



ASSAULT

Rather than fade out their popular 'Scorpion' 1/10th scale electric buggy, Kyosho have created the easiest to start engine powered car yet. Bill Birkinshaw tried it

TRACK TEST

Smaller scales of I.C. engine powered Buggies or Circuit Racers have never been popular in the UK. Until now, the larger 1/8th scale machines have stolen the show both for competition and fun use. If any model could boost the popularity of 1/10th scale I.C. powered Buggies then this *Kyosho* kit is it.

With the best will in the world and a great deal of enthusiasm to boot, the beginner is frequently totally lost when it comes to actually starting and operating the engine of an I.C. powered model. In many cases the engine is never properly tamed and the resulting frustration can put a prospective enthusiast off model car racing for life. The alternative of electric power is always there of course, but for many the noise, smell and usually the sheer added speed of the I.C. powered machine is what appeals. The electric solution with all its attendant simplicity cannot give that same

satisfaction. I have to confess that I fall into the latter category, but with 30 years of experience at handling small I.C. engines behind me, the problems likely to be encountered are easily overcome.

Kyosho have recognised the difficulties and come up with simple and clever solutions that work. The initial choice of 1/10th scale for the 'Assault' has a fair degree of logic on its side, the engine required to power the model can be a reasonable capacity, at 0.10cu.in. it is big enough to be reliable and non-critical on its setting and be included in the kit which can carry a price tag that will not provoke a heart attack!

Mechanics of the well-proven *Kyosho* 'Scorpion' can in the main be used with the obvious additions of a clutch, fuel system and alternative engine mounting method, with the benefits of ready availability of spare parts.

So much for the concept,

how well have *Kyosho* realised their aims? Overall, very well. The one area of criticism I have relates to ball-races in the gearbox, or rather the lack of them and this can be overcome by the purchase of already existing parts and in any event does not stop the 'Assault' from functioning well.

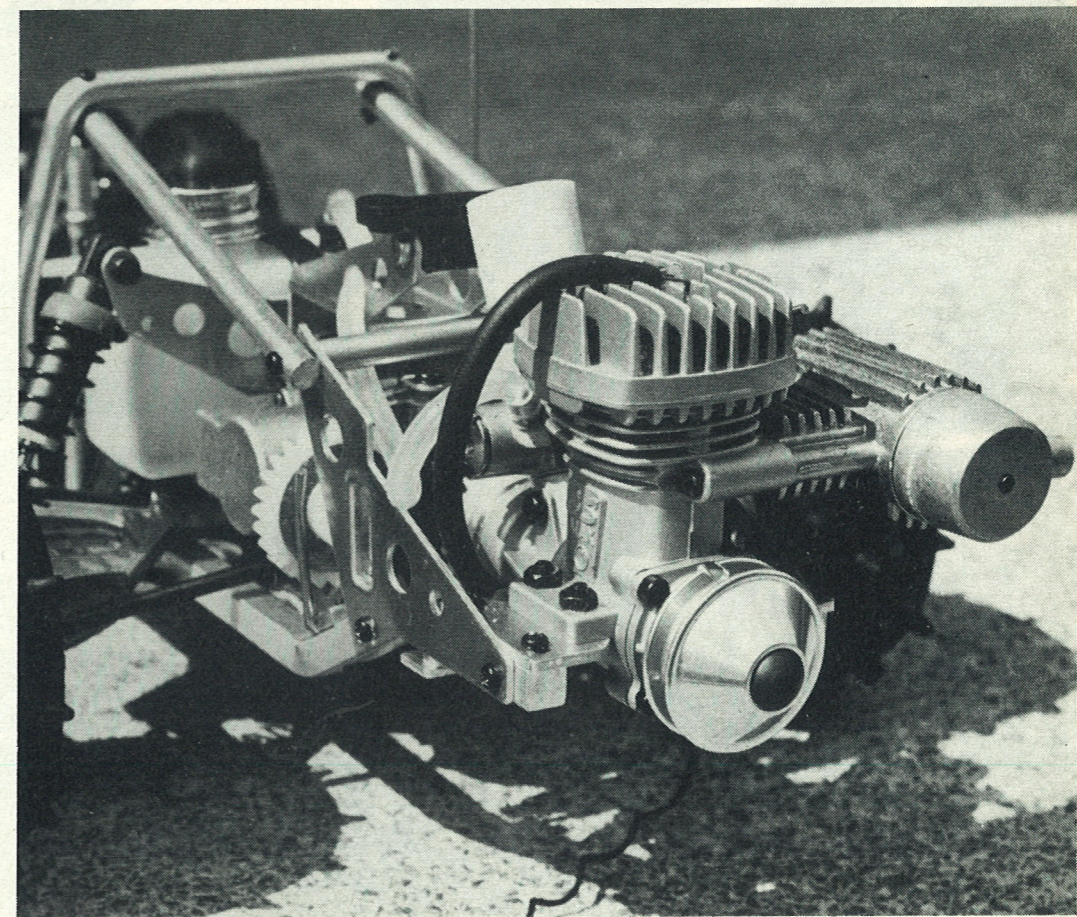
Rather than give a step-by-step description of assembly of the 'Assault' which is to all intents and purposes a 'Scorpion' anyway, I will confine myself to comments about the differences and I.C. engine installation in the kit.

