

JAPANESE MANUFACTURERS have a knack of producing top-notch Off-Road racing cars in 1/10th scale, Kyosho are no exception, their 'Scorpion' and 'Beetle' electric buggies soon established themselves as the cars to beat in 1983. Now the 'Tomahawk' has arrived boasting a host of minor improvements and a major revision in the method adopted for R/C equipment and speed control mounting. In place of the injection-moulded plastic crate, fitted to its predecessors, the 'Tomahawk' uses the shaker plate style of mounting favoured by 1/12 circuit racers and several other 1/10 electric vehicles. Such a layout does not offer quite the same degree of waterproofing provided by the crate style, but Kyosho have expended quite some thought in protecting the vitals and ensured that the full equipment tray can be removed easily for cleaning and maintenance.

Excellent free-moving suspension with oil-filled dampers provides very compliant suspension, a differential is standard and a fair range of

suspension adjustments are provided to allow drivers to tinker away to match the cars handling to their driving styles.

### Assembling the 'Tomahawk'

Presentation of the kit is faultless in best Japanese style, all parts are nicely displayed within the superbly colour printed box. Instructions are comprehensive and throughout the construction never give a moments doubt as to exactly what to do. Thread locking compound and shock-absorber oil are provided, the oil being also suitable to lubricate all the various parts during assembly.

A basic square section aluminium rod chassis is spaced apart in ladder form by aluminium alloy cross rails — or rungs. I checked the bends at the chassis front end and also tweaked the chassis true on assembly. The aluminium alloy gearbox is ready assembled, there are no ballraces supplied, but these are available as accessories. I took the trouble to modify the motor mounting plate at this stage so that I

would be able to 'Mix-n-Match' the gears supplied to produce an intermediate gear ratio. A Mabuchi 540 motor is included.

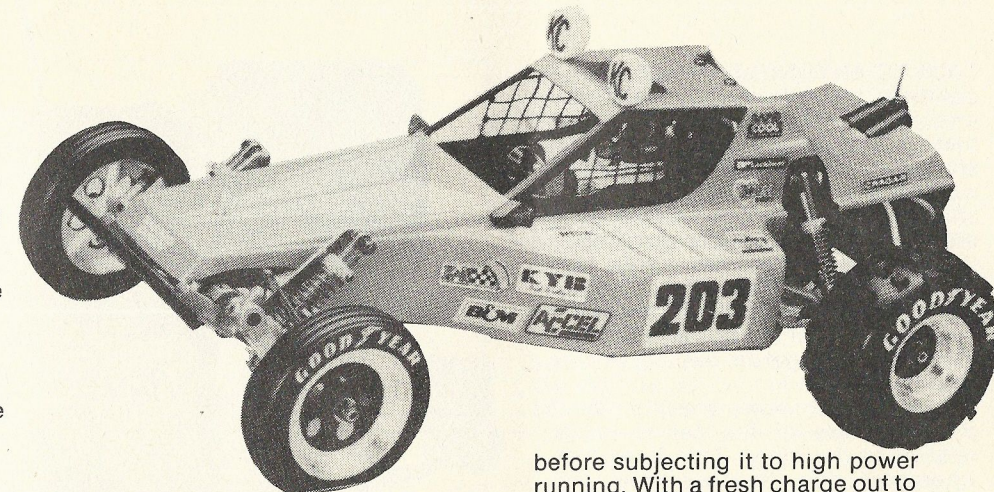
Building the suspension does demand care, it is important that the wishbones move absolutely freely and a little fiddling is needed on the front end to set the pivot rods properly and lock the upper radius rod ball-joint into the correct place as this sets the downward suspension movement limit on the front trailing arms. If the suspension travel is set too long, the steering track-rods will foul the chassis rails.

The alloy-plates that hold the rear wishbone pivots are slotted allowing for drive-shaft end float adjustment and should not therefore be locked up fully until the rear wishbones and spindles are fitted. Ingenious roller bearings are provided for the new wheel spindles, small moulded plastic cages space out six hardened steel rollers. A little grease is helpful in keeping the rollers and cage in place whilst the unit is assembled onto the wheel spindles. Small moulded plastic

the rear wheels and tyres together at this stage even though the instructions save this for later. Without the wheels in place the spindles slip out of the wishbones and can allow the roller bearings to fall apart. Rear wheels are assembled without any adhesive, a plastic ring fits inside the tyre and when the wheels are screwed together over the tyre, the tyre is squeezed between wheel rim and ring and held solidly in place.

