

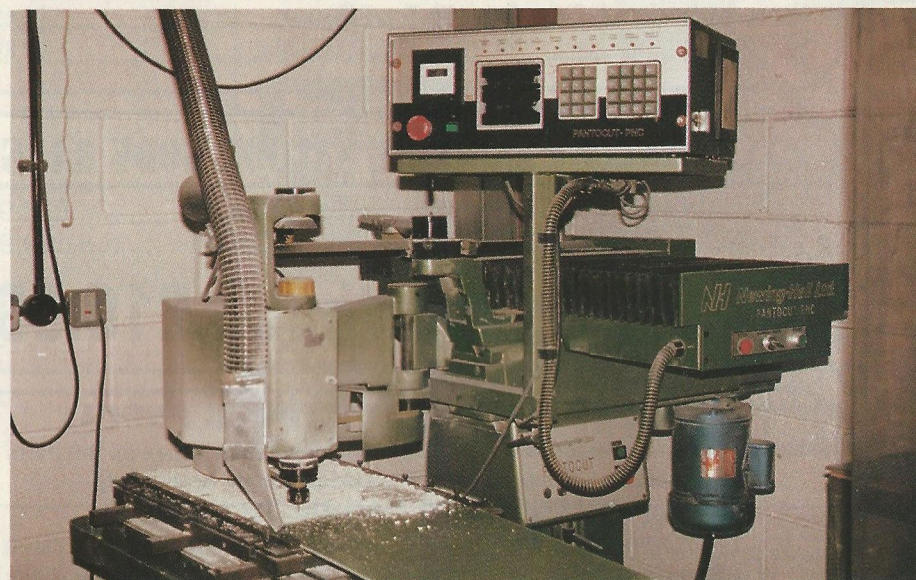
# Schumacher

## THE HOME OF BRITISH OFF-ROAD RACING.

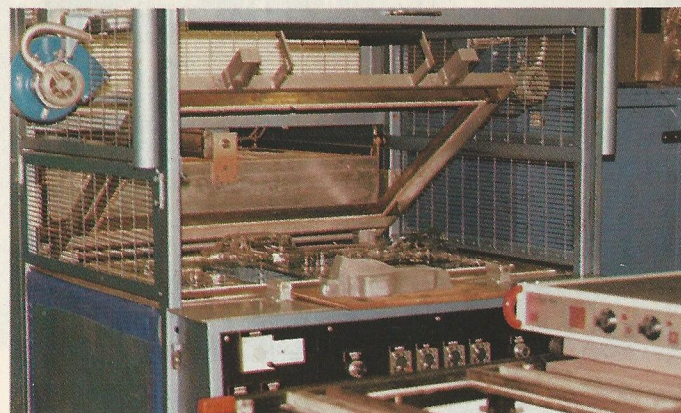
### RRC visits, and reports on the latest developments.

Never having been to the works, I was very pleased to accept an invitation to see for myself the organisation responsible for Britain's most popular off road cars, so on a wet and miserable day (definitely not good for trying new cars out!) I travelled across to Northampton.

Entering the spacious office, I met the two ladies who are the first point of contact with Schumacher, Sue Collier and Julie Steel. These two ladies are, I am assured, responsible for the smooth day to day running of the office (for this read 'works')! A friendly greeting then followed from Robin Schumacher, Cecil's son, and Tim Walden, the man known to many as Schumacher's 'man on the spot' where off road racing is concerned. Following a brief chat regarding the programme for the day, Tim and Robin took me along to meet the man behind the operation, Cecil himself.



Cecil's first machine- it produced all of the 'C' cars.



The vacuum forming machine.



This machine runs non-stop producing wheels.

### Cecil Schumacher

Cecil must be one of the friendliest characters in model car racing circles, and I must admit, having first met Cecil in 1981, that he doesn't look a day older after 12 years in the model car business, which must be as stressful as full size car racing. He must thrive on it! Cecil and I had a chat about how much things have changed since the early days of 1/12, and how modern technology has brought about the type of cars we have today and, more importantly, the methods used to design them.

