Track Tests

Three review models; left to right: Maisey/ Francis 'Phantom,' Modis, Schumcher 'XL.'

3 IN 1 SPECIAL

No. 1 Schumacher XL

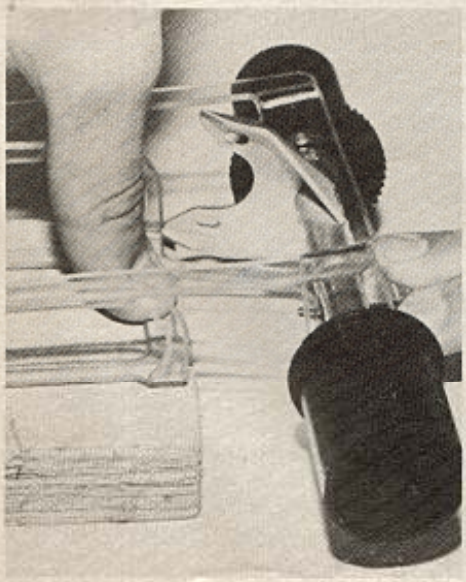
by Bill Burkinshaw

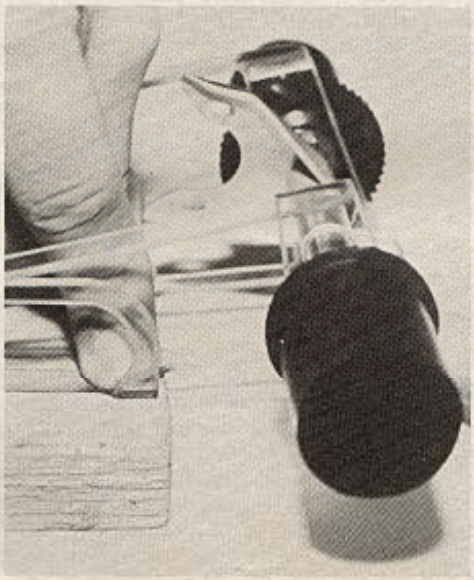
SINCE INTRODUCING his revolutionary differential onto the 1/12 scale electric racing scene, a year ago, Cecil Schumacher has steadily developed his range of products for racing enthusiasts. Sleeve, tyres, servo savers, steadily the scope has increased until *Schumacher* now markets what is to all intents and purposes a complete car. Only batteries, motor and speed controller are missing; latest news is that Cecil is to offer a complete kit, but that development was not available at the time we approached Cecil with a view to producing a Track Test on the 'XL.'

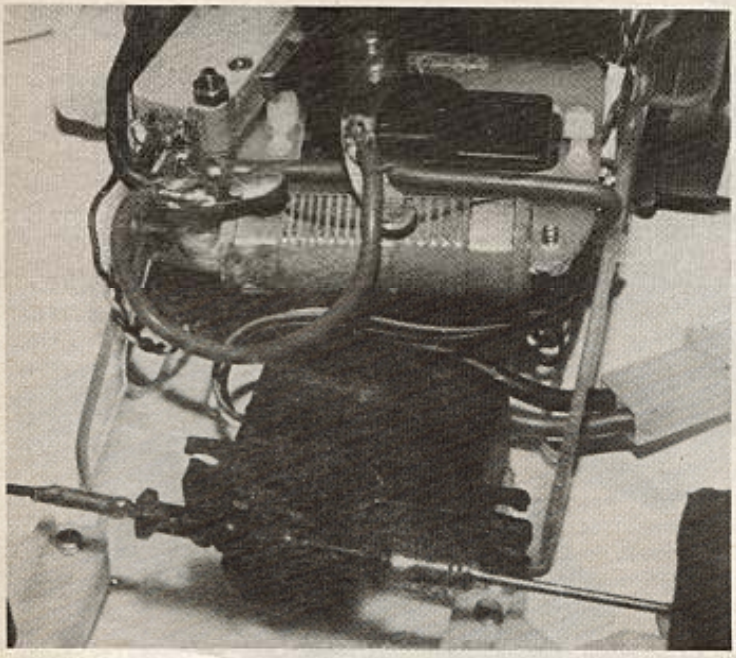
I was supplied with all the necessary parts to assemble a rolling chassis even to the latest 'Ready to Silicone' Armaflex tyres, but even so, assembly took several evenings, if spraying the bodyshell is counted. Assembly of the chassis is straightforward, the 9° castor *Associated* front-end mouldings are each held in place with short countersunk-head, light alloy screws. These are much easier to fit if a 2BA tap is run through the mouldings first. Steering servo is the *Powermax* 'Skyranger' mini type, one of the moulded arms supplied with the new *Schumacher* servo saver fitted exactly.

