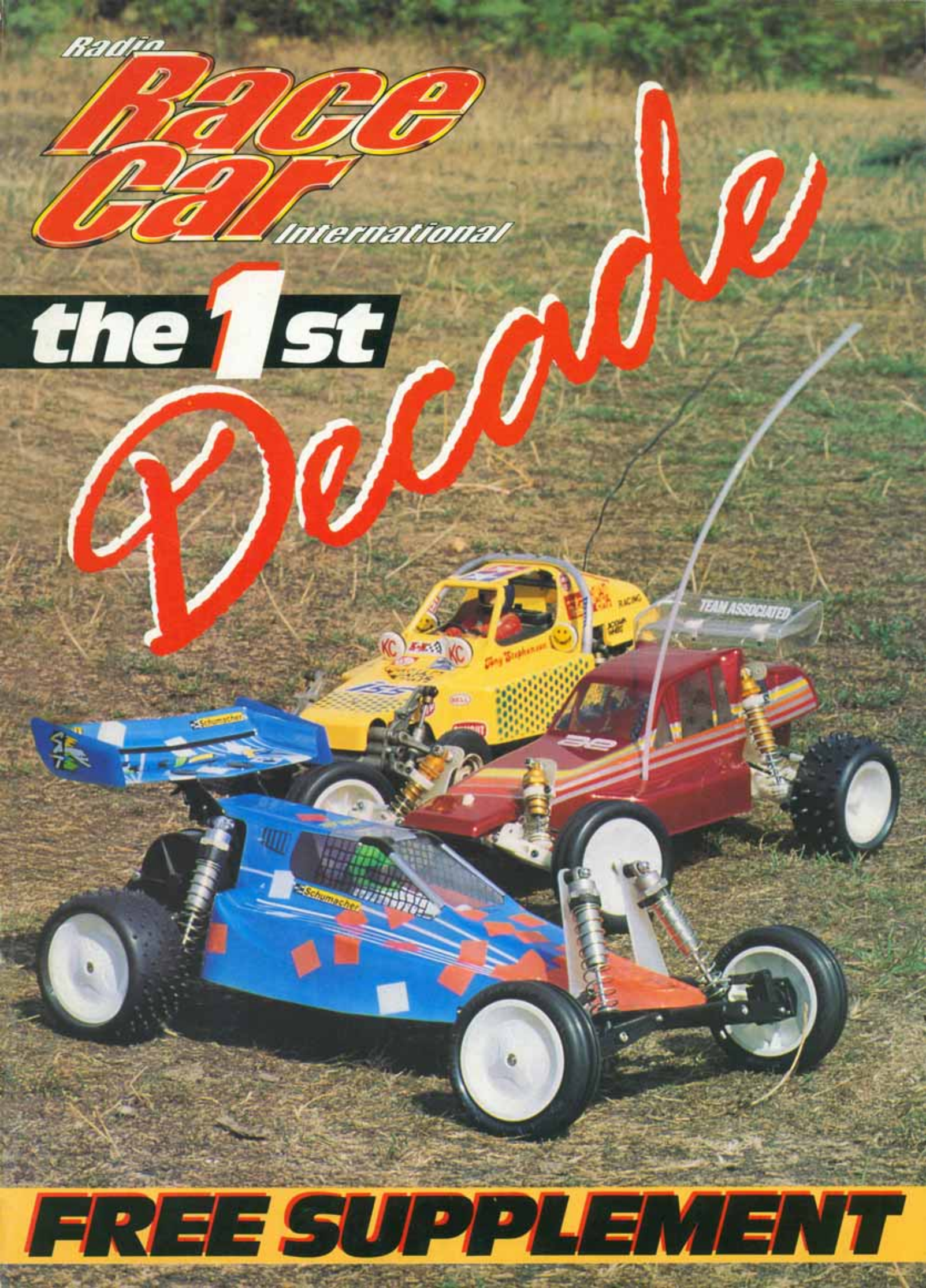
Radio
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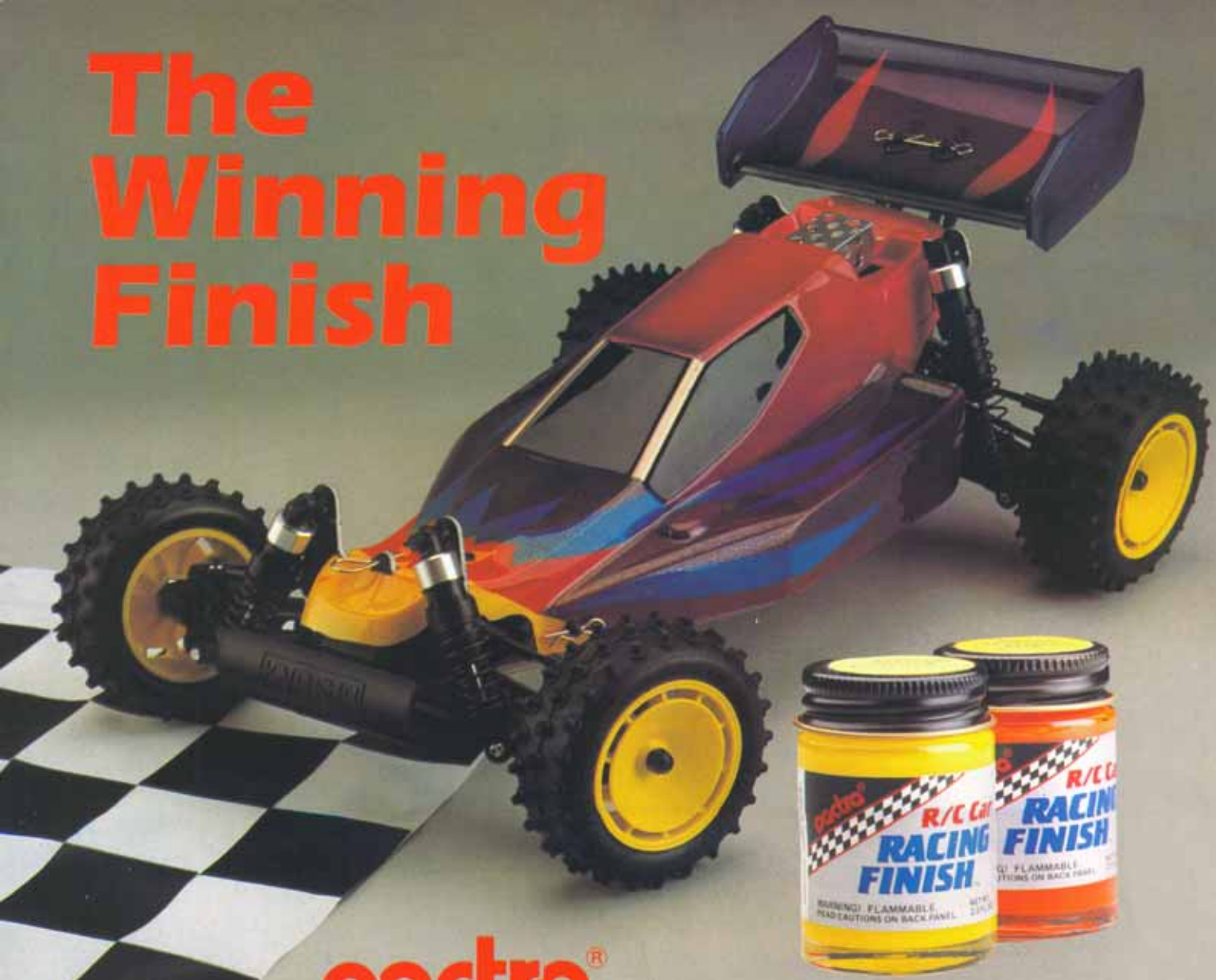
The Winning Finish



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The first name in modelling paint is Pactra. Years of development led to the introduction of Pactra's range of paints specially designed to survive the rigours of model car racing.

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the 1st Decade

Contents

FRONT COVER
Ten years on. The Rough Rider (1980), RC10 (1985) and Cougar (1990).

Radio Race Car Magazine is published monthly by Traplet Publications Limited, Traplet House, Severn Drive, Upton-upon-Severn, Worcestershire WR8 0JL, England.
Printed by Worcestershire Web Offset Limited, Droitwich, Worcester, England.

It doesn't seem ten years since Radio Race Car was launched. And yet, the first issue hit the press in Autumn 1960, a decade ago. We've certainly seen some changes in that time. Our longstanding readers will remember the A5 black and white format of the first issue, a far cry from the current 100 page mag with full colour features. And from the small original print run Radio Race Car now boasts a circulation of some 30,000 or so, distributed to over 37 countries worldwide.

Like the magazine, the hobby has seen some significant changes in that time. From the early 1/12th electric race days where the overweight cars would trundle around the track at what was then considered a fair rate of knots, we have progressed to the high speed racing of today using state of the art materials such as carbon fibre composites and aircraft aluminium machined parts.

Gone are the resistor boards, used as speed controllers on which the resistors would overheat, become unsoldered and fall off in the middle of a heat (normally the most important one!). Gone is the use of silicon on tyres to provide grip on the polished wooden gym floors where much of the racing took place. Gone is the nervewracking doubt, wondering whether you can get your I/C engine to last a full heat. These have all been replaced by advanced technology providing, in the main, reliability and efficiency.

Of course the major growth area in our hobby in the last 10 years has been in 1/10th electric off-road which has found tremendous popularity around the world and now must be the class with the greatest following. And Radio Race Car has been there to monitor and report at every stage of the game.

Radio Race Car has been very successful throughout its first decade, and that success is thanks to team work and the involvement of many people interested in our hobby all over the world. Home is where the heart is, and my thanks to all the people behind the scenes here at Traplet, who work constantly to maintain the high standards of layout, design and editorial content that has come to be expected by Radio Race Car readers.

But Radio Race Car's achievement is also thanks to our advertisers, some of whom have been with us since day one, and never missed an issue! And to our contributors (also with us from the early days ...). And finally, of course, to our readers and the tremendous support and loyalty you have shown. Don't forget, after all, the magazine is designed to provide you, the reader, with the information, the advice and enjoyment you are looking for. And please don't forget your comments and contributions are always welcome.

So my thanks to you all. Here's to Radio Race Car's first decade and to many more to come as we race onward and upward from strength to strength.

Pro Ten

Tenth circuit cars first appeared over ten years ago with Tamiya's Race Master series of cars which consisted of a JPS Lotus and Ligior Formula One cars. These were more of a scale model car than an out-and-out racer with their Dural chassis, injection moulded plastic bodies and 540 motors.

Tamiya also had produced a Formula Two Martini-Renault and a March BMW, both of which had 380 motors (Tamiya also made an R/C sidecar based on Ralf Billand's world championship winning LCR outfit). As there was not a separate class for 1/10 scale cars at this time they had to race against the more competitive 1/12 cars and were comprehensively beaten. Things went quiet on the 1/10 circuit scene until late 1988 when the Bolink, Parma and TRC cars made their appearance from the States.

Initially, the cars ran with tyre additives until the start of '89 when these were banned, due mainly to the fact that the 1/8 circuit drivers were under a misapprehension that these additives were damaging the tracks and as the Pro-10 cars were using their tracks it was decided to go along with their wishes.

In 1989 the Radio Race Car/BRCA Championships were held at Mendip, Southampton, Bournemouth, Halifax, Crystal Palace, Lilford, and the finals (which counted for double points) at Mendip. 1989 was the year of the Associated 10L and David Gale, who swept all before him from Crystal Palace onwards (which was round three). The only slip-up being at the finals when Phil Davies' TRC won after Jimmy Davis had been on a clear pole position by ten seconds.

In 1990 we had the TRC/CC Lynx II dominating initially, winning the first four nationals and taking FTD in the first three before Dave Gale and his Corally rolled in, taking two FTDs and two wins to go with his two second places, to successfully defend his title with a round still to go in the championships!

On the international front, 1990 saw the first European Pro-10 championship which had Britain's Phil Davies take FTD with his TRC/CC Lynx II and Jurgen Lautenbach of Germany win with his Lynx II. In the States, Rick Hohwart won the ROAR 1/10On-Road championships with his Associated 10L.

ASSOCIATED

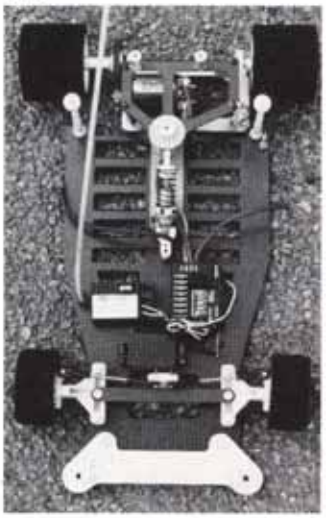
The 10L is the most popular car around and has taken 42% of all A final places this year. It swept all before it in the 1989 BRCA National Championship, which culminated in seven 10Ls in the finals at Mendip (including a fibreglass one) and David Gale taking the championship with his 10L.

In the States it has taken the ROAR 1/10 Scale Modified On-Road National Championship in Rick Hohwart's hands and Kent Clausen set the high speed record of 70mph around the Thunderdrome Oval.

The cars best results of 1990 have been two cars in the A Final at the European Championships with three seconds, three thirds, a fourth, a fifth and three sixths in the BRCA Pro-10 Championship. The main drivers of the 10L this year have been Graham Creasey, Pete Stevens and Phil Greeno.

Most drivers run the 10L basically as standard with the 2° castor wedges fitted. Tyres are generally PB Lilacs on the rear with Yokomo or Greens on the front. Some drivers use a thin T-piece or fit an anti-roll bar with the tweak screws removed. The fibreglass version which retails for £110 must rate as one of the best buys around and the graphite version retails for £150.

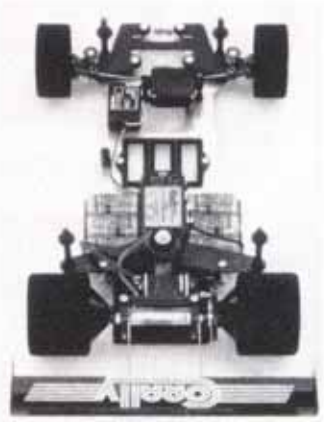
Available from Ted Longshaw Model Cars.



CORALLY

The Corally has increased in popularity since its release at the beginning of this year. At its first meeting at the Model Engineers Exhibition it finished third in the A Final in David Spashett's hands. Since then it has finished second at the European Championships with a total of four cars making the A Final. It has set two FTDs, had two wins, two seconds, a third, two fourths and two sixths in this year's BRCA Championship. It has had a FTD and a win at one of the Radio Race Car/Stafford Tarmac Championship rounds.

David Gale clinched the BRCA championship for this year with a round still to go! The drivers of the Corally are



Dave Gale ('89 and '90 BRCA champion) and Rob Roy, both of whom are sponsored by Corally and *Radio Race Car's* scribe Mike Haswell.

The Corally comes ready assembled and the only changes that most drivers make is to fit a Coral T-piece, which makes the car handle better over bumps and the fitting of Hi Torque screws which stop the T-piece from coming loose. The only other thing that needs to be done to the car is to control the amount of damper fluid in the rear damper. If there is too little the back end will step out causing the car to spin.

The most favoured tyre combination is PB Golds on the front and PB Lilacs on the rear or Elite Golds all round.

Available from Intronics for £180.

TRC/COMPOSITE CRAFT

The Lynx II is the result of the amalgamation of forces from TRC and Composite Craft to produce a car that has been a winner from the word go. It has won four of this year's nationals as well as having a second, two thirds, two fourths and two fifths, and it has three FTDs. The Lynx II has also managed three wins in the Radio Race Car/Stafford Tarmac Championship this year.

A rather dominate performance, but not all that surprising as it has Phil Davies, Mark Barford and Jimmy Davis as its driving strength.

The Lynx II won this year's European Championships and set FTD with four Lynx IIs in the A Final.

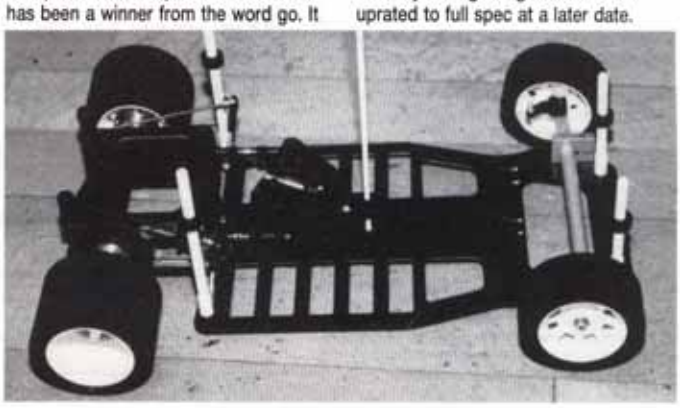
In the States it won the Reedy Race of Champions at Lake Whippoorwill (a banked oval) with Andy Dobson on the sticks. The Lynx II features a fully floating rear pod which is controlled by a single damper and an anti-roll bar (16 Awg instead of kit).