A basic two-rail ladder chassis has aluminium alloy die-cast trailing arm suspension links front and rear controlled by *Kyosho's* excellent oil-filled, coil-over shock units. Drive-shafts and steering linkages are essentially 'Scorpion' although the track-rods are much heavier duty. A modified form of the familiar gearbox is fitted which includes provision for the drive to be turned through

90 deg. so that a fore and aft mounted engine can be used. A small vacuum-formed crate holds the R/C receiver and battery pack sealed from the elements by the vac-formed driver figure. Both servos and the on/off switch are fitted to a plastic radio plate.

A substantial roll-cage protects the works and also forms the 'dividing line' between what would have been an electric powered model and this, the I.C. version. The OS10 engine is a special version seemingly produced to *Kyosho's* own specification for in addition to having a special silencer, it also features a rear cone start system which presumably couples to the crankpin and also doubles as a pulley for cord starts. The most unusual feature of the engine is what it doesn't have, and that is any means of adjusting the main fuel mixture. A very simple idle mixture adjustment is provided, but the idea that 'if it isn't there, it can't be wrongly adjusted' has a great deal of merit for beginners. The clutch is a little more complex than some others used for I.C. cars, but with the very comprehensive instructions provided it is difficult to see how the rawest beginner could mess up the assembly.

As well as the possibility of either direct starting from a



conventional hand-held electric starter or pull-cord starting, there is a rack and pinion start system built into the clutch. A plastic moulded 'rack' engages on a free-wheeling pinion that is mounted behind the flywheel and all that is needed to start up is to feed the 'rack' into the slot provided and then pull it smartly out — at least, that's what it says in the instructions! A moulded plastic fuel tank incorporating an ingenious primer makes sure that the fuel reaches the carburettor. With

built-in glow-plug energiser circuitry also, the start-up is as simple as it is ever likely to become.

As both throttle and brake are operated from a single servo on this type of model the linkages can be troublesome for the inexperienced. Not on the 'Assault', it is not even necessary to cut a single piece of wire nor even choose the correct one for both steering and throttle/brake pushrods are the same length! It thus becomes child's play to hook up a working brake and

throttle system.

A transparent moulded polycarbonate bodyshell tops off the ensemble with a plentiful supply of self-adhesive decals to produce the type of styling that we all know and love.

How well does it work then? As a practising sceptic I was not entirely convinced that the whole machine would function as simply as the book said it should. Astute readers will have probably gathered from the tone of this review that it did! In fact it was so totally

painless that it would be difficult to see how anyone could fail to get it running.

After filling up the tank three or four presses of the priming bulb on the tank-top saw the fuel reach the carburettor, a couple more primed the engine. I did check the glow-plug for a glow before making the final 'assault on the summit' but that done, two or three pulls of the plastic rack to get the fuel through the engine followed by a single brisk pull and there it was ticking over. As quick to start

as it is to read these words.

After a few seconds running it was apparent that the carburettor was too rich, but that is no bad thing for the first run, so as it kept running sweetly it was left for the time being. The first run was a little slow, a combination of rich mixture and a slipping clutch kept speed down, but a restart and adjustment and things began to speed up a little.

