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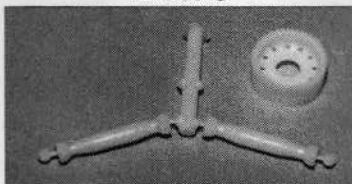
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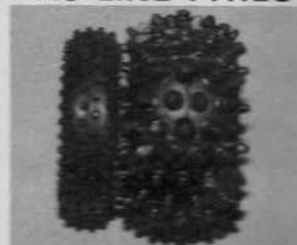
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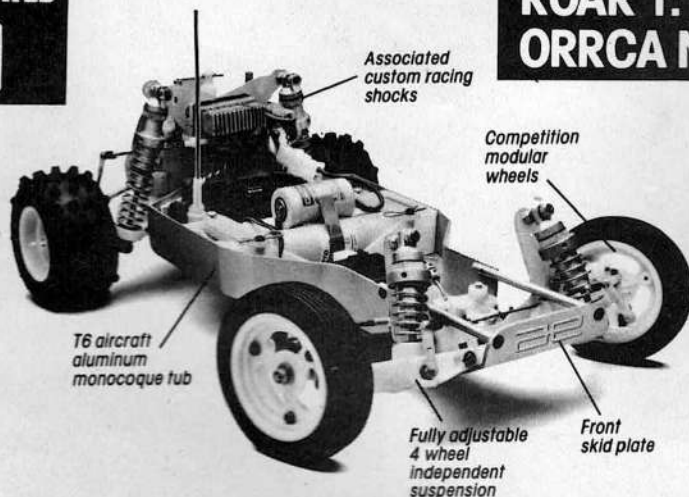
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# Model CARS Monthly

April 1985  
Volume 5 Number 4

**Publisher** TONY DOWDESWELL  
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**EDITOR** LEWIS ECKETT  
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## Cover

*The glamour and the glory: Lynnette's legs provide an interesting backdrop for this marvellous 1/8th scale bodyshell of the "New Man, Porsche 956" produced by Gary Cannell. The shell is manufactured by Parma International and the chassis is a PB Racing Products "Nova." Photo by Lewis Eckett.*

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## Editorial — by Lewis Eckett

JUST TO prove that we never stand still, this issue of MCM features yet another change of style and content. It will not take you very long to notice that we have two separate 'Rough Riders' sections for 1/8th and 1/10th Off Road racing interests.

As you can see the 1/10th buggy section now forms a substantial part of the magazine and will continue to do so from now on. The reasons for this are simple. Electric buggy racing is now the most popular R/C car racing activity in the UK. As such we feel it should command a majority share of our monthly R/C car racing coverage. To this end we have initiated a new page design and put into effect our thoughts on what should be covered in the coming months.

### We hope you like it!

If you think you have something to contribute then let us know. We are always pleased to hear from all racers, clubs and traders with information and ideas although cannot promise to use everything we receive.

Finally, an apology for last month's Editorial where I praised the efforts of those society members who attended the Model Engineer Exhibition. I forgot to mention Paul Dudley and Linda Woodger who set up and manned the Radio Stockcar Association stand for the entire week. They also deserve heartfelt recognition for their efforts as do all the other RSCA members who put in an appearance.



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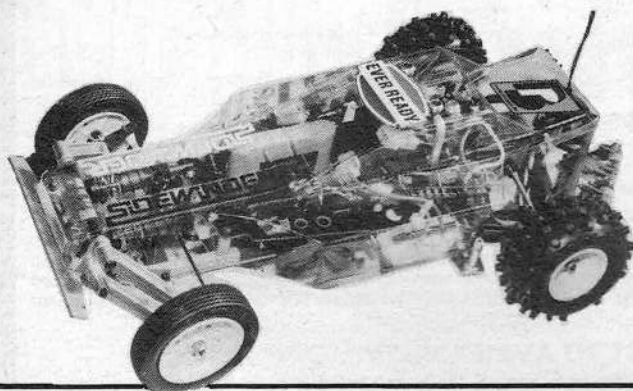
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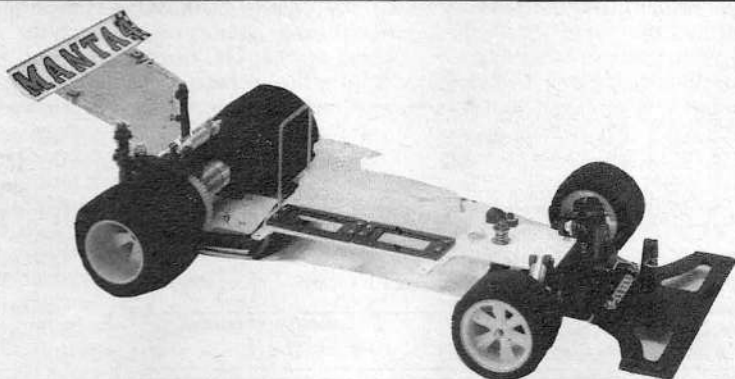


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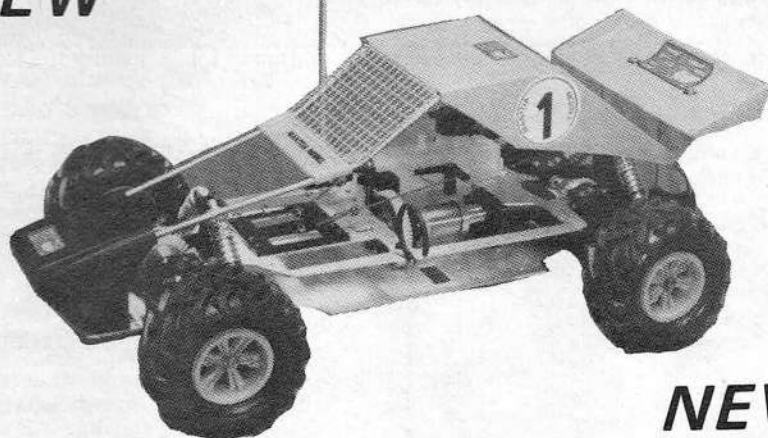


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# Seen & Heard

## Model Engineer Success

This year's Model Engineer Exhibition turned out to be another success for Model Car racing fans. To say that the entry list was over-subscribed would be an understatement. To say that we were deluged with entries for the 1/10th Scale buggy racing would be closer to the point. In fact over 400 entries were received for two days of racing, unfortunately only two hundred could be accepted (and that was pushing it).

The 1/12th scale circuit racing also kept its end up on the single day of racing, with many familiar faces taking part, including European and National Champions.

Electric 1/12th Scale Stock-car racing made a welcome debut to the Show and this low-cost sport looks to be growing evermore in popularity.

Slotcars returned to the M.E. for the first time in many years with a Slotcar track and stand manned by the British Slotcar Racing Association (BSCRA). The public were allowed to race on the six-lane circuit with prizes for the fastest times of the week. Two National events were also held.

Finally, the trade stands reported record business with the emphasis firmly centred on 1/10th Electric buggies.

All in all a highly successful enjoyable Show. See you next year!

## BRCA moves up a gear

The British Radio Car Association are looking to put themselves about a bit in 1985. Promotions have taken place at the 54th Model Engineer Exhibition and similar appearances will be made at the Sandown Symposium and Woodvale Show.

Coupled to this is a new drive for members and this end we have a new introductory membership to provide a painless step for the new boys before they become full members. The introductory deal costs £1.00 and lasts for three months at which time a reminder letter will offer full membership at an extra cost of £6.50.

"But what do I get for £1.00?" we hear you cry. Well, first off, a letter of welcome from the Secretary, a badge and sticker and a set of racing rules (relating to the particular aspect of the hobby you are interested in). Also (and this is the best part) a flashy looking competition licence with your name on and BRCA membership number. This allows you to enter BRCA sanctioned events and score points within the three-month period. Incidentally, once the introductory period is up, it's not possible to buy another £1.00 membership; one chance is all you get.

Whether or not this new scheme will result in new full members remains to be seen as the M.E. Exhibition at beginning of January was its first airing. Nevertheless, Jeff Lindstrom (Secretary) told us that 165 new memberships were taken, 103 of which were the introductory type. Also the majority interest of

Third party insurance is included in the £7.00 fee.

The BRCA also works too promote R/C car racing in the country and by doing so, organises National Series of events and formulates Nationally acceptable racing rules for each class of car. The organisation of International race meetings is done

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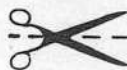
these racers was 1/10th scale buggies.

Most people, when faced with the prospect of joining the BRCA usually ask: "What do I get for it?" In physical form, a handbook containing racing rules, events calendar, clubs information and adverts. Also a regular newsletter (circuit chatter) which gives details of previous and forthcoming events.

through the BRCA as are dealing with the Home Office concerning radio frequencies, etc.

Finally, the BRCA can help clubs by liaising with Local Authorities and Sports Councils. Further details of the BRCA can be obtained from Jeff Lindstrom BRCA Secretary, 6 Parkway, Queensbury, Bradford BD13 2JA. Alternatively fill out the accompanying form and send it off.

## BRCA Membership form: fees, introductory £1.00, full £7.00, family £7.00 (plus £1.00 per family member)



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I enclose cheque/PO for £. . . . payable to the British Radio Car Association

Date ..... Signed .....



## Pro-AI Foil Batteries

If recent developments by the Swedish company, *Pro-AI-Foil* are anything to go by the R/C car hobby is in for a major shake-up during the coming months. The reason? a ten year development programme in conjunction with the Swedish Space Agency which has recently culminated in the introduction of a revolutionary range of rechargeable batteries.

PAF's design consultant, Loof Lirpa claims that these new power sources will totally obsolete conventional lead/acid, nickle/cadium and alkaline type batteries within the year.

Of particular interest to R/C electric car racers will be their new cell designated the 1/IV/85 as it is an equivalent to the normal 'sub C' 1.2ah Ni-Cad cell.

PAF's claim that their cell cannot be overcharged as it will accept any current range until the cell is charged. At this point the cell automatically switches itself off and no further current is accepted. Naturally this means that sophisticated charging methods are no longer needed.

Once charged PAF also claim that their cell will deliver maximum power for over two hours. Obviously this could be the answer for longer duration finals, particularly for major championship events and will no doubt result in a revision of racing rules.

These new batteries are of comparable size, weight and price to conventional types.

Unfortunately no further information is available until the actual product release date of April 1, at which time we hope to evaluate them further.

## Club Chat

### Dumfries Model Car Club; Off-Road Section

The DMCC Off-Road section has had a very active 1984, racing Buggies at our Grove Service Station circuit. We raced every Saturday morning and Wednesday evening (light permitting) and attended several North of England national meetings.

Membership of the club is still fairly low, but improving and this, together with other expanding Buggy Clubs in Edinburgh, Glasgow and Newton Stewart has encouraged us to run a Scottish BRCA regional Qualifying Series in 1985. This will be run as a Scottish Championship in itself and will be run over at least four rounds. We will also be running a round of the Northern League in June.

Much of this has to be finalised, so any other clubs in Scotland wishing to compete in this series or anybody wishing to join the DMCC should contact Jimmy Hamilton on 0387 52572 days or most nights for further information.

### Bournemouth Radio Auto Club

New Secretary P. Rouse, 29 Clive Road, Highcliffe, Christchurch, Dorset BH23 4NX. We have a very active club comprising four sections. 1/8th Stock Cars; 1/8th I.C., 1/12th Electric; 1/8th Off-Road and 1/10th Off-Road.

Both Off-Road 1/8th and 1/10th are governed by one section which has been newly opened and is drawing good membership. We run 1/12th electric every week and Stock Cars and 1/8th I.C. on Selected Sundays. Any queries can be directed to me at the above address or by phone on Highcliffe (04252) 4917.

### Wythenshawe Model Car Club

We race at Wythenshawe Social Centre, Manchester, on alternate Thursdays (2nd and 4th in each month) and have recently celebrated our 5th Anniversary of continuous racing by purchasing a Primaflet carpet. This has proved ideal not only for 1/12 racers, but for buggies too. We wish to encourage racing without tyre additives, though all-comers will be welcome.

Anyone requiring further details should contact Colin Perrin (061483-0222) or Mike Jackson (061 429 6421).

### Wrexham Model Car Club

For 1985, Off-Road racing will become an established facet of the Wrexham Club's racing fixtures. To begin with the emphasis will be on the 1/8th Scale I.C. Off-Racing Road racing side, but 1/10th scale electric buggies will be accommodated also.

All enquiries should be directed to Paul Leach.

## Events Focus

### Harrogate Model Car Club

Two-day off-road electric competition on 13/14 July, 1985 at Newby Hall, Ripon as part of the 'Modelling Weekend' also being staged.

Initially there will be 540 and 380 Classes run to B.R.C.A. Rules with perhaps novelty racing for Wild Willy's, Motorbikes, etc., if interest permits.

For further details send S.A.E. to Mr. S. R. Hidden, 245a Woodfield Road, Harrogate, North Yorkshire.

### Oxclose Radio Car Club, Washington, Tyne & Wear

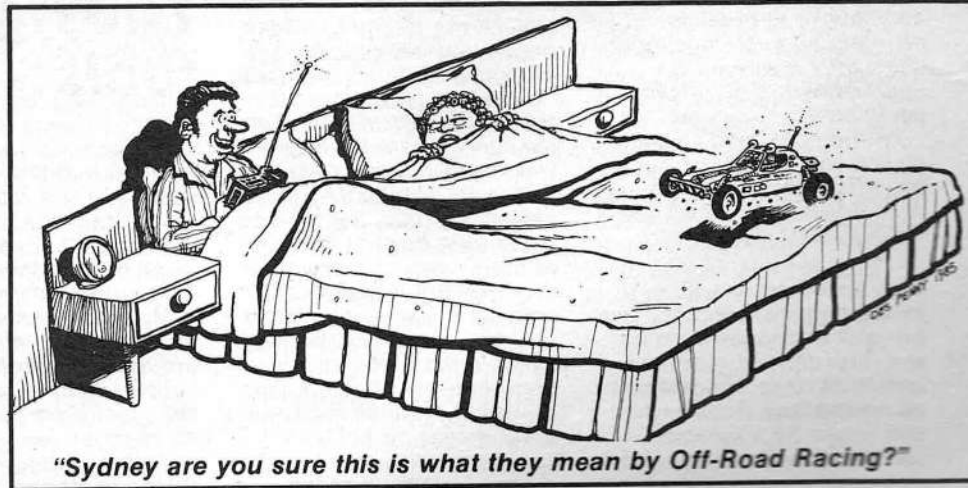
British 1/12th Scale circuit racing Grand Prix  
Modified class: March 30  
Standard Class: March 31  
Entry fees £5.50 Individual.  
£7.50 Team.

The meeting will be run to BRCA rules. Entries accepted on first come first served basis. Two-day entries given preference. Approved additives allowed. Closing date: Saturday, 23rd February, 1985. Recognised frequency bands only. Trophies — all A Finalists; 1st-5th B & C Finalists; 1st - 3rd every other final. Entries to Peter Riley, 12 Stanhope Close, Newton Hall, Durham DH1 5SR. (Telephone: 0385 45695). Enclose S.A.E. for confirmation, route and accommodation.

### Scarborough Radio Control Model Club

Advance notice of the 1/8th East Coast Off-Road Championship for the 'Yorkshire Carpets Shield' to be held on September 8th, 1985.

Club Secretaries, please note: enquiries to Scarborough 890231.



"Sydney are you sure this is what they mean by Off-Road Racing?"



# Letters

Letters to the Editor are published on the understanding that views expressed are not necessarily those of the Editorial Staff or publishers of Model Cars magazine. All correspondence requiring a reply should be accompanied by a stamped addressed envelope.

**Your chance to tell us what you think;  
ask our advice and let off some steam**

## Beginner's choice

Dear Sir,

After a lay-off of just over a year (whilst getting married) I am keen to get back into running a model car again. My last attempt was with an 1/8th Scale Mardave Stock Car, but this time I would like to try electric Off-Road.

Working to a budget of about £75 (I already own radio gear) it is almost frightening to look at the range available.

I am particularly interested in the Tamiya 'Audi Quattro' and 'Subaru Brat' but the price difference between these two and in fact many of the kits makes me wonder which out of the wide range of kits available I should choose. Not only to suit my pocket but mainly to allow me to be competitive in order to maintain an interest without constantly having to upgrade with high priced equipment.

With this in mind I would be grateful for any help you can offer me.

J. P. Hobson  
Heanor, Derbyshire

**With such a wide and varied range of electric buggies to choose from it is a little difficult (and unfair) of us to suggest one above the rest. In any case this would be a personal recommendation only. However, we would suggest**

**that you pay a visit to your local club to see what is being raced there. Most club drivers will offer helpful advice about their cars and although this might be slightly rose-tinted some useful information can be had.**

## Noisy Motor

Dear Sir,

I own a drastically modified Tamiya 'Rough Rider' and in an attempt to lighten it I removed the receiver battery pack and replaced them with two dropping diodes in series classed as a receiver battery eliminator by local model shop. However, on running the buggy after installation of the diodes I encountered bad interference problems. This caused the buggy to find brick walls irresistably attractive!

I thought I had traced the fault to the fact that one of the capacitors from the motor was missing; I replaced them with two 10nf capacitors (50v) but these made little or no difference to the problems. I would be very grateful if you could suggest a way in which this problem could be alleviated as the radio batteries contribute to a fair amount of weight. Thanks for a great magazine but please could you stick some of the readers' letters in at the

front; like you had in the bi-monthly editions. They are sometimes helpful to others and if nothing else it gives us a laugh to find that other buggy addicts have problems. Thanks again!  
Kinlay Laidlaw  
Fife, KYll

**Depending upon the type of diode you are using it is possible that the receiver has become overpowered which in turn can make it oversensitive for the type of radio gear being used. We suggest you purchase a battery eliminator of the type supplied by Glyn Peglar of Laser, 230 New Road Booker, High Wycombe, Bucks HP12 4RG. Approximate price £3.00**

**Failing this a look at the motor itself would not go amiss as if it is in bad condition 'arcing' between the brushes and the commutator could promote interference.**

## The right tools...

Dear Sir,

In the mid-60s I was a very keen slot racer associated with the famous Ashton Club, until I broke away to form the Red Rase Club in Rochdale.

My work involved a fair amount of movement around the country and subsequently I have not seen a slot car for at least 15 years or so.

Just by chance a few weeks ago I saw your

magazine and since reading it I have placed an order with my newsagent.

Yes, I'm afraid after all these years the 'Bug has Bitten' once again but not with slot racing. I was astonished at the progress made in the last few years in the R/C field, whilst slot racing seems to have virtually stood still from the time I was involved.

I am thinking of taking the plunge into 1/10th Scale electric Off-Road racing and was hoping that you could perhaps supply the following information. Having purchased a kit, it will probably be the Kyosho 4W Drive - Steering 'Progress' (may as well start as I mean to go on), could you please tell me everything else I will need to pursue the hobby, bearing in mind I am starting from scratch. Could you please also give me a list of the basic tools I will need for construction and maintenance, etc.  
Barry Fisher  
Prestatyn, Clwyd

**'Model Cars' has published regular 'Starting Point' features on how to get into the various aspects of the hobby, including 1/10th electric Off-Road. In fact we will be dealing with this subject once again in the very near future.**

**In our experience most buggy kit instruction booklets usually contain a list of tools needed and often supply some of their own. The same instructions also include the necessary information on what is needed to complete the kit. Radio gear, rechargeable Ni-Cad batteries and battery charger.**

**Alternatively, have a word with your local model shop for advice and supply. Quite often they will offer a price deal on the complete racing package.**



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## Slotcar backlash

Dear Sir,

I feel I must reply to the letter concerning my report of the BSCRA Nationals in the December edition of 'Model Cars'.

I did not complain about the quality of the racing I saw.

The basic organisation of the meeting was very good indeed, but surely the National organisation should be expected to run a first class meeting. No-one else from the hobby (apart from Steve) has made any complaints, in fact several people have commented that the report was truthful and written without the benefit of rose tinted glasses! My report concerned itself mainly with the cars and the general technicalities of the meeting. I did not propose to make excuses for the

BSCRA and their problems in dealing with the venue owners. I feel our readers could not care less whether the Hall owners let the BSCRA down or not. When you attend a meeting you take things you find at face value. Come off it, Steve, do not try to kid me that the general public did not think that the Hall was a tip.

When an organisation is short of funds should you waste money on expensive venues which was the case here? I would have chosen a holiday resort as the last place to hold a meeting if money was tight. It would have made more sense to find another venue in a cheaper area. The lighting was bad at the end of the day and I repeat, I would have refused to race in light so bad. The comment regarding club lighting being no better is absurd. I have visited over 150 clubs in all parts of the country and I have never had to race in lighting as bad as was the case here.

I did speak to many members of the local organisers and they all agreed that the place was unsatisfactory. The

advance publicity lead me to expect something really special. What a let down on the day.

The Power issue really takes the cake. Ian Jensen in his feature in the January issue of this magazine comments that the Nationals track is renowned for its lack of power. The fact that he used such a low ohmage controller only reinforces the point. Many people complained to me that cars they had built and qualified with on other circuits would not work on the Nationals track. Dare I say, rather than waste money on the venue the money would be better spent on some better wiring on the track. The comment about records being smashed is irrelevant, because if the power was correct the records would have been totally destroyed.

The Programme was very good as was the signposting to the meeting, although I was there for nearly eight hours on the Sunday and I certainly did not see the hundreds of general public who were supposed to have visited the meeting.

Organisation but it must come out of the clouds and cater better for the newcomer to the sport. At the moment I believe that there are less than 500 members in the organisation. When you consider the number in Slotstox, Scalextric and other forms of low cost racing it seems to me that something needs to be done to attract new members. The idea of 16D racing is great and this magazine is committed to the promotion of it. Pete Crane is doing a great job here. 'Slot Car Racing', edited by Gary Cannel, is a very good effort indeed, may it continue.

The efforts of Ian Fisher, and the lads of Area 6 resulted in a super job at the Model Engineer Exhibition. Every time I passed the track it was always packed out with people. More of this sort of thing is what is needed to spread the word.

As can be seen I have got the good of the hobby at heart and resent very strongly the charge that I have damaged the hobby. Trevor Tennant Bedworth, Warks.

# Gearbox

## MB Leisurecraft electronic kits

Both 'Model Cars' and its sister magazine, 'Radio Control Models and Electronics' have regularly produced construction features for electronic designs. However for the casual builder the necessary components can be difficult to find, particularly if the component manufacturer's parts quoted in the instructions are not available from your local source.

Help is at hand in the form of MB Leisurecraft who are now supplying kits for many of the electronic projects featured in the two magazines. Of interest to R/C car modellers will be their kits of the 'Model Cars' FM digital, two channel radio system and the electronic speed controller both designed by Terry Platt.

The R/C system kit has everything needed to produce the receiver and trans-

mitter right down to the cases, stick units, telescopic aerial and printed circuit boards. The price of the complete kit (receiver and transmitter) is £62.54 although they can be bought separately MB also offer an alignment and type approval service to ensure that your work is going to function properly and not cause anyone else problems.

The speed controller is available in two forms, forward and reverse with a maximum output of 15 amps and forward only (with braking) which has a maximum output of 25 amps. The prices are £12.65 and £10.64 respectively.

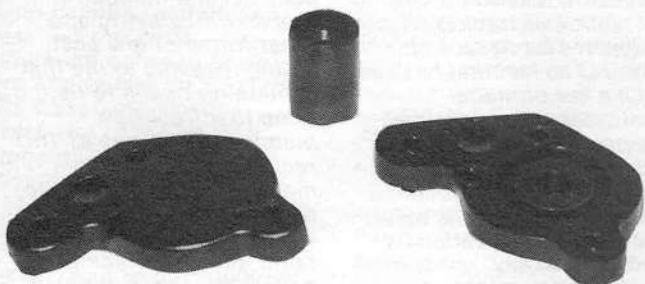
For further details contact MB Leisurecraft at 14 Goosen Green, Aylesbury, Bucks. HP21 7BX. Tel. 0296 83631.