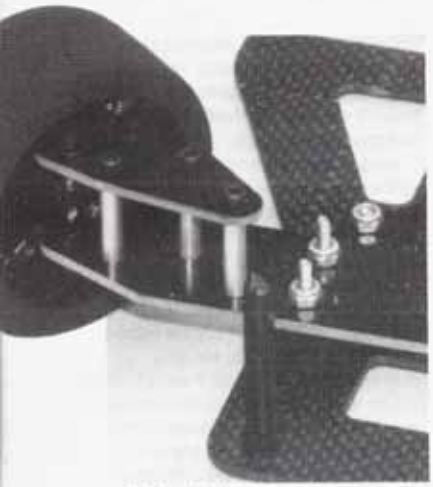
AGITATOR

The new Agitator 2 has only recently arrived this side of the 'pond' and is a revised version of the Agitator Pro X. It now has a single damper and 'load actuators' instead of the three shock absorbers and is consequently lighter.

The rear pod is also narrower, making the motor more centrally mounted. The front end is adjustable for camber as well as castor. All-in-all a very high specification kit which includes delrin wheels and a lot of machined delrin parts.

There is also a JR version which is of a more basic specification for someone who is just beginning but it can be uprated to full spec at a later date.





The Agitator's best performance at National level has been a B Final by Andy Griffiths and two A Final appearances at the Radio Race Car/Stafford Tarmac Championships in Mark Mainey's hands. It has not attracted many drivers to it, possibly due to the high price of the original Agitator Pro X, although the Agitator 2 is a lot more competitively priced at £175.

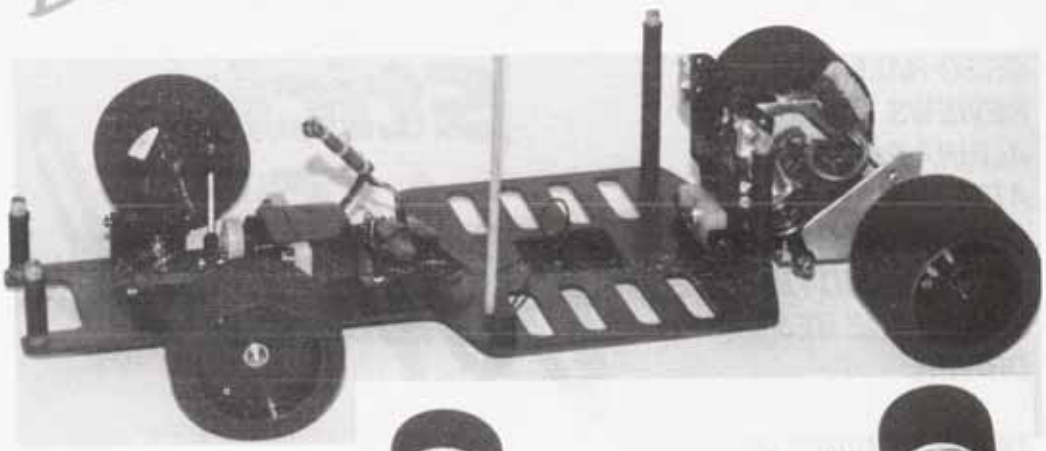
Available from Holcomac Marketing Ltd.

PARMA

The Parma Panther 10 is based on Parma's 1/12 circuit car and has waned a bit in the popularity stakes over the last year. The car has a simple chassis design that will appeal to experts and beginners alike. The team are currently revising the car with a view to next year.

At the moment the prototypes feature batteries mounted at an angle, have a shock absorber mounted as per the 10L and have adjustable front camber. The car has been fairly successful in this format, making numerous B Finals. Glyn Peglar's modified version made the A Final at the first National to record Parma's best result of the year. Parma's main drivers have been borrowed from their buggy team and consist of Peter Smith, Danny Conway, Steve Brace and Ellis Stafford. At £110 with a bodyshell it is one of the better buys for someone just starting out.

Available from all Parma stockists.



BRIMOD

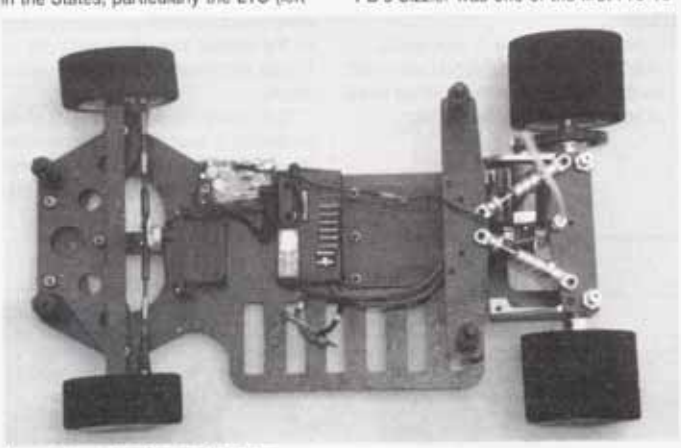
Brimod originally started by making shock absorbers and various accessories and then moved into 1/10 circuit. There are two cars available: the Bullet, which is a budget entry car, and the Talisman, which features swing-arm front suspension and a pivoting rear pod controlled by two shock absorbers.

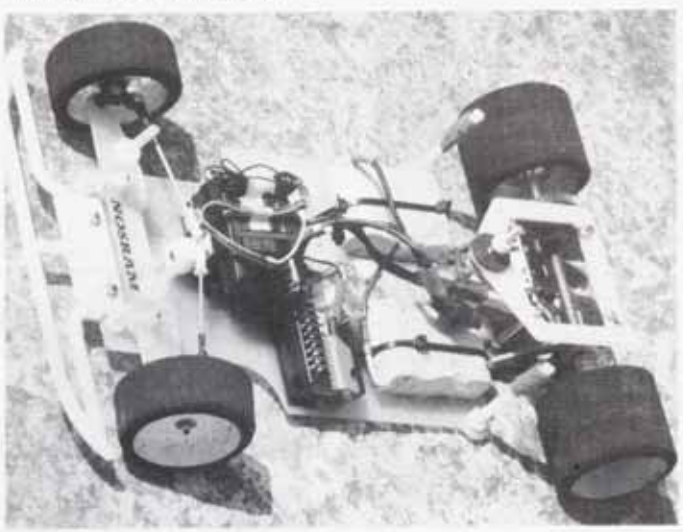
Available from Brimod Engineering.

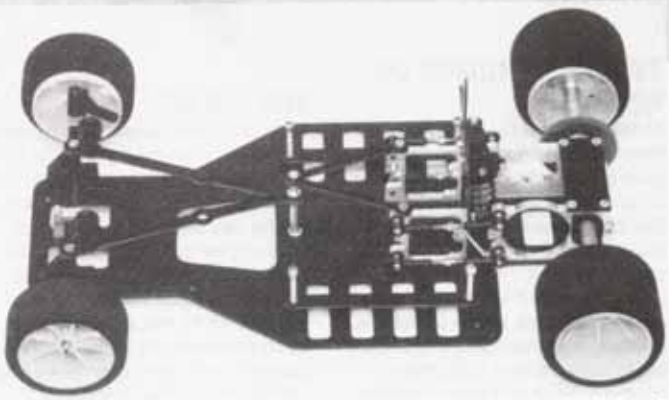
BOLINK

Bolink's Eliminator has not really caught on over here, although it is quite popular in the States, particularly the LTO (left turn only) version for oval racing.

Available from Ted Longshaw Model Cars.







PB

PB's Sizzler was one of the first Pro-10 cars on the market at the beginning of 1989 and was unique in its use of a five link 'De Dion' type suspension with panhard rods. Initially everyone was running the Sizzler and it won the first national of the '89 season but has since seen its popularity decline.

The 1990 version of the car was released earlier this year which has given the car a new lease of life. Keith Plested is currently working on next year's car and is hopeful of having it out at the end of this year or earlier next year.

William Mitchum has made four A Finals this year with his modified version with his best results being a fourth and a fifth. William also made a good showing at the European Championships and got all the way to the semi-finals and only missed making the A Final by one place.

Available from PB Racing Products.

PRO-10 CIRCUITS

ABERDEEN
Contact: I Cowieson, 26 Newburgh Road, Bridge of Don, Aberdeen AB2 8SQ.
Track Records: Crieff — Eric Brawley (Parma) 18 laps 3 secs.
Stonehaven — Eric Brawley (Parma/Cyclone 15x2) and George Mainning (TRC/Trinity 11x2) 15 laps 10 secs.

ASHBY
Contact: D Tomlinson, 49 Appletree Road, Maton, Derby DE6 5EF.
Track Record: Jimmy Davis (Associated 10L) 22 laps 3 secs.

BOURNEMOUTH
Contact: Ian Gaytor, tel. 0202 671462.
Track Record: Phil Davies (TRC/CC Lynx II/Reedy 15x2) 18 laps 16.15 secs.

CRYSTAL PALACE
Contact: A Beszant, 138 Crierson Road, Forest Hill, London SE23 1NX.
Track Record: David Gale (Corally/Twister 16x3) 18 laps 11 secs.

HALIFAX
Contact: A C Keeling, Grange Nurseries, Westgate Hill, Bradford, W Yorks BD6 3TN.
Track Record: Jimmy Davis (TRC/CC Lynx II/LRP Orange) 14 laps 11.1 secs.

LILFORD
Contact: P Dicks, 62 Woodlands Road, Irchester, Wellingborough, Northants.
Track Record: Mark Barford (TRC/CC Lynx II/Reedy 16x2) 18 laps 14.98 secs.

MENDIP
Contact: D Swift, 3 Tiledown, Temple Cloud, Bristol BS18 5DW.
Track Record: Jimmy Davis (Associated 10L) 15 laps 1 sec.

SOUTHAMPTON
Contact: P Jones, 10 Dell Close, Fair Oak, Eastleigh, Hants.
Track Record: Mark Barford (TRC/CC Lynx II/Reedy) 14 laps 9.78 secs.

STAFFORD
Contact: J Robson, 1 Aldesleigh Drive, Wildwood, Staffs ST17 4RY.
Track Record: Jimmy Davis (TRC/CC Lynx II/LRP Silver) 24 laps .49 secs.

Stick or Wheel

GREG HALLIDAY REVIEWS THE JR ALPINA PCM IN AN ATTEMPT TO FIND OUT WHICH TYPE OF RC TRANSMITTER MAKES THE BEST DRIVER.

TWIDDLY THUMBS OR WRISTS?

As this supplement is about model car evolution during *Radio Race Car's* ten years of publication, it would be wrong for us to forget the most fundamental item of equipment of all radio control model car racers, the radio or 'gear' as many of us call it.

Over the years it has become much more sophisticated, smaller and reliable. However, every newcomer to the hobby has to make the most basic choice, whether to use a twin-stick or steering wheel transmitter, and there are also many of us older drivers who wonder if making the change to a steering wheel transmitter will enable us to become World Champion! Of course, it also might be that it is impossible for us 'oldies' to make the change! With these queries in mind you can imagine that I was pleased to have the opportunity to review the JR Alpina steering wheel PCM system V2C-2SH.

THE 'GEAR'

The transmitter is manufactured in plastic and is a sort of gunmetal grey colour. For portability the aerial is housed in a recess at the rear. The first impression is that the unit fits very comfortably into the left hand with the forefinger operating the throttle/brake trigger. This leaves the right hand to rotate the steering wheel and alter the throttle and steering trims which are immediately to the right of the steering wheel. These controls are large and easy to use, have 'click-stop' positions and are graduated 0–5 in each direction — useful if you put the gear in a different vehicle, provided you note the setting.

Also on the right is a large signal strength meter, crystal socket and on/off switch. To the left of the steering wheel is an inset panel containing four switches: computer failsafe, throttle neutral position and servo reverse for throttle and steering. The failsafe is an interesting feature as it allows the driver to pre-select any throttle position when, immediately on loss of signal, the throttle will move to this setting. This is a good safety feature and would be particularly useful if set to stop the vehicle.

Below this panel and at the top of the hand-grip is the steering rate thumb wheel. I thought the position of this to be just right as it enables you to adjust the rate totally without affecting any driving action.

Eight pencell batteries are contained in the base of the transmitter and a blanking plate covers a hole for a charging socket on the vertical support opposite the handle, so conversion to nicads would be simple.

Right in the middle of the front of the transmitter is what all this is about — the steering wheel! It is large with a knurled grip around its periphery, but it does not have a rubber grip like some of its competitors. However, there are pros and cons to having a rubber grip. When they are new they are excellent, but I have heard it said they can harden with age and then have less grip.

A nice feature is the adjustable tension on the wheel, as I discovered when I put it to the test. Internal construction appears rugged with all the components on one large pc board.

The receiver, a battery eliminator circuit type, is a few millimetres smaller but slightly taller than the popular Futaba FP-R102GS. The crystal and plug connections are on the top. A useful point for car applications is that the aerial is only 19¼ inches long as opposed to the more normal 39 inches, so you won't have lots of loose wire dangling about inside your model! The servos are reasonably compact, are claimed to be watertight and have plain bushes on the output shaft. They have sufficient torque and speed for normal buggy use, but if you intend to race competitively you will need a faster type, which JR can supply.

PULSE CODE WHAT?...

The other interesting feature of this set is that it uses a Pulse Code Modulation system — PCM. Probably the simplest way to explain how this works is to say that at the end of each signal issued by the transmitter it sends a code, which is the numeric value of that signal. The receiver counts the signal elements as they are received and will only carry out the command if the value is the same as the original transmitter code. In this way wrong signals are ignored.

Technical Specifications

Transmitter
Model: NET-V122 PCM
Receiver
Model: NER-832X
Size: H21 x W33 x D51 (mm)
Weight: 36g
Range: 200M (ground)
Servo (2 supplied)
Model: NES-507
Size: H39 x D19 x W39 (mm)
Torque: 2.9kgs
Speed: 0.27 secs/60 degrees

The Alpina V2C-2SH PCM system is available from your local JR stockist.

CAN YOU TEACH AN OLD DOG NEW TRICKS?

And so to the track test, but one with a difference because this time it was a test not only of the equipment but of my ability to learn how to drive all over again! I often believe in going 'in at the deep end' and so for my first trial with a steering wheel I chose to use the Alpina system transmitter and receiver in my 1/12 Kawada M-300.

There was an amazing amount of interest trackside when I arrived at the club, and everyone wanted to try it out for themselves. The car was put on the track and everybody in the hall watched as I gingerly drove around the circuit. Not difficult at all I thought as I opened the throttle a little more when, as I rounded a right-hand corner, the car hurtled off into a wall. Roars of laughter ensued as my confidence was somewhat shaken.

Okay, I thought, perhaps I got mixed up so let's try again. When the same thing happened again we all realised that something was wrong. It certainly seemed like interference was the culprit as nothing seemed at fault with the installation. I tried to race a couple of heats but the same thing kept happening in different places around the track. I should add that our hall has radiators on the walls on three sides with the cars racing right alongside and this can cause glitching if your equipment is off-tune.

The next step was to talk to McGregor Industries, the JR distributors. "It's just possible that the set is off tune, but not very likely. Hmm. Have you got your motor suppressed?", they asked. Well, I thought, fancy asking *me* that question. "Yes", I replied.

"With *three* capacitors?" McGregor qualified the point.

Now I have used two and three capacitors and never noticed any difference with interference, although I am aware certain types of speed controller can be damaged if the third capacitor between the positive and negative connections is omitted, and I have always made sure I conform to the manufacturer's instructions if they request it. "No, two" I replied. "You must fit three with PCM systems" they stated, "fit the extra one and come back to us if you still have difficulties". The amazing thing is that fitting the third capacitor totally resolved the problem!

The following club night I attempted to get to grips once again with the steering wheel system, this time with more success. It was like learning again and I made quite a few mistakes, but perhaps less than anticipated. The hardest part of control I discovered was coming out of a hairpin bend towards me, which was followed by a long fast straight. The car was nearly always zig-zagging slightly. Over-correction was the biggest problem as I found my wrist did not have the fine control of my thumb (perhaps that is why our wrists are bigger than our thumbs!!). When the Alpina was received I considered the steering wheel tension was too firm, so I slackened it. This meant that my untrained hand had difficulty in finding the centre position. After tightening the tension to its highest setting the problem was very much less but it did make my wrist ache a little by the end of the evening. I would recommend the firmest setting at first, gradually slackening the tension as your skill level increases.

The other problem I had was with the throttle trigger. Pulsing the throttle and full power are very easy as you only have to squeeze the trigger as you would on a gun, but pushing away for braking is much harder and requires extreme concentration. I also found that my finger sometimes slipped out of the trigger, which is 'U' shaped. However, a short length of silicone tube slipped on to the trigger overcame the problem.

By the third evening I was really getting the hang of it but was still two to three laps off the pace. I found that the steering wheel control was starting to become automatic but surprisingly I was having the greatest difficulty with pushing the trigger for braking; on a few occasions I opened the throttle instead of closing it! It's just as well the Kawada is tough because it hit the wall a few times with an almighty crash! As is often the case, Steve Jones was holding highest laps when I decided to change back to my usual twin-stick Futaba 2LGX equipment and in the next heat I moved to fastest (but he still beat me by the evening's end!).

