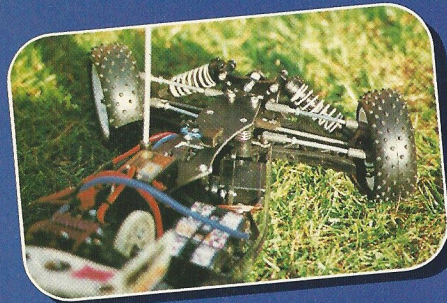
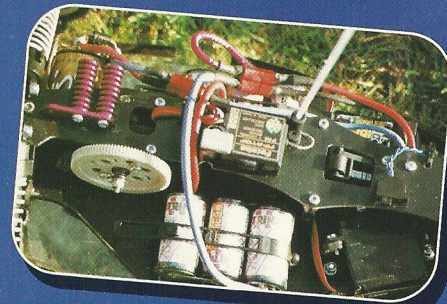


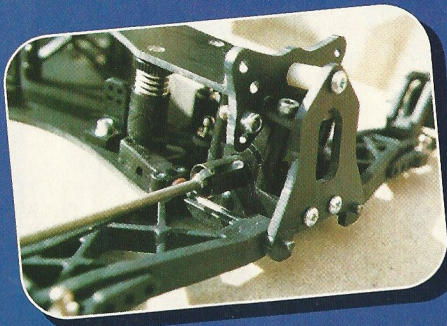
# SCHUMACHER CAT 2000 SE REVIEW



This kitten has a pedigree!



The double deck fibre glass chassis is retained.



The new driveshafts using a plastic blade.

The last time I raced a 4wd car in anger was in the early eighties, when the Tamiya Hotshot and Kyosho Optima were king, with their respective shaft and chain drives. These were in the days when there were no separate classes for 4wd or 2wd cars, everything raced together, and the Associated RC10 had just come to these shores and was

taking the UK market by storm, it was unbeatable when the grip was good, but as soon as it was slippery the 4wd cars were in their element.

I raced regularly off road at this time with a belt driven 2wd Kyosho Scorpion around the Northampton area, and rumours were rife around 1985 that Cecil Schumacher had been developing a 4wd belt driven car along with help from top driver Andy Dobson (Andy Dobson was the 80's equivalent of Dave Spashett, and eventually went to the USA to pursue his R/C racing career).

It was decided to unleash this new car to the outside world at a club meeting on the A45 just outside Northampton, I can't remember the exact venue or even the club, but I do remember that I drove there in a rented Cortina (my Manta GTE had just been 'totalled' by a drunk driver in a Volvo 760), and that the rostrum collapsed in the torrential rain and high winds, and eight of us fell about seven feet onto the straight whilst racing!!

This early prototype Schumacher Cat was a temperamental little animal, sometimes it would purr around the circuit and claw around corners like on rails, but push it too hard and it scabbled aimlessly and would not keep a straight line. Now Andy Dobson was one of my

1/12th scale mates so I was fortunate to drive this prototype regularly from its early development stages through to its final release in 1986. By the time it was released it was a lithe and agile racing machine, the kitten has developed a pedigree!!!

So here I am in 1997 with the latest 4wd offering from the Schumacher stable, the Cat 2000 SE. This is the most recent version of the treble Euro champ car, the 94 and 95 versions designated 'EC', the 96 version designated 'SE' (special edition), to celebrate their most recent success with Finnish ace Jukka Steenari at the helm. So how does the SE differ from the EC? Basic design and layout of the two cars are very similar but the SE incorporates several 'speed secrets' to give it the winning edge.

The double deck fibre glass chassis is retained with drive transmitted via two low friction Kevlar belts from the mid-mounted motor to the front and rear differentials. These are the latest lightweight aluminium diffs and are mounted as low as possible in the car to ensure that all weight is as close to the ground as possible to give superior cornering ability.

The power is delivered to each of the driven wheels by the new Blade drive shafts. Gone are the very effective, but bulky looking telescopic units. These new driveshafts use a plastic

# there's still life in the Cat!

'blade' to locate into the differential outdrive and ensure a consistent power delivery to the wheel whatever the position of the suspension. Gone is the 'notchiness' sometimes associated with a conventional 'pin and slot' drive, instead a smooth and lightweight drive now takes the power to the hardened axle and tapered hexagonal drive for the attractive three spoke wheels.

Long throw wishbones are controlled by lay-down shock absorbers, mounted so low in fact that the rears are actually mounted inside the body shell to decrease wind resistance and to give increased crash protection. These dampers are the latest polymer versions and they are so light it is untrue. The polymer material used is very strong and reinforces Cecil Schumacher's 'real race car' background.