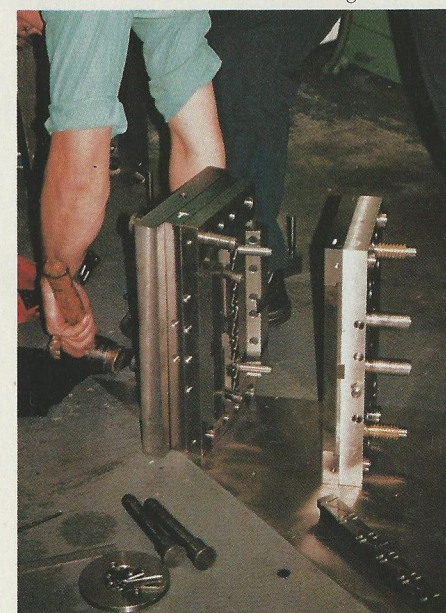
Cecil Schumacher has been responsible for

The packing and despatch area.



Colin the toolmaker keeping a watchful eye on the spark eroder.

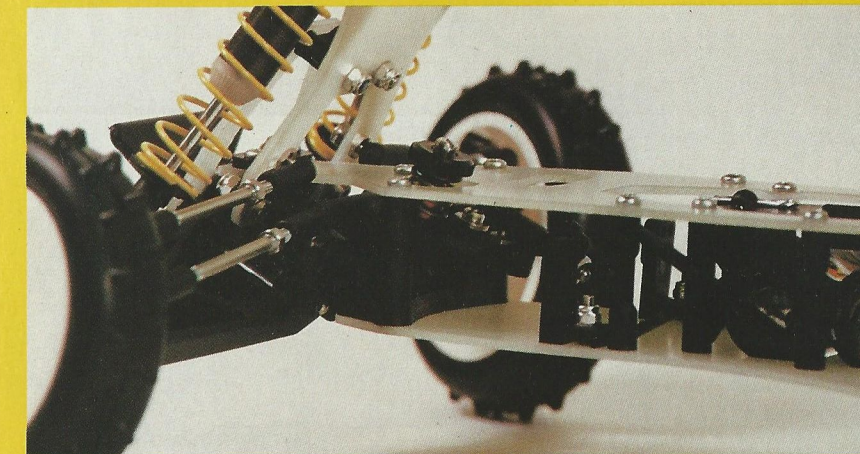
many of the parts used in today's modern model racing cars, both off-road and on. Cecil was the man who designed the ball differential back in 1980, this revolutionised the 1/12 cars being driven at the time, as the only differentials available in those early days were of the geared type and consequently were fairly heavy. The Schumacher ball diff was a natural progression for a Formula 1 transmission designer who had become interested in model car racing.....



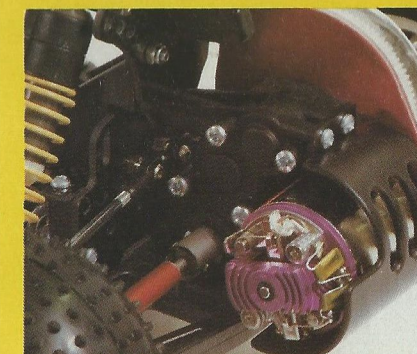
Splitting the mould for the Cougar 2000 chassis braces.

## The Latest Development

Angled bellcranks for zero bumpsteer.



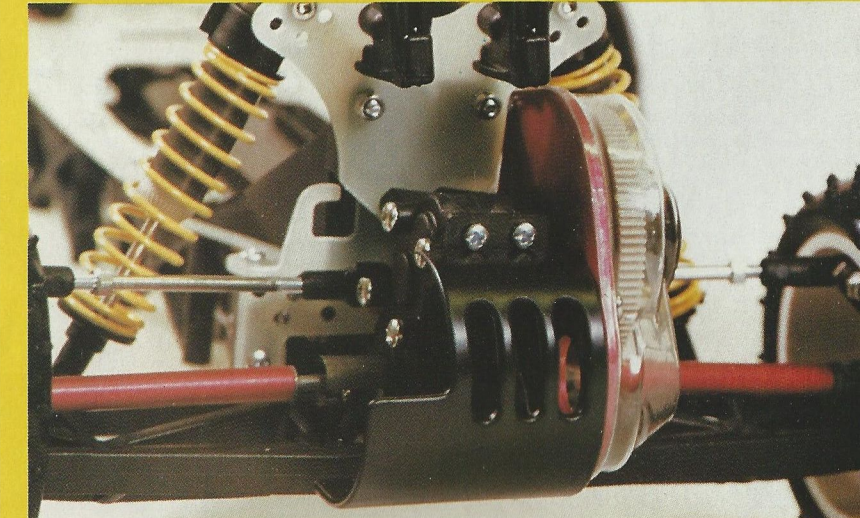
The new compact geared transmission.