Several other drivers tried out the set and while some considered they could make the change, others thought they could not.

THE FINAL CONCLUSION

At the 1990 Reedy Invitational in California, five out of the nine finalists rated as being some of the best in the world were using steering wheel transmitters.

For off-road driving where there is just a little more time to think, I think it would be possible for any driver to convert, and I think it could make some drive a bit more smoothly. For a beginner I would suggest that their driving skill will develop at the same rate whichever type of transmitter they chose, but for me, although I found the experience most interesting, I shall stick with sticks!

The JR Alpina set worked perfectly after resolving the interference incident but I do feel there should be some mention of the three capacitor requirement in the instructions. The PCM system has amazing interference rejection capabilities which we tested by switching off the transmitter with four other transmitters being switched on. However, this same spurious signal rejection can mean that unless the receiver is sure of every bit of the transmission it does nothing. Although these periods are extremely short, small parts of a second in fact, on a high speed circuit car this could mean running off the track. I would therefore suggest that PCM systems are better suited for outdoor use and perhaps for off-road or drive-for-fun use.

HOWES

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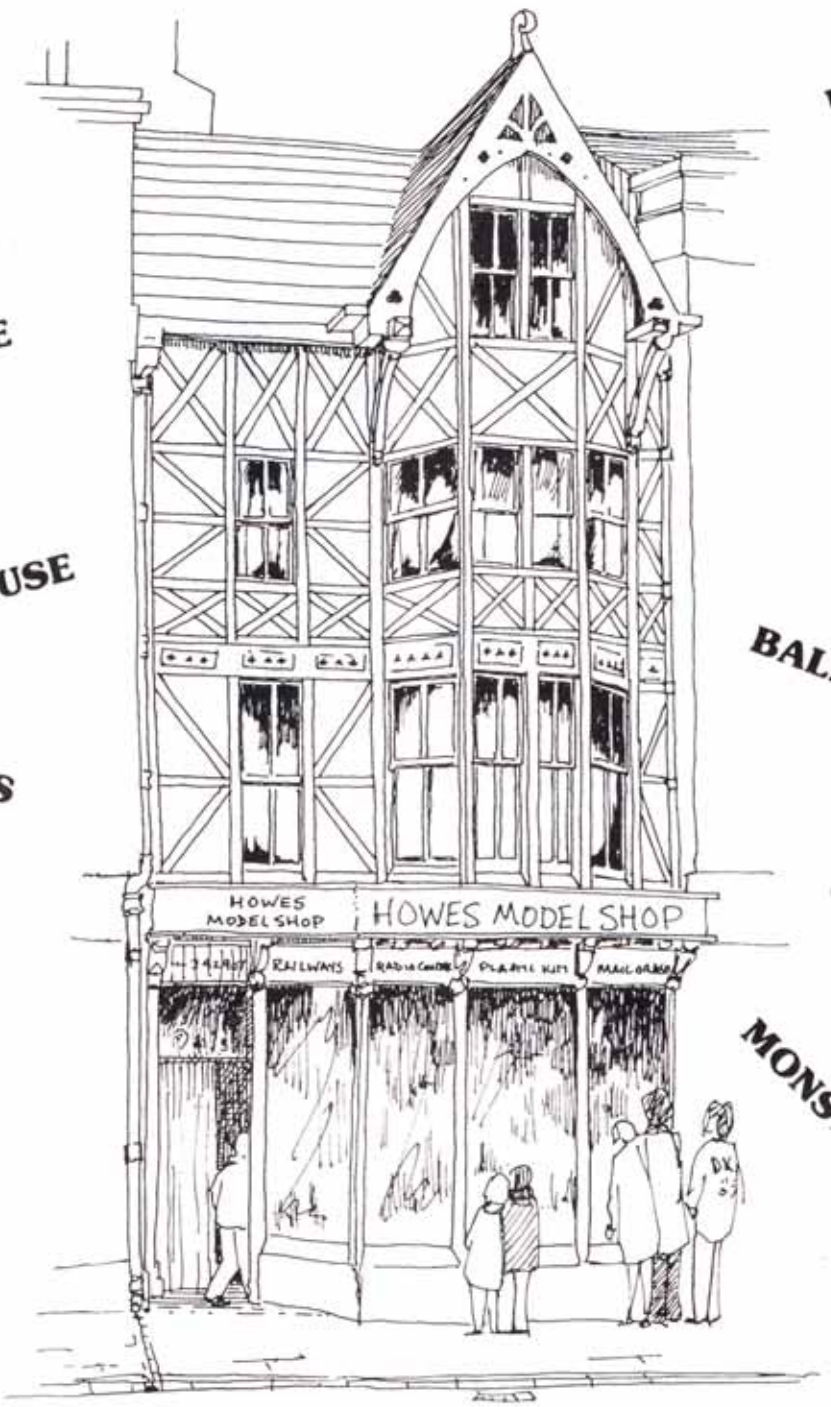

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RRC LOOKS BACK AT SOME OF THE MOST SIGNIFICANT 1/10 BUGGIES OF THE LAST TEN YEARS.

Off-Road Rumblings

THE EARLY EIGHTIES

It was the Rough Rider and Sand Scorcher that really began the 'boom' in off road electric R/C model cars nearly ten years ago. There is no doubt that they led the way for 1/10 off road buggies to become the most popular type of model car today.

The Rough Rider, Sand Scorcher (and later the Ford F150 Ranger) utilised a thin GRP chassis strengthened by a triangular piece of alluminium bolted directly underneath; independent suspension, universal jointed driveshafts, 540 motors driving a gearbox with no differential, and a heavy waterproof plastic radio tray.

The first car to really challenge the early Tamiya's on the competitive side was the Bolink Bigger Digger. This car had a contoured 2mm thick GRP chassis that carried two pods, a power pod at the rear and a rocking plate that supported the steering at the front. This car also incorporated a Schumacher type differential, and was in fact brought into the country from the States by Schumacher racing products.

TAMIYA ROUGH RIDER

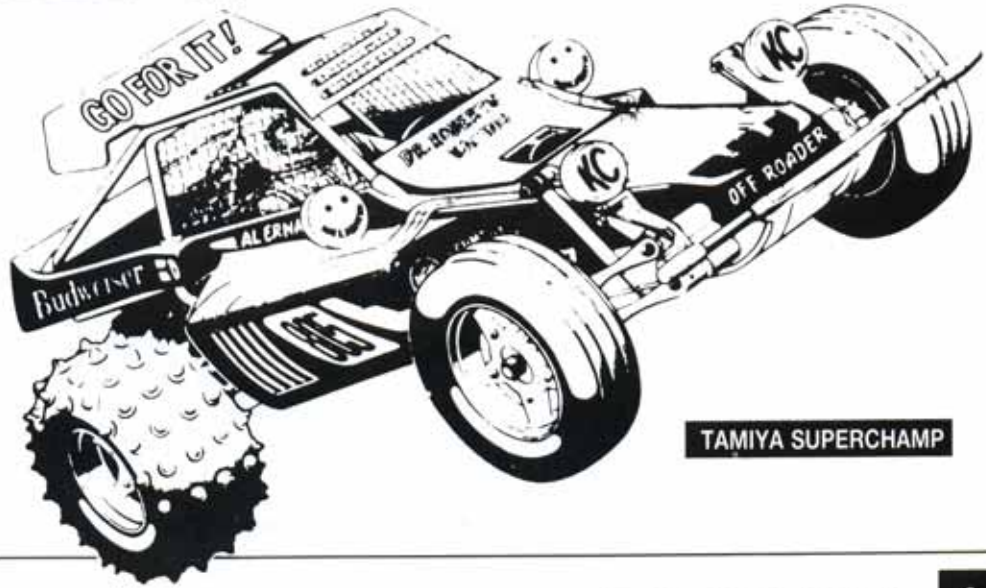
BOLINK BIGGER DIGGER

TAMIYA SAND SCORCHER

1983

Early 1983 saw the emergence of the Tamiya Superchamp, a car that could hold its own against the popular Bolink Bigger Digger and Kyosho Scorpion. This car was in many ways very similar to the Rough Rider etc, but a few subtle changes made the Superchamp more competitive.

The main difference was the inclusion of a FFPDS (Free Floating Progressive Damping Suspension) system on the rear. The left and right rear suspension arms were connected to a transversely mounted coil over oil filled damper (mono shock), that had a large oil reservoir for a constant supply connected via a rubber pipe.



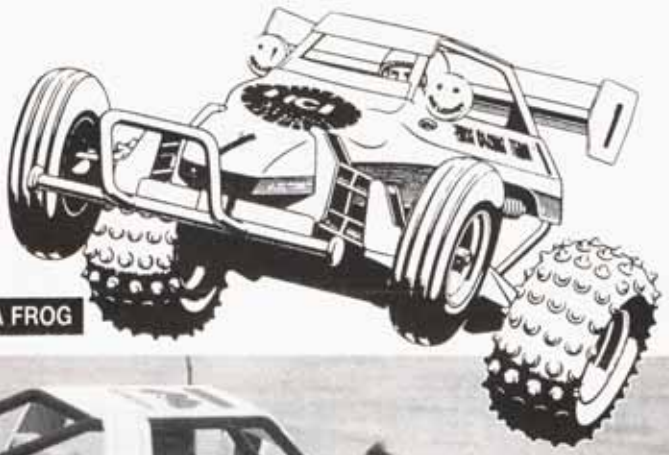
TAMIYA SUPERCHAMP

1984

1984 was the year that the Tamiya Frog made its first apperance. This car was a 'competition orientated' version of the Subaru Brat. A new type of chassis was made from A.B.S. resin and known as a 'space type' frame. Four wheel independent suspension was a feature of this car. At the front, double wishbones with transverse coil spring shocks and radius arms were utilised. The rear consisted of oil filled shock absorbers damping the trailing arms that supported the drive shafts and axles.

Although the side plates and nylon mouldings were the same as those found on the Brat, the internals of the Frogs gearbox were completely new. A redesigned ballraced differential allowed the choice of three gear ratios. A lightweight polycarbonate body that just about covered all of the electrics was also used, and this would set trends for future buggy bodyshells.

It has been said that the Grasshopper is the biggest selling R/C model car of all time. The reasons for this are simple, it was a quality kit, easy and cheap to maintain, which allowed many people, who may otherwise not have done, to enter the hobby. The features of the Grasshopper were an A.B.S. resin bathtub type chassis, a three bevel geared differential (that was used on some of their earlier cars and in fact is still being used today on some of their less expensive models such as the Q.D. range). A 380 size motor along with four friction dampers made the Grasshopper one of the most user friendly cars available.



TAMIYA FROG

TAMIYA GRASSHOPPER

1985

In 1985 Gil Losi Jnr won the I.F.M.A.R. off road world championships with his Yokomo Dogfighter. The car had a Kydex flat pan chassis, monoshocks front and rear, limited slip differential and chain drive. It was one of the first really reliable four wheel drive cars and was a big success upon initial release.

Tamiya entered the competitive side of 4WD racing in this year with the Hot Shot. It was a race orientated machine as opposed to their earlier 4WD vehicles such as the Toyota Hi Lux. Like the Dogfighter the Hot Shot utilised front and rear mono shocks (the rear one being of a particularly clever design). Front and rear differentials were used, as was a front to rear shaft drive system (the principles of which are still being used today in some of their buggies). As this was really the dawn of 4WD racing buggies, 2WD cars were still reigning supreme, in particular the Scorpion and one RC10, a car that had only just been released.....

There is nothing really that one can say about the RC10 except that it is the only car to have remained fully competitive for over half a decade!! The RC10 set new standards in the quality of design and construction for R/C model cars. The shock absorbers were, and still are, some of the very best available, and although slightly dated now, the gearbox was superb. The RC10 — a ledgend in its own track time!

TAMIYA HOTSHOT

ASSOCIATED RC10

A MODIFIED YOKOMO DOGFIGHTER

1986

1985/86 saw Kyosho bring out a new car to compete against the growing numbers of 4WD cars, the Optima. This chain driven, four wheel independent suspension, double differential, rail chassis car began to sweep all before it at national and international level. The reason? It was simply a very well engineered, smooth, efficient car that worked extremely well in standard kit form. In true Kyosho style the success of this car led to a number of derivatives, such as the 'Turbo' Optima and Salute etc. Only one thing prevented the Optima from winning every major race for the next couple of years ... the Schumacher C.A.T.

In the hall of fame the Schumacher C.A.T. (Competition All Terrain) is second only to the RC10. There are very few real innovations in R/C model cars, and the C.A.T. was one of those few. It incorporated so many new design features that set it apart from the rest, and the basic design is still winning many top races today. (Most recently the 4WD Eurochamps in the hands of Phil Davies.) The telescopic U.J. driveshafts, belt drive transmission system and the 'crash back' front end were just a few of the things that made the C.A.T. into possibly the best ever 4WD buggy.

SCHUMACHER CAT

1987

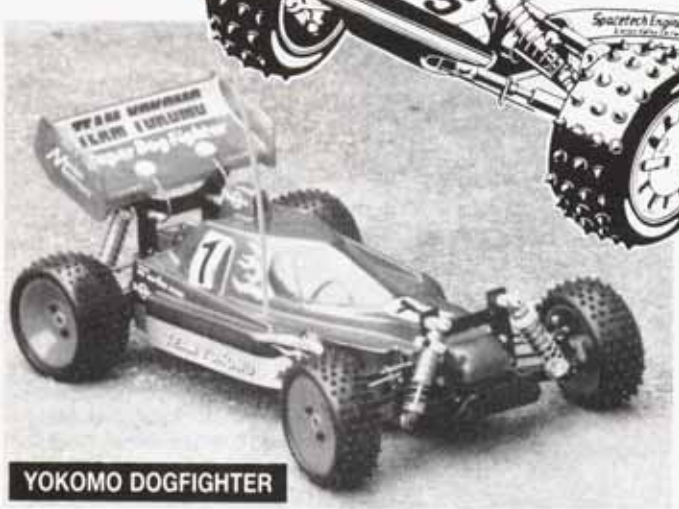
The dominance of the RC10 was somewhat affected in 1987, when Kyosho's new 2WD baby, the Ultima, took first, second and third in the 1987 world championships at Romsey. This car showed vaguely similar lines to the earlier, highly successful Scorpion and Tomahawk. The Ultima had lower 'A' arms, front and rear, with unadjustable upper links, again front and rear. The car also utilised an aluminium channel type chassis with a GRP upper brace/deck, and a gear type differential.

P.B. Racing attempted to break the domination that the C.A.T. was establishing with the release of their Mini Mustang. This again was a belt drive car with twin differentials. What set the P.B. apart from the crowd was the fact that it was available in 2WD, 4WD single speed or 4WD two speed. The prospect of having two speeds on an off road buggy was very appealing, however problems were experienced with the two speed gearbox and many people opted for the single speed version. The initial success of the car was very good, but its popularity appeared to disappear overnight for some unknown reason. This was a shame as the car more than proved it was able to compete with the other, more popular cars of the time.

KYOSHO ULTIMA

PB MINI MUSTANG

TAMIYA AVANTE



YOKOMO DOGFIGHTER

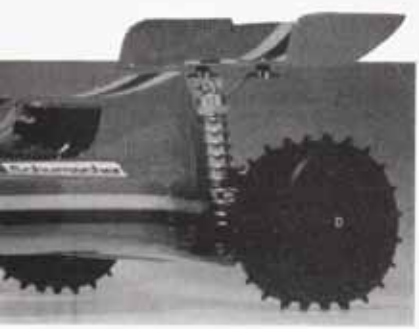
1988

By 1988 the C.A.T. was reigning supreme and other model car manufacturers were bringing out their own top line 'racing' cars. Probably the most eagarly awaited car of all time was the Optima Mid. The number of rumours about this car, from its first real appearance at the '87 worlds to the time of its release, were unprecedented. The car proved to be, and still is, a great success, especially with club/regional level racers.

Tamiya's answer to a 'racing' buggy was the totally new Avante. Although the car retained the front to rear shaft drive, the rest of the drive train, ie the gearboxes was very much improved, and made the car much more competitive. The suspension, although slightly overcomplicated, worked well, and gave the Avante a great deal of potential to win top class races.

Another long awaited car also made its commercial debut in this year, the Yokomo Super Dogfighter. Although new, this car showed some similarities to the old Dogfighter that won the '85 world champs. On paper the car looked very good, with an accessible, easy to work on drive system (the belt could be removed in a couple of minutes, rather than half an hour!), high quality shock absorbers and magnesium alloy steering blocks. In practice the car went just as well, winning nearly every major race (except the British championship) in '88, and of course we all know what it won in 1989, the world championships.

KYOSHO OPTIMA MID



KYOSHO OPTIMA

1989

Two wheel drive was making a comeback in the U.K. in 1989, and the release of two major cars proved the point. With the success and experience gained from their C.A.T./CAT XLS, Schumacher produced the Top Cat, it was an instant success. The Top Cat had all the hallmarks of a Schumacher car, being well engineered using a very efficient belt driven, limited slip ball differential, a very strong pressed aluminium chassis, universal telescopic driveshafts etc etc. The car also had a very unique front end. It retained the famous 'crash back' facility and had inboard mounted shock absorbers (another unique design feature from Schumacher). The system worked well and was very neat and tidy, and once people realised how to set the car up it was as competitive as anything else on the market.

