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Model Cars Monthly

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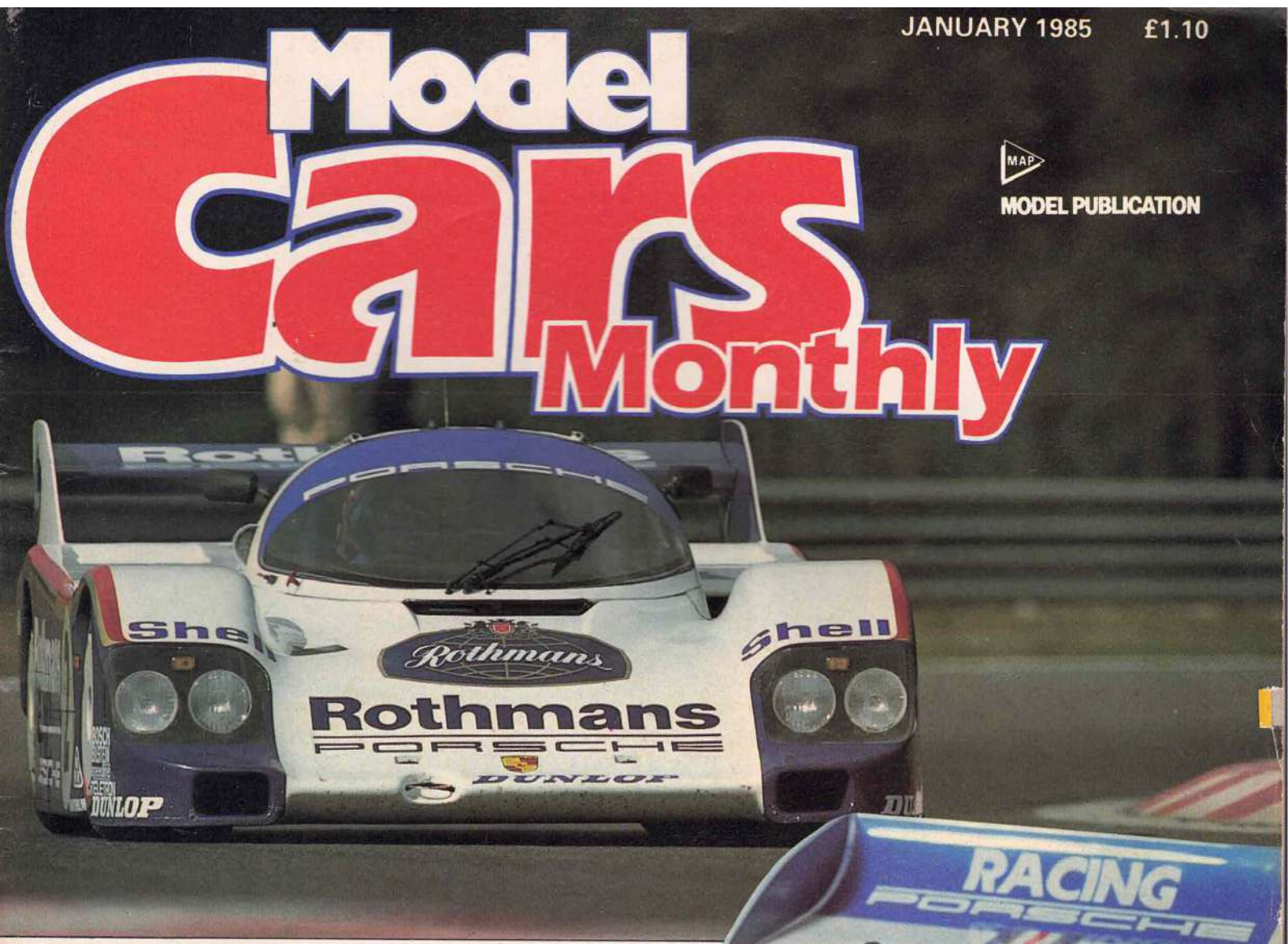

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Model Cars Monthly

January 1985
Volume 5 Number 1

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EDITOR	LEWIS ECKETT
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Graphics	JENNY HINE
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Publishing Director	JOHN FOSTER
Chairman and Chief Executive	JIM CONNELL

Cover
The world beating Porsche 956 Group-C racing car is the subject of this month's front page with an all-action shot of the real thing together with Tamiya's 1/12th scale alternative.

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Contents

Editorial by Bill Burkinshaw

I have never been one to accept something just because "we have always done it that way," however traditions are something else entirely. One should beware of tampering with such things and one such tradition that I intend to further in this, my last Editorial for Model Cars, is that of bidding farewell to my readers and welcoming my successor.

This is a particularly difficult severance, for 'Model Cars' as it exists today was my first ever venture into actually creating a magazine. Starting as a 'Special' issue of 'Radio Control Models and Electronics' magazine, 'Model Cars' became successively: Quarterly, Bi-Monthly and now Monthly and along the way acquired an Editorial Assistant, who was eventually to be promoted to Assistant Editor and now to Editor. Of course I refer to Lewis Eckett into whose very capable hands I entrust 'Model Cars.'

There have been many memorable occasions during my past five years of association with the R/C model car hobby, I neither wish to embarrass those with whom some were shared or bore those who were not present, but only to say that I fully expect the friendships made to continue and that I am not foresaking the hobby of model car racing entirely. I hope to remain a competitor and also a contributor to 'Model Cars.'

I feel sure that under its new Editor, Lewis Eckett, 'Model Cars' will not only maintain its dominant position but continue to prove a leading influence in the hobby.

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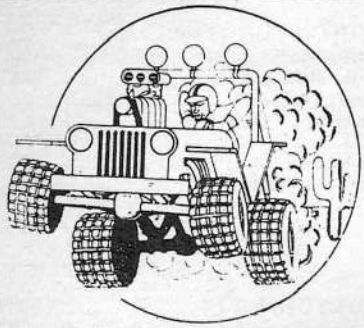

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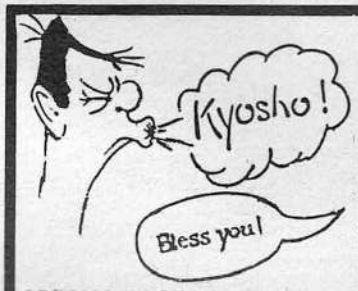

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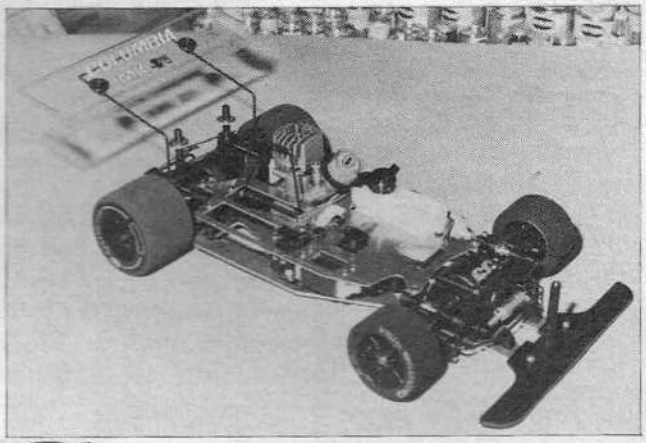

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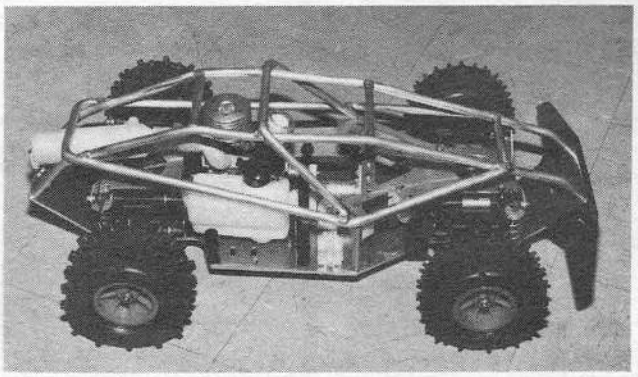

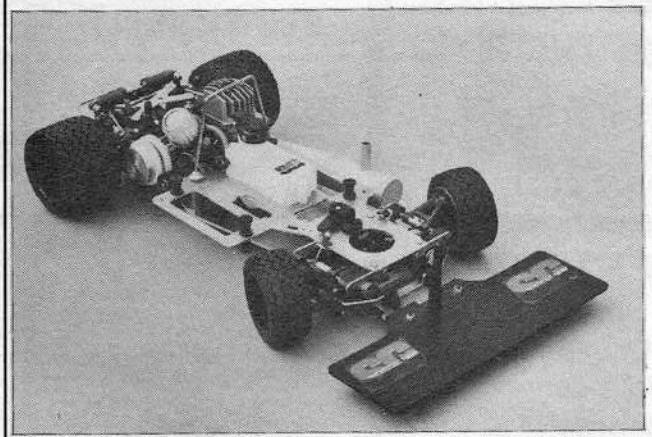

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DEAL with 2-channel Acoms/Futaba radio, 6v Ni-Cad and Mains Slow Charger £112.00
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DEAL with Acoms 4-channel radio, 6v 4000mAh Ni-Cad and Mains Slow Charger £205.00
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NEW **TAMIYA PORSCHE 956**
Fully ballraced, gear differentials resistor speed cont' sprung front end and includes Mabuchi Endurance motor £79.95

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4211 Chassis (12i) excepts all above front ends £12.35
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4118 Springs .014 wire (black) £1.50
4119 Springs .016 wire (silver) £1.50
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3440 Differential with graphite axle £18.70
3610 Rear wheels pair £3.32
3611 Rear tyres "S" pair £2.94
3619 Rear tyres "T" (green) ..... pair £3.36
3661 Front tyres "K" ..... pair £2.63
3658 Front tyres "S-K" ..... pair £3.00
3662 Front tyres "K" ..... pair £3.40
3667 Front tyres "T" (green) ..... pair £2.94
3501 Reedy 05 motor 35T £8.95

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ASSOCIATED RC10 Off Road Buggy coming soon ..... approx. price £149.95

NI-CADS
Demon Sanyo Sticks 1.2Ah (OF) £17.95
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Sanyo 1.2Ah Single Cells £1.60
Saft 1.2Ah Single Cells £1.50
7.2v 1.2Ah Ni-Cad pack (Tamiya shape) .. £13.99
6v 1.2Ah Ni-Cad pack (Tamiya shape) £11.99
HP7 500mAh pencell Ni-Cads 90p

1/10th TUNE UP PARTS C.R.P.

1536 Kyosho rear shock adaptor. Allows the use of the more efficient larger Kyosho shocks on the rear £5.50
1516 Kyosho coil over with two sets of springs (silver-light gold-heavy) to fit CB88/89 shocks. ..... pair £11.95
1517 Shock rebuild kit for CB88/89 shocks, comes with "O" rings, brass retainer and Teflon piston £5.50
1527 Kyosho adjustable coil over. Set of 4 springs and adjustable brackets. (Fits standard kit shocks) £10.95
1529 Shock "O" rings for Tamiya Kyosho shocks, packet of 8 ..... £1.95
1701 Kyosho rear trailing arm hinge. Four hinge points in steel £4.95
Shock oil, contains a special agent to reduce oil leakage. You can adjust the damping by changing the oil.
3502 Shock oil 10w, 2oz £1.85
3503 Shock oil 15w, 2oz £1.85
3504 Shock oil 20w, 2oz £1.85
3505 Shock oil 30w, 2oz £1.85
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MRP Rear arms (Scorpion) ..... each £6.99

1/8th I.C. OFF ROAD

NOW IN STOCK ROBBE PRESTO
4 wheel drive Off Road Buggy with trailing arm suspension to soak up the bumps, chain drive fore and aft and inside the rear trailing arms.
Kit £169.00
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Robbe Devil body £13.29
Picco 21 SE Buggy engine £58.68
P.B. GEPARD 4WD £235.00
Gepard with Picco 21 ..... only £275.00
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80p foot or 3 feet for £2.

Seen & Heard

Brazilia

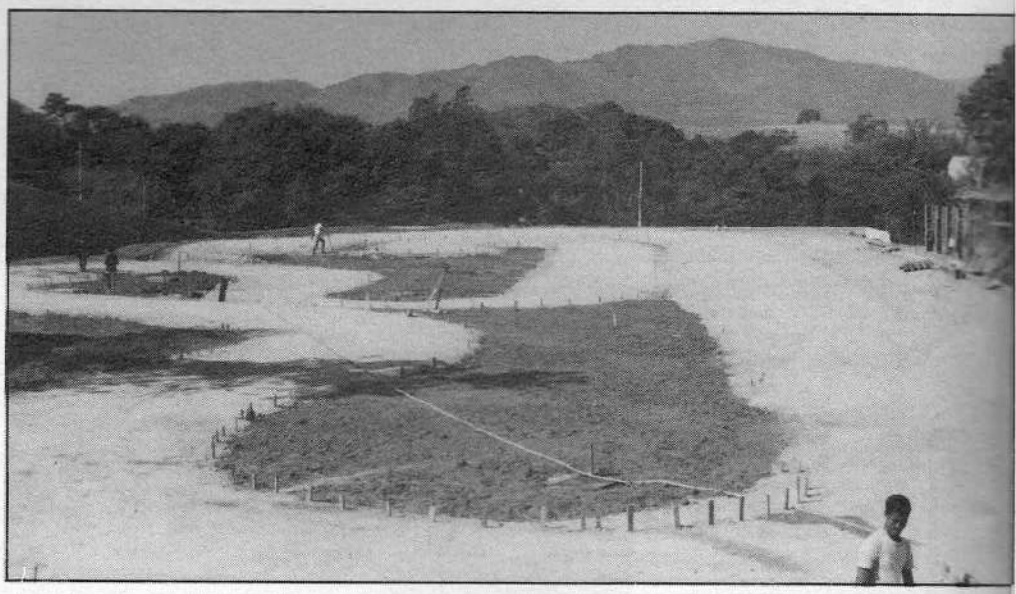
Ah! More news of the Brazilian racing scene, courtesy of Peter Gogarten from Sao Paulo. Fortunately, Peter is keeping us well up to date with the news so that we in turn can make you even greener with envy at the conditions and facilities that Brazilian racers enjoy.

In our November '84 "Around the World" feature Peter mentioned that a new 1/8th scale circuit was under construction. As you can see from the accompanying photographs this was no idle boast and by the time you read this it will have been finished and raced upon not only by local racers but also drivers from Europe and America who have been invited to attend the inaugural meeting. (Model Cars staff were invited too, only we could'nt afford the air fair.) Hopefully we will be able to bring a report of the proceedings in a future issue.

Peter also includes some details in his letter of the second round of the Brazilian Off-Road Championship. For this meeting the race was held on a track marked out on a football pitch situated close to one of the most prestigious yacht clubs in Sao Paulo. Just one look at the photographs shows how vast the circuit was. Peter goes on to say that they had a very good attendance and at the end the public and participants were satisfied with the day's racing. The *Kyosho* 2-wheel drive cars occupied the first four slots whilst the 4-wheel drive cars (1 "Cobra": 1 "Leopard": 2 "Integra's") found the going difficult on the grass surface. No doubt the 4-wheel drive brigade will make themselves felt as their familiarity with the cars increases.

That's it from Brazil and Peter for now. Anyone else out their care to drop us a line?

Right: the top three drivers in the second round of the Brazilian Off-Road Championships. Left to right: Alexandre Kemenes (Kyosho/K&B). Second, Peter Gogarten (Kyosho/OS). First, Ivan Numes (Kyosho/Picco) third. Below: the new Brazilian 1/8th IC circuit under construction.



In league together

You thought the Off-Road racing calendar was packed last year, well be prepared, as clubs up and down the country are planning an even greater blitz of race meetings to attract racers for the coming year.

Already we are beginning to hear from clubs who have worked out their 1985 racing calendar and this piece is being written in October 1984!

The Weston Off-Road Models organisation down in the West Country are already planning their own championship series to incorporate all the relevant clubs in their region. This will be known as the **South and West Off-Road Federation** and it's aims are clear. To encourage and promote 1/10th scale racing in the area.

As yet the firm details are not available such as which rules they will race to or how the races will be organised. However what is clear is that the **SWORD** region will be once again racing on it's own in 1985.

Another collaboration of clubs in the South of England is currently under way and the **The South of Watford League** is the result. At present four clubs make up the league, **Eden Park Overlanders, Chingford, Crawley** and **Kent and Sussex** with each club hosting a round of the series. For 1985 the league hopes to expand with the addition of new clubs, so, anyone interested should contact Alan Tyson

Above: the enormous circuit marking out on a football pitch for the Brazilian 1/8th Off Road Championship Meeting.

on Crawley 884577. By the way boys, can we race against you even though we live in Hemel Hempstead?

The Chesham Hooligans Off-Road club are planning a series of race meetings for *Tamiya* cars only (why, I don't know) although an Open class will be raced on the day. This will be a championship series with all points accumulating towards the final result, actual dates for these meetings are not currently available but we will let you know as soon as possible. If that isn't soon enough then contact Mick Childs, 61 Darvell Drive, Chesham, Bucks, HP5 2ON. Tel: Chesham 782212.

As a final aside to the above, if this sort of thing continues and small pockets of enthusiastic racers set up on their own then pretty soon we are going to have a regionalised racing system come what may. Maybe it's a good thing.

Going Dutch

Fer Van Helden who was kind enough to send us photographs of the *SG* "Columbia Mk4wd" for the last issue also included some information of a new permanent racing venue in Holland.

This is possibly quite unique as it is a permanent, indoor 1/12th scale electric racing circuit owned by the **Turbo Dordrecht** club situated near Rotterdam. The circuit is a carpet surface but the track markings and boundaries are artificial grass which we are told stops the cars quite effectively. Although the track is a bit on the small side the club has a membership of 60 and a national type race meeting has been held. Club members are not restricted to only racing 1/12th scale cars as outside the building is a 1/10th Off-Road track also!

There has been talk of a National Racing Centre in this country with indoor circuits and a shop, perhaps some enterprising and wealthy person will one day fund this pipe dream.

Christmas is coming . . .

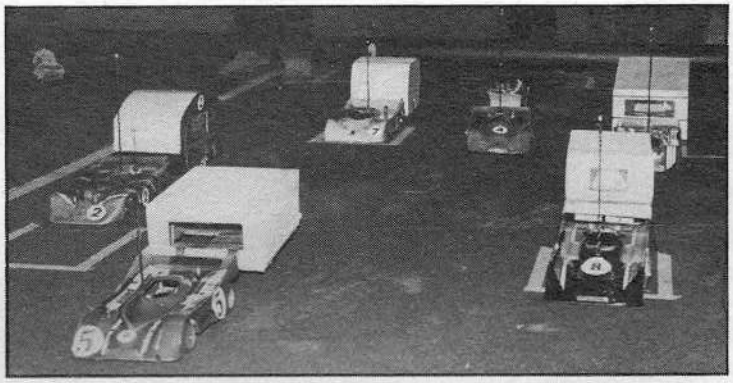
Yes, yes, yes, we know this is the January '85 issue but we also know that most of you will be reading this in December '84. With that in mind it seems only appropriate that we should offer some advice for Yuletide fun and games during the club race meeting.

Caravan racing is the most popular Christmas pastime and quite rightly so; caravans are very easy to make, repair and destroy all in the space of a single evenings racing or Sunday afternoon club meeting. All that is needed is a suitable chassis (plywood is ideal), some old wheels and tyres, axle and blocks and a sheet of cardboard for the caravan shell. A satisfactory method of towing the caravan will also need to be sorted out. Whichever type of racing, Off-Road, Stockcars, circuit racers and whatever track; figure of eight maybe, then caravan racing is a must.

Fancy dress. No not you, the cars. For this class of racing you can be as individual as you like in decorating your car. Some of the masterpieces that have come to our attention over the years include; a roast turkey bodyshell made from chicken wire and papier mache, a Christmas cake body (difficult to see which way it was going) and the obvious Santa and his sleigh.

Lastly, the football match. Make a suitable size pitch with goals, pick two teams, toss in the football and watch the fun. Actual goals are rare but the entertainment value is high, definitely not for the squeamish though as the cars get wrecked pretty quickly.

Well there's three ideas to be going on with but you and your club members should be able to think up a few more. Have fun!



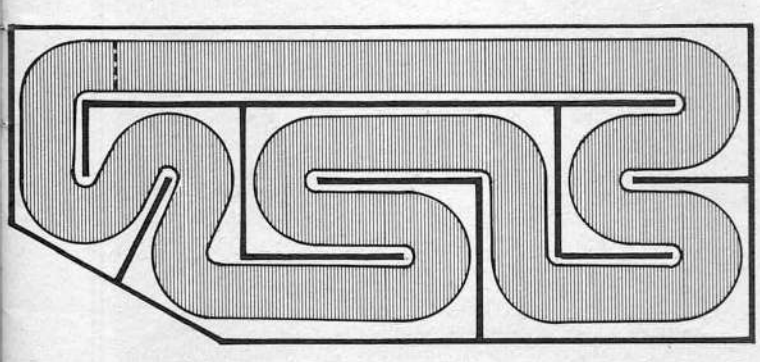
Left: 1/12th electric circuit racers at the Vauxhall Motors club, Luton indulge in a little fun and games at Christmas towing caravans.

Club chat

The un-named secretary of the **Bedford Buggy Club** has written to us with the details of their racing activities. In fact the club has only been recently established and the first meeting was not held until November 11th. However from then on buggy meetings will be held every Sunday morning, 10am till 2pm at the West End Club, Queens Park, Bedford. Annual membership will be £5.00 plus £1.00 race fees.

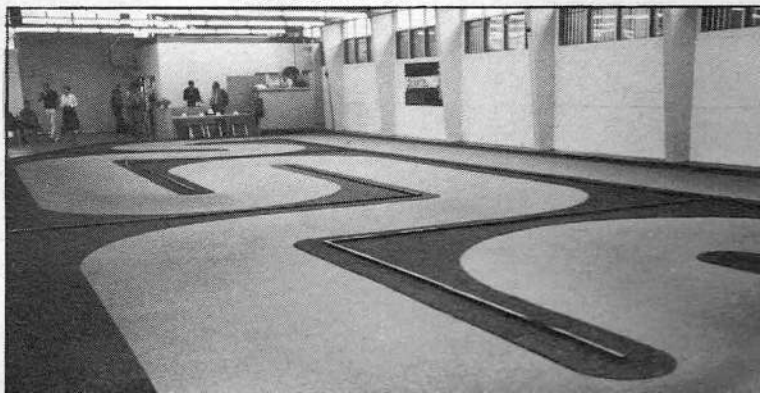
The track is sited on a bowling green adjacent to the club and the facilities of the West End Club are available to the members. For further details contact The Secretary, Bedford Buggy Club, 1 Knarlesdale Walk, Bedford, MK4 0NT.

Another new club that has come to our notice is the **Stoke Off-Road Club** in the Stoke-on-Trent area. Nicholas Hulme the secretary tells us that the main interest is in 1/10th scale electric buggies although 1/8th scale buggy racers are also welcome. Two tracks are available, a grass circuit and an all-weather surface both donated by *Newcastle Greyhounds Track* at Stoke Speedway. With good facilities such as these then the club's future looks assured. Contact Nicholas Hulme, 45 Diamond Ridge, Barlaston, Stoke-on-Trent, Staffs, ST12 9DS or telephone Barlaston 2295.



Turbo Dordrecht club circuit

Below: a view of the Turbo Dordrecht club's 1/12th circuit marked out on carpet but with artificial grass as the barriers.



Gearbox

Greeno goodies

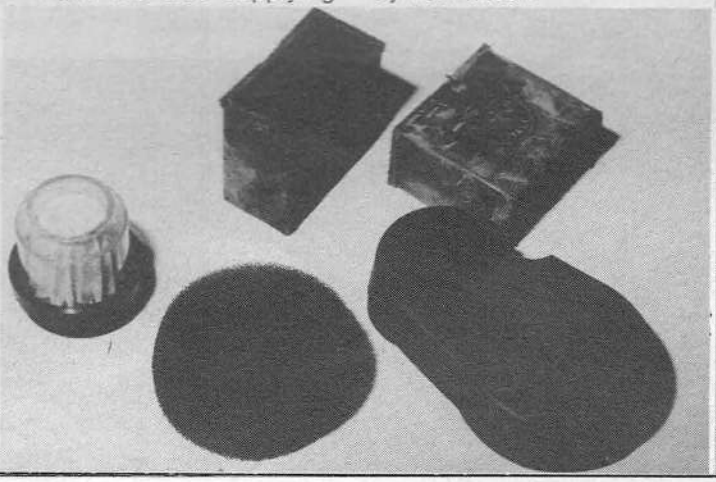
A recent visit to *Phil Greeno's* model shop premises at 9 Village Way East, Rayners Lane, Harrow, Middx., revealed to us several new items now available for all branches of the R/C car hobby.

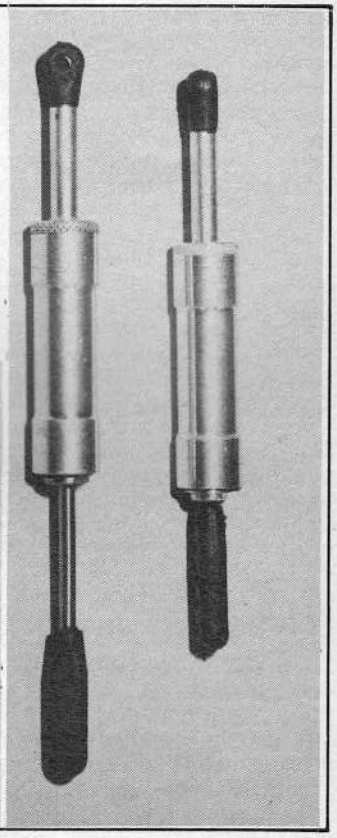
Apart from the introduction of the new *SG* 'Columbia MkIV' 1/8th scale racer, new mono-shock dampers designed to replace the original 'Columbia' units are now on sale. As far as smoothness of operation and quality of manufacture goes these items are second to none and so should find a ready market amongst IC circuit racing enthusiasts. Price £14.95 a pair.

Another special *SG* accessory is the special air-filter pack for really rough racing conditions. This comprises of a standard *SG* paper element type air-filter plus a rubber cap which fits over the engine cylinder head and filter with a foam filter element over the head. This stops the cylinder head from collecting the usual rubbish between the cooling fins and also acts as additional protection for the carburettor filter. The pack also includes two moulded rubber 'boots' which encase the receiver and protect it from the British racing weather. Price £7.95.

PGM are also supplying *Sanyo* receiver battery packs made up into five or six cell units which are pre-soldered, encased in heat-shrink ready for the appropriate connector to be soldered on. The Ni-Cads are *Sanyo* 4N-450sc type and the four-cell, 4.8 volt pack will cost £7.99 and the five-cell, 6.0 volt £8.99.

All the above are available by mail order.

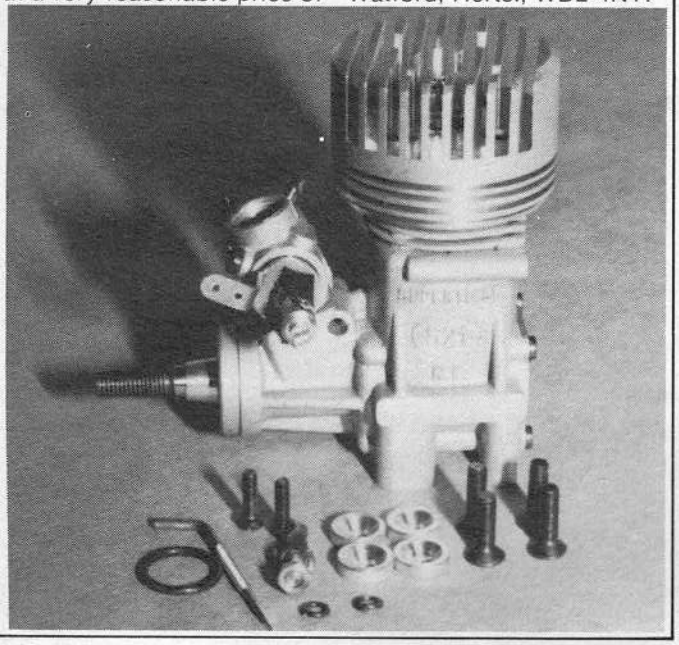




Super Tigre Engines

Regular readers of 'Model Cars' will remember that we carried out an Engine Test on the *Super Tigre* S21 CAR motor back in the May 1984 issue with quite favourable results for this engine. Now the S21 base mounting motor is once again available at a very reasonable price of £45.76 including barrel type carburettor. This sort of price will no doubt appeal to stockcar and Off-Road racers and the S21 is ideal for these R/C car activities. An exhaust manifold adaptor is also available. Price £3.50.