## SRM racing accessories

Apart from importing CRP Products and Associated kits SRM Racing are also supplying some of their own add-on components for popular Off-Road kits. One such item is their bushing set for the rear suspension on the Tamiya 'Frog.' This comprises of a moulded plastic bush for insertion into the

gearbox casing and two outer stoppers. Both items will increase the bearing area for the rear trailing arms and thus decrease wear of the plastic parts.

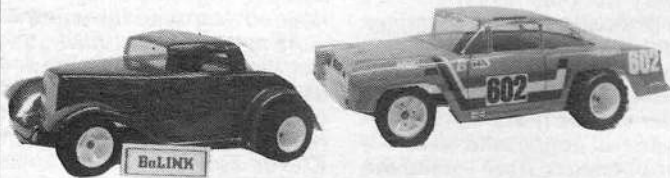
Price £1.95 available from SRM Racing, 140 West Street, Fareham, Hants. Tel. (0329) 233945.



## Bolink bodies

Bolink R/C Cars of America has released the first two bodies in a series to be called "The Classics." These are a 1932 Ford Coupe and a 1955 Chevy both of

which are produced in 1/10th scale from polycarbonate. Bolink products are available through Cecil Schumacher, 'Rudge,' Church Brampton, Northampton, NN6 8AU.



## Trade Model Supplies tool-kit

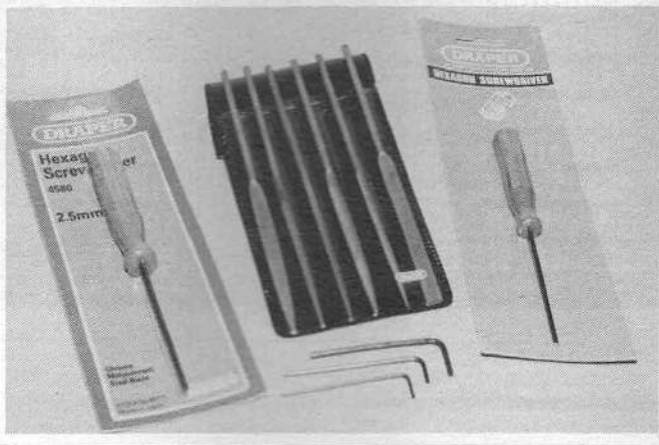
Most modellers' tool-kits will include only what is strictly necessary for their needs; however without adding unnecessary items there are some tools that will prove to be indispensable.

TMS are now supplying a neat hand file set which should provide for every application imaginable and at a very reasonable price too. The pack consists of one shaped; one flat; one round; one half-round; one square; one triangle. The files are supplied in a vinyl package for storage and safe keeping.

Price: £4.50.

Also on the TMS list are a range of Draper hexagon screwdrivers to replace Allen keys in areas of difficult application or quick release. Most of the popular sizes are available. Prices: 63p-73p each.

Finally all sizes of Allen keys can be obtained from TMS. Price 10p each. TMS are at Morley Models, 10/12 Morley Bottoms, Morley, W. Yorks, LS27 9DQ or Three Towers Models, 58 Haley Hill, Halifax.

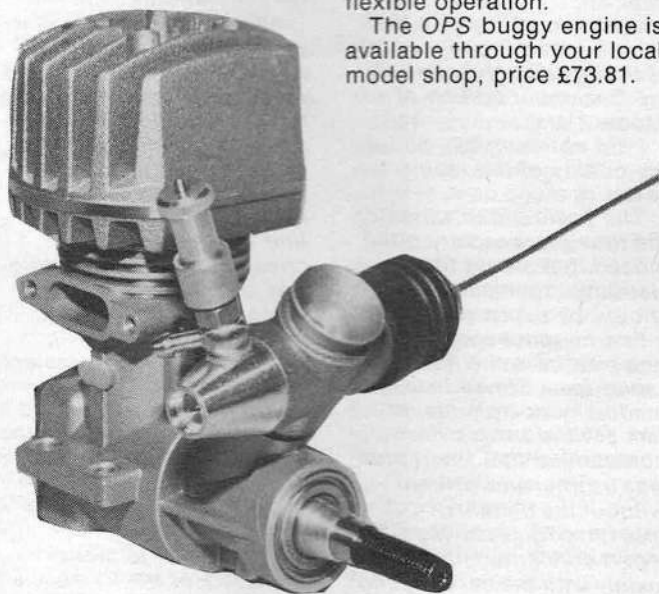


## New OPS engine

Macgregor Industries are now the official importers for Italian OPS engines here in the UK. One of their latest introductions for R/C car

racing is the new buggy version of their high performance .21cu.in., 3.5cc car engine. This motor is supplied complete with a slide carburettor that features a ball end linkage to give more flexible operation.

The OPS buggy engine is available through your local model shop, price £73.81.



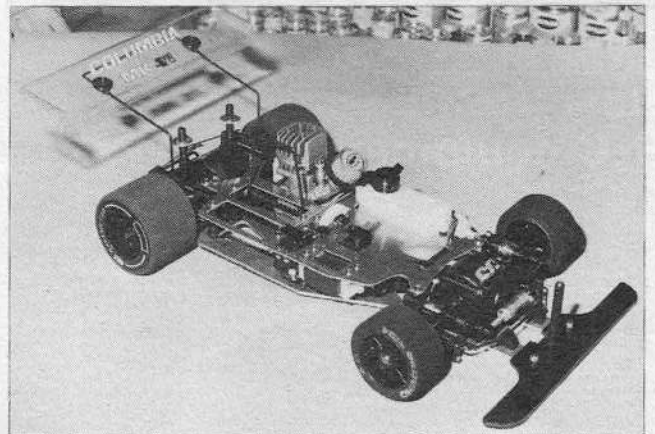




SG RACING CAR

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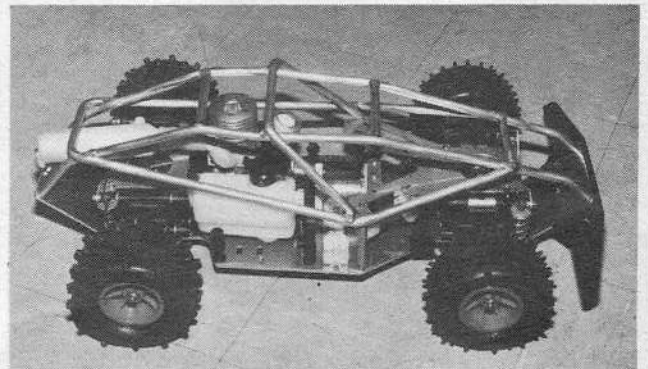
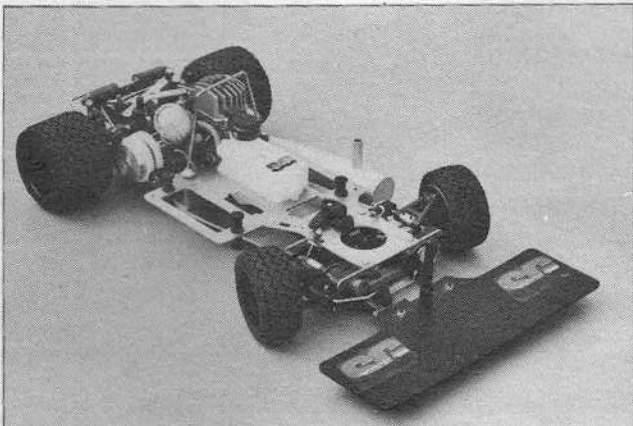
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  - (4) Any number of photos may be submitted but please mark the back of the photos clearly with your name and address plus details of the models, the site and the camera used.
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  - (8) Entries will be judged by staff of MAP. No correspondence or telephone conversation can be entered into about entries.
  - (9) The judges' decision is final.
  - (10) *Model Cars* retains the right to publish winning entries plus selected runners-up in any form it sees fit. All photographs will be paid for at our usual rates.
  - (11) The publishers, MAP Ltd., can accept no responsibility for photographic material submitted but every care will be taken to ensure its safe return when requested.
- SEND YOUR ALL-ACTION PHOTOS TO: MODEL CARS PHOTO PRIZE, PO BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD HP2 4SS.



**PHOTO 1:** "Ouch" is the appropriate title of this photo sent in by Nicholas Hudson of Keighley, W. Yorks. Nicholas' efforts with his Kodak disc camera are remarkable, perhaps too such so?

**PHOTO 2:** A low-down start line shot taken at the Coventry Club circuit (again!) by Graham Lomas of Little Heath, Coventry. Graham used a Pentax ME Super to freeze the action.

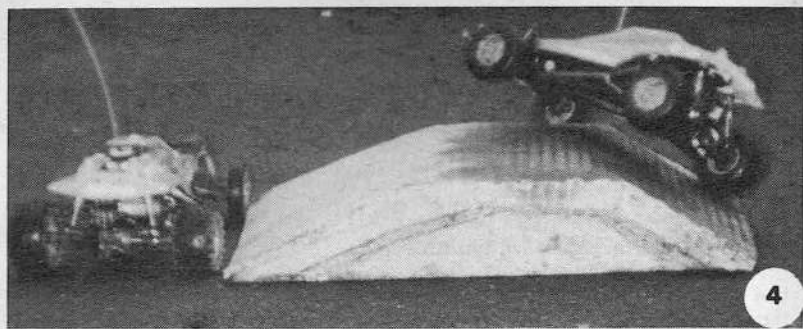
**PHOTO 3:** Adrian Pryke's modified 'Wild Willy' steps into a hollow at the Hare and Hounds Circuit in Sussex. Adrian comes from St. Leonards on Sea, Sussex and used a Pentax MG camera.







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WINNER

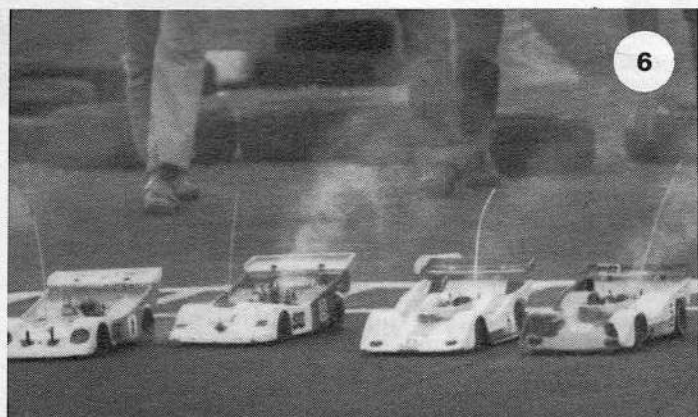
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**PHOTO 4:** Jonte Waite's of Ackworth, West Yorks, sent in this shot of two Tamiya 'Hornets' doing their stuff over a ramp jump. A Halina 100 TEF camera was used.

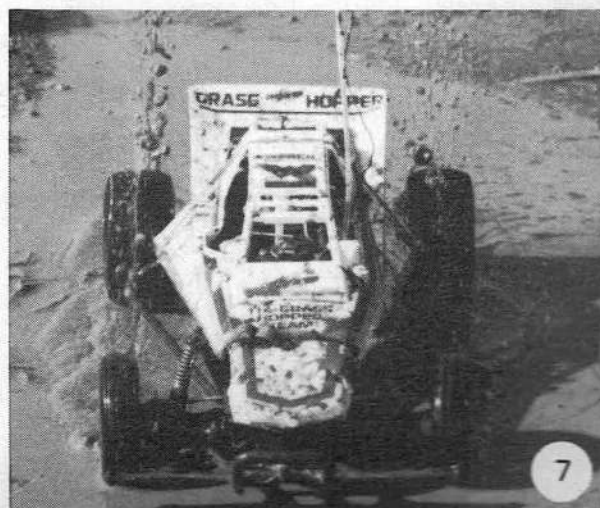
**PHOTO 5: WINNER;** Andrew Fox of Blackburn, Lancs, collects the main prize this month with this 'in Flight' shot taken at the Bicester club circuit. Andrew used a Praktica MTL to capture this familiar looking Hirobo.

**PHOTO 6:** Malcolm Rymer breaks the Off-Road stranglehold on this month's 'Photo-Action' with this shot taken at Lifford Park. Malcolm comes from Brierly Hill, West Midlands and uses a Praktica camera.

**PHOTO 7:** Justin Carter of Banstead, Surrey, obviously puts his 'Grasshopper' through its paces as evidenced by this shot taken with a Minolta XGM camera.



6



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I DON'T FOR one moment believe that I am unique in not really enjoying Buggy driving during the coldest months of the year. If you are indeed like me, you have possibly spent some time building a new car, alternatively last year's car, which you may wish to race again has probably been sitting around in your workshop since last Autumn!

Apart from the obvious repair and maintenance tasks such as refurbishing dampers, cleaning ball-races and generally checking over the car, spare a thought for the engine. I would lay bets that not many people take the trouble to strip down their motors and clean and lubricate them before a long lay-up. Nor simply run them dry after the last race of the season then inject a lay-up oil.

Your pre-season check should start by removing the engine from the car and then blocking up all the orifices with tissue before giving it a thorough

*Right: 1/8th Off Road racing Brazilian style. This form of R/C racing is progressing in leap and bounds around the Sao Paulo area of Brazil as can be seen from the accompanying photographs. At present most of the cars being raced are two wheel drive although 4WD is coming along strong. The winners (left) of the most recent Brazilian Off-Road champs were left to right: Peter Gogarten - Kyosho 2WD/OS Motor (2nd); Ivair Simoes - Leopard 4x4/S. Tigre motor (1st); Alexandre Kyosho 2WD/K&B Motor (3rd).*



## 1/8th Off-Road

### Bill Burkinshaw gives some advice on preparing for the races

clean externally. Once it is clean, then you can start to look more closely at its state. Firstly feel the compression, there should be plenty of this with the pressure maintained for quite a while at top dead centre. If there is no really positive feel to the compression you will be forced to buy a new piston and cylinder or piston ring if you have a ringed motor. I would advise that a ringed piston motor be sent back to the manufacturer's service agent for ring fitting, if this is badly done it will be a waste of a new piston ring. If you cannot tell whether the compression is as it should be, find someone who can.

If compression is good, take off the back plate and take a look at the big end bearing. This should show no sign of slop, if it does, replace the connecting rod. There is a strong possibility that if you did not clean out the engine at the end of the season there will be signs of corrosion on the steel parts. This is next to impossible to remove from bearings, in extreme cases you will just have to fit new bearings. In any case, don't run an engine with rusty bearing, the particles of rust will ruin the rest of the engine!

Once the reciprocating and rotating parts (the bits that go up and down and round and round!) are checked and



Above: an assemblage of Brazilian drivers with their cars.

found to be in good order, a check on the carburettor is next on the list. Take it out of the engine and strip it down examining rubber boots and 'O' rings in the process. It is almost certain that the 'O' rings will have been attacked by the nitromethane in the fuel and will have gone hard. These must be replaced, the engine distributor should have spare parts for the carburettor.

Re-fit the carburettor sealing it into the crankcase with a smear of silicone sealant. To re-set the carburettor, with

OPS, PB and Picco types, adjust the position of the idle needle so that with the throttle barrel halfway across the choke, the needle is just emerging from the jet.

Now close down the throttle and connect up a piece of fuel tubing to the fuel nipple and with the throttle slide about 0.5mm open and the main fuel needle 2½ turns open, adjust the idle mixture needle whilst blowing down the fuel tubing until you can just blow through the carburettor. This should



give a fair approximation to a running setting. The engine should now be ready for testing. Next time you use it, remember to run it dry at the end of the day and inject a generous squirt of corrosion inhibiting oil into the carburettor followed by turning it over several times.

### R/C equipment checks

Although there is something to be said for leaving well alone, a proper tune-up and service for R/C gear is not a bad idea. At the very least, carefully examine all plugs and sockets paying

particular attention to the points where the wires exit from the cases and connectors. Look for any signs of cracked insulation or abrasion damage. If you are doubtful, send it away for a proper service. Buy a new switch harness and if you have made a habit of fast charging your receiver Ni-Cad very often then it may be prudent to replace it.

The output arms of servos are almost sure to be worn after a season's racing, fit new ones. Check the receiver aerial carefully, if it looks too tatty, fit a new length of wire exactly the same length

I will have to wait for the next issue to publish it. What I do know however is that there are to date no new clubs featured on the list of events. This is a great pity, particularly as there is a definite bias towards the south of the country in the calendar.

There is no bias on the part of the calendar co-ordinator John Glazbrook, quite simply none of the clubs that asked for meetings to be included on the calendar during 1984 bothered to follow up their initial requests with firm proposals.

Don't expect the committee members of the BRCA Off-Road section to be phisic, they can only deal in solid reality. Unless you contact them, your meeting will probably not get into the calendar. The 1/8 Off-Road Secretary is Steve Marr, 104 Springfield Avenue, Crofton, Wakefield, West Yorkshire. Drop Steve a line if you have an event that you wish to be on the calendar.

### Rules 1985

Just to set the record straight, the rule changes for the 1985 season are as follows:

(a) Races can now be 5 minutes if the race director so desires, the race length is still flexible so that size of entry, etc., can be reflected.

(b) There is an extra final, a B-Final for the Unrestricted class. The Restricted Class still remains with one final to be run at the Championship meetings.

In spite of rumour, the EFRA rules concerning appearance have not been adopted by BRCA yet. There is therefore no requirement for cars to be fitted with bodysells. The only meeting on the BRCA calendar that will be run to the EFRA rules is the British Grand Prix meeting to be held at Remote World, Goring on Thames on September 14/15th.

### 1/8 Off-Road Nationals

There will be a two day championship meeting at Remote World on the Easter weekend 6th and 7th April with a practice day on Saturday April 5th. Both Unrestricted and Restricted classes will be run with finals run to the EFRA 'Christmas Tree' system on Easter Monday. Camping will be available and a social function in the evening.



Above: part of the course as seen from the drivers' rostrum. The track is marked out with white paint similar to the stuff used on football pitches. The only other marker is the tree - ouch!

as the original. Finally, charge up the batteries and give the whole system a thorough check including a range check with the transmitter aerial retracted.

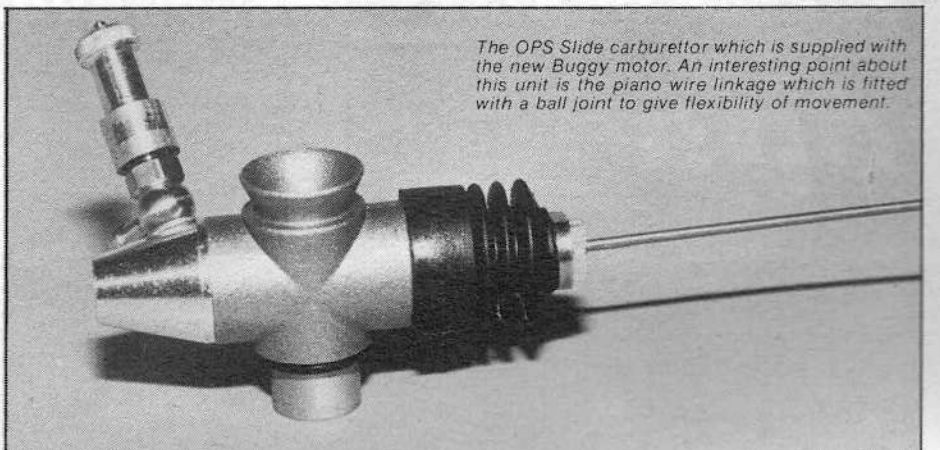
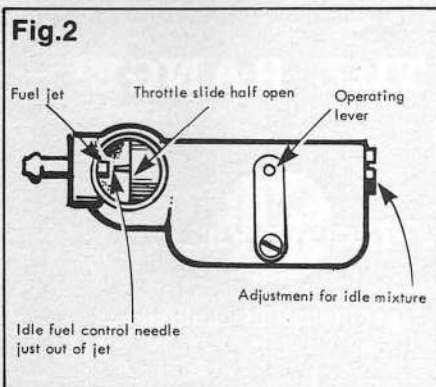
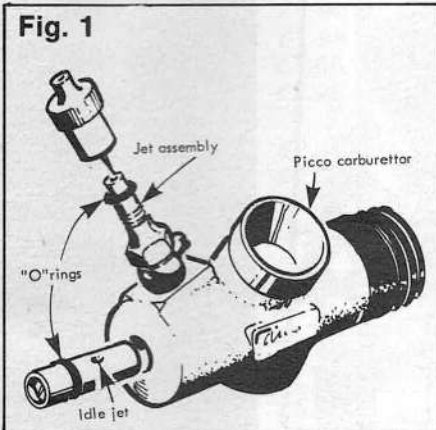
### Fuel system

When you have re-assembled your car, fit new fuel tubing and thoroughly clean out the fuel filter. It may well be best to fit a new one if the one you used cannot be taken apart. Clean the parts of the air-filter and if possible fit a new element. Make certain that the filter is still adequately sealed.

By now you should have a Buggy that is ready to compete with the best of them, have you renewed your BRCA subscription? If so, then you are ready to roll!

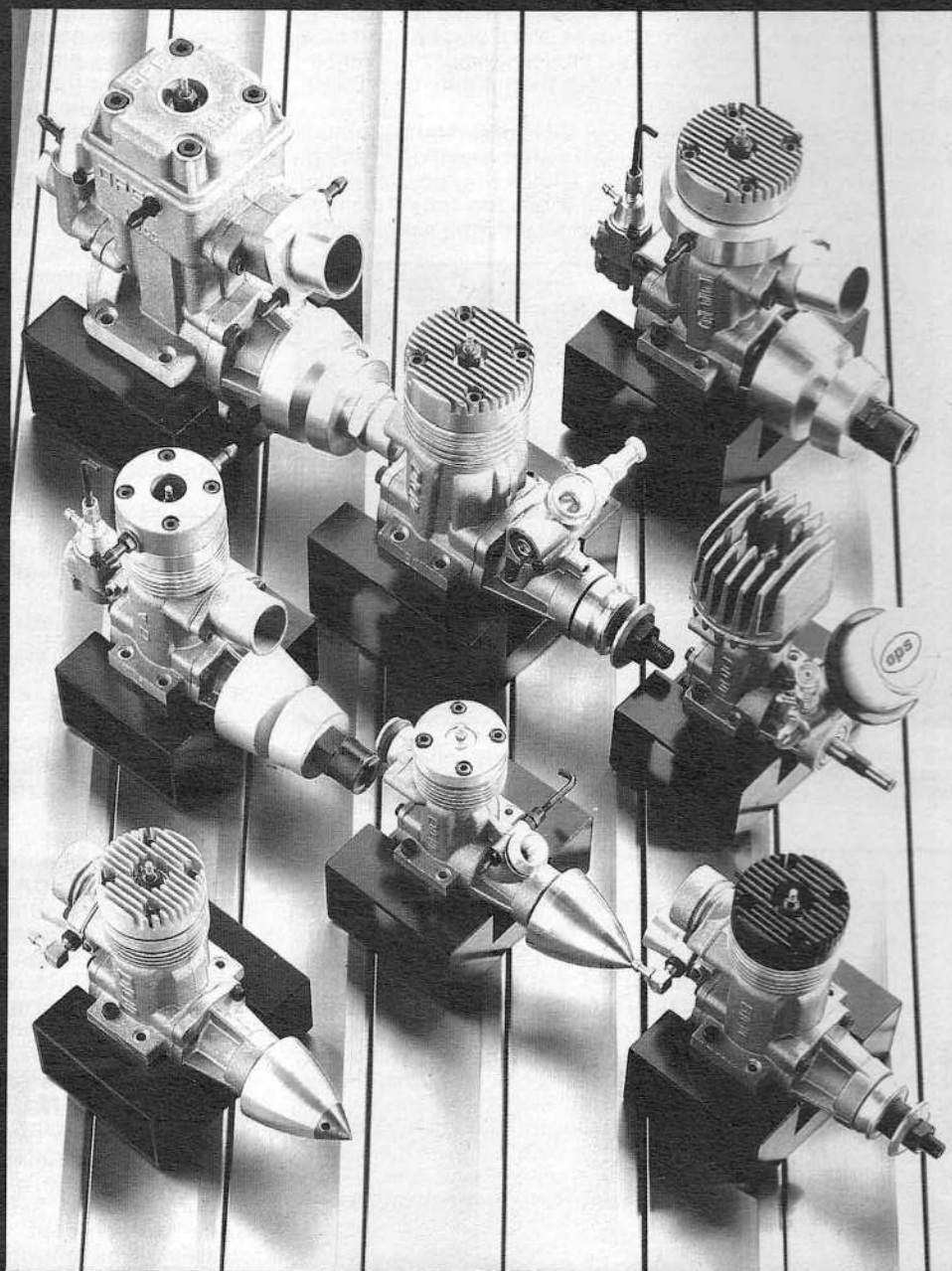
### BRCA Championship series

The BRCA calendar is now ready for the printers we understand. I have not got a finalised copy as this is written so



The OPS Slide carburettor which is supplied with the new Buggy motor. An interesting point about this unit is the piano wire linkage which is fitted with a ball joint to give flexibility of movement.