The latest offering from the States in '89 was the Losi JRx2. Gil Losi Jnr used his years of race winning experience to design and develop a 2WD winner. This car had many features that made it appealing to racers, ie a very stiff carbon fibre flat pan chassis, a low rotating mass 48dp gearbox with a limited slip ball differential, fully independent suspension via four oil filled coil over shock absorbers and a unique five link rear trailing arm suspension system. Again this car proved to be very popular and competitive.

The 'ultimate' 4WD machine from the Tamiya factory arrived in this year, called the Egress. Everything, including the steering bellcranks, was ballraced. A double deck carbon fibre chassis was used as were titanium screws. The best quality shock absorbers Tamiya had yet produced were also used, to make this one of the highest quality kits available.

The Schumacher C.A.T. had now been on the market, in various guises, for nearly four years. The constant development that had taken place over this time resulted in many up rate parts, as used by the factory drivers, that were freely available for everyone 'off the shelf'. All of these modifications came together in the form of the Pro Cat which, without doubt, is still the car to beat.

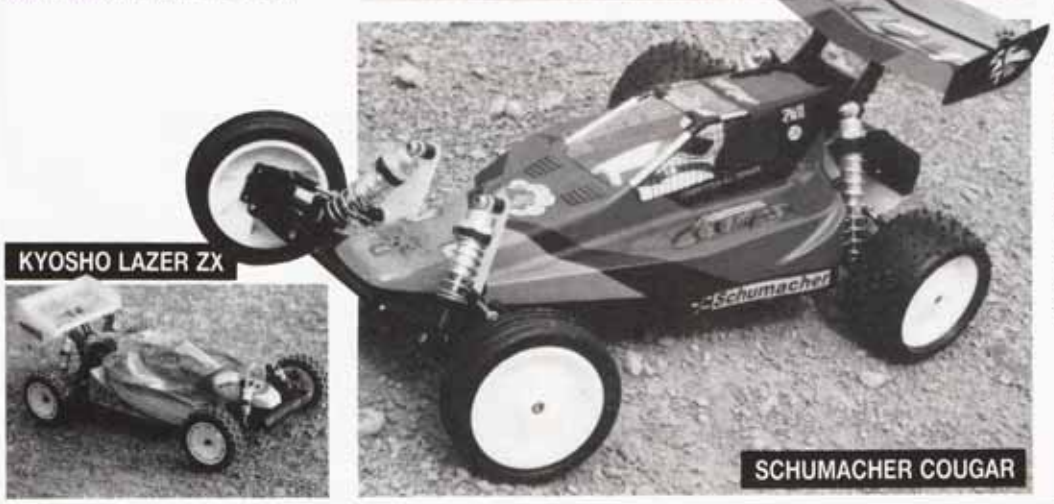

TAMIYA EGRESS


SCHUMACHER PRO CAT


SCHUMACHER TOP CAT


LOSI JRX 2


TAMIYA ASTUTE


SCHUMACHER COUGAR

KYOSHO LAZER ZX

1990

And so to the present day. 2WD is continuing to grow in popularity as can be seen from the release of the Astute and Cougar. The Astute again is a race orientated buggy from Tamiya. It incorporates a flat pan GRP chassis, ball differential gearbox and oil filled shock absorbers on all four corners. Tamiya's commitment to the competition side of R/C model car racing is now plainly in evidence, as the signing up of Jamie Booth to drive both of their competition cars, the Egress and Astute, proves.

The Cougar was released this year. It was very similar to the Top Cat except that the front shock absorbers were now mounted outside the car. A conversion kit was made available for the Top Cat to turn it into a Cougar, and this helped make it probably the most numerically dominant car of the '90s at club, regional and national level.

Kyosho released their latest kit this year, the Lazer ZX. It was much more than a re-vamped 'Mid' as it used a new type of drive train, chassis, body etc. The car has found considerable popularity at club/regional level, and has had some success at international race meetings.

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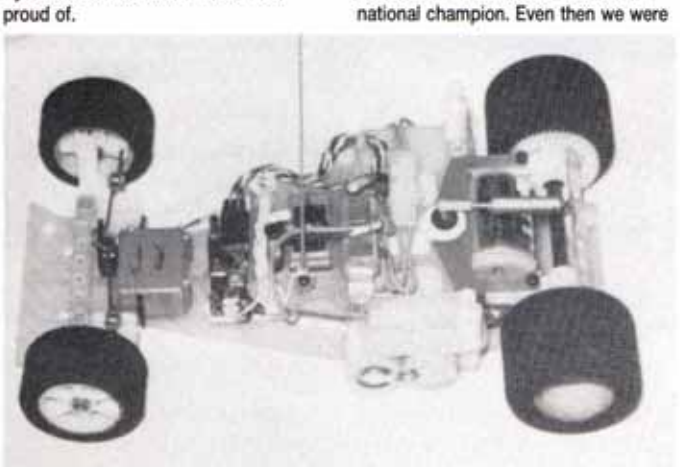
Track Talk

It was about this time 12 years ago that one young lad went to the local barber's for a 'scalping'. Sitting in the chair ready for the operation I couldn't help but notice on the mirror in front of me a small newspaper clipping from the local paper featuring, of course, my barber and a friend posing with a couple of 'nifty' toy cars — this is where the story begins. Anyway, the picture did more than stir a little interest and I soon started tagging along to the local club at Birmingham on a Friday night to watch the racing.

The club, then called the South Birmingham Model Car Club, raced at the Leasowes Leisure Centre in Halesowen but the venue was very shortly changed to the Brandhall Community Centre down the road and it was then that I became acquainted with one Tony Stephenson, who was then a partner in Hobby Spot, a large local model shop. Of course, most of you will realise that Tony went on to produce *Radio Race Car* whose first issue is now ten years old, and as means of a little celebration I hope to give you a brief insight into 1/12 scale circuit racing over those ten years.

Anyway, back to scene one at Leasowes where, remember, 1/12 was in its infancy but developing fast. Cars available at the time were Mardaves and Lectricars from the UK and from the States the Jomac Lightening and Parma. At this time there was a great deal of scratch-building going on and this was when I first and last saw the wooden chassis; no joke folks it was made from 5mm plywood(!) but, believe it or not, the idea never took off. I can remember on the same night I learned how hot a Mardave charging resistor without a heatsink gets, giving myself a blister across the palm of my hand that Sylvestor Stallone would have been proud of.



▲ *Associated RC12i.*

Of the more successful scratch-builds the car to beat was that of Neal Francis, which utilised a 3mm Macralon chassis and also a geared differential, all hand-built and controlled by the Apex of the day, the metal cased Futaba M transmitter, whose popularity with the top drivers was unsurpassed.

Then we got the entry of probably the biggest of them all, Associated, with the RC12E which was then a very neat and clean looking car, and it was Bill Maisey who carried off the 1980 British Championship at the Winter Gardens in Malvern.

Another name to appear was that of Cecil Schumacher with the 'ball type' differential. We also had the first 24 hour Team Endurance Race held by Jim Davis Models with six drivers and six cars, the eventual winners being Team Associated of Walt Bailey, Phil Booth, Dave and Debbie Preston, Paul Padgin and Bill Burkinshaw.

Moving into 1981 we had a rule change that brought the minimum weight down from 2lb 1oz to 1lb 15oz. This gave rise to the Lexan car explosion with Neal Francis, Tom Morgan and Bill Maisey producing the Phantom car which was to raise performance to new levels. With this car, Saft nicads, Associated TOJ bodies and scratch-built modified Mabuchi motors, Neal took the first European championship title which was held in Brugg, Switzerland, when we had seven out of eight Brits in the final. Back at home we moved to a Championship Series with 14 rounds to decide the national champion. Even then we were the only real nation still running standard motors (with a price limit of £7.50) which was highlighted by the low entry later in the year at the Standard Class Euro Champs in Boldena, Italy, where Neal did the business again.

Another year later saw quite a few interesting developments with new Lexan cars from Phil Greeno with the Gemini SLX, Cecil Schumacher with the Schumacher XL, a derivative from Nodis and a folded graphite car from Alan Blakeman's Alpha Track Parts. To start the year we had the Davis twins of Jimmy and Wayne winning at the Model Engineering Exhibition when 1/12 then got three days of racing.

▲ *1982 World Championship circuit.*

Associated launched their new car, the RC12i with a flexing rear end and damper, and a fretted chassis at the front for a type of front suspension in time for the forthcoming world championships. Before, though, we had the European Championships at Watford in June that saw the first carpet racing in Britain. Qualifying was dominated by Neal and Bill but a misunderstanding in the final between them on the first corner put paid to their chances of winning which left the way clear for Jimmy Davis to take the honours with his 12i, only six inches in front of Heinrick Beck of Denmark, and for once it wasn't a TOJ but a Lola T600 that was the winning bodyshell.

In August we had the World Championships in Anaheim, America, where we first were to learn that when the 'Yanks' go for it they really go for it. Anyway, to cut a long story short the unfamiliar conditions of an outdoor ashpault track proved too much for the Lexan cars although Jimmy managed a third and fourth place in the Stock and Modified classes. This was when we first saw the emergence of the Yokomo motor in a standard form which was the handout motor for the stock racing. At the end of the meeting the stock title went to Kent Clausen with his RC12i and modified to Arturo Carbonell with his Delta Phaser.

To finish, 1982 was to be the last year of the Nene Grand Prix where competitors used formula shells and a young Andy Dobson took the top individual driver title driving for High Wycombe in the Southern League.

Another year on and we had seen the full move over to carpet racing which heralded the falls of the Lexan car. The cars to beat now were the Delta Phaser, RC12i, Alpha Omega and two new cars from British manufacturers; these being the Demon MF3 which was initially very successful and the superb Schumacher 'C' car.

Earlier in the year we had the Paris 24 hour meeting on carpet but with no additives. A team of three drivers and one car was allowed, which required the batteries to be charged very quickly. The Schumacher stars of Andy Dobson, Phil Stone and Les Pipe won with a Schumacher XL.

This season saw the dominance of the JDM Associated team of Jimmy, Wayne and Nigel Hale with Nigel winning both national classes. With rumours circulating about a new set of cells for every run after the worlds, each competitor at nationals was limited to two sets of cells per day.

The European Championships were held in Milan with Micky Booth and his RC12i coming home first although the moral winner was Andy Dobson with his Schumacher 'C'. Andy's car would not sit still on the grid and when the lights turned to green he was given a one lap penalty for a jump start but, in fact, his car was going backwards. Anyway, Andy nearly made the lap back up on Micky, eventually having to settle for fourth place.

In August we had the Watford National which for me summed up the differences between the RC12i and the Schumacher 'C' car driven by Nigel and Andy respectively. The awesome speed of Nigel's car would pull him clear on the straight but on the infield Andy would wind him in with the superior handling of the 'C' car.

1984, as usual, started with the Model Engineers Exhibition and a new car was on display from AYK called the Cyclone. It had fully independent suspension but never really took off. The town of Ulm in Germany were the hosts of the Euro

Champs with the surprise winner being Phil Olsen using a Parma Panther. Andy Dobson was second and another rising star, Phil Davies, third. A couple of months later we moved to Herning in Denmark for the World Championships. This was to be a two class meeting with stock and modified motors. Again the format was still the fastest four through to the 'A' main with two semi-finals to sort out the remaining places.

One 'psych out' by the Americans was to glue a Danish 25 ore coin to the pinion as the coin had a hole in it to act like a flywheel for more top end speed.

In modified we had Tony Neisinger with his RC12i pipping Andy Dobson by three seconds with the standard class title going to the Parma (now 'Euro') Panther of Bud Bartos, making it a good year for Parma.

Later in the year we had scandal at the Leicester National with Fraser Smart and Phil Olsen being disqualified from the 'A' Final with underweight cars, the only outcome being the need to purchase some new scales but we are still using the same ones today! By the end of the year Dobson was National Champion in both classes with Schumacher being team champions.

Into another year and by this time people were really getting to grips with setting up the 'C' car which now took over as the most popular 1/12 car aided by the withdrawal of Nigel, Wayne and Jimmy from the scene.

Tamiya entered the market with their Porsche Group 'C' car which Model Cars scribe Pete Winton really pushed for the newcomer to the hobby but its successes were small. In May we had the Euro Champs in Norway with Andy Dobson giving us another win with the German ace Christian Keil second with a 12i and Phil Davies third with a 'C' car.

'85 saw meetings start to struggle for entries especially around the summer months. In an attempt to combat this in March we had the Washington National, open to non BRCA members, and a change in the national series which now started in September and finished in June. At the nationals we also had the formula system start which was a great success but the attempt to launch four cell racing with non additives never got off the ground.

On the equipment front PCM radio gear appeared, as did Mosfets, to replace the relays in speed controllers. In October a group of us attended the European Grand Prix at Brands Hatch (Nigel Mansell's first win) to demonstrate model cars with the national championships going to Andy Dobson and Phil Davies in modified and standard respectively.

Around the start of 1986 there were quite a few sets of new cells in the form of the SCR nicad which gave a slightly reduced run time than the standards SC, but it had a greater output voltage. Whilst on equipment, this year saw the final big move to non-reversing speed controllers, the arrival of the fine pitch gears (in 64 DP) instead of the standard 32.

Associated were developing a new car for the World Championships and Pete

DEMON MF 1

▲ *Demon MF1.*

Jones made a brave effort to produce a competitive yet budget priced 1/12 car. Probably the story of the year though was the constant struggle to keep standard class standard with the high degree of motor 'tweaking' that was going on which was very labour intensive to monitor at nationals.

In February we had the Dutch International in Baarn, Holland, with a young driver in the form of Matthew Ford taking second place behind Andy Dobson with Josas Rosas of France coming in third. The circuit was rather special as the track was made up of sections of carpet fitted end to end with no barriers required. For most people this was the first time to view the new Corally car with its super high quality 'all alloy' construction which was initially imported by Cecil Schumacher but the agency later changed to Ian Spashett of Intronics.

April saw the European Championships, again in Baarn, with Mikka Leppillati of Finland showing 'ice cool' driving ability to become the first non-Brit to lift the title. A Youth Championship was also held and this was won by Martin Fliessbach of West Germany.

At home, the National Championship ended as it had done the season before with Andy and Phil winning and Schumacher carrying off the team prize.

August saw the World Championship in Las Vegas with the Far East section of IFMAR giving up their right to hold the event. This would just be a modified

▲ *Schumacher SPC.*

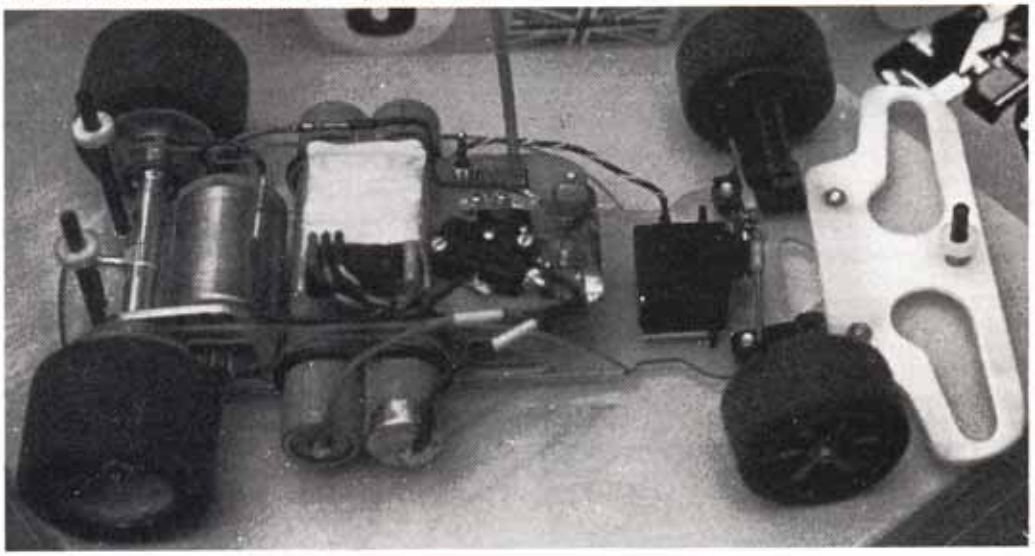
meeting with the main talking point being Phil Davies using Glyn Peglar matched SCRs to qualify second behind Tony Neisinger with the new Associated RC12L. In the end, though, it was Tony who retained his world title with Andy Dobson fourth and Phil Davies sixth.