The late Colin Chapman of Lotus fame, was renowned for trying to save weight on his cars,



The newly designed rear wing and mounting.

rather than trying to increase power. Just look at the performance of a Lotus 7 with a relatively low power engine, the same can be said for R/C car racing with our restricted power source available, the closer you can get to the minimum weight then the better.

A newly designed rear wing and mounting is incorporated to increase rear end grip and to be even more crash resistant, and to finish it off the ultra-low body shell fits the chassis so snugly you couldn't make it any lower even if you wanted to.

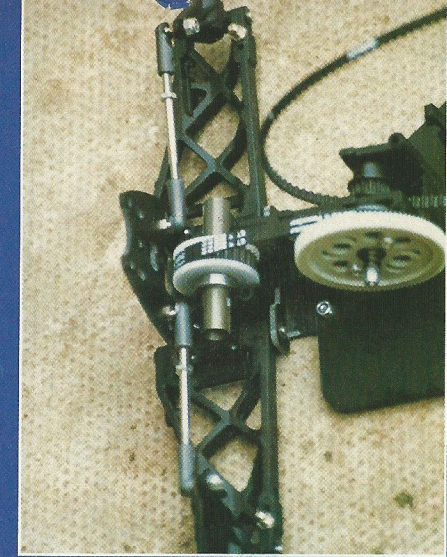
So how does it go together? Well pretty damn well if the truth be known, but first of all STOP what you are doing and take a walk down to your latest DIY shop and buy a coarse 1/2 inch flat file and a decent Phillips screwdriver.

Schumacher are well known for the excellent

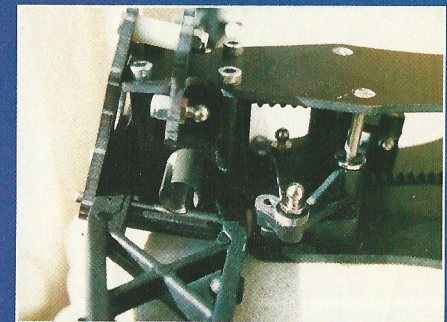
quality of their fibre-glass components but all these bits are cut out automatically on a CNC machine and all have a residual 'tit' on them where the cutter finishes, which must be removed prior to assembly, hence the need for the file. All the screws are countersunk Phillips heads and can be quite tight into the polymer mouldings, so to reduce the risk of slipping a new screwdriver with a decent end really is required. And no, your favourite racing driver that you've had for the last zillion years will not be any good! Been there, read the book, got the scars to prove it, and anyway the right tools make the job so much more enjoyable!!

I will not drift into screw three into hole seven mode as the comprehensive manual does a far better job than I can do, and is very easy to follow but do read it all before starting. A little knowledge can help a lot!!

The polymer differential housings fitted easily, supporting the ready built differentials which run in high quality ball bearings, as does the whole drive train, no bushes in this kit, everything is ballraced. The motormount and layshaft mount is a moulding masterpiece but do carefully trim off the flash with a modelling knife. Be very careful not too cut yourself, if you are a younger builder, perhaps get



The polymer differential units fitted easily.



Don't forget to fit the front belt before the layshaft.

Mum or Dad or your uncle Keith to do this if you are unsure.

Take care when building the one-way layshaft assembly, as this can be a bit fiddly. I always recommend building something like this over an old ice cream container as it will catch any bits that fall out, and it gives me an excuse for more ice cream! Don't forget to fit the front belt before installing the layshaft, otherwise you will have to take the assembly out again, I wonder how many people have actually done this (guess what I did!!). Very strong wishbones pivot on hardened 1/8th inch pins with damper mountings as close to the axle as possible to ensure maximum suspension movement.

An interesting thing to note here is that the rear toe-in is incorporated in the rear hub carrier and not inboard as is the current fashion. Three degrees is the standard kit setting, but variants are available from the Schumacher catalogue if

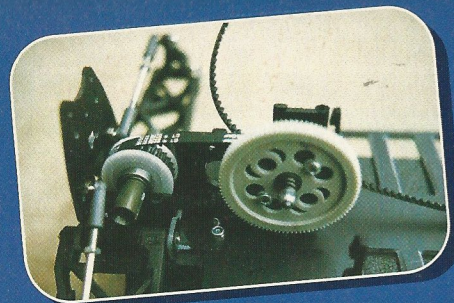
required. One advantage of outboard toe-in



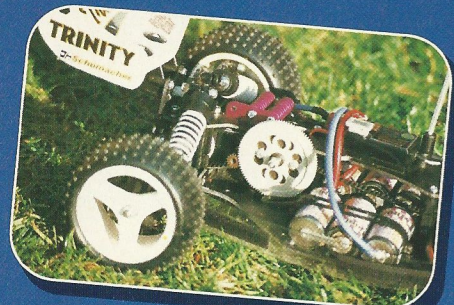
Rear shockers are mounted inside the body shell.