Suspension mounting plates are slid around until the drive shafts have the stated end float and then locked up tight. Front wheel bearings are bronze bushes and the tyres in this case are glued to the rims. A good roughening up of the plastic wheels is recommended before super-gluing the tyres in place.

R/C equipment fixing uses a combination of double-sided foam servos tape and tie wraps. Servos are soon fitted into place followed by the receiver battery pack and switch for which a splash-proof cover is provided. Speed control is a three-speed and reverse servo-operated unit with resistors, clamped underneath a heatsink on top of the gearbox. A vacuum-formed Lexan cover which incorporates a painted driver figure covers over the speed controller, servos and receiver, this is held in place with two quickly detachable



body pins. The six-cell Ni-Cad drive batteries are held underneath the shaker plate with re-useable tie wraps. Last task was to wind up the spare receiver aerial onto the neat card supplied and route the requisite amount out to the rear-mounted whip aerial.

Several little ancilliary parts such as lights, mirror, dummy exhausts are supplied for fitting to the Lexan body once this is trimmed and sprayed and this does add a nice touch to the otherwise rather bare appearance of a Lexan body.

### Racing the Tomahawk

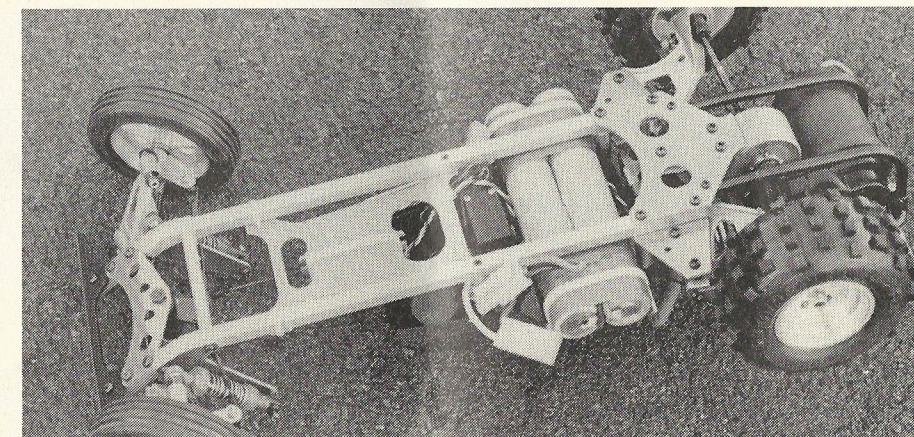
In my usual fashion I ran in the motor and gearbox running light

before subjecting it to high power running. With a fresh charge out to my standard test track — the road and garden outside my house and away she goes.

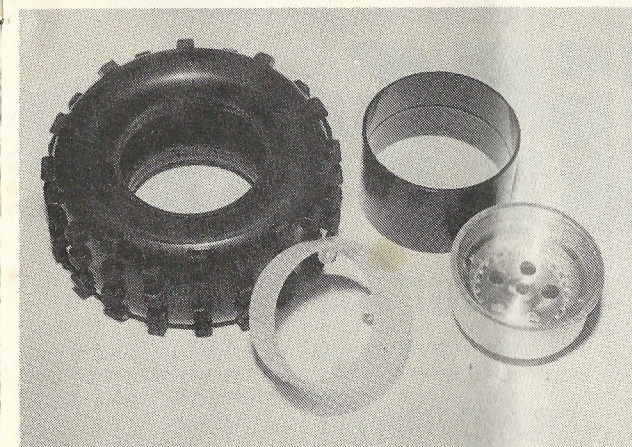
Speed is excellent, full power on tarmac or grass is fully controllable with progressive power-on understeer. Taking the power off in turns provides over-steer but only at high speed and on tarmac this does cause a spin. There is a noticeable tendency for the front wheel on the inside of a turn to lift completely clear of the ground, jacking up the springs on the rear cures this, but as it does not seem to affect the handling, three-wheel cornering does seem to be preferable to jacking up the rear springs. Slow down and the steering really does bite, plenty of turning power aided by the differential. The three steps of the speed controller are well spaced, but the braking resistor is a little fierce, I would imagine it to be quite capable of locking up the back end on low traction surfaces.

Overall a well balanced car, easy to drive which must be good for competitive owners with an excellent suspension system and well proven drive train incorporating a number of worthwhile improvements. A car to be reckoned with this season.

U.K. Importer/Distributor: Ripmax Ltd., Ripmax Corner, Green Street, Enfield, Essex.  
Price: £99.50.

