The two wheel drive off road market is the most hotly contested in the world of RC cars. The USA provides the main players but Schumacher have for sometime produced cars capable of taking on the best. Their latest release follows their company strategy of continual development in the form of the updated Cougar 2000 '95 spec

Class of 95

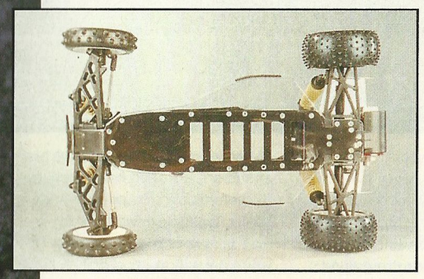
KIT REVIEW

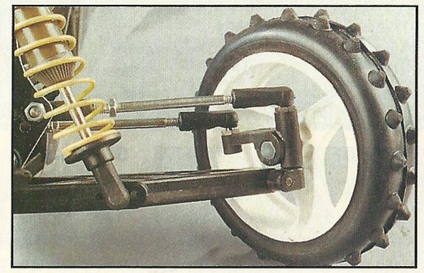
Any company making a 2WD off road car is entering the most difficult of RC markets. The competition side of RC racing is growing, being taken over by the serious racer. That means cars need to fulfil everything the racer requires while remaining user friendly, not being too expensive and even remaining 'trendy'.

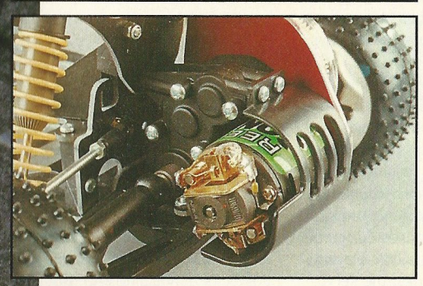
Schumacher's latest is the Cougar 2000 '95 spec. This car has been developed from the Cougar 2000 with the addition of some weight distribution changes and SACS. What do you mean, what's SACS?. It stands for Schumacher Active Castor System. So what is it? Well, it's a slightly complicated concept to describe in words, but here goes...

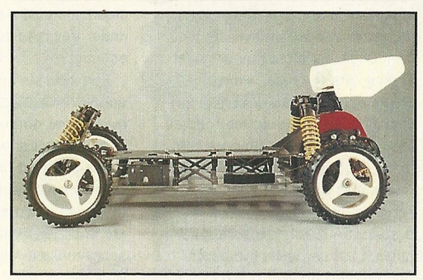
2WD model cars have castor on the front suspension. This is achieved by the chassis being angled upwards at the front at normally 30 degrees. This means the wishbone is at 30 degrees to the ground. This is then either left at 30 degrees or altered slightly at the wheel end of the wishbone by small angle differences on the castor block - with me so far?

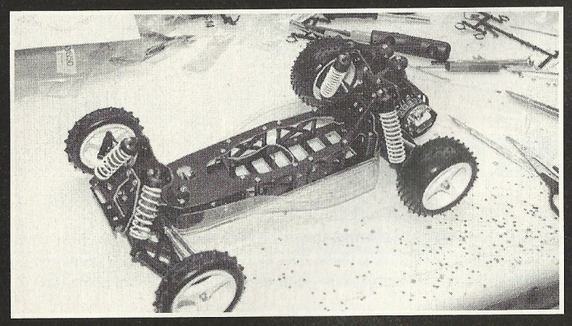
This angle or 'Kick-Up' makes the cars handle in a certain way - it helps when hitting bumps and landing from jumps and makes the car steer in a way that is easy to drive. This castor angle can be tuned to make the car steer as required - in my opinion more castor, let's say 35 degrees makes the car turn less sharply when first entering a corner and steer more as you power out of a corner. Less castor, say 25 degrees does the opposite, more steering in and less out. Until now this angle is fixed on the car - the only way to change it is to change the castor block.

