

KYOSHO COSMO

Andy Brasted builds Kyosho's latest two wheel drive starter

About a year ago after the release of the four wheel drive 'Optima', Kyosho produced a low cost two wheel drive car which was ideal for beginners called the 'Pegasus'. Kyosho have now revamped and upgraded this car producing the new 'Cosmo'.

The kit comes in the usual excellent packaging with superb pictures of the car on the box. All the parts are bagged and labelled and are supplied with the usual detailed instruction booklet and decals.

Construction

As this is similar to the 'Pegasus' I shall not go into too much detail but I will go through it as an overview for those who don't know much about how this car was constructed.

Construction begins with the gearbox. This consists of two halves which house the double reduction gearing and differential. The differential is similar to the *Mauri* style in that it has three planetary gears which fit into the main gear. This should make things run smoother as the gears on the outputs should be self centring. All of the gearbox gears are made from strong nylon. All gears are coated in silicon grease (which is supplied). All the bushes in the gearbox can be upgraded to ballraces. Having put the gearbox together the motor pinion is fitted to the motor and this is bolted into place. The pinion is probably the most fascinating and infuriating part of the kit. So as to overcome the damaging effect of snatch in the drive system when the car is driven hard, Kyosho have developed a slipping clutch (or *stripping clutch!*). This little unit requires further description.

A greased shaft is fitted through a metal cup which has teeth at one end. Two rubber 'O' rings then fit over the shaft and into the cup. A drilled and tapped round plate is fitted onto the shaft and pushed against the 'O' rings. Now for the tricky bit; three small ballbearings are fitted into a hole in each of the three clutch shoes. Then, without dropping any of the nine balls (could be painful) fit the clutch shoes into the cup the correct way round. Another round plate then clamps the whole unit together. To hold it all into place three screws pass

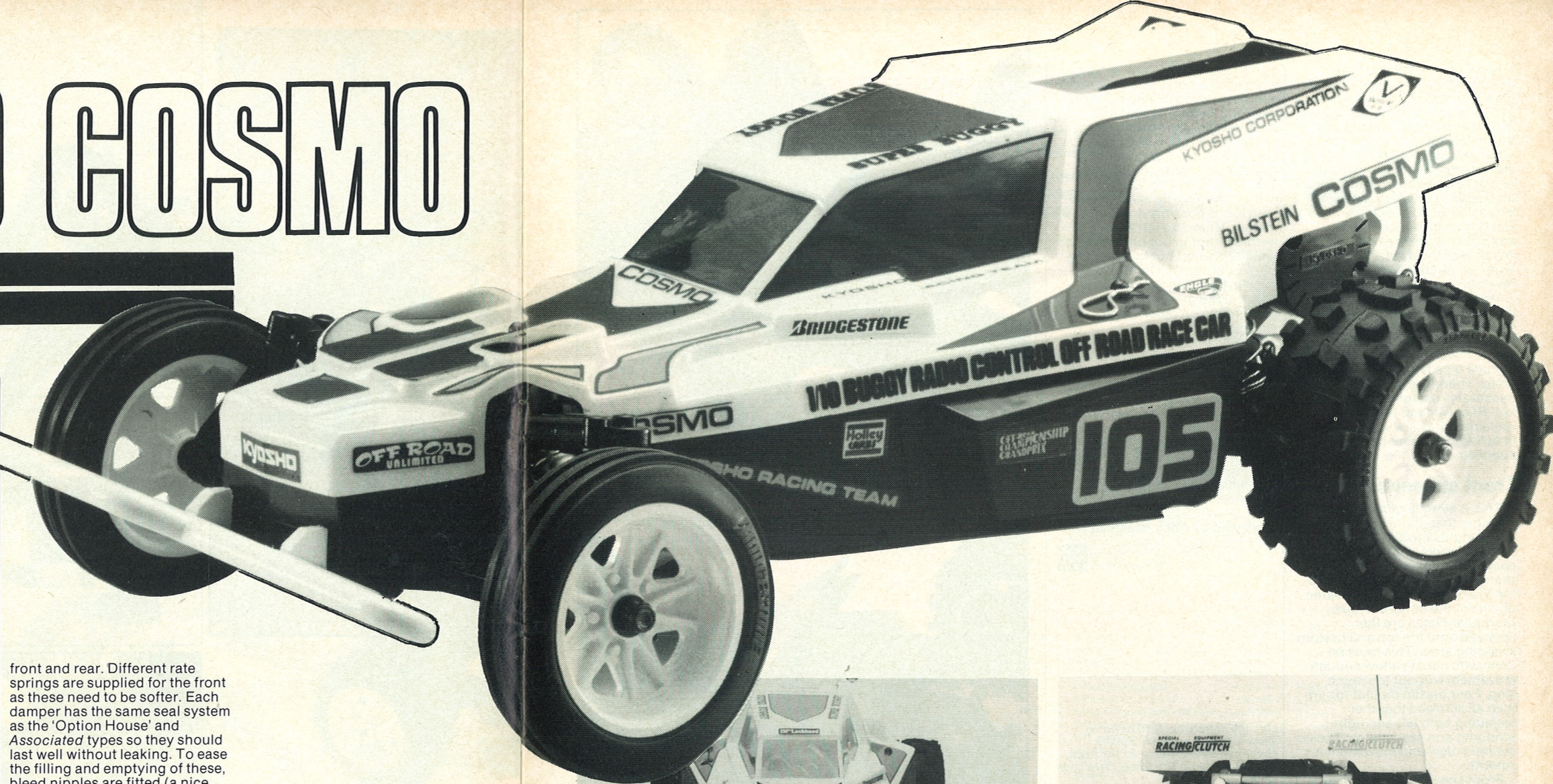
through this last plate, through one clutch shoe each and into the lower plate. Thus the shoe can pivot on the screw and roll on its balls. As you can see this operation is not easy but is the only part of the kit which may require help if being undertaken by our younger readers! The way that this little device works is simple. As the motor accelerates the shoes fly out and drive the outer cup and therefore the pinion. This system is very similar to the way that an I.C. car drive works. If there is any shock to the drive system the clutch allows some slip especially when accelerating from the start. It also saves battery life as the high current required for a standing start is substantially reduced.