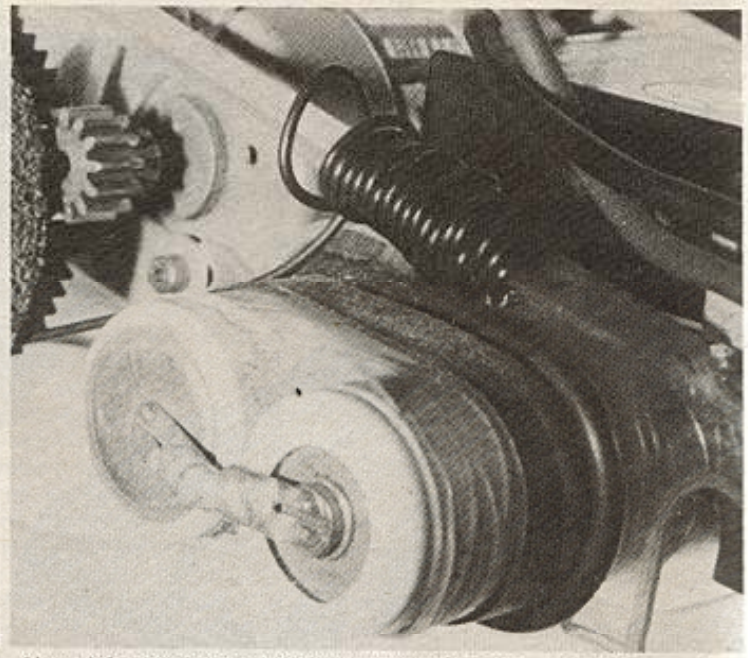
Three are supplied, to suit *Sanwa, JR, Futaba* and *Novak* servos. I fitted ball joints to the servo saver and formed 'Z' bends at

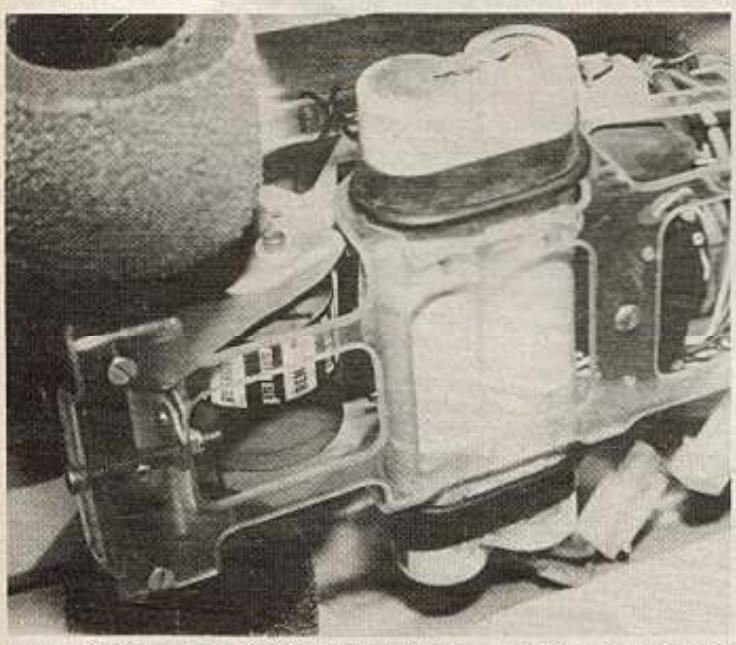
Below left and centre: rear polycarbonate 'leaves' of the chassis allow rear pod to spring up and down. Below: motor torque tube is sprung and can float, the motor weight has less effect on the chassis this way.



