SCHUMACHER C/SPC CAR

Rob Roy reviews the two Schumacher versions

For most 1/12 racers the Schumacher 'C' needs very little introduction. But now that 1/12 is happily increasing in popularity, there will be many people reading this article to whom the 'C' car is a mystery. So before I turn my attention to the constructional details I think a brief history is appropriate.

The 'C' car was designed about six years ago, specifically for racing on carpet. The car had independent front suspension, by wishbones, and a fully floating rear pod featuring 360° damping. In its original form the 'C' car was slow to gain acceptance despite excellent results from Andy Dobson, Les Pipe and Phil Davies. The answer to this problem came with development, components of the car were changed to make the car easier to set up. The most significant change was a tweak adjustable rear end — this allowed the cars handling to be adjusted precisely to suit a drivers individual style. This development along with adjustable ride height — a *Schumacher* first — caused the car to gain general acceptance. By 1985 approximately 90 per cent of UK drivers were using 'C' cars. It is fair to say that apart from the World Championship, the 'C' car has won everything that's worth winning. Andy Dobson was second in '84 World Championship, Phil Davies qualified 2nd in the '86 World Championships. Dobbo won the '85 Eurochamps. Nationally the 'C' has dominated for years, but is now under real pressure from *Associated, Corrally* and *Parma.* This has led to the development of the 'SPC' car, with the now popular saddle pack Davies has continued his winning form with the new car.

Construction

Before commencing construction of the car it is necessary to pay a little attention to detail. The glass fibre parts are cut out by a milling machine, this leaves a 'pip' at the start and finish points and a slightly rough finish. It is a good idea to clean up all the edges and round off the corners, this helps the car pass smoothly over raised joints in the carpet.

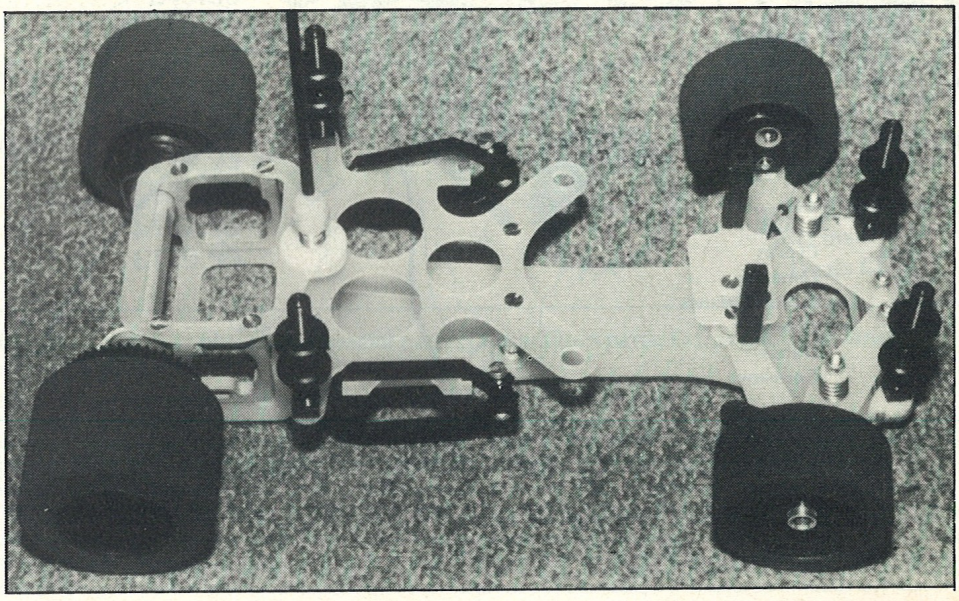
The 'C' car is best built as a series of sub-assemblies, these being the chassis and front suspension, the rear pod, and the radio tray. I will deal with each part in turn, including photos.

Rear Pod

Assemble the front strap, and pivot onto the 'T' piece with 6mm CSK screws. Then place 12mm screws through the tweak adjusting holes, and place the rear strap over the top. Fit on 1/8 in. 'O' ring over each of the protruding screw ends, then add the top plate, two 3mm niplock nuts and the lock plate – this may need glueing. Finally, fix the rear blocks to the 'T' piece, checking that they are the correct way around.

Radio Tray

Fix the four radio tray posts to the radio tray with 10mm M3 screws, and the damper post with a M4 screw — be careful not to roughen the surface of the damper post.



Place the large spring and a damper washer — collar upwards — over the damper post, and the top plate of the rear pod, the second damper washer — collar up — small spring and damper nut.