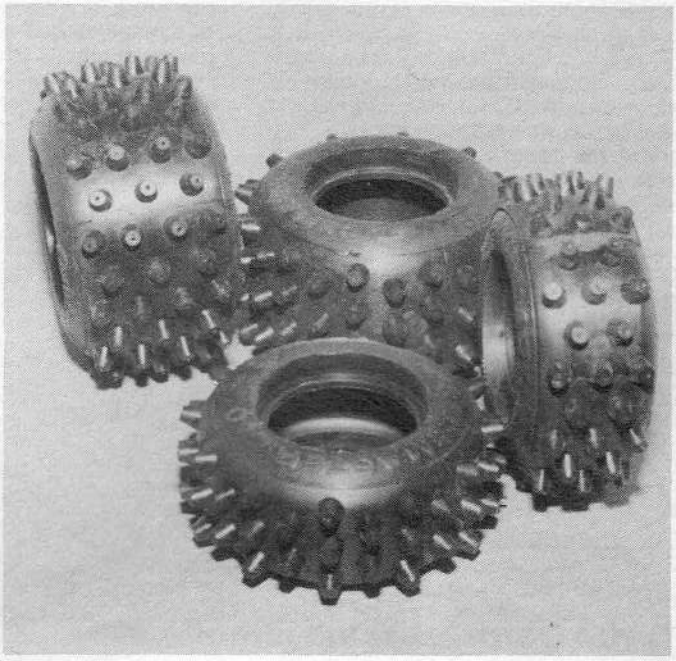
Super Tigre engines are available from most good model shops or *Tigre Engines*, 97 Tudor Avenue, Watford, Herts., WD2 4NY.



MRC tyres

Moulding Research Corporation (MRC) are already well known in the 1/8th IC circuit racing and Off-Road racing activities for their high quality tyre design. Now *MRC* are bringing their expertise to bear on the 1/10th Off-Road racing activity with these new tyres designed for the *Tamiya* wheel fixings. These 'Racemaster' tyres are produced with a deep 'knobbly' tread pattern for both front and rear items and as such should give a long racing life.

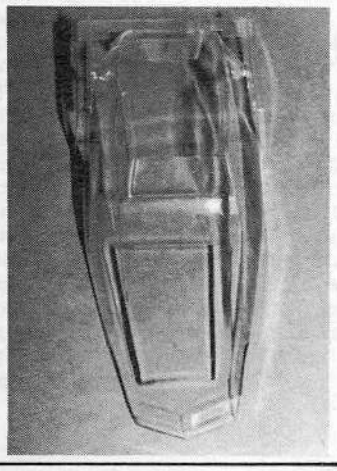
The prices for the 'Racemasters' are £6.90 (fronts) and £7.80 (rears) and they should be available from most good model shops.



Alpha Track Parts bodies

Several new bodyshells are rolling off the *ATP* production line to provide racers of 1/10th scale electric buggies with an even wider choice of decoration for their cars. In fact almost all the most popular cars are catered for, 'Scorpion,' 'Frog,' 'Digger,' and 'Holiday Buggy.' The bodies are available in either clear or painted from price £6.50 and £9.00 respectively.

For further details contact *ATP*, 128 Knighton Lane, Aylestone, Leicester.



MKS Race Car Control

for Commodore 64 Microcomputer

This program is designed to markedly improve the efficiency and organisation of radio controlled model car racing. It can cope with up to 12 entries per heat; count up to 99 laps per competitor, up to 127 heats, and race time can be set from one minute up to 99 minutes in one minute steps.

Competitors can be pre-entered or entered directly before a race. Pre-entered heats can be called up as required for information or to start a race. The race starts with a siren-like call-to-line signal followed after a random delay by a warbling start signal. The race time is displayed on the screen, as are the laps recorded by the computer.

At the end of the pre-set race time, another warble signals the end and the computer waits for the operator to key in the point at which the cars cross the finish line on their finishing lap, and records the respective time in hundredths of a second. The results are displayed and sorted within a few seconds, and displayed. At this stage the results can be saved for future analysis.

Also at this point it is possible to interrogate the computer and receive a screen printout of each driver's laps and respective lap time. A minimum lap safety time, set when the race time was entered, will be highlighted against any illegal lap. This system is excellent for resolving lap counting disputes.

The program will operate with tape or disk storage, but is of course much more flexible on disk. Care must be taken when using tape to ensure that the correct data tape is used.

The program has been under development for nine months, and used regularly during that period at a local club.

The price is £9.95 for tape and £13.95 for disk, available from *Milton Keynes Software,* 63 Aylesbury Street, Fenny Stratford, Bletchley, Beds. Please state tape or disk and please make cheques,POs, etc., payable to *Milton Keynes Models and Craft Centre.*
Please allow seven-ten days for delivery.

Rough Riders

by Bill Burkinshaw

The 1984 racing season and onwards

As any sport progresses from birth to maturity it is important that those responsible for it's governance occassionally stand back a little to see where things have got to and in what direction things are heading. So far, the past couple of years have been a little turbulent for 1/10th electric Off-Road racing and much less so for 1/8th IC racing. Perhaps, dare I say it, the actual problems of making and keeping an IC car going at all, in one piece for more than a few seconds at a stretch destroys the drivers appetite for protest. It certainly is the case that very few complaints about rules, observance of rules or organisational standards are heard from IC drivers compared with those voiced (loudly) at electric meetings.

So, towards the end of the 1984 season I stood back, surveyed the scene and attempted to look ahead.

I saw 1/8th IC meetings with more than 50 drivers competing, the majority with 4-wheel drive cars and some very competitive, enjoyable racing going on. I also saw many more electric race meetings being organised, widely varying entry lists but on the average much larger numbers involved although drivers seemed less satisfied with their lot. It would be foolish to claim that all is sweetness and light in the 1/8th Off-Road racing scene, far from it, but the main difference is that everyone seems to be working to the same aim with common rules and a co-ordinated racing calendar.

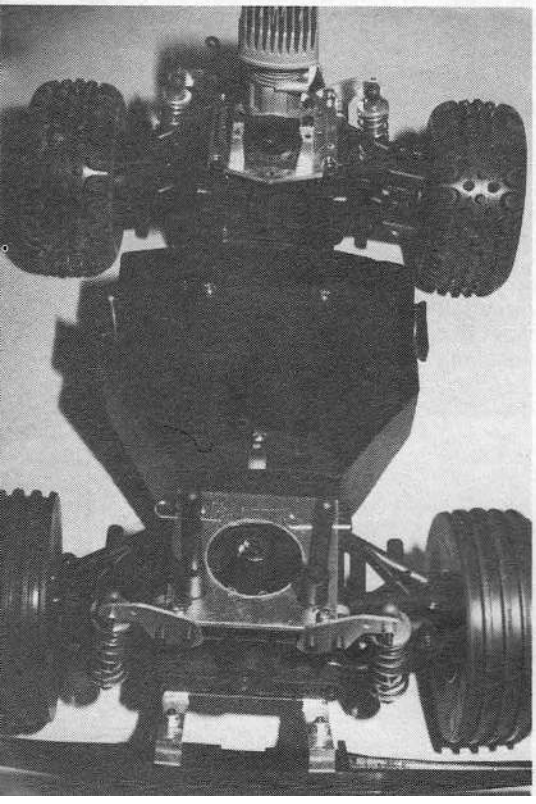
Contrast this with 1/10th racing and we see various organisations putting on "Open", "Championship" and "League" meetings galore and vying with each other to provide greater prize incentives in the mistaken belief that it is entry totals and prize values that indicate the success and failure of a race meeting. Until all of these people get together and finally accept that there can only be one set of racing rules, that the internationally accepted body for the formulation of rules in the UK is the BRCA (British Radio Car Association) and to alter the BRCA rules they have to join, then I can only see discontent. As it is with so many race meetings and trophies available the effort of attaining a trophy is devalued totally.

Nor can I forsee a great future for a sport that seems to provoke some form of argument at most race meetings and even the physical violence I witnessed at one meeting this year. Some long standing friends in the model car racing world have commented on my recent low profile as far as electric racing is concerned and I have had to say, "I don't enjoy it because of the arguments and frequent ill-feeling that seems to prevade, so I don't race electrics". My own view is that there should be no prizes at all for race meetings, simple plaques or trophies are adequate and that it is about time the various factions genuinely got together to make racing better for all concerned.

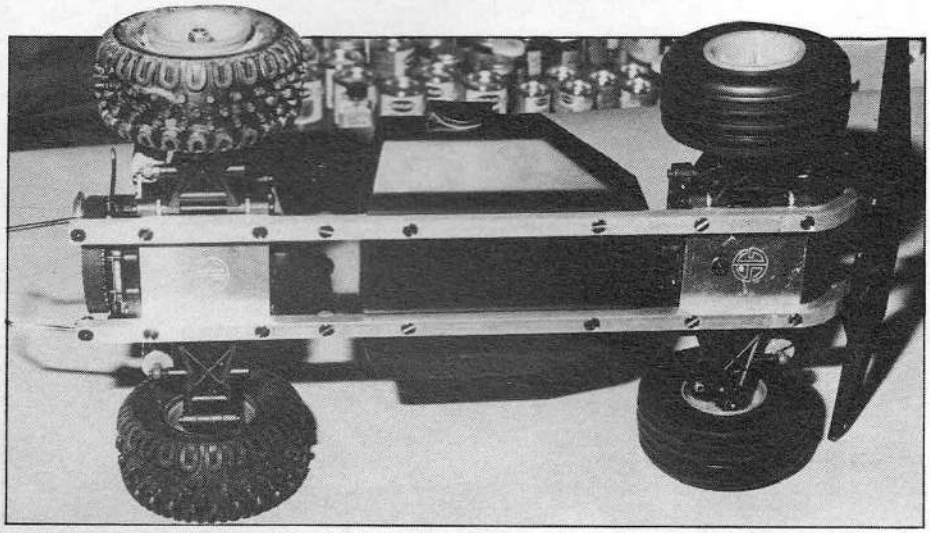
The 'Samba' is SG's latest venture into 1/8th Off-Road racing and as such shows great thought on their part. This is because the 'Samba' is a rare animal; a budget priced introduction into the hobby with an assured performance. Basically the 'Samba' will help fill the hole between the low technology type cars and the state-of-the-art four wheel drive machines. Hopefully this will entice prospective enthusiasts into racing 1/8th Off-Road.

SG Samba

Off-Road Racing



Left: the 'Samba' without the body shows the beefy front and rear suspension systems, chunky tyres and spacious R/C crate. Servo trays provide the mounting for the R/C gear.

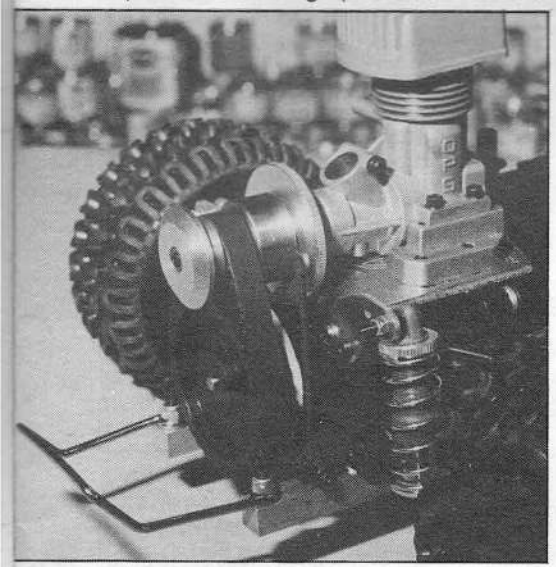


Above: the 'Samba' employs a ladder type chassis using two alloy rails onto which the suspension sub-assemblies are fixed.

Meeting Standards

When Off-Road racing started, small entries and a general lack of expertise didn't stretch organisational abilities of clubs too greatly where circuit facilities and race timing were concerned.

Now we have moved into the area of larger entries, very close racing and spectators turning up to what can be a very exciting spectator sport. As far as 1/8th off-road is concerned, a set of meeting standards has been drawn up covering basic organisation of meetings which clubs will have to undertake to comply with before a BRCA Championships status can be given. This includes provision for referees at meetings and all the machinery of penalties, warning and disqualification. Any club requiring copies of this document can obtain one from me at Model Cars Offices — please send a stamped addressed envelope.



Above: the 'Samba' transmission system is via this drive belt and pulley arrangement. The benefit of this is that the engine starting is made easier. Behind the main gear is a large 'Ferodo' type brake disc activated by a cam and lever from the throttle servo.

Where does it all end?

With the advent of 4-wheel steering for Off-Road racers one wonders whatever will be next? It is pretty certain that whoever comes up with the next world beating idea whether it be wheel hub mounted hydraulic motors, gyro-sensing anti-spin steering or terrain following radar control will be unlikely to make a fortune from it but the manufacture that does get it right can make it a little more certain that he will be in business at the end of the year.

I for one don't ever want to stand in the way of progress, but does progress always have to be a case of throwing the baby out with the bath water? We seem to go forwards in such extreme jumps, gradual development doesn't come into it and each leap is accompanied by the demand for large sums of cash money for a new state of the art car if any sort of continued success or even partial success in racing is to be enjoyed.

There have been complaints that the allocation of equal length races for 2 and 4-wheel drive cars at BRCA Championship meetings is unfair on 4-wheel drive racers because there are more of them. I am not convinced by this argument, I say that we must encourage more people to join in the racing at a price they can afford with a technology that they can come to terms with and show them that we are just as committed to their enjoyment as we are to any other race entrant.

EFRA (European Federation of Radio Autos) is in fact considering the question of running a 2-wheel drive European Championship in conjunction with the 4-wheel drive event and at the very least, I would like to see a 2-wheel drive final at EFRA G.P.'s and Championships.

Air Filters

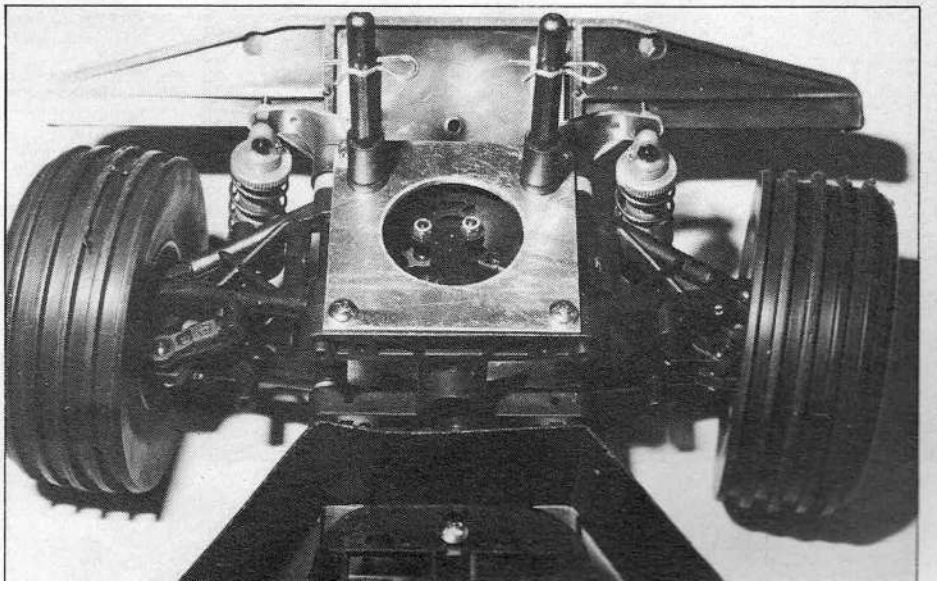
Users of the folded paper style filters with plastic enclosures should take a careful look at the sealing of the paper element to the filter base. I have come across several examples of air-filters with badly bonded filter elements, a fault which renders the filter totally useless. If you find a damaged or inadequately bonded filter take it back to its source and request a replacement Don't expect a very helpful reply if you have been using the filter though, check before you fit it, or better still before you leave the shop!

Locked up Threads

There are quite a number of thread locking compounds available these days, the better ones being almost as good as a welding set in preventing screws from coming undone. Now its a very useful product to use when you don't want a screw to come undone, but when you do, how frustrating! The solution is usually a bit of judicious heating, a match or cigarette lighter will do, one even better a very small gas blow lamp. Once softened, you will be able to remove the screw, brush off the locking compound ready for a fresh application on re-assembly.

▷

Below: the 'Samba' front suspension showing typical SG moulding expertise on all the suspension components. The dampers, front and rear are adjustable coil spring units.



Rough Riders

Right: the Tamiya dual role stunt and Off-Road vehicle distributed in the UK by Richard Kohnstam Ltd. Suffice it to say the 'Mitsubishi Pajero' kit is produced in the usual Tamiya style.

Our reviewer, John Cundell, has had great fun using the Pajero to pull wheelies and for conventional Off-Road racing.

Tamiya Pajero

THE MITSUBISHI PAJERO is the latest kit from the Japanese *Tamiya* factory and is a 1/10th scale radio controlled dual function stunt or racing vehicle. It utilises a one piece plastic box type chassis to which is fitted a swinging solid rear axle and motor assembly and independent sprung front suspension units.

As with all models of this type the position of certain heavy items in the vehicle can be positioned in a number of alternate situations to give the vehicle either a stunt (wheelie) performance or a racing performance. This alternation utilises the radio batteries in the 'Pajero,' and does not give such a marked difference in performance between the two modes as can be obtained if for instance the drive batteries can be repositioned.

Above: the uncovered chassis revealing the R/C equipment installation and location of the drive battery pack. In this case the pack is placed high up at the rear to promote wheelies. Left: the bodyshell is a masterpiece of scale representation and can be decorated extensively with the stickers provided in the kit.

Wheelies are easily obtained in the wheelie set up, especially with the full six cell pack. In the normal driving or racing mode the fact that the drive batteries were still in the rather high situation at the rear of the model made it somewhat liable to roll at speed, and throttling back was necessary on even moderate corners.

Any two channel radio equipment is easily accommodated and *Tamiya* make provision for a wide variety of makes with versatile and positive servo mounting blocks and servo savers to suit most of the well known makes of radio gear.

The body is well moulded in high impact polystyrene, coloured off white, and with a little painting and the application of the superb self-adhesive decals, a very attractive and striking model results.

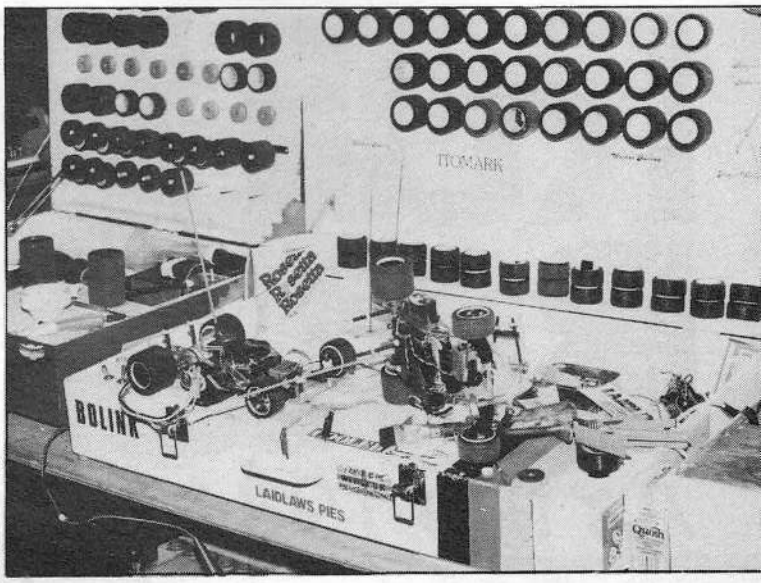
The motor is a 540 type and drives a precision moulded differential which is very quiet. The speed controller is a compact and heavy duty device incorporating resistors which should have a long life.

The quality of engineering is up to the excellent standard that has come to be expected from *Tamiya* and the kit is complete in every degree, and includes the usual excellent and easy to follow instruction booklet.

Reviewed by John Cundell

Pit-Box

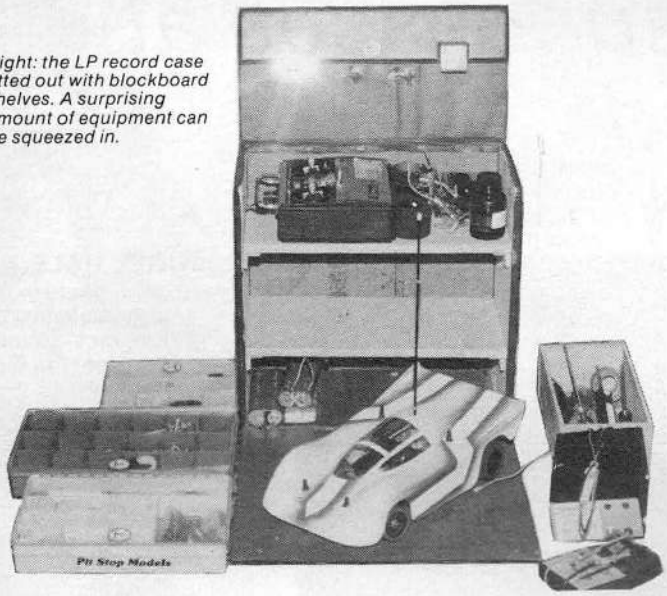
You don't need to be a Master Craftsman to build this R/C car racing carry-all



Above: the sort of 'packing case' pit box that some racers saddle themselves with to carry their gear.

GET ORGANISED, I have thought to myself on more than one occasion or else you'll never be any good at this game.

A pit box, that's what you need, no more hunting around for the elusive screwdriver, nut, bolt, washer with a minute to go before the next heat. Now is the time to bin the cardboard box and carrier bag and build the perfect method of carting around all the bits and pieces necessary for trouble-free racing.



Right: the LP record case fitted out with blockboard shelves. A surprising amount of equipment can be squeezed in.

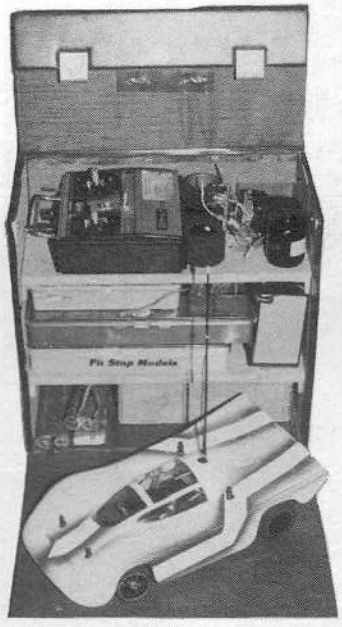
However looking at some of the elaborate examples of cabinet making that some racers use to transport their gear in, I decided that something simpler was needed. Besides which, I didn't think I had enough stuff to fill it or would even need enough considering the amount of useless hardware many drivers keep in their boxes.

Other considerations were that my equipment usually shares boot space with at least two others and that I didn't want to make several trips to and from the car transporting my equipment. Lastly I am basically a lazy person and as a result went on the lookout for an easy alternative.

A lunch hour look around the local shops gave me plenty of ideas until I eventually found the perfect solution, the LP record case shown in the photo's. The case I realised was of sufficient size and would need very little modification. In fact all I did to it was to install a couple of shelves and strengthen the basic structure with some wood tacks. The best type of case to get is the sort which has a hinged front flap as when this is lowered it can be used as a work surface.

The accompanying photographs illustrate the minimal building needed. However the real art is getting all the necessary bits inside and careful planning is needed.

The method I chose for keeping all the screws, nuts, bolts etc. were three different sizes of fishing tackle boxes, each box divided up into little compartments. In fact I spent a whole evening sorting out all the bits and pieces I had accumulated over the years into these boxes so that if I needed something it would be found quickly. **A word of warning;** never, ever put one of these boxes on the edge of a table or similar position because if it gets knocked off you are going to be spending the next several hours on your hands and knees picking up the pieces. Believe me I know!



Left: the LP Pit-Box packed with all the necessary racing hardware. The flap folds down to act as a work surface.

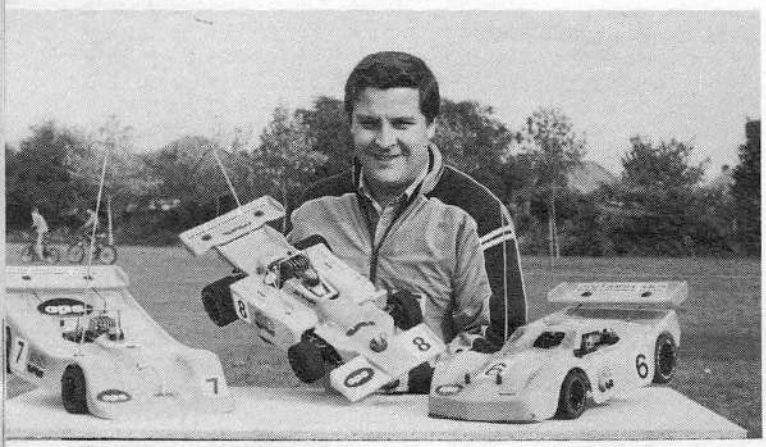
Finally once a system of storage has been sorted out and the excess rubbish discarded you will be amazed at how little equipment is actually needed to keep your car on the track and functioning properly. Also it's a lot easier on the arms particularly if you carry the 12 volt battery in a square plastic bucket as I do.

LP record case approximate price: £5.00.
Bucket: £2.50.

Right: the complete racing package. Pit box car and charging battery, the square bucket can be obtained from most large department stores.

Rule Britannia!

As the 1984 racing season draws to a close, 'Model Cars' looks at the UK successes at home and abroad

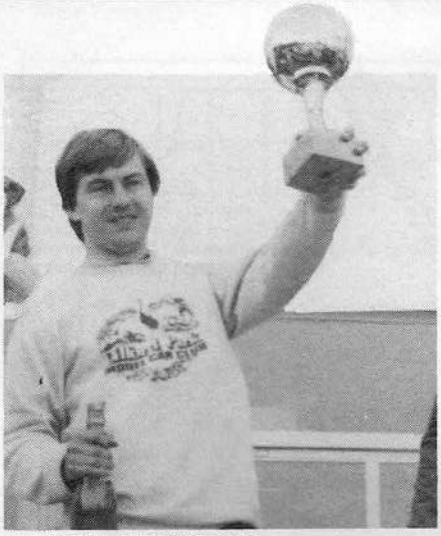


BOB ERRINGTON
BRCA Saloon, Formula and Sports/GT National Champion in 1/8th Scale IC circuit racing.

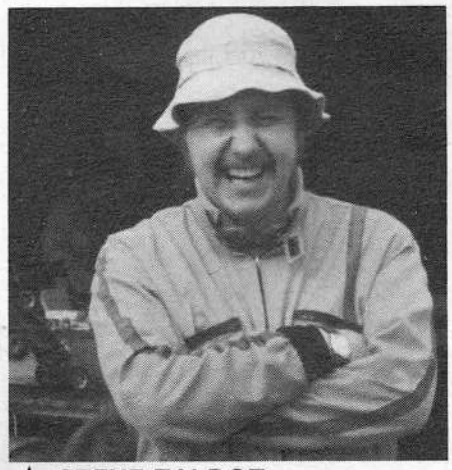
PHIL OLSON
European 1/12th scale electric circuit racing champion.

NIGEL HALE
Second place in the 1/12th Scale electric circuit racing World Championship standard class final.

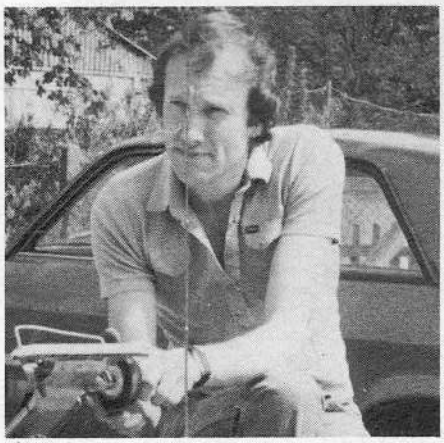
STEVE WHITE
European 1/8th Scale IC circuit racing Champion.
Winner of Belgium and Monaco 1/8th Scale Grand Prix.



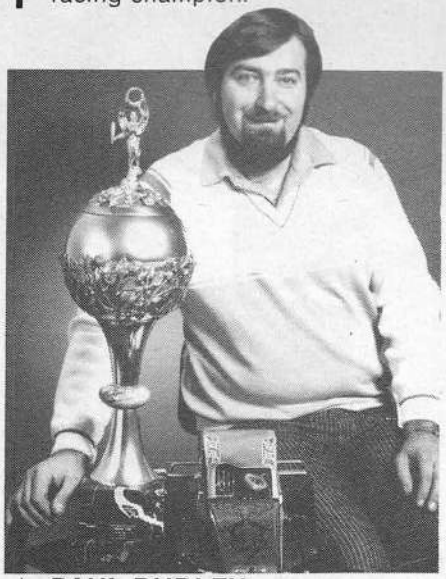
ROY CROWSON
European 1/8th Scale IC Stockcar racing champion.