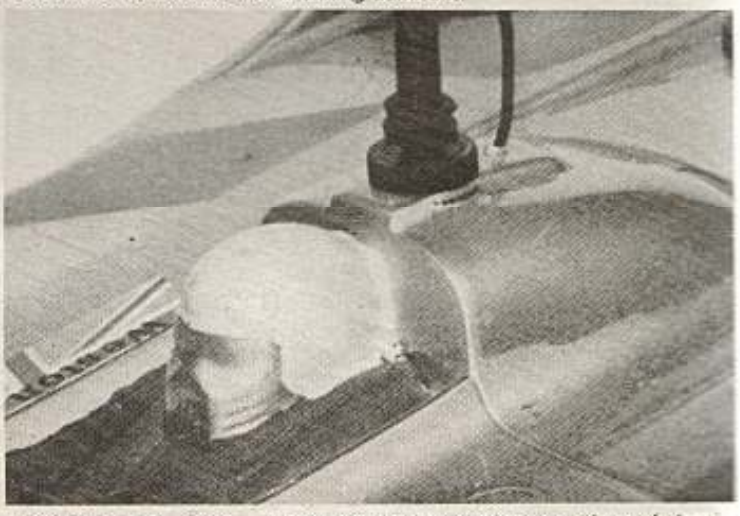








Above left: speed control resistor and steering servo - note the secondary connection from the wiper arm to extra wiper; this prevents full power contact bounce. Above: R/C aerial wraps neatly round one of the chassis leaves. Left: the battery locating bands and 'O' rings can be seen in this underside view. Below: the carbon fibre whip aerial bolts onto the body-shell, note the receiver aerial exiting behind it.



the other end — saves money on ball joints, and anyway only one end of the rod needs to be adjustable. The servo is fitted down onto the chassis with servo tape. Use only detergent or alcohol (methylated spirits), to clean the chassis. Indiscriminate use of solvents could result in a chassis that either disintegrates or dissolves.

Speed control is catered for with a *Parma* resistor and a reverse micro-switch wired in accordance with Handy Hint No. 2 in the Winter 1981 *Car Quarterly*. Once again, the 'Skyranger' servo was used, and a *Futaba* 2L receiver taking power from a transistor regulator. The various R/C items are all mounted on a small shaker plate single point mounted on a flexible stalk.

Battery retention is very simple, neoprene 'O' rings slide up the battery pack, which locates in oval holes in the vertical sides of the chassis channel. These 'O' rings are backed up by wide rubber bands.

Moving back from the battery pack, the most interesting feature of the Schumacher XL, the rear motor pod effectively sprung on four strips of polycarbonate which double as trailing radius arms. The rear end is very flexible and this flexibility coupled with the sprung torque tube and stalk mounted R/C equipment helps to prevent the heavy elements of the car, the motor and battery, from affecting the contact of the tyres with the track to the same extent that they do with stiffer cars. The latest version of the differential incorporates an additional ball-race, which the gear runs on instead of running directly onto the shaft, this and minor improvements in tool design have produced a 'diff' which is remarkably free and sensitive to adjustment.

Once the car was assembled, attention was turned to the tyres. I prepared two sets of soft Neoprene and two of Armaflex for silicone and started off by working a layer well into the bare tyre, then 'slicked it' off while still soft by rolling on a piece of plastic laminate board with washing-up liquid on it. Once the first layer was cured, it was followed by a second thin layer which was stippled. The result is a very fine even stipple.

While the tyres were curing, attention turned to the bodyshell, a *Parma* 'Sorbello' painted with *Parma* paint — still one of the best available. The carbon-fibre whip was fitted and the car was ready for the track.

On the track

My first outing with the 'XL' was disappointing as I suffered R/C interference but the first run with the car showed me it had amazing potential, but needed a rethink on driving styles. The powerful braking I had used with my previous car was out, instead almost zero brakes, with the car rolling into the corners resulted in an almost slot-car like cornering ability. The car feels glued to the track and with a

standard motor its light weight (1lb 14oz without wing and carbon fibre whip) gave exhilerating performance on 12:48 ratio. High cornering speed does have its disadvantages, tyre wear is rapid, the fine stipple does wear off quite quickly and a number of sets are necessary. Overall an exciting 1/12 scale car to drive, with a Reedy modified motor performance is wild, the nearest thing to 1/8 scale IC power I have experienced with an electric model. Quality of the *Schumacher* parts is good, although they are now produced in quite high volume they still retain some of the feel of 'special tuning' parts, one almost feels that they are made specially for each individual customer. Not cheap, but then performance rarely is.

Price 'XL' Rolling chassis complete with carbon fibre axle, flexible body parts, balance carbon fibre axle diff, quick-change front wheel system and servo-saver and one set of tyres. £64.70.