Chassis/Front Suspension

Assemble the wishbone front pivots + 2 M3 washers each, to the chassis front inner holes. Join together the two half of the wishbones, with the king pins — be careful to get these the right way round — rear on top. Place the pivot 'O' ring in the holes in the wishbones and push the front over the aluminium pivots, add a M4 washer and secure with a M3 niplock. Push the rear wishbone pivots through the wishbone bone rear 'O' rings and place a M4 washer underneath, then secure to the chassis with a 6mm M3 screw. The springs are now mounted on a 25mm M3 screw, using an 1/8 in. O ring under the wishbone as a down stop. Slide the anti roll bar under the wishbones, add the pivots and secure with 16mm M3 screws to the body post. The anti-roll bar is linked to the wishbones with an 1/8 in. 'O' ring — pass a piece of thick cotton through the 'O' ring, place the 'O' ring on the roll bar and pull it through the wishbone with the cotton. Finally, add the servo mount.

Final Assembly

Place the rear pod assembly on the chassis and align the holes with those on the front and rear straps, place the radio tray assembly over the top of the 'T' piece and screw together with the four 10mm M3 screws. Now screw the rear pod top plate to the rear blocks. You now have a complete chassis assembly.

Build up the front live axle set, taking care to assemble the cone washers the correct way round — point towards bearing. Add the live axles to the steering blocks and mount on the kingpins.

To mount the torque tube in the rear pod, you will have to first file the six ride height adjuster spacers to fit. If you are lucky you will only have to file the outside of the spacers. The idea is to obtain a tight, but sliding fit. Be careful to put the torque tube in the right way round — it isn't symmetrical — the long end is on the right of the car. Finally, add the differential, allowing a small amount of end float.

SPC Car

The SPC conversion kit comprises a chassis, a pair of radio tray posts, a body mount and an assortment of screws. The SPC car is also available as a kit in its own right.

Construction of the car is almost identical to the 'C' car. The assembly routine still applies. The front strap on the 'T' piece is attached to the chassis with two M3 × 6mm screws and nuts, the rear strap is located by the body mount bar posts Instead of putting three 'O' rings in the tweak adjuster use one small one and one large one, on the centre screw — this makes the rear of the car softer in role.

Mounting the radio gear

On either 'C' or 'SPC' this is very straightforward as there is plenty of room. If you use a *Futaba* '132H' servo the servo mount provided is excellent. For any other servo you need to modify the spare mount provided. the most important thing is to rigidly bolt the servo down. On the 'C' car the receiver fits on the radio tray, the speed controller on the chassis. On the 'SPC' I mounted the speed controller on the chassis behind the servo, and my receiver above the 'T' piece, between the cells, supported by servo tape on the chassis. It is important not to prevent the 'T' piece from moving freely.

The track rods should be bent as per the photos. This prevents the car suffering from bump steer.

The most important thing to remember with any car is to keep the radio installation neat. Keep the wires as short as possible, but not tight.

Setting it up

Having built your 'C' car, you now need to set it up for optimum performance. The car is very adjustable, so I can only really give a guideline, and an indication of how to reach the desired handling.

Front Suspension

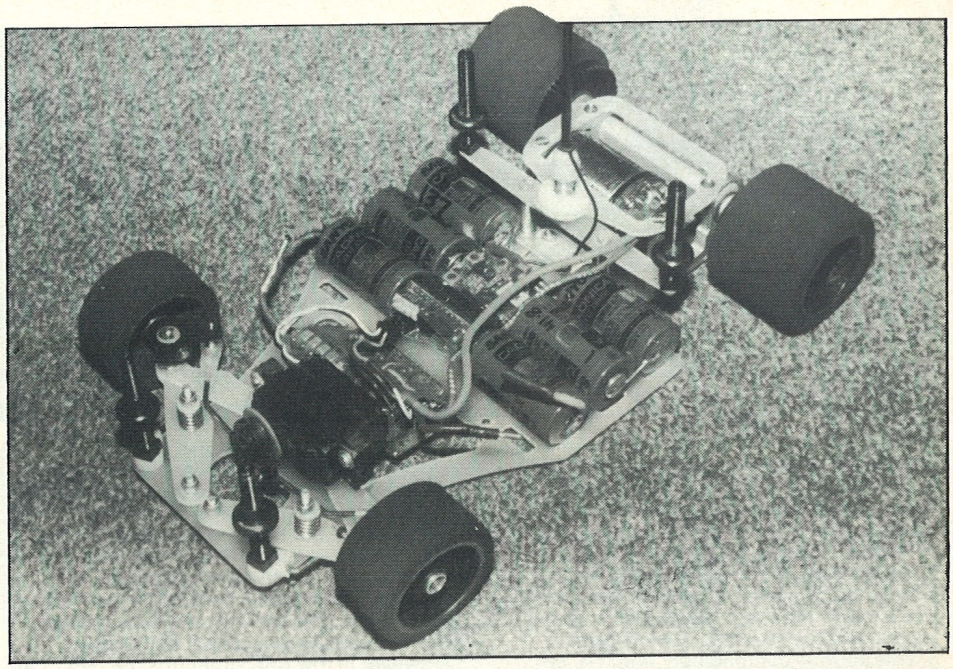
The idea is to achieve the same setting on both the wishbones. With the car fully loaded the wishbones should take up a small amount of the suspension travel and sit horizontally with the king pins vertical. To achieve this adjust the tension on the front springs. If the spring tensions are increased the car will have slightly less steering, reducing the tension will give slightly more steering. This is due to changes in camber angle.