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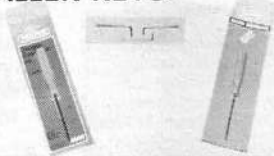
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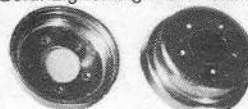
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1 Flat  
1 Round  
1 1/2 Round  
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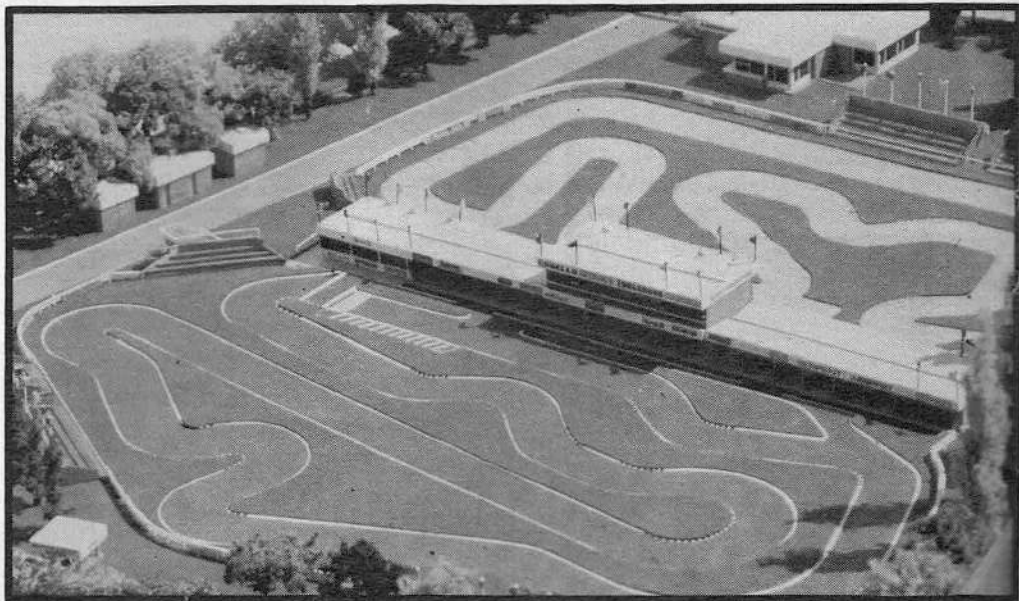


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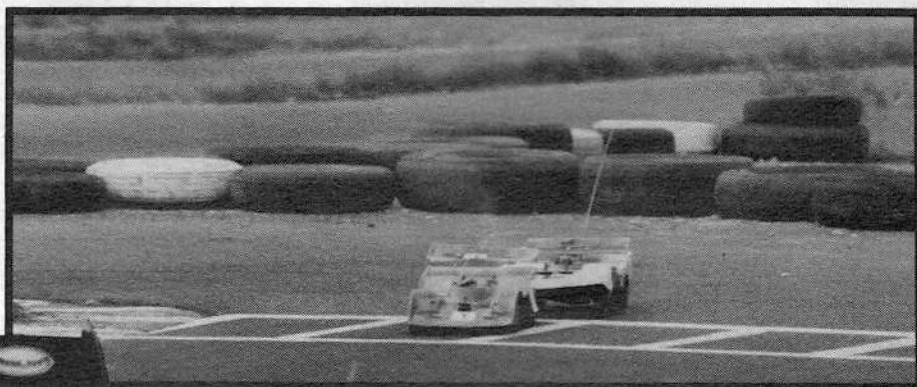


# 1/8th Formula 1

## New 1/8th Scale Racing Complex

Alain Levy, the French Off-Road Chairman has recently sent us some interesting information on a new racing venue situated at Grenoble in South East France.

The Radio Automobile Club de Grenoble will have two, EFRA standard race tracks for 1/8th circuit and Off-Road racing. At present, the tarmac for



*Top: a photo of the model of the Grenoble R/C racing complex! Seriously though, this is what the venue will look like (hopefully) after completion. Above: 1/8th scale racing action photograph by Malcolm Rymer. Left: the cover subject produced by Gary Cannell.*

the former has been laid, the rest of the facilities will be ready in September or October of this year.

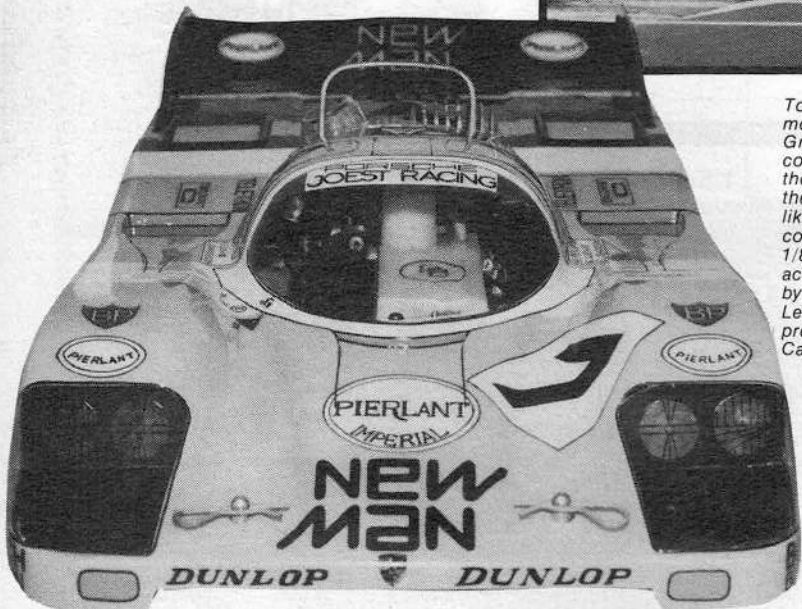
A full colour handout has been prepared which shows pictures of a scale model of the complex and if this is anything to go by, racing there will be a pleasure.

More details soon.

## Braziliant!

Back in the December 1984 issue I outlined some experiments being conducted by the Southampton Club with sugar water track additives.

Just to prove that we are read worldwide I have just received a letter from Brazil expounding upon the subject and offering some guidelines on application. The letter is from Peter Gogarten and will prove interesting I'm





sure to British racers.

"It was with surprise that I read the news about the usage of sprinkled sugar water at Weston Shore.

We had a very similar experience here in Sao Paulo, Brazil. The track builders had used some kind of sealed asphalt to smooth out the track. This procedure turned out to be catastrophic as the first time we tried out the track on a Friday prior to a Brazilian Championship race, we found that there was no grip at all. Some very strange kind of powder was coming out of the asphalt every

A week later we went out to check on conditions and we found that most of the grip was gone, probably due to the heavy rains falling during the week. However, we were able to come to the following conclusions:

(1) The proportion of water and sugar has to be set correctly, as too much sugar will obstruct filters, joints, gears, etc.

(2) Another point to be mentioned is the risk of the excess sugar entering the suspension and affecting its movement. Apart from these little inconveniences, we must say it works

perfectly, representing a real and valid solution for grip problems."

Peter Gogarten

### SG Engines

Yes its true SG Racing Cars of Bologna, Italy are set to produce their own specialist car engines in the near future. To be honest, SG have collaborated with Super Tigre Engines (also of Italy) to produce the motor. We would expect anything with the SG mark on it to be a real goer. But only time (and a 'Model Cars' Engine Test) will prove the pudding.

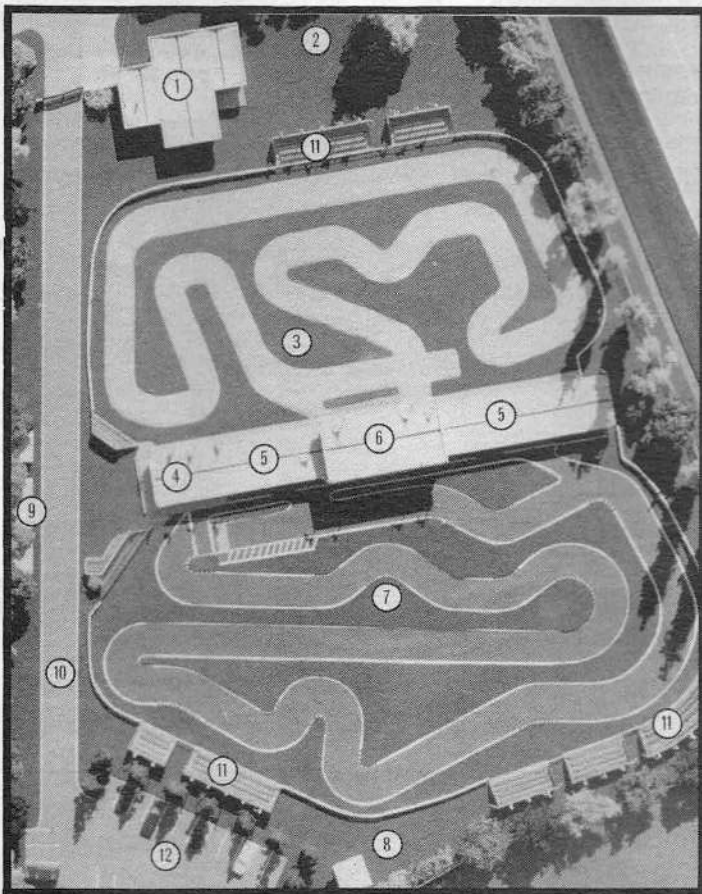
### New Rossi Motor

We mentioned in our Engine Test of the Rossi .21 oil-cooled motor that as a result of the Rossi Brothers split-up a second specialist car motor would be available.

Well, this 5 port, air-cooled engine, is now in production and available in the U.K. through Elite Models 145, Newgate Lane, Mansfield, Notts. NG18 2QD. Hopefully we will be able to offer some exact performance data in the near future. The approximate price will be £90.00 (no carburettor, air filter, manifold or exhaust).

### 1/8th . . . Scale?

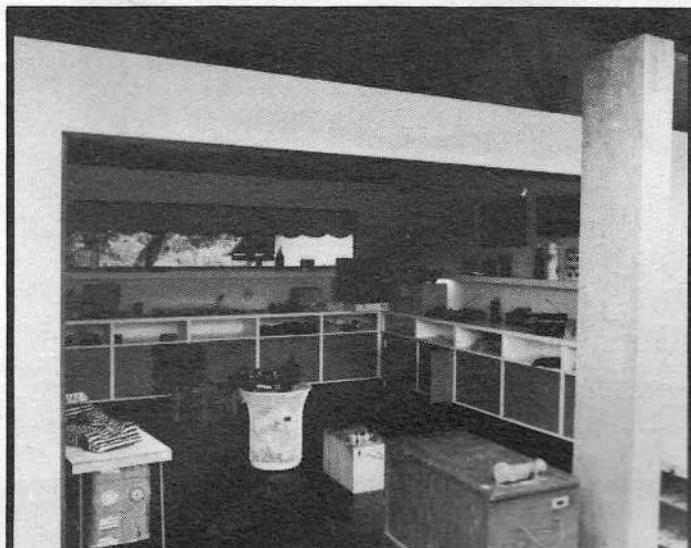
I am sure that your attention has been drawn to this month's cover showing a Porsche '96 in 1984, Le Mans winning, 'New Man' liverie. The producer of this masterpiece is Gary



Left: details of the Grenoble racing complex. 1: Restaurant. 2: Parkland. 3: Off-Road circuit. 4: Race control. 5: Pits. 6: Drivers' rostrum. 7: 1/8th Circuit. 8: Picnic area. 9: Toilets. 10: Main road. 11: Stands. 12: Parking. Below: the very difficult last curve on the new Brazilian circuit. The straight is 70 metres long.

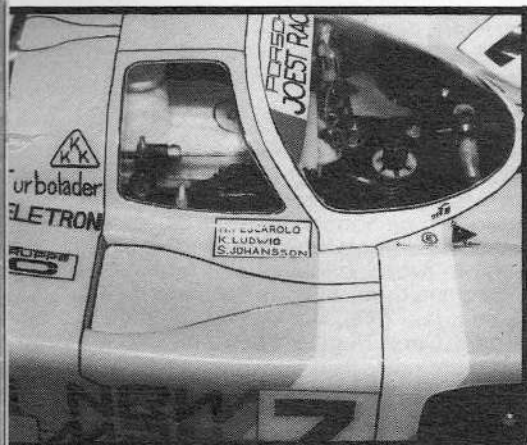


time it was pressed by a tyre or foot. That fine dust literally coated the tyres and the cars started spinning like crazy at the slightest touch of the throttle. You can believe it was nightmare! We had competitors from all over the country coming on that same day and distances in Brazil are certainly bigger than in Britain. What to do? That was the question. Somebody mentioned that sugar could be a solution. Desperately we went to work and literally washed the whole track with a solution of 1kg sugar for every 5 litres of water. After that we had a very very sticky track, which held its characteristics during the whole weekend, with no change. We could easily use tyres, such as Ufra 'Super H' with lots of grip and luckily were able to hold the race.



Left: the pits at the Rio circuit look fairly spacious! Obviously they are intended to protect the drivers from the sun!

# Chequered Flag



Left and right: close up views of the 'New Man' Porsche produced by Gary Cannel. All the lettering was done free hand and the headlights were scratchbuilt.



Cannel who is better known in slot racing circles. Gary is used to working in 1/32nd scale, but expressed an interest in attempting a 1/8th bodyshell. The result, I'm sure you will agree is impressive.

I can remember quite distinctly the Lilford Nationals in 1983 and Walt Bailey driving an *Associated* Car fitted with a *Brabham* 'BT50' bodyshell in *Parmalat* trim. This car really stood out from the rest in the qualifying heats and final simply because it had a tremendous scale appearance. The spectators identified with it because of this and during the course of the final willed it on to greater things.

So what? you might say.

Well, not much attention is ever paid to the decoration and finish of bodyshells. Although the shell has to be produced to within 10% of scale reproduction, it would seem that scale paint jobs can go out the window, which is a pity as I am sure that greater interest

would be expressed in the cars and the racing if an identification could be made with the real thing. Race commentary would also benefit imagine...

'Williams, closely followed by the Ferrari and Renault as they enter the last lap.

Instead of:

"Number 7, that's the err; bluish looking car followed by number, err 6, I think," etc.

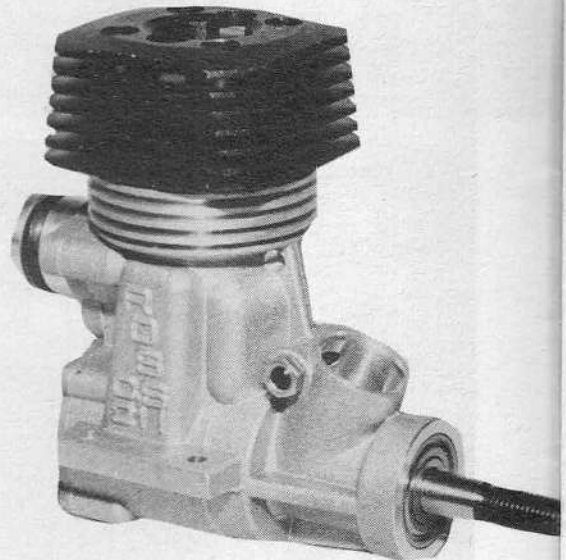
Perhaps the re-introduction of a concours trophy would raise up the standard of bodyshell appearance. I certainly would be interested in seeing photographs of anyones masterpiece (colour or B/W) and there may even be a prize for the best one.

## 1985 BRCA National Championship Series Calendar

April 6/7/8	Southampton
May 4/5	Wombwell
May 25/26/27	Aberdeen
June 8/9	West Burton
June 22/23	Crystal Palace
July 13/14	Yorkshire
July 27/28	Wrexham
August 10/11	Mendip
August 24/25/26	Tibshelf Nationals
September 7/8	Bournemouth
September 21/22	Lilford

## Invitation

October 6	Mendip 4hr
October 13	Yorkshire 4hr



Below: an aerial view of the Rio circuit in Brazil which shows the smooth flowing layout and idyllic location. Above right: the new Rossi air cooled motor currently being imported by Elite Models.





## London League

John Daniels, Secretary of the London Radio Car Club gave me a call to tell me about their plans for the coming season.

In the absence of the Southern League the LRCC will be promoting a new series of events at their Crystal Palace circuit.

This is to be known as the 'London Sports Car Championships' and will comprise of 8 rounds run to current BRCA rules. Originally this Championship was designed to be a limited cost class affair but this is no longer to be. The reason is that the LRC are hoping to attract drivers from other Southern based clubs and it was felt that little interest would be expressed in a limited cost formula.

The format for racing is 6 out of the 8 rounds will count towards the overall

Firstly, let's look at *Serpent's* decision to use belt drive for their 4WD car. Certainly it's not so they can produce a cheap car, they already have a crown wheel and pinion system on the 'Cobra' which they could use without incurring any extra tooling costs. They see the belt as the most efficient way of transmitting the power, producing a great deal less friction than crown wheels and pinion and certainly less than a chain. Shaft drive with crown wheel and pinion is OK on a buggy because it runs a gear ratio of 9 or 10 to 1 so enabling the engine to overcome the frictional loss much easier without causing overheating. A model circuit racer though, runs a gear ratio of approximately 5 to 1 to enable it to achieve a much higher top speed and at this sort of gear ratio the frictional losses incurred by shaft and

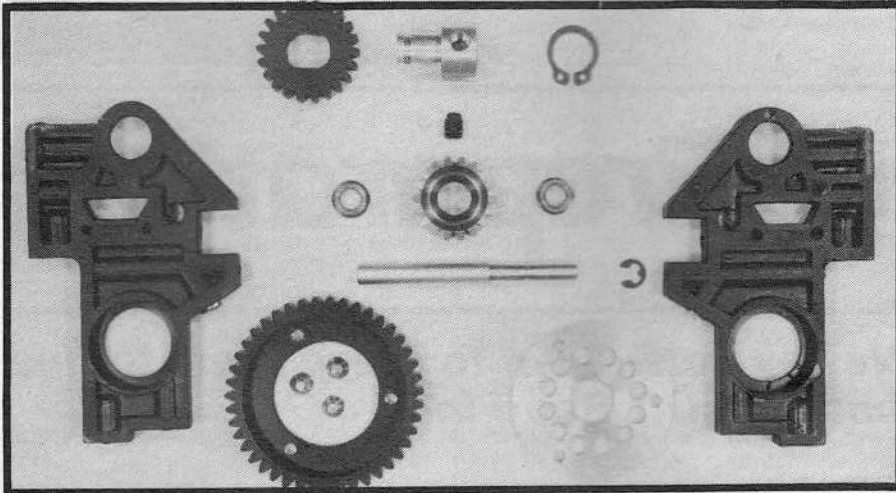
can do either of two things. Alter the size of the front tyre which is not a good idea because it would mean you would have to carry several sizes of each compound of front tyre making for an extremely expensive procedure. Or, and this is where the gear drive comes in, you can alter the speed at which the front axle rotates in relation to the rear axle.

There are three different teeth sizes available for the small driven gear on the *Serpent* 'Quattro' layshaft. The layshaft on the *Serpent* drives both front and rear axles at the same speed so for a given road speed of say 30mph using a 22T<sup>T</sup> layshaft driven gear you would change it for a 21T<sup>T</sup>. Therefore to maintain 30mph the layshaft must rotate faster and as it also drives the front axles they also rotate faster thus advancing the point at which 4WD commences. You could, by selecting smaller pinions, carry on advancing the point at which 4WD commences until the car was running in almost permanent 4WD if that's what you wanted, or by selecting larger pinions you could retard the point at which 4WD commenced.

It is impossible as in other cars to have one fixed ratio of drive to encompass every track or driving condition. It is almost impossible to achieve this ease of ratio adjustment on any other system, besides which this simple drive system does away with a potential source of trouble and maintenance; namely the chain (how many of you have had a chain jump off at a crucial moment?) To finish with I'll list some of the advantages we think the gear drive will give.

1. Almost zero maintenance
2. Very low frictional losses
3. The ability to change ratios and perhaps the most important, balance drive from front to rear.
4. No adjustment necessary to change ratio, the number of teeth on this driven gear is changed not the diameter so enabling a fixed centre system to be used.

The gear drive will be available as an optional extra for 1985 price to be announced. A telephone call to us at Elite Models will answer any questions.



Championships. Each round will have 4 rounds of heats with three finals, A, B & C to cover the top 24 drivers. A-Finalists will receive trophies whilst the B & C Finalists will receive tokens of up to £10.00 value to be spent at model shops.

The dates are given below and the entry fee will be £4.00. John Daniels is anxious to hear from any parties interested in sponsoring individual meetings. John's address is 18 Brooklyn Road, London SE25, Tel: 01-656 9904.

## London League dates

March 26  
April 21  
May 26  
July 7  
August 4  
September 15  
October 13  
November 3

## Serpent gears up

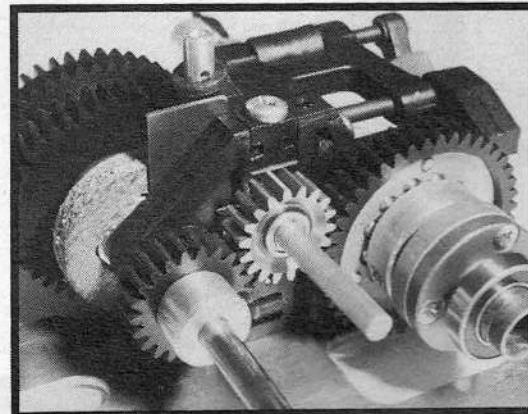
### Walt Bailey explains why

*Serpent's* decision to produce a gear drive rear axle is not just a gimmick. They feel that there is a genuine need for this especially on the 4WD car. I'll try to explain the reason behind this.

Above: the components that make up the new gear drive rear-end of the *Serpent* 'Quattro.' Below right: the assembled 'Quattro' transmission system. The layshaft and differential gear are nylon injected mouldings.

crown wheel and pinion may cause overheating problems (remember the old *Amps* 'Rapiet'?). Besides which a simple belt system allows for swift removal of the drive belt to convert to 2WD if necessary.

