

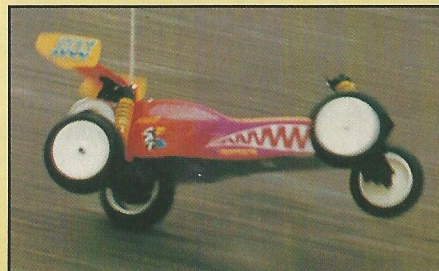
Schumacher Cougar 2000



Will This Be The 'Cat' That Gets The Cream At The World's?

The new Cougar has been some time in the development stage, but now that it is available from the shops, many drivers are already very happy with the high level of performance and 'tunability' available to them from the latest 2wd offering from Schumacher. Designed with competing at the highest level in mind, the new Cougar 2000 has already raced against the best in America. The Reedy Race Of Champions and the Winternationals held at

Tampa, Florida, gave Kevin Moore a 7th and 6th place in the A Main at both events. This was an extremely good result, and no doubt has given British hopes a good filip for the Worlds, to be held in Basildon later this summer.



As previewed earlier in RRC in the April issue, the new Cougar marks a change in Schumacher's design philosophy from that of an aluminium chassis and belt drive transmission, to that of a two deck chassis with a geared transmission. The chassis design results in an extremely rigid assembly, while the new gearbox exhibits much less in the way of frictional losses than a belt design, as well as a lower rotating mass or flywheel effect, thus the car can accelerate faster with less being asked of the motor and cells, so it should go faster for longer! Let's have a look at just what makes the Cougar different from its predecessors, and why the Cougar is better for the top level driver.



The Chassis.

The kit as supplied has WFE upper and lower chassis plates, WFE standing for woven fibre epoxy which I reckon must be the most original term yet for black fibreglass! Carbon Fibre (graphite for our American readers) items are available as Speed Secrets parts, but I reckon that the kit parts are well up to the job in hand, because when built up, the chassis is so rigid that a different material is totally superfluous. Having said that, carbon parts certainly look nice, are lighter in weight, and add that certain something

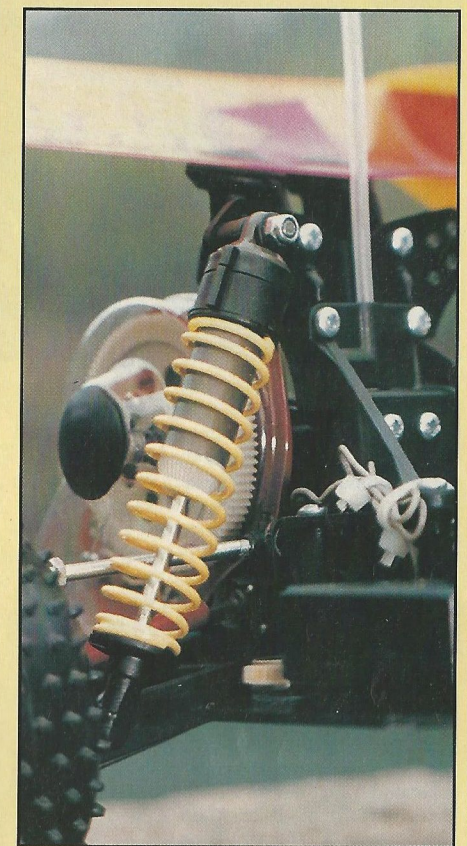
when it comes to 'pit posing'!

The two 'decks' are spaced apart by moulded gates that really are instrumental in making the chassis as rigid it is. Not only do the gates space the decks apart, they also provide the means of retaining the nicads down the center line of the chassis (stick packs can be used as well as saddles).

The steering servo sits transversely across the chassis, mounted on two adjustable pillars, with the steering linkage being a really substantial wire that measures in at approx 2.5 mm thick, so it

should never bend or break despite the worst that is thrown at it!

The steering bellcrank set up is angled back to achieve the ideal height for the inner ball joint for the track rods to remove all traces of bump steer. Two different lengths of drag link are provided to give two different amounts of ackermann angle, this feature being just one of the adjustable options on the Cougar 2000.



I was surprised to find that the steering wasn't ballraced as standard, but I dare say this will appear as a Speed Secrets part at some time.

The actual build of the chassis went well, the hardest part was filing the pips off the chassis plates and shock towers etc, left by the routing process. Having done so, I went round the edges with a black marker pen to smarten it up, always a good way of making a car look smart!