STEVE TALBOT
RSCA 1/8th Scale IC Stockcar racing champion.
RSCA series champion.
RSCA champion of champions.



CLIFF EMMS
RSCA British 1/8th scale IC Stockcar racing Champion.



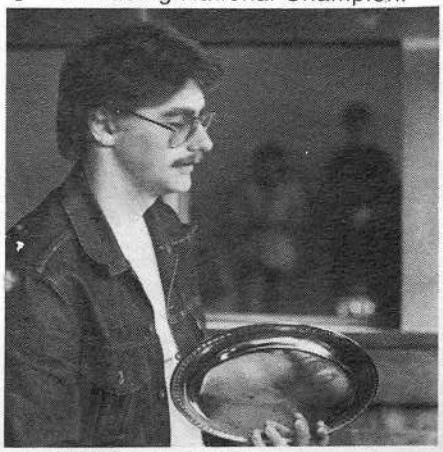
PAUL DUDLEY
1/8th scale IC Stockcar racing World Champion.

DAVE CLARKE
RSCA 1/12th scale electric stockcar racing National Champion.

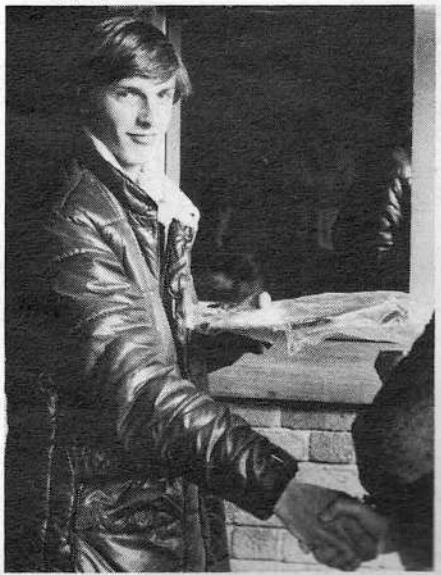
TERRY LAWLESS (left)
BRCA 1/8th Scale IC Off Road National Champion, restricted class.

GARY MARSDEN
BRCA 1/8th Scale IC Off Road National Champion — unrestricted class.

ANDY DOBSON
1/12th Scale electric circuit racing National Champion in standard and modified classes.
Second place in the European Championship.
Second place in the modified class World Championship.



SIMON McRAE
BRCA 1/10th Scale electric Off Road modified class National Champion.



LAWRENCE HARRIS
BRCA 1/10th scale electric Off-Road standard class National Champion.

Body Building

Why not have a go at producing your own bodyshells? It might make a 'refreshing' change.

Below: the 'Racing Lemonade Bottle.' Terry's DIY bodyshell can be painted with almost any type of paint and looks great on his 'Frog' chassis.

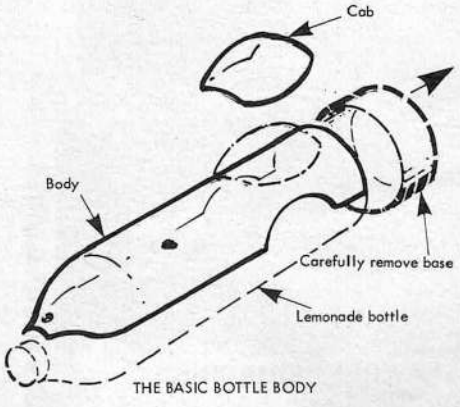
HAVE YOU looked at the price of a new bodyshell recently and wondered exactly what you were paying all that money for? If so, then this article shows you that getting a new body can be not only cheap but fun as well.

The 1/10th scale cars in the photographs have. original bodies constructed from materials costing less than £1.00 each. (The basic chassis for both is the *Tamiya* 'Frog').

The sports car body was made from plastic card, the driver is balsa wood and the cab was rescued from an old push along toy.

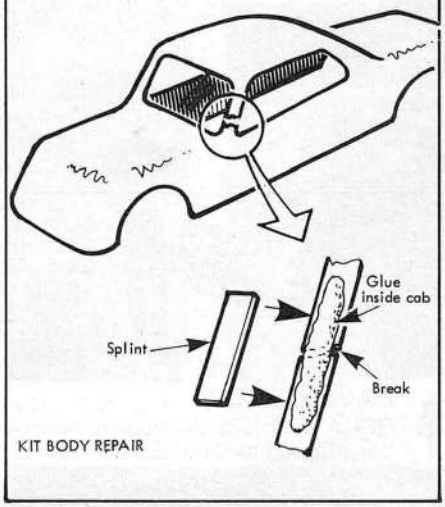
The racing car is nothing more exotic than a cut down plastic drinks container, (nicknamed in the Club 'The racing lemonade bottle'). In this case the cab is simply an off cut from a second bottle. **(See Fig. 1).** I found short bladed manicure scissors the best tool for cutting up bottles.

Fig. 1



THE BASIC BOTTLE BODY

Fig. 2

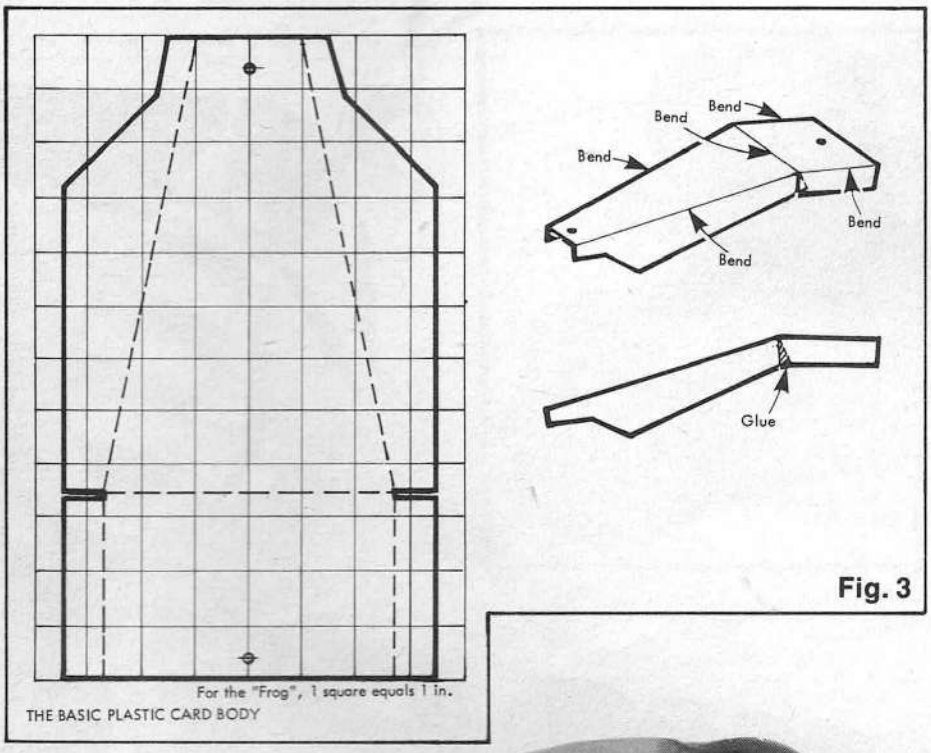


KIT BODY REPAIR

Working with these plastics requires a reliable glue capable of withstanding the pretty hefty shocks received in 1/10th scale Off Road racing.

The bodies in the photographs were built using a *Bostick* 'Hot Melt Glue Gun' (can be found in most D.I.Y. shops or Woolworths etc.) and the resulting bond is firm but flexible. Various techniques can be developed such as spot gluing, or running a continuous seam, but the main consideration is to work with the glue as hot as possible without melting the plastic. (If a joint does come apart the original glue can be remelted to restore the bond by applying the hot tip of the gun). An advantage of the approach being described, especially with lemonade bottles, is that since the raw materials are cheap it doesn't cost a lot to experiment to find the best shape and to practice gluing. (And you get lots of lemonade to drink!)

Above: the basis for Terry's DIY bodyshells; plastic drinks bottles. Mark out the shape using a 'Magic Marker' felt tip and then cut out with sharp scissors.



THE BASIC PLASTIC CARD BODY

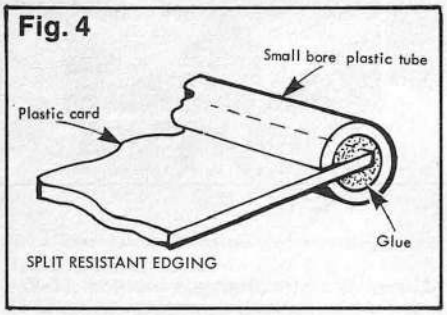
Fig. 3

To bend plastic card or sheet I made up a 'hot slot' out of an old tin can as shown in **Fig. 5.** To use the 'hot slot' place it over a very low gas ring. Then hold the marked out card with a bend line directly over the slot. As soon as the plastic softens bend it in the direction you require over the wooden former, clamped to a nearby work top.

Not as easy as it sounds, so don't try to be over ambitious with body shapes until you have had some practice.

Finally, a plea to the BRCA rule makers — Please accept a liberal interpretation of the 'Appearance' rules in order to encourage this sort of body building. I look forward to seeing lots of original bodies, copies of vintage models etc., in photographs in this magazine. Perhaps the photo competition could be extended to cover this category.

Above: the completed bodyshell cut out, painted-up and ready to go racing.

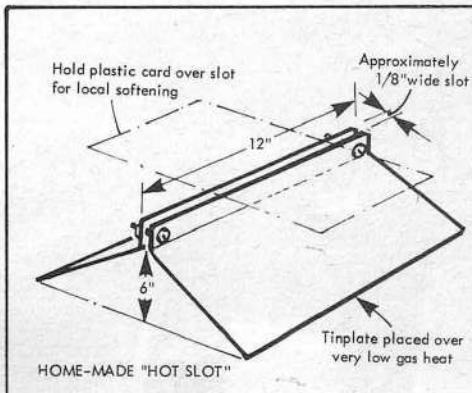


SPLIT RESISTANT EDGING

Fig. 4

angle bends and a minimum of joints. The plan **(see Fig. 3)** shows the basic shape used for the sports car.

Plastic card is definitely not as strong or long lasting as bottle plastic, but it can be moulded more easily, however, using the glue gun to fix a plastic tube edging does add greatly to body life. **(See Fig. 4).** Here a disadvantage appears as the glue is itself relatively heavy, keep an eye on just how much you have on any body shell.



HOME-MADE "HOT SLOT"

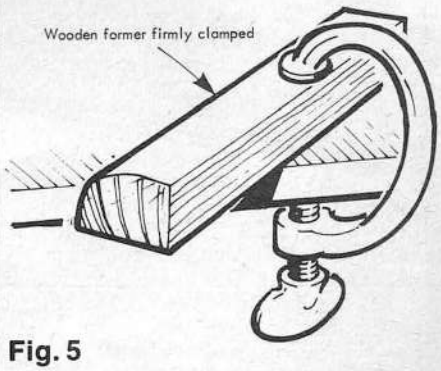
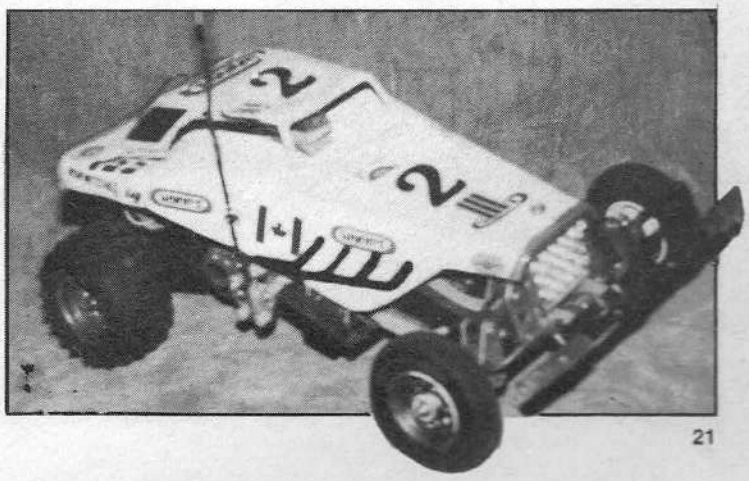


Fig. 5

I have also used the 'Hot Melt Glue Gun' to repair kit bodies. In this case put down a bead of hot glue on each side of the break and bridge it immediately with another piece of plastic **(see Fig. 2)**. The thin polythene plastic of the lids of ice cream tubs is an ideal source of raw material.

An alternative to repair is preventive maintenance. In this case add the strengthening behind the obvious weak points before they break. Look at other similar models in use in your club to see where the breaks are occuring.

When using plastic card, choose a design requiring only simple right



Right: the plastic card 'Sports' body also fitted onto the 'Frog' chassis. A bit of paint and some left over racing stickers give a nice effect.

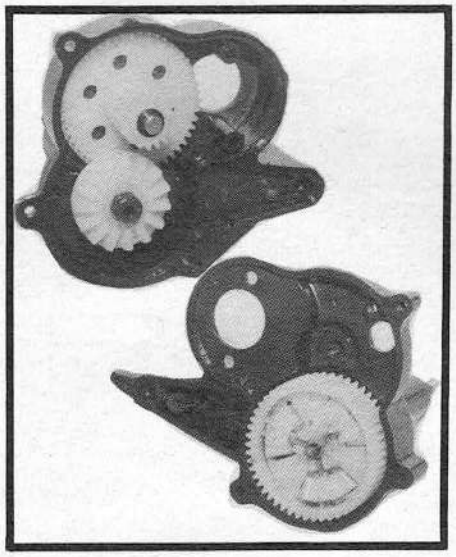
by Lewis Eckett

Hornet!

Lewis Eckett gets stung into action with Tamiya's latest 1/10th electric Off-Roader.

AFTER A QUICK glance at the box lid of the 'Hornet' kit you could be forgiven for thinking that this latest 1/10th electric buggy from *Tamiya* is a 'Grasshopper' with a different bodyshell on. However, you would be wrong.

Although the 'Hornet' incorporates most of the components of the 'Grasshopper' kit, subtle modifications have been carried out to improve on the original design. The majority of these changes are to the rear suspension system which theoretically improve the transmission of the power to the ground by reducing the tendency of the rear end to hop about.



Right: the two halves of the 'Hornet' gearbox revealing the hefty, plastic geared differential. Five Tamiya, non-flanged races are needed to fully ball-race the unit.

Above: on fast smooth surfaces the 'Hornet' can really get wound up and provide a 'stinging' performance.

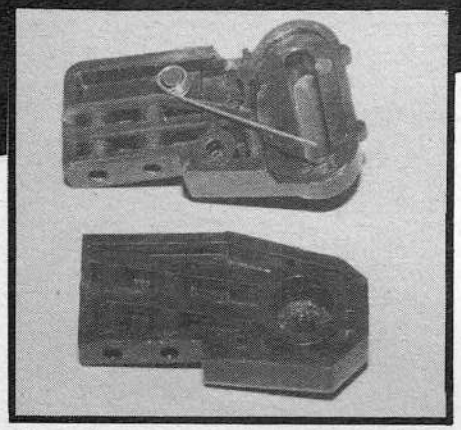
TAMIYA

Other obvious changes include a 540 size motor, speed controller to suit and clear polycarbonate bodyshell.

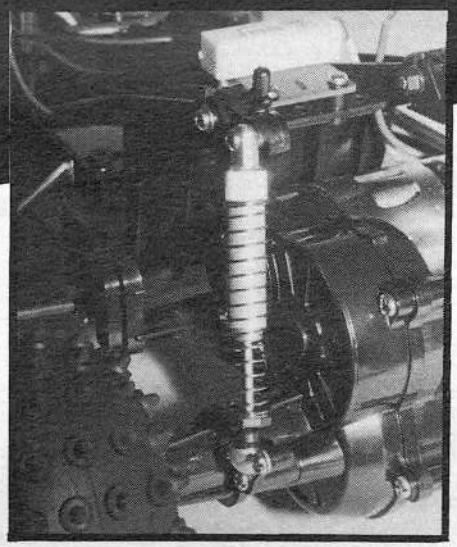
It's interesting to debate just what *Tamiya's* policy of kit production is, as the changes made to the 'Hornet' are so fundamental that it is difficult to see why they were not incorporated in the first place. Is it just a question of having two bites at the cherry? Keeping costs down? Or just plain lack of forethought? Whatever the reason, the speed of new kit production by Tamiya is quite amazing.

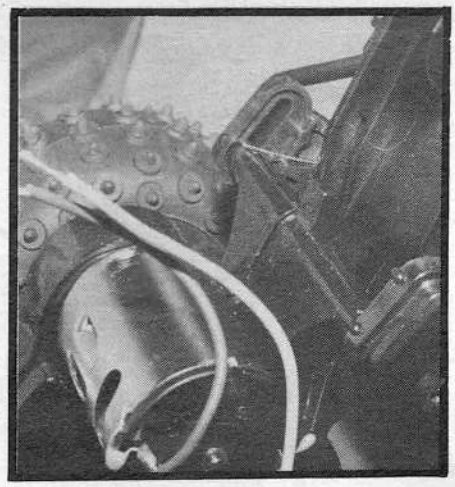
In any case these *Tamiya* products are still the ultimate in kit production combining quality, performance and ease of construction. And I mean that most sincerely folks!

Below: the 'Hornet' with its revised rear suspension is better equipped to handle rough ground and stunt manoeuvres.



Above: the two types of axle stay. Top: the slotted 'Hornet' unit hairpin spring and bottom: the 'Grasshopper' item.





Building up

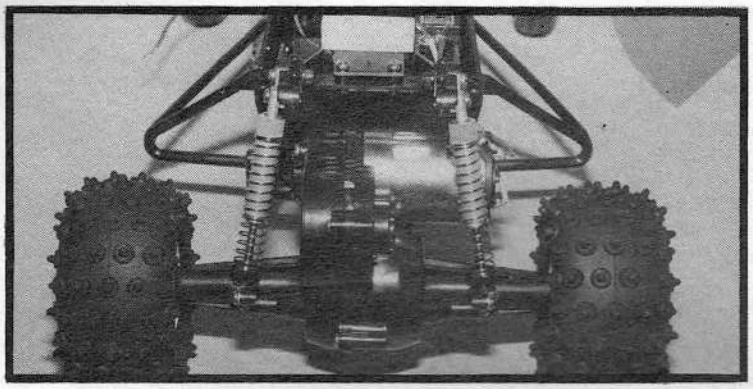
Having already built a 'Grasshopper' the construction of the 'Hornet' presented no problems and the few surprises already mentioned above.

The assembly of the gearbox is identical to that of the 'Grasshopper.' However by clever use of some additional components the way in which the gearbox is mounted onto the chassis is changed. Before, the rear suspension could only move one way, up and down. Now side to side (or roll if you prefer) is allowed also. The changes to the gearbox pivot point and the damper mountings are the reason for this.

The two rear axle stays which plug into the chassis now feature vertical slots to allow the gearbox to move up and down and also twist from side to side. Two small hairpin springs fit inside the axle stays and loop over the gearbox pivot to provide a small amount of springing. (No doubt new springs of varying rates will be available from *XYZ Models* in the near future).

The dampers included in this kit are proper oil-filled units similar to those produced by *Tamiya* for the 'Frog.' Quite explicit instructions detail exactly how to prepare these units and it is worthwhile following them and taking your time. The dampers are fitted at the bottom with a moulded plastic ball which locates into a moulded 'cup' which is attached to the side of the gearbox. This ball-joint allows the dampers to follow the gearbox as it twists instead of restraining the unit. Where the damper is fixed to the chassis is also different and again new components alter the way in which the suspension works. All these changes actually lengthen the wheelbase of the 'Hornet' by a few millimetres compared to the 'Grasshopper.'

Top centre: the damper mountings allow the gearbox unit to 'float' and thus give greater suspension flexibility. Left: close up of the gearbox pivot locating into the slotted axle stays.



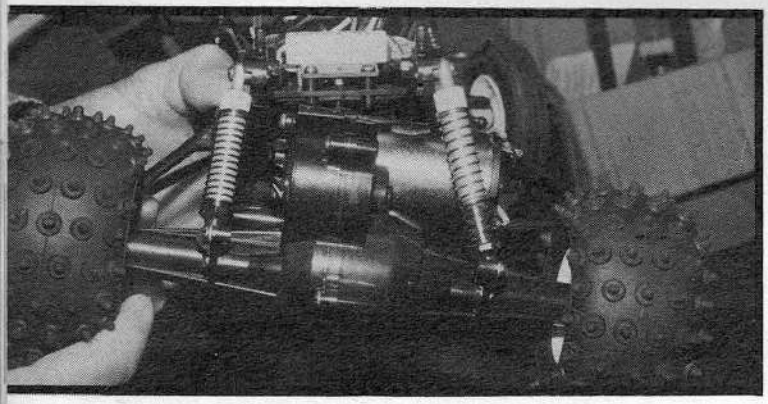
Right: the completed rear suspension and gearbox system. The shock absorbers are proper oil filled damper units which, coupled with the semi pneumatic tyres give controlled suspension.

production art and anyone fortunate to acquire one will have an ideal introduction into the joys and excitement of radio control car racing.

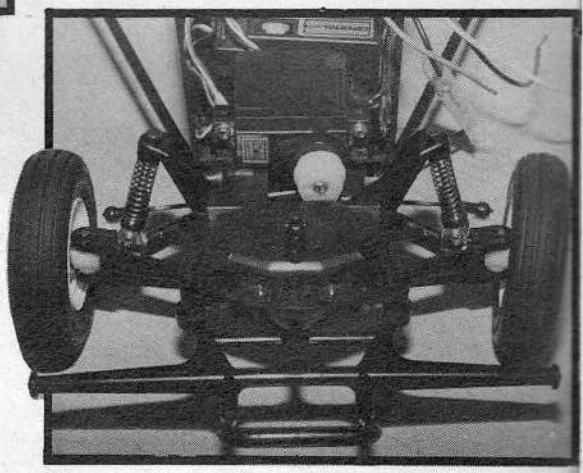
UK Importer: *Richard Kohnstam Ltd.*, 13-15a High Street, Hemel Hempstead, Herts.

Price: Approximately £50.00.

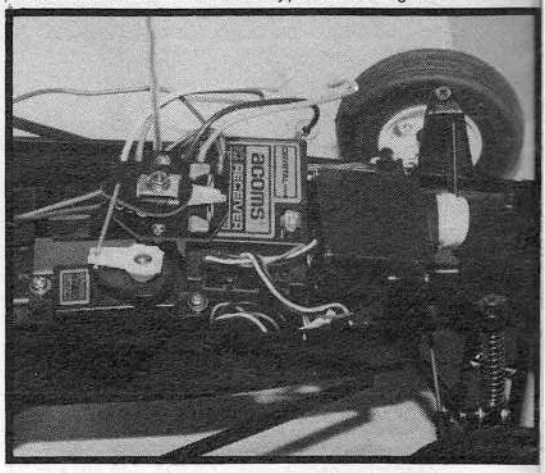
Contact your local model shop for details of availability.



Left: the gearbox and solid axle is now able to swing from side to side as well as upwards and downwards.



Above: the single wishbone front suspension fitted with the coil spring dampers. The kit includes a servo-saver suitable for most types of radio gear.



Above: the R/C equipment sits within the 'bathtub' type chassis. Large rubber balloons are supplied to protect the speed controller.

With these changes the 'Hornet' rear suspension now has greater flexibility to cope with rougher ground and Off-Road circuits.

The front suspension is by and large unchanged except for the coil-spring dampers. Rubber O-rings are now included in the kit to slide over the damper shaft to damp the suspension movement as the shaft moves up and down. Two types of moulded cup are provided to retain the O-rings, to take single or double rings in order to alter the amount of damping.

Very few other changes are apparent; 'Superchamp' type rear tyres are included and as mentioned earlier a speed controller to suit the 540 motor now standard in the 'Hornet' kit.

Lastly and the most obvious of the changes is of course the clear polycarbonate bodyshell produced in the usual flamboyant *Tamiya* style and the stickers supplied in the kit will give you hours of pleasure in applying them to the shell. It's interesting to note the 'Hornet' catch phrase, previous cars have proclaimed *"Go for it!" "No guts - no glory!"* now we have *"Anytime baby!"*

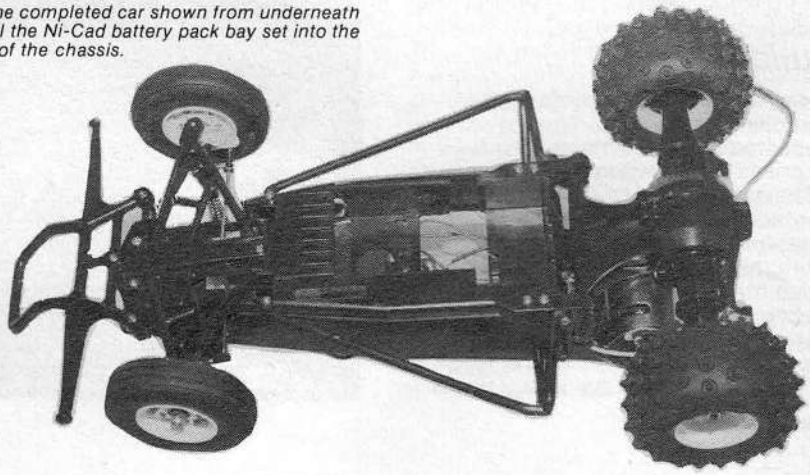
Whatever next?

On the track

The 'Hornet' is one of the lightest out-of-the-box Off-Road racers that I have come across and as such is very quick off the line with bags of Ni-Cad power available to keep it moving for an above average time. The revised rear suspension system does help tremendously to keep the power flowing through the rear wheels to the track but is by no means perfect, particularly on rough ground. With the 'Grasshopper' it did sound fast mainly because the motor was revving like mad every time the rear wheels left the ground. The 'Hornet' also sounds fast and to be honest, probably is — in a straight line, but around the corners it loses out to the conventional, full suspension racing competition. However, I must stress that it is the driver, the man twiddling the sticks that determines ultimately how well a particular car will perform.

Racing apart: the 'Hornet' is another classic example of the *Tamiya* kit

Right: the completed car shown from underneath to reveal the Ni-Cad battery pack bay set into the bottom of the chassis.



BEATTIES

SUPER SALE

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PHOTO 1: Philip Cray's brother of Hatfield in Herts took this picture of his Tamiya 'Audi Quattro' as it was being raced around a car park. The camera used was a Petri.
PHOTO 2: Sean Kelly took this low-down action shot of Jeff Coles' *Mardave* 'Marauder' fitted with *PB* 'Escort' body and *PB* wheels and tyres. Sean and Jeff come from Oxford and a *Pentax* 'ME Super' camera was used.
PHOTO 3: The ubiquitous 'Wild Willy' shot this time taken by Roderick Hatton Coventry and taken at the Coventry Model Car Club track using a *Ricoh* 'KR-10' Super camera. Roderick also processed and printed the film.

PHOTO 4: 'Herbie Rides Again." Eleven year old Justin Todd took this picture of a *Tamiya* 'Sand Scorcher' at the Lincoln Rally Cross Club circuit. Justin used a *Mamya* 'MSX 500' camera.

PHOTO 5: This 'Superchamp' is certainly getting a rough ride as it races across a building site. Mark Turner of Erith in Kent took the picture using a *Pentax* 'ME.'