Having established this let's move on to the reason for the gear drive. It's not just enough to produce a 4WD car with a fixed ratio of drive between front and rear. If it were, then why do many of the fullsize rally cars have a variable ratio of drive between the front and rear wheels. On all of the 4WD model cars yet available the drive is transmitted to the front wheels through one way roller bearings. Because the front wheels are smaller than the rear they rotate faster for the same given road speed thereby spending most of the time freewheeling. Also, as the front axle is rotating at the same speed as the rear axle, in fact it is only when the rear wheels lose traction under normal racing conditions that the car can be 4-wheel drive. Therefore if you want to alter the point at which 4WD commences you



## The Rough Stuff

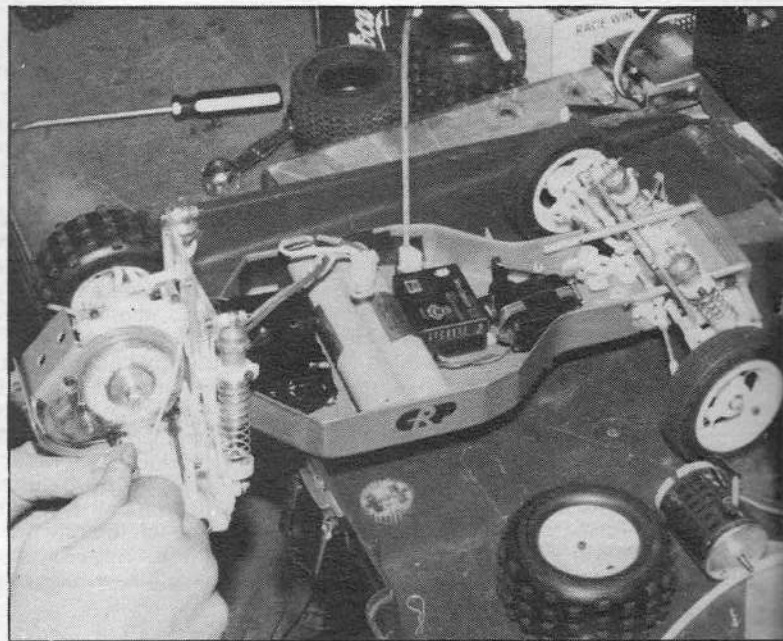
WHY IS IT that some of the 'top drivers' car's appear to be faster than novice driver Joe Bloggs car? One of the reasons is good overall car preparation, especially in the gearbox final drive area.

Any power losses in this area will greatly hamper the car's straight line speed and shorten the running time per battery charge.

Firstly, let's take a look at where these power losses can occur and how to overcome them.

On most Off-Road competition car's, starting from the motor pinions, there is a series of gears, differentials, drive-shafts plus toothed

*Right: just before your heat - check the car; after your heat - check the car; any other spare moment - check the car!*



## Race Preparation

**Steve Newey gets down to grass roots to find the ultimate in Off-Road info.**

belts or chains on the four-wheel drive cars. All these moving parts must be made as free-running as possible to ensure good performance.

Below are just a few examples of where power can be lost and how to overcome the deficiency.

It's perhaps stating the obvious, but all the gears must be in good condition and all the shafts on which they run must be perfectly true.

All these moving parts including front wheels should run in ball-races, which must be cleaned after a day's

racing and then lubricated in a light grade oil. After reassembling the car, make sure the transmission isn't affected by the suspension movement. To do this remove the motor pinion then hold the car vertically with the rear wheels upper

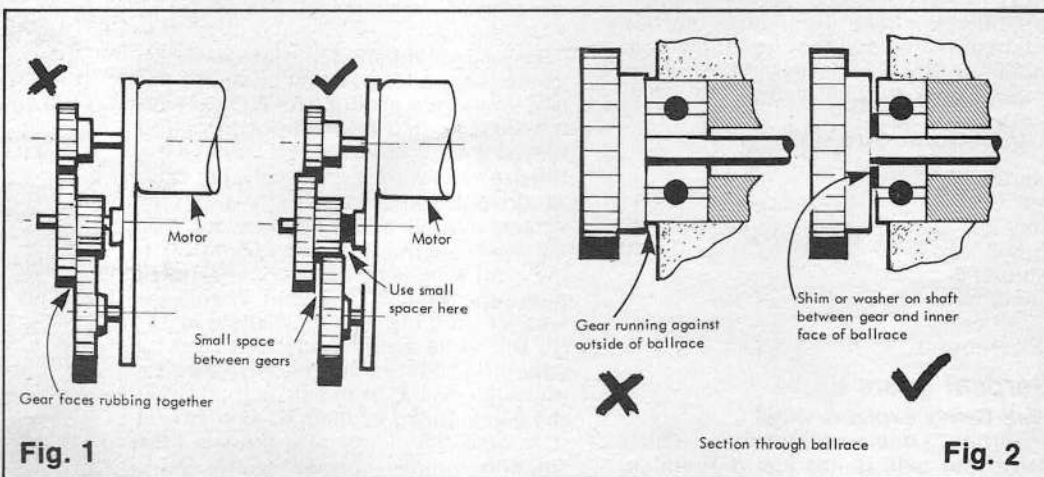


Fig. 1

Fig. 2



most. Spin the rear wheels by hand then move the suspension arms up and down, there should be no sign of binding or any 'orrible' noises.

Repeat this operation on the front wheels also moving the steering from side to side whilst moving the suspension. The wheels should spin freely at all times. This attention to detail should be given to every part of the car, particularly towards reliability. Let's face it, it's no good having the fastest car on the track if it falls to bits after a couple of minutes running. Inspect the car between every run and replace anything showing signs of wear and any parts looking likely to break.

### Ni-Cads

Providing the car has been built to a high standard, probably the most important factor governing performance is the Ni-Cad battery pack. It has to be said, there is no substitute for good Ni-Cads; charged properly and not abused. However, if yours are in fairly good condition and you want to get the best out of them, then read George Land's Ni-Cad charging feature further on.

### Gear Ratios

There are a number of things that determine the gear ratio you can use, these being, assembly of the car, condition of the battery pack, weather conditions, track surface, type of motor and driver ability. With all these things taken into consideration the car should be

geared to last about 30 seconds longer than the race time before performance drops. If you can't last the full race time then alter the gearing by changing the motor pinion for a smaller one. If the car runs for well over the race time try a larger motor pinion and so on until you get it right. The larger the selection of gears you have available the more chance you have of getting top performance from your car.

Approximate starting points for the most popular motors are as follows:

Standard *Machuchi* = 8.00:1

*Yokomo 28 Turn* = 7.6:1

*M.G. Buggy Special* = 8.4:1

Next month I'll give you some ideas on getting the suspension and handling right, this being just as important as having the extra power we have been searching for.

### Organisers Nightmare

Before any event takes place a number of chores have to be done by the host club to run a successful meeting. There is usually an outlay of money involved as well, ordering trophies, buying racing numbers, printing charges, etc. It becomes a little worrying when a week before the event only a handful of entries have been received. It also means race sheets and acceptance forms can't be filled in and sent out until the last minute. And then on race day, Mr. A.N. Other turns up and you have to alter the race sheets to fit him in. A lot of aggravation just when there's 101 other things to be done. So come on lads and lasses get your race entries sent off early. It really will be appreciated. It may even save some race organisers from losing their hair through worry.

### Starting a Club?

Anybody interested in starting an Off-Road Club would be well advised to take a trip to **Baggeridge Buggy Club**, situated just outside Wolverhampton and take a close look at their set-up.

Firstly, the purpose-built track has been well thought out and bristles with good ideas. The start area, which

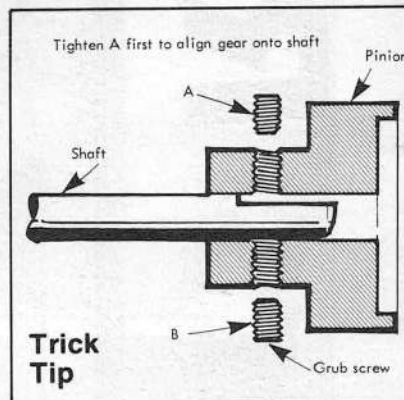
is independent of the rest of the track is wide enough to allow the cars to be spaced out on the line. Then there is a long straight and curve before the first tight corner, giving the cars more chance to spread out and reducing the chances of the usual mass pile-up. There are plenty of twisty bits to test driver ability and a long straight to really let rip on. The track is marked out with small banks and small diameter flexible pipes, very distinctive and didn't cause any damage to anyone's pride and joy. The drivers rostrum was also well positioned just slightly away from the track, so nobody had to perform any acrobatics to keep sight of their car on different parts of the circuit.

Race control were very efficient and friendly running four rounds of heats and then Finals between 10.30 a.m. and 4 p.m. just before dark. Good car parking and toilet facilities made this one of the better meetings I attended last season.

### 'Progress'

The most used word at Baggeridge must have been 'Progress', referring to *Kyosho's* 4-wheel drive, 4-wheel steering machine.

There were two in action, both showing a good turn of



speed and very fast around the corners. Both car's suffered from teething troubles, although a certain Mr. Blears did qualify for the 'A' final with his, before showing us an exploded view of the differential, very painful! Like any other new model it will need some work done to make it race worthy, watch this space.

### This Month's Trick Tip

A reliability modification for any gears, drive-shafts, universal joints, etc. using a grub-screw fixing. Drill and tap a similar hole exactly opposite the original one. Use another grub-screw in the new hole. When both grub-screws are tightened the effect of pulling each other onto the shaft will keep them tight. Always use threadlock on the grub-screws before fitting.

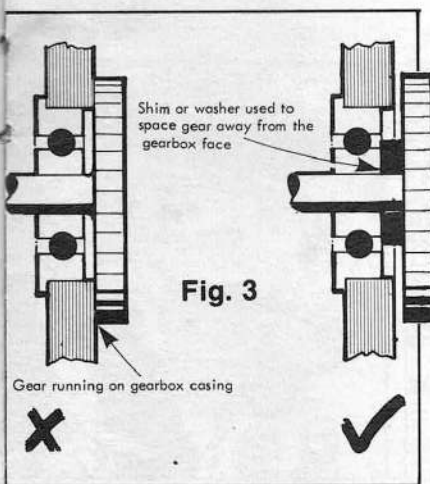


Fig. 3

## Stop Press

The first ever official World Championships for 1/10th Electric Off Road racing will be held during this summer in the USA. The decision was taken by the IFMAR (International Federation Model Auto Racing) 1/10th committee. It is almost certain that the event will be staged in California. So stock up on the sun tan lotion.

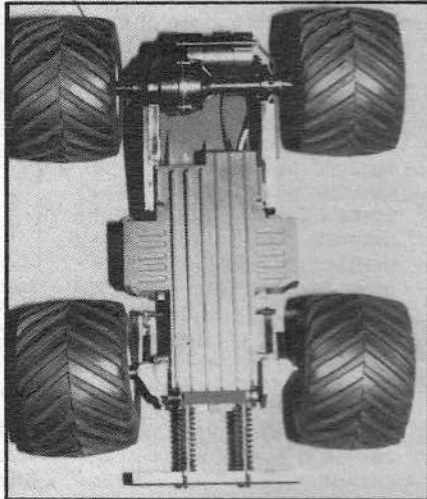
We will be bringing you more details of the event preparation but if you cannot wait that long contact either of the following persons.

Eivind Loyd Pettersen,  
Johan Hansenvei 1,  
Krakeroy,  
1600  
Norway.  
Tel: (032) 40897

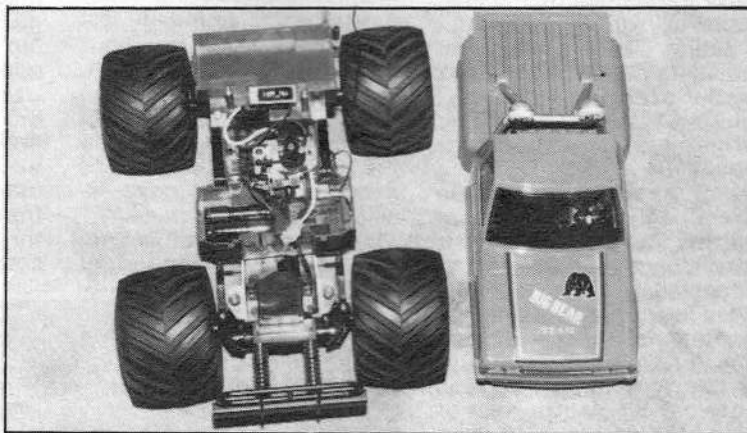
Mike Tobin,  
PO Box 1485,  
Temple City,  
Frederikstad,  
USA.  
Tel: (818) 285 7254

## What's New?

A brief look at some of the new products about to hit our racetracks. Soon to be at a model shop near you!



Above: the chassis underside of the Marui 'Big Bear Datsun.' The main chassis is an injected moulded 'tub' which houses all the R/C gear. Basically this is the same unit as is used on the 'Super Wheelie' but with elongated rear trailing arm suspension links. Below: the 'Datsun' minus the bodyshell.



## Marui

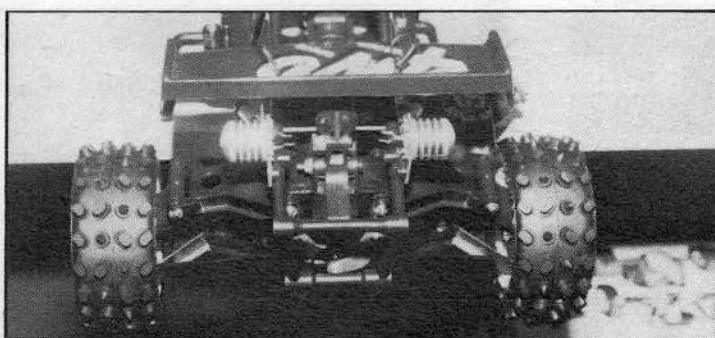
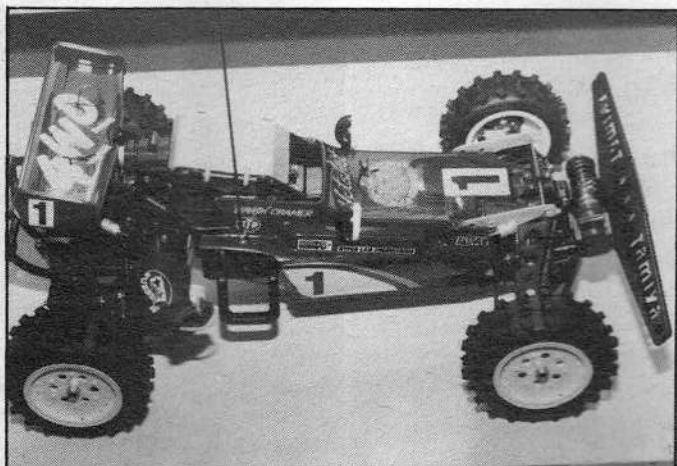
Amerang UK, importers of Marui R/C car kits have recently announced the introduction of their 'Datsun Big Bear' 1/12th scale electric buggy. This is based upon the full size 'Big Foot' truck currently enjoying lavish attention in the States. The real thing is 4WD and climbs almost anything, particularly when being watched by thousands at major 'Truckpullin' shows throughout the US. The Marui model should be available between March and April.

## Track torque

DRAWN BY DES PENNY FROM AN IDEA SENT IN BY A READER.



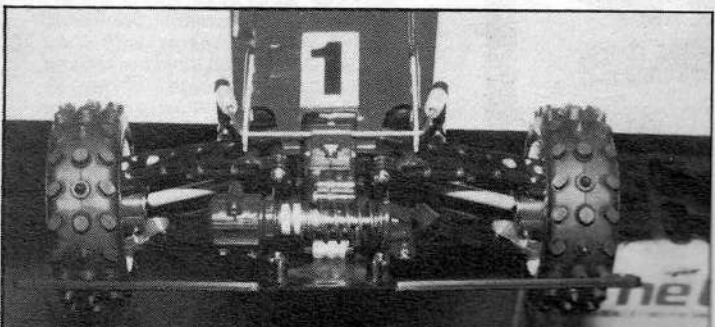
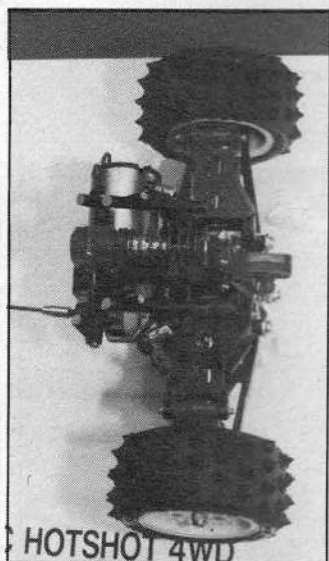
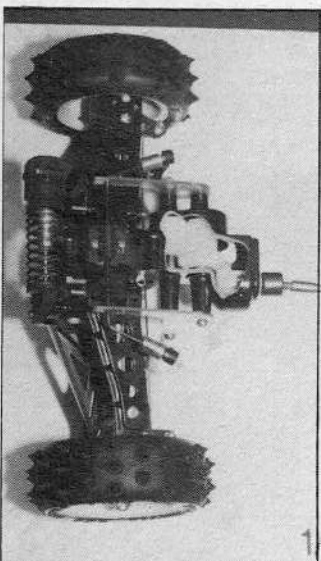
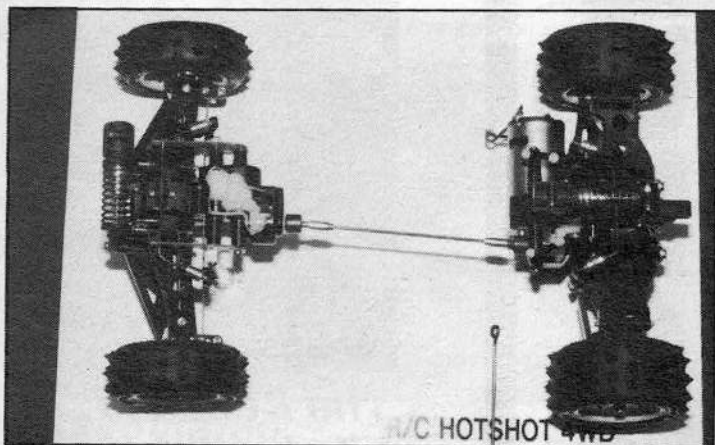
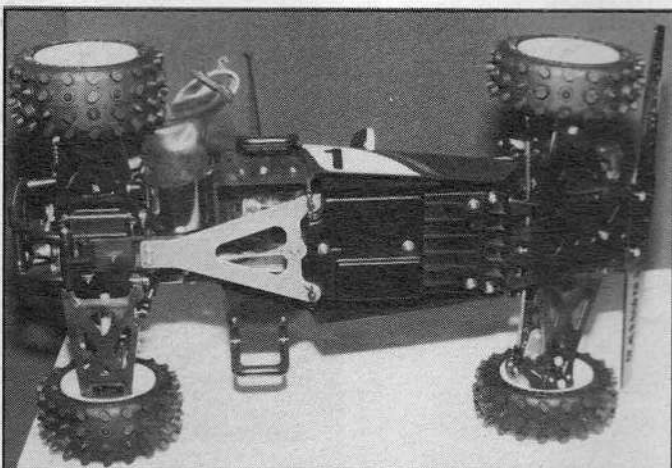




Tamiya's FAV (Fast Attack Vehicle) shown below will be available shortly to swell the ranks of the Tamiya range. Although not strictly a racing buggy the FAV has a distinct appeal with its military outlook and camouflage possibilities.

# Tamiya

The 'Hot-shot' is Tamiya's answer to competition 4WD, 1/10th electric Off-Roading and as such incorporates all the necessary features. Shaft drive transmission; front and rear differentials; all independent suspension; anti-roll bars, Lexan body and endurance buggy motor. Approximate price £100.00 and will be available in April.



## Machinations at the Model Engineer

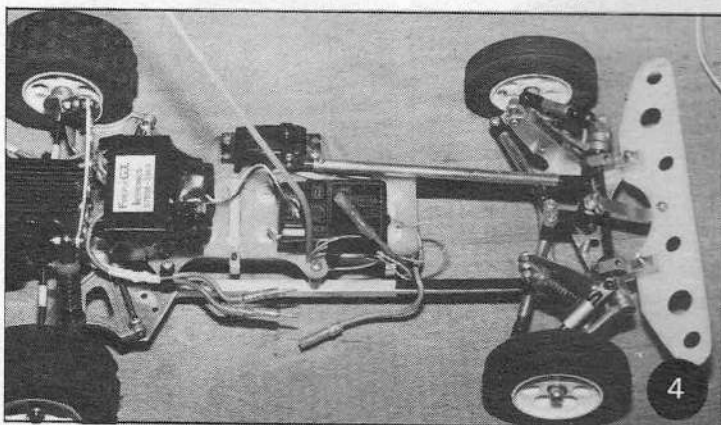
January 5th and 6th - Wembley - London.

Indoor Off Road racing at the ME Expo once again drew a capacity entry for the standard and modified events. Drivers travelled from all the country to tackle the high grip, superfast and demanding circuit. The racing was hot, the cars fast and the tension high.



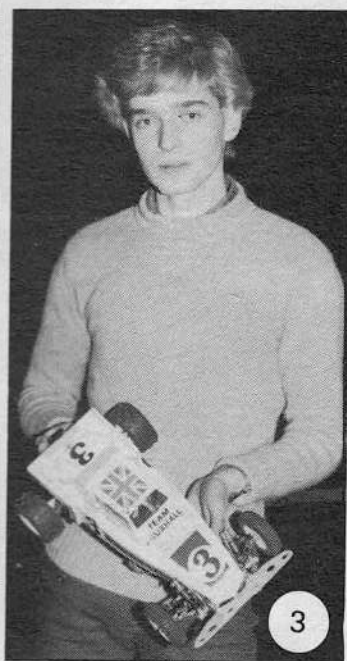
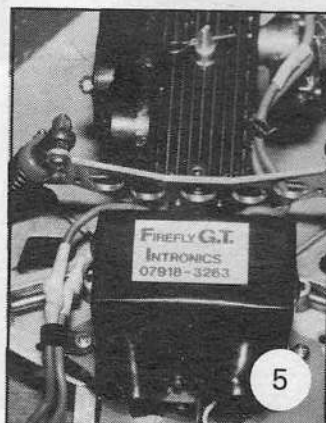
### Staging the race

(Photo's 1 and 2)  
The main auditorium of the Wembley Conference Centre proved to be the ideal race venue. Made up of hydraulic blocks, sections of the stage could be raised or lowered to alter the carpeted terrain. Bot-dot sections caught out the unwary and the grip had everyone rolling about.



### The Bensons bite back

(photo's 3, 4, 5)  
Father and son team (John and Andy) stole the show with their modified 'Scorpion' built by Dad and driven to A final wins on both days by Andy. Excellent race prep, low suspension/CG and Andy's reflexes eclipsed the other finalists to notch up the double. The Firefly GT Speed Controller survived its first ever outing and if the prototype is anything to go by GT's will be in hot demand. In line batteries mounted below the chassis line kept the 'Scorpion' from rolling off the carpet corners even on standard Off Road tyres.