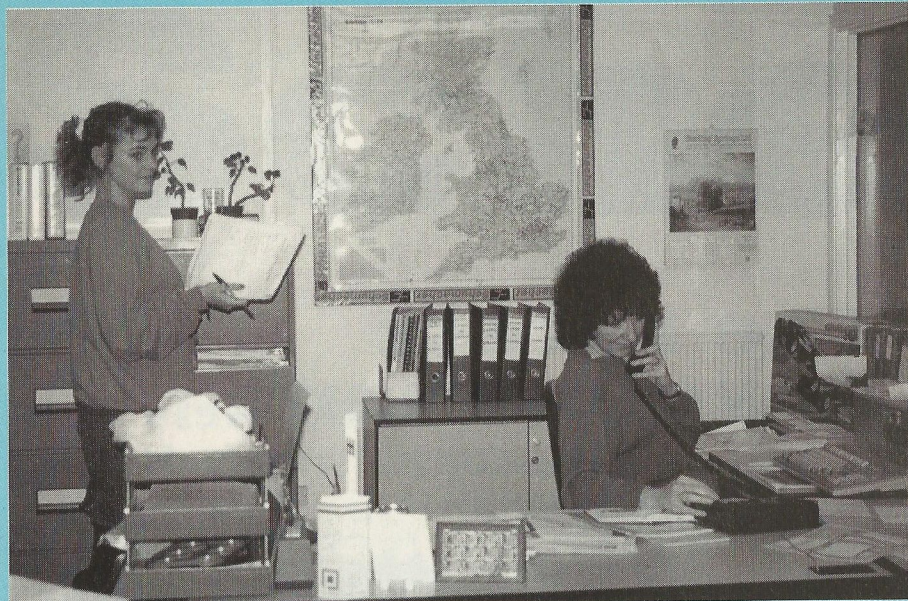


The well engineered front end.

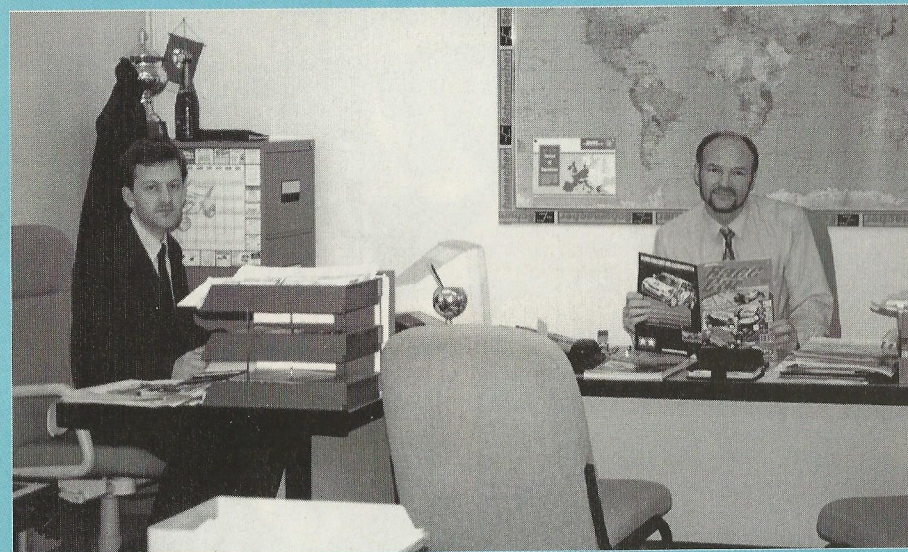


Will this be what the competitors see of the 2000 at the Worlds?





Sue and Julie (Above), Robin and Tim (Below) at work.



Cecil was employed at Cosworth as a transmission engineer, working on an automatic transmission intended for use in Formula 1 cars. This project unfortunately came to an ignominious end when, after a few breakages, Cecil hurt his back and had to recuperate. At this time Cecil and Mr Cosworth himself, Keith Duckworth, were heavily into 1/12 silicone racing, with Cecil producing his differentials 'on the side'. It was at this time that Cecil realised he was making as much money producing model car parts from home, as he was working for Cosworth, so with Keith Duckworth's blessing they parted and so began the era of innovation from 'Rudge-callers by appointment only', Cecil's home address.

### The Early Days

At this time the only form of model car racing available to the masses was 1/12, so Cecil produced everything that a 1/12 racer could possibly need, including a very cleverly designed folded lexan car (the XL) that incorporated rear leaf 'springs'. This was superseded in 1982 by the original 'C' car, produced by Cecil's first machine, a P.N.C. operated Newing and Hall routing machine which, in those early days, saw Cecil working late into the night programming. Unfortunately, any mistakes sent the whole thing

haywire, so a great deal of patience and care was required! The 'C' car won the European Championships in 1985 and 1988, and was widely regarded as the best handling carpet car on the scene, when the set up was mastered.