The clutch slipping persisted and so after some 10 minutes running it was decided to return to base for

investigations. A combination of very strong spring, shoes that needed to be bedded in and tight fit on the pivot pins seemed to be the cause and after freeing and stretching various parts the unit was re-assembled and found to perform much better.

With a properly working clutch it was now possible to optimise the setting of the carburettor and fine tune the steering and suspension and it became obvious that the 'Assault' retained all the fine handling qualities of its electric

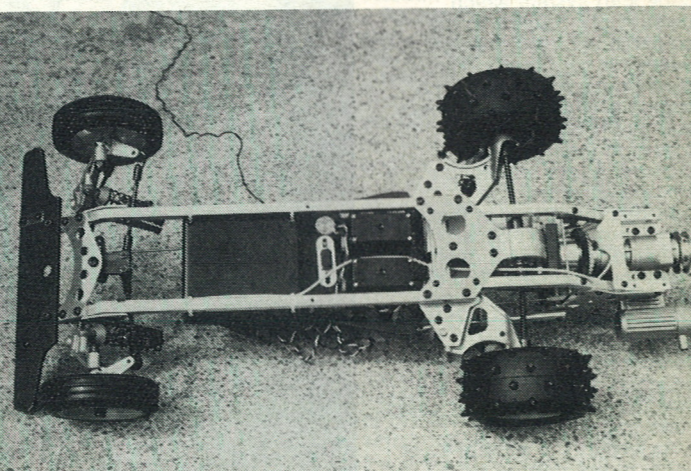
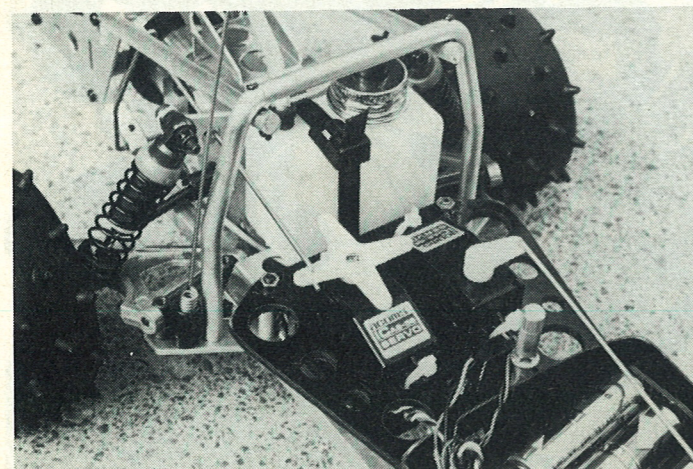
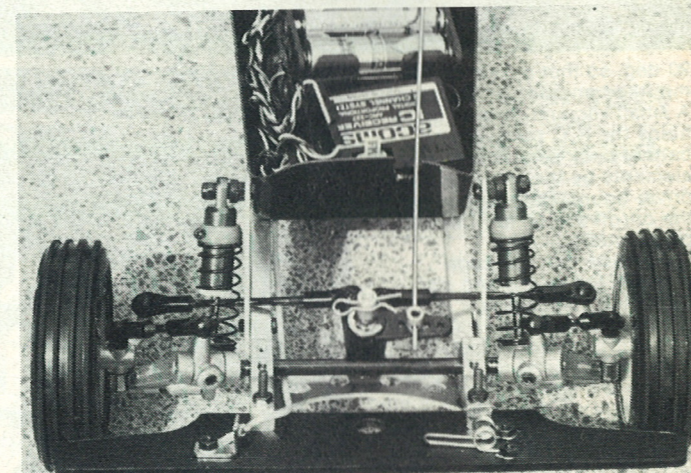
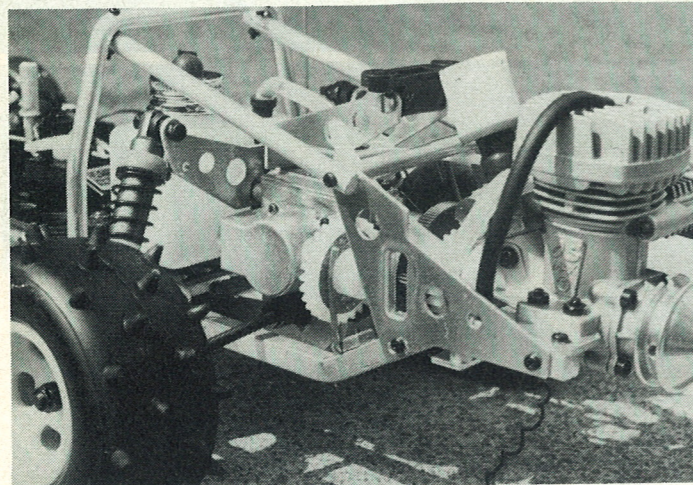
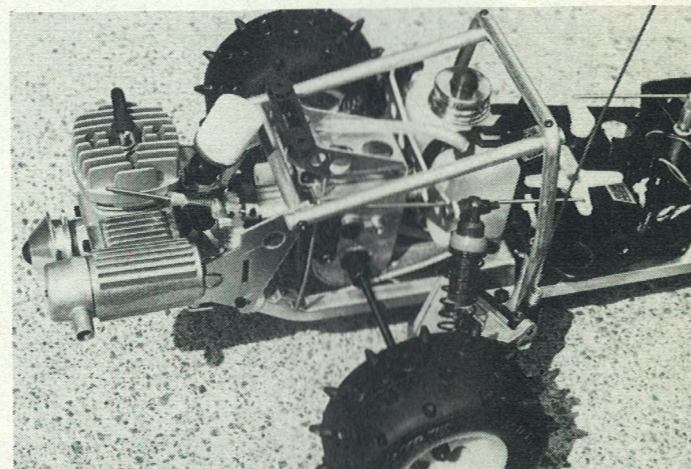
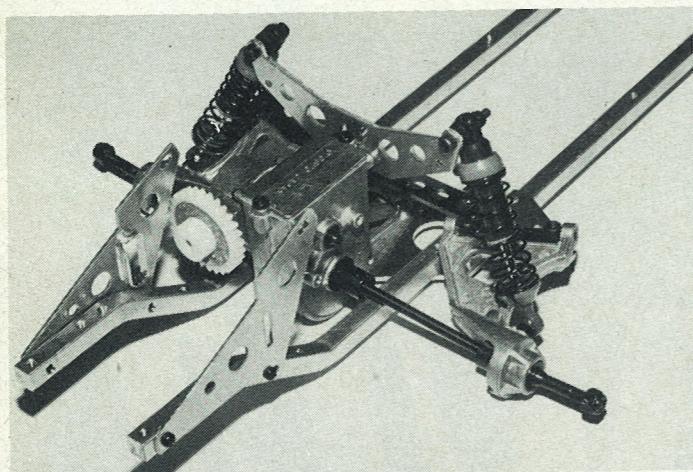
powered predecessor the 'Scorpion' with the added bonus of exhilarating top speed. Acceleration away from a standing start cannot match that of the electric power models, the torque of an I.C. engine builds up with rpm unlike the electric motor which has very high starting torque.

Conclusions

A truly excellent realisation of a foolproof beginners I.C. engine powered model. Kyosho have solved those crucial questions of initially

spinning over the engine to start it and then correctly adjusting it, total simplicity. Even if one method of starting fails, there are two alternatives remaining! The package of engine and Buggy are well conceived with all necessary parts and accessories with the exception of the 'liquids', that is fuel and paint and the glow-plug battery. Of course you will have to supply the radio as well. Anyone contemplating I.C. Buggy running for fun would be hard-put to find a better starting point. □

Anti-clockwise from top left. Gearbox and suspension system bolted to the alloy chassis rails. Engine in place: note simple friction brake acting on the main gear face. Fuel tank sits behind the throttle and steering servos. Chassis underside showing 'Scorpion' parentage. Front suspension is pure 'Scorpion' and proven winner. Engine throttle and brake linkages are simple to set-up.



Below; left and right: two methods of simple engine starting. Left using the plastic rack acting on the free-wheeling flywheel gear. Right: simple pull cord to turn over the engine.