No. 2. FRANCIS/MAISEY PHANTOM

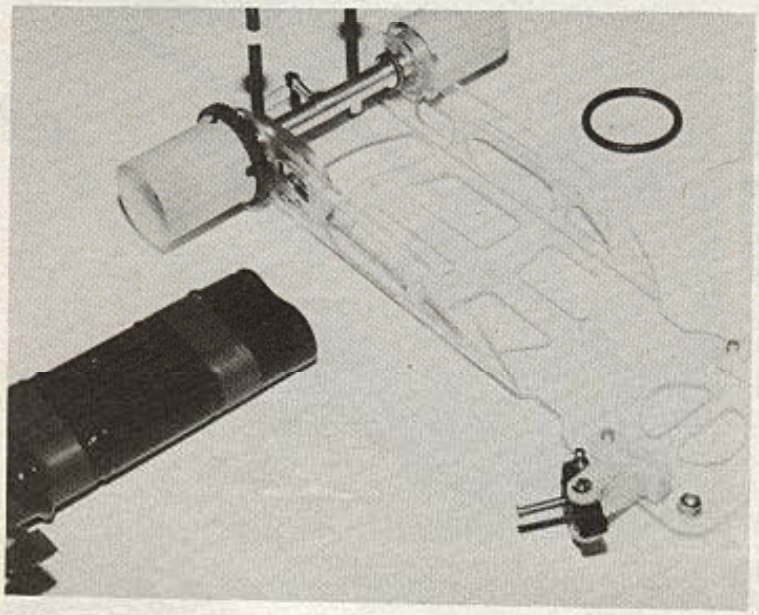
Review by John Glenn

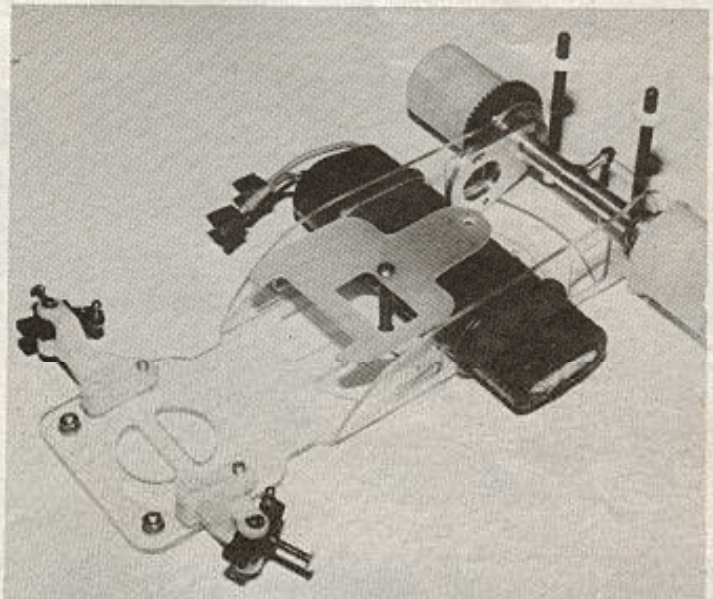
THE ORIGINAL Lexan Monocoque and the winner of a host of UK and European titles, including UK National Champion and runner up for Bill Maisey and Neal Francis respectively and both Standard and Modified Class European Championship wins for Neal Francis.

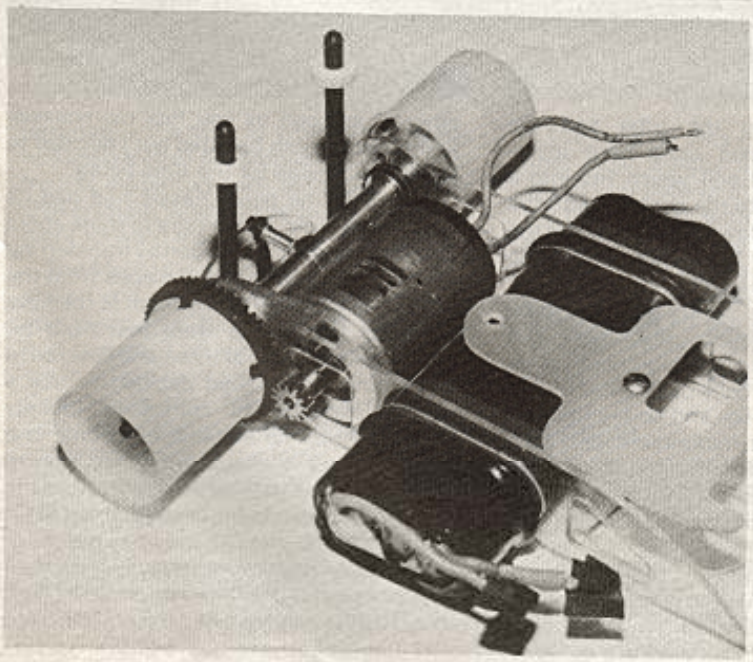
Initially the designers kept the details of the car fairly close to their chests, but as soon as the European Champs success was accomplished they started working towards a production version as reviewed here.