1982 saw the first off-road cars emerge as competitors to 1/12 racing, and Schumacher were quick to realise the appeal of this new sport, distributing the Bolink Bigger Digger, an American made buggy with simple rocking axle suspension. The Japanese cars on the market at this time were fairly heavy etc, but had the virtue of full independent suspension, so did all the winning at the 'Worlds' End' circuit, a famous track of the time, situated at the rear of a pub in Northampton.

This situation set Cecil's mind working away, the result of his labours being the 4wd 'CAT', released in 1986 after a gestation period of well over a year. Masami Hirotsuka, at the time an unknown driver from Japan, drove the

Cat to victory in the 1987 World Championships, thus assuring the new car a place in the history books. Since this important time in Schumacher's history, the company has expanded the product line to include I.C. cars, both for off-road and circuit use, the company being the first to produce an I.C. powered stadium truck. But what of the present, and how do the firm of Schumacher see the future?

### Touring the Works

The premises from which Schumacher operate boast an area of 10,000 sq. ft., with the latest high-tech machinery put to good use, to produce the quality parts seen in their models. RRC visited the works recently to see the new Cougar 2000, the new 2wd car that marks a departure for Schumacher from the accepted design philosophy evident through the TopCat and earlier Cougar variants.

3-D Cad-Cam computer aided design is used by Schumacher these days, and allows the designs to be instantly programmed into the machines in the machine shop, thereby speeding up the manufacture of prototype parts and allowing the development programme to move faster than it would if it had to rely on the old fashioned draughtsman/ toolmaker chain.

I must admit to being surprised that Schumacher produce all their own plastic mouldings, a large Arburg automated machine produces wheels etc around the clock, while all the mouldings, wishbones, bulkheads etc, are made by a series of manually operated machines, with a large degree of close inspection to ensure the quality is always up to scratch. The moulds are produced in-house by a computer controlled Hurco spark eroding machine, this is made necessary because the material used for the moulds is so hard that it would quickly blunt the tools used if any attempt was made to machine the complex shapes. I found this process fascinating, as it all takes place in an electrolyte bath that bubbles away merrily like a witches cauldron!

Moving along the workshop, I was surprised again to see a vacuum forming machine, having always had the impression that Schumacher's bodysells were bought in from an outside supplier.

Cecil then took me into a small side room, in which he was proud to show me his very first machine, the Newing-Hall routing machine, now thankfully controlled by the computers upstairs, instead of having to be painstakingly programmed by hand! This is now used for the production of shock towers and small bracketry, and has indeed given very good service over the years.

### The design team- Vic, Cecil, Chris, Simon, Phil and Martin.



Cecil and RRC's Jeanette in the machine shop.