Choosing The Set Up.

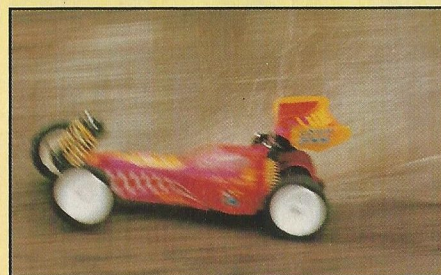
When the car is built up, a decision must be made as to what set up would best suit the circumstances in which the car is to be used, as a very comprehensive table is given regarding different set ups and their respective uses. For instance, if the car is to be used mainly indoors on carpet (sacrilege!), then the set up suggested



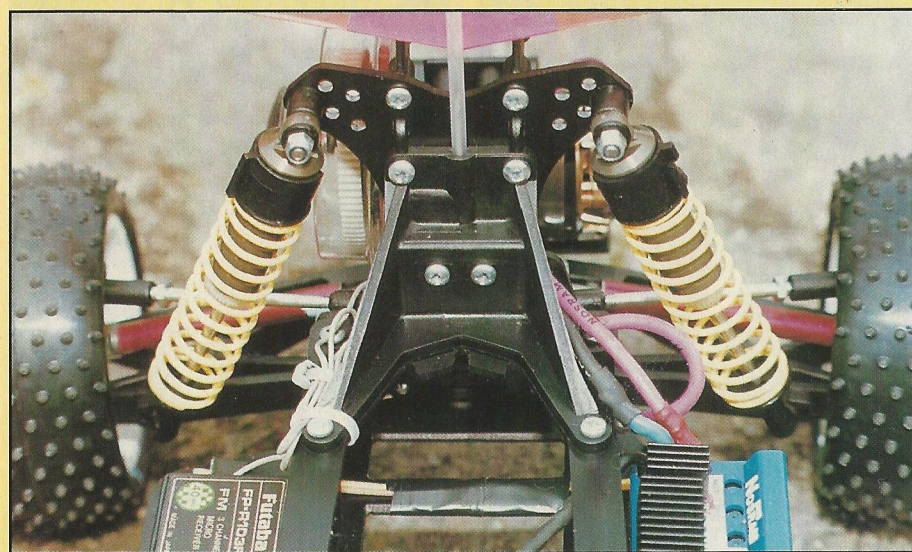
for indoor use is the one to build the car up with initially. I built the Cougar to the spec recommended for multi surface, astro turf and asphalt use (apart from using the kit yellow springs rather than the white springs suggested), and was pleased at how well the car handled, both on tarmac and dampish grass. I would suggest that a photo copy of the set up page is made to facilitate the building of the car, as flicking back and forth between whatever step is being worked on and the setting up instructions is rather a tedious business!

The Suspension.

The wishbone mouldings etc, are produced to the usual high standard, and once they were separated from their sprues only took seconds to clean up with a modelling knife. As said earlier,



each particular set up requires the fitment of different castor inserts etc in the uprights, and different spacers on the ball joints for the steering linkage, to avoid bumpsteer with the

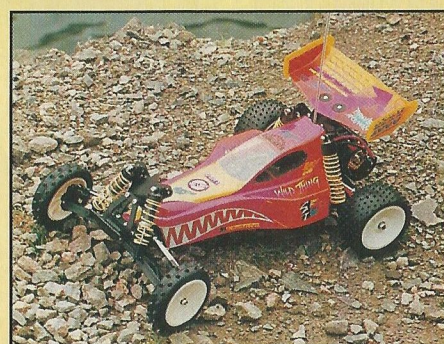


differing amounts of rake and castor that can be dialled in to the front end, so a decision must be made before the enjoyable task of building the car is started.

To explain exactly how so much of the Cougar is adjustable would take ages, so the diagrams from the instruction book will, I hope, allow an insight into the wealth of settings that are available to the experienced driver who knows how to make the best use of such adjustability. I would suggest that the car is built 'as book' to start with, then some experimentation can take place. Don't forget though to make a note of the settings used, because there are so many of them, it would be a simple matter to get lost and make matters worse whilst looking for the elusive perfect set up!