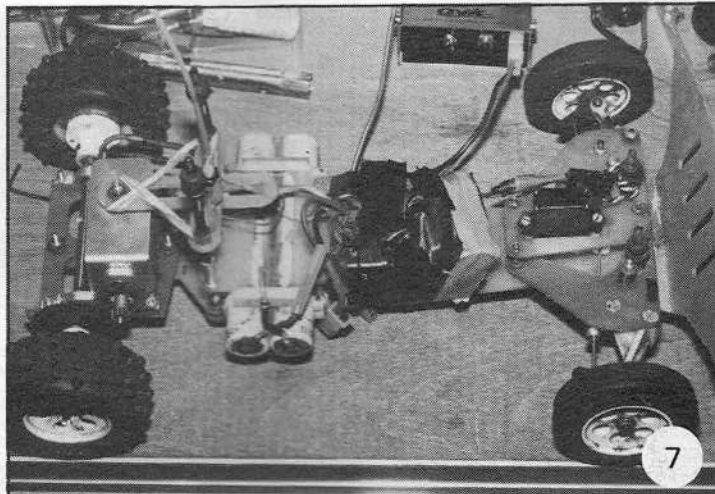
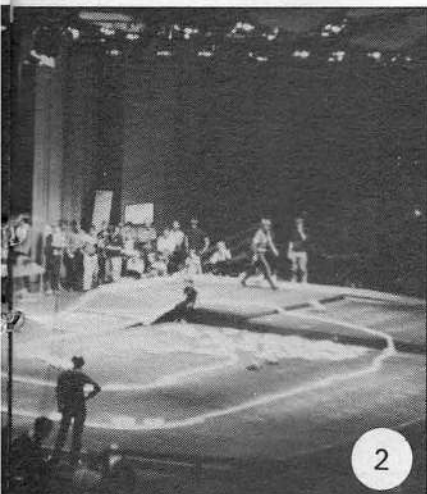
### Land's Lambaste

(photo 6)  
"There are two ways of running this meeting; the wrong way and my way."



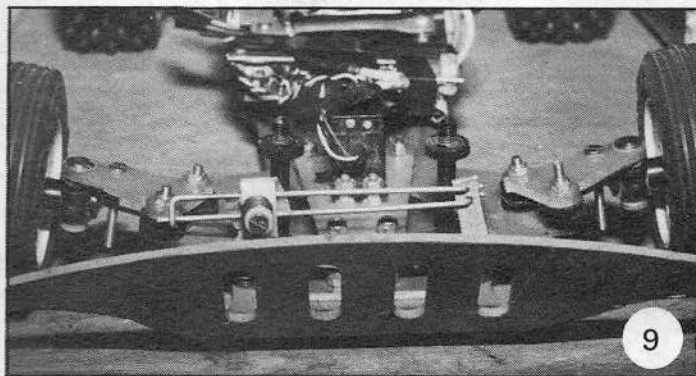
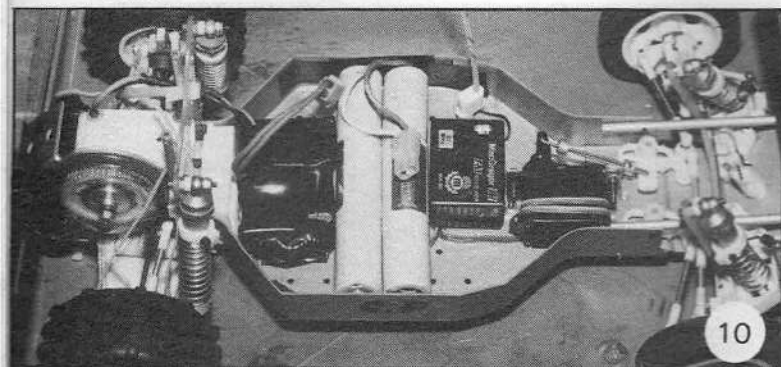


# Exhibition:



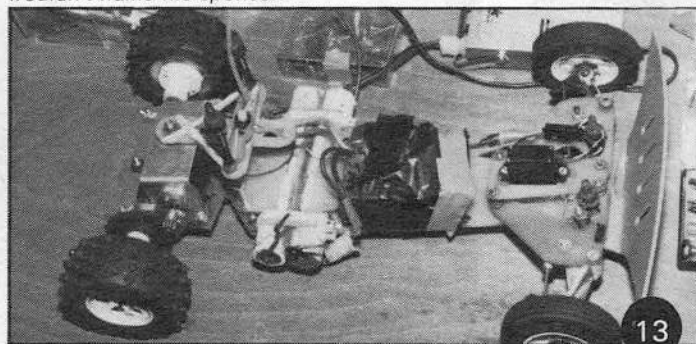
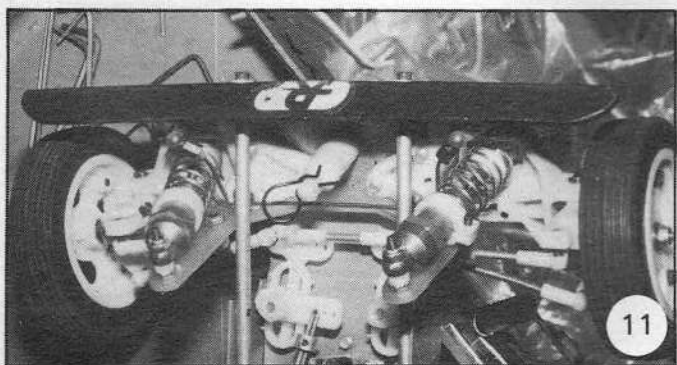
## Peglar's Pacesetter (photo's 7, 8, 9)

Glyn Peglar's overpowered, shortened wheelbase, 'Digger' adopted a distinct low profile at the front, so low it cleaned the carpet! Zero damping kept it that way and brought new meaning to the term 'bump-steer.' Too tall ratio's and zappy motors combined to make the 'Digger' the fastest on the track but also the most difficult to hang onto.



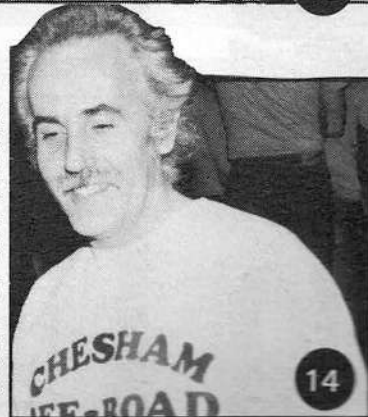
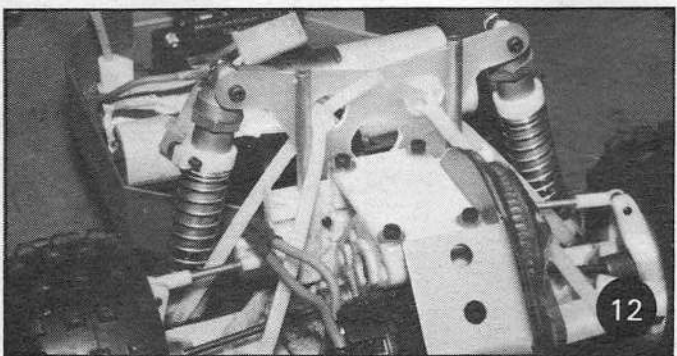
## Bettison is best (Photo's 13, 14)

Chesham Club member Mel Bettison stole both FTD's with another superquick 'Digger.' Mel did the 'Hooligans' proud but failed to make it that little bit further in the A finals. Close inspection revealed Hi-Tech elastic bands and insulating tape on the 'Digger' but Mel wouldn't name his sponsor.

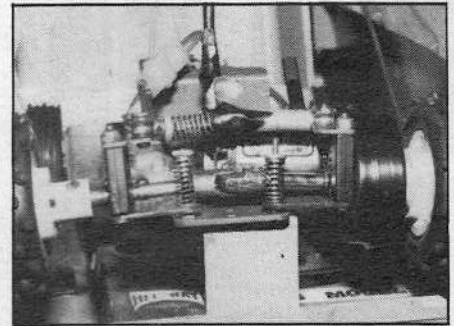
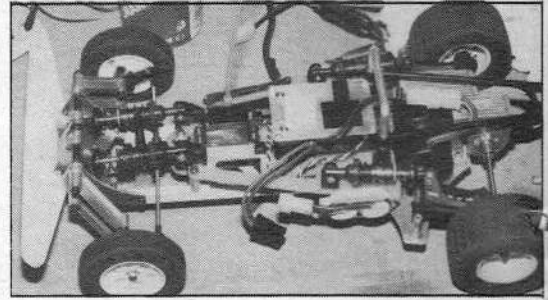
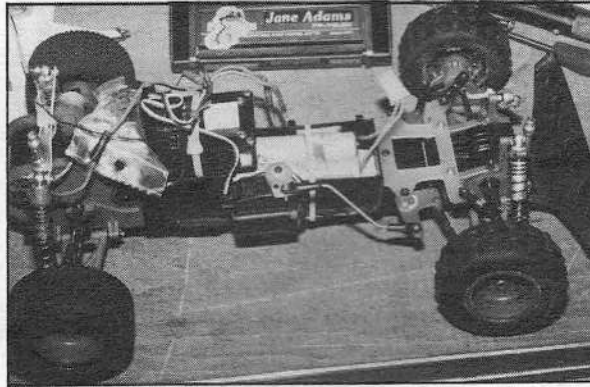


## Associated Intro

(Photo's 10, 11, 12)  
The much vaunted 'RC10' finally put in a racing appearance in the UK and driven at the ME by SRM Racing's Simon McRae. Simon complained of excessive suspension movement at the rear but Associated tie-wraps cured the problem. The 'RC10' failed to make the top grade in standard but crept into the 'A' final on the Sunday. SRM's shipment arrived just in time and RC10's were on sale on the day until customers found out the price.



## Model Engineer Results



Above: Demon 1/12th Circuit racer Nick Adams, tried his hand at 1/10th Off Road with the 'Hirobo 4WD' race prepared by George Land. Above right: AYK 'Sidewinders' also performed well, particular when shod with Tamiya 'Quattro' grid pattern rear tyres. Right: an unknown 'Digger' with split rear axle to provide independent rear suspension.

### Model Engineer race results

#### Standard Class 5/1/85

##### A. Final

1. A. Benson
2. G. Peglar
3. M. Bettison
4. T. Calcott
5. G. Marsden
6. G. Walker
7. M. Howard
8. S. Newey

##### B. Final

1. D. Kendall
2. S. White
3. G. Land
4. K. Core
5. C. Milthorpe
6. P. Stevens
7. J. Stone
8. D. Clarke

##### C. Final

1. P. Pichel
2. N. Adams
2. S. McCrea
4. S. Girdwood
5. C. House
6. D. Simpson
7. R. Painter
8. D. Knott

##### D. Final

1. P. Battye
2. S. Johnson
3. R. Isherwood
4. J. Paffett
4. R. Dixon
6. S. Nichol
7. K. Funell
8. R.D.

##### E. Final

1. G. Godson
2. D. Stevens
3. J. Charles
4. P. Williams
5. A. Teller
6. A. Green
7. T. Price
8. M. Childs

##### F. Final

1. I. Diboll
2. C. Spicer
3. A. Spicer
4. S. Baldwin
5. S. Hart
6. L. Eckett
7. A. Clements
8. L. Maraire

##### G. Final

1. A. Everest
2. K. Dick
3. C. Heath
4. I. Brawn
5. M. Francis
6. A. Philpott
7. J. Skidmore
8. L. Henderson

##### H. Final

1. J. Benson
2. S. Morton
3. M. Jones
4. J. Duncombe
5. A. Mason
6. J. Prateley
7. A. Williams
8. I. McLarney

##### I. Final

1. S. Mark
2. C. Bennett
3. C. Lyons
4. S. Macfarlane
5. R. Warren
6. C. Nunn
7. B. Hurley
8. M. Cox

##### J. Final

1. J. Hill
2. R. Griffiths
3. J. Carter
4. M. Hinton
5. R. Malton
6. B. Wood
7. B. Leysinger
8. J. Williams

##### K. Final

1. A. Bottoms
2. D. Dixon
3. C. Willoughby
4. J. Cheeseman
5. D. Heath
6. A. Price
7. A. Yates
8. D. Brawn

##### L. Final

1. M. Jones
2. D. Draper
3. K. Coe
4. T. Worth
5. M. Powell
6. G. Price
7. G. Arnott
8. A. Dunn

##### M. Final

1. P. Olson
2. A. Nunn
3. M. Pullen
4. J. Norris

Fastest Time of the day:  
Mel Bettison, 28 laps

#### Modified Class 6/1/85

##### A. Final

1. A. Benson
2. M. Bettison
3. S. White
4. P. Stevens
5. S. McCrea
6. N. Adams
7. G. Peglar
8. K. Moore

##### B. Final

1. S. Newey
2. D. Kendall
3. M. House
4. R. Isherwood
5. S. Nichol
6. P. Pichel
7. R. Painter
8. C. Spicer

##### C. Final

1. T. Calcott
2. C. Milthorpe
3. J. Benson
4. K. Dick
5. J. Bicknell
6. S. Meadows
7. I. McLarney
8. J. Paffett

##### D. Final

1. D. Draper
2. S. Johnson
2. P. Gorf
4. I. Dibble
5. P. Williams
6. A. Brasted
7. B. Davis
8. I. Spashett

##### E. Final

1. J. Charles
2. A. Everest
3. R. Stitson
4. R. Brown
4. J. Collins
6. R. Dixon
7. R. Delves
8. D. Brawn

##### F. Final

1. C. Sawyer
2. D. Shephard
3. B. Wood
4. A. Philpot
5. M. Cox
6. M. Vale
7. S. Hart
8. C. Reynolds

##### G. Final

1. S. Macfarlane
2. B. Capp
3. L. Eckett
4. Sharon
5. J. Cheeseman
6. I. Brawn
7. K. Manning
8. A. Whenham

##### H. Final

1. G. Land
2. B. Burkinshaw
3. M. Hinton
4. M. Stitson
5. M. Pullen
6. J. Cheeseman
7. S. Hunt
8. C. Burkinshaw

##### I. Final

1. D. Meadows
2. R. Warren
3. I. Privett

##### J. Final

1. C. Formby
2. E. Blakeman
2. N. Fishlock

Fastest Time of the day:  
Mel Bettison, 28 laps



# More Photo-Action

**We usually only pick seven of the best for our Photo-Action competition, but here's the best of the rest for you.**



3



1



2



4

**PHOTO 1:** James Wilson shot some indoor Off Road action of this Hirobo 'Rock 'n' City at the Aire Valley Buggy Club, Horsforth, Leeds.

**PHOTO 2:** Andre Lotherington braved the elements and waited till dark to snap his 'Subaru.'

**PHOTO 3:** Another of Andrew Fox's photo's (this month's Photo Action winner) taken at the Bicester Club circuit.

**PHOTO 4:** Colin Holdem took this picture of his 'Scorpion' during its Off Road debut.

**PHOTO 5:** Rally action from Stuart Keen as his 'Audi Quattro' races through the snow.



5



6



7



8



9



10

**PHOTO 6:** 1/8th Scale IC for a change from Julian Man with his shot of his 'Land Jump' 4WD buggy.

**PHOTO 7:** Apache on the warpath or else at Swansea ERCC circuit where W. Griffiths snapped his photo.

**PHOTO 8:** Buggy meets basketball in the Ely Cottage gymnasium John Smith was ref.

**PHOTO 9:** Alan Matthews got this Sand Scorcher just before impact. Wonder what it looks like now?

**PHOTO 10:** The Australian angle taken at the Dafto R/C Car Club in New South Wales by Andrew Paine.

## Going Places:

### BRCA 1985 1/10th electric Off-Road championship

#### April 7th

Eden Park STD.  
Jim Paffett, 124 Chestnut Avenue, West Wickham, Kent.

#### July 14th

Chesham Mod.  
Mick Childs, 61 Darvell Drive, Chesham, Bucks, HP5 2ON. Chesham 782212.

#### September 9th

Bury STD.  
Bury Buggy Club. Mike Howard, 3 Diomed Drive, Great Burton, Bury St. Edmunds, Suffolk, IP31 2TF. 6284-87486.

#### May 19th

Scarborough STD/MOD.  
D. Webb, 60 Newlands Park Grove, Scarborough, North Yorkshire YO1 26PT. 0723-366442.

#### July 27/28th

Euro Meeting, Bradford.

#### June 23rd

Bradford STD.  
Tony Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, West Yorkshire. 0924-361337.

#### August 3rd

Liverpool STD.  
Steve Newey, 15 Patricia Grove, Bootle, Merseyside.

#### October 13

Manchester STD. Swamp Rats Baja Club, Howard Dalton, 46 Kenmore Road, Whitefield, Manchester, M25 6FS.

#### July 7th

W/S/M STD.  
Western Off-Road.  
Roy Atkinson, 8 Larch Close, Nailsea, Bristol BS19 1QN. 0272-822269 (day). 0272-855071 (night).

#### September 15

Southampton STD.  
Alan Hibberd, 9 Corsair Drive, Dibden Ferns, Hythe, Southampton. 0703-847026.

All regional and remaining Modified meetings will be published when finalised. Calendar Co-ordinator J. Stone, 121A Collier Row Road, Romford, Essex, RM5 2AT. 0708-64319.

## Charge-Up

**Be nice to your Ni-Cads, it's the only way to get results. By George Land**

ONE OF THE most common complaints voiced at Club meetings is that when a car is fast enough to stay with the top cars in the club the Ni-Cad battery duration is insufficient to last the race time.

Obviously a lot of factors influence the speed and duration of any car including the gear ratio, motor and handling. Also the general preparation of the car and very importantly the con-

dition and charging of the Ni-Cad cells.

This article intends to deal exclusively with cells and their charging. It does not set out to be a highly technical discussion on the construction and charging of cells, but a guide to those just beginning in the sport and those who are finding difficulty sorting out problems related to race duration and charging cells.

The first thing to be

realised is that: **cells if treated badly can be dangerous**, they should never be overcharged, because this not only damages the cells but can also cost you money due to the fact that useful life will be shortened. In extreme cases, after prolonged overcharging *they can explode and cause damage to you and your equipment.*

Before you can actually charge the Ni-Cads properly there are certain properties



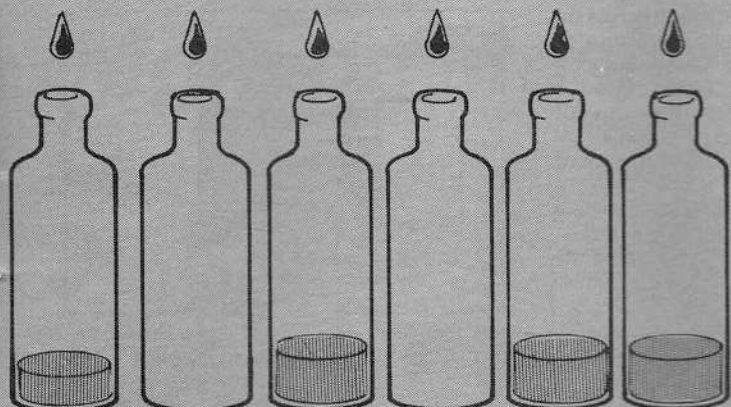


Fig. 1

to cells that must be understood. The first is that they have a finite capacity and if you try to exceed this the cells will overcharge causing them to lose performance and duration.

The second property is that as cells get older the voltage at which they are fully charged alters. When cells are new they generally

same rate, after 5 minutes and 10 minutes the bottles are still accepting water at the same rate and so on until 15 minutes when we find that three of the bottles are full and the rest only partially full. If we continue to force water into the bottles something has to give and if we have enough pressure by the time all the bottles are full we will have damaged the first three bottles to be filled. From this it can be seen that we would be better off if we had first emptied all the bottles to the same level so that when we filled them they would all become full together.

This is the same for Ni-Cad cells. When we charge an unbalanced pack to get a reading that says the pack is charged, some cells are overcharged whilst others are undercharged, so the question must now be how do we balance and charge our cells?

It does not matter if you are using a simple resistor, mounted on a heat sink, or a charger with a timer fitted or even one of the more expensive and sophisticated automatic units such as the *Laser Pulse* charger. It is a lot more accurate to charge cells with a volt-meter than to charge on time alone. Because as can be seen if the cells are  $\frac{1}{2}$ -full a 15 minute charge could damage the cells and in reverse if the cells are completely empty a 10 minute charge would not fully charge them.

The most essential item required to charge cells cor-

rectly is a digital volt-meter because the only way we can detect the peak is to measure the voltage of the cells whilst they are being charged.

## Discharging

A perfectly balanced Ni-Cad pack would consist of six cells all of which have identical charge, discharge, and power delivery characteristics. Unfortunately this is almost impossible to achieve, although a very close match between cells is possible if you are willing to spend a lot of time and money selecting and testing large batches of cells.

Most automatic chargers monitor the voltage across the pack as a whole. Subsequently if one or two cells reach their charge capacity quicker than the others the automatic cut-off will be tripped. Thus the power of your Ni-Cad pack is determined by the charge in one or two cells.

The best way to overcome this would be to charge each cell individually and so ensure maximum charge for each. Obviously this is impractical for our uses so we have to make do with the next best thing.

Current practice amongst the top racers is to *discharge* the pack totally after each race. This means that individual cells will all have discharged to a low level. The cells which had charge left in them will now be empty and thus able to accept more charge before the automatic charger cut-off is operated allowing the pack as a whole to be brought up towards maximum charge.

The way to discharge the pack is to connect a resistance across the pack, either a 20 ohm resistor or 30W/12V bulb until the pack voltage reaches approximately 0.05 volts.

Another possible benefit of this is to overcome cell 'memory.' If your Ni-Cad pack is only ever discharged to a certain level and then recharged the pack will become reluctant to give of its best below this level. An example of this would be if you ran a series of five minute heats, re-charging between each and then attempt to run an eight

minute race. The battery voltage will be low for the last three minutes.

Finally, never connect any resistance to a charged or even partially charged Ni-Cad pack. Also the majority of Ni-Cad battery manufacturers will not recommend this method, so if you are just out to have fun don't bother.

## Charging the Cells

Now we are ready to charge the cells, the first thing to do is to connect the volt-meter across the cells as they are being charged (Fig. 2).

When the cells are first connected to the charger you will find that the voltage rises gradually. As the pack starts to reach its peak, the rate at which this rise in voltage occurs speeds up and then levels off. This is the peak voltage of the cells and the fully charged point. The cells should be disconnected now. This level will remain for a short time and if the charger is left connected the voltage will start to fall and the cells heat up, the cells are now being overcharged and damaged. **So remember disconnect the cells as the voltage levels out.**

We now have a pack of cells that are fully charged and ready to be used with more chance of lasting the race.

If you do not have a DVM but have an ordinary volt-meter, then the best way to charge the cells would be to charge the cells to about 9.75 volts then disconnect the charger because it is almost impossible to detect the peak voltage with a moving pointer meter. Also if the cells start to heat up disconnect them.

It does not matter if you use a sophisticated charger or a simple resistor it is important to charge the cells properly and care for them to get their best performance. If you have plugs on the wires from the cells keep them clean and any frayed wires change them.

In a later article we will be looking at different types of cells and chargers and charging methods, also trying to explain how some of the top racers charge their cells.

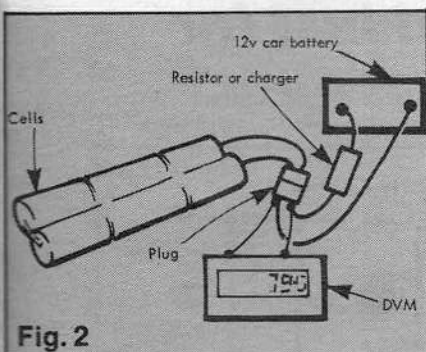


Fig. 2

peak on charge between 9 and 10 volts and as they get older this pack voltage rises.

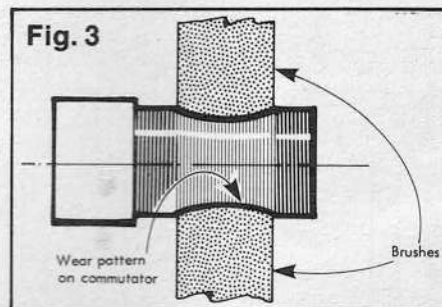
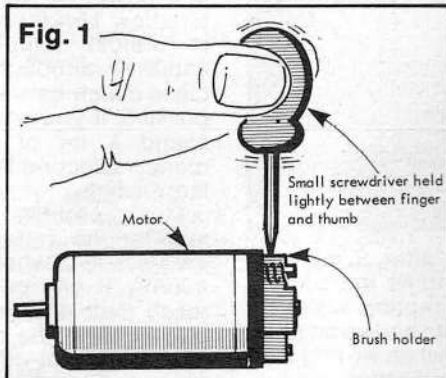
The third part is that individual cells within the pack will discharge to slightly different levels so that at the end of a race there will be more left in some of the cells than in others and if the pack is then recharged the pack will never achieve its maximum potential.