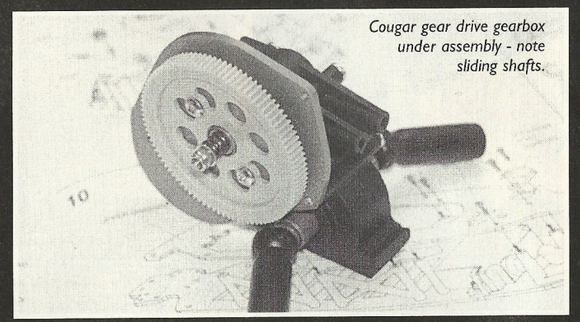




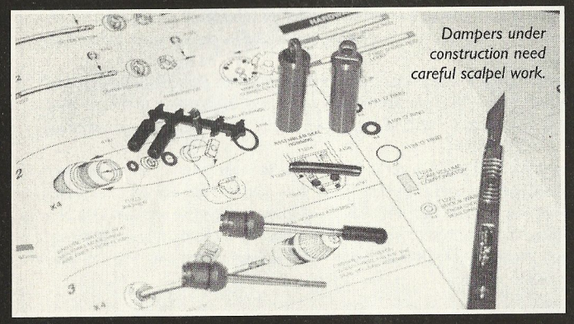




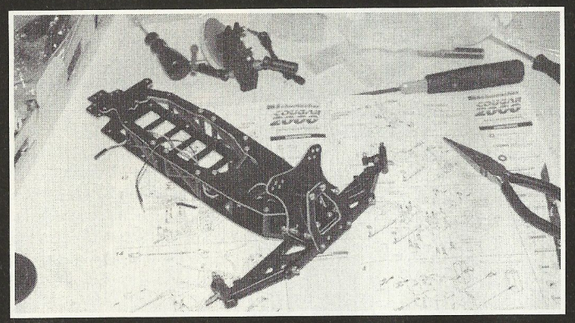


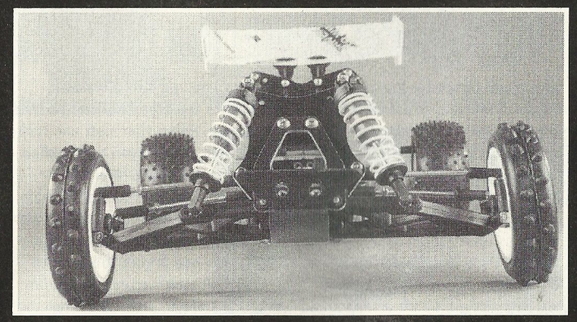


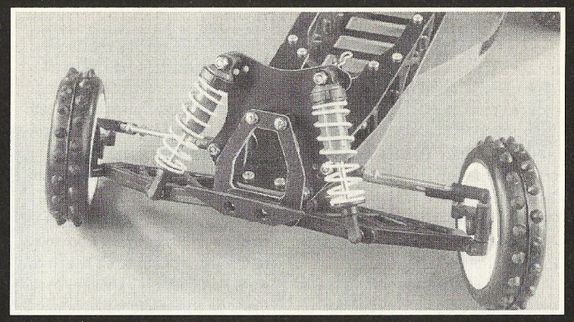
Cougar gear drive gearbox under assembly - note sliding shafts.

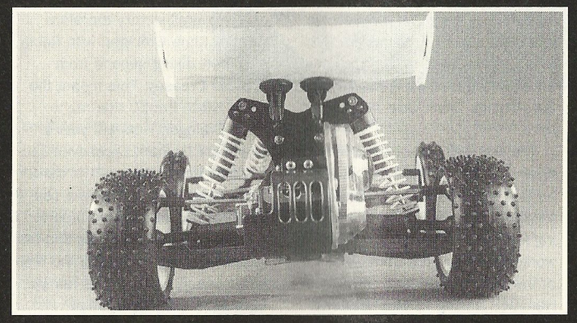


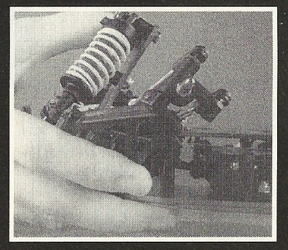
Dampers under construction need careful scalpel work.

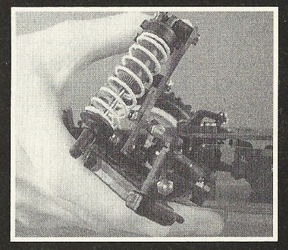












Above; SACS sytem in action; Left upright with extra angle and right with suspension down and less angle - get the picture? Cougar 2000 has extra long wishbones and fully adjustable suspension.

Cougar 2000

All true?

Schumacher say that this castor angle is important - we agree. They say that keeping this angle the same as the car drives is important - we agree. They say as the car is driven it either lifts the front under acceleration, or under braking lifts the rear - we agree. This means the castor angle is changing in relation to the road all the time - we agree. So does that make the way we have cars at the moment wrong? Well Schumacher seem to think so. Their new system (SACS) changes the castor angle if the car is on the bench and pushed up and down (front and rear at the same time). But if you lift the front or rear the angle remains the same to the ground! All of this is complicated, but Schumacher are famous for coming up with good ideas. The system has been used by the team to win races in 1994. Other rival teams seem to think the idea is not a good one - the racing in 1995 will give us the answer.

That's enough of all that, now for the kit instead of the theory.