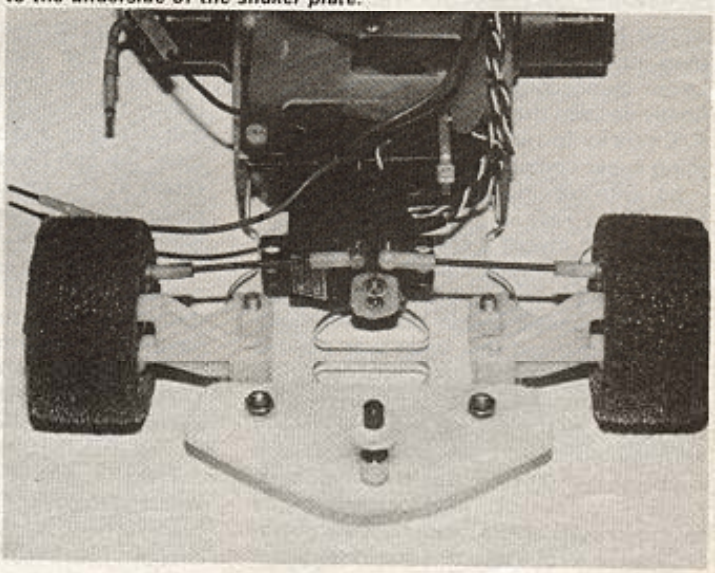
The kit

Only a rolling chassis is presently available, and that can be bought in single items from the ground up. Glued and trued 'Armaflex' tyres, modified wheels and *Associated* diff., front suspension units, Lexan chassis motor torque tube shaker plate bumper and body mounts. Go the whole way, or stop where you will. The parts are of excellent quality, the machining of the torque tube motor mount in particular is excellent. It does appear to be now produced in two pieces, the first examples were machined from a solid









Above left: batteries about to be slid into place. Above: batteries and mini shaker plate fitted. This is fretted out for a* Futaba *30M servo and resistor. Below left: motor fitted. Note the modified* Associated *rear wheels to fit sleeved tyres. Below:* Futaba *steering servo. The* Demon *controller is fitted to the underside of the shaker plate.

chunk of light alloy, a very expensive and time consuming process. The concept is very simple, a folded polycarbonate chassis, is able to flex unrestrained by batteries, R/C equipment, body mounting or motor, so in order not to lose this flexibility the only item that should be stuck to the chassis is the steering servo. Everything else is mounted or restrained by single point fixing on the centreline of the chassis.

R/C installation is simple, the mini shaker plate is fretted out to fit a resistor but even if you wish to fit an electronic controller as I did there should be no difficulty. I did need to file a small amount of the heatsink of my 'Demon' controller. The *Futaba* 30M Servo was simply fixed with servo tape. I don't use a regulator for R/C power supply, a pair of diodes provides just that little bit extra voltage and therefore speed at the servo, nor do I fit an on-off switch, I simply unplug the positive power line from the battery pack.