The easiest way to explain this is to imagine the cells are six identical bottles to be filled with water at the same rate and at the same time (Fig. 1). If three of the bottles are  $\frac{1}{4}$ -full, two are empty and one is  $\frac{1}{2}$ -full when the water is first poured in, the bottles will all accept the water at the

ALL THE THINGS in your pit box need care and maintenance for them to operate correctly at every meeting you attend. Nobody questions new tyres, new Ni-Cads, cleaning the chassis, new differential components or new bodies. However, certain other problems creep up on you gradually. This is particularly so in the case of motors. I have taken some time to investigate ways of revitalising motor performance for reasonable outlay and the results are very interesting.

My collection of modified motors consists of a *Trinity* triple wind, a *Reedy* triple wind, and a *Reedy* double wind. The *Trinity* is the fastest of the three, but a bit juicy for my driving style, so it has been little used in the last few months. David Gale asked if he could borrow it and was so impressed he used it at two or three meetings. By that time it was beyond its best (no reflection on David) as were the *Reedy* double, and the triple, my personal favourite.

All these unwanted problems can be cured by having the commutator retuned. This involves removing the armature from the can, setting it up in a lathe and turning a small amount off the commutator with a sharp tool or perhaps a diamond tool. Clearly most of you can't do this but thanks to Pete Jones of *Tru Tyres* we are able to give you some idea of how its done.



on the endbell. The endbell will now come off if pulled backwards along the line of the shaft. Remove the plastic washers from the shaft and store separately for reassembly. Remove the armature by holding the commutator between thumb and forefinger and pulling it out of the can. Again remove and store the spacers (back into the can for those which stick to the bearings).

Clean the endbell thoroughly in lighter fuel. Remove all traces of brush

# DIY Motor-ist

## Maintaining Modified motors is not just for experts. You can do it yourself!

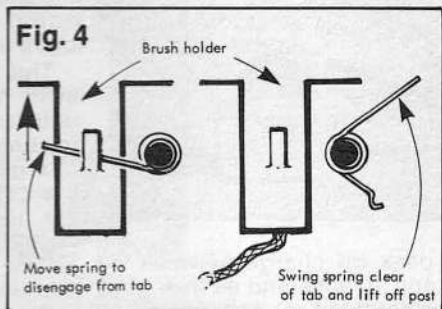
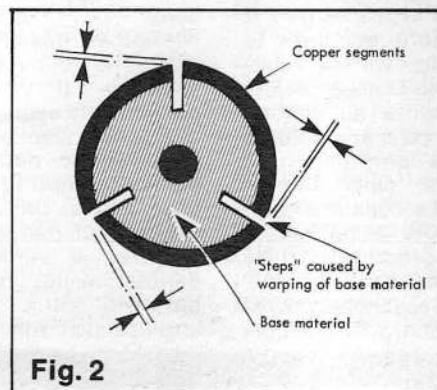
Motor performance deteriorates for a number of reasons. Bearings get dirty, brushes wear and magnets lose power. Those ex-slot racers will know that the most performance sapping fault is 'out of true' commutators. You can easily tell if a comm is past its best. Connect the motor to a charged set of cells and lightly place a small screwdriver on the end of a commutator brush. When the motor is new it should sit there and hardly move. Once worn the screwdriver bounces around on the end of the brush.

The reason it bounces is because the base material of the commutator is stress relieved by the heat generated during the running of the motor. This allows the commutator segments to move relative to each other leaving a step which the brush bounces over as the commutator rotates. These steps cause the brush to lose contact with the commutator, which means that power is lost. The other problem is commutator wear which causes irregular brush contact. By the nature of the current flow sparks caused by the brushes bouncing over the steps slowly erodes the brush and the commutator.

Lastly, the result of all this unwanted bouncing and sparking can be the build up of a hard oxide layer on the commutator which reduces its electrical conductivity.

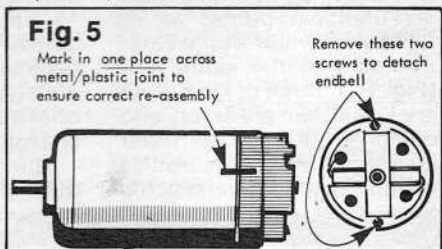
Removing the armature is not difficult if you have a *Yokomo* motor. The *Igorashi* may be a problem if the can tabs are being used, and if this is the case it may be better to send the complete motor to a repairer. The *Yokomo* is much easier. First remove the brush springs by slipping them off the holding tab, removing the crooked end from the holder slot and lifting it off the post. Holding the brush shunt wire, carefully pull the brush out of the holder. Repeat for the other side. Now mark the endbell/can with a scraper or indelible marker across the join so that you get it back together the same way round.

Remove the two small screws at the top and bottom of the bearing housing



dust and grease. Clean the can similarly and carefully remove any swarf particles from the magnets.

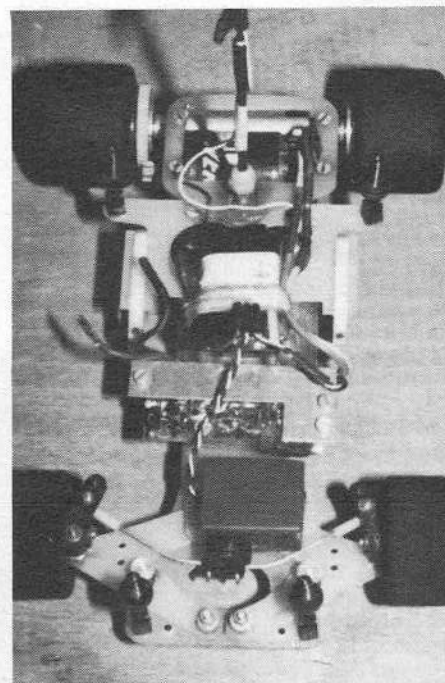
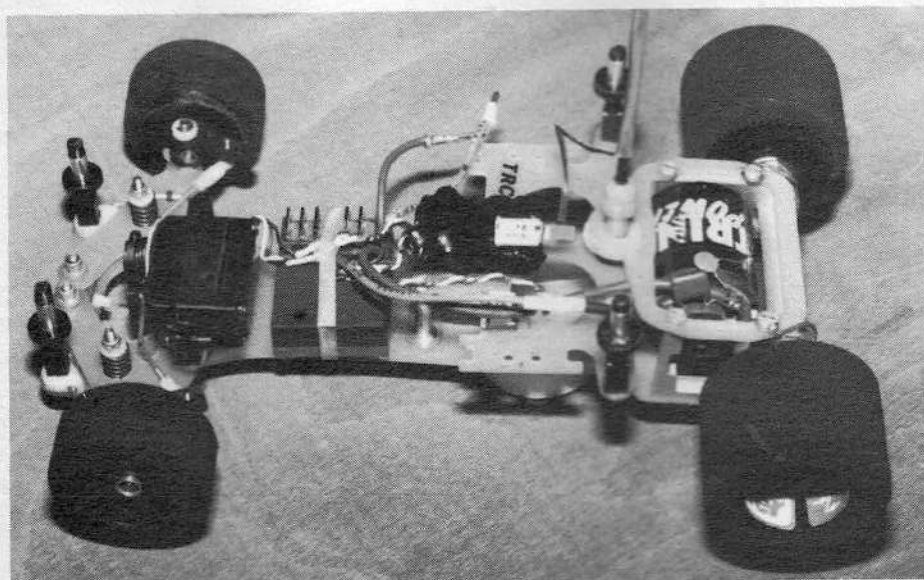
Send the armature away for retuning. When returned, reverse the dismantling procedure. You should fit a new pair of brushes for maximum benefit, but providing the old pair are less than 1/3 worn you should be OK. In later articles we will discuss more detailed re-assembly procedures designed to improve performance.





# More on Mosfets

— as seen at the Model Engineer Exhibition



The other method of extending motor life is to have an old standard rebuilt. The only person I know offering this service is *M.G. Model Products*. There is nothing you have to do to achieve this except sending your motor to *MG*, getting it back and using it. I have sent two off, one *Yokomo* and one *Reedy 05*. Reports on their new lease life next time.

## Green tyres

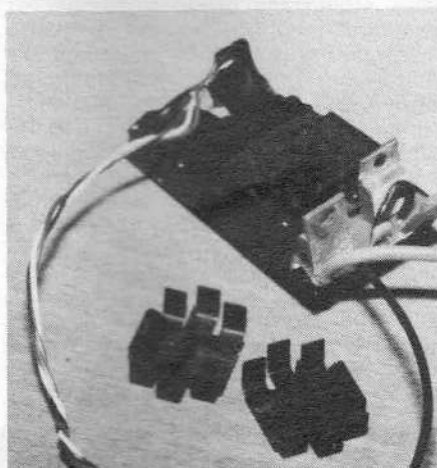
*Schumacher* have entered the tyre market with a new offering called 'Greens' they are supposed to be very similar to the *Associated* products of the same.

The tyres come in rings, two of which make up one rear tyre and three can be used to make up a pair of fronts, by cutting one in half.

Mounting is not easy since the centre hole is very small and a tyre horn is really needed. I believe *Ted Longshaw* sells the excellent *Kimborough* product which fits the bill admirably. I got best results by gluing the rings together first before fitting them to the wheels.

The tyres are very good. Grip is excellent and quite progressive. There is less tendency to breakaway suddenly, it's more of a drift. Wear is low by current definition, my first set lasting over 20 heats on a standard motor from new (53mm rear, 48 front) although by then they were 44mm rear and 44mm front!

Available from your usual supplier or direct from *Schumacher*, Rudge, Church Brampton, Nr. Northampton, Northants. Price is 75p per ring or £5 for a complete set, plus 50p post and



packing if ordering direct.

*Cecil* assures me supply will be regular and not a one off, in which case these are good value too!

## Feedback

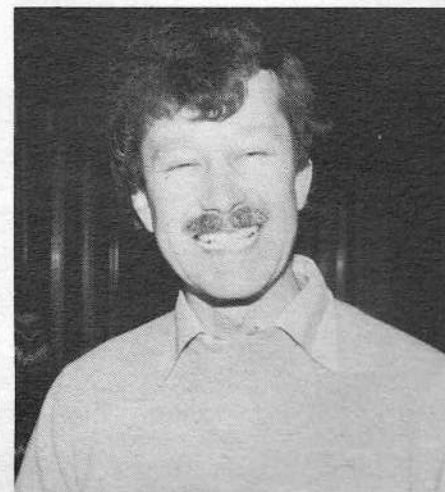
May I once again appeal for some communication from you as to the content of the 'On the Carpet' column. I've had two letters in 1984, and really

## Addresses

**MG Model Products,**  
91 Clearmont Rd., Weymouth,  
Dorset DT4 9LF.  
Tel. (0305) 772048.  
**Tru-Tyres — Pete Jones,**  
31 Broadhurst Gardens,  
Eastcote, Ruislip,  
HA4 9JQ.

*Mosfet* speed controllers were espied amongst the racers at the Model Engineer Exhibition. Top left: *Andy Dobson's Schumacher C-Car* sported a *Delta* electronic speed controller which *Andy*, nonchalantly described as 'the bee's knees.' Above: *Glyn Peglar* (never slow off the mark) displayed the *Laser* alternative which looked no different to his relay 'compact.' Left: the *Demon* article from *Nick Adams* complete with detachable heatsinks. *Nick* is first into production with a *BRCA* legal *Mosfet* speed controller. The *Demon* costs £39.50. Below: we couldn't resist this mug-shot of *Cecil Schumacher* who has every right to look pleased. His products and drivers have won both *National Championships* and *team International* events. Big-head!

don't know if all you readers are getting what you want out of the articles. Since without you there would be no column, it's only fair you should get what you want. Say something please, even if it's only hello!



# On The Carpet

## The case for 4 cell 1/12th Racing by Cecil Schumacher

Yes, 4 cells! I imagine like me and just about everyone else who has not actually tried it you probably condemn the idea out of hand.

Well, we tried it and the result was most surprising. I reckon the car is about 4% slower (with a 28T standard Off-Road motor) and about 100% easier to drive.

It is easy to overlook just how much 1/12th car performance has risen over the past couple of years — particularly with the introduction of carpet. We have a situation where a newcomer must surely go weak at the knees when he sees for the first time the damage and destruction which occurs in the lower heats of our races. It's enough to put anyone off particularly a parent who has to fund it all.

I believe we need a less demanding class of racing as an option, particularly for novices but not exclusively.

Our 'Standard' motor versus 'Modified' class offers no solution as a glance at any results will show virtually no difference in performance.

Our 'Stock Motor Class' exists on paper but is ignored in practice, the reason I believe is that chassis performance is limited but power is now, hence a car that is harder to drive.

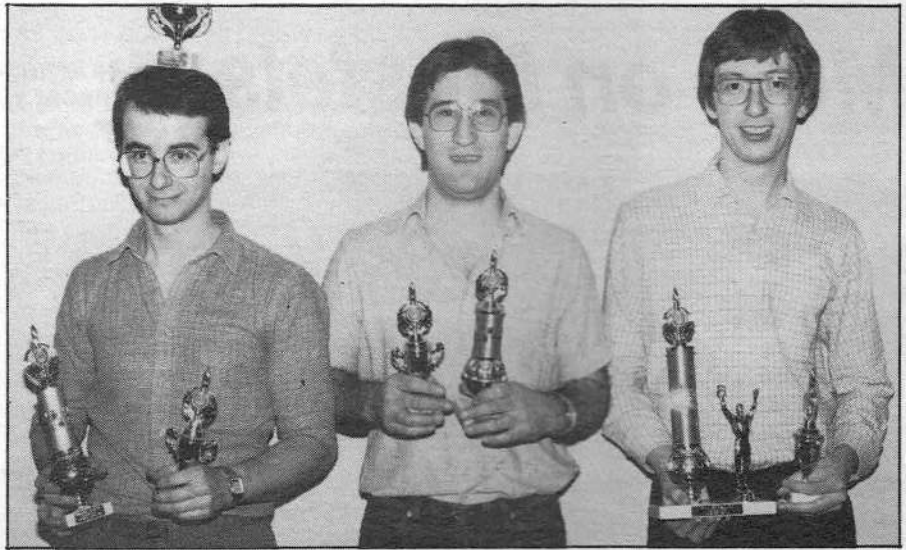
Make no mistake — the top drivers will still be the same but the intermediate drivers will have a far more enjoyable and less frustrating time.

4-cell racing is more economical too, because types, bodies and chassis parts all last significantly longer.

A word of warning — don't mix 4-cell and 6-cell cars — although lap times for a clean race would be very similar, the difference in acceleration leads to pile ups unless you have more restrained drivers than I normally come across.

Why not try running 4-cells at your club and give yourself and your novice drivers a better deal.

The BRCA is keenly interested in any developments which improve racing and already have a framework of racing rules for a 4-cell class. Send an SAE to Bill Jones, the Hon. Sec. for a copy.



Above: the victorious 'other' Schumacher team who won the team prize at the Stafford GP on November 26/27. David Gale (right) won the Class A final whilst Peter Farmer (centre) won the Modified B-final. Both drivers were excellent replacements for Andy Dobson and Les Pipe.

## League talk

A lot of people never feel they are up to the standard required for a National Points Meeting. Yet there are many who attend the growing number of weekend meetings without a qualm. The standards at these meetings are just as high, but their understandable appeal lies in the low cost and short time away from home compared to the National events. We have already reported on a new series in the North East, although no dates have reached me. To add to this, the **Ally Pally Carpet League**, based at the Woodside Leisure Centre, Horseshoe Lane, Garston, Herts.

The Watford format is a monthly meeting featuring eight minute racing for modified motors. The circuit is large and includes the longest straight in the

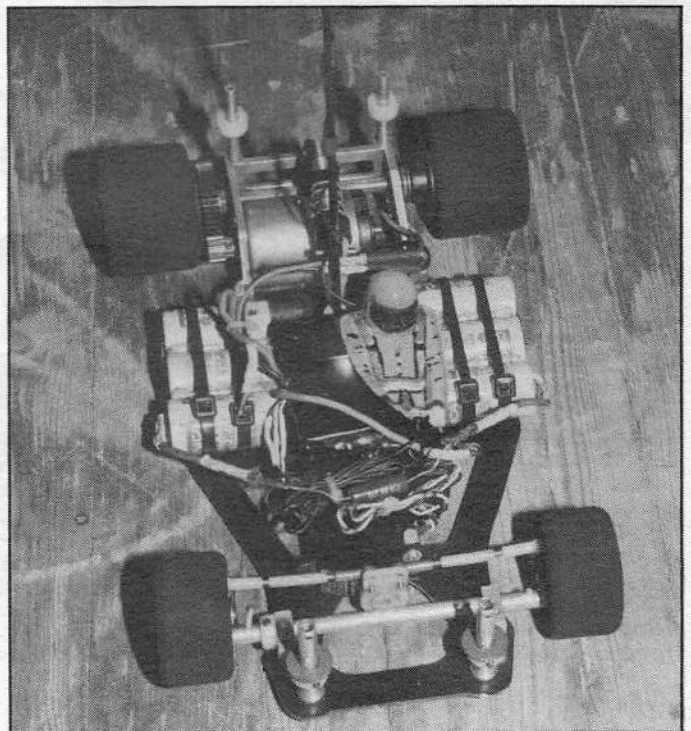
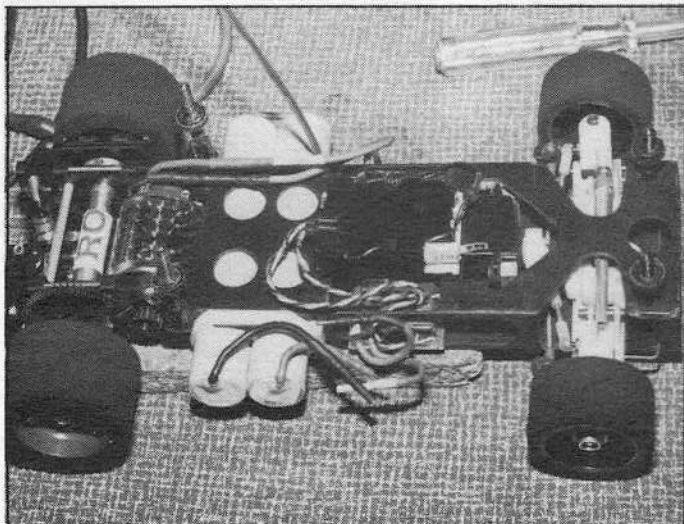
UK, 90ft. — flat out. There are three rounds and a final for each competitor and doors open at 3.30pm on the following dates. Cost is £3.00 per meeting and trophies are awarded to each final winner and FTD. At the year's end there are trophies for the top 20 in the league table. Points are scored by giving 60 to first place in the 'A' final down to one point for last in the 'F' final. All rounds count.

## Dates:

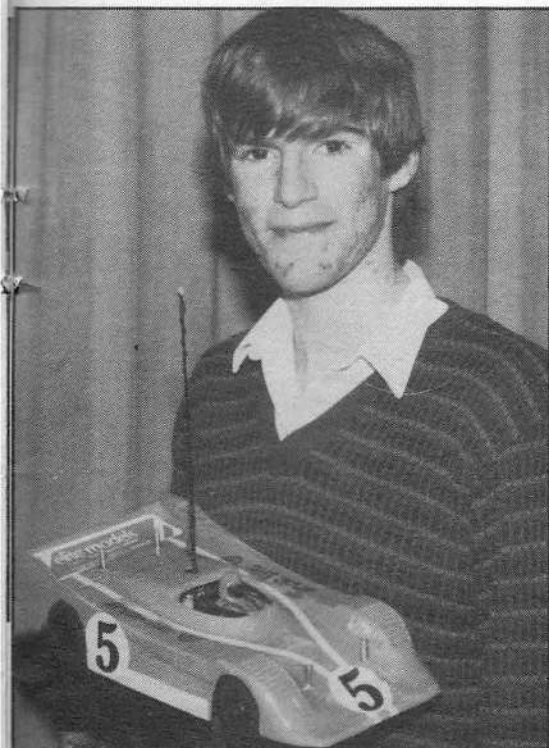
January 26	July 20
February 16	August 24
March 16	September 21
April 13	October 20 (Sunday)
May 25	November 23
June 22	December 8 (Sunday)

You can get information from Nick Adams — 01-866-5945.

Below: Roger Darby's scratchbuilt monocoque chassis now includes a speed controller fitted with a micro processor. Right: also seen at Stafford was the Delta 'Super Phaser' driven by Doug Attewell to a Standard Class A-Final place.







Above: new faces seen in the A finals at Stafford left to right: Doug Attewell who finished fourth managed a magnificent second in Modified class and Alan Wilkinson ended up tenth and sixth in Modified and Standard respectively. Below: Alan Wilkinson's Schumacher C Car uses no rear body posts at all, the shell just rests on a large Lexan washer fitted to the rollover mast.



### 1985 BRCA National Championship

March	30/31	Washington
April	20/21	Stafford
May	25/26	Chesterfield
September	14/15	Derby
September	28/29	East Midlands
October	26/27	Runcorn

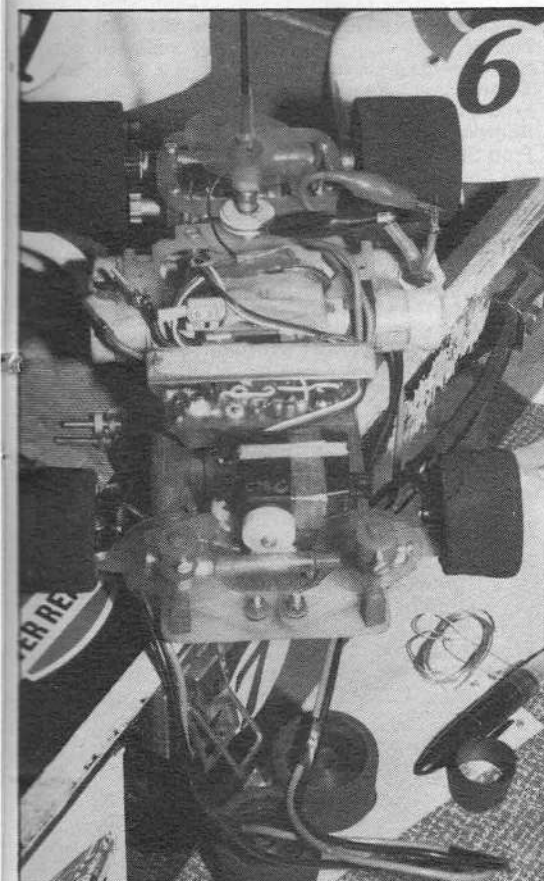
May	18/19	Austrian GP
April	26/27/28	European Championship Norway
		Watford TBA

### BRCA 1/12th Secretary

Bill Jones, 29 Church Street, Romsey, Hants. SO5 8BT. Tel. (0794) 517403.

### BRCA 1/12th Chairman

John Robson, 1 Aldersleigh Drive, Wildwood, Stafford, ST17 4RY. Tel. (0785) 662242.



The Vauxhall Radio Car Club will hold their Saturday trophy meetings in 1985 on these dates:

- February 5
- October 5
- March 2
- November 2
- April 6
- December 7 (Christmas meeting; buggies, fancy dress, caravan racing).
- May 18
- June 1
- July 6

The venue is the Main Canteen, Vauxhall Motors, Luton, and the format is eight minute modified racing; four heats and a final. Trophies are awarded for all eight places in the 'A' final, and the top three in most of the others. You should arrive to book in by 12.00 noon, although earlier starts and late leavers who help with the track may get a discount on the £3.00 race fee. Contact Keith Helmke on 0582-864420.