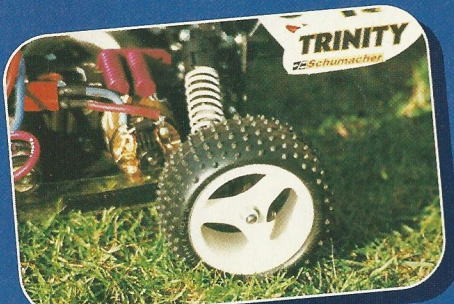
Scud missile catching speed!



The 95 tooth "whisper" gear is provided with the kit.



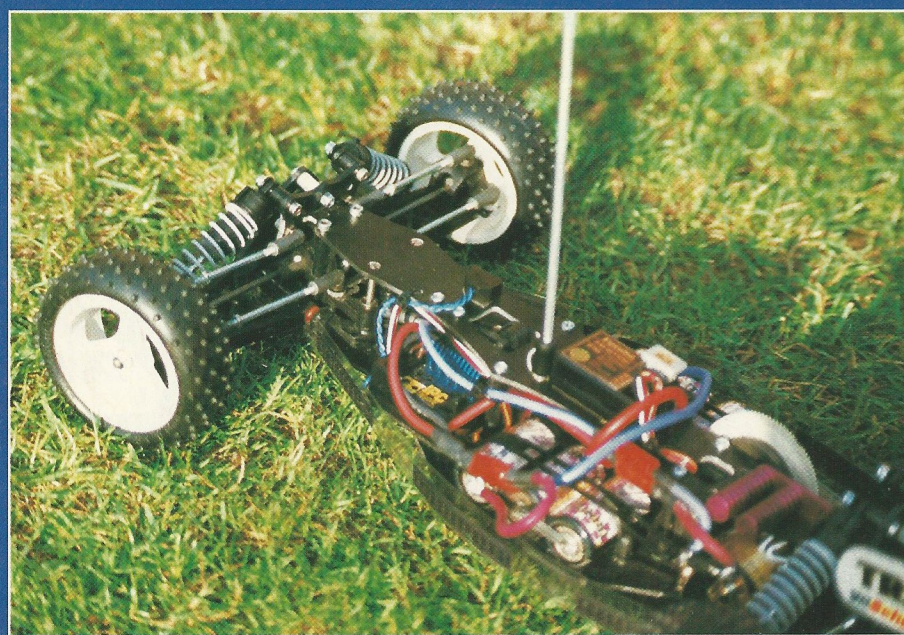
Plenty of space available on the chassis top deck.



Glue on the mini-spike blue compound tyres and we are ready to roll.

adjustment is that you can easily change the hub carrier without having to change anything else. Once everything is in place on the chassis it is time to fit the top decking, again made from fibre glass. All holes lined up first time and once tightened up forms a very strong 'box section', giving superb rigidity and strength. With shock mounts in place it was time for the

The shockers were fitted with the medium "grey" springs from the kit.



Overall a big thumbs up!

polymer dampers, no oil is supplied in the kit (why not I wonder), so I chose to use 30wt as it is a good starting point and I had plenty of it! The damping effect can be changed with ease using a unique four hole system in each damper piston. Four holes open equals soft damping, one hole open equals firm damping. Medium 'grey' springs are supplied for the front and rear dampers, along with a full spacer set to adjust the preload and consequent ride height.

Final touch is the undertray which also serves as the body mounting as the upper body is attached with velcro, no vulnerable body mounts on this car. All that is left is to screw the gear onto the slipper clutch, a 95 tooth whisper gear is supplied, and again a full range is available from the 'speed secrets' catalogue. The drive train was a bit stiff once built, so I put in an old motor with a large pinion to run through some cells with all the wheels off the ground. This did the trick as the belts soon bedded in and all the wheels spun freely. It is worth noting here that long boss pinions are required in this kit, a normal pinion just will

not reach. Next step is to fit the radio gear.

There is plenty of space available on the chassis and top-deck but my spare JR receiver was just too big so I bought a Futaba mini receiver which did the trick and now soaks up the radio waves from my beloved JR 756 Transmitter and feeds the signals to the LRP IPC speedo. This is probably the most popular speedo at the present time and is currently giving me excellent service in my Truck so it seemed an obvious choice. I had a 'break from the norm' for the steering servo and fitted the latest offering from JR. This 4735 servo is a conventional unit (non-FET), but has bucket loads of torque and is reasonably quick when running on the 6V bec from the LRP speedo. I changed several of my Trinity 1700 cells into saddle pack formation, glued on the Mini-Spike blue compound tyres and we were ready to roll!!!