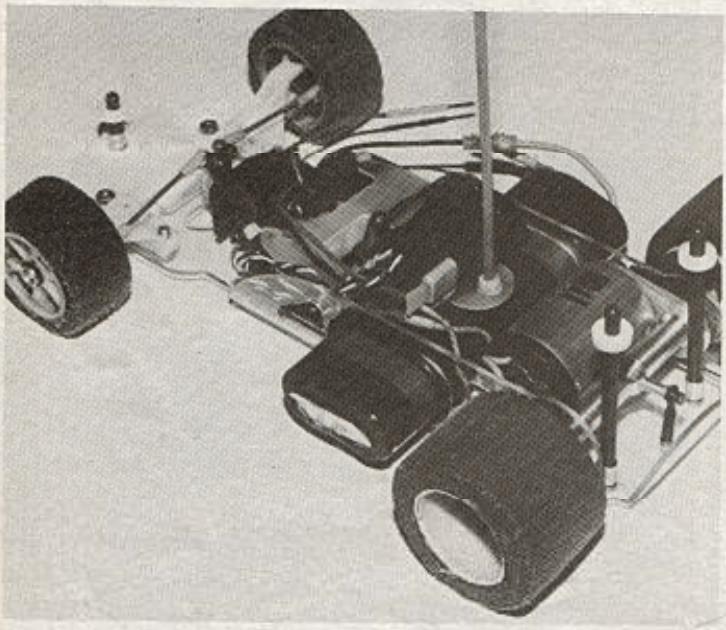
Finishing touches

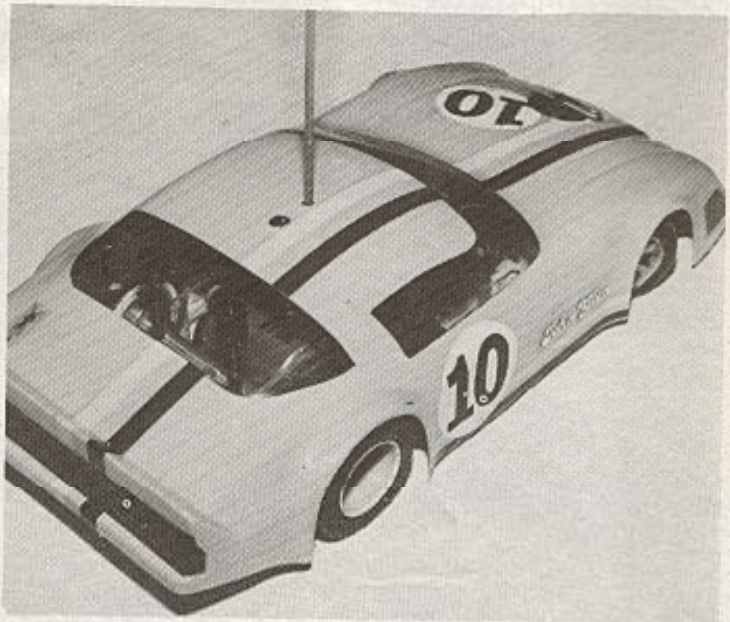
The new *Bo-Link* 'Camaro' body really took my fancy so this was duly trimmed out allowing a small amount of slop, about ⅛in. on the posts. I have found that using a full bumper can lead to chassis damage with this type of car, so fitted a previously 'tried and tested' mini version. As for tyres, there are none better than Neal and Bill's own brand, rears with very fine stipple and fronts with medium to coarse. The resulting handling is very neutral, the car literally goes where it is pointed only tending to understeer very slightly just before final breakaway if pushed too hard. Braking does cause heavy oversteer and is best avoided whenever possible! Who wants to slow down anyway, in the words of the great Bugatti — I build my cars to go, not stop!

My steering set-up is simple — as much movement as possible with a transmitter rate control available to cut down the throw if necessary on very slippery surfaces.

This car is really very good, only the driver's skill limits its performance using Armaflex tyres solely and just a few grades of different stipple available, go anywhere with it and win!

Price 'Phantom' rolling chassis including torque tube, body posts, shaker plate, £38.50.





No. 3. NODIS

Review by Lewis Eckett

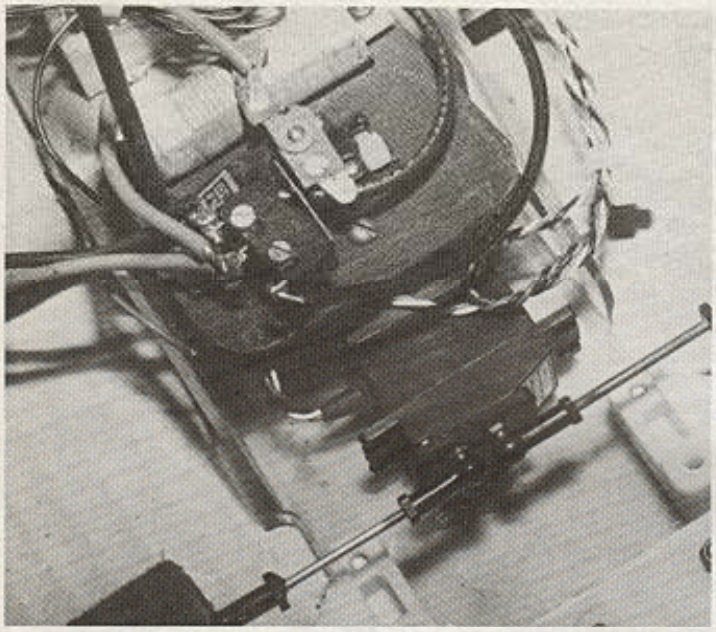
AFTER HAVING BEEN at first puzzled by, then intrigued by, and finally besotted by Lexan monocoque chassis design cars, I finally decided that I had better stop racing R/C cars for fun and get on and build something super competitive.