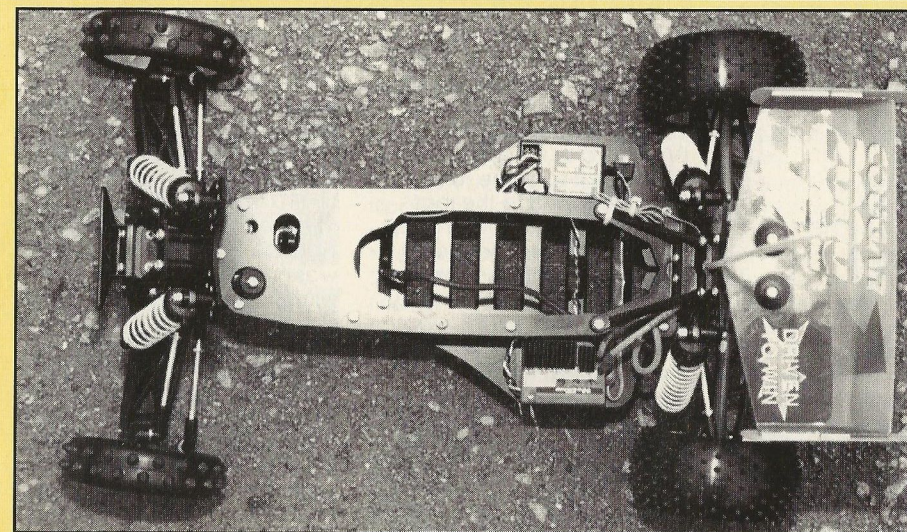
The front end is just so adjustable, with 4 castor inserts giving angles from 15 degrees to 30 degrees in 5 degree steps, that in conjunction with the three rake angles of 20, 25 and 30 degrees, the design should give maximum tunability.

The shock tower brace also serves as a strengthening brace for the bottom plate, through which the inner pivots pass for the front



wishbones, so no longer will a pivot pin suddenly break away.

The rear suspension design allows for two anti-squat angles, by cutting away a mounting lug to give 5 degrees of anti squat, rather than the 1.4 degrees as supplied. This small modification reduces the power on understeer, but can make the rear end break away unpredictably. Perhaps cutting the lug away, then shimming with thin washers is a good idea, but whatever the method, this is one more adjustable feature to take into account when setting up the car. The rear uprights also feature inserts to vary not only the



amount of toe in, but also the height of the axle line in relation to the suspension pivot point, yet another 'tweak' to play with! The wheel base can be adjusted at the rear, by spacer washers placed either in front of or behind the uprights, between them and the mounting points at the outer ends of the wishbones.

The Transmission.

This is where the Cougar 2000 differs from the accepted Schumacher 2wd design philosophy by the greatest degree. The gearbox actually is a gearbox, with not a single belt in sight! The unit is very compact indeed, the gears are light, well formed and, I am assured, very tough and well able to take a great deal of abuse without showing signs of stress. The box is so designed to allow the fitment of the motor very close to the diff, this gives a very small overhang at the rear of the car. This should help when landing off a large jump with the nose in the air, as the rear of the car will (hopefully) stay clear of the ground and not flip the car into the air as it would if it grounded.

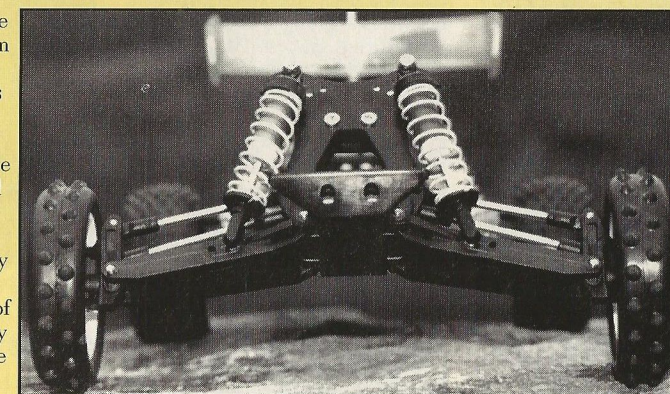
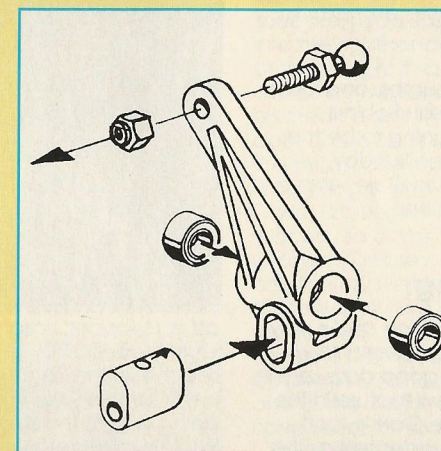
The diff came ready built, and was totally ready for installation, indeed, it has now done quite a bit of running and still feels silky smooth, thus saving on the time needed for maintenance.