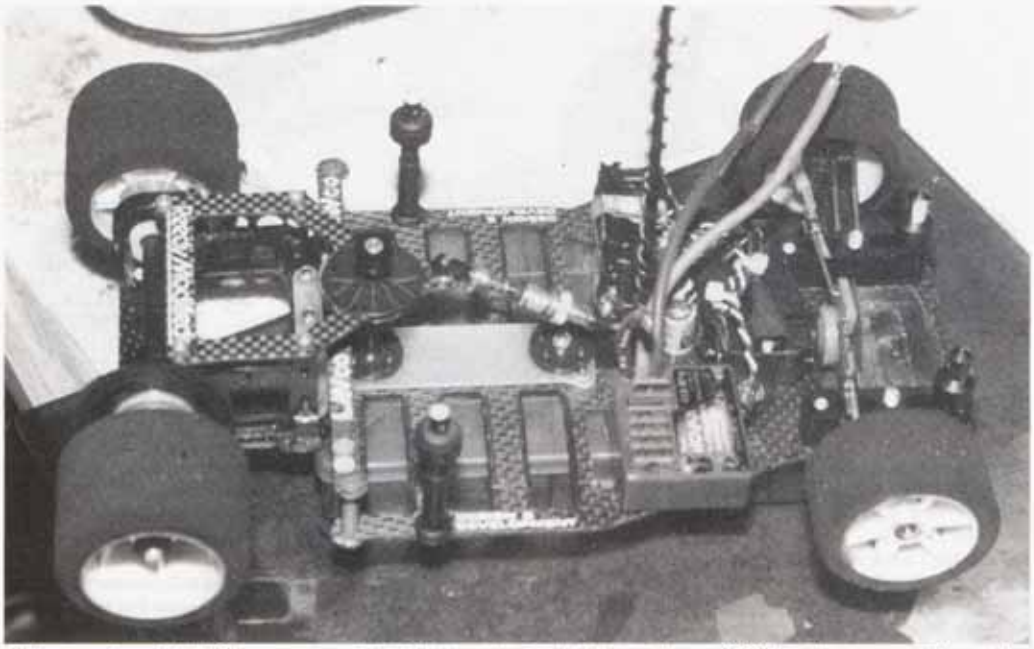
Back at home in September we had the Derby National where Phil made a clean sweep in both stock and modified for once. Soon it was announced that Les Pipe was retiring from racing and his place in the Schumacher team would be filled by Peter Farmer but the biggest news was that Andy was to leave Schumacher to join Parma in America.

Early in 1987 we had the French Grand Prix in Paris which Andy duly won but for the first time a 'staggered' start system was employed. The production version of the Associated RC12L was now available and Barracuda launched their cell analyser. The Schumacher 'C' car was still dominant and with the introduction of 40mHz radio systems for cars the popularity of the Macgregor Apex would grow and grow. Temperature charging was the way to go with the Intronics thermal charger being a favourite as were the Twister range of motors being imported and promoted by Mick Langridge of SRM Racing. The favourites being the 27 double and 27 quad.

Around April, Andy Dobson said goodbye and headed for the States and yours truly took over the 1/12 column for *Radio Race Car* with Andy's position at Schumacher being taken by Phil Davies.

▼ *The Phantom.*





▲ *The new Associated 12L.*

April saw Christian Keil emotionally win the Euros in Paris after many years of trying with his 12L. Mikka Lappellati was unable to attend due to National Service with the youth title going to Ralf Krause.

On home soil the Standard Championship was lifted by Tim Dakin and Modified by Phil Davies.

At the end of the year we had another Dutch Grand Prix which Christian Keil won. He was now running a separate nicad pack for his receiver, and this was where most of us saw the new LRP motors for the first time, built by Jurgen Lautenbach of Germany. To finish the year off we had the first sightings of the saddle pack Schumacher car, designated the 'SPC'.

The start of 1988 saw 'Dobs' make a welcome return to the UK for the model engineers but he could only make the 'B' final with his Parma. The year, without doubt, saw saddle pack cars establish themselves with Corally moving that way with their SPII. For the European Championships it was off to Denmark in a coach organised by Nigel Piltz, and here British pride was no greater than when our own Phil Davies took the honours with his 'SPC', ahead of Anders Nillson and Jurgen Lautenbach. It was about this time when another new cell appeared, the SCE. Although not capable of giving the punch of an SCR the cells had far more duration but under a gentleman's agreement it was decided that no-one would run them in Denmark. The situation would be completely different a few months later in Holland for the World Championships, where the cells were allowed and some 'hairy' winds were being used with them. This was a great event only spoilt by everyone using Paragon Ground Effect additive which contained a high proportion of wintergreen and the smell was strong to say the least.

The winner was the 4WD buggy champion Masami Hirosaka but he was chased all the way by Tony Neisinger with Christian picking up third place. Most of us were able to see the Corally MMS (Motor Management System) speed controller, shaped like a credit card, but a few of the Americans were running controllers with prototype punch control. Also we saw the Yokomo tyre from Japan on all the top cars.

Back at home a few common sense decisions were made at the annual conference; these being to remove the price limit on speed contgrols, put the limit on modified motors up to £55, move modified racing to Sundays when there is more grip at nationals, and to employ the staggered start procedure for qualifying.

To round the year off, we had the British Grand Prix at Gateshead, sponsored by Ever Ready which was won by Pete Farmer. The event also aimed to give experience to the organisers who wanted to host the Euros in 1990.

1989, if anything, was a quiet year with the main talking point being at what rate you should charge your SCEs at!

The European Championships took place in Austria which, apart from the long drive, was a superb meeting not to have been missed with Christian Keil regaining his European crown as Phil could only make the 'B' Final. The last round of the 88/89 championship took place at Chesterfield with Matthew Ford and his Corally taking both classes with the SRM Associated cars of Dave Gale, Chris Evans and Rob Roy winning the Team Championships. Chesterfield also saw the Kawada M300 running at a major UK meeting for the first time.

Amazingly, the end of season conference saw an allegiance to the 35 turn standard motor whose performance with SCEs was pedestrian, especially if it was untweaked. However, it was proposed that on Saturday a separate Open Group 'C' class would be run where you could run any motor but a Group 'C' bodyshell must be used.

Towards the end of the year Mike Haswell, always committed, produced the first issue of Twelfth Circuit, an inexpensive newsletter for 1/12 drivers. Gateshead also held another EFRA Grand Prix as they had now had the go-ahead to hold the 1990 European Championships.

And now into our final year, 1990, and where do we stand? It would be fair to say that cars and technology have been pushed nearly to the limit with more time now spent on preparation and driving consistent laps. Nicad analysers and motor checkers of various sorts can be bought by the individual, even mini lathes for truing your own commutators.

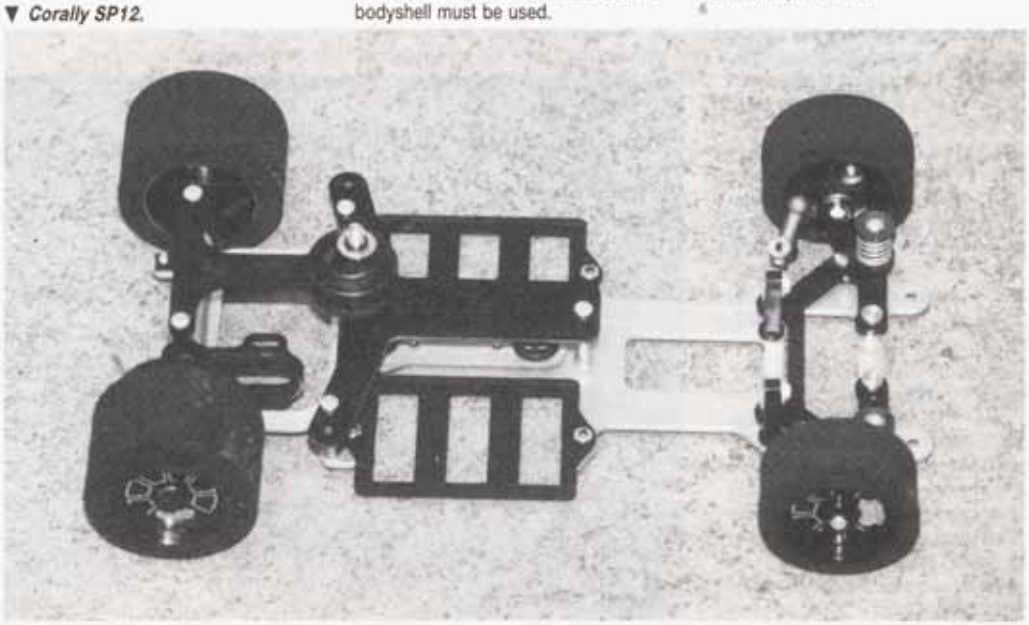
I doubt whether this is good for encouraging new blood into the hobby, but that's how it stands and it's not going to change!

Anyway, back to 1990 with the Dutch Grand Prix early on as a practice for the forthcoming World Championships in Singapore. The Associated team sent Shawn Ireland and Kent Clausen over to 'check out' the Corally threat which was gathering momentum. In fact Shawn and Kent ended up eighth and ninth. A few months later Corally picked up the title of European Champions with their SP12 in the hands of Jurgen Lautenbach with Phil Davies coming home second and Mikka Lappallati third at Gateshead, England.

Moving on to August we had the World Championships in Singapore where the very smooth driving style of Chris Doseck was enough to pip Masami Hirosaka and Ralph Birch Jnr, with our own Phil Davies taking fifth place with the new Associated car. The new slightly redesigned RC12L was obviously good enough yet again, the basic changes being to move the cells closer together, fit a support to the damper post and a hydraulic damper similar to the RC10L.

I hope this little look back has given you a quick insight to the history of 1/12 over the past ten years, short as it it (I could have quite easily written a book!). It will be interesting to see where we'll be come the year 2000.

▼ *Corally SP12.*



Monster Trucks

MONSTER MAD? THEN READ ON.....

Although not a monster truck, the Tamiya Wild Willy (issue 13) was the first real 'fun' vehicle to become available on the market. It used much bigger tyres than other 1/10 scale cars that were available at the time, and was specifically designed to 'pop wheelies'!

Although monster trucks had appeared before (such as the Marui Big Bear) interest in them increased with the release of the Tamiya Monster Beetle (issue 42). This car was based around the Frog chassis but incorporated larger shock absorbers, monster wheels and tyres etc., and was based on the famous VW Beetle.

Probably the strangest named vehicle Tamiya have ever produced is 'Vanessa's Lunch Box' (issue 47). Unusually, it was 1/12 scale and used a Dodge type bodyshell on top of a plastic bath tub chassis. The Midnight Pumpkin (issue 58) which was released afterwards was very similar in design except that it used a 1952 Ford pick-up truck bodyshell.

Released shortly after the Lunch Box was the Clodbuster (issue 50). This was, at the time, the most outrageous monster truck available. The tyres were an astounding 165mm in diameter and 110mm wide!! Dual shock absorbers were employed on each wheel, four wheel steering complemented the four wheel drive and two motors powered this 1/10 scale powerhouse!

Kyosho have produced many monster trucks and one of the best was the Big Brute (issue 51). Its simple, easy construction and design made it a firm favourite with MT fans. Four friction shock absorbers took care of the bumps and a Le Mans stock motor powered this pick up bodied beast.

Monster trucks entered the 'racing' scene in 1990 with the release of the Losi JRxT (issue 81). This racing truck was based on Losi's 2WD buggy, the JRx2. Larger front dampers, front and rear body mounts and monster tyres and wheels made the JRxT into the most successful racing monster truck of all time.

MIDNIGHT PUMPKIN

BIG BRUTE

CLODBUSTER

VANESSA'S LUNCHBOX

Flashback

WILD WILLY

MONSTER BEETLE

JRXT

TEAM LOSI

Revolution Motors Sweep 1990 R.O.A.R. Monster Truck Nationals

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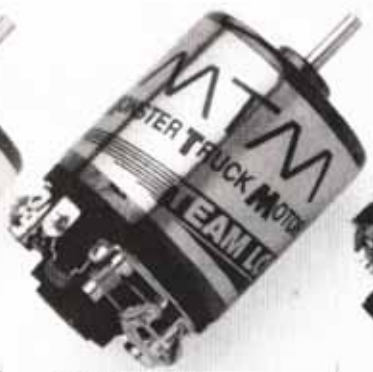

MTM-Monster Truck Motor:
The ideal power plant for Monster Truck racing as evidenced by it powering both the top qualifier and winner of the N.O.R.R.C.A. U.S. Nationals. Plenty of torque to get those big tires moving yet a smooth band that won't run out of top end. The MTM does not require those special "itty-bitty" pinions or "humongus" spurs which rob power.

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All "New" for the 90's, the famous #6060 super stock Motor features a radical new armature design, the latest in high density magnets, ultra high density brush material, long life bushings and custom end bell hardware. To insure consistant race winning performance, each motor goes thru a multi-step break in by World Champion Racers.

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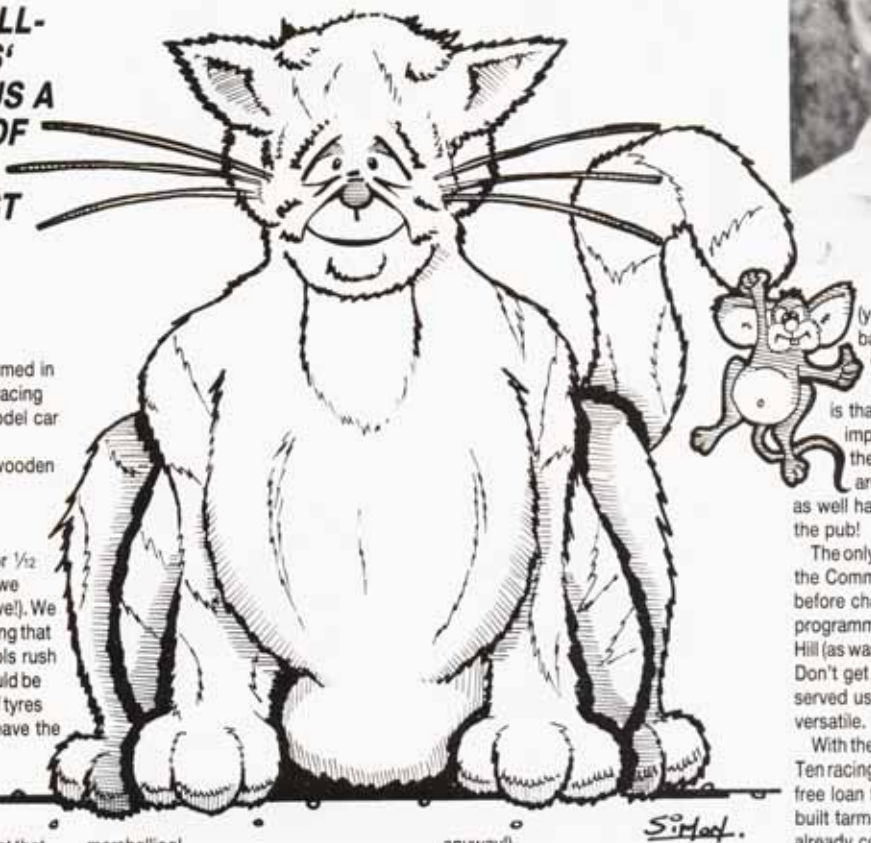
Stafford...

JOHN 'STONEWALL-TYSON-CUDDLES' ROBSON GIVES US A BRIEF HISTORY OF ONE OF THIS COUNTRIES MOST SUCCESSFUL CLUBS — GEC STAFFORD.



The GEC Stafford club was formed in 1981. At this time 1/12 circuit racing was the most popular type of model car racing.

We used to race on polished wooden floors, using silicone covered foam tyres (great fun!).

After the first European Championships in this country for 1/12 circuit cars was held on carpet, we decided to purchase one (bad move!). We were conned into it by people saying that it would be cheaper on tyres (fools rush in). Little did we know that this would be the downfall of 1/12, with the cost of tyres and additives people began to leave the hobby.

1/10 Buggy racing was then introduced to try and make up the numbers. Things began slowly, mainly due to the fact that only Tamiya Rough Riders etc were about. This was however the start of the 'boom' in R/C car racing as things began to happen. Whereas before we used to have 70 1/12 drivers, we now had 70 1/10 drivers.

As with any club we had the age old problem with lap counting and arguments over missed laps (who doesn't? It's called human error!). We would appoint two people to do the lap counting after each race, but like all marshalls today they like to discuss their race, instead of concentrating on their marshalling!

It came time to sort out this problem, and with the AMB lap counting system becoming available, we decided to invest in one (at the time it was £1,700 but they are some £300 cheaper now).

This solved all of our problems because we could now run club meetings and nationals automatically, as the computer was able to run the meeting with its auto race re-start. If people were not there when the race began it was started without them. This meant that more races could be held as people won't argue with a machine (most won't anyway!).

Also this system stopped many people arguing about their lap scores, however it wasn't 'plonker proof'. Even though they were told to make sure no wires touched the transponder, there are always a few who come screaming and shouting saying that the system is rubbish, and when you look at their car (yes you've guessed it) a motor or battery wire is in direct contact with the transponder!

What people tend to forget is that the transponder is the most important piece of equipment in the car, and if it doesn't work you are wasting your time. You may as well have stopped in bed or gone to the pub!

The only thing we regret is that we kept the Commodore computer for so long before changing to the current PC programme, which was written by Kevin Hill (as was the Commodore programme). Don't get me wrong, the Commodore served us well but the PC is a lot more versatile.

With the emergence and interest in Pro Ten racing we managed to get an interest free loan from GEC to build a purpose built tarmac track to compliment our already considerable facilities.