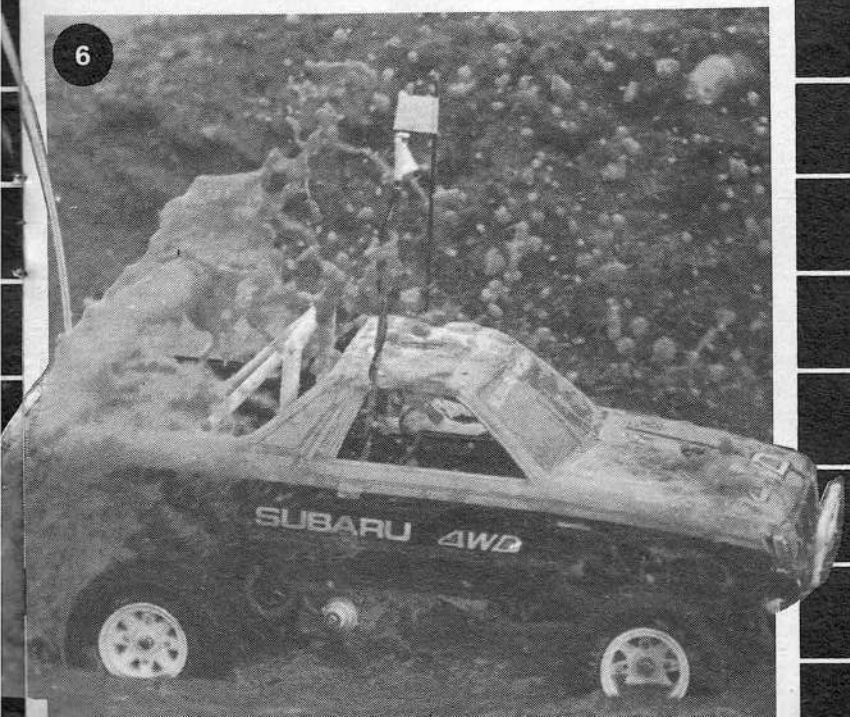
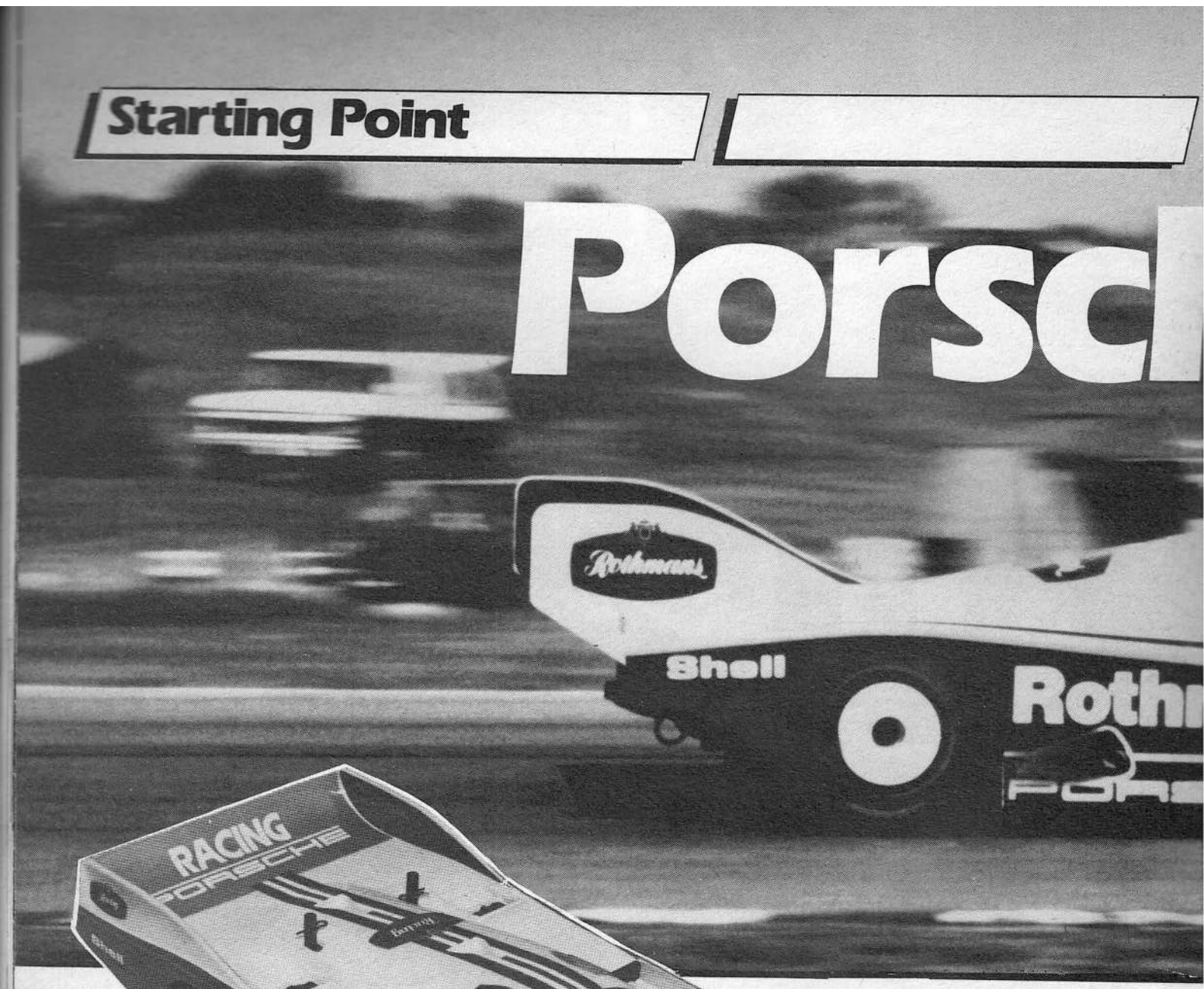


PHOTO 6: 'Wet 'n' Wild' James Christie of Inverness, Scotland braved the elements to picture this 'Subaru Brat' taking a dip. The car was driven by C. Gough and a *Chinon* 'CG5' camera was used.

PHOTO 7: WINNER Bollen Luc of the Drest Off-Road Club in Belgium sent this shot across the English Channel to win a set of *Acoms* radio. Bollen used a *Canon* 'A1' to snap this *Kyosho* '4WD' going through its paces.

Starting Point

Porsc



Left: the Tamiya 'Porsche 956' 1/12th scale car looks extremely attractive in its Rothmans livery and certainly cuts a scale appearance around the racetrack.

1/12TH SCALE electric car racing history goes back a good few years. As early as 1975/6 there were people running cars, mainly of English origin, but around 1978 things began to take off and clubs mushroomed up all over the U.K.

Products from America and Japan began to enjoy more widespread use and new British manufacturers sprung up to combat the imports and take advantage of the growing market. However, *twelfth's* real jolt came in 1982. Up until then cars were raced on varnished woodblock or lino floors using soft neoprene tyres coated with silicone rubber. The grip was entirely dependant on your skill at applying the silicone, and the quality of the floor.

The jolt? Well Britain played host to the European Championships, and the racing surface was needlepunch felt carpet. The grip was very high compared to silicone racing and within six months clubs were ordering carpet by the mile! Eighteen months later all the large clubs were on carpet and the first National "Carpet" points champions had been crowned, To-day carpet is an almost universal racing surface and indeed was used at the last world championships.

Twelfth is fast, competitive yet friendly, quiet, clean (off the track) and challenging. In the scheme of R/C car racing, *twelfth* is in the Formula 3 bracket. Cars can be as sophisticated as you wish, budgets can vary wildly for almost the same results and genuine driver skill will always out.

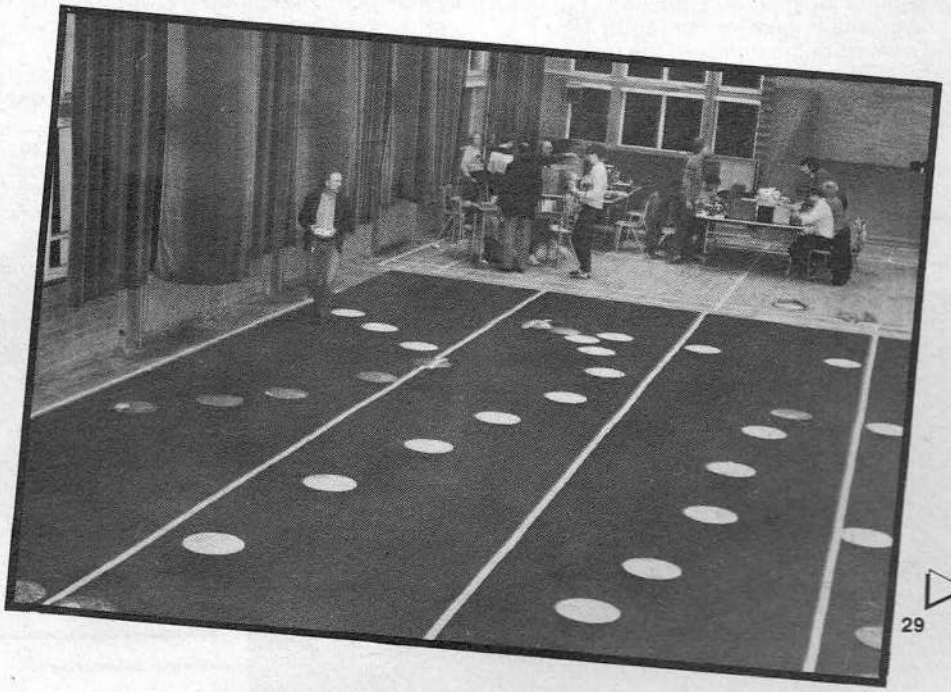
The *"raison d'etre" of twelfth* is racing against your fellow competitor. Thus it is essential that you join a club, which will bring you two advantages. Firstly, you get somewhere to race regularly so that your driving improves, and secondly there is ready access to a willing band of helpers

ne 956

Pete Winton describes how to get into 1/12th scale electric circuit racing using the Tamiya 'Porsche 956' kit car

who can point you in the right direction when you need advice. Your local model shop should know where the nearest club is, or we can help here at Model Cars, just drop us a line.

Twelfth cars are powered by small d.c. electric motors. Based around a standard motor used in battery powered toys and appliances and made in Japan, these motors come in two types, the *Igorashi* with enclosed brushgear and the *Yokomo*, with exposed brushgear. In Europe there are two versions of these motors. A standard motor is always the same specification and is recognised throughout the continent as a "stock" motor. Modified motors use the same components as the standard, but come in many different specifications.



Right: at club meetings the carpet is laid out with either plastic botdots or sand-filled fire hoses as track markers. Fun, relaxed and friendly racing is the key at most clubs.

Starting Point

As the term suggests, modified means that the motors are changed from their standard specification to give increased performance.

Energy for the motor comes from six Nickel Cadmium (Ni-Cad) batteries. These are sub-C size (just smaller than an HP11) and rated at 1.2Ah. Only cells with sintered plates can withstand the very high charge rates (3 to 5 amps for full charging in 15 mins) and discharge rates. Races are six minutes long at most clubs; and eight minutes at other clubs and for National Races.

Starting off

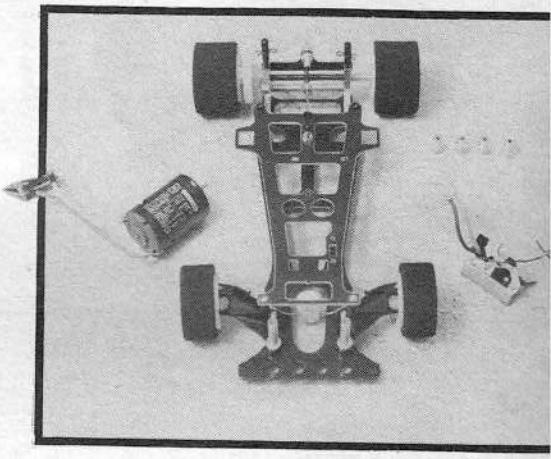
'Model Cars' has featured several 'Starting Point' articles, but because *twelfth* is not as simple to start as many other branches of R/C Car Racing, we intend to take you through the first hurdles step by step. Your guidance starts with the purchase of the car, and we will use the new *Tamiya* "Racing Master Porsche 956" as the basis for this article. The main reasons for choosing this are the completeness of the kit, the excellent instructions and easily available spare parts.

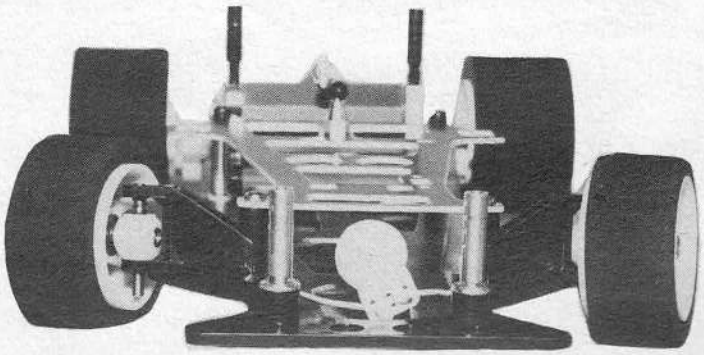
Construction

The chassis is made from glass reinforced plastic (GRP) and shaped to support a rear 'pod' into which the motor and rear axle fit. The pod is 'pivoted' from the chassis to provide a crude form of suspension, and a spring/damper unit is included to adjust the movement of the pod and thus affect handling characteristics. At the front the axle blocks are sprung on sliding king pins, to give suspension movement and, gladly, there are no extra adjustments to wory about here.

The motor provided in the kit is a *Tamiya* 'Special' with a ballrace in the 'can' end to give longer motor life. Drive from the motor to the rear axle is by simple spur gearing. Only one spur gear (the large white one!) is supplied, but a choice of aluminium pinions is provided so that the gear ratio can be altered. When building the car fit the smallest (16 tooth) pinion for your first trials. The rear axle features a 'geared' differential. This device allows one rear wheel to move relative to the other so that the car corners in a controllable manner. When assembling the *Tamiya* differential it is very important that the bearing cap *E5* is done up tightly. Use the wheel nut *D5* to help if needs be. When fully assembled ensure the bevel bushing *E6* is correctly positioned so that the differential is neither sloppy nor tight. By holding the Spur Gear in your left thumb and fore-finger, and rotating the axle in your right hand, the action of the differential should be smooth and quiet.

Mount the tyres in the kit so they are as true as possible on the wheels, one way to help this is to roll the wheel/tyre between the palms of your hands.





Above: the basic rolling chassis with electric motor speed controller and range of gear ratio pinions. Left: the front end of the car showing the steering blocks and sprung stub axles, ballraces are included in the kit for the wheels.

The *Tamiya* kit supplied for our review was up to their now customary high standards of quality and presentation. For this reason we will go through the complete sequence of building the car, setting it up and going racing for the first time.

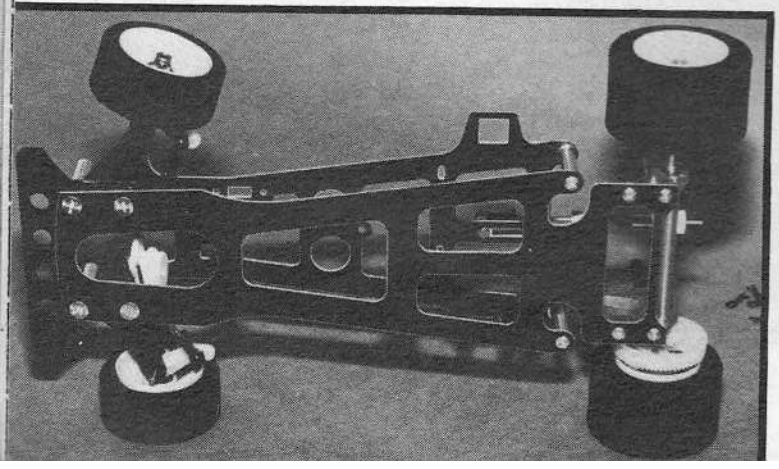
When putting a kit like this together, make sure everything is connected or assembled properly, and that the installation is neat and tidy.

You will need to buy a set of radio control equipment for the car. The choice is wide and there are very reasonably priced sets from *Futaba, Sanwa, Acoms, JR* and many others.

The *Acoms* equipment has been used by *Tamiya* in the design of the 'Porsche', so it will fit straight in without problems. We have used this approach and found no difficulty in placing the equipment where shown in the instructions. You may have some equipment already available, in which case there may need to be some alterations to fit servos and the receiver. Keep these to a minimum.

The radio control gear has two channels. One to control the speed, and one the direction (steering). Conventionally, the left-hand stick moves up for forward motion and

Below: the chassis is fretted out to reduce weight and allow the rear pod to flex to provide suspension. Right: the rear of the car showing the alloy axle/motor blocks and coil spring damper which adjusts the movement of the rear pad.



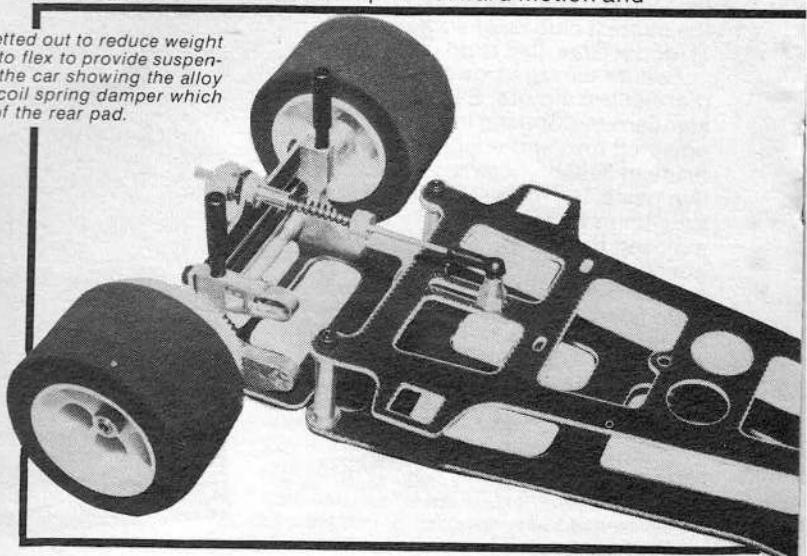


Fig. 1 Aerial fixing

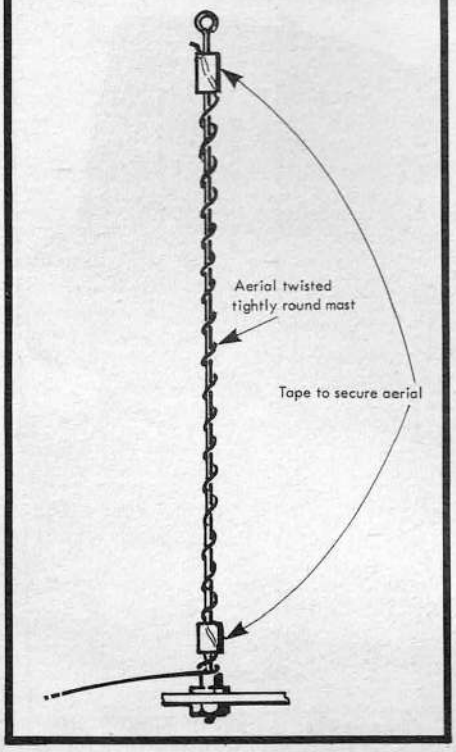
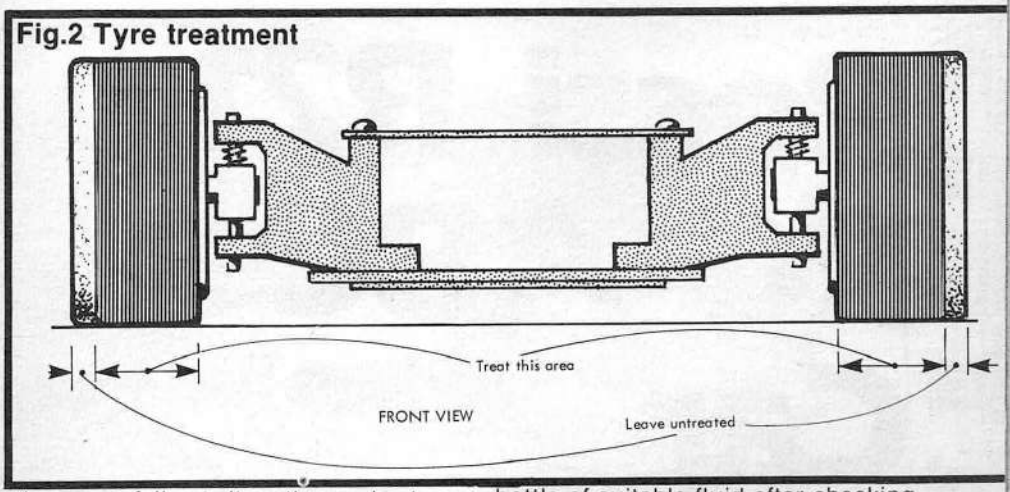


Fig.2 Tyre treatment



down for braking and reverse. The right-hand stick controls the steering, and moves left to steer left, and right to steer right; cunning eh? After installation check that the steering moves from lock to lock without any binding or fouling of the linkages. Set the servo operating the resistor in accordance with the instructions. The switch arm should reach all the points shown in the instructions. If it does not then the resistor may overheat, or you may lose the reverse function.

The power source should be a 7.2V Ni-Cad pack. This is made up from 6 1.2ah cells suitably connected. The *Tamiya* 7.2V 'Racing Pack' comes complete with the correct plug and will do admirably.

Paint the bodyshell in accordance with the instructions; applying the transfers is hard work, but very rewarding. I must caution, however, that this pristine appearance may not last long when you start racing. Since collisions with other cars are not uncommon in the learning phase, damage to the transfers and bodyshell is unavoidable.

Also, consider these following alternatives to the advice in the instructions.

- Don't solder the aerial wire to the washer (c11). This extends the aerial length and is not good practice. Instead, wrap the wire around the metal rollover mast and secure it at the top and bottom with insulating tape.
- Don't fit the driver figure for racing. It is extra weight and is very likely to come loose and move around inside the car, or fall out altogether and get damaged.
- Set the stabiliser mount in its furthest forward position. I can assure those of you who don't know what understeer is that this is preferable to oversteer. Also set the rear damper weak.
- The chassis adjustment is straight forward, but do fit washers under the screws (a2) otherwise they will tend to wear away the fibreglass mechanism deck; this leads to maladjustment of the chassis and handling problems.

Ancilliary Equipment

To charge the drive batteries requires a charger suitable for connection to a 12 volt lead acid (car type) battery. Any 12v will do, the cheapest Mini size one will be perfect for the job. The charger should have the following features.

1) Automatic cut off at preset voltage
OR
2) Automatic cut off by timer
3) Minimum 3 amp charge rate

Some come with a digital voltmeter built in, if not this is another item you need. The voltmeter is connected to the drive batteries during charging to monitor the cell voltage and prevent overcharging.

Race prep

Tyres must be treated by an additive to obtain the best grip, so obtain a bottle of suitable fluid after checking with your club as to what they allow. *Tractite* is the most popular and acceptable additive available.

Apply the treatment with a small paintbrush, the *Humbrol* range is a good place to start, one about ¼in. to ⅜in. wide is ideal. 'Paint' the tyres with the liquid until they are covered by an even layer. Cover the whole of the back tyres, but leave an ⅛in. untreated on the front tyre outer edges. Leave the tyres to 'dry' for 15 minutes. Wipe off any excess with a cloth just before you go out to race.

If you are using the car on a tarmac or concrete surface, then treatments are unnecessary. If racing on carpet at a club meeting then you will need to treat the tyres before every run, this can be done while the batteries are charging.

Next month we will deal with track testing and full racing set-ups. This will take you through the range of adjustments available for the car, and teach you how to get the best from your 1/12th scale 'Porsche'.

There are many 1/12th scale articles in back issues of Model Cars which may help you. Buy Model Cars so that you keep in touch with the latest news and developments. If you own a 1/12th car and have come up with good ideas then write to us and let everyone know about it through publication in the magazine.

Good luck, happy racing; see you next month.

Kit Manufacturers

Alpha Track Parts
Alan Blakeman
128 Knighton Lane,
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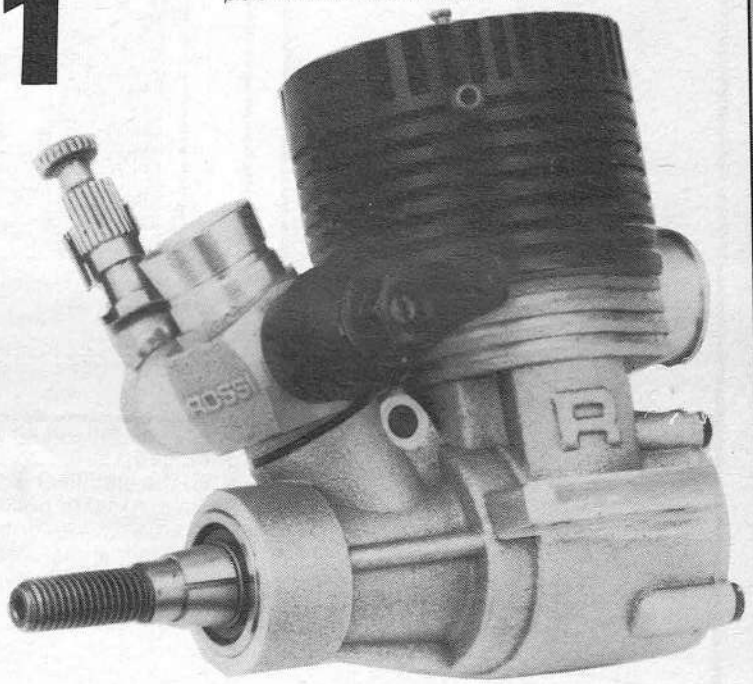
Engine Test No. 16

by Mike Billinton

Rossi R21 RC-ABC Car

To start off the new series of Engine Tests Mike Billinton assesses the latest Italian hot shot



Below: the attractively finished Rossi R21 complete with linear slide barrel carburettor.

INTRIGUINGLY LATE in entering the 10 year old Open Car engine fray, *Ugo Rossi's* delay until now is likely related to the uniquely long worldwide dominance of the famous FAI class 2½cc tuned pipe motor which continues to gain honours in the model aircraft area and airscrew driven hydroplane marine class.

Above: the R21 fitted with Rossi exhaust manifold and tuned pipe.

With such an awesome reputation to uphold, any entry into the highly competitive 1/8th Scale Car sector was, with hindsight, going to be a long considered one. The caution appears justified, for their new 1984 range of .21 size engines (available in Aircraft, Marine and Car formats) is already and Car formats) is already establishing a reputation as a major competitor to *OPS* and *Picco* engines.

Additional spice has lately been added to the arrival of these exciting motors — because recent divergence of design philosophy within the factory has led to production of structurally a quite different and larger 5-port design with one-piece head/combustion chamber, and these also bear the *Rossi* name . . . To keep matters clear then — the motor tested here is that produced at the normal *Rossi* home ground of Cellatica Italy — is of 4-port design with oil-cooled cylinder and separate combustion chamber insert. It is hoped to obtain one of the 'alternative' *Rossi* 21's for test later in this series.

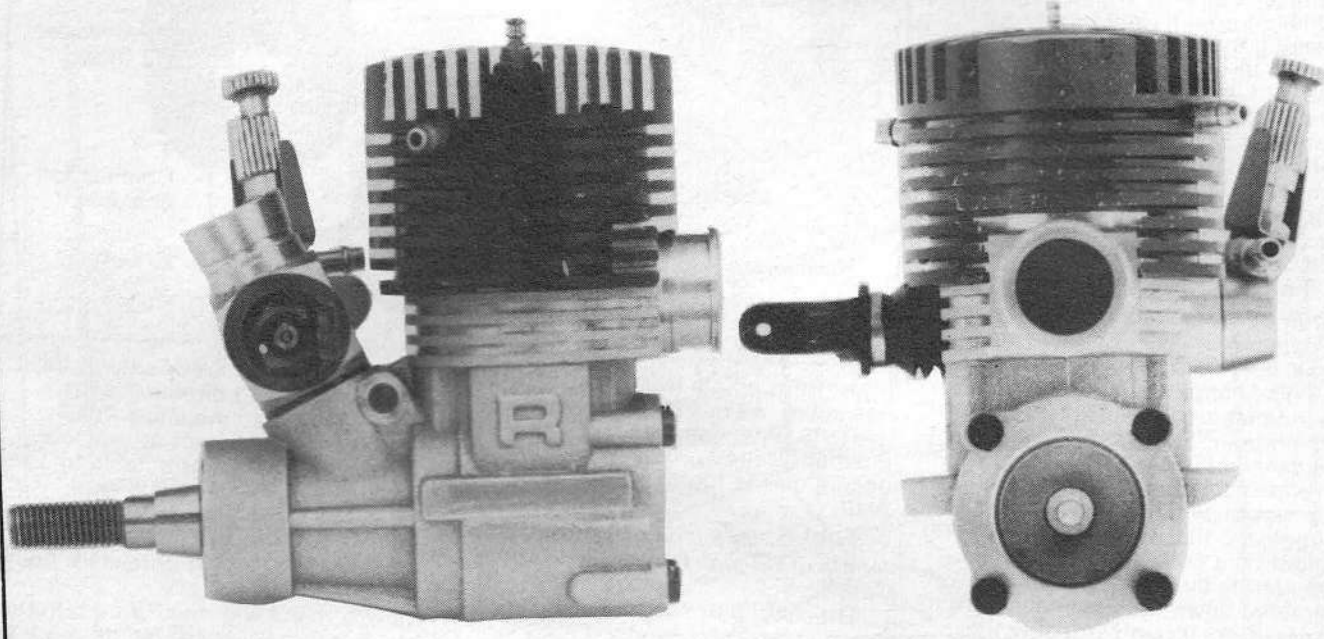
Mechanical details

Externally the *Rossi* 21 presents a low, squat and solid appearance of some individuality — caused in the main by the low-slung, black finished, one-piece cylinder and head finning.

Crankcase: is cast in Aluminium alloy at the *Rossi* foundry on-site. It incorporates normal 2 large parallel sided transfer passages plus 1 smaller boost. The 13mm induction opening in case is offset 1mm in direction of crank rotation. Both main ball bearings are fitted with high speed fibre/plastic cages. Opposite to the induction opening the crankshaft bore is asymetrically relieved to prevent undue wear to crankshaft and thus ensure at all times positive crank timing points. The O-ringed Exhaust stub is cast-in with crankcase to provide generous material section at this thermally heavily stressed area.