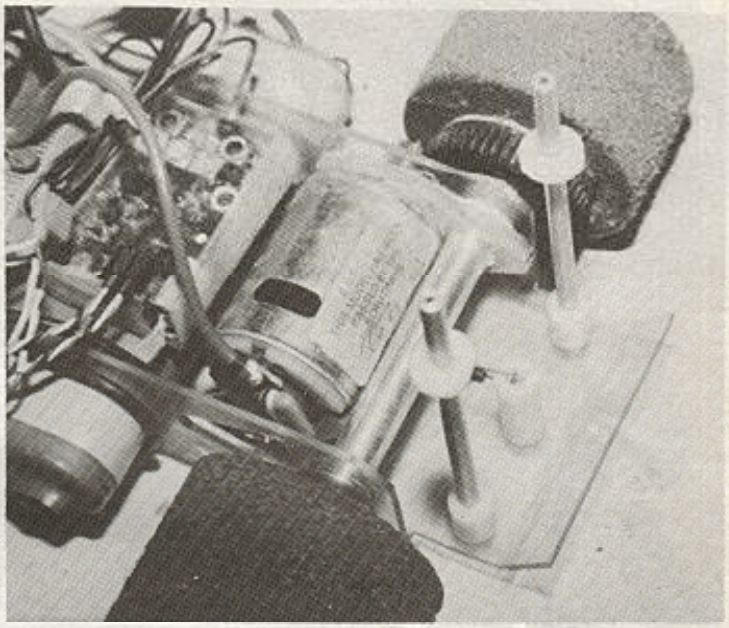
So, with keeping up with the Joneses in mind, (they race at the local club) I duly acquired for myself a chassis produced by *Nodis Racing Developments.*

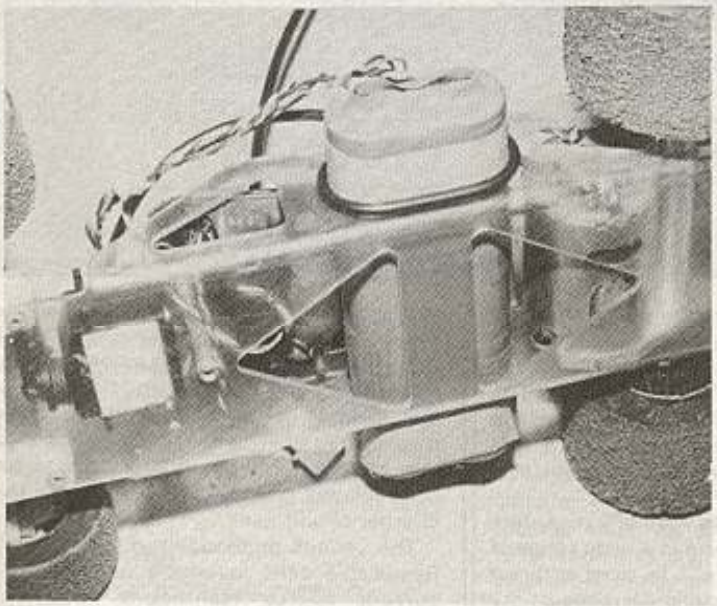
I had built ordinary, conventional shaker plate and chassis design cars beforehand but soon realised that what was needed here was a slightly different approach. The particular chassis model I received had, thankfully, all the fretting out done already with the torque tube already in place. Also supplied with the kit was the ubiquitous *Associated* front steering blocks machined to a 9° castor angle, nothing new there. Back to the torque tube end and a look at the anchoring between the tube and the chassis. The method used here incorporates a flat head bolt which fits into a plastic tube bolted to the chassis, with the bolt sliding up and down via a slot cut in the tube, the bolt head fits inside the tube to retain it. The torque tube itself is a two-piece affair, motor mount and the tube itself, both beautifully machined and finished. The two are held together by a set screw, set into the base of the mount and through into the tube, and so far the two have not come adrift. *Nodis* also supply ball-races, to fit into either end of the tube; these need to be secured with Cyanoacrylate as every time you pull out the diff., one of them comes with it.