Back to the construction

Having fitted the motor, the rear cage is screwed on around the motor and gearbox assembly to protect it. This cage is made from a white plastic which is fairly strong and looks good too! Four screws attach the drive system complete to the chassis. The chassis is a black moulded one piece bath tub. Therefore, it keeps everything clean and dry. The rear plastic moulded trailing arms are screwed to the underside of the chassis. This is the one part of the car that I really did not like. The pivot for these arms is a flexing piece of plastic. Having said that, they did work perfectly well and without breaking. Only time will tell but I know one old 'Pegasus' that has never broken this joint so — who knows.

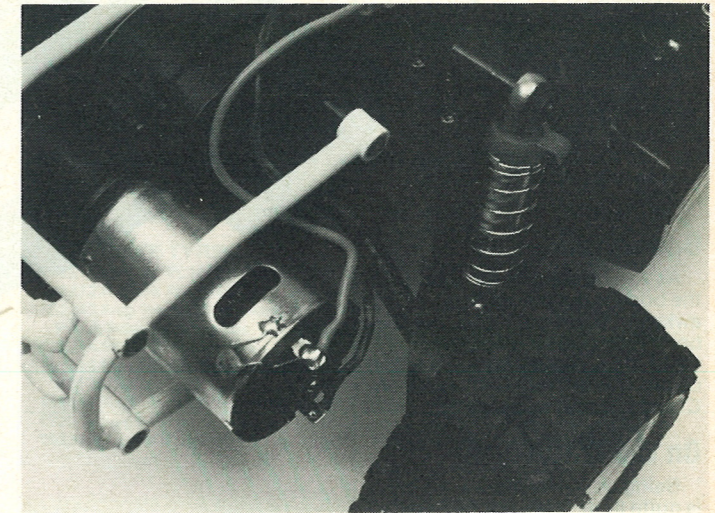
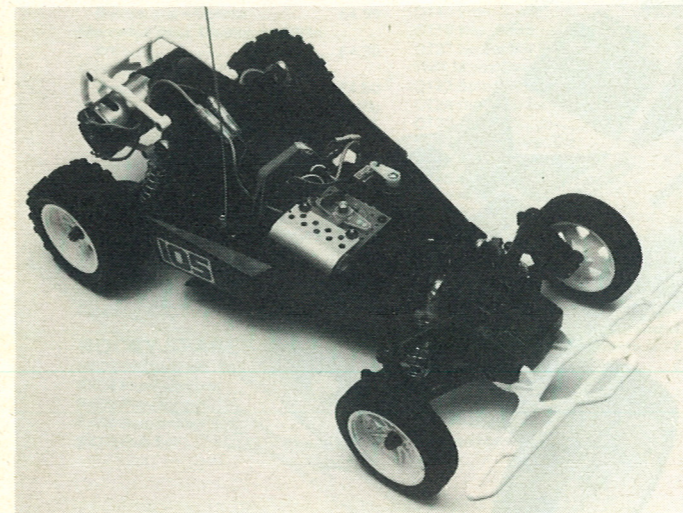
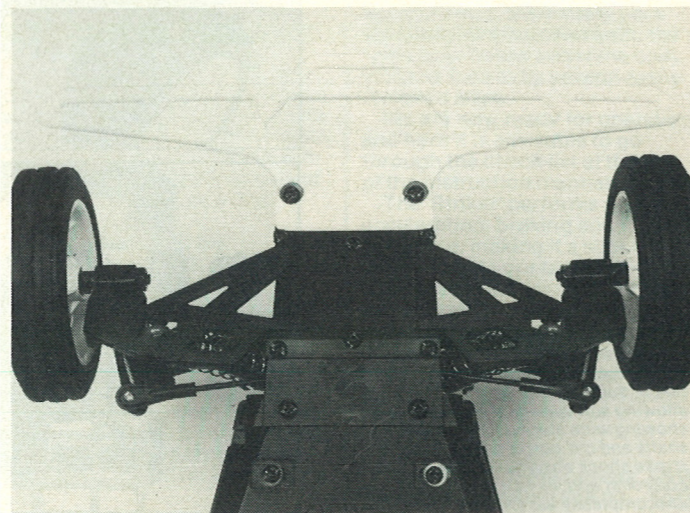
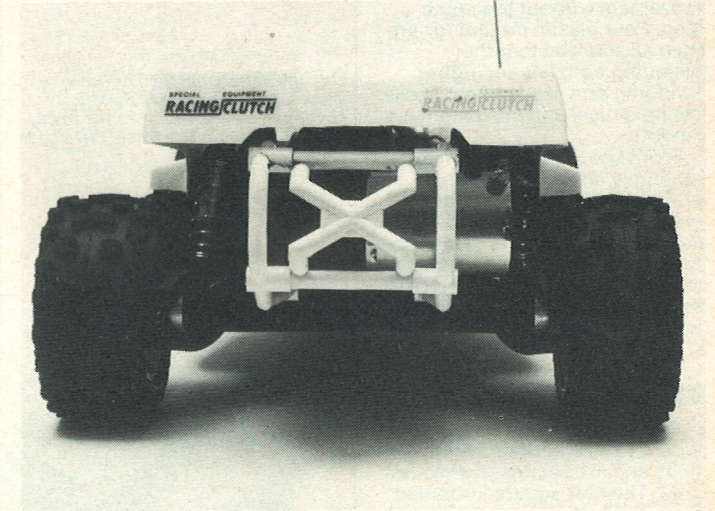
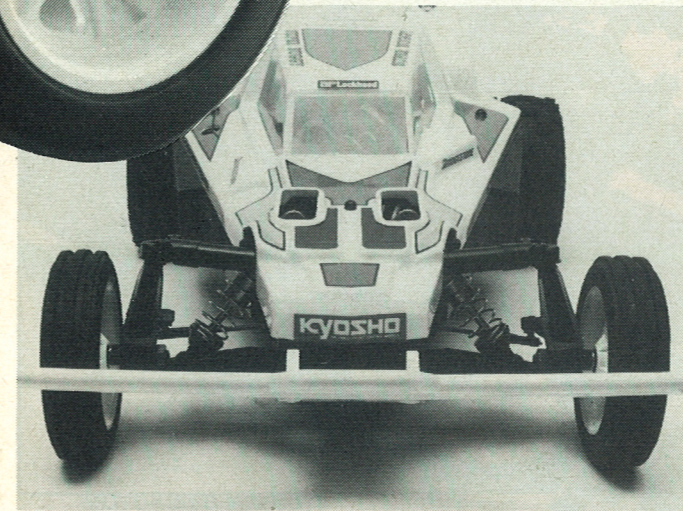
Greased output shafts are also fitted at this time along with the drive shafts. These output shafts were cast alloy in the review kit but are to be replaced by stronger plastic ones I am reliably informed. (Thanks John). Plastic drive shafts are used to connect the output shafts to the gearbox, these shafts are very thick and have four point starred ends. Under the chassis is fitted the battery box cover which seals in the *Ni-Cads* underneath keeping them clean and dry.