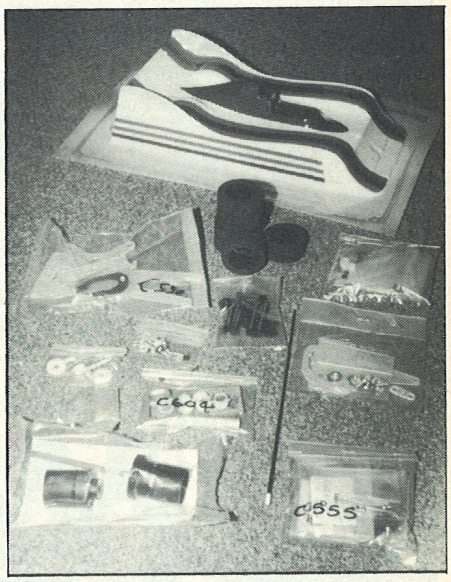
Rear Suspension

Adjustment to the rear of a *Schumacher* car is very critical to the handling. Firstly make yourself a tweak ramp as specified in the kit instructions. Then fit all the equipment in the car. Setting the tweak is in effect adjusting the rear and roll stiffness. If you make the back of the car stiff you will promote oversteer loose and you promote understeer. You have to find the setting that suits you.

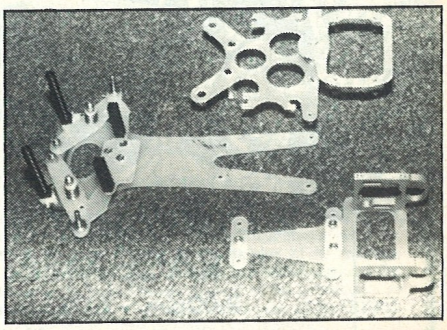
Schumacher suggests for the 'C' car that you set the tweak at between four and six on the standard ramp. I would suggest you start at five. For the 'SPC' car I suggest that the car will work in the range six to eight and I would start at seven.

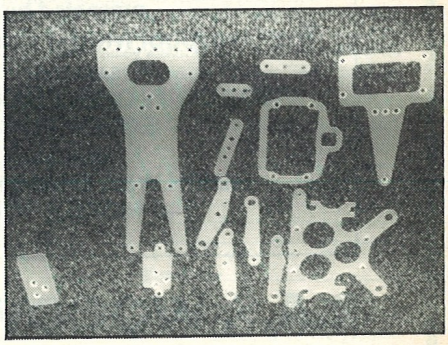
To adjust the tweak place the ramp under a rear wheel, far enough to lift the front wheel. Spin the front wheel and slide the ramp out from under the rear wheel until the front wheel touches, then take the reading from the ramp. Repeat for other side of the car. To change the reading on the ramp you have to adjust the outer screws on the rear strap. Looking from the back of the car, to change the left hand wheels' tweak you adjust the right hand