The only slightly suspect thing about the whole set-up is the way in which the torque tube is held in place via two bent wire circlips. These look as if they are going to ping off as soon as you flex the chassis; better circlips can be fitted but I decided to leave it as it was for the time being.

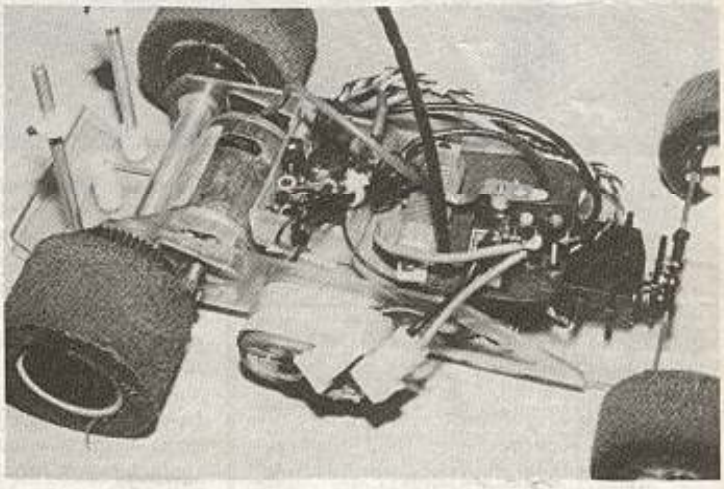
Now that the bare chassis had had its quick once-over, it was time to think about getting it moving, so I began by transferring all the necessary bits and pieces from the old car, and started fitting them to the new. Batteries first, these were just fixed together in two sticks of three and covered in heatshrink tube. I had decided to use a resistor type speed controller, (mainly because I had no suitable electronic one available) so a shaker plate would have to be made, the 'Kydex' shaker plate from the old car was soon being hacked about to fit, fortunately the plate already had a slot cut to receive a *Futaba* mini servo, so the actual shape and resistor slot were just cut around this. To allow chassis flex the shaker plate was mounted on a single flexible stem. Un-







Above left: resistor speed control plus micro-switch for reverse operation. Futaba *steering servo is fitted with* Schumacher *servo saver. Above: torque tube and motor mount, a* Schumacher *differential is fitted in this instance. Below left: underside view showing battery retention method and chassis fretting-out. Below: completed chassis ready to roll. Note receiver in* Parma *lightweight case.*



fortunately the way in which the chassis had been fretted out produced a hole just in front of the battery pack, so that the floating shaker plate would have to be positioned more forward than anticipated.

The *Model Cars* voltage regulator was installed and a micro switch for reverse suitably positioned. Now came the interesting part, wiring it all up, an easy proposition when all you have to do is follow the *Model Cars* 'Handy Hint' forward/reverse wiring schematic (Winter issue). Having followed the instructions to the letter. Problem! . . .

In my over-enthusiasm I had transposed the black leads to the micro switch for the red. Subsequently, power on only occurred when the switch was closed. Easy answer, swap them over and all would be well, and indeed it was. Apart from adjusting the wiper arm, that is.

The receiver was removed from its case (that case weighs almost ten grammes, would you believe it!) and stuck on top of the battery pack with servo tape. With the motor installed, the mesh between the pinion and diff. gear was adjusted, the pinion used was also produced by *Nodis* and featured an extra long shank to clear the Lexan channel to avoid fouling. A wheel at each corner and it was ready to go.

Running

The car surprised me, not being a 50 per cent handicap driver myself, I didn't think I would be able to notice the difference, but I did. For a start, it seemed to bite into the corners, so much so that I had to cut down the servo throw by almost half. I could maintain a much higher cornering speed as well. Other things pleasantly surprised me, it stayed in a straight line at full power, went where I pointed it, was enjoyable to drive round. Above all, it was fast.

Conclusion

An interesting exercise, due to the difference from anything else I had built and run. The circlips holding the torque tube in, the only suspect feature, stayed in place throughout, the anchorage between the tube and the chassis also seemed to work.

The only thing that really bothers me is how fragile the thing looks, particularly in view of the punishment cars get at the local club. I know Lexan is strong, but I still wince every time I hit or get hit by another car.

Price Nodis *chassis and ball-raced torque tube £25.00.*