The shocks are of excellent quality and are the same size



front and rear. Different rate springs are supplied for the front as these need to be softer. Each damper has the same seal system as the 'Option House' and *Associated* types so they should last well without leaking. To ease the filling and emptying of these, bleed nipples are fitted (a nice touch). Two shocks (the ones with the heavy springs) are fitted to the rear mounts in the usual way.

Top right clockwise: the front shocks sit at around 45 degrees. Rear is protected by white plastic guard. Standard motor produces plenty of top speed. Overall view less bodyshell shows internals. The front has a smooth undercarriage.



TRACK TEST

Next, unusual at this time, comes the installation of the radio gear. The two servos are screwed to two square pillars which screw in turn into slots in the chassis thus allowing for all different sized servos to be fitted. The steering links fit to a universal servo mounted servo saver which just requires a disc or bar type servo output horn. A fairly standard mechanical speed controller is screwed into place which is of the wound resistor type i.e., variable forward and reverse.

This connects to the servo horn by a wire link. Motor wires have connectors fitted which fit sockets in the speed controller wires. The controller has the Tamiya type Ni-Cad connector fitted. Therefore, no soldering is necessary (useful in a beginners' kit). Receiver and batteries (if radio batteries are used) are held in by strong rubber bands — supplied.

Front suspension

This is slightly different and stronger than the 'Pegasus'. The two uprights have their axles bolted to them. A threaded ball passes through a hole in a triangular plate and screws into the top of the upright. The same occurs at the bottom. These triangular plates are then screwed onto the top and bottom swinging arms. This must be done with care to allow enough movement without too much slop. Four plastic mouldings are then all screwed together clamping both left and right swinging arm assemblies. These are held nice and movement is smooth.

Front shocks fit within this assembly and are therefore protected. The front bumper (white plastic to match the rear cage) is bolted to the underside, four screws hold this assembly to the chassis as did the rear. It just remains to 'pop' the steering ball joints over the balls on the steering arms.

Wheels and tyres

Front tyres are of the ribbed type. These are fitted over their hubs and are secured by 'cyano' glue. The rear square knobbed tyres are bolted to three part hubs as on most other cars. Front wheels are held on by 4mm Nyloc nuts and have plastic bushes (jp gradeable by ballraces).

The rear output shafts have a pin through them, and a hexagonal plastic drive washer fits over the pin and the wheel fits over the nut. 4mm Nyloc nuts hold the wheels in place.

Bodyshell

As can be seen by the picture the body is quite nice. The awkward holes are pre-cut so the body just needs the edges trimming, a nice spray job and the decals (plenty supplied) stuck on. Charge up and away we go.

On the track

Being basically plastic the car is quite light. The supplied gears

give a ratio of 7.7:1. Out in the street with a good turn of speed 5 minutes was no problem but on the track I would expect that some gearing down may be necessary. Front suspension is a little stiff with the supplied damper oil. Lighter oil will cure this. The 'Stripping' 'Crutch' works surprisingly well but how long for, is possibly another matter. There is a fair extra weight hanging out on the end of the motor shaft but this may not cause a problem. On the grass the clutch did appear to slip a little but the grass was much longer than on most 'Buggy circuits'.