Crankshaft. Of hardened steel — also processed within factory. Has full circle web cut away on main shaft side for counter-balance. Crankpin is drilled to transmit lubrication from induction bore to rod bearing on a centrifuging principle. Main shaft is also drilled to improve lubrication and seal of front housing bore between induction opening and rear main bearing.

Cylinder fins/Head. One-piece aluminium alloy, machined from solid and anodised black. In conjunction



Actual size

with a silicon O-ring the fins envelop upper crankcase and liner flange area to provide a wide shallow oil reservoir — the intention of which is to improve temperature stability under both idling and full power situations.

Under normal ambient conditions in the U.K. the captive volume of oil is sufficient for this purpose. Above 28° C the recommendation has been to use external oil radiator and special crankcase oil pump to keep a larger volume of oil continually in circulation from radiator to head and back. However more recent engine developments have made even this complication unnecessary.

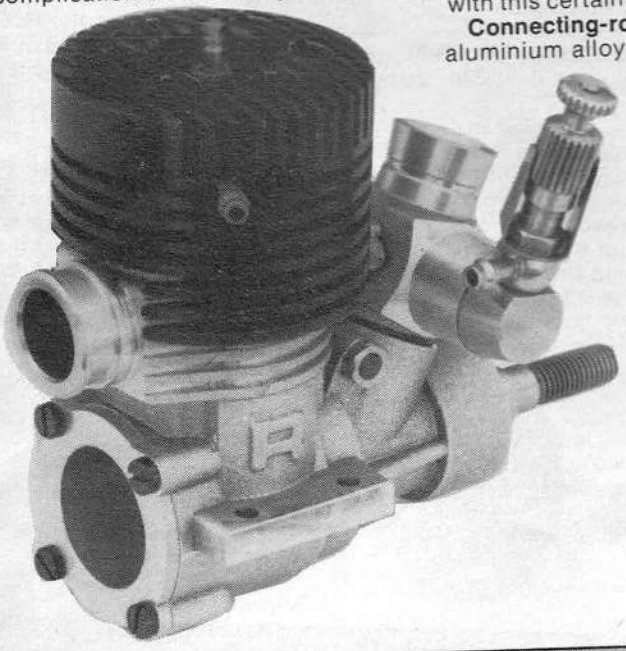
Combustion chamber. Of separate clamped-in button insert style with flat squish and small central shallow bowler hat chamber. One copper gasket is fitted of .008in.

Piston/Liner. Normal high silicon alloy ringless piston running in brass chromed liner. Below ports, the bore is relieved approx 2½ thou. The car engine is supplied with a moderately low exhaust timing of 157° to give wider band and less peaky performance on the tuned pipe. Factory information is that the liner can be raised by .2mm or exhaust alone raised by .3/.5mm to increase power, though they stress that more critical operation will go hand-in-hand with this certain power increase.

Connecting-rod. High-strength aluminium alloy machined from solid. Rod shank is tapered in both side and front views to increase rigidity at both little and big ends. Phosphor bronze bushing at big end only, with 3 lube holes.

Rear cover. Deep plug-in style with O-ring seal. Incorporates a hardened steel shim on inner face to inhibit wear from the connecting rod's sideways thrusts — the debris from which can otherwise be the cause of big-end failure.

Carburettor. Steel slide barrel, rubber bellows sealed into aluminium body and giving 8.3mm dia. choke size. Brass fuel supply needle and jet with O-ring seal and spring clip security.



Left: in keeping with current style the R21 carburettor features vertical needle assembly to allow installation into the close confines of the modern R/C car motor pod.

Performance

Test 1. *- Open Exhaust. 5% nitro. 5% Castor/15% ML70 synthetic. 8.3mm carb. Rossi R6 plug.*

Following a brief running-in period and some RPM checks, the Open Exhaust Torque figures were collected. Not surprisingly for a small capacity *Rossi* the peak BHP occurred high up the RPM scale at 31,600, and as a consequence, a highest yet 1.24 BHP was reached. This feature set the pattern for much of the later findings — i.e. reconfirmation of the "more RPM should give more HP" principle.

Test 2. *Rossi non-quiet tuned pipe set at longest of the 2 recommended lengths (170mm plug to maximum dia.) 50% Nitro/10% castor 8% ML70. R8 plugs. Compression unaltered at 12/1 geometric. SAE30 mineral oil in reservoir.*

▷

Engine Test No. 16

Pipe orientation was as usual straight out backwards in order to maintain similarity with all other car engines tested in this series — meaning that the short, tortuously curved, in-car *Rossi* Exhaust manifold was not used here. Highest torque at most effective resonance point was 57ozs at 26,060 RPM with BHP equalling 1.53 corrected for atmospheric conditions. There was evidence of unstable running at maximum BHP with motor coming on and off resonance unaided.

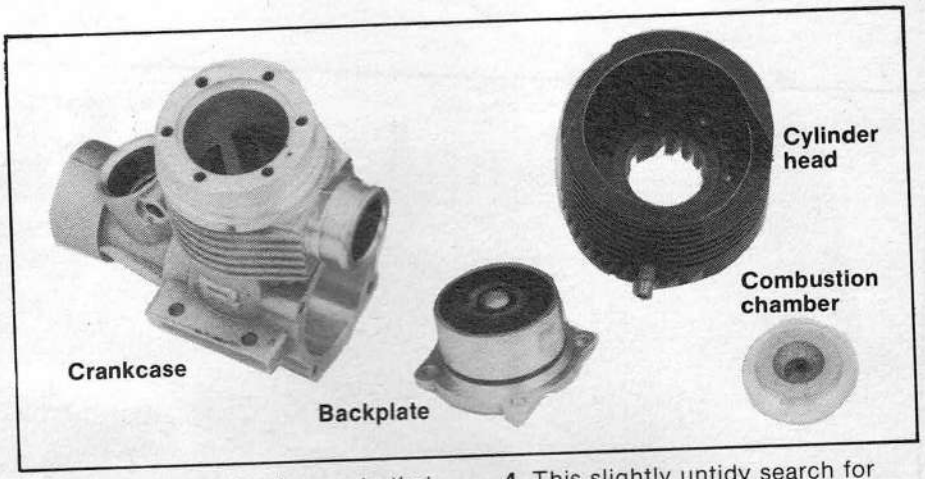
Test 3. *Rossi Pipe now fixed at equivalent of shortest recommended length (i.e. approx. 157mm plug to max. dia.) Other equipment as Test 2.*

This change moved peak resonance up to 29,000 RPM at which point there was again some evidence of unsteady running. BHP dropped slightly to 1.49. Subsequent discussion with the manufacturer suggested that excessive air cooling might be a contributory factor. (Moderate air-cooling is usually directed down onto cylinder head in these tests, though arguably the *Rossi* oil reservoir system makes extra air cooling unnecessary.)

Test 4. *- OPS Quiet pipe at 275mm plug to end of rubber can. PB 9.5mm slide carburettor with remote needle valve assembly. Other equipment as Test 2.*

Both this test and Test 5 took place at a later date — and strictly much against good research practice in that 3 changes in running equipment were made as compared with previous 2 tests. (Fortunately weather conditions were almost identical). The larger carburettor size was used here to give direct comparison with other engines tested, whilst the *OPS* pipe itself had already gained the status of a piece of 'standard equipment' during earlier tests: Lastly, supplementary air cooling was abandoned.

The longish *OPS* pipe length kept the RPM best resonance point down to the 26,000 area, but nevertheless the torque increase was marked — both at the maximum and at the lower RPM points leading up to that maximum. As has been noted before, the *OPS* pipe manages more than most to fill the Torque "hole" which occurs on the run up to maximum BHP.



Test 5. *OPS pipe now at shorter length of 250mm. Other equipment as Test 4.*

The main purpose here was to force motor/pipe combination to a peak near to the area of maximum BHP when in open exhaust format — because of the frequent finding of superior pipe results when so operated. Well — it worked again here, and the realisation of 1.80 BHP at 30,030. RPM was finally a rewarding one. Admittedly though, this is achieved here at the cost of substantial reduction in Torque in the 20-26,000 RPM area.

Consequential points:

1. During these last 2 (*OPS* pipe) tests there was no trace whatever of the earlier unsteady running which characterised the *Rossi* pipe runs — however . . .

2. Not shown on graph to avoid visual confusion were two sets of Torque figures arrived at on the same day, and using the *Rossi* pipe but this time laid out in normal car position using curved *Rossi* manifold — and again no trace of unstable running!

3. The B.H.P. curves appear to suggest also that switching from small *Rossi* carburettor to larger *PB* unit contributes largely to B.H.P. increase. Such a reading is understandable, but earlier back-to-back results showed the major jump was due to the pipe effect.

4. This slightly untidy search for answers changed direction when, reverting back to the small *Rossi* carburettor (in attempt to evaluate possible H.P. loss attributable to choke size) unstable running at maximum resonance on *OPS* pipe was immediately manifest!

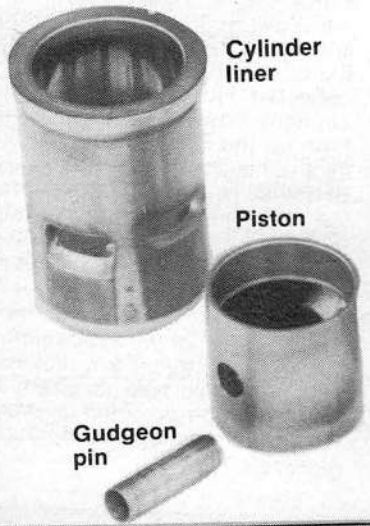
5. Another, though unrelated, point was that the use of 20% Nitromethane with the *PB* carburettor and *Rossi* pipe (short) led to reduction of BHP to 1.26 as against 1.53 when using 50% Nitro. In this format also, a highest RPM point of the rest was realised — 36,050 — and where a healthy 1.05 BHP was still being churned out.

6. A last finding was some indication that use of the actual car layout for pipe and manifold (as opposed to straight out backwards) can lead to a lowering of RPM point at which maximum resonance occurs — of around 1,500 RPM.

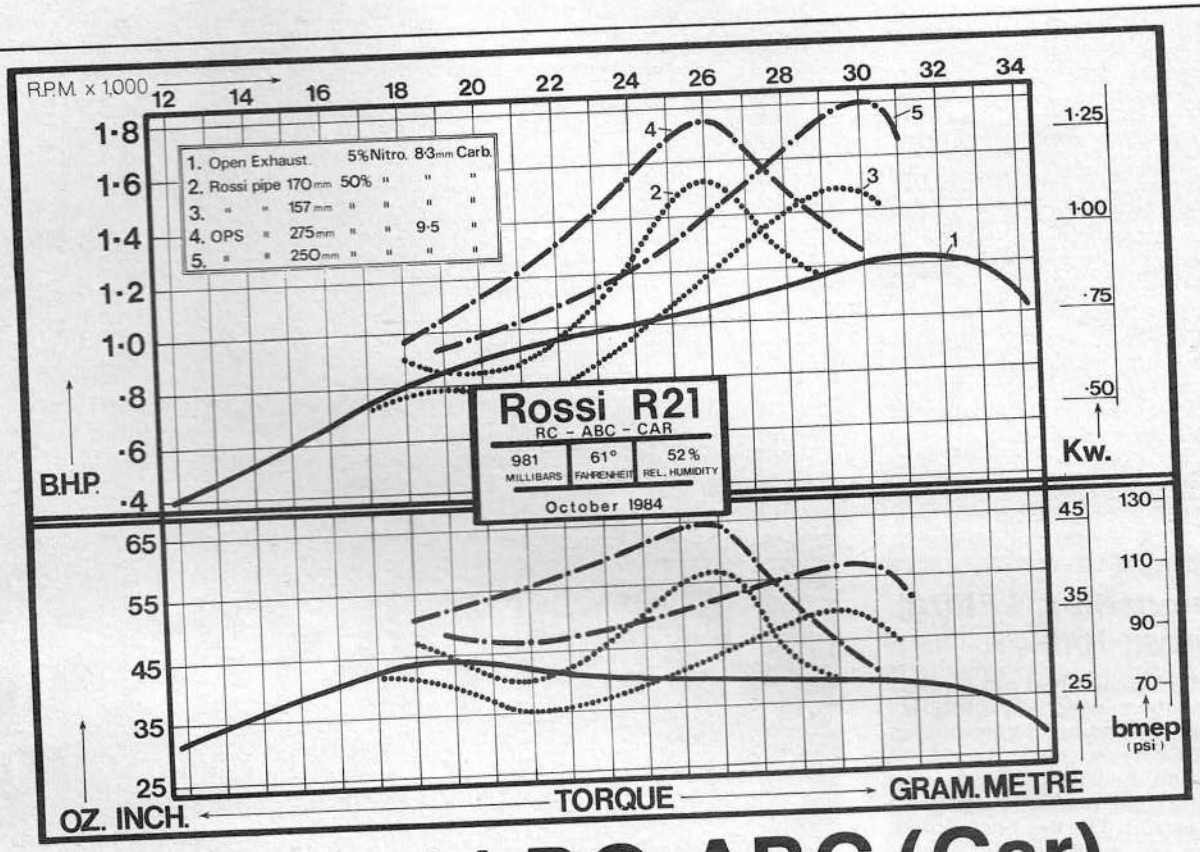
There are enough points to be further researched in the above to keep this column active for a while yet! 2½ days testing proved inadequate to cover all — so it is hoped to provide some back-up information to clarify what is clearly an unresolved situation. Meanwhile of some help in sorting out the 'chaff' might be that the *OPS* pipe was the quieter of the 2, whereas the *Rossi* pipe could be skirting dangerously near to some countries sound level requirements anyway.

Summary

For all the complications surrounding this particular test, the *Rossi* easily managed the highest yet BHP figure in this series, and their claim of 1.95 with increase of Exhaust timing seems to be justified,



Top of the page and left: mechanical components of the Rossi R21 on display.



Rossi R21 RG-ABC (Car)

Dimensions & Weights:

Capacity — .2106 cu.in. (3.452cc)
Bore — .652in. (16.56mm)
Stroke — .631in. (16mm nominal)
Stroke/Bore ratio — .968/1
Timing Periods — Exhaust — 157°
Transfer — 123°
Boost — 122°
Front Induction — Opens 41° ABDC
Closes 65° ATDC
Total — 204°
Exhaust port height — .205in.
Combustion chamber volume — .312cc
Compression ratios — Geometric — 12.06/1
— Effective — 8.56/1
Squish band angle — 0°
Squish band width — .12in.
Squish band clearance — .013in.
Crankshaft dia. — .4722in. (12mm nominal)
Crank bore — .354in. (9.0mm)
Crankpin dia. — .1968in. (5.0mm)
Crank nose thread — .248in. × 28 tpi. (¼ UNF)
Gudgeon pin dia. — .157in. (4.0mm)
Con rod centres — 28.5mm
Weight overall — 9.5ozs (with Rossi carburettor) (.27 Kilograms)
Width — 1.7ins.
Length — 2.42ins.
Height — 3.02ins.
Frontal area — 4.29 sq.ins.

Performance:

Max. BHP — 1.8 at 30,030 RPM. (OPS pipe/50% Nitro./Large carb.) 1.2 at 30,830 RPM. (Open ex./5% Nitro./Small carb.)
Max. Torque — 65oz ins. at 25,800 RPM (OPS pipe/50% Nitro./Large carb.) 44oz ins. at 18,460 RPM (Open Ex./5% Nitro/Small carb.)
R.P.M. Standard propellers:
8 × 6 Zinger — 14,560 (Open Ex./5% Nitro/small carb.)
7 × 6 Taipan — 17,820 (Open Ex./5% Nitro/small carb.)

Performance Equivalents:

BHP/cu.in. — 8.54
BHP/cc. — .52
Oz.in./cu.in. — 308.6
Oz.in./cc. — 18.8
Gm. metre/cc — 13.6
BHP/lb. — 3.05
BHP/Kilo — 6.66
BHP/sq.in. frontal area — .42

Manufacturer: *Rossi*, Cellatica, Italy.
U.K. Distributor: *Turbofan*, 5, St. John's Road, Clevedon, Avon.

though some longer acquaintance between motor and this writer appears necessary to reach that level using *Rossi* pipe and carb.

No mechanical problems intruded during the 85 separate runs (many at maximum power) necessary to acquire the information. Plug life was however brief — and probably reflects the fact that compression ratio was not reduced slightly in keeping with the higher than standard 50% nitro fuels.

Other problems were limited to the following 'assembly' points —

At termination of test the cylinder liner proved quite difficult to withdraw compared with the initial close sliding fit and so could present 'on-track' delay where quick cylinder/piston replacement was necessary.

The exhaust header silicon O-ring had limited life when coping with high heat releases from 50% nitro fuels; whilst the cylinder oil sealing O-ring was subject to different stress — reassembly easily cut the thin section soft ring used here. The main cause was sharp edge on lower cylinder fins — and this is rectified by 'radiusing' of that corner by fine file.

These small points do not detract from the high quality of this new Rossi so it seems inevitable that 1985 track results will reflect this late but welcome arrival to the '21' Open car scene.

Taking Stock

by Mike Chilvers

I EXPECT everyone who is engaged in a hobby asks themselves at times why they are pursuing their chosen sport or interest. People certainly ask me why I spend my time racing, and what it is that I get out of it.

My answer is always the same, I race because I enjoy it and because I enjoy the company of those engaged in the racing. I have found that those involved in the racing of 1/8th stockcars (I cannot speak for the 1/12th side as I do not race in that scale) seem to put the enjoyment side as one of their main priorities. Not that they don't go out to win, but the taking part is their main aim, the winning being a welcome bonus.

People often speak to me about the friendly atmosphere to be found at stock car meetings as if they are surprised that it exists. I'm not sure that I know the reasons behind these facts, but it has been suggested to me that the lack of finance within the sport may be one of the reasons for its friendliness — there are no financial benefits to be gained from winning.

Another suggestion is that stockcar racing is more of a family sport, with meetings not starting till 12:30 or even later it is possible to bring the family along, rather than Dad going off on his own at some unearthly hour of the morning.

Another contributory point is that stockcar racing is a club activity, which means that travelling is kept to a minimum thus fostering the club atmosphere. I should add that this friendliness is also to be found when travelling from club to club, but it has clearly been nurtured at club level in the first instance.

You may be wondering, why the above commercial for stockcar racing? The reason is simple. When you read this we shall be in the Winter season, at which time we all look longingly for the arrival of spring and summer and are planning what we are going to do when they come. Not only that but some of you may still be contemplating that last minute letter to good old Santa Claus. How about considering joining those of us who spend our time 'ovalling around'? Get that letter written asking for a stockcar kit and see what happens!

1/8th Stocks

Mike Chilvers reports on two Stockcar racing National Championship deciders

1/8th RSCA Championships, Lilford, September 16th

A total of 54 drivers had pre-booked for this meeting which is probably regarded as the major championship event of the domestic scene. As a result of the British successes in Europe earlier in the year the entry could be described as not just the best British drivers, but the best of the Worlds drivers. The RSCA had decided that for this years meeting they would drop the previously employed 'quota' system which regulated how many drivers a Club could send and make the meeting a full 'open' event. There was a risk that this could have resulted in a number of lesser experienced drivers entering, which might have reduced the Championship status, but it was pleasing to note that the drivers who entered had clearly thought about this, with the result that the entry was one of quality, which was to be clearly seen once the racing got underway.

Above: the Lilford RSCA Championship finalists. Left to right: Cliff Emms, Bob Clayfield, Steve Talbot (the Champ), Graham Lawrence, Pete Hart and Pete Taylor.

Saturday had been set aside for practice, but as time had also been scheduled for practice on the Sunday morning few drivers availed themselves of this option, though a number did arrive at the track during the day to sample the delights of the Lilford setting. Paul Grace, a new Lilford recruit from Chessington, arrived at 9.30 a.m., and had gone by 10.15 to complete the weekends shopping, whilst Peter Baldwin, a later arrival, practised, only to blow up an engine. Fortunately Lindsay Wilkinson's advice directed him to stay at a local guest house where Lindsay thought they would not mind an engine rebuild taking place. Peter was back on the Sunday with a working car, but one that was not in the best of health.

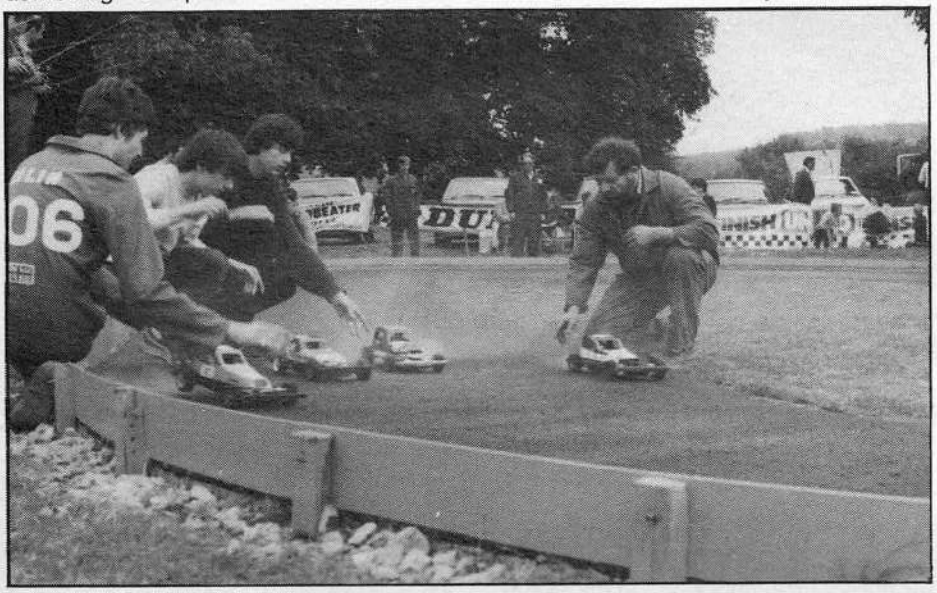
On the Sunday, practice was scheduled to begin at 8.00 a.m. and last till 9.30. In the event the first cars to arrive in the pits did so shortly after 6.00 a.m. (I know because I was still trying to sleep in my caravan which was parked next to the pits!), but to be fair no car was started up till about five to eight and at 8 o'clock the first cars were out.

At this time of the morning there was a was a heavy dampness in the air, the track was greasy and much tyre sorting was going on. Practice continued as the cars were called for scrutineering in the order of the first round of heats. There were only one or two minor problems with scrutineering, but these were quickly sorted out and all 54 cars were passed as RSCA O.K. One problem that nearly had the scrutineers foxed was when a certain car was weighed and it was found to be overweight the cause being a couple of cooked chicken legs pushed under the body! Fortunately Steve Talbot was able to race without penalty!

Promptly at 10 a.m. the first round of heats got underway following the customary drivers briefing, which informed all drivers that they would

have four heats, the best three counting for qualification and, as there were over fifty drivers the fastest four would qualify straight into the Final, the next four to the Semi Final and the next six to the Quarter Final. All drivers had been issued with a race sheet when they arrived, informing them which races they were in during the day and that there would be no dinner break.

The rapid pace of the racing was clear from a glance at the scores from Round 1, with a total of 18 drivers achieving 40 laps or over on a track



Above: action from the Lilford qualifying heats as the 'Blue Grade' drivers get away.
Below right: the idyllic setting of Lilford Park belies the fast and furious racing that takes place most weekends.

where the 47 lap record is held jointly by Roy Crowson and Steve Talbot. It was Steve who set the pace in this first Round with 45 laps, one lap ahead of Graham Lawrence and Pete Hart on 44's, with Pete Taylor on 43, Bob Clayfield, Ivan Congreve (defending his title) and Stewart Busby on 42's, Cliff Emms, Roy Crowson, Robert Thorpe, John Buckley, Brian Sylvester, Martin Robbins, Norman Wheeler and Paul Wheeler all on 41's and Steve Wearing, John Elliott and Neil Griffin on 40's.

The pace of the opening round was to be continued in the second, this time with twenty drivers getting into the 40+ bracket, as the early morning damp began to disappear. Once again it was Steve Talbot who set the pace, although with only 44 laps.

At the half way stage in qualifying it was becoming clear that lap scores of above 40 were going to be required in three of the four heats if there was to be any chance of qualifying, unless the weather suddenly changed and it rained, which did not seem likely. The competition on the track was fierce but friendly and the atmosphere in the pits was terrific, despite some people having problems. Cliff Emms had had a good first round, but was encountering radio problems in the second which seemed to stem from somewhere within his own gear — the problem was where? Pete Taylor had a good first heat with 43 laps, but had only scored 6 in his second, whilst Nigel Forster was feeling happier with his 41 after a 13 in the first. Allan Griffin had also encountered radio trouble, which was to eventually force him into retirement, checks having been made which indicated that it was from 'within', a bare wire was eventually found to be

the culprit. World and European Champions Paul Dudley and Roy Crowson respectively had both been below 40 in one of their heats and knew they had to pull out all the stops in their remaining heats.

So it was into the second half of the programme and once again it was 'you know who' leading the field, yes Steve Talbot again, with 46 laps. this time he was three laps ahead of the next six drivers who all recorded 43 laps.

Those people who were good at maths were beginning to realise that it was not just a case of getting 40's now that mattered, but that the laps being totalled for the top drivers were very close and it was going to be a very fine dividing line between those that made it and those that just missed out. Cliff Emms had another disaster and had by now changed about every part of his radio gear possible. Paul Dudley had got two heats of 40+ but knew he needed another good one in the final round, in fact the only driver who was confident of having got through to the Final was Steve whose three heats so far had given him 135 total, but Steve being Steve was still prepared to give it a go in the last round.

You could say that he really rubbed it in this round and really gave himself a psychological advantage over his rivals.

Marshalling on the timing hut bend I was suddenly aware of a wheel rolling down the track towards me, picking it up I looked around for the faulty car, but it was not in sight. First thoughts were that the car had been picked up by another marshal and was back in the pits, but I then noticed all six drivers were still in position and still driving their cars, a quick glance at each revealed all — it was Steve's and there was his car still hurtling around the track minus its front inside wheel perfectly under control, and yes, you've guessed it, he once again headed the

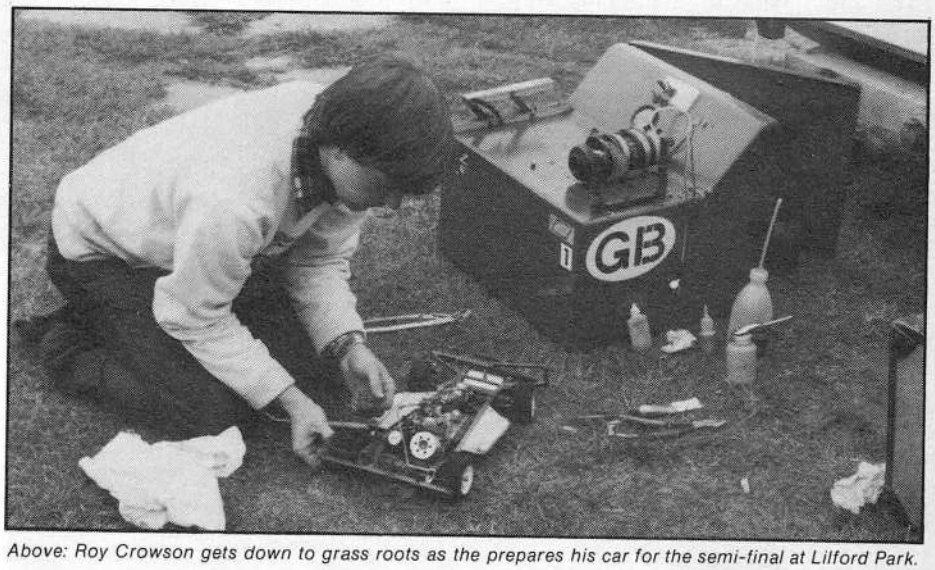
round with a total of 46 laps! This time Steve was only one lap ahead of the next man up who was Peter Butlin with 45, his only really good score of the day which was to come too late. Next up came Graham Lawrence and Cliff Emms with 44's, Cliff having solved his radio problem. 43's were recorded by Peter Taylor and Roy Crowson whilst Pete Hart, Ivan Congreve, Steve Taylor and Colin Bunyard put in 42's. Robert Thorpe, Steve Wearing, John Buckley and Peter Butterworth all put in 41's and the other drivers to make the frame with 40's were Bob Clayfield, Brian Sylvestor, Trevor Heasman, Darren Buckley and Mike Chilvers. (Had to get a mention somewhere!)

There was the usual delay whilst the qualifiers were worked out and the closeness of the racing did not really help the speed of adding up and checking. Qualification eventually worked out as follows.