The slipper clutch went together and adjusted up well, responding to very small tweaks when in use to a surprising degree. The complete power train is a real quality piece of engineering, so drivers can take heart in the fact that it doesn't need aftermarket parts to bring it up to scratch, and that it won't be outmoded by the MK11 version in just a few months time!

The driveshafts have a dogbone at the inner end, with a quality u/j to the wheel driving taper. Made from hollow aluminium, they are again very light, but possess great strength.

The Shocks.

Building the shock absorbers was a doddle. Everything went according to the instructions, the only fiddly part was cutting the pistons etc, off the moulding sprue as usual. Two sets of piston seals were supplied, the white low drag versions, and red types that require replacing less



often. I plumped for the latter!

Three holes were left open in both the front and rear pistons, with Losi 20 weight silicone oil used all round. Not a single leak was evident after building them, just as it should be for a kit of this type of quality (and price!).

How Did It Go Together?

Everything went together well, with just the holes in the suspension braces needing opening up slightly for the suspension pivot pins to pass through, they were the only minus points apparent. The suspension had no slop whatsoever evident in any of the joints, which, I must admit, puts some of the circuit racing cars I've built to shame. The instructions were clear, and I think that any criticisms that may have been aimed at Schumacher in the past will be laid to rest with this kit.

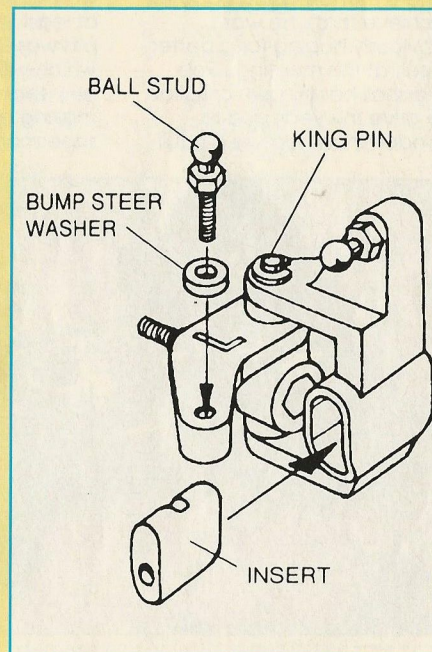
The Test.

The radio gear used to give the Cougar its shakedown runs was a Sanwa Gemini tx, Futaba 40mhz receiver, 132h servo (must get a dedicated off road servo!), and a Nosram Dominator speedo, all of which proved well up to the job as usual. For motive power, an Extreme 5mm magnet 'H-V' Series 15x6 motor was purchased from HML. Smooth, torquey and impressive is all I will say..... Galeforce Sanyo SCRC cells, retained nicely by the nicad strap, completed the set up.

The damping was immediately put to the test by some nice large jumps in the local quarry, for which the shockers received top marks. The gearbox was nice and quiet, confirming my thoughts that all was well with the new design, and the top speed was quite something. The Cougar will actually roll along nicely with such a comparatively mild motor (for a buggy), so the transmission is obviously right.

The Cougar feels very taut in its response to steering inputs, the lack of slop in all the joints, pivots etc, along with the rigid chassis, no doubt all combining to provide the driver with a car that could well be thought of as only limited in its capabilities by the ability of the driver to set it up and then the level of his/her driving skills.

My overall opinion of the Cougar 2000 is that it is Schumacher's most complete 2wd car to date. What I mean by that, is that there are so many options open to the driver regarding the set up, it has a top class transmission that looks set to build up a reputation as good as that from another manufacturer across the pond, and the car can be run at the highest level of competition straight out of the box, so to speak.



The car is definitely nice to drive, and a novice would get on well with a Cougar once it was built, but I don't think that it is quite the car for a novice builder. For serious racers though the car is ideal, definitely being the best 2wd yet from Schumacher.

The big question is, can our British drivers win with it at the World's?

Manufactured in Britain and distributed Worldwide by :-

Schumacher Racing Products, Hanson Business Park, 71-73 Tenter Road, Moulton Park, Northampton. NN3 1AX.