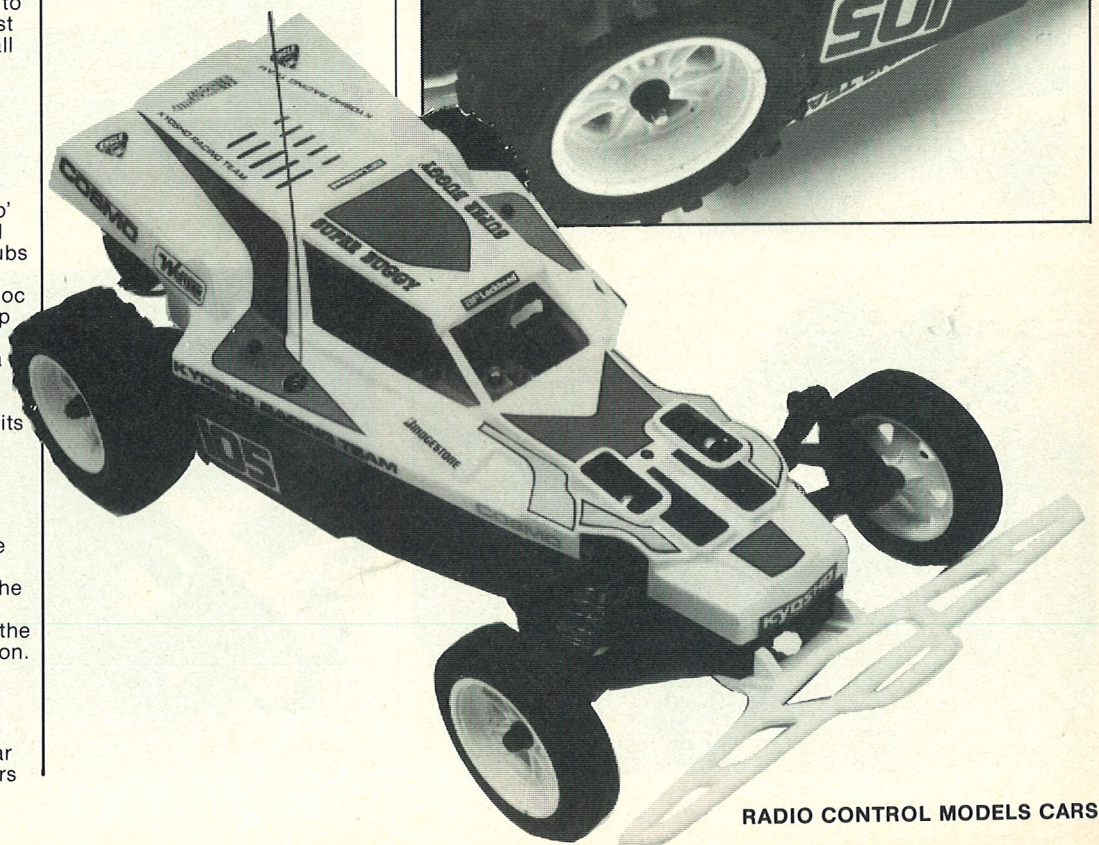
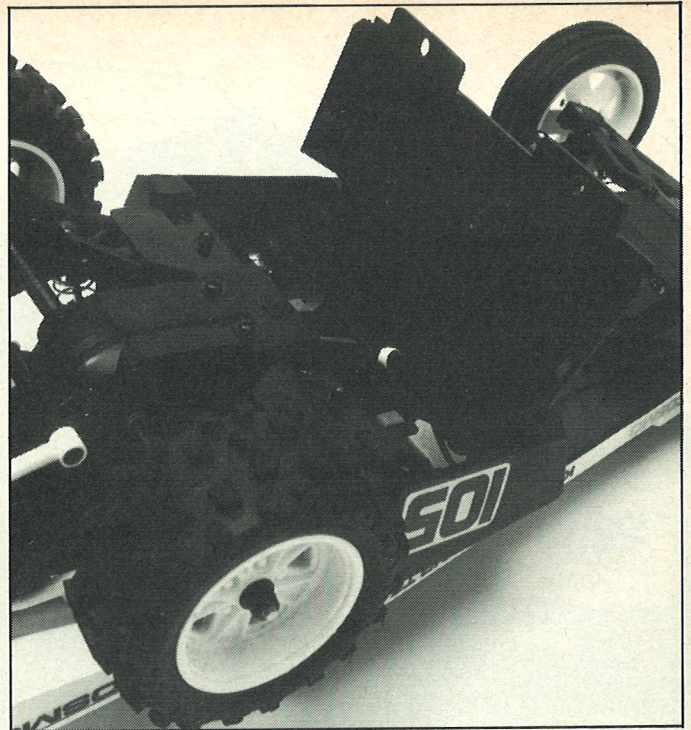
Finally, this kit is aimed at the lower end of the market place and should do well for beginners. To assist them most of the screws are the same length.

However, a nicely prepared model at a lower price, to contest the *Mardave 'Meteor'*/Tamiya 'Striker' end of the market although slightly more expensive. Available from *Ripmax/Kyosho* stockists. **Priced approx. £80.00.**

Reviewed by Andy Brastead



Left: the battery hatch 'flips up' to allow for quick and easy battery changing. Below: ready for the track, will Cosmo bring two wheel drive back to life?



TRACK TEST