The club has 178 members and was one of the founder members of the MCCA.

P.S. Don't believe everything you read about John 'Stonewall-Tyson-Cuddles' Robson — he's a pussycat really.

Ten Years On

Stock & Oval

IN THE BEGINNING...

Radio Race Car International is in celebratory mood. Personally I feel proud to have worked for the magazine almost from the first issue.

In the past ten years the magazine and the sport to which I am so closely linked has gone through many changes. *Radio Race Car* was to appreciate the stock formula from the word go. In the very first issue we featured the Chesterfield Electric Stock Car Club, one of the first clubs to take to the electric oval in what was then a new sport, and also the 1980 European Champs from Holland.

Johan Bogaart had FTD at this meeting with 40 laps in four minutes, his car was a modified Mardave powered by a Veco 19. In the final, which incidentally was not a timed race but set for 35 laps (which meant that it must have been a very short final!), Johan won with Britain's Paul Dudley second and fellow Brit Brian Williams third. There were four Veco 19s in this final with three Mardaves, three Pumas and a scratch-built chassis.

1980 European Championships 1/8 Stock Cars.

Paul Dudley ENGLAND | Johan van der Bogaart HOLLAND | Brian Williams ENGLAND

▼ Electric stocks on the oval. This one is on a polished wooden floor. The foam tyres that are used need a coating of silicone rubber (bath sealant) to help them grip. The art of truing and gluing is what makes a winner.

Issue number two carried on its front cover from 1980 the RSCA and EMSA World Champion Bob Clayfield. We haven't had a stock car world champ in this pride of place since but from issue four the Stock and Oval section has been maintained in every issue.

The 1980 world champion was Bob Clayfield. Many will probably not know the man in person as he no longer titilates the tarmac at the Leicester oval but most will still be using the bodyshell which he designed, the Clayfield Classic which Mardave now retail.

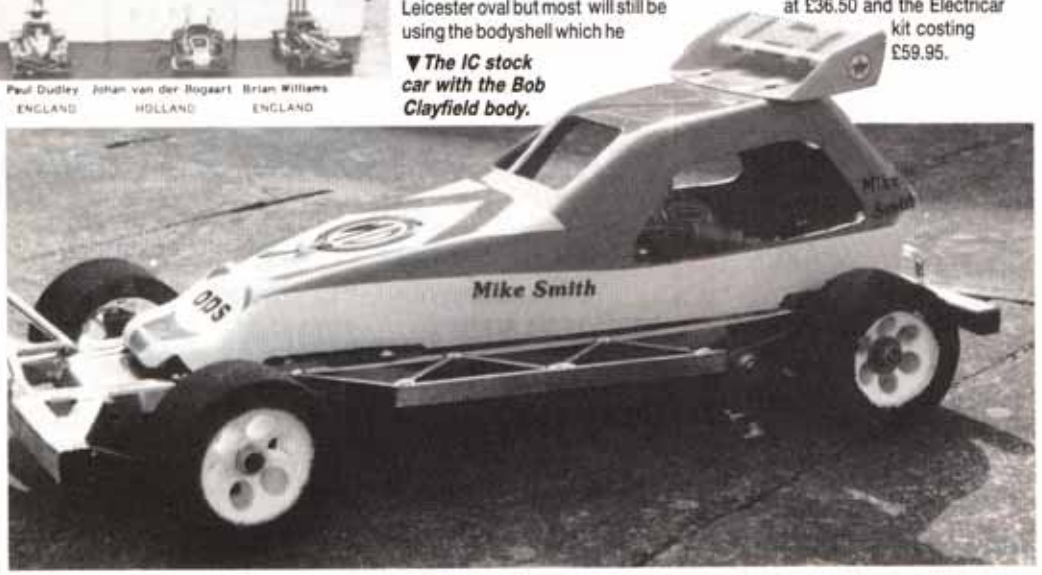
In 1980 the engine that won the Worlds was a Veco 19 with a chromed piston and a cavan carburettor. That was the RSCA Worlds by the way, because in those days we had two, the other was the Open Worlds which was the EMSA meeting. Bob won this as well, making him the double world champion.

At the Open Worlds at Studley which was a much larger oval, Bob required more power so in went the very rapid Veco 21. These mammoth wins gave Bob the nickname "The Maestro" to which he always smiled.

Back in 1980 a Veco would cost you £27.95 for the 19 and a staggering £31.75 for the latest 21.

The Mardave Stockcar MkII had just been launched and retailed at £33.75 with the electric Mardave stock car retailing at £36.50 and the Electricar kit costing £59.95.

▼ The IC stock car with the Bob Clayfield body.



What about the rules? Well, in 1980 the cost limit on a stock car was £35 minus engine and the engine cost limit was £43. The electric side of the sport did not opt for a cost limit, they favoured controls of a more regulatory nature.

There were three governing bodies at this time. There was the Radio Stock Car Association which was limited cost racing. The second was headed by Paul Dudley and was called Stock Car Racing England. This faction was frowned upon by the larger RSCA because it had no cost restrictions and was affiliated to the third body, the European Model Stockcar Association (EMSA), who were not only foreigners but also adopted a free-for-all attitude.

In the early '80s a far thinking individual had the sense to realise that three factions would not survive but one large section would. Andy Digby was then the Lilford club secretary and he arranged the Unity Cup meeting open to all. The intention being that if we all raced together with the different types of cars then at least we would start on the road to unity. The fact was that when the meeting got under way the cars were that much alike and more importantly equal in performance that unity was swift in coming.

We then had the disbandment of Stock Car Racing England, with Paul Dudley eventually chairing the RSCA which then became affiliated to EMSA. As many will remember the RSCA, with its long tradition, was swallowed by the BRCA.

From 1974 to '78 (yes I know it's over ten years!) the RSCA Championship (British World Finals) were all held in Leicester. The '74 winner was Wes Raynor, Mr Mardave himself. In '75 and '76 the meeting was won by the most famous ovalkeeni of all, Steve Talbot and in '77 and '78 the honour went to Dave Wragg.

▼ A group photo of the start of a meeting. In fact, this was the first meeting of the Pendle and District Model Car Club taken back in 1980.

In 1979 the meeting left Leicester for the first time and travelled North to Keighley in Yorkshire to a fairly new club that boasted the only permanent oval in the country. It was really between two clubs, Leicester and Keighley, and it was really down to which Leicester driver would win. The winner was Steve Talbot with Dave Wragg second. At that time I couldn't believe how fast these and many other Leicester drivers were going. Unfortunately, the politics of the sport split the Keighley club and the permanent oval was left to the ravages of time and vandals.

Well, that is how the sport was in the early days and for me this nostalgic look back only reminds me that in 1980 I could still go on a 18-30 Holiday!

THE PRESENT

Although the magazine has gone through great changes and can be rated as the best of its kind I feel it has still remained loyal to the grassroots racer who so wanted a magazine that specialised in their sport. It may not be possible to please some of the people all of the time but we never forget all of the people all of the time.

Like *Radio Race Car*, stock car racing has gone through changes, we no longer have a total cost restrictive sport as we did in the beginning, nor do we have the RSCA. The loss of the latter, on reflection, was a mistake.

We have eleven registered clubs in this country and seven abroad. Although the cost of racing is not restricted it can still be classed as a cost restricted sport as the regulations are so designed to discourage the more expensive items like differentials, wishbone suspension, etc. Bearings are not permitted on the wheels and the restrictive tyre width of 35mm and relatively short circuits level out the performance from the top powered engines.

STARTING IN STOCKS

If you would like to take to the oval then you must first decide whether you want the outside sport with 3.5cc engines or one of the indoor types such as mini stocks or electric stocks. Both have their pros and cons.

With the IC sport you are out in all weathers and you will need to spend the most amount of money to persue this formula. The kit will cost you around £60, and you will need radio equipment costing from £50 upwards. The main expense can be the engine which may cost as little as £55 but as you go up the power scale then the pounds pile on quicker than the acceleration and £150 plus would not be out of place!

▲ It was in '73 that the first stock car from Mardave was launched, and this was it.

▼ This picture, again from the Mardave archives, was taken around the same time. I have shown this picture to quite a few drivers of the '80s and the most popular comment was, "That's when stock cars looked like stock cars"!

The main items needed to race IC are not always the most obvious. A starter and pit box, spare components, different tyres, some sort of protection for you and your equipment when the weather is not on your side. All these things mount up but you don't need everything at once.

IC CAR DESCRIPTION

The IC stock car is strong with a steel chassis, the design of which makes for a good handling car. All cars are belt-driven to the rear wheels via a centrefugal clutch.

The suspension on a kit car is coil sprung at the front and hairgrip springs at the rear. On other scratch-built cars they can, but not often, incorporate shock absorbers. These cars race on the oval in an anti-clockwise direction and are a model of a full-size formula. They are powered by 3.5cc engines.

With the indoor formulas you will need the radio equipment and a car. The mini stock car manufactured by Mardave retails at £39.50 and their electric stock is around the same price. Both of these cars come complete with batteries and a charger but spares including tyres and batteries will be needed and you may feel that a mains charger with auto cut-off would be high on your list. The advantages of electrics is that you have the same skill level but not the bad weather.

ELECTRIC STOCK AND MINI DESCRIPTION

The electric cars are powered by an electric motor, the power of which is restricted to a standard type. The cars are gear driven, the ratios of which can be changed. There is a maximum of six nicad battery cells that are rechargeable, the suspension on the kit is coil sprung on the rear and the front relies on the spring in the tyres.

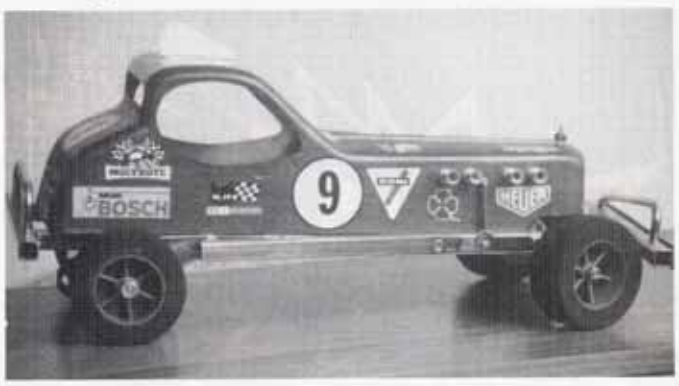
The chassis of the stock car is nylon and very strong. The mini on the other hand has a flat plate chassis and no suspension other than the amount of elasticity that the chassis plate will give, again the motor and the batteries are the same. Both formulas are very much a haven for the scratch-builder. The cars are usually basic in engineering terms and it is more than possible to build a car for either formula from scratch. This is probably the only formula of model car racing where you can still do this.

▼ Having something different in a very standard formula is what mini stocks is all about.

Whichever you choose you will find that whether inside or out you will find a friendly welcome at any of the clubs.

If you fancy the electric side of the sport then contact Simon Kendal, 19 Pitts Avenue, Narborough Road South, Leicester, LE3 2XL. Telephone (0533) 895459. If you fancy the IC side of the sport then contact Terry Dickinson, 7 Bookside Drive, Broughton Park, Salford M7 0NQ. Telephone (061) 7924015.

▼ Again, this is the Mardave Mk I that was supplied to Holland in the early '70s. The body on this car was made by the kit's importer Franf Spelbos of Utrecht, Holland. He used to hinge the back of the body like a boot lid so as to make easy access to the fuel tank.



BEAT

FOR THE PAST,

Beatties – the big name in models and hobbies – now boast a chain of sixty stores, with still more scheduled to open soon. Ask your average modeller where he goes to buy anything connected with his hobby, and he'll almost certainly say 'Beatties'. Perhaps it is no surprise to those who know us, that we continue to go from strength to strength. A visit to one of our nationwide stores will quickly reveal why we have become a modeller's mecca. As you will see, the choice on display is legendary.

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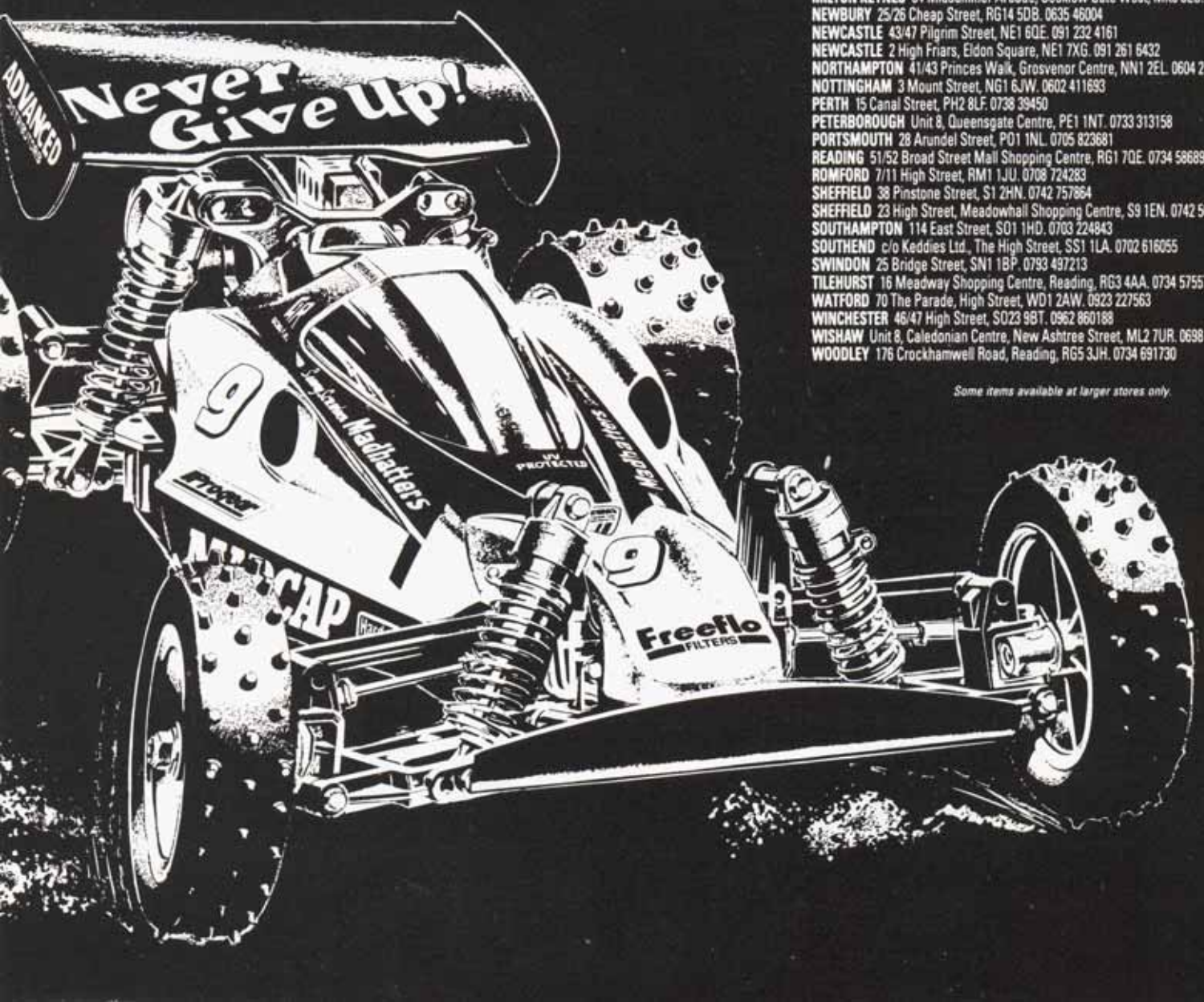


On the Pipe

Earlier this year, at the end of July to be precise, England hosted the ⅛ I.C. circuit European championship for the first time since 1978. Much has happened in those last twelve years and perhaps it will be of interest to see what it was like in those dim and distant days of old....

Lilford Park was the venue then on what is the same shape as todays circuit there. None of the cars then had suspension, in fact the idea was thought preposterous and a lot of the names then are still connected with the hobby. The P.B. International was very much the car of the meeting and was in its first year of production, with a retail price of £75. Engines varied between K&B, OPS and Super Tigre with the price around £45. So engines cost 60% of the cost of the car, something that is still around the ratio today.

The P.B. International was known as a "Flatbed" car and comprised of a 'Power Pod' and a 'front plate' bolted together. The front plate was a 2mm thick alloy plate whilst the rear was about twice as thick in order to act as a solid base and prevent flex between the motor and the back axle. The idea of the thinner front plate was to allow controlled flex in the front end. To prevent longitudinal flex, the radio gear and fuel tank were loosely mounted on a 'radio' plate which, when attached to the mid and rear points of the chassis, formed a box section, stiffening up the car. The radio gear was always mounted on rubber bands, and the fuel tank on rubber bushes, so the plate became known as a "shaker" plate.

The rear axle was simply held by two bearings in nylon carriers, which were screwed to the 'power pod'. The front nylon beam axle was then screwed to the alloy plate and the steering arms pivoted in phosphor bronze bushes.

It was all considered very high tech at the time. There was nothing to adjust though because no changes in geometry could be made, only those caused by brushing the car into a brick wall or similar!