Starting out

Chassis on the '95 spec is slim. This allows the under tray to angle up immediately each side after the cells to give the car extra ground clearance at the sides. A new under tray is of course part of this equation.

The chassis itself is braced between the top and bottom levels by a series of moulded braces, although this seems a complicated chassis design the finished item is very stiff. The servo is mounted at this early stage and servo arms are supplied in the kit for different servo makes. After a little playing with the supplied links, the servo mounting and location is complete - do make sure the movement is smooth and free.

The gearbox on the '95 spec remains the same. Gear drive with clean, well moulded casing and gears. The diff comes ready assembled but with full instructions on how to re-build. Only small advice on the gearbox; when the slipper clutch is assembled the thrust bearing washers need to be cleaned up, they need to fit onto the shaft easily.

Schumacher's famous drive shafts are next and have been further improved to go together easily. Take the advice of the instructions and use hot water to warm parts first - this makes life much easier.

Back to SACS

Front suspension requires to be assembled next and because of the SACS system there will be a few parts that look unfamiliar. The system uses a standard style wishbone except that at the wheel end the pivot pin is at an angle. To this bolts a moulding with two holes at carefully worked out angles that in turn holds the steering block. All these parts require a quick cleaning up with the scalpel but when together form a solid construction. The steering blocks also have a design not seen on Schumacher cars before. The axle trails the steering pivot by 4mm. This Schumacher claim gives the car stability.

The steering parts are next, these are still angled to reduce bump steer and uses a neat moulded centre link between the two steering arms. Shock brackets and the standard Cougar rear suspension is all fitted next as the '95 spec starts to really come together.

Dampers are the now well proven and very well designed Schumacher units. These dampers really do work well when assembled correctly by do require a little time to get them just right. Carefully trim and clean all the damper parts during assembly but be careful not to remove some of the tiny deliberately moulded blips that form part of the damper adjustment. The pistons are in fact fully adjustable but the Schumacher racing team tend to run them set at 4 holes. 30wt oil is recommended and this is a good starting point. Yellow springs are in the kit and these are a medium setting, a full range of springs is available and well worth having. One point to mention is that the kit comes with short front dampers - after a long time with medium dampers on the car Schumacher have now followed the trends set in the USA.

Once dampers are on the car it's virtually just wheels and tyres to finish the rolling chassis. New three spoke wheels are in the kit which are strong and seem to be the favoured choice of most drivers. Blue grade rubber tyres are in the kit which again is a good starting point to try the car on.

As said the under tray was simple to fit and hugs the line of the chassis. The bodyshell is new and fairly conventional and again is very uncomplicated to cut out. The front nose was removed on our test car as it is very difficult to get it under the shock bracket. A rear wing requires to be cut out and the side pods fitted and then placed on the car with the clever Schumacher spring back wing mount system. This works well in crashes keeping the wing safe but probably doesn't aid downforce!

Radio fitting in the Cougar '95 consists of the servo - easy to fit and the speed controller and receiver - not so easy. The design of the car with its angled under tray and slim chassis has given rise to the problem of fitting the electric bits. Two lexan trays are the Schumacher answer, these bolt to the chassis top and bottom to hold the Speedo and receiver and keep them safe and dry. This is probably the most amount of thought a manufacturer has put into RC installation but for me it was very tricky. The trays were a little difficult to cut out and when fitted required various trimming and alignment to get them to work. After all that they are pretty tough but tie-wrapping to the chassis seems the only other answer - it's up to you...

'95 Spec - the answer?

Very good results for Schumacher like third at the 2WD Euros and wins during 1994 at the British National Championships prove that this car can be right on the pace. But as said at the beginning this is a real tough market place and others offer very good packages that the Cougar '95 Spec is competing with. Overall the Cougar is the best car Schumacher have made for 2WD to date. It is very complete, tough and has some clever ideas built into the design. The SACS system is novel and well thought out and may be a real aid to those who it suits. The choice of which 2WD car to race is a difficult one, the Losi car is very popular, the RC10 has an amazing record and there are of course the Traxxas and others in the league. There are of course Schumacher drivers who will want to stick with their cars, many of the parts are compatible with the old cars and wheels and tyres can even be used from the 4WD car. The Cougar has some radical ideas and nice design features, it is also highly tuneable and designed and built in the UK - the Cougar '95 spec is a very good car - the choice of if you drive it will be up to you!

COUGAR 2000 '95 SPEC

Fully ballraced (14)
Gear drive gearbox
Slipper clutch
Adjustable track rods
Adjustable suspension links
SACS castor system
Full under tray
Lexan body and wing
Adjustable dampers
Three spoke wheels
Complete less RC and motor

Availability
From all Schumacher stockists
Suggested price approx. £235.00