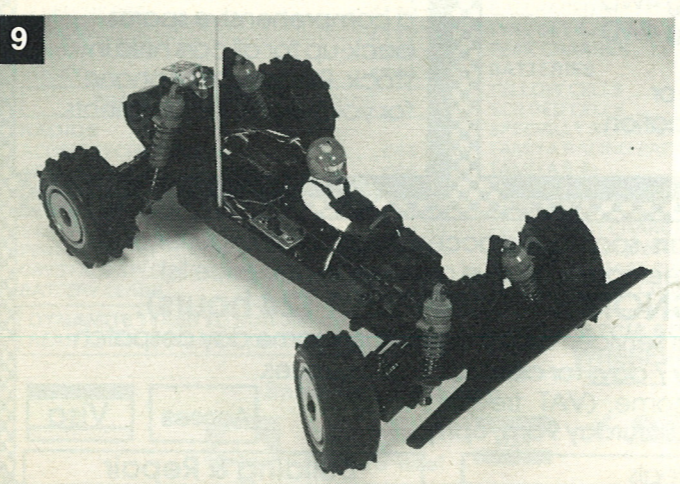
The 'Ninja' is available from all good model shops.

**UK importer:** Amerang Ltd.  
Price: £99.00 approx.



1. Complete front suspension with bumper removed. 2. Strong front wishbones with adjustable upper arm links. 3. Cast alloy steering stub axlelocks. 4. Rear view showing rearward mounted motor and minimal protection. 5. Access point for motor mesh adjustment is covered with a neat petrol-filler style cap.

6. Rear damper positioning has three point location. 7. Neat, streamlined side view. 8. Battery compartment is accessed from underneath. Slot will accept six or seven cell Ni-Cad packs. 9. Completed chassis. 10. Radio gear is sensibly sited for easy adjustment. Speed controller is an enclosed, linear type.



**Marui**  
**Ninja**