The rear axle was a solid shaft of aircraft alloy but because of its length it could bend quite easily. The spur gear was screwed to the offside rear hub and engaged directly with the pinion on the engine. Because of this the gear had to be quite large and it was not uncommon to finish a race running on the gear and not the rubber.

At the time of the Euro champs, several things were quite new. The differential was beginning to be accepted as an improvement. Reliability was always a problem with something new and it was usually the small gears that used to give problems. Other than that, it did call for a slightly different driving style to a solid axle. It would be far more forgiving and could allow the car to be thrown sideways into a corner and powered out. Quite spectacular, but not always the quickest way, and it burnt rubber at an alarming rate. It did allow a car to turn better into tight hairpins and so was much the order of the day at Lilford.

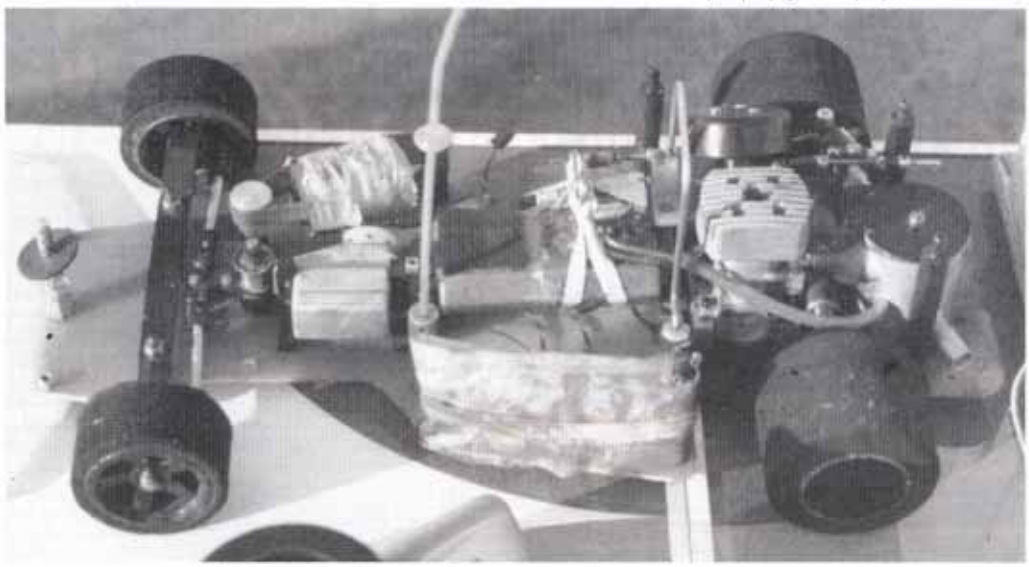
Epoxy glass chassis were also quite new but only available through Phil Greeno. This type of chassis could break easier, but would not 'tweak' as alloy would. In other words the chassis was either flat, or broken. The last thing that was new was the use of a 'tuned pipe' exhaust system. However, all the pundits rejected this idea saying that its narrow power band could never work on a model car engine!

Even fuel tanks were different then. That new PB car featured a plastic quick fill tank. Ok, so that doesn't seem any different, except that this tank was made in black plastic, and you had to construct it in a top and bottom section. The top of the tank was an inverted cone, sealed by a ballbearing within, under tension of a spring. The idea was that you got a pump-up garden spray, fitted it with a small bore pipe on the outlet, then force-fed the fuel into the tank.

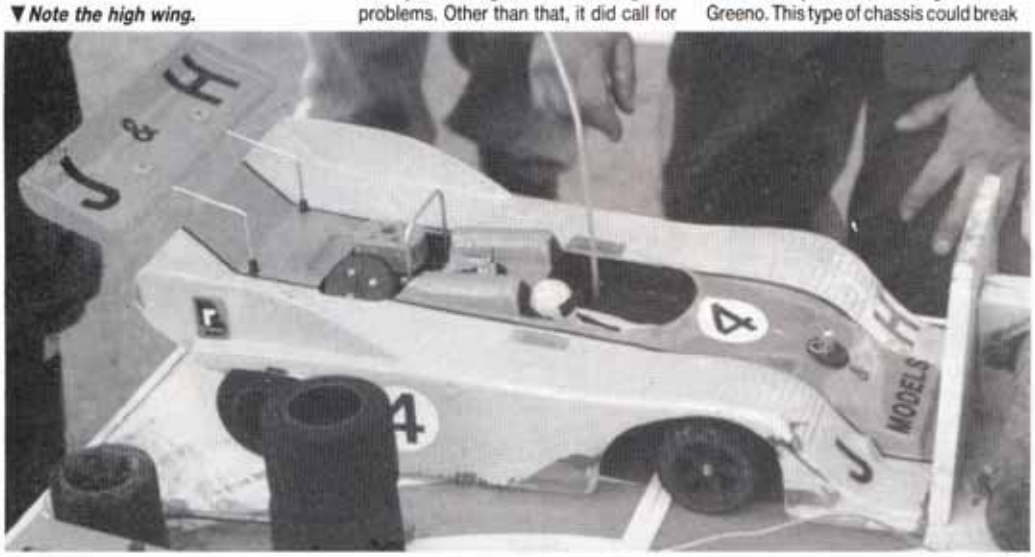
It got quite messy at times. The only alternative to this was to make your own tank from a mustard tin or similar. A small screw on tin lid was soldered to the bottom to form a sump and some form of seal used on the top. Early versions used a rubber seal through which a pipe could be pushed (called a rat trap), whereas the ultimate was to cut and modify a sort of grease cap. Getting the tank capacity right was a major problem though. A popular tin tank from America at the time was called a "Chicken Hopper" and had a maze of small bore pipework around it.

Back at the Euros, a lot of faces there are either still racing today, or are connected in one way or another with ⅛ circuit. Top qualifier on the Sports day was one, Ronnie Ton (the Ton in Berton, makers of Serpent), who then was a works SG driver. Second highest qualifier was Pieter Bervoets (the Ber in Berton) driving a newish car called a "Serpent". Keith Plested was driving for the English team as was Phil Greeno, Phil Booth, Debbie Preston, Dave Preston, Paul Pagdin, Steve White, Bob Errington and one Dave Martin (the latter having returned to racing this season). Plus some other drivers who no longer race.

The actual event was split into two days, the Saturday was for Formula racing, and the Sunday for Sports. On the



▲ *A PB International circa 1979/80.*



▼ *Note the high wing.*

Saturday it rained in heat ten of round one, and stayed wet. There were no European wet weather rules then and, as in England now, it was decided that the heats already run should stand. When it came to the final at the end of the day there were quite a few "lesser" drivers in the frame, except for one Franco Sabattini, the boss of S.G. At the end of the thirty minutes, the commentator, one Ted Longshaw, shouted out "That's it, Franco Sabattini is the winner." The crowds around the circuit poured in to cheer etc. But then the race director pointed out that the cars had to finish their last lap. Franco could not even see his car, let alone drive it, and it was George Thiran from Belgium who managed to cross the line, he being on the same lap as Sabattini, and was therefore declared the winner.

Oh dear, talk about a miscarriage. The decision was held though and Sabattini took no further part in the champs. There had been talk that the entire SG team would withdraw, but thankfully this didn't happen.

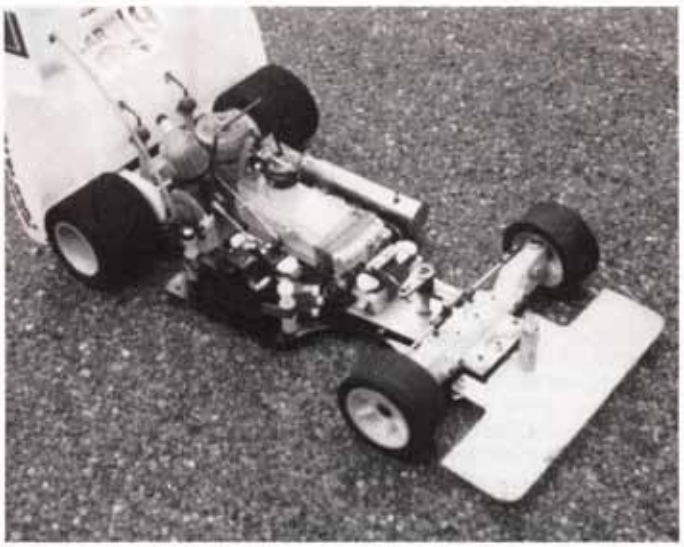
The Sunday was a much better day for weather, although the traction was slow to improve. At the end of qualifying Ronnie Ton was on TQ with 15 laps in 4 mins 47.5 seconds (compare that to T.Q. in 1990 of 23 laps in 5 mins 13.2 secs!). Pieter Bervoets was second, Phil Greeno third and Peter de Caro from Sweden fourth. Those were the four straight into the final, with the next six to run in a semi final. Keith Plested was the unlucky eleventh qualifier, beaten by 0.3 secs by the joint ninth times of Debbie Preston and Bob Errington. Debbie was driving an Associated RC200 fitted with an AMPS diff whilst Bob had a PB International like three other Brits in the semi, Steve White, Ken Wright and Dave Martin, with Masse Mares from Italy, using a lone S.G., being the last of the semi finalists. From this semi, Dave Martin and Debbie Preston got through and so we had three Brits in the final.

At the start it was Pieter Bervoets who led, but a blown plug in his K&B engine sent him to the pits. Dave Martin, a Lilford club member, had now settled down and was firmly in the lead. Traction was now better than any time before and Dave, aided by Ted Booker doing lightning fuel stops, was stretching out his lead. As he entered the pits for the second stop, the engine cut, but Ted got him fuelled and re-started before second place caught up. Dave Martin won the final for both PB and OPS. He had clocked up 93 laps in 30 minutes, the record now stands at some 123 laps! Questions were asked at the end of the meeting — "just how fast will these cars go in '79?".

1978 saw several clubs come on to the racing scene. Bournemouth held its first race at the end of the season and Mendip held its first race in Easter, having opened in November '77. Wombwell also was a new venue and helped by the persuasive powers of Paul Pagdin had secured the Nationals, an event being repeated this year as well. The first day of the Nationals had Paul Pagdin shoot out in the lead and pull away until a stiff steering servo lost him time and the title went to Ken Wright. The day was more remembered for cries of interference and of Paul Pagdins plea for volunteers to cut off the top part of the steel rostrum!

The second day was for the Saloon class and once again Paul Pagdin took the lead. This time an engine going off, let one Gary Culver through to victory. Sports day and that man Pagdin shot off again at the start of the final to have a one lap cushion by the five minute mark, only this time to have a wire come off his battery pack and give victory again to Ken Wright. Not Paul's weekend!

The PB International underwent various improvements over the next few years with subtle changes in radio plate layout to accommodate front mounted silencers, but geometry wise it was basically unchanged. The first big step forward came in 1981 with the Alpha, a fully independent suspension car moulded in red plastic with a green epoxy glass chassis and radio plate! This car took the world by storm, only being matched on the very high grip American circuits at the World champs. Even then there was a prototype chain driven four wheel drive car from Japan, but it really wasn't quick enough.



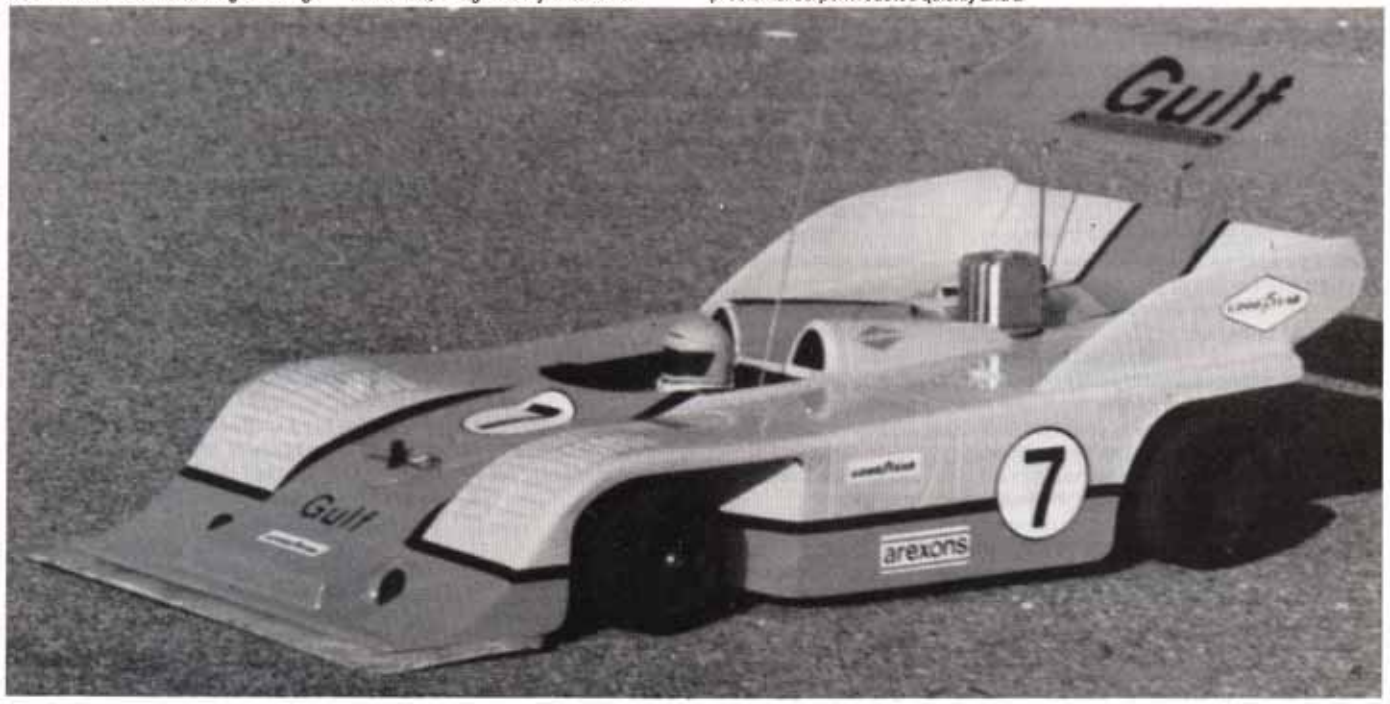
▲ The last of the non suspension cars the SG Futura (1981).

Soon suspension was the norm and the work done by PB (and by the original AMPS cars), was copied. The SG Columbia started life as an almost identical copy, but was then developed over a couple of seasons to become what is considered by most to have been the best two wheel driven car.

1985 saw the SG Columbia Mk 4 as a totally new car, being shaft driven from front to rear via bevel gears, and was the first production four wheel drive car. Initial success was good but the increase in engine loading caused lots of problems. Serpent reacted quickly and a conversion was soon available for their 'Quattro' car. This bolt on kit was amazing and transformed what was basically an understeering car into a race winning formula. PB developed a 4wd later that year and SG produced an excellent car called the 'Space', but finance became their downfall. The Quattro continued to be virtually unbeatable until 1988 when they re-tooled and produced a much better car called the 'Sprint', and this continued their success.

1989 saw the PB Phoenix and BMT Blitz cars become a serious threat and in 1990 both these two have been eating heavily into Serpents successes. What will 1991 bring? Well we will have to wait and see, but from all the information currently at hand, it's going to be one of the most competitive seasons ever.

Be there!



Tech. Terms

CONFUSED BY THE TALK AT THE TRACK? READ ON TO FIND OUT WHAT IT ALL MEANS!

ANTI ROLL BAR: Device that can be fitted to both the front and rear of the car to resist sideways roll that occurs during cornering.

ARMATURE: The workings inside an electric motor. Different ones can be bought for different performance levels ie. 18x1 or 15x3 etc.

ARMS: Usually found on the front and rear lower suspension construction of independent suspension cars.

A.S.P.: Adjustable Saftey Position. Feature found on more expensive radio systems to regain control of car when nicads run flat.

BALLRACES/BEARINGS: Low friction objects fitted to optimise efficiency of car. Most important modification that can be made to cars is to fit ballraces/bearings.

B.E.C.: Battery Eliminator Circuit. Incorporated in radio reciever so that you don't require a separate battery to power reciever or servo's.

BED IN: Process whereby brushes are contoured to the shape of the commutator before motor is run for a race.

BODYPOSTS: Long columns extending from chassis that hold body in position.

BRUSHES: Small oblong pieces of carbon that conduct electricity to the commutator of the motor.

BUMPSTEER: Occurs on front suspension. When the suspension is raised the geometry is changed from toe in to toe out.

CAMBER: The angle at which the wheels, when viewed from the front of the car, lean inwards. If the wheels lean outwards, ie. the distance between the top of the wheels is greater than the distance at the bottom of the wheels, the camber is said to be positive, and vice versa.

CAPACITOR: Small ceramic unit that fits between the terminals on the motor to reduce interference.

CASTER: The angle between the steering pivot axis and an imaginary line drawn through the centre of the wheel.

CHARGE: Process whereby power is put into nicad batteries.

COIL OVER SHOCKS: Shock absorber unit with the damping unit inside the coil spring.