Not content with a 'toe in the water' test I jumped in firmly with both feet and entered the RRC 4WD round at the Oxon club. Just to be on the safe side I bought a couple of pinions and a spring tuning set, along with some different tyres, so it was off to Oxon for some serious off-roading!!!

Now bear in mind that this is a standard kit, no carbon fibre, no Kevlar and no titanium, so imagine my surprise when scrutinising was announced that it was only 8g overweight! Four rounds of qualifying were on offer, but we each had a five minute timed practice which I definitely needed. The car was far too slow and oversteered excessively, so after a quick chat with Steve Pole who was the quickest Cat driver there I reverted back to the pits to change the motor and get very artistic with the scissors on the front tyres. By cutting off some of the spikes on the front tyres you can change the handling, but obviously it is a one way

The body fits really snugly.



## Set-Up



Driver: Andy Benson  
Track: Grass - Cobbles - Carpet  
Meeting: Oxon RRC  
Track Conditions: Dry - Bumpy - Cutting up on corners

FRONT  
Front Camber: -1°  
Front Toe-In: 0°  
Front Ride Height: Positions A & 2  
Oil: 30W  
Spacer: 5mm  
Holes Open in Piston: 4  
Spring: Grey

REAR  
Rear Camber: -2°  
Rear Ride Height: Position 2, A  
Rear Anti Roll Bar: No  
Rear Outboard Toe-in: 3°  
Oil: 30W  
Spacer: 8mm  
Holes Open in Piston: 4  
Spring: Red

Pinion: 17T  
Spur Gear: 89T  
Chassis: WFE  
Transmission: Slipper Clutch  
Wheelbase: Medium  
Tyres: Front - Blue Mini  
Rear - Blue Mini  
Foam Inserts: Yes  
Motor: Trinity Dirtinator 11 x 2  
Speedo: LRP IPC (120A Prog 3)  
Cells: Trinity 1700  
Receiver: 40MH3 Futaba Mini  
Servo: JR 4735

decision! We were rewarded with 15th overall after round one, much to my surprise, but the car was still too slow and oversteering a bit too much. I was coming off with 30% left in the cells so I decided to gear up the 12 x 2 motor I was running and to get the scissors out again. A further improvement, I was now 13th and three seconds off the A final, hey this ain't bad, we could make the A final here! Out came the rocketship motor, the latest Trinity Dirtinator 2 but this time an 11 x 2, went the biggest pinion I had and yet more spikes came off the front tyres.

Jeeeesus we now had scud missile catching speed as I promptly disappeared off the end of the straight, whilst still looking in the middle of the straight!! Nothing broken and I was back on a mission. The 2000 SE was now in its element, the handling was perfect and it was one of the quickest cars on the circuit, result 12th overall two seconds off the A final.

Now if I hadn't crashed on the first lap, if the marshal had been quicker, sound's familiar doesn't it! The truth is I blew it, not the car, not the Marshal, but me!! But it's interesting to note that if you knocked off the three seconds lost in the crash then I would have been ninth on the grid, not bad considering this car is totally standard!! I will not comment on qualifier four but I didn't improve but several others did, final position in qualifying, sixth in the B final. Not a brilliant race but we finished seventh overall in the B final which I was well pleased about.

In conclusion one must state that this is a race winner straight out of the box. If it had not been for my over exuberance with the throttle on qualifier three at the start, then

the CAT 2000 SE

would have been in the A final first time out against some very stiff opposition. Would I change anything for the next race? Probably the only thing I would add is titanium turnbuckles, these giving an increase in strength over the standard steel items which can be prone to bending. The CAT 2000 SE is one of the most competitive racing four wheel drive cars you can currently

buy. Schumacher have obviously got it right and with three successive Euro Championships and Jukka Steenari's recent success at the Florida

Winter Nationals against all the top American teams on their home ground, then the results speak for themselves.

Overall a big thumbs up, and it's BRITISH!!!

RRC

The completed CAT 2000 SE, ready to race.

## Testers Kit

JR 756	TRANSMITTER
FUTABA	RECEIVER
LRP IPC	SPEEDO
JR4735	SERVO
TRINITY DIRTINATOR	11x2 MOTOR
	(17: 89 RATIO)
TRINITY 1700SCRC-SP CELLS	(294 SEC AT 20A)