Straight into the Final went Steve Talbot (137 laps), Pete Hart and Graham Lawrence (129) and Pete Taylor (128). Into the Semi Final went Ivan Congrave and Roy Crowson (127) and Robert Thorpe and Steve Wearing (125). The six drivers who were going to have to win the hard way from the Quarter Final were Darren Hart (124) and Bob Clayfield, Cliff Emms, John Buckley, Steve Taylor and Brian Sylvester (123). The man who could claim to be the most unlucky man of the day was surely Nigel Forster, as he had also totalled 123 laps but lost a position in the Quarter Final as his worst heat score was lower than those of the other drivers. There were also four other drivers just one lap further down on 122, and another four with 121. It all goes to show how close the meeting was and what a good standard of driving you can get when all the best are racing together, which of course is what you expect in a Championship of this sort.

So after the expected changes of frequencies the Quarter Finalists came out to do battle. It proved to be a very good race, especially for Cliff Emms, who had clearly put all his earlier troubles behind him as he went on to win and equal the lap record with a 47 lapper. Behind him there was a tight scrap for the other place in the semi, with both Bob Clayfield and John Buckley recording 44 laps, the verdict going to Bob by less than a second. Darren Hart was fourth with 42, Steve Taylor fifth with 41 and in sixth Brian Slyvester with 39.

The Semi Final got underway once the cars of Cliff and Bob had had a chance to cool down and in this race we saw the defending Champion Ivan Congreve trying to claim a place in the Final again. This turned out to be one of the closest races of the day, with the inevitable contact that comes from such races involving all drivers at some time or other. But it kept the crowd on their toes and the result in doubt until the official announcement. The first three all recorded 44 laps, the verdict going to Bob Clayfield from Cliff Emms both of whom made their way to the Final, whilst Ivan Congreve had to be content with third spot, beaten by .09 of a second. Roy Crowson was in fourth with 43 laps, then came Robert Thorpe with 42 and Steve Wearing with 36.



Above: Roy Crowson gets down to grass roots as the prepares his car for the semi-final at Lilford Park.

So to the RSCA Championship Final. Would Steve Talbot do it? He'd been by far the fastest qualifier and my personal tip for the title since some of his earlier performances at Lilford in the season. Would Cliff Emms put one over his mate and add another title to his British Championship? Could Graham Lawrence go one better than his World Final position? Bob Clayfield was looking quietly confident, he had already come to the Final the hard way like Cliff, but all his past top class racing experience was on his side. Perhaps the Lilford Club would hold onto the title their drivers had held for the past three years, would the title go to Pete Hart? Who in my opinion is long overdue for a major win, or could Pete Taylor, the outside bet of the group snatch it from the others? Whilst these deliberations were going on in the minds of the spectators the drivers themselves were larking around in the pits, trying to see if rumours about Steve Talbot's legs were really true! But after a quick frequency check, it was all systems go and the race was on.

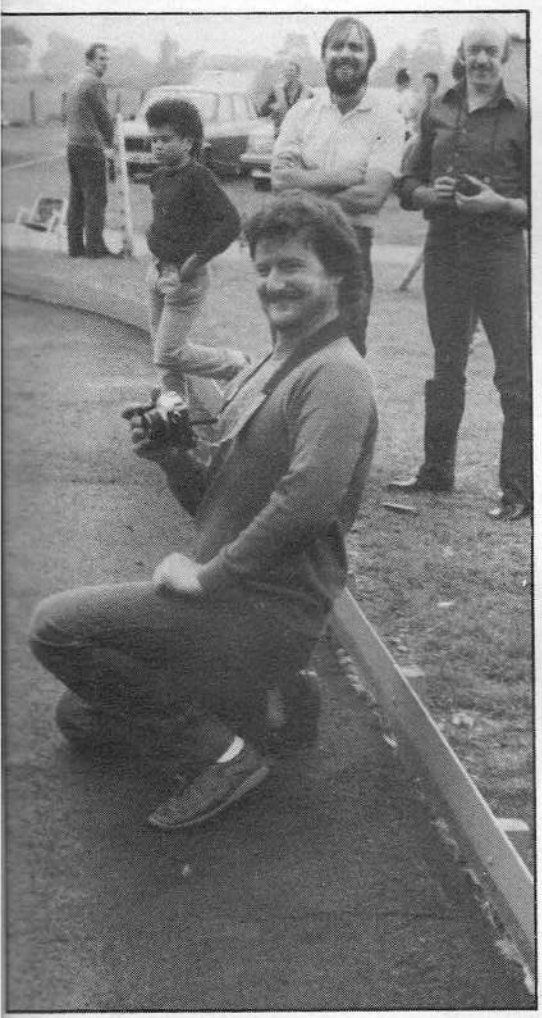
It really was a fast race, but one with action and heart ache for some. Pete Hart had been going really well, and looked set to pull something out of the bag when he hit trouble. Pete Taylor also found himself in difficulties whilst at the front of the field, Steve Talbot was driving his usual steady race, picking his line carefully and avoiding all those little incidents that were happening all around him. Much of the time he was being followed by Graham Lawrence and these two were pulling away from Bob Clayfield and Cliff Emms, Cliff not looking too happy at the way his car was going. Gradually Steve's lead increased and at the final hooter of the day the new Champion was declared as Steve Talbot with 58 laps in the five minute Final, with Graham Lawrence second with 56 laps, Bob Clayfield third with 53, Cliff Emms fourth with 48, Pete Hart fifth with 44 and Pete Taylor sixth with 39.

So the meeting which had been sponsored by *Pirelli General Cables* was brought to an end with the presentation of trophies to the top 14 drivers by Lilfords leading lady Sue Houghton. It had been a great day of good racing and sportsmanship. The organisation on the day had been very slick, and my thanks go to all the drivers, to Bob Newton, Robert Congreve and all the Lilford helpers who made my day so enjoyable and congratulations Steve you proved you're a champion in more ways than one.

Series Championships, Final Round, Brighton, September 23rd

Only a week after the RSCA Championship the action moved down south to Brighton for the final round of the national Series Championship. This was the sixth meeting in this competition, which so far had been dominated by Cliff Emms and Steve Talbot who were the joint leaders at the top of the table. So one of them was bound to win the title, but which one? Could Steve really produce last week's form yet again? It was a rather disappointing entry of only twenty one drivers who arrived at the raceway and only four of them from north of the Thames. Perhaps it was because they

felt that the issue was beyond doubt, or they they were still recovering from Lilford that the entry was so low. The two main contenders Steve and Cliff were of course in attendance and they had with them Andy Fulford and Trevor Heasman to fend off the pressures from the south headed by last years Series Champion Graham Lawrence, Russ Kearn and Nick and Tony Bunn.



Above: Mike Smith, fellow racer and scribe, pictured here tempting fate on the Lilford oval.

The first round of heats was headed by Cliff with a run of 39 laps and Steve followed him with a 37. Next came Russ Kearn and Graham Lawrence with 35's. Positions in round two were reversed when Steve became the leader with 39 laps, followed by Cliff and Graham both on 38's. In the third round it was all square between Steve and Cliff as they put in 41 laps a piece, well clear of Dave Mawson and Tony Bunn who were on 37's. In the final round Steve stamped home the advantage with 42, the FTD one lap ahead of Cliff on 41. Next up was Russ Kearn with a 39.

The four drivers who had made it straight through to the Final were Steve Talbot (122 laps); Cliff Emms (121); Russ Kearn (116) and Graham Lawrence (111). The six to fight for the two remaining places via the Consolation were Trevor Heasman (109): Andy Fulford (108); Dave Mawson (105); Tony Bunn (103); Nick Bunn (100) and P. Crowe (97).

The Consolation Final proved to be a tight battle, resulting in a win for Nick Bunn with 30 laps, one ahead of Tony Bunn on 29. Trevor Heasman was pushed into third place with 27 laps, two ahead of fourth place Dave Mawson on 25. In fifth was Andy Fulford with 23, one ahead of P. Crowe on 22 in sixth place. So the two Bunns took their place in the Final line up.

It would be wrong to say that the Final was a two horse race between Cliff and Steve, but all the drivers were aware that it was these two who were competing not only for victory in the meeting itself, but victory in the overall Championship. For the rest of the drivers the overall Series Championship was of no importance, so it was pleasing to see that once the race was underway the other drivers kept an eye on the progress of these two and let them through whenever they came up to lap them and so enable them to battle it out unhindered.

And what a battle it was, these two seemed to be tied together with a piece of string, the only driver who came close to keeping them in sight was Graham Lawrence. So the battle raged for a full five minutes on what was rapidly becoming a wet track, with the final verdict going to Steve by about half a lap, both drivers clocking up 45 laps, in third place came Graham with 44 and he was followed by Nick Bunn on 40, with Russ Kearn fifth on 39 and Tony Bunn in sixth place with 22 laps.

So ended the final round of the Series Championship, with not only Steve being the winner of the meeting, but also taking home the much prized Series Trophy for his mother to clean. Well done again Steve, two major wins in consecutive weeks, hard luck Cliff, but you put up a good challenge all season. Thanks to all competing drivers and to the Brighton Club for its organisation and to Wendy Lawrence for sending me the race sheet.

Racing Round and About

When you read this, there will be no major meetings left, the 1/8th drivers will have concluded their racing season, and be in the preparation period for the next, whilst the 1/12th drivers will be continuing their Club action, but with no major meetings till about April time, except for the meeting at Wembley mentioned earlier. However, two major meetings still remain at the time of writing this article and they are the final round of the 1/12th National Championships at Loughborough on October 21st, when the Champion will be revealed in what has turned out to be a very close fought battle. The other meeting is the Champions of Champions Meeting for 1/8th scale drivers at Keighley on October 14th. Here the big question will be whether Steve Talbot can make it three in a row, or whether Cliff Emms will hold onto his title. There are of course many others who will be trying their best to see that neither of these two win, and will be out to get something for themselves. Reports of both meetings should be in next months issue.

That really brings me to the end of his months 'Stock Taking', and leaves me to wish all readers everywhere and their families, the very best wishes for Christmas and New Year and hope that I may see some of you Wembley for the Model Engineer Exhibition, either at the stock car meeting or at the RSCA stand, which is scheduled to be Stand 158 on the Upper Concours.

Lilford RSCA Championships Results

Name	H1	H2	H3	H4	Tot. (3)	Quart.	Semi	Final
Steve Talbot	45	44	46	46	137			58
Graham Lawrence	44	41	38	44	129			56
Bob Clayfield	42	41	39	40	123	44	44	53
Cliff Emms	41	38	26	44	123	47	44	48
Pete Hart	44	42	43	42	129			44
Pete Taylor	43	6	42	43	128			39
Ivan Congreve	42	40	43	42	127		44 (3 58.48)	
Roy Crowson	41	37	43	43	127		43	
Robert Thorpe	41	42	42	41	125		42	
Steve Wearing	40	41	43	41	125		36	
John Buckley	41	41	40	41	123	44		
Darren Hart	36	42	43	39	124	42		
Steve Taylor	34	42	39	42	123	41		
Brian Sylvester	41	42	39	40	123	39		

1/12th Stocks

Chris Loughran reports on the National electric stockcar racing scene

1/12th Scene

In the last issue I mentioned the possibility of 1/12th stockcar racing at the Model Engineer Exhibition at Wembley. I can now confirm that this will take place on January 1st organised by the 1/12th section of the RSCA. Racing will be run to RSCA rules, but anyone who would like to race can apply to Chris Loughran for details, whether members of the RSCA or not. The time between you reading this and the meeting is very short with all the postal problems associated with Christmas etc., so please if you would like to race please contact Chris *NOW* at 36 Glenhills Boulevard, Eyres Monsell, Leicester LE2 8UA or on 0533 777529. We know that there are several Clubs and drivers around the London area so here is your chance to come and have a look.

1/12th National Meeting Biddulph Moor, September 9th

Only two weeks after the last meeting at Wirral, 48 drivers set off for a new venue at the Town Hall, Biddulph to contest the penultimate round of the National Championships, with only 1 point separating the top three drivers.

Practice got under way on time, and the first impressions were of a very grippy surface. The track was quite small with wide corners which meant that the bends had to be driven round, rather than flicking out the tail of the car. There were no practice or scrutineering problems so it was straight into the Concours judging. The winner was Gary Lenton of the Rugby Club with a fairly straightforward but effective paint job in white with red and orange stripes.

Right from the start of racing it was clear that everyone meant business. Dave Clarke, out of heat 1, set the pace with a 60 lapper, despite a rather scrappy race. Adam Longrigg, Kelvin Hawkes and John Cutts all recorded 58 laps, and Martin Higham managed 53 on only three wheels, which was more than Chris Loughran got with all four! Shaun Riley had to retire with speed controller problems, such as, no power! Tim Fielden who had been leading the Championship after the Pendle round was in trouble again with all sorts of radio trouble, actually having to retire in four of his five runs.

Round two started in much the same way as the previous one, with Dave winning his heat this time with 62 laps, however he did not have things all his own way as Martin kept all his wheels on this time to record 63 laps. Shaun Riley recorded 59 laps, whilst Tim Walker, John Cutts, Rob Harrod and Shirley Clarke all recorded 57's.

In round three Shirley only managed 18 laps when her servo packed up, and Dave only recorded 61 along with Martin and John, but Tim Walker and Adam Longrigg went one better with 62's.

It was in round four that Dave set the FTD with a flying 66 laps, whilst Martin recorded 62 and John 61, and so the competition moved into its final qualifying round of heats.

This final round proved that it wasn't going to be Shirley's day, when having already dropped one heat the receiver refused to work; Dave however earned himself the top qualifier spot with a 62, along with Martin who also recorded 61 laps. Tim Walker and Kelvin Hawkes both recorded 59 laps, which for Kelvin was his only trouble free run of the day. So the promise for the final was looking good, with the top three drivers in the championship points table being the top three qualifiers for the final.

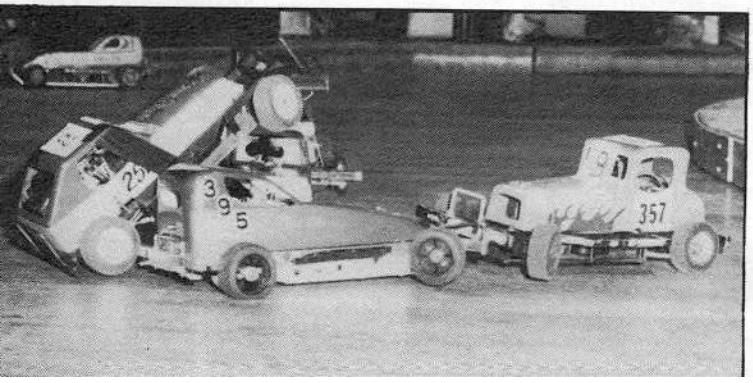
Above: the finalists at Biddulph Moor left to right: Martin Higham, Dave Clarke (winner), John Cutts, Tim Walker, Shaun Riley, Adam Longrigg, Kelvin Hawkes and Ian Johnson.

The qualifiers for the main Final were Dave Clarke (250 laps); Martin Higham (248); Adam Longrigg (239); John Cutts (237); Tim Walker (233); Shaun Riley (231); and Ian Johnson (224). Those to fight it out for the one remaining place via the Consolation were Graham Hawkes; Malc Davies; Kelvin Hawkes; Bob Jessop; Mike Stead; Simon Kendall; Debbie Ramshaw and Pete Wright.

From the start of the Consolation Final Simon went into the lead. It was his first National Consolation, and he is a driver to watch out for, but alas it was not to be his day. Mike Stead caught him and started to pull out a lead, but this was short lived as he got caught up in three pile ups on consecutive laps allowing Kelvin to catch and pass him. Kelvin then began to pull out a comfortable lead which he never looked like losing, eventually winning by two laps to go through to yet another Final.

So with Kelvin joining them; the main Final got under way and from the off it was a race between Martin and Dave, right with each other all the way and being chased by Kelvin, until he retired once again, this time with a broken throttle linkage. By this time the leading pair had pulled out a two lap lead over the rest of the field, and at the end it was Dave and Martin both on 64 laps, followed by Adam on 60, John and Tim on 59, Shaun 58, Ian 55, and the luckless Kelvin on 52.

Thanks to Grahame and the Biddulph Club for the meeting, and to *Motile Model Developments* who donated a pair of tyres for all the finalists.



Left: a four car pile up provides plenty of excitement for the spectators but plenty of knee trembling for the drivers.

TECH. CHART FOR BIDDULPH 9/9/84

Pos.	Name	Car Type	Cells	Gears	F. Tyres	R. Tyres	Speed
1	D. Clarke	M'fied M'Dave	Saft	13:53	Prowler 12/004	Prowler 12/002	Parma
2	M. Higham	M'fied M'Dave	Yuasa	13:46	M'Dave Std.	Med. Soft 'D'	Associated
3	A. Longrigg	M'fied L'Car	Sanyo	12:52	Prowler 12/005	Prowler 12/003	L'Car
4	J. Cutts	Std. M'Dave	Sanyo	12:52	Med. Soft	Soft	M'Dave
5	T. Walker	M'fied L'Car	Sanyo	13:54	Med. 'D' in L'Car out	Med. Soft 'D'	Parma
6	S. Riley	Scratch-built	Sanyo	12:54	Prowler 12/002	Prowler 12/003	Parma
7	I. Johnson	M'fied M'Dave	Sanyo	12:50	Med. Soft	Med. Soft	L'Car
8	K. Hawkes	M'fied L'Car	Selected Sanyo	13:53	Soft in Hard out	Raydotyres Dead	L'Car

CONCOURS ..... G. LENTON (262)
F.T.D. ..... D. CLARKE (66 laps)
JUNIOR TROPHY .... P. SMITH (452)

NATIONAL POINTS TOP TEN AT 12/9/84

Name	Club	Points
D. Clarke	**Loughborough**	**207.5**
A. Longrigg	Pendle	206.5
M. Higham	Loughborough	205.5
J. Cutts	Leicester	186.5
S. Riley	Pendle	186.0
I. Johnson	Loughborough	176.5
K. Hawkes	Pendle	174.0
P. Wright	Wirral	151.0
S. Clarke	Loughborough	149.0
T. Walker	Biddulph Moore	144.0

Stop Press

Dave Clarke has won the final round of the 1/12th stockcar National Championship to take the overall title for 1984. Full report next issue.

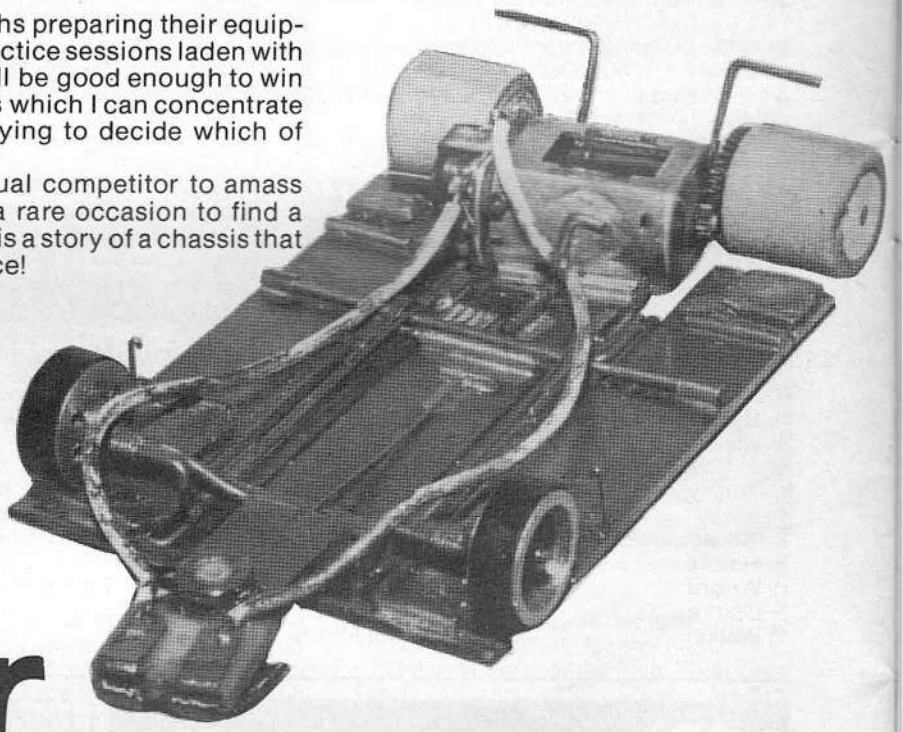
Three times a Winner

Ian Jensen describes the design and development of his triple championship winning slotcar.

The BSCRA (formerly ECRA) National Finals have been the main event on the slot racing calendar since their inception in 1964, being attended by the top drivers from each of the Association's ten areas and the culmination of the local qualifying rounds held throughout the year.

Many competitors spend weeks or even months preparing their equipment for this meeting and often arrive for the practice sessions laden with armloads of alternative cars hoping that one will be good enough to win them a title. I prefer to take just one car per class which I can concentrate totally upon instead of wasting lots of time trying to decide which of several similar cars is best.

Whilst it is no longer unusual for an individual competitor to amass several National titles under his belt, it is still a rare occasion to find a winning car returning to repeat its success. This is a story of a chassis that has achieved this distinction not once, but twice!



Below: a true example of the Slotcar maker's art. Ian Jensen's sports and saloon car chassis.

1982

Title No. 1 - Premier Grade Saloon Car Championship

This was the last time that the Saloon Class was run allowing a free choice of motor, in subsequent years the Group 12 formula was introduced. The car featured a brand new chassis built for the event, although the complete motor assembly had been taken from an older chassis. The bodyshell used was of the rather stubby, but pretty and effective, CAT Mazda RX3. The car, sporting hardly any ballast and weighing only about 3⅞oz,was undoubtedly competitive and proved this by giving me the top qualifying spot. In the Final the car was able to haul in second place man Phil Firth and early leader Pete Hore without too much trauma and go on to win fairly comfortably.

1983

Title No. 2 - Premier Grade Sports/GT Championship

The Saloon winner of last year was this year powering my sports car — a CAT bodied UOP Shadow. Some time before the meeting the armature and magnets had been renewed as the older items were certainly past their prime, thus enabling the car, whilst not being noticeably superior to many others, to qualify comfortably for the Final.

At any slot meeting 'Lady Luck' can step in to alter the expected, or deserved, results and over the years she has certainly been a regular visitor to the Nationals, this year being no exception. A rather poor start to the race left me trailing some way behind the leaders and Pete Hore looked set for an easy win as he lapped me. However, with five other cars on the track you should never count your chickens, and Pete's disaster came when someone else's accident deposited him on the floor. Although the car was replaced quickly there was obviously something wrong with it, and it was not lapping as quickly as it had been.

I had by now worked my car into second place and as the 100th lap drew closer it was obvious that the race was 'on.' The two cars were together on the 99th lap and entered the last corner side by side.

Each of us was trying so hard to beat the other that we both overcooked it and as the corner marshall replaced both cars on the track side by side the power was switched off, the result being declared a draw. Bad luck for Pete, but a joint title is a title nonetheless

1984

Title No. 3 - Premier Grade Sports/GT Championship

For this year's Nationals the car was basically unchanged from last year except for a new *Betta* 'Shadow' bodyshell. Two very clean heats gave me the top qualifying position but I knew that most of the other cars in the Final were also pretty quick and I was not particularly confident of winning or even being in the top few placings.

Sure enough, the initial pace was far faster than I would have wanted but as the leader, Steve Jenkins was soon three quarters of a lap ahead I felt I had nothing to lose by piling the pressure on. Despite being driven at something like ten-tenths, the car's handling felt incredibly solid and it was soon overhauling car after car, eventually taking the lead after a small accident had broken Steve's rhythm. For the rest of the race Steve pushed very very hard but my car seemed glued to the track, despite some slight pick-up problems, and it completed the 100 laps without, as far as I can remember, de-slotting once.

Designs on winning

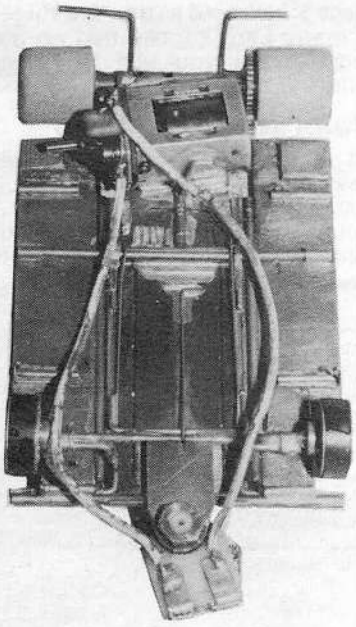
It might be thought that a car that can win three years consecutively must be pretty special, but in reality the chassis is basically an off-the-shelf production OPP spring steel-centred flexi-sio chassis, the same as many I have supplied to other racers over the last few years.

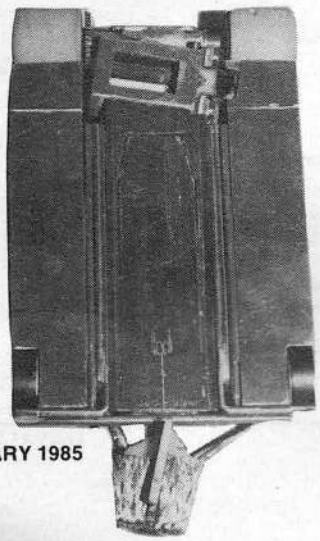
The original design was developed four or five years ago and I have seen little need to make any changes since then other than for minor detail modifications. The idea of the spring steel centre section in place of the more traditional brass and piano wire construction was born of two main considerations. Firstly it has long been appreciated that from a handling point of view it is better to have the weight of a chassis concentrated on the outside rather than in the centre and, by utilising a lightweight centre, you have more scope for adding ballast as necessary on the hinged side pans. Secondly, as the centre section is the only member that fixes the guide to the driven rear wheels it make sense to construct it as strongly as possible.

One twenty-fourth scale cars had for many years featured chassis' using a one-piece spring steel centre section and it occurred to me that the same material could be usefully adapted to the 1/32nd scale 'flexi' chassis **(see Fig. 1).**

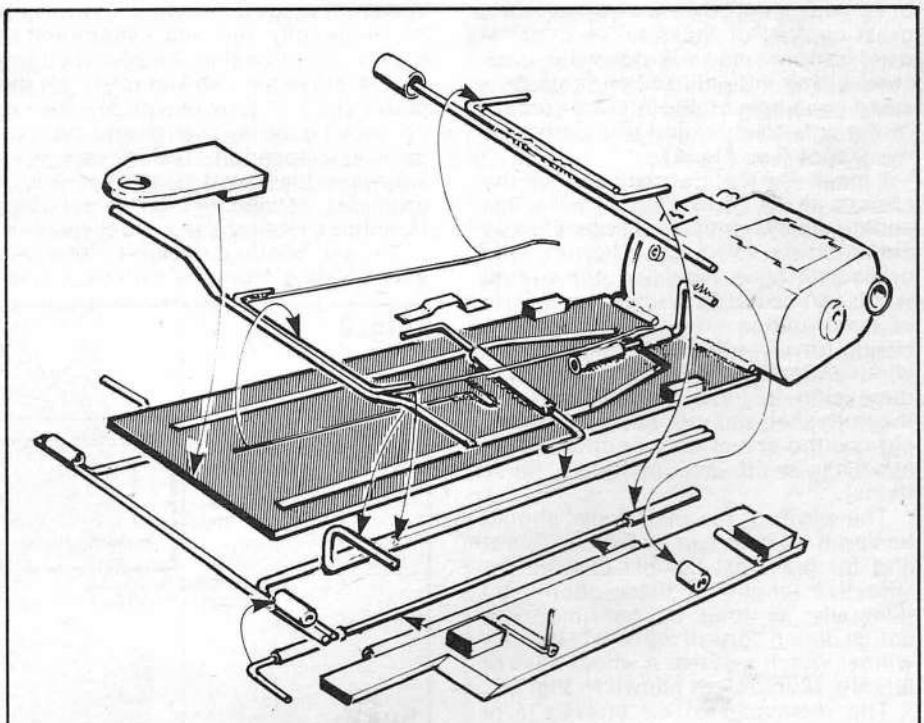
The ideal thickness of material appeared to be about 18swg, this certainly being much lighter and stronger than the brass and piano wire construction and, having no soldered connections, the risk or breakages or fractures is practically eliminated.