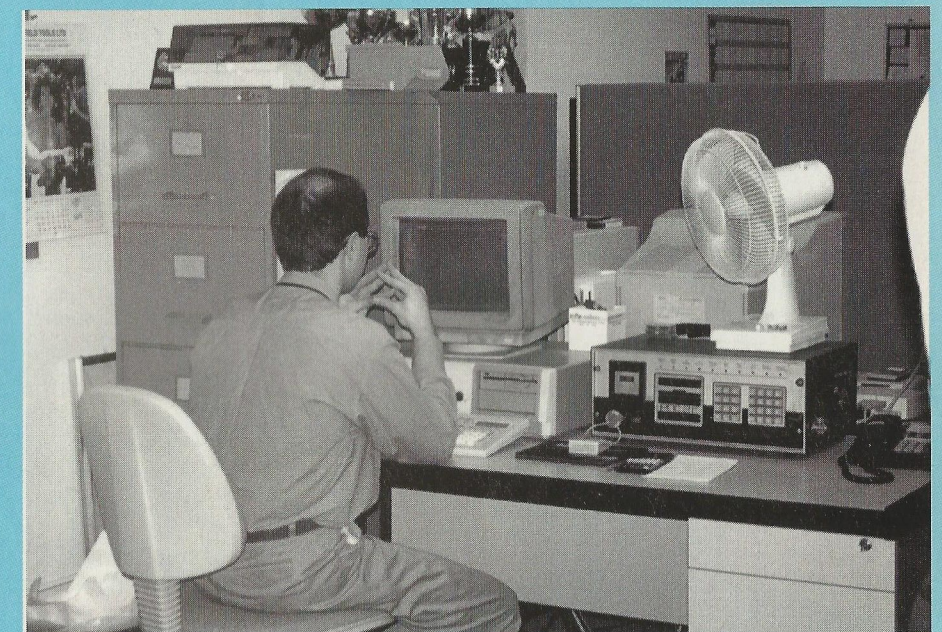
### Design and Development

The next port of call was the R + D Engineering department, where the team of designers, headed by Vic Ababurko, get their heads together to come up with new developments and where they were very excited by the prospects for their new baby, the Cougar 2000. I was actually trained as a draughtsman, but I've never used a Cad-Cam set up, so I was very impressed by the ease with which a part could be called up, then if necessary, rotated through every axis to enable a complete view of the part in question. This type of design is streets ahead of the old way of draughting a design, and allows a much greater

degree of experimentation with, for instance, suspension geometry, as the Cad system can be used to produce the effects of suspension movement. Changes can be effected on screen in the positioning of pivot points etc, with an instant result available to the engineer without having to plot changes in geometry on paper.

The relationship between the R+D staff is obviously very good, this leads to a good working atmosphere and ideas are plentiful in supply! The latest development to come from this 'think-tank' is the new Cougar 2000 2wd car. Phil Davies kindly explained the reasons behind the design and introduction of this totally new car, but more on this later. I was shown various cars being totally 'ready' built, and the area where Steve Swan, the intrepid driver of the Daytona used for the Silverstone speed record attempt, does his development and repair work on the complete range of cars. It was nice to see that everybody employed at the factory is into model cars (at least the male employees that is!), so it is unsurprising that a real interest is taken in each facet of the production and after sales service. The next part of the works to be visited was the stores, packaging and despatch area. Row upon row of bins, full of parts, stretched before me, and I must say I wouldn't like to have to pack all the parts needed to build a Bossecat for instance, but pack them they do, with the quality control under the eagle eye of Kevin Irons, the Production Controller. It is Kevin who ensures all the required bits are in the box when opened by

Racing Lines last month, the new car is a total departure from the original Cougar design, attacking the problem of becoming supreme in 2wd by coming up with a totally new design that uses some principles already in use, with Schumacher's own individual touch applied to come up with a car that is so 'tunable', that it can be dialled in to any track with ease, once the various tweaks are understood and their effects noted. The car will be available in both grp and carbon form, but with the double deck construction and triangulated side bracing, there will not be a problem with flexing using the grp version, the main advantage of carbon being lighter weight. The car is new from front to rear, the first thing to strike you being the lack of overhang at either end, thus giving more ground clearance on very bumpy tracks. There are new unique castor adjustment inserts in the front upright pivots, giving the option of 5 different angles, the steering bellcranks are angled to give perfect geometry, with bumpsteer being conspicuous by its absence through the complete sweep of suspension movement and steering lock. The list of new features goes on and on. I particularly liked the brace that links the front shock tower to the front wishbone pivots, in one swoop removing a potential weak point and



Phil looking for inspiration!

the eager purchaser. I left the factory floor with the distinct impression that Schumacher have really got their act together, and are really here to stay as a manufacturer that has its eyes on the future and has no intention of resting on its laurels. The Schumacher range is now exported worldwide and has prompted the establishment of Schumacher Inc. to distribute to the large American market. This is what really amounts to hauling coal to Newcastle, indicating the commitment that they have made to sell their products, and which is paying dividends by all accounts. After all, Cecil came from a Formula 1 background, and if there is one thing that he was taught in that regime it was not to be complacent!

### The Latest Development

The other reason for visiting the works was to have a good look at the new 2wd car, brought out now to be ready for the British World Champs, to be held in Basildon this summer. As seen in

ensuring that the only movement possible is that of the wishbone performing its function as a suspension part, and not merely as a flailing arm with a wheel on the end!

Moving to the rear of the chassis, a new development for Schumacher is the use of a geared transmission. This has been brought about to give the lowest possible rotating mass and is responsible for an improvement in acceleration and response to the throttle over the earlier Cougar transmissions. The drive shafts have a new combination of dog-bone and universal joints, with the shafts themselves being made from tubular alloy. Again, at the rear the overhang has been reduced to the absolute minimum to avoid the chance of the tail digging in, when landing off a jump with the nose in the air. As this is being written, the new car is not yet in production, although the final specification has been decided on, so the Cougar 2000 will appear in the shops as seen in these pages very soon. Look out for the full review of the Cougar 2000 in Radio Race car!