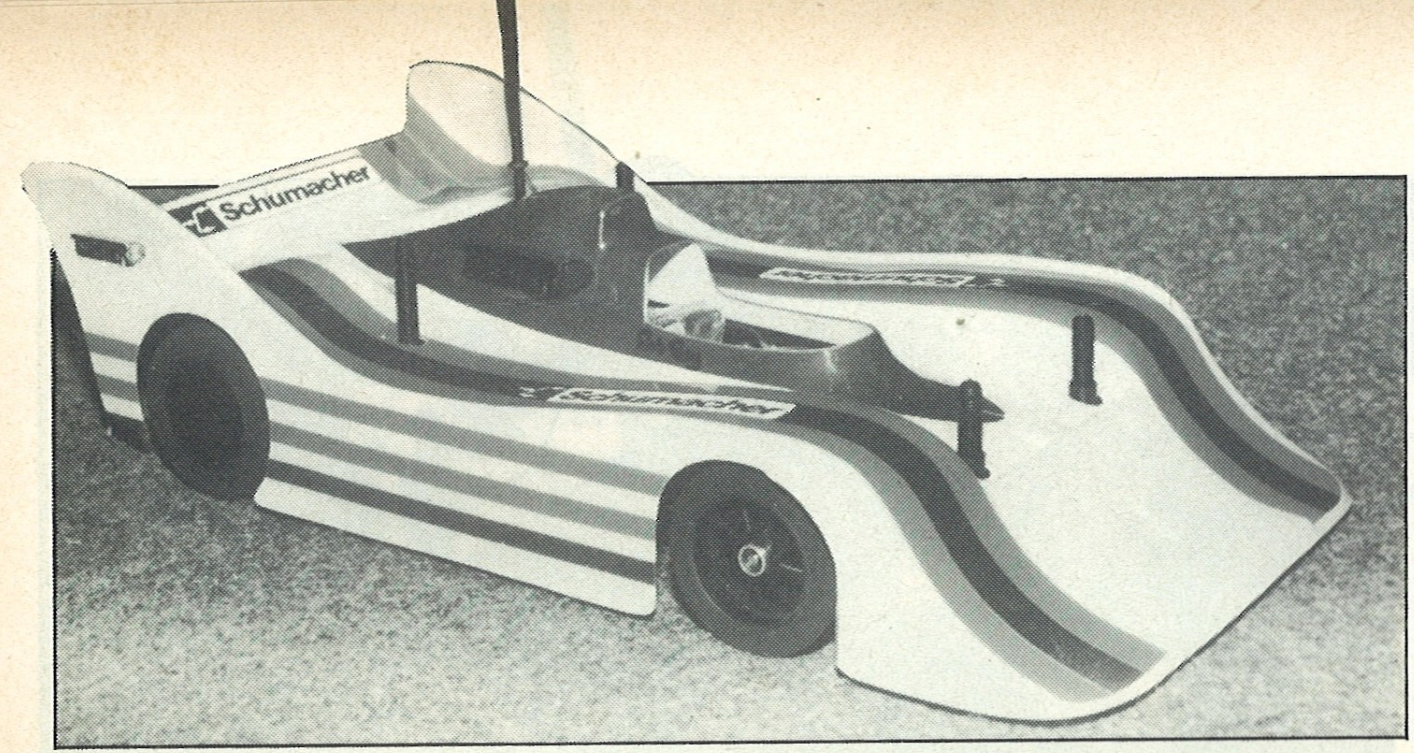




Top: Saddle pack layout requires more work. Above: The kit laid out before construction. Below: Fibre glass components and rear end blocks.







Above: Ready for the circuit! Complete with latest Schumacher body shell.

screw, and vice versa. If you want to move the wheel up the ramp, loosen the screw, down the ramp tighten the screw, keep checking and adjusting both wheels until you achieve the same reading for both wheels and the required roll stiffness.

This sounds complicated, and it is, but with practice becomes easy. The thing is to be patient and methodical. The 'SPC' car is less critical than the 'C' car as it requires a softer setting.

On the track

The 'C' car has a well deserved reputation for fine handling. But it is now starting to get a little dated. I drove Mark Barford's 'C' car at Chesterfield as our ideal comparison for the 'SPC'. Compared to my *Associated* '12L' I found that Mark's car lacked turn in, but was well balanced and quite fast through corners. I also thought Mark's 'C' car was a little unstable in a straight line. By comparison the 'SPC' car had a devastating amount of front end. Lots of turn in and a large degree of power on oversteer — but totally controlled. On the *TRC* tyres supplied I *Tracktited* 1/4 of the front tyres to get the amount of turn in I wanted. I also set the back of the car very soft. I found the car was very fast through corners, and had excellent handling. However in low grip situations the 'SPC' car could become a real handful — especially for the beginner.

My opinion

As a development of the 'C' car I think the 'SPC' is a definite improvement. However, this view does not hold with all of team *Schumacher.* Phil Davies likes the 'SPC', Pete Farmer is undecided and Mark Barford doesn't like it. So if you run a 'C' car it is well worth trying the 'SPC' conversion. If you are new to a *Schumacher* you have to decide what sort of handling you want.

If you decide to run a 'C' or 'SPC' car you will need to think carefully about maintenance. The glassfibre components can deteriorate alarmingly quick, especially the 'T' piece and top plate, although these are inexpensive to replace. Also deweaking the car is difficult, and has to be done EVERY RACE. I also think the rear end ride height adjustment is dated, and a pain to achieve — witness David Gales harrier! The track rods currently supplied are too soft, and worse still, too long. Also the team 'SPC' cars have *Ni-cad* retaining straps and different tweak 'O' rings — but not the kits — why?

Nitpicking apart, the *Schumacher* 'C' car and 'SPC' cars represent excellent value for money, and are both very competitive and complete kits.

Stop Press

To underline the handling qualities of the 'SPC' I can report that Phil Davies has just won the 1988 European Championships. Also Jurgen Lauterbach was 3rd and Stephen Aberle 5th, all three drivers drove *Schumacher* 'SPC' cars. The chief reason for Phil's victory and FTD was superior concerning speed — and brilliant driving. Phil's car was set up slightly different to the review car, it used two small silicone washers in the tweak adjuster, one such side. These are cat damper parts — Phil says that they are a little easier to set up when the system I used on the review car.