The Stafford Mini National Series (grand title, eh!) is run by John Robson (0785-662242), this year's BRCA 1/12th Chairman. In a departure from the formats of the two other leagues, Stafford issue a standard motor to each competitor in exchange for the £3.50 entrance fee. This motor is used for the duration of the day's racing and returned to the organisers at the end. If you feel you have a 'dog,' then you can make one exchange. However, if the new motor is slower than the first, it will cost you £1.00 to get the original back! Trophies are awarded to 1st, 2nd and 3rd in each final. Arrive and book in around 1.30pm at GEC Stychfields Sports and Social Club in Stafford on these days:

27 January	23rd June
24 February	29 September
24 March	13 October
19 May	1 December

Hope you all enjoy yourselves at these meetings. We will carry some reports in 1985.

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## 1/12th Stocks

Chris Loughran details recent developments in 1/12th stockcar racing

### 1/12th Model Engineer's Meeting - Wembley - January 1st

Despite the fact that New Year's Eve may have taken its toll; 48 drivers turned up to put on a day's racing for the public in the main arena, promoting the RSCA and 1/12th stock car racing in particular. Due to the venue there were very few drivers from the more northern clubs, though the Leicester

### Club in Focus - Biddulph Moor Radio Controlled Stock Car Club

The Biddulph Moor Club caters for 1/12th scale electric stockcars and was formed in the autumn of 1982 due mainly to the efforts of Graham Eardley. Graham had previously raced full-sized F1 stock cars and his wife Rosemary bought him a *letricar* kit for his birthday. Needing someone to race against the enterprising Graham hired his local village hall, and placed an advert in the local paper inviting anyone with a radio controlled stock car to come along. Although no other stock cars turned up enough interested people did, some obtained cars, and the Club was formed.

From an initial membership of around 10 the Club has grown gradually to around 25, with over 20 regularly attending Club meetings. Meetings are held on the second and fourth Tuesdays of every month, with an extra meeting if there are five Tuesdays in the month. In '85 the extra meeting is being used to hold a Club Caravan Racing Championship.

Meetings towards the 1/12th National Championship have been staged by the Club for the past two years, and their '85 meeting is arranged for September 8th. The Club's leading drivers are Tim Walker, who regularly appears in Nationals Finals and Greg Lloyd, who makes it at times. Tim finished in third place in '83 and again



Above: general view of the large (by normal standards) 1/12th Stockcar circuit on the auditorium stage. Below left: Mike Chilvers' new Mardave, new pitbox, new bottle of Tractite; in fact - new everything!

made the top ten in '84 despite missing a meeting.

The Club also has its own Club Championship throughout the season, and holds trophy meetings at regular intervals, managing to secure people such as F1 driver Bert Finnikin as a guest at their Christmas Trophy Meeting.

The venue is still the village hall at Biddulph Moor, where the floor is of polished wood, and the track made up of wooden inner and outer boards. The venue is a little difficult to find, and more so to describe clearly. Basically you turn off the A527 Stoke to Congleton road at the traffic lights at Knypersley to Biddulph Moor. When you read Biddulph Moor pass the Rose and Crown on the right and the Post Office, go straight into Hot Lane passing Rudyard Road on the right, and the village hall should be just ahead on the left. It might be safer to get more detailed instructions from either Pete Hazelhurst, 15 Grasmere Avenue, Congleton, Cheshire (Congleton 78737) or Graham Eardley, 8 Chapel Lane, Biddulph Moor, Stoke on Trent (Stoke on Trent 518160).

So there is a fine chance for those of you in the area to race on a regular basis, and in mid-week. Give either Pete or Graham a ring and they will be pleased to see you and point you in the right direction as to what it takes to enter the world of 1/12th scale stock car racing. Thanks Pete for the information.



Above: Model Engineer open winner Bob Jessop (right) with the trophy.

Club had come down en bloc in a hired coach (a tip for other clubs next year?). The most notable absentees were current National Champion Dave Clarke, sister Shirley and the new RSCA Chairman Tony Whitehorn. However Dave's fellow club mate and runner up in the Championship Martin Higham was there, but he unfortunately had to leave for personal reasons mid-way through the racing. It was nice to see the return of the '83 National Champion Steve Talbot after a very successful 1/8th season. It was

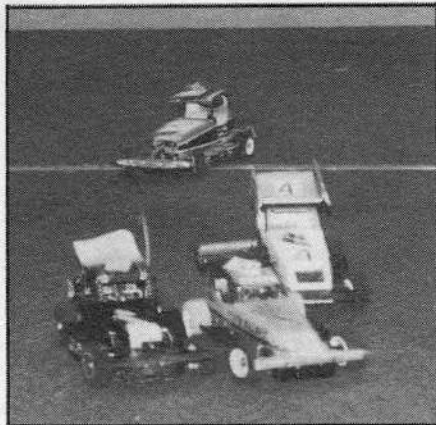


# Taking Stock

also pleasing to see several 1/8th drivers having a go at 1/12th scale, including 'Model Cars' own Mike Chilvers who had put a car together especially for the meeting. Mike was also responsible for the day long commentary on the racing which kept the crowd in the arena well informed on what was happening. Thanks Mike! Also, 'Model Cars' slotcar reporter, Trevor Tennant, was also having a go, with a very unusual car made entirely from fibreglass, including the nerf rails, and which featured a wishbone type front axle beam rather like the 'B' car from Schumacher.

Another new variation for the drivers was that the track was laid out on carpet, as per the racing car circuits in 1/12th scale. This meant that siliconed tyres were of no use whatsoever, and so the practice session was more hectic than usual, as the drivers tried to sort out a set of tyres that would not only provide the required grip, but would also stand up to the rapid wear rate that the carpet was inflicting. Still, by the end of practice all the drivers were getting round all right, although several of the cars seemed rather prone to rolling over going through the bends. I think the chassis' were too flexible. (Flex is great for polished floors and silicone, but a rather stiffer chassis is required for carpeted surfaces.)

After practice the Councours event was judged, and the 20-plus cars that were entered were of a very high standard. As is now standard practice every driver had a vote, and the winner



Above: action from the fast racing at Wembley.  
Below: concentration on the finalists' faces.



was Steve Talbot with a hand painted red and yellow body. (The car looked nice too.)

Then it was down to the qualifying heats. The track was quite long, around 40ft., but not too wide, and during practice several drivers had looked to be going fast enough to go past the 50 lap mark, and so it turned out. In the first heat three drivers set 50+ scores, but it was not until heat 5 that we realised just how quick the track was, when Steve Talbot set a 58-lapper, and proved that he's lost nothing during his 12 months absence.

Round 2 saw John Cutts' record 59, but in heat 5 Steve was out there again, and he set a cracking 60, to set the FTD. Mike Chilvers meanwhile drove to a 52 lap second place in his heat. This was Mike's first meeting with a 1/12th car, but he put his 1/8th experience to good use, and avoided a lot of trouble in his heats. If Mike ever decides to give up the 1/8th racing, he could have a very good season in 1/12th.

In round 3 the rugby club did extremely well, with Pete Storer, Debbie Ramshaw, John Cutts and Gary Lenton all well up in the lap scores. Gary continued his club's run by beating Steve Talbot into second place and equalling the FTD at the same time in heat 7.

Round 4 saw Debbie set another 58, and Roy Jones and Karl Williams both set 56s. Heat 8 was a particularly good one, with Steve, Pete and Bob all racing against each other. After a close start Steve pulled out a lead over Pete and Bob, and then Bob got into all kinds of trouble, letting Pete pull out a two lap lead to take second place behind Steve, the scores being 57 to 53, Bob was way back on 51.

As the final round started yet another Rugby club member was getting in on the act as Rob Harrod set a 57 to earn himself a consolation place. Debbie finished a good day's racing with a 59, after a close battle with Roy Jones, who finished the length of the straight behind Debbie on 58. Bob got things sorted out for his final run, which resulted in a 58 and a final place alongside Pete and Steve who had a great final heat with one lap separating them, 58 to 57 in Steve's favour. However right at the end of the heat Steve's car took a heavy knock, which caused the back axle to lock up solid. It



Above: Steve Talbot (right) administers some tweeks to improve handling aided by RSCA Chairman Paul Dudley.

took Steve quite a while to sort it out, and it was only after a complete rebuild of the back end, a task in which Steve was assisted by past RSCA Chairman Paul Dudley, that Steve was able to come out for the final.

The drivers who had qualified for the Consolation were:

- Clive Buckler (219 laps);
- Neil Shirley (216);
- Rob Harrod (215);
- Dave Grocock (214);
- Russel Cooper (213);
- Karl Williams (212);
- Chris Loughran (210);
- Paul Hague (209).

With qualifying scores as close as that the Consolation promised to be a good race.

From the start Rob Harrod and myself (Chris) went into the lead. Then I went into the fence which caused the motor to move, and despite several attempts to cure it there was no way I could get back into the race. Dave Grocock and Karl Williams were also in trouble, and they both retired after only 10 laps. Dave had a wire come off the motor, and Karl had the rear axle lock up after a knock against the fence. That left Clive and Neil to go through and challenge Rob, but Rob was driving very smoothly and avoiding trouble, and he was not to be caught. He was almost 2 laps up at the end, with Neil and Clive tying for second place with 56 laps, so Rob's 57 took him through to the Final.

The drivers who had qualified for the Final were:

- Steve Talbot (234 laps);
- Debbie Ramshaw (233);
- Gary Lenton (233);
- John Cutts (231);
- Roy Jones (228);
- Pete Storer (227);



Bob Jessop (224) and of course Rob Harrod from the Consolation.

With five of the eight drivers coming from the Rugby Club there was a lot of friendly rivalry. Bob went into an early lead, chased hard by John and Roy. Steve's car just did not seem to have the speed to keep up with the leaders, and it turned out that his Ni-Cads were undercharged.

After 9 laps one of the Rugby drivers dropped out when Gary's car stopped with no power. Debbie was still chasing Bob, and she herself was being caught by John and Pete. Fellow club members or not there was no courtesy between them at all, as Pete found out when he was shoved very hard into the fence. However, he made up lost time, and managed to catch and pass John near the end of the race. In fact, at the end, it was so close that the positions were decided by the split times on the computer. Bob Jessop held onto his lead to take first place with 60 laps, from Debbie on 59, then came Pete, John and Steve all on 58, Roy on 55, Rob with 51, and finally Gary who retired after 9 laps.

So the first 1/12th meeting at the Model Engineer's came to a close. Overall it had been a good day's racing, and with the number of enquiries we had hopefully it will bring in some extra members for the RSCA and its Clubs,

Pos.	Name	Car Type	Cells	Gears	F. Tyres	R. Tyres	Speed
1	B. Jessop	Modified Lectricar	Selected Sanyo	13:46	Radyo Hard	Radyo M'soft	Parma
2	D. Ramshaw	Modified Mardave	Sanyo	12:50	Carpet* 07s	Carpet* 07s	Mardave
3	P. Storer	Standard Mardave	Sanyo	12:50	Carpet 07s	Carpet 07s	Mardave
4	J. Cutts	Standard Mardave	Sanyo	12:50	Carpet 07s	Carpet 07s	Mardave
5	S. Talbot	Modified Lectricar	Enduro 1200	12:54	Prowler 12/005	Prowler 12/005	Parma
6	R. Jones	Scratchbuilt Mardave	Demon Sanyo	12:50	Carpet 07s	Carpet* 07s	Modified Mardave
7	R. Harrod	Modified Mardave	Sanyo	13:50	Carpet 07s	Carpet 07s	Parma
8	G. Lenton	Standard Mardave	Sanyo	12:50	Carpet 07s	Carpet 07s	Mardave

Concours: S. Talbot Junior Trophy: P. Smith  
F.T.D.: S. Talbot, G. Lenton, B. Jessop (60)  
\* Denotes 'Tracktite' used on tyres.

and after all that was what the show was all about.

Finally, I would like to pass on my thanks to everyone who helped out at the meeting, especially to Mick Andrews and the Newnham Club for

loaning us their track and for transporting it down there for us. Also to Lewis Eckett for getting us the TV set when ours broke down. Thanks to all drivers who took part, and here's hoping we see you all there again next year.

# HOWES

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DEAL 7.2 volt	£77.95
TAMIYA FROG	£138.95
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5mm I.D. x 11mm O.D. S	£1.50
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3505 Shock oil 30w, 2oz £1.85  
3506 Shock oil 5w, 2oz £1.85

# OXFORD

## RSCA AGM Leicester - December 2nd

December 2nd proved to be a very pleasant day on which to travel to Leicester for the RSCA AGM. I was pleased to see that Don and Anne Ballard had managed to make the journey from Bournemouth to represent their club. In fact most clubs were represented, even if the overall turn-out was lower than in previous years. This AGM was to prove to be the quickest, and smoothest I have attended, with agreements reached in record time, so much so that an interval was called just so everyone could check that nothing had been left out!

The General Secretary reported that the Association had 477 members during the year, and that whilst some past members had not renewed during the year there was a steady stream of new members joining. The Treasurer reported that the Association was still just keeping its head above water, but it was agreed that the Membership Fees for '85 should be increased to £4 for a full Adult membership and £2 for a Child. This is still excellent value when one considers that members get a Handbook and six copies of "Nerfers News" sent by post direct to their homes.

As always the proposals for amendments to the Rules had been sent direct to the membership, and the results of the postal voting was next on the Agenda.

There had been two proposals to increase the maximum cost of the basic 1/8th scale stockcar kit, one to £50 the other to £55, and the voting was in favour of the £55 maximum. The engine ruling stays the same as for last year, with the O.S. still legal. The exhaust rule now states that no exhaust shall point upwards, thus permitting rear exhausts as well as side or the more usual downwards exhausts.

A driver's RSCA number now does not have to be displayed on the sides of the car, though it must be displayed on some part of the body, and the numbers are to be black on a white background and must be at least 3/4 in. high. It was agreed that the British Champion should sport a single gold band on the roof of his car, as at the moment there is no recognition given for this. It was also agreed that major title holders should not be allowed to fall below red grade at any time.

The final point relating to the 1/8th scale was that all drivers should start in one line for the Finals, and that the line should be at the beginning of a straight.

On the 1/12th scale racing front, it was agreed that the motors of the first three drivers at National meetings should be opened, checked and replaced if found legal. Also the entry fee for National meetings to be increased from £2 to £2.50 to help cover the increasing costs.

I must confess to a sigh of relief when the 1/8th kit cost limit was increased, as I am sure did those in the room who are in the business of manufacturing stockcar kits. The constant demands by drivers for a better product plus the increased costs involved in manufacture, have resulted in the '85 price of the Puma being £53 and the new 'Mk III' Mardave £49.50. Both prices of which would have been well over the old kit maximum price of £45. Need I say more?

a confirming of dates rather than a sorting out. All the major dates had been circulated to clubs earlier and venues decided upon though there were one or two gaps. Club meetings of course are left to the individual clubs to sort out but the full fixture list is available in the RSCA Handbook.

The full 1/8th Series Championship will again be over six rounds.

**Hastings, March 24th.**

**Lilford, April 21st.**

**Keighley, June 9th.**

# 1/8th Stocks

Mike Chilvers reports on the stockcar racing scene

As for the other proposals that went through they all showed good sense on the part of the membership, and will do nothing to detract from the sport. It does seem a pity though that in the 1/12th section there is the need to open motors, and I hope this does not cause too much problem.

The Election of Officers for '85 took on a new look, both because the RSCA Chairman of '84 Paul Dudley was not present and had indicated he did not want to stand, and because the Committee had decided they wanted to alter the Committee structure for '85. Tony Whitehorn, who had been the Chairman of the 1/12th section and who was in the chair for the AGM was elected Chairman for '85; Jim Wheeler was re-elected to the Treasurer's post, and Linda Woodger as General Secretary and Editor of "Nerfers News." It was agreed that two people should be elected to look after the interests of each of the two scales of racing, the 1/12th jobs going to Malc Davies and Chris Loughran, and the 1/8th to Wendy and Graham Lawrence. It is hoped that this new arrangement of jobs will lead to both a quicker reaction from the RSCA and also be one which is less arduous on the members of the Committee.

Sorting out the fixture list was the next item on the Agenda, but this had been made easy as a result of the work done earlier in the year, and was really

**Chessington, July 14th.**  
**Pendle, August 25th.**  
**Coventry, September 29th.**  
**EMSA European Final, May 26th**  
**Brighton.**  
**The British Championship, Coventry, June 30th.**  
**The RSCA Championships, Keighley, September 15th.**  
**The EMSA World Final, Holland, September 22nd. (A date change as it was to have been in August).**  
**The Champion of Champions Meeting, Bournemouth, October 13th.**  
The 1/12th National Meetings are:  
**Buntingford, March 3rd.**  
**Leicester, April 14th.**  
**Pendle, date yet to be fixed in May.**  
**Loughborough, June 9th.**  
**Biddulph Moor, September 8th.**  
**Wirral, October 13th.**

So it was that the AGM wound its way to a swift close, and one in which all seemed to think that sense had won through with little in the way of problems.

## ME at Wembley

Really the ME heading means Model Engineer, but it also refers to myself. The '85 Model Engineer Exhibition at Wembley took place from December 31st to January 6th with some 50,000 people visiting the Exhibition. I was there from January 1st to 5th helping



out on the RSCA Stand which was set up and manned (if Linda will permit me to use the word) by Linda Woodger and Paul Dudley for the entire time, helped out on occasions by other RSCA members when they came up for the day.

New Year's day saw the first appearance of the 1/12th stock cars in the main auditorium for a day's racing on a carpet surface and I thought I might as well have a go too. Regular readers will recall that I built up a *Mardave* for the meeting, and *Motile Model Developments* had let me have some tyres. In the event I had little time to practice, and went out on standard *Mardave* tyres as supplied in the kit. To my surprise they seemed to be doing a grand job in their untreated state. As a result I went out on standard *Mardave* tyres as supplied in the kit. I did not do very well as I had not fully charged up the batteries (forgot to do it — idiot!), but the tyres were still OK. As I was sharing the commentary with Chris Loughran who was also trying to run

Back on Stand 158 things were very busy, and they stayed that way all week. The RSCA had a video which was showing both the '83 and '84 European Finals, plus a display of both 1/12th and 1/8th scale cars. A fair sprinkling of literature, past "Hand-books," *Nerfers News* and up-to-date fact sheets were snapped up by interested parties. From 10am to 7pm there was rarely time for a breather, as people asked for information, were put onto their nearest track or club, or enquired about some aspect of the hobby. If they had been available, car kits would have been snapped up, and I hope the stockcar manufacturers will note this for next year. The kits provided for the trade stands were gone up in 20 minutes! As always there were those people looking for clubs in areas where racing is unknown by the RSCA. So, to any club secretary reading this whose club is not affiliated to the RSCA please let me know. If you want to benefit from the publicity that the RSCA can give you via its Hand-

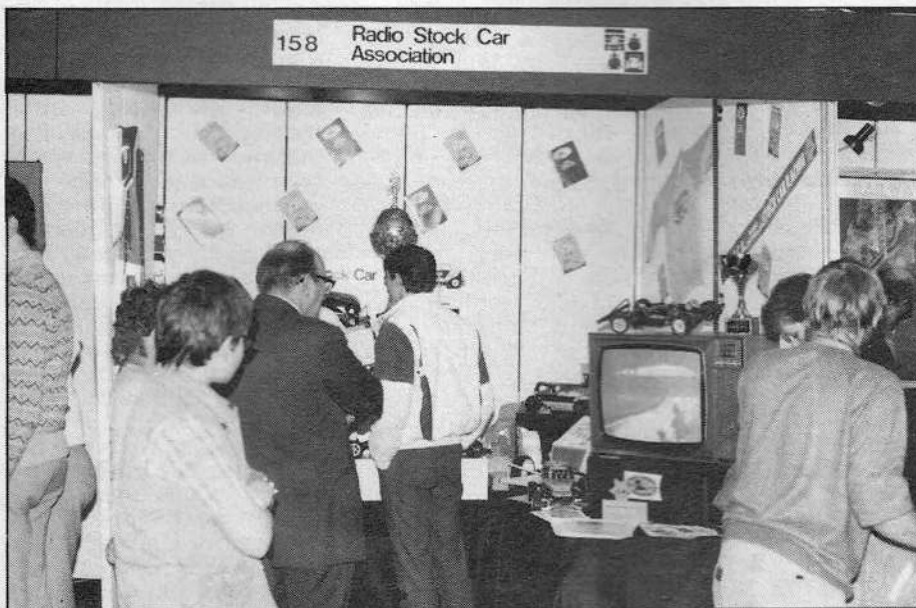
Longwell Green, Bristol BS15 6DW, has indicated an interest in forming one. John has attended some of the modellers' holidays where his stock car interest has been kindled. So to all those people who were looking for something in the Bristol area then get in touch with John. I also understand that there is a club in Glasgow that has contacted the RSCA regarding affiliation though at the moment I have no address.

Other interesting contacts included gentlemen from Malta and Saudi Arabia who expressed an interest in starting something similar in their countries. Also the gentleman who is building a theme park, and was interested in incorporating a race track within it. I hope to be able to report further on that aspect in a later issue. Mention of our foreign contacts makes me wonder how our stock car friends in Australia, New Zealand and America are getting on. If you are reading this, how about dropping me a line?

One of the aims of the Exhibition is of course for modellers and engineers to get together. This year there was a very welcomed growing mutual respect between the various radio controlled model car interests. Perhaps it had something to do with the fact that all three branches, stock cars, Off-Road and circuit were represented during the week in the main arena. I remember the days when the electric side of circuit racing was separate from the IC, then they got together under the BRCA badge. Then when this latest branch of the sport 'Off-Road' came along they soon saw the advantages of joining with an established organisation that could help publicise its activities and assist with its development. Today only the stockcar activities are separate from the others.

The talking between people that takes place at such venues as Wembley makes one wonder whether all those with a common purpose such as racing radio controlled cars would be better served if we were a united association of radio controlled car racing drivers, for it is clear we have much in common. I wonder what the reaction would be from RSCA members, or indeed BRCA members to any form of 'merger'. So long as stock car racing could continue as a low cost form of racing, run by those participating in it, and that guarantees could be given to that end I believe the sport as a whole would benefit. However, that will be up to the BRCA and RSCA to work out. I certainly had some interesting chats with 'high ups' in the BRCA who expressed such an interest, we'll have to wait and see if anything happens in '85.

Once again the RSCA did a good job of publicising the sport, and I hope will have attracted a number of new members and clubs to both scales of racing.



Above: the RSCA stand at the Model Engineer Exhibition was once again packed out with visitors.

the meeting I had little time to do anything to the car, staying on the same tyres all day, and just making sure I recharged the batteries. I was pleased to record four heats of 52 laps, just missing out on the Consolation by one lap. Not bad for a 'bog standard' *Mardave*.

Also trying his hand at 1/12th racing for the first time was fellow 'Model Cars' writer Trevor Tennant who normally races slotcars. Trevor found the going tough to start with, but was getting the hang of things towards the end of the day, and vowing to get his own back on 'yours truly' at some future date on a slotstox track. However, I'll leave the meeting details to Chris Loughran's report a little later.

book and "Nerfers News" plus exhibitions why not get yourself affiliated to it.