COMMUTATOR: Part of the armature in a direct current motor which changes the direction of the current. It is the copper segmented part that the brushes run on.

COMM DROPS: Motor additive that reduces friction between brushes and commutator and increases revs while reducing amp draw.

CONNECTOR: Usually small metal pieces in two halves (male and female) that connect battery/speed controller and or motor/speed controller together.

CONSTANT CURRENT: Type of charge for nicad cells.

DAMPER: Name sometimes given to coil over shock absorber.

DIFFERENTIAL: Device in the axles of cars that enables the outside wheel to rotate quicker than the inside wheel to aid cornering abilities.

DOG BONE: Name sometimes given to driveshafts because of the protuberance each end that makes them look like a dog's bone.

DUMP: When the main nicad battery has insufficient power to drive the car.

D.V.M.: Digital Volt Meter. Very accurate measurement device with digital display.

END FLOAT: Movement of the armature in the motor can.

F.E.T.: Field Effect Transistor. Very efficient solid state device used in speed controllers, chargers and some servo's.

FOREWARD ONLY (FO): Type of speed controller without reverse, used mostly by top drivers.

F.T.D.: Fastest time of the day.

GIZMO: Device used for setting up electronic speed controllers.

GROUND CLEARANCE: Distance between the bottom of the car and the ground.

G.R.P.: Glass reinforced plastic. Strong lightweight plastic composite material.

HEAT SINK: Metallic construction for speed controllers and motors to disperse inefficient heat.

HIGH FREQUENCY: Sophisticated type of speed controller such as the Corally MMS, Tekin 411 and Novak 410 series.

INTERFERENCE: Radio interruption of reception by, amongst many other things, unwanted signals.

KILOJOULES: Energy of nicad cells.

L.E.D.: Light Emitting Diode. Electrical indication device used on electronic speed controllers, chargers and gizmo's

LEXAN: A type of Polycarbonate that most of today's bodyshells are made from.

LIMITED SLIP: Self explanatory type of differential, that is more adjustable than geared differentials.

L.W.B.: Long Wheel Base. Refers to the distance between the centre of the front and back wheels. L.W.B. cars are generally more stable than S.W.B. (short wheel base) cars.

MODIFIED: Refers usually to motors. Those with adjustable timing, ballraces etc.

M.O.S.F.E.T.: Metal Oxide Silicon Field Effect Transistor. See F.E.T.

MONOSHOCK: When one shock absorber is used instead of two, normally found on the front.
M.P.R.: Millimetres per revolution. A way of expressing a gear ratio, usually on circuit cars.

NICAD: Nickel Cadnium. A type of battery.

OVERSTEER: When a car turns in more quickly than the driver intends.

PEAK: When the battery is fully charged, it reaches its peak. It is also a type of charger ie. a peak charger.
POLYCARBONATE: A clear plastic that many model car bodies are made from.
PULSE: Another type of charger where the batteries are charged by pulses rather than constant current.

QUAD: Quadruple. Refers to the number of parallel strands of wire per turn of winding on the armature of a motor.

RADIO: Name sometimes given to the transmitter.
RX: The radio receiver.

SADDLE PACK: Nicad pack configuration where a 7.2v battery pack is split into two halves, so that three cells sit at either side of the car.
SERVO SAVER: Spring loaded protection device that reduces shocks transmitted from the cars wheels that can damage the servo gears.
SHOCKS: Shock absorbers.
SINGLE: Where there is only one strand of wire per turn of winding on the armature.
SKIM: The process whereby the comm is accurately trued up.
SPEED CONTROLLER: Mechanical and or electronic device for proportionally altering the speed from the nicads to the motor.
SPLIT TIME: The time it takes you to complete the remains of the lap you are on when the end of the race is up. The lower the time the nearer you were to completing an extra lap to that shown.
STANDARD: Usually refers to a type of motor. It must have no less than 27 turns on the armature, and not cost more than £15. The can must be factory sealed and no adjustable timing is allowed. Standard bushes are used instead of ballraces.
S.W.B.: Short Wheel Base.

THERMAL CHARGER: A type of charger where the nicads are charged to a pre set temperature level.
T.L.C.: Torque Limit Control. The device found on many of the latest high spec speed controllers to alter the amount of power getting to the motor.
TOE IN: Where the wheels point inwards towards the centre of the car when viewed from above.
TOE OUT: The opposite of toe in.
T.Q.: Top qualifier. This person starts at the number one position on the grid in the A final.
TRACK ROD: The operating arm for the steering connected between the wheel upright and the servo saver.
TRANNY: The short name sometimes given to the radio transmitter (TX).
TRANSPONDER: Small box shaped lap counting device fitted to all cars when an A.M.B. lap counting system is being used.
TRICKLE CHARGER: Slow charger for charging nicads. Usually takes between 14-16hrs.
TRIM: Fine adjustment rate for servo's.
TRIPLE: Where there are three parallel strands of wire per turn of winding on the armature of a motor.

UNDERSTEER: When the car tends to turn in more slowly than the driver intends.

XTAL: Crystal. These allow more than one car to race at a time because they operate on different frequencies.

ZAPP: Method for increasing the magnetic strength of a motor.

2WD: Two Wheel Drive.
4WD: Four Wheel Drive.
4WS: Four Wheel Steering.
10.1: Method for expressing a gear ratio. For every ten times the motor turns, the wheels will go round once.
32,48,64 DP: The DP stands for the diametrical pitch of the gears. The higher the number the finer and theoretically more efficient the gears are.

1/8 Rallycross

By the time you get as far as this article you will have gathered that the magazine has reached its tenth birthday and to celebrate it the 'powers that be' decided that there should be a brief history on all the different forms of model car racing that have evolved over the past ten years.

If it was to have been a run down on 1/10 electric off-road racing, this, for me, would have been considerably easier as I was raised on Rough Riders, Superchamps and Sidewinders and only recently, in the last 12 months, have I moved on to the noisy, smelly and utterly fantastic 1/8 side of the sport. I like to call it a sport because it is truly competitive and there is always a winner.

As far as organised racing, the 1/8 off-road side is actually one of the youngest sections, as the history of it reaches back only to 1983 when the first calendar of events was formed. Before 1983 obviously there were clubs running 1/8 cars, one of the very early ones being Goring. Rules were almost non-existent and races, I am told, were of ½ hour duration and all the finals were one hour long.

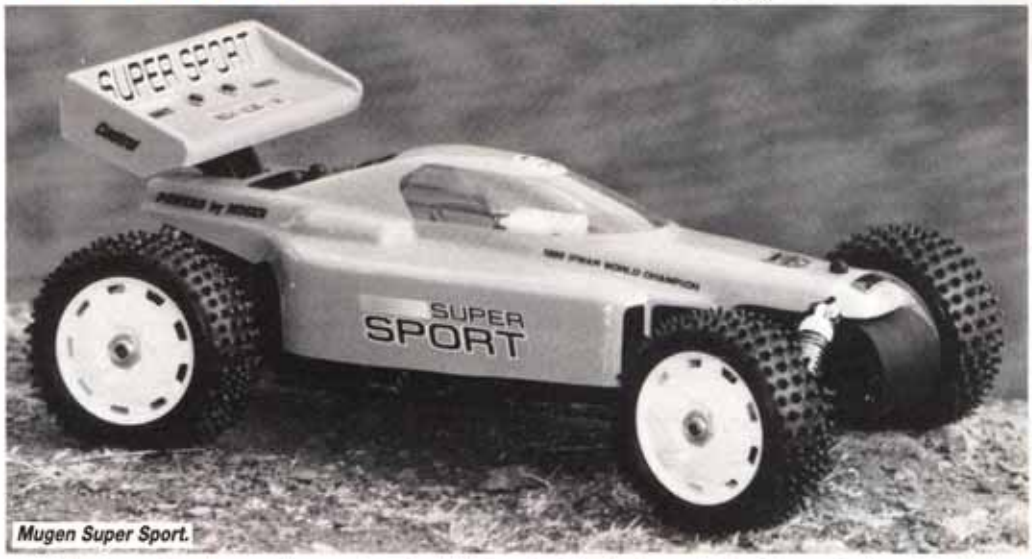
The cars were fitted with twin fuel tanks, one tank feeding the other, and the objective was to win your hour-long final without any fuel stops! I am sure that the idea would upset the applecart in today's racing techniques, for the majority of racers refule every 5–7 minutes.

The early organised races were run in conjunction with 1/10 buggy meetings. Some readers may remember the 'Buggy Bonanzas' as they were called. The 1/8 Rallycross section of the BRCA was formed in '82–'83, the first chairman being Bill Burkinshaw who has done an enormous amount for model car racing. Over the years he has written books and even appeared on television in Blue Peter demonstrating 1/8 cars.

The original rules allowed for two classes of racing, designated the Restricted Class and the Unrestricted Class. The basic difference being that the Restricted Class was for 2WD cars and the Unrestricted for 4WD cars. The cars of 1983 were mainly PB Alphas and Mustangs and Baja Buggies in the 2WD with Yankees and Gepards in the 4WD section.

Looking back over seven or eight years one of the most interesting things was the prices of these cars. Whereas a 2WD PB could be bought for just under £100 a 4WD Yankee could cost an amazing £350, which is some £20 to £40 dearer than a top 4WD car of today. If you consider people's wages at that time it would certainly take a few weeks savings to buy your 4WD buggy!

PBX3.



Mugen Super Sport.

The first champions in their respective classes for 1983 were Robin Ellis, driving a PB Alpha in the Restricted Class and Russell Buckner driving a Yankee in the Unrestricted Class. The Restricted Class ceased to exist after the 1984 season with Terry Lawless being the last champion racing a Baja Bug. Gary Marsden was the Unrestricted Champion driving a Garbo Gepard. Gary retained the title in 1985 with the new PBXi2.

Gary, who still regularly races today, is to date the only driver to have won the championship twice. His father is also worthy of a mention for the time he has given to the sport, for he took over from Bill and was chairman for two years.

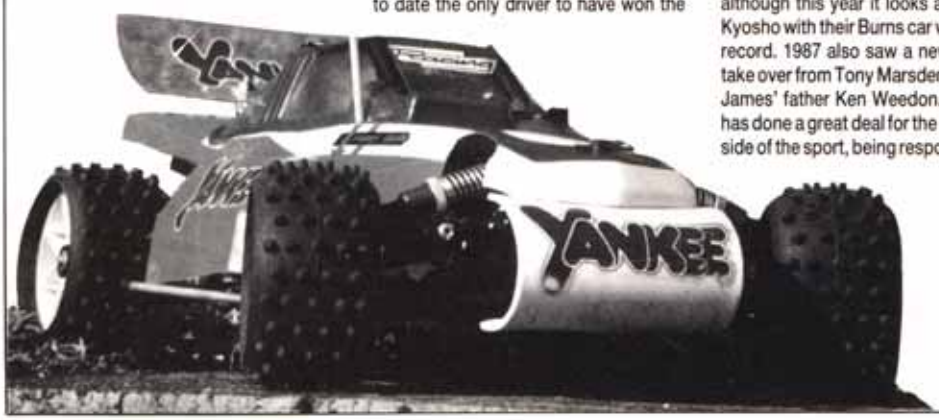
In 1986 Serpent decided that they would contend the off-road championship and Steve White, their number one works driver for 1/8 circuit, was brought in to drive the new Spirit. Win the championship he did, although he instantly went back to circuit racing, perhaps he didn't like all the bumps!

In 1987 James Weedon from Ilfracombe took the championship in fine style driving a PBX3, taking PB to their third championship win.

PB are the only manufacturer to have won the championship three times although this year it looks as though Kyosho with their Burns car will equal the record. 1987 also saw a new chairman take over from Tony Marsden, that being James' father Ken Weedon. Ken, again, has done a great deal for the 1/8 rallycross side of the sport, being responsible over the last five years for the points collation for the championship and for the computer programming of all the events.

During the latter part of 1987 Kyosho, well known for their 1/10 off-road electric cars and at this time, especially for the Optima Mid, had developed a 1/8 car loosely based on the Mid, only bigger. Up until this time reliability was the big problem and this is what Kyosho concentrated on and they seemed to cure the problem instantly. Ray Wilcox, well known to all 1/8 racers, decided that if it were possible he would like to take on the development of the Kyosho car, namely the 'Burns'. After talks with the importer Ray managed to acquire a kit, and the rest is history. Ray organised a British Burns team and immediately the car began to win events and by the end of 1988 the Burns emerged as the championship car driven by Stewart Wilcox.

By the start of the 1989 season more and more drivers were purchasing the Kyosho Burns. The cost of the kit was £275 which meant that it was £75 cheaper than the winning car of 1983! However, not everything had become cheaper. Engines had now risen to well over £100 for a top quality racing unit but then again there had been a considerable amount of development on this front. The cooling heads had been improved for better airflow, crankshafts were now all



ballraced and pistons ranged from three port to six port.

The now well-oiled piece of machinery, namely the 'Burns' team, were proving dominant, with the total reliability no other car seemed able to contend with. Towards the latter half of the year a new Burns appeared in true Kyosho style, called the Burns Turbo. This car was a direct result from information passed back to Japan from the British racing team. Larger shocks, longer wishbones, longer chassis, all made for a more stable car. Of course with this the price went up as well, breaking the £300 barrier, but it was still cheaper than the 1983 car.

Again, the Burns won the championship but this time with Justin Mackey in control.

After two years Ken Weedon handed over to Mick Hill who, to date, is still the chairman of the ⅛ rallycross section of the BRCA. Mick has been around the rallycross scene for some time, even breaking his leg at his own meeting hasn't deterred him one bit!

Now onto the current season, and what a change. It now looks as though there are a number of cars well able to contend the championship domination of the Burns. First on the scene was the Mugen, which actually took the World Championships and is therefore the current world leader. This car is again from Japan and is well on a par with the Burns, even in price. Ted Longshaw obviously thinks so too as he has become the number one importer of the car and its spares.

Secondly on the scene in 1990 came a new car from Mantua, namely the Magika, imported by Richard Stitson from Windsor Models, who should know a winning car when he sees one as he has been involved with rallycross since the year dot. The Magika, again a definite contender against the Burns, is a very fast and nimble car.

On the engine front, development this year seems to be in the area of the turbo. Nova Rossi and Rex have both developed a new engine, also OPS and Mondial are going in the same direction. New engines, or should I say new names associated with engines, are Bergonzoni and the brand new Drastic engine. Both engines are competitively priced and certainly the Bergonzoni is extremely competitive against all the other well known names. The Drastic I cannot comment on for it only arrived a mere week ago in the country, but I am sure it will prove to be as good.

As far as the 1990 season of events is running we have completed eight of the twelve events in the calendar and the current leader is James Weedon who is leading the championship at the moment with Tony Miller in second place, both driving the Turbo Burns. Who is going to win is anyone's guess. James has won before. Will he equal Gary Marsden's record or will Tony win his first championship, which he will certainly have waited long enough for as he goes back to the start of rallycross but has never quite been in the right place at the right time? We shall just have to wait and see.

PBXi2

Serpent Spirit.

Kyosho Turbo Burns.

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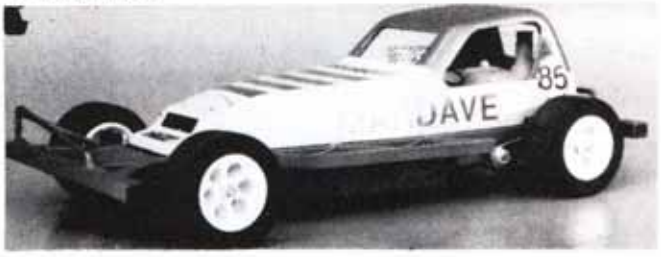

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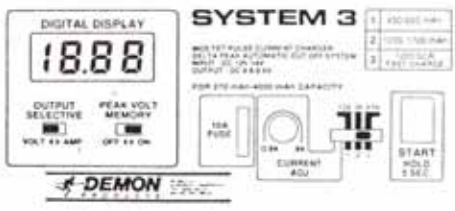

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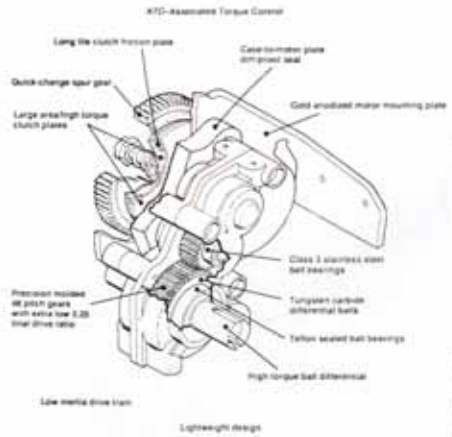

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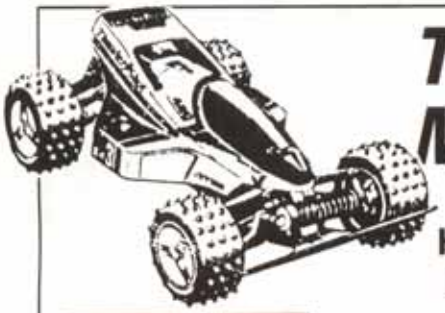

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