Unfortunately spring steel is almost



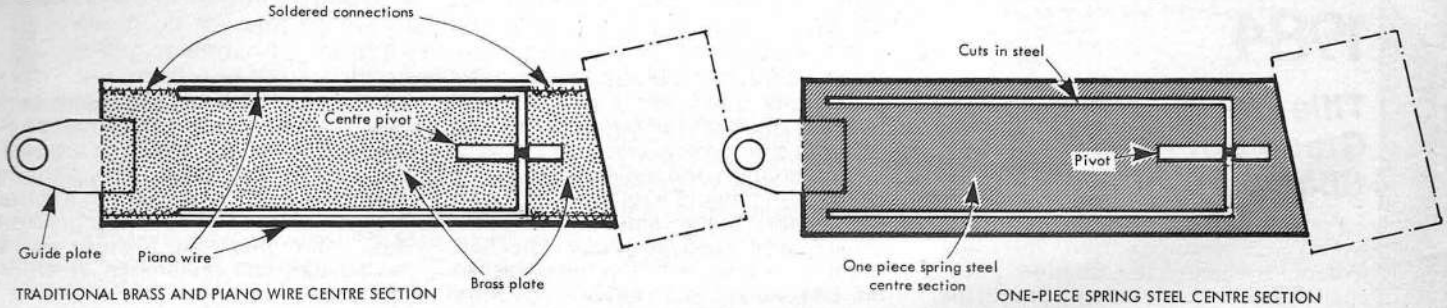


Left: top and underside views of the chassis revealing the complex arrangement of brass, steel, piano wire and solder.



Exploded view diagram

Fig. 1



impossible to cut using conventional tools, but the *Dremel* carborundum cutting wheels make light work of the material, providing they are used in a reasonably powerful electric modeller's drill such as the *Expo* 'Titan' or, better still, the *Dremel* 'Moto-tool.' True spring steel can be purchased from retailers such as *1-0-1 Slot Racing Products* but I have found that by purchasing a cheap wood saw for about £7 or £8 you can obtain enough steel for a great number of chassis. The material used in these saws is normally 'cast' steel but is virtually unbendable provided you angle off the internal corners of the cuts to eliminate that particular weak spot **(see Fig. 2).**

I make the centre sections for my chassis about $^{13}/_{16}$in. (21mm) wide, this suiting my own preferred outer chassis construction using $^{5}/_{8}$in. (16mm) wide brass side pans. However, the overall width can be cut to suit whatever form of construction you choose, remembering however that the maximum car width under BSCRA rules is 64mm (this dimension includes the thickness of the bodyshell and mounting pins, tape, etc., so the actual chassis should be a little narrow to accommodate these items).

The width of the main 'rails' should be about $^{3}/_{32}$in. to $^{1}/_{8}$in. (2.5mm to 3mm) and for the most flexible chassis the 'effective length' of these should be generally as long as possible. The actual dimensions of my own Nationals winner which features a wheel-base of 8ft. 5in. (80mm) are shown in **Fig. 3.**

The remainder of the chassis is of fairly straightforward construction using a 16 swg piano wire cranked front axle, double 17swg piano wire rails supporting the front axle and combined plumber rails and side-pan hinges from 18swg piano wire and brass tube.

The Technical Chart gives details of all the components used in the chassis and should be fairly easy to understand. However, a few words of explanation on my choice of bearings may save you a few pounds should you decide to follow my example rather than fitting 'Class 9' ballraces all round.

Bearing up

Taking the motor first, I use a standard oilite bearing in the endbell and a 'Class 7' ballrace in the can. Many people, on examining the car, have expressed surprise that I don't fit a ballrace into the endbell, but my argument against this is that a ballrace, being a mechanical component using moving parts, can wear and develop 'slop.' As the endbell bearing is instrumental in keeping the commutator revolving concentrically, the smallest amount of play is unacceptable. An oilite bearing on the other hand is a close fit on the motor shaft and, by reason of it having no moving components and, in this particular location, taking very little sideways loading it is not liable to a great deal of wear. In fact I forget when I last had to replace an endbell bearing.

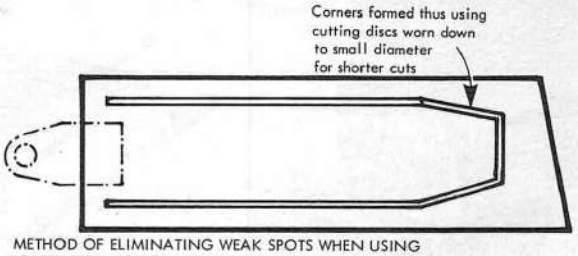
The can bearing, however, does take a lot of 'stick' from the high gear loadings and is also subject to hard knocks in crashes, etc. I opt for a 'Class 7' ballrace as a compromise between the cheaper 'Class 5' bearings which rarely last more than a season's racing and the very expensive 'Class 9's' which may have a longer life under gentle usage but which are just as liable to damage from knocks and the ingress of dirt, soldering flux, etc., as the cheaper items.

For the rear axle I use the cheapest 'Class 5' ballraces as they are subject to so many hard knocks that no matter which grade you use they require replacing fairly regularly.

Motor torque

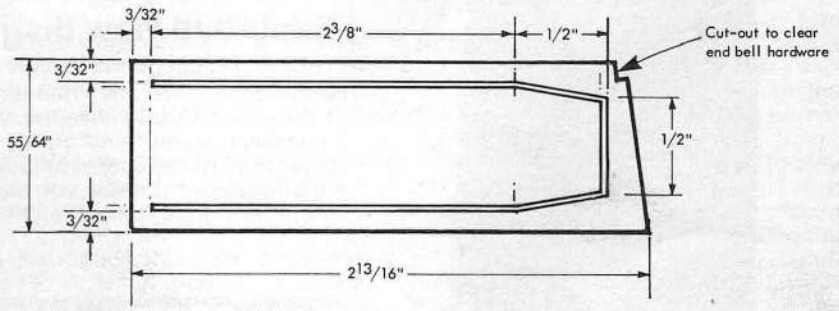
The heart of the chassis, which can make or break the performance of any car, is of course the power plant. The motor I have used features a modified *Johnson* 111 (1300) type can with an

Fig. 2



METHOD OF ELIMINATING WEAK SPOTS WHEN USING "CAST" STEEL FOR CENTRE SECTION

Fig. 3

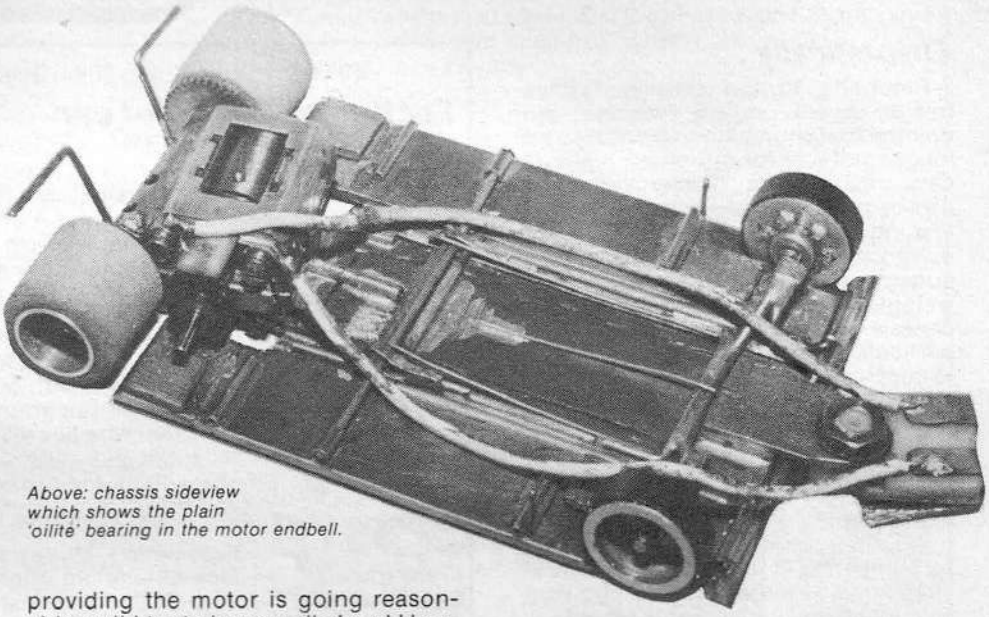


ACTUAL DIMENSIONS FOR CENTRE SECTION

Infinity endbell and 'soft' cobalt-samarium magnets, all prepared by Pete Hore. The can has been shortened by approximately $\frac{3}{32}$in. to enable $\frac{5}{8}$in. wide tyres to be fitted to the chassis. The unit is, in fact, quite venerable, having powered at least one other car prior to being fitted onto this chassis.

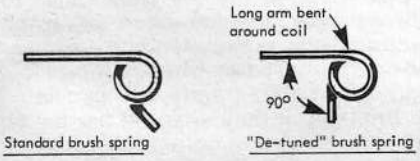
The armatures used for each win were *Potential Kinetics* '66's', wound by the Canadian Dan Camilleri, who was relatively unknown when he produced them but who has since become one of the top motor men in the United States.

For motor brushes I use *Mabuchi* 'pull-outs' as, although they are expensive, their wear rate is much less than most of the cheaper types and they probably double the life of the commutator, thus more than paying for themselves in the long run. The new 'Super Big Foot' brushes are supposed to be just as good but I have not had enough experience of them to confirm this. The brush springs I always use are *Mura* 'light tension' detuned still further by bending the long arm around the coil until there is only about 90° between the ends **(see Fig. 4)**. For brush shunts I use a few copper strands from a length of lead wire, twist them together, then solder one end onto the brush hood or buss bar and trap the other end between the back of the brush and the brush spring.



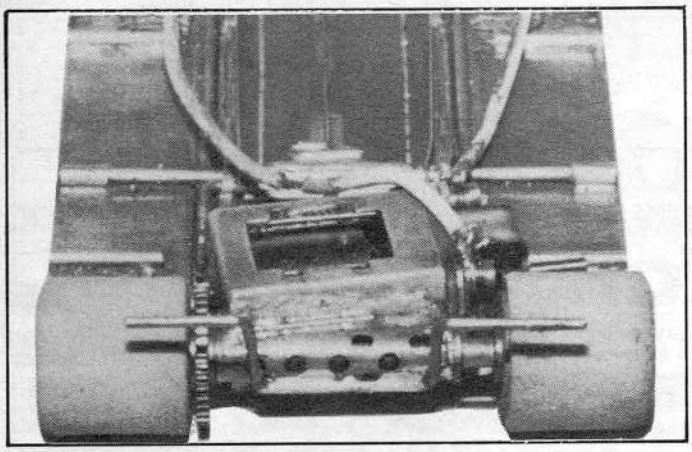
Above: chassis sideview which shows the plain 'oilite' bearing in the motor endbell.

Fig. 4



METHOD OF DE-TUNING BRUSH SPRINGS

Obviously, to get the best out of a motor it is not enough merely to buy the best components — they must be put together properly and finely tuned before they give of their best. I don't claim to be an expert in this field and providing the motor is going reasonably well I try to leave well alone! However, once or twice a year, and certainly before the Nationals, I remove the endbell and armature, and clean all components thoroughly in lighter fluid (leaving the magnets safely in the can unless it is absolutely necessary to remove them). Before re-assembly the commutator will be accurately skimmed on the lathe, bearings checked and brush hoods aligned using a line-up bar. When re-assembling the motor the magnet/armature airgap should be checked to ensure that the armature is central between the magnets and also that it is not being pulled towards one end of the motor or the other.



Left: close up of the rear axle tube which has been lightened by drilling small holes. The piano wire prongs which project upwards are there to help prevent the bodyshell getting caught behind the wheels in an accident.

Of course, there are other pieces of equipment that can help a car to perform well — braids and tyres, for instance, must be in perfect condition and the hand controller should be set up to suit the car and circuit conditions.

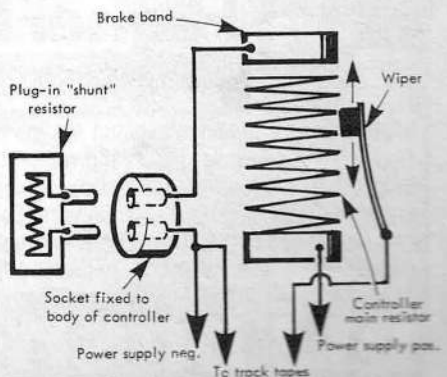
Power, on

The Nationals track has wide bends and not a great deal of power, so to prevent the car losing too much momentum under braking I use a higher resistance in the dynamic braking circuit than I would use on most other tracks. This enables the car to roll into, and hopefully through, the corners faster so that it does not have quite so much speed to build up on the next straight. The disadvantage of this set up is that if you misjudge your braking point the car tends to enter the corner at a speed that is usually totally uncontrollable and the resultant crash can be very heavy both on the car and the nerves!

I have also found that the lack of track power means that a controller of lower resistance than required on most other tracks comes in handy, and to cater for this I have incorporated into my own controller a system of plug-in shunt resistors wired in parallel to the main resistor. **Figure 5** shows the basic arrangement for this.

For the past two National Finals I have driven my sports car on an overall resistance of approximately 0.9 ohms, but this is far too low for most club tracks.

Fig. 5



WIRING DIAGRAM FOR PLUG-IN SHUNT RESISTOR MODULES

Theoretically . . .

Returning to the chassis, I have heard several racers express the opinion that spring steel chassis are no longer suitable for out-and-out sports cars due to their tendency to bow upwards and downwards under loading. This may in fact be a valid point on some circuits, but I remain convinced that the strength and weight-saving features of this type of chassis outweight this disadvantage, particularly if the bottom of the chassis is covered with a layer of *Sellotape* to prevent shorting out of the track tapes. It is possible that the addition of anti-decking rails would improve the design and I have already earmarked one or two ideas along these lines for future experiment.

Whether or not the triple-winner will be competing at its fourth Nationals in 1985 remains to be seen, but should it be superceded it is probably safe to say that its successor will be based on a steel centre section.

Should any reader be encouraged by this article to try his hand at constructing a chassis along the lines discussed, listed below are some hints on cutting the steel sheet using *Dremel* carburundum cutting discs:

- Mark out the lines to be cut using a fine point spirit-based pen.
- Be careful not to 'burn' the metal when cutting as this will destroy its temper — it is advisable to cut the central slots in the unit before cutting the whole thing from the sheet. In this way much of the heat generated by the cutting disc is absorbed by the larger area of metal.

Technical details of car

Chassis

Constructor	— OPP Slot Chassis
Wheelbase	— 8ft. 5in. (3 5/32in.). Rear axle to guide pivot centre — 3 13/16in.
Type	— Spring steel flexi-iso
Front axle	— 16 swg pianowire cranked type
Rear axle	— 3/16in. i.d. brass tube containing Class 5 ballraces

Motor:

Can	— Johnson 111 shortened and fitted with Class 7 ballrace
Endbell	— Infinity (fitted with oilite bearing)
Magnets	— 'soft' cobalt samarium bored to suit armature diameter
Armature	— Potential Kinetics '66' (26 turns of 26 swg, .510in. dia.)
Brushes	— Mabuchi 'pull-outs'
Brush springs	— Mura 'light' (de-tensioned)

Running gear

Gears	— Fass pinion, Mutley spur gear — ratio 8:39
Front wheels	— One-O-One pin fronts, 5/8in. dia. × 3/16in. wide
Rear wheels	— One-O-One aluminium, 5/8in. wide fitted with orange sponge
Guide	— Jet flag
Leads	— MG Products silicon covered

- Although a jig can be constructed to help cut the longer straight lines, I always do mine holding the drill free-hand. With a little practice this is not too difficult — I have found the best way to get a straight line is to first cut just a shallow groove on the surface of the metal which will then act as a guide for the cutting disc when going all the way through the sheet.
- When the cutting discs have worn down to about half their original diameter they are not very efficient for cutting long straight cuts. Don't throw them away, however, because these can be used for making the shorter cuts that a new disc cannot manage.
- One final word — remember to always wear goggles when using the cutting discs as they send up a shower of red hot particles when cutting steel and, being quite fragile, are also liable to break up if they snag on the me al. Also, remember to hold the drill in such a manner that it will not travel towards you should it happen to slip or snag, as the discs go through flesh even easier than they do through steel!

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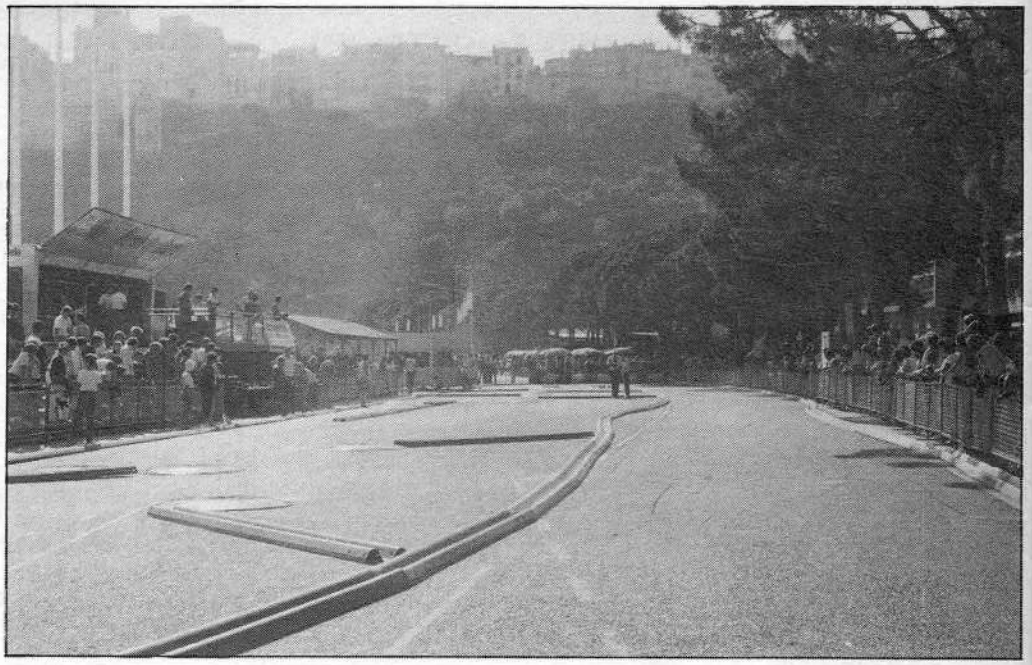
Monaco GP

Bob Errington samples the glamour of Monaco to report on the 1/8th scale IC, Formula Grand Prix



Above: the attractive seafront location of the 1/8th scale Monaco GP showing the city itself in the background.

GLORIOUS WEATHER and fantastic views over the adjacent, topless swimming pool were just two of the main features which attracted some 80 drivers to attend this fantastic racing venue. Thirty one Italian racers crossed the border to meet twenty nine French, seven Monagesques, four Swiss and a mixture of others.

Six English drivers made the trip to the sunshine and were as follows: Steve White, Colin Strauss, Charles Baldry, Bob Smith, Phil Greeno and Bob Errington. The very inclusion of Phil Greeno assured us of an eventful weekend.

It all started at Heathrow Airport or rather the trip beforehand. Unfortunately the carefully laid plans of pick-up points and time schedules were thrown out of the window when Phil and Steve left *PGM* at Rayners Lane at 9.20am without Colin, Bob Smith and Phil Baldry. When these three arrived at Heathrow in a high state of anxiety they claimed that they had been waiting at Phil's shop since 9.10am. Who was right? Suffice it to say they all blamed each other, particularly Phil G. who had to park in the short term car park and thus pay a large fee upon his return.

Nevertheless we all arrived at Nice airport only to find that ground staff were all on strike. Fortunately a suitable wage rise was awarded and we were back in business. Two cars had been arranged with *Hertz*, both Peugeot's but luggage space in both was at a premium as Phil G. had brought so much stuff.

After a pleasant coastal journey along the 20 mile route to Monaco (Steve insisted we drive on the pavement to improve his view of the beach) we found the race track next to the open air swimming pool by the harbour in Monte Carlo.

This is the swimming pool that the full-size Formula 1 cars blast around not long after they exit the tunnel during the Monaco Grand Prix. The weather was absolutely perfect with clear blue skies and a temperature in the mid seventies.

Practise was under way but it was obvious that there was very little grip. Cars were tried and different tyres tested until we found that the *UFRA's* were best suited to the conditions. Colin Strauss, true to form, managed to bend yet another power pod on his *PB* "Nova" only to find it broken completely when he started to strip the car down. Colin got the nickname back in June of "bend-a-pod" Strauss when he went through quite a few during the Paris meeting.

By the end of the afternoon a black line of rubber had started to appear around the circuit laid down by the cars as they found the racing line. Most European drivers still have their exhaust outlets pointing upwards which means that little oil and rubber is being deposited onto the circuit and thus little grip is formed early on. Hopefully this will be changing in 1985.

Saturday dawned with a disappointing look out the window revealing wet roads. All was well however when we espied a workman hosing down the streets. Down at the track everyone was ready and with no practice allowed it was straight into Heat 1.

The first Englishman was in Heat 4, Charles Baldry and the next Heat 6, Bob Smith. Neither however had a good run with Bob only attempting his second full lap after an awful practice session. Heat 7 featured Colin Strauss and Bob Errington along with six Italians, you could tell it was a European meeting as Bob had a servo failure just before the start. Bergonzini, Bartolomasi, Calce and Caronello all achieved a eighteen or nineteen lapper although Bartolomasi had a one lap penalty for a jump start which were a feature of his weekend.

Heat 8 listed Ghersi (I), Calpista (I), Sabbatini (I), Lucchesi (I), Collet (F), Bernard (F), Mansiel (F) with Phil Greeno and Steve White. Steve got a perfect start and led all the way, only slowing to lap a backmarker. This resulted in a 20 lap time and FTD which was to stand until the final round of heats.

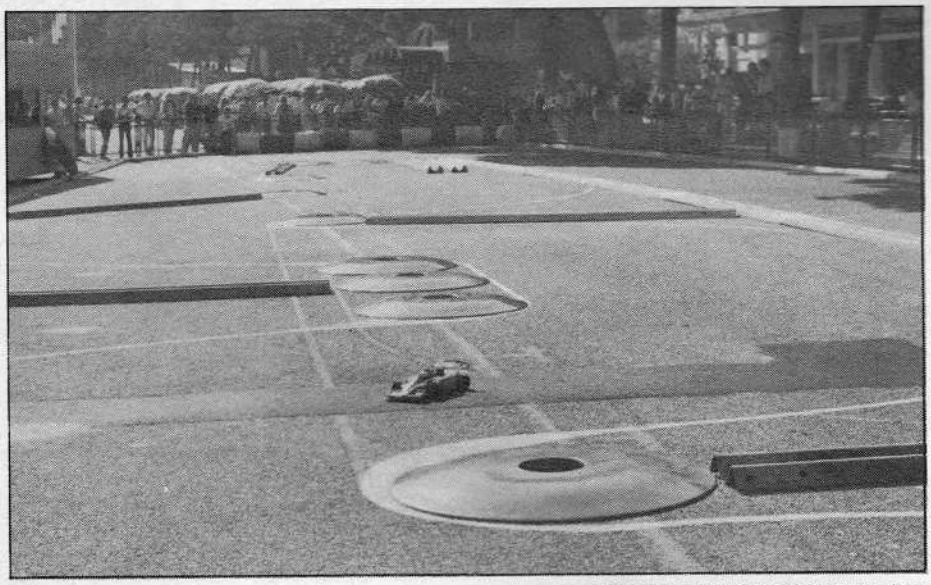
Much interest was being shown in the new 4-wheel drive, independent suspension car produced by *SG* and driven here by Sabbatini, Orazi and Caronello. Orazi was driving his car for the very first time and seemed quite happy. Caronello on the other hand had played an important role in the development of this car and although he is not considered a "top" driver was very rapid around the track. In fact on his last run he missed the start by several seconds, won his heat and set a new FTD. Ultimately this score was to be beaten by Steve White in his last heat by two seconds.

Thus after all the qualifying heats we had the four straight through qualification spots for the Final as follows.

1 Steve White SG/OPS 20 laps 308
2 Ago Caronello SG/OPS 20 laps 310
3 Phil Greeno SG/OPS 20 laps 313
4 Julio Ghersi SG/OPS 20 laps 314

Final Results

1	S. White	SG/OPS	171 laps	GB
2	P. Collet	SG/Picco	169 laps	F
3	L. Bergonzini	SG/OPS	167 laps	I
4	Bernard	SG/Picco	165 laps	F
5	J. Ghersi	SG/OPS	162 laps	I
6	R. Bartolomasi	SG/OPS	154 laps	I
7	P. Greeno	SG/OPS	151 laps	GB
8	M. Calco	SG/OPS	130 laps	I
9	A. Caronello	SG/OPS	112 laps	I
10	R. Errington	SG/OPS	77 laps	GB



Above: very, very large bot-dots and corrugated metal track markers persuaded drivers to stay on the right part of the track.

In 5th place was Calpista and 6th was Bob Errington with 20 laps in 315 seconds. Colin Strauss also made the semi-finals with a 19 lap time. The other two English drivers Charles Baldry and Bob Smith both achieved 16 lappers which, considering the track was a fine effort.

Sunday, the finals day was yet another scorcher (boring, boring) with the usual display of topless bathers in the next door swimming pool. Believe it or not, after three days of these visual delights you don't take any notice at all! (alright, you don't believe me)

Charles was the first of our lot to appear, in one of the Eighth finals but mechanical problems forced him out at an early stage. Bob Smith was in the other Eighth final and had the dubious honour of having both Bob Errington and Steve White as pit crew. Despite this he drove well, holding second or third spot until a loose manifold signalled his retirement. The next final to feature an Englishman was the first of the semi-finals with 'yours truly'. Steve had assured me that the European jinx was gone but he had to eat his words as my motor seized up on the second warm-up lap. A 10 minute break was called which just allowed me to change engines but left little time to set the new engine for the different fuel. Nevertheless I led the semi and despite a series of engine cuts still finished second and went through to the Final thanks to hectic pit-work by Steve and Phil G.

The second semi-final contained Colin Strauss, however, the pace was too hot and Bartolomasi, Calce, Bernard and Collet all qualified for the Final.

Forty five minutes is a long time to be racing but Steve White held his cool and led from start to finish chased for a long time by Bergonzini. Phil had a series of minor problems which put him our of contention whilst I got up to 4th only to suffer engine cuts prior to eventual retirement. The fastest car on an individual lap basis was undoubtedly Caronello with the 4WD *SG*, but pressure causes mistakes and that meant several pit-stops and lost time. The final result was as above.

A wonderful result for Steve, a tremendous result for *SG* and a fantastic first run for the new car.

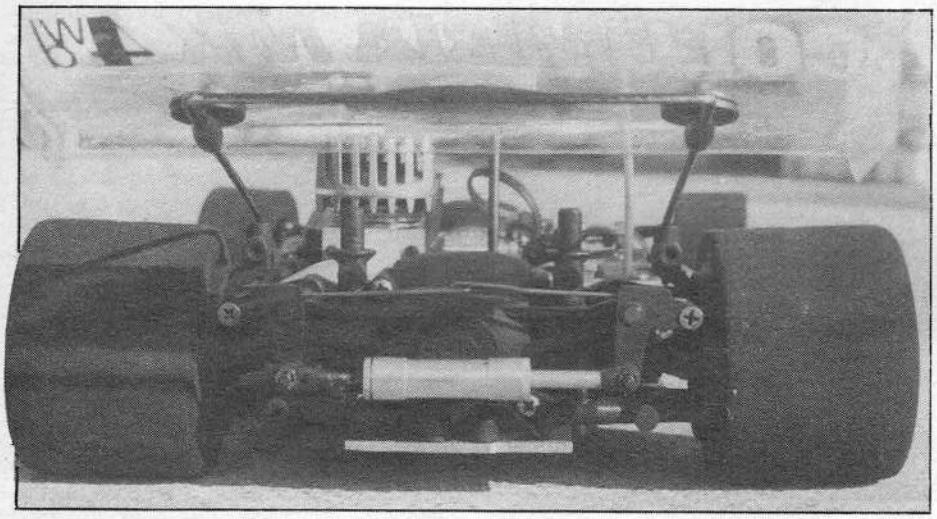
Now for the boring uneventful return journey. We quickly packed cases and set off for the half hour journey back to Nice airport but alas, at about five miles outside Nice we came to the end of a solid traffic jam moving at zero mph Having realised that we had now passed the check in time for the flight ▷

Below: Ago Carronello's Formula bodied SG 'Columbia MkVI' which made an impressive debut against the conventional two-wheel drive opposition.