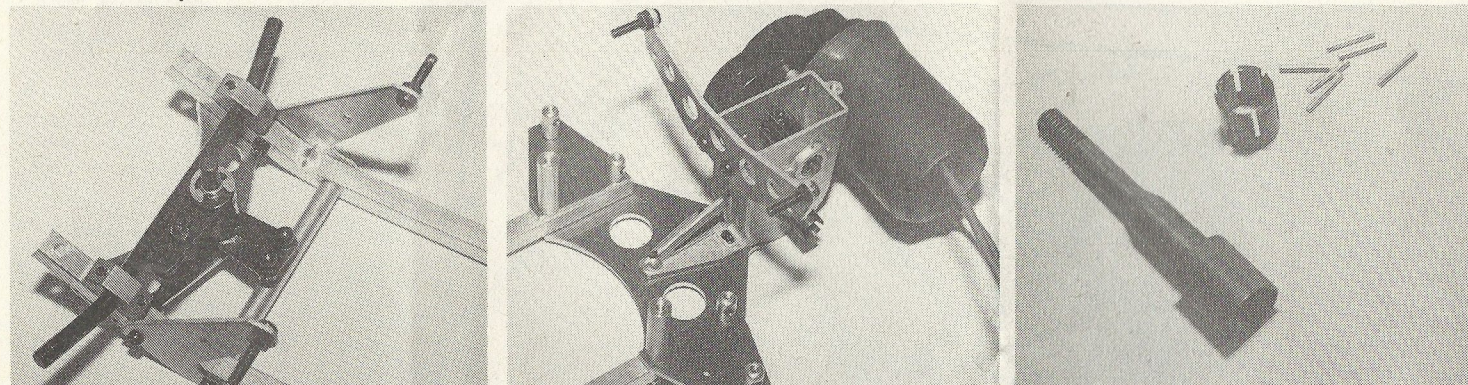


Above: underside view of 'Tomahawk' showing battery location and power connection to speed controller. Left: wheel and tyre assembly is clever and very positive.



## KYOSHO Tomahawk

Bill Burkinshaw builds the latest 1/10 electric off-road racer from Ripmax Models



Above left: stage 1 of front suspension assembly. left: front suspension fully assembled. Above centre: motor and gearbox bolted to chassis. Above right: rear spindle run in plastic caged roller bearings. Right: rear end ready to roll.

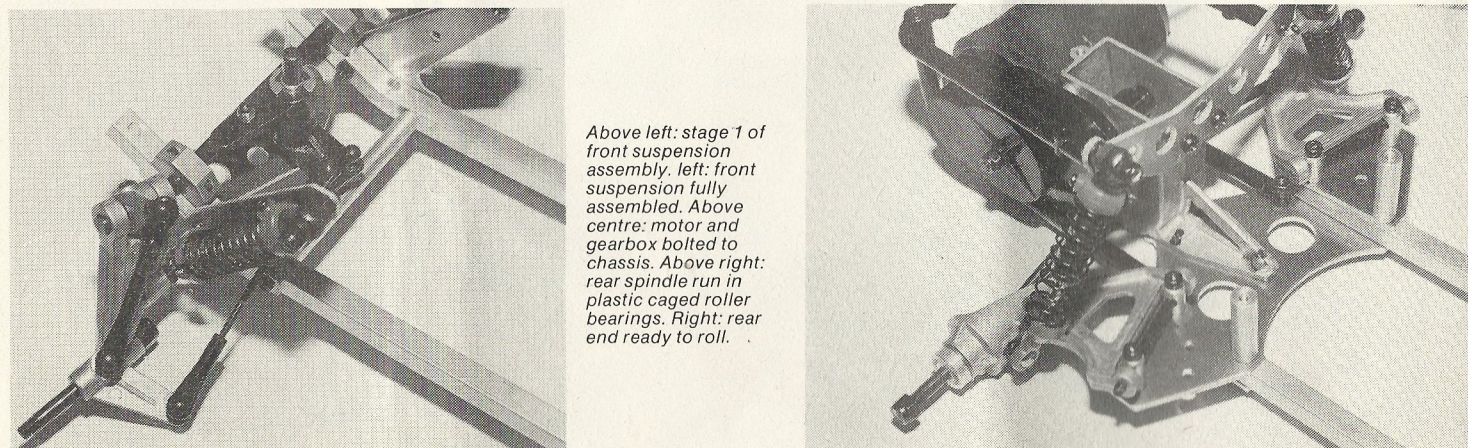


Fig. 1. R/C equipment and speed controller layout