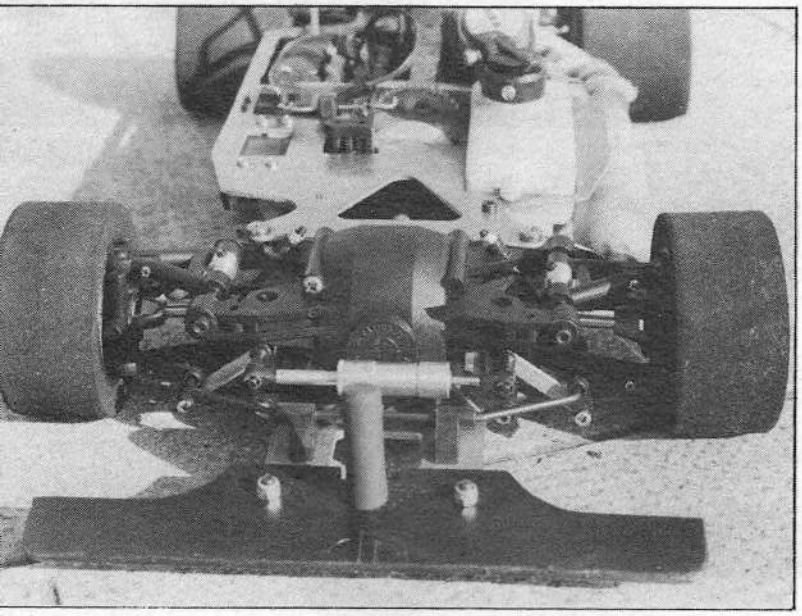
and having waited patiently for 35 seconds in the queue, we just pulled out and drove down the outside for the full five miles occasionally diving in and making spaces to allow the odd juggernaut and coach, room to pass. We couldn't understand why only one person 'tooted' at us until we realised that due to the French plates we were disguised as typical French drivers.

Time was still ticking away and although progress was reasonable it still seemed likely that we would miss the flight and thus have to purchase another ticket. This alone was sending shivers through Phil Greeno's wallet. Eventually we made the three lane carriageway that skirted Nice and still the traffic was solid, though moving. Lane swapping was called for and executed in a formidable fashion with two cars snaking in and out as if they were auditioning for 'Chips.' Occasionally we would lose sight of the second car, but then it would re-appear from behind another. We lost it again and suddenly there was the turn off for the airport on the wrong side of the road. We indicated with the windscreen wipers, whoops wrong switch again, and made the 'Michelins' squeal as we swerved across all the lanes and into the airport. Up to the departure gate and the doors flew open as we lurched on the handbrake, dived into the boot and flung the cases onto the kerb. There were too many for one, so all hands carried them down to the check in where a look of complete disbelief greeted us, there was less, than ten minutes till the actual take off. But where were the others? The cars still had to be returned and as we started up we were blocked by a taxi and a familiar voice said "Have we made it then?" We looked round to see the red panic stricken face of Phil Greeno who explained that as they lost sight of us so the gearbox on the estate went bang leaving them coasting in the fast lane. Bob Smith, the driver, jumped the car into the central reservation, put on the hazard warning lights, and leapt out into the road in front of a large taxi which had no choice but to stop. The gear was piled in and with the boot wide open they had made it to the airport.

Right: the SG 'Columbia MkIV' with the body off. Inexplicably this 'Columbia' is lighter than its conventional stablemate the MkIII or so SG claim.



Above: rear view of the 'MkIV' showing the new SG monoshock damper. The two piano wire hooks are suspension limit stops.



Left: close-up of the front suspension which reveals the high standard of all moulded parts and range of suspension damping adjustment.

The next problem was only a few minutes away as we tried to return one car when we had taken two out.

"Vere iz ze uzzer car?" the *Hertz* man asked.

"About 5kM down the road — on the central reservation — it's broken" was the answer but the man seemed a little perplexed, still, we didn't have time to explain and thus left him clutching two sets of keys and only one car!

We ran to the plane and as we eventually sat down the doors shut, behind us. Whew! a look at the watch revealed 30 seconds to spare. I just don't know what the rush was about!

Back at Heathrow Phil was still muttering about the £36.00 he was going to have to pay for the short term car park. Imagine the horror then when he found his new *Golf* GTI 'stood' on four wooden blocks with all the wheels stolen. Why does it always happen to him we ask? Wouldn't life seem dull and boring without Phil Greeno around!

Thanks Phil from all of us.

Serpent 'Quattro' goes 4WD

We understand that tests of the 1985 "Quattro" with 4-wheel drive transmission have now been completed at the Heemstede circuit in Holland. By all accounts *Serpent's* designer, Pieter Bervoets is delighted with the results.

The new "Quattro" will be available as a complete kit or a complete update package for owners of the original 2-wheel drive car.

Unlike other 4-wheel drive cars, the "Quattro" 4WD utilises a transverse engine mounting system which still allows the *Serpent* 2 speed transmission to be used. *Serpent* claim that this feature is particularly useful for 4WD as the extra drag involved can hamper acceleration. *Serpent* team drivers swear by the 2 speed set-up but there again they would wouldn't they?

The price for the 4WD "Quattro" is expected to be about £225 for the complete kit and approximately £75 for the update package. Contact *Elite Models*, 145 Newgate Lane, Mansfield, Notts, NG18 2QD for details of availability.

And then there was one

Of the big three European manufacturers only *PB Racing Products* remain uncommitted to the cause of 4WD in 1985, but for how long? Keith Plested, chief think-tank for *PB* has already started playing around with a 4WD, 1/8th IC Off-Road car which incorporates 4-wheel steering. Perhaps then we can expect to hear the announcement for a circuit racing version in the very near future? Paul Pagdin of *PB* tells us that they would rather not have to rise to the 4WD challenge presented by other manufacturers as they regard it as potentially damaging to the sport because of the costs involved. Having said that Paul is anxious to make clear that *PB Racing* is quite capable of producing just such a car quite quickly if the need arises.

BRCA National Championship Results

Saloon

PS	NAME	STH	TIB	ABD	MEN	TOT
1	R.ERRINGTON	18	20	20	17	58
2	S.WHITE	17	19	10	20	56
3	P.GREENO	19	18	-	19	56
4	P.PAGDIN	16	-	15	18	49
5	De.PRESTON	13	17	-	16	46
6	C.STRAUSS	8	12	19	13	44
7	C.WHITE	-	14	13	15	42
8	P.HAGUE	14	13	11	8	38
9	J.CHAMBER'N	11	15	-	11	37
10	G.CULVER	20	16	-	-	36
11	P.COOK	-	8	18	9	35
12	D.DIXON	15	-	17	-	32
13	W.BAILEY	-	7	9	14	30
14	Pa.BOOTH	9	11	-	10	30
15	D.BRADER	-	5	14	4	23
16	A.MAHATME	-	9	12	-	21
17	T.WILSON	-	4	16	-	20
18	B.PANESAR	-	6	-	12	18
19	S.FAGG	6	2	7	-	15
20	K.PLESTED	12	-	-	-	12

Sports/GT

PS	NAME	STH	TIB	BTH	ABD	LIL	WOM	LON	WRX	MEN	WBN	YOR	ALD	TOT
1	R.ERRINGTON	16	17	18	19	20	17	13	20	12	20	20	20	100
2	De.PRESTON	19	20	5	20	13	19	-	19	19	18	15	-	97
3	G.CULVER	14	12	15	17	19	20	-	13	20	19	-	-	95
4	Pa.BOOTH	13	6	16	-	7	14	18	18	4	9	19	19	90
5	P.GREENO	20	19	17	-	10	-	16	-	17	-	-	15	89
6	S.WHITE	15	16	20	16	15	18	11	16	15	12	-	18	88
7	P.PAGDIN	18	-	13	12	8	13	19	17	18	15	-	16	88
8	C.WHITE	1	9	19	13	16	15	-	15	14	17	17	13	84
9	C.STRAUSS	17	14	11	14	14	12	20	14	-	13	7	17	82
10	P.HAGUE	5	8	7	15	11	16	14	-	16	16	12	14	77
11	P.COOK	-	18	-	10	-	5	12	-	-	14	18	-	72
12	J.CHAMBER'N	12	7	10	-	18	11	17	-	11	11	11	12	70
13	D.DIXON	11	10	-	9	6	9	15	12	3	-	13	10	61
14	W.BAILEY	-	13	-	18	2	8	-	-	10	10	2	-	59
15	C.DUDFIELD	10	11	3	-	12	-	6	11	5	7	-	9	53
16	A.STAFFORD	4	-	9	-	3	6	-	9	-	4	9	7	40
17	B.PANESAR	-	-	-	-	-	2	-	-	13	-	16	-	31
18	Ph.BOOTH	-	15	-	11	5	-	-	-	-	-	-	-	31
19	N.SAYLES	-	4	-	-	-	10	-	-	-	-	8	5	27
20	S.FAGG	2	-	4	-	1	-	5	4	-	-	-	11	26

Formula

PS	NAME	STH	TIB	BTH	ABD	LIL	WOM	LON	WRX	MEN	WBN	YOR	ALD	TOT
1	R.ERRINGTON	19	20	13	20	20	18	20	18	17	18	20	15	100
2	De.PRESTON	20	18	14	18	17	17	19	20	19	15	15	-	96
3	G.CULVER	16	15	18	15	15	20	18	15	20	20	18	-	96
4	S.WHITE	17	17	20	9	19	19	15	13	18	17	12	20	96
5	P.GREENO	18	19	19	-	16	-	12	-	16	9	-	13	88
6	C.WHITE	14	10	11	19	14	-	-	14	13	19	9	16	82
7	C.STRAUSS	-	8	3	16	8	14	14	19	15	16	14	14	80
8	P.HAGUE	7	12	9	14	6	16	10	16	14	11	-	17	77
9	P.PAGDIN	10	-	15	13	13	15	13	17	8	10	16	-	76
10	P.COOK	-	14	-	11	10	8	17	-	7	14	19	-	75
11	D.DIXON	15	11	-	7	-	-	16	9	3	-	-	19	70
12	J.CHAMBER'N	6	13	12	-	11	13	11	-	6	13	7	18	69
13	Pa.BOOTH	13	9	16	-	2	10	9	12	11	7	17	9	69
14	W.BAILEY	-	16	-	8	18	12	-	-	4	12	-	-	66
15	C.DUDFIELD	-	1	10	12	-	1	8	11	9	-	1	8	50
16	T.WILSON	-	5	-	17	-	7	6	-	-	-	13	-	48
17	S.FAGG	8	3	-	-	-	-	7	8	10	8	-	11	45
18	N.SAYLES	-	-	-	-	-	4	-	7	-	5	11	12	39
19	B.PANESAR	-	2	-	-	-	6	-	-	12	2	8	-	30
20	N.McLEOD	-	6	-	-	5	5	-	10	-	-	-	-	26

World Qualifications

PS	NAME	SH	TB	BH	AD	LL	WM	LN	WX	MN	WN	YR	AD	HOL	FRA	ENG	BLG	TOT
1	R.ERRINGTON	19	20	13	20	20	18	20	18	17	18	20	15	12	12	18	-	100
2	S.WHITE	17	17	20	9	19	19	15	13	18	17	12	20	14	13	10	20	98
3	De.PRESTON	20	18	14	18	17	17	19	20	19	15	15	-	-	18	19	16	96
4	G.CULVER	16	15	18	15	15	20	18	15	20	20	18	-	-	17	11	15	96
5	P.GREENO	18	19	19	-	16	-	12	-	16	9	-	13	6	-	16	-	88
6	P.PAGDIN	10	-	15	13	13	15	13	17	8	10	16	-	-	15	20	17	85
7	C.WHITE	14	10	11	19	14	-	-	14	13	19	9	16	-	8	-	-	82
8	C.STRAUSS	-	8	3	16	8	14	14	19	15	16	14	14	-	6	14	-	80
9	P.HAGUE	7	12	9	14	6	16	10	16	14	11	-	17	-	-	6	-	77
10	P.COOK	-	14	-	11	10	8	17	-	7	14	19	-	-	-	5	-	75
11	J.CHAMBER'N	6	13	12	-	11	13	11	-	6	13	7	18	11	7	15	-	72
12	W.BAILEY	-	16	-	8	18	12	-	-	4	12	-	-	-	9	12	-	70
13	D.DIXON	15	11	-	7	-	-	16	9	3	-	-	19	-	-	-	-	70
14	Pa.BOOTH	13	9	16	-	2	10	9	12	11	7	17	9	-	-	-	-	69
15	C.DUDFIELD	-	1	10	12	-	1	8	11	9	-	1	8	-	-	-	-	50

Leicester BRCA 1/12th electric National Championship meeting

September 29/30, Hinckley Leisure Centre, Report by Pete Winton

MY FIRST encounters with the 1/12th National racing "circus" crowd were less than a year ago, and I was surprised at just how many people arrived at venues early on Saturday mornings having got up at the crack of dawn and travelled hundreds of miles. Now it seems like a half day getting up at seven a.m. and being in Hinckley at 8.30 to find pit space and book in!

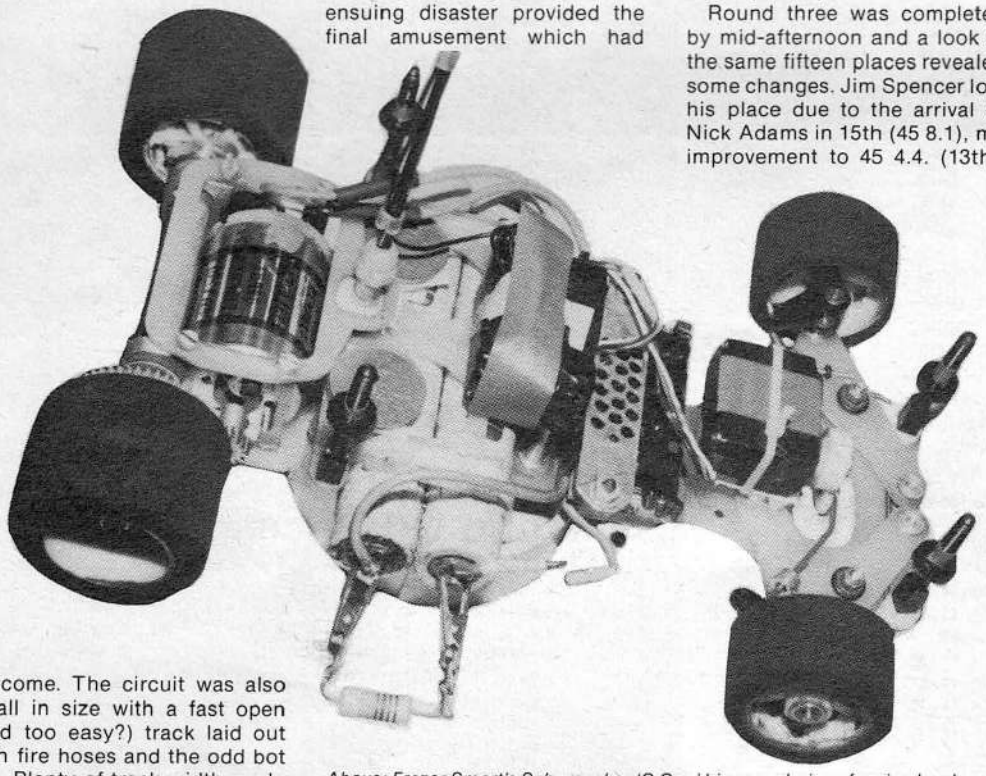
Alan and Helen Blakeman had had some difficulty getting a reasonably priced and sized hall for this meeting and an entry restricted to 80 was necessary to ensure enough space for everyone. The hall was small, but it gave a "club" feeling to the whole meeting which was most welcome. The circuit was also small in size with a fast open (and too easy?) track laid out with fire hoses and the odd bot dot. Plenty of track width made passing easy (in the right places) but there were some complaints that a National deserved a better and larger circuit. Personally, I don't agree and as some complainants did admit that the *Euro's* and the World's make people blasé and expect better than we can afford.

On Saturday the first heat of modified racing got underway at 10 o'clock. The track was quite slippery and for some reason many people lacked rear end grip. Round one was thus quite unrepresentative of things to come.

During round two it became clear that speed was vital if a reasonable placing was to be achieved. The track was kind to cells and most people were gearing up, some modified's going as high as 42mm (rev on ultimate ratio). At the start of heat 7, John Robson "Impersonated" the warble of the starting signal which caused Pete Jones to leap off into the lead, realise his mistake and reverse back just as the real start signal went. The ensuing disaster provided the final amusement which had many in fits of laughter, but it was a bit daft really. I can imagine John hopping made if someone did it to him.

After round two the top fifteen had an unfamiliar look about it. In thirteenth was Jim Spencer, running a short wheelbase *Associated* RC12is. Jim made the wheelbase mod himself and was using a *Reedy* blue dot double wind motor. In tenth position was 'yours truly' with an *ATP* 'Omega' and a *Trinity* triple wind. One place above was Peter Farmer with his *Schumacher* "C" car! Pete was pitting with Team *Schumacher* and could have had almost any motor in! Dave Foster had driven like a maestro to hold seventh place with his *Schumacher* 'C car' using a *Parma* 'Ferrari'. Above Dave it was all very familiar with Andy Dobson holding top slot on 48 11.0 (small track, lots of laps!) followed by a revitalised Tony Wells (47 8.7), Phil Davies (46 0.4) and Jimmy Davis (46 1.5).

Round three was completed by mid-afternoon and a look at the same fifteen places revealed some changes. Jim Spencer lost his place due to the arrival of Nick Adams in 15th (45 8.1), my improvement to 45 4.4. (13th!) and David Gale (46 11.2) taking 11th spot. Graham Davies drove a blinder for 10th (46 6.2) and Dave Foster improved to a superb 4th with 47 8.6, out qualifying both Schumacher Team drivers Phil Davies (47 9.5) and Les Pipe (47 16.8) in the process! Above Dave was Chris Arnolds *Parma* 'Euro Panther' (47 8.2) and Frazer Smart's 'C car' (47 2.5) Andy (I've had more FTD's than you've had hot dinners) Dobson was top of the pile with 48 11.0.



Above: Frazer Smart's Schumacher 'C Car,' his new choice of racing hardware for the last few meetings of the season.

Above: Frazer Smart collects his trophy for winning the Modified class A-Final. Unfortunately, Frazer suffered a contentious disqualification after finishing third in the Standard class A-Final.

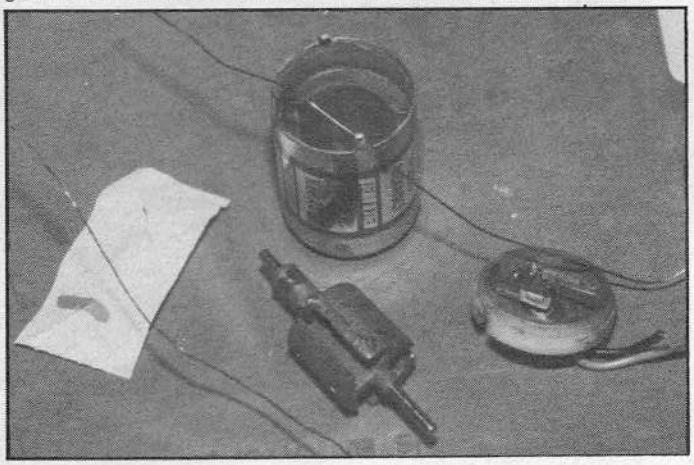
Finals proceeded to plan until the B, when with over half the race run, the timing computer did an Arthur Scargill (all out!) and the race was stopped to be restarted after the A-Final.

The top final had an all too familiar look about it as soon as the starting signal went. From pole position Andy Dobson took off into a clear lead with the field in hot pursuit. But on lap 2 an error by Andy saw the pack stream past with Fraser Smart in the lead chased by Jimmy Davis. This looked like a repeat of Derby as the *Associated* car snapped at Fraser's rear wheels almost immediately crashed twice and dropped down the field. Watching from afar, Chris Arnold saw his opportunity and slipped into second place to chase Fraser. Les Pipe was probably the fastest car on the circuit but a poor start meant he was having to do it all from the back. That he did, and finished second from Fraser with Chris third, and Jimmy recovering the fourth.

On Sunday morning it was raining, enough to remind certain people that 1/12th is not as bad as it seems, you race in

the warm and dry as well! There were signs of the previous night revelries on some faces as the modified motors were replaced by standard motors for todays heats.

The word standard is now a complete anomally. The difference in speed between a good and a bad standard motor is enormous as those of us in the D-Final on Sunday will tell you. It is no longer a cheap leveller of horsepower, you have to buy several standard motors to find good one, whereas *all* modifieds



Above: the stripped down third place motor belonging to Chris Arnold. In 1/12th scale racing the top three motors have to be opened and inspected to check their legality.

are good if looked after and geared correctly. The mass move to *Yokomo* 05's at Chesterfield has been partly reversed with many more Igorashi's in evidence. After three rounds of racing it was that man Dobson having another hot dinner on 48 0.6. Fraser Smart proved himself to be definitely the rising star with second fastest (48 4.0) again today, and Chris Arnold was third (47 5.0). The 'Euro Panther' looking very sharp. Micky Booth made the A (46 3.2) in 8th place, with David Gale in 10th on 46. 4.4. Consistency award goes to Team *Alpha Track Parts*. Andy Benson was 11th, Tim Biggs 12th and the guv'nor, Alan Blakeman 13th. The team surnames are all B's, now known as the Three Bears!

In the C-Final the race was enlivened by John Robson who managed to bury his car in the wall bars behind the main straight, brushing aside the track marker and two thicknesses of hardboard on the way.

Graham Davies won the B-Final after an early dice with Bill Jones looked like being a real race. Bill hit a hose and lost the front body clips which dropped him back to fourth.

The A-Final provided Andy Dobson with another win. He was off pole position like a rocket and never relinquished his lead. Fraser Smart moved into third and looked set to challenge Phil Davies for second, but Phil Olsen had a say in that and moved passed Fraser, only to drop back to fourth. Phil Davies and Fraser then had a terrific dice for second which eventually went Phil's way with a magnificent passing manoeuvre as they came on to the main straight. The finishing order was Andy Dobson, Phil Davies, Fraser Smart, Phil Olsen, Chris Arnold, Les Pipe and Tony Wells I mention this because at the post race scrutineering the cars of Fraser and Phil Olson were disqualified as being underweight. The motors of Andy Dobson and Phil Davies were stripped by Pete Jones and pronounced legal, but Fraser entered a protest and Phil O sat and waited.

Now, the current minimum weight limit is 1lb 15oz, but the official BRCA scales are hopelessly inaccurate and should have been replaced last Christmas with money set aside for that purpose at the AGM. To check the scales a metal block weighing 1lb 15ozs is used. Both Phil and Fraser were adamant that they had weighed their cars at the start and had the scrutineer agree they were over limit. The usual race weight loss on tyre wear is 2 to 4 grammes or about 1/8 of an ounce. This difference cannot be accurately measured on the scales used. Another set of scales was produced which weighed the steel block as over 1lb 15oz, but the cars less than the block. We then had the ludicrous argument as to whether the weight limit was the metal block or 1lb 15ozs! Due to the inadequacy of the BRCA equipment the organisers disqualified Phil O and Fraser as being underweight which was neither fair, not strictly legal, since there was no accurate set of scales available. As usual in these affairs no consensus was reached nor was any attempt made by the parties to understand the others point of view. Fraser's and Phil's deliberate refusal to collect their trophies was less than kind to the organisers who held a very good meeting and tried to resolve a problem which was not of their own making. As Pete Jones returned to strip Chris Arnold's motor (he was now the third place man) he remarked "They don't weigh **!!??-!0* gold as often as this!"

The championship goes down the wire to Runcorn, I hope they get it right there!

Results

Modified

A-Final	B-Final	C-Final
1 Fraser Smart	**1** David Gale	**1** Tom Watson
2 Les Pipe	**2** Glynn Peglar	**2** Mark Brown
3 Chris Arnold	**3** Jim Spencer	**3** Pete Jones
4 Jimmy Davis	**4** Pete Angus	**4** Leigh Raybold
5 Tony Wells	**5** Chris Evans	**5** Steve Haywood
6 Andy Dobson	**6** Pete Winton	**6** Alan Blakeman
7 Dave Foster	**7** Pete Riley	**7** Fred Hatfield
8 Phil Davies	**8** Phil Olson	**8** John Robson
9 Grahame Davies	**9** Nick Adams	**9** Micky Booth
10 Andy Benson	**10** Pete Farmer	**10** A. J. Bailey

Team 1) Schumacher A **2)** Demon **3)** Parma **4)** Gec Stychfields **5** Alpha Track Parts **6)** JDM 'A'

Standard

A-Final	B-Final	C-Final
1 Andy Dobson	**1** Grahame Davies	**1** A. J. Bailey
2 Phil Davies	**2** Andy Benson	**2** Pete Jones
3 Chris Arnold	**3** Pete Angus	**3** Leight Raybold
4 Les Pipe	**4** Bill Jones	**4** Eddie Hawkins
5 Tony Wells	**5** Tim Biggs	**5** Steve Walker
6 Jimmy Davis	**6** Glynn Peglar	**6** Mark Brown
7 David Gale	**7** Tim Dakin	**7** John Robson
8 Micky Booth	**8** Nick Adams	**8** Dave Foster
9 Fraser Smart (Disq)	**9** Mick Doughty	**9** Jim Spencer
9 Phil Olson (Disq)	**10** Alan Blakeman	**10** Dave Towell

Team 1) Schumacher A **2)** Parma **3)** JDM 'A' **4)** Alpha Track Parts **5)** Demon **6)** Washington Rejects

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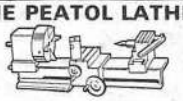

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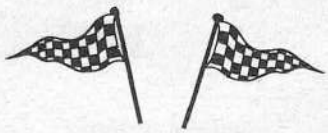

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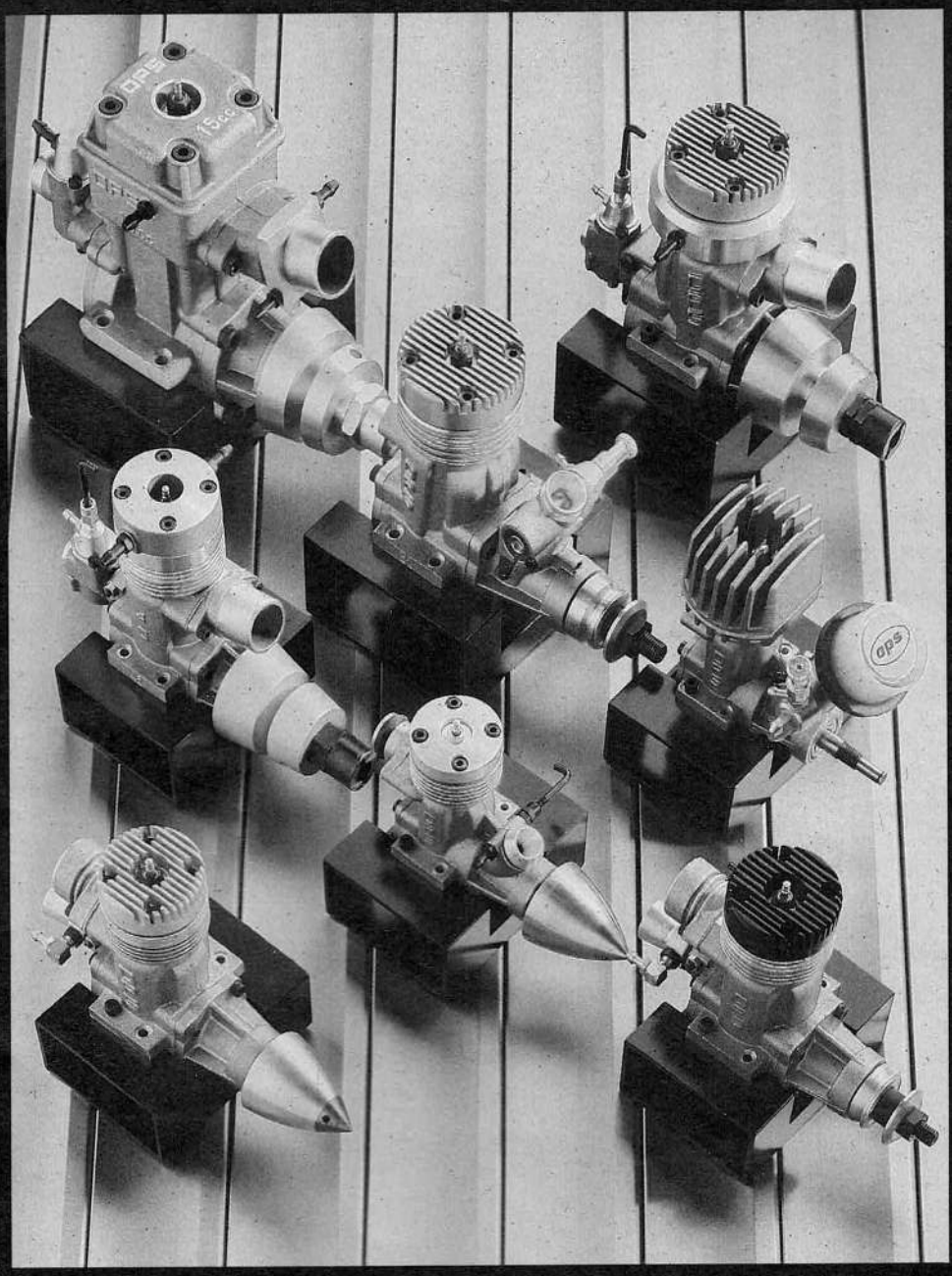

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