For aspiring 1/8th drivers Colin Warner of 13 Coles Crescent, South Harrow, is attempting to get a club going in the north London area. He came to see us on Thursday, and by the end of the Exhibition we had put something like 30 people his way. I hope that at least some of them will contact him and that something will get off the ground there this year. Colin can be contacted at his Middlesex home on 01-864 4681. Another area that at present has no known club is the area around Bristol, but a certain John Painter (I may have mis-spelt his surname) of 35 Watsons Road,

# Truckpullin'



In part two of Roy Yuval's Tamiya 'Wild Willy' conversion feature we look at the construction of the sled

THE ORIGINAL 'hayburner' sleds were primitive in the extreme, being basically a wooden, punt-shaped construction, onto which were heaped the weights and at the rear of which sat the team-driver. A far cry from today's modern high-tech sleds, which are built to carry weights ranging between 5,000 and 12,000lbs.! It is patently obvious, that no vehicle (except for perhaps a tank), could possibly begin to move such a deadweight.

Therefore the modern sled must be able to transfer the pulled weight, from over the wheels at the rear of the 'machine', until it sits squarely over the front of the sled proper, the wheels then support the rear-end of the sled alone.

The amount of weight and its rate of transfer, is determined by which class of vehicle is pulling and controlled by an operator who

sits at the rear of the sled.

The transfer mechanism is either a system of chains and pulleys, or a drive-shaft, operated by the wheels as the sled is pulled forwards and disconnected by a 'clutch' as soon as the weight box is in position over the sled and locked. Although sleds vary a great deal in their construction and method of operation, they must conform to a strictly controlled set of dimensions and safety regulations, usually enforced by the pull organising bodies, such as the **National Hot Rod Truck Pullers Association**.

The size of the sled also varies with the class of vehicle actually pulling. Thus a sled which will be pulled by, for example a 'Modified Class Tractor' with anything up to four motors, will naturally dwarf the type of sled used by the 2WD and 4WD fraternity.

The sled that I have built to 1/10th scale, is fairly representative of the type used by the latter classes of pullers and carries weights ranging between 5,000 and 8,000lbs.

## Construction

I began by constructing the main 'bed' of the sled from 'U' section aluminium rails, 17mm x 10mm. The main frame measures 70cm x 12.5cm and is divided into three bays by four cross-members of smaller section 'U' channel, bolted inside the outer rails. The two inner cross-members, are positioned 65mm in from the extreme ends of the frame.

Bolted to and running between the inner cross-members, are two further 17 x 10mm rails, set 10mm in from the outer frame-rails. These inner rails support the weight-box and weight-box carrier 'trolley', which on my model runs on eight small nylon rollers travelling inside the 'U' channel, thus spreading the carried load as much as possible.

The weight-box itself was made from a plastic box measuring 17 x 12.5 x 7cms and is mounted on a simple rectangular aluminium frame, built to fit snugly inside the inner carrier-rails. The axles for the rollers were made from 3mm dia. steel rod, simply slid through four holes drilled in the weight-box frame, with the wheels being held in place by the carrier channels themselves.

The axle carriers for the rear wheels were next fashioned from two pieces of 22 x 10mm 'U' channel and drilled to take two 5mm dia. brass axle 'bearings' in

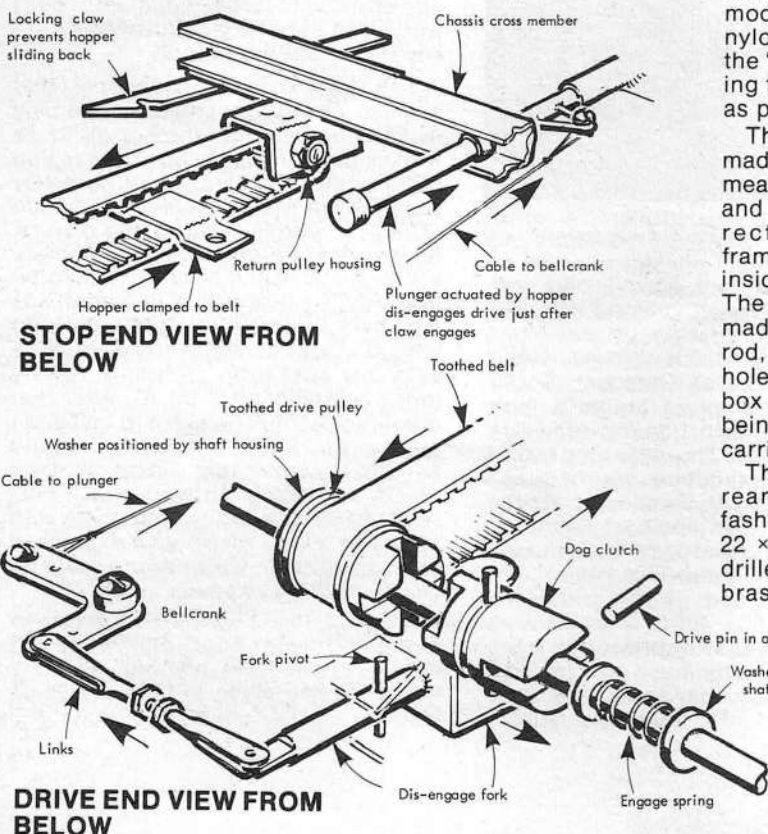
which the 4mm dia. steel axles run. Care must be taken here to ensure that a line projected through these two hole-centres, form an angle of 15 degrees with the bottom rail of the frame. This angle is the laid down maximum for sleds in the smaller classes, under the rules laid down by the NHRTPA. The axle carriers were then bolted to the bottom of the outer frame rails, with the rear-axle centreline 12cms from the rear of the sled.

I had already decided that I would employ a small toothed-belt drive to move the weight-box forwards onto the sled proper, the next problem therefore, was how to disconnect the drive from the rear wheels once the weight-box was in its final position? Eventually I came up with an idea, that was as 'farmyard' in origin as the sport itself and therefore wholly in keeping with the project.

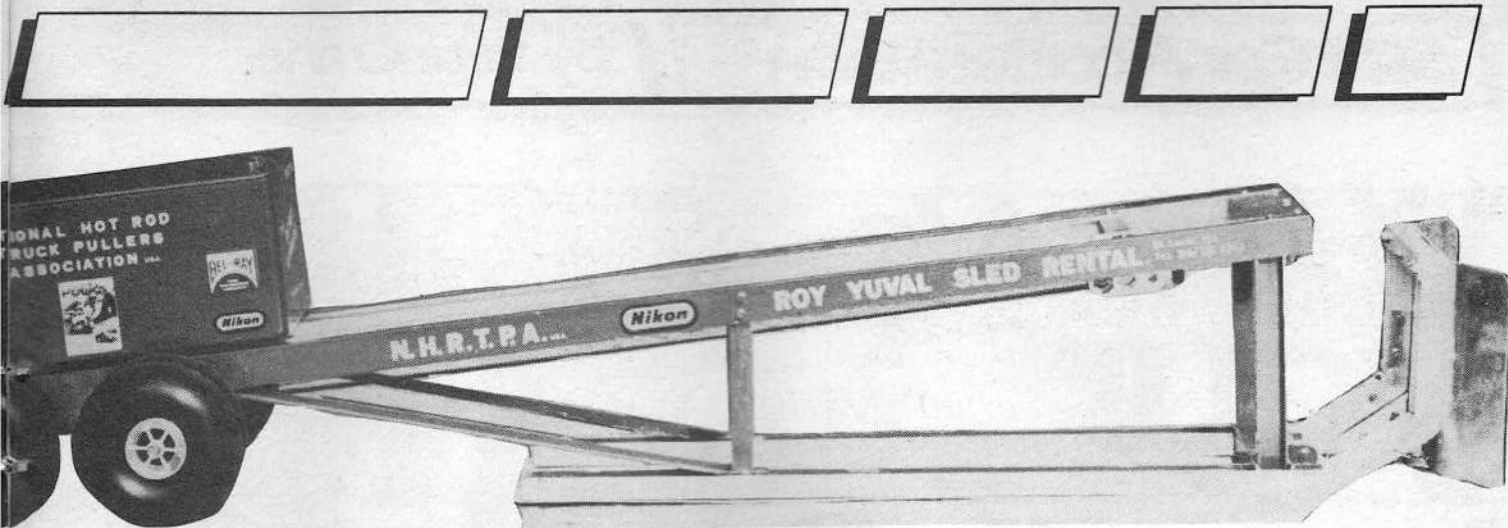
As the weight-box reached the limit of its travel on the inner rails, the trolley-frame would push forwards a 'plunger', which, by means of a rearwards leading cable and bell-crank, would operate a simple form of dog-clutch' on the rear-axle and thus disconnect the drive.

The toothed drive-wheel/pulley was first drilled out to 4mm internal dia., and then carefully filed and polished out so that it was a perfect sliding fit over the axle itself. Next, 4mm of the toothed surface was then turned off the pulley and four simple teeth cut and filed in the 'smooth' end.

A 15mm long, 10mm dia. mild steel bar was then also drilled out to 4mm and a set of perfectly matching teeth cut and filed to fit those on the drive-pulley. A groove, 1.5mm square was then turned on this latter com-







ponent, 2mm away from the teeth, and a 2mm wide slot, cut lengthwise for 8mm from the opposite end. The idea being, that a steel pin through the axle and fitting into this slot, will allow the axle to drive this second set of teeth whilst allowing the component freedom to slide lengthwise on the axle at the same time.

A simple 'yoke' bearing two short steel pins in the ends of the 'Y' and mounted in a pivot behind the rear axle, engages in the circular groove around the 'clutch' unit. As the weight-box depresses the plunger at the front of the sled, the cable and bell-crank pull the long end of the 'yoke', thus operating the 'dog-clutch' and 'voila' — the drive cease!

The brass-tube axle 'casings' were then cut so that the toothed-pulley was held centrally on the rear-most axle and so that a small coil-spring could be slid over the other end of the axle, outside the clutch-unit and bearing on the axle 'casing'. Thus ensuring that the teeth of both components were properly engaged until the

yoke forced them apart. A small free-wheeling pulley was mounted beneath the foremost inner cross-member and the toothed belt itself was bolted beneath the weight-box trolley. The rear-wheels and axles were then

finally fitted to the axle-carriers and bolted tight.

The 'sled' itself was then constructed from the ubiquitous aluminium channeling and mounted beneath the mainframe by more of the same, taking care to maintain the 'regulation' 15 degree angle.

The flat bottom for the sled was cut from 1mm aluminium sheet and bolted to the 'runners' using countersunk bolts, as was the wide transverse 'mud-guard' mounted on the front of the runners. A slot was cut in these two latter parts to enable the hitching-chain to be affixed

to the runners and then led forwards through a slotted rubber 'curtain' (bicycle inner-tube) and thence forward to the pulling vehicle's tow-hitch.

The correct scale length of this chain is 18cms, and it must be as close to the ground as possible where it attaches to the sled.

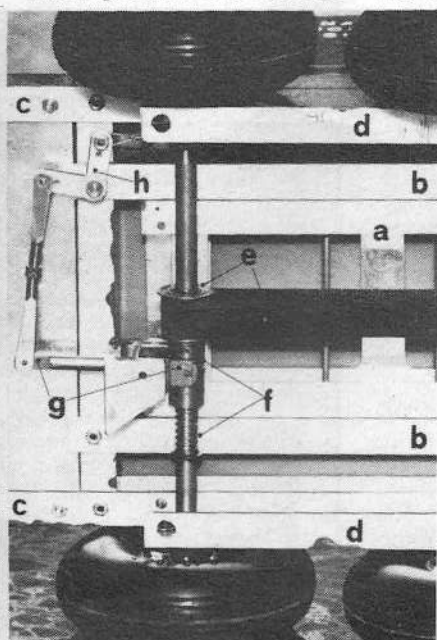
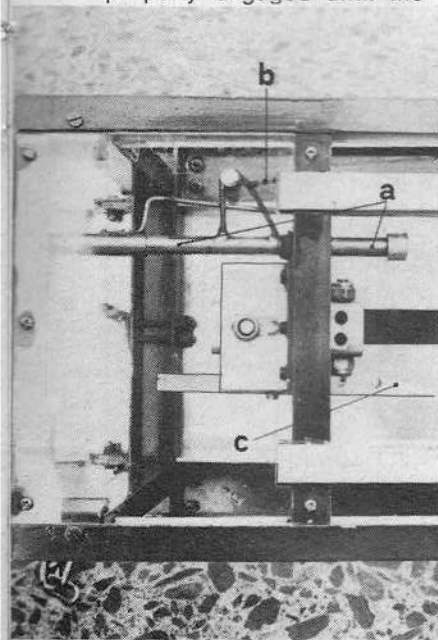
A simple spring-loaded hook, cut from brass angle and engaging with a protruding pin below the weight-box, provides the locking mechanism for the latter. Unfortunately, I could not devise any method of

altering the rate of weight-transfer without the whole thing becoming too complicated and therefore, subject to frequent malfunction.

Using a 12mm dia. drive-pulley, the sled must travel a distance of two metres before the weight-box locks into position over the runners. Thus providing ample distance for the pulling vehicle to get the sled underway, before having to tackle the actual dead-weight, of sled plus weighted box. Twenty-four feet of pulling distance is plenty far enough!

To compensate for the lack of 'rate' adjustment, I simply add more 500gram weights to the box, thus providing each competitor with at least four pulls before the final, maximum-weight pull-off — which with this particular sled is 12kgs!!

At present, a second identical sled is in the process of construction so that we can run two pulls side-by-side and although there is no question of a race, two pulls taking place simultaneously will certainly provide a lot more excitement. A third, even larger sled is on the drawing-board — 1/8th scale, for multi-motored 4WD? Who knows? □



Far left: a bird's eye view of the drive-release and weight-box locking mechanism, in the front 'bay' of the sled. (a) sliding plunger, (b) connecting chain, (c) spring loaded locking-hook. Left: the underside of the clutch mechanism located in the rear 'bay.' (a) weight-box trolley, (b) inner frame-rail, (c) outer frame-rails, (d) axle carriers, (e) toothed-belt and drive-pulley, (f) spring-loaded 'dog-clutch', (g) yoke, (h) bell-crank.

# What's your handle?

*Using the correct hand controller is as important in slotcar racing as the car. Pete Crane explains the theory*

WHEN THE Editor requested an article on slot racing hand controllers the initial reaction was to doubt my technical qualifications. For my knowledge of electrical theory could be written on the end of a pinion. However on reflection I realised that I have personally destroyed more controllers over the years than any other racer I know, so I can at least pass on the benefit of my experience.

As an example of my talents, I remember one National Final team race where I was embroiled in a dice for the lead with the North London team. My controller was getting hot and very notchy causing problems in hitting the correct braking points. I shouted for a spare controller from my 'team mates' in the Medway club... the silence was deafening: Some first tip is to always carry a spare controller at important meetings!

Like most racers I find it much easier to spend hard earned cash on cars rather than on boring controllers, but the best car in captivity will drive like a dog when the wrong controller is used.

This can be explained by electrical formulae and theory, but it basically boils down to matching your controller to car and track conditions. What we are seeking is for the car to move gently when the controller wiper touches the first band on the resistor and to get progressively faster without any peaks or troughs in the car's acceleration curve.

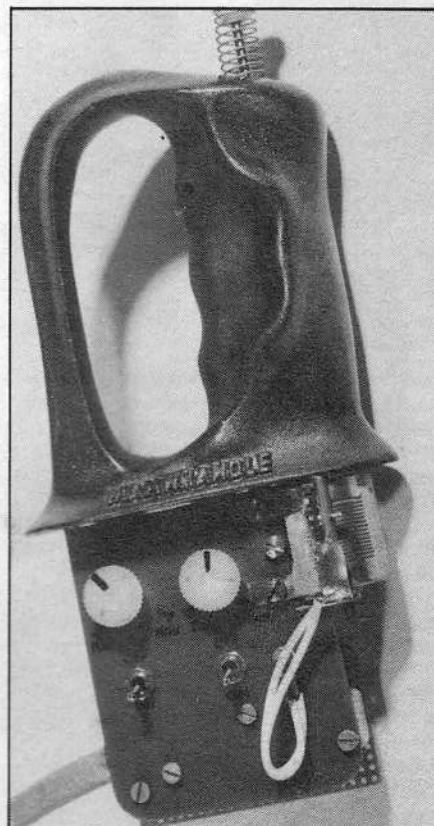
The other requirements of any controller are the ability to cope with the heat inevitably generated at the resistor without baking your hand in a pool of molten plastic! All this to be achieved in a smooth comfortable and reliable manner; simple huh?

Try to persuade your club ace to let you have a quick go of his controller, see how smooth it works and how well the car responds. If you cannot get him to set up your controller then there is nothing for it but to read on and save up some money for decent equipment.

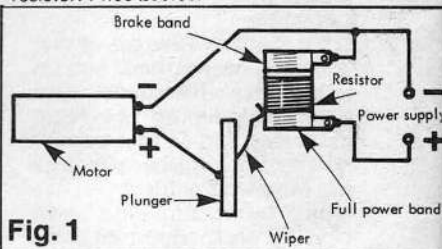
How does a controller work? **Figure 1** shows the basic idea. Now let's go through the individual parts to see how they can be brought to peak efficiency.

The resistor is where it all happens so the first thing is to obtain one of the correct 'ohmage' rating for your particular track and cars. Remember we want the car to move slowly when the first band is touched, otherwise it is almost impossible to drive through hairpin bends or move de-slotted cars that lie across your lane. So as a rough guide a 16D car on an average club track would be suited to a resistor of 5 ohms. A group 12 car is best on about 2½ ohms while a fast 1380 will need something in the region of 1¾ ohms. If you tried to drive the 13UO with a 5 ohm resistor, the car would

not move until you reached almost the flat out position and it becomes almost undrivable as your control is so limited. Your club expert will know someone near you with the ability to 'wind' your



Above: the 'Mannhandle' Controller produced by Modelmann products has a host of sophisticated features as standard. Adjustable braking and resistance, short throw - choice of spring rate, ready wired complete with resistor. Price £30.00.



## Manufacturers' addresses

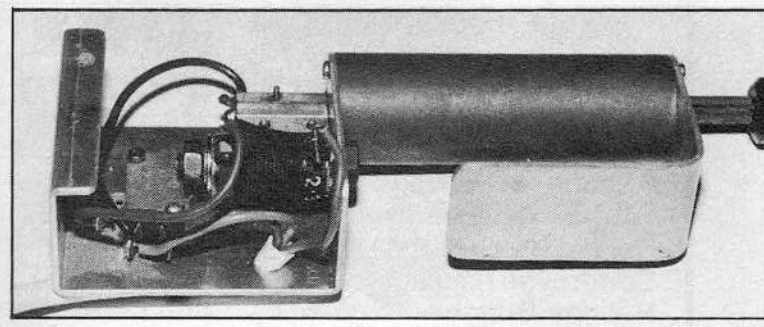
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Onchan,  
Isle of Man.  
(0624) 20784.  
SCD

Parma Racing,  
c/o Pitstop Models,  
344 Barking Road,  
Plaistow,  
London E13 (01-474-6171)  
ECE

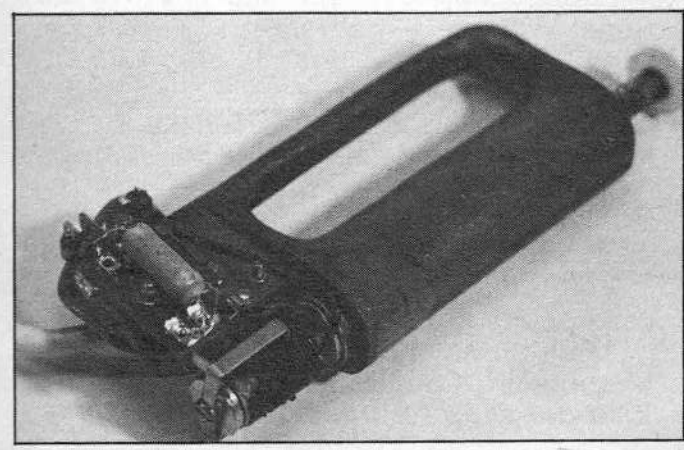
MRRC  
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Bournemouth,  
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(0202) 38095

One-o-One  
Slot Racing Products,  
52 Hawbeck Road,  
Gillingham,  
Kent. ME8 9TP.  
(0634) 389004

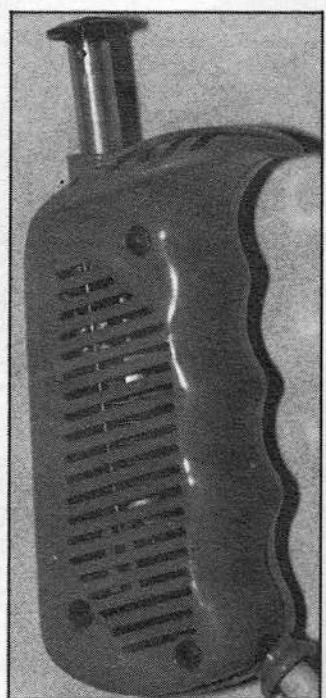




Above: the Parma 'trigger' style 'Sebring' hand controller is an ideal alternative for home-set racing use. Above right: the 'Rhythm Stick' hand controller from Slot Car Developments (SCD). Left: ECE hand controller.



Left: the ubiquitous MRRC hand controller which has found constant favour at Slot Car Clubs up and down the country.



resistors to a set specification or else contact one of the suppliers who advertise slot car parts. They will be able to advise you on the cost of rewinding resistors to your own needs.

Once the ohmage is correct keep a stiff piece of fine emery cloth in your car box and lightly smooth the wiper contact button by inserting this between the wiper and resistor and working the plunger up and down a few times. I have seen some top drivers use tiger milk to lubricate the resistor/wiper but when I tried this it seemed to cause more problems than it solved.

Try to choose a controller which 'sinks' heat away from the resistor by mounting it on large expanses of alloy, well away from your hand. Be careful when oiling the plunger mechanism not to overdo it as excess oil will cause the plunger to momentarily stick at the top

and bottom as if you were pushing a saucer down on a wet table top. I always carefully clean around these areas with a rag soaked in lighter fuel before any important race to ensure the button will thump up and down without any lost motion.

Check the plunger spring tension to make it as light as possible while still going from flat out to brake a little bit quicker than your thumb can.

If you race on fast open circuits it is worth investing in a short stroke action controller where the plunger only moves three quarters the distance of a normal length MRRC resistor between the brake and flat out positions. This brings obvious benefits in getting full power and braking as quickly as possible although it means you must be more precise through the corners. Again I suggest you contact your local supplier for advice on this.

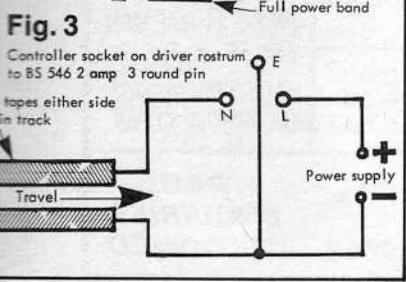
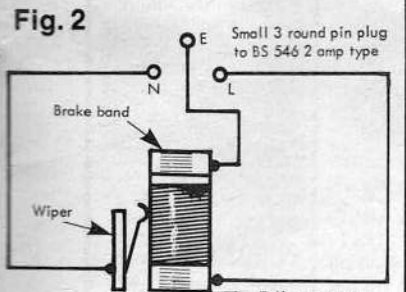
Returning to the theme of matching the characteristics of car and controller you will notice many people use controllers with two resistors which can be used separately or together by switches to give the driver a choice of ohmage values. It has benefits in that one controller can give three values as per the diagram although it is harder to set the resistors up as regards wiper tension and plunger feel. However many ace drivers use this system, so the problems are not insurmountable.

Another method of tuning controllers to cars is the use of the SCD 'Magic Box' which enables the user to vary the controller ohmage

from 2½ to 0.8 by all sorts of devious electronic trickery which is way beyond my understanding. This will also enable you to vary the braking power used by your car. It cannot increase the stopping power but will stop the car over a progressively greater distance according to where you twiddle the knob. It allows you to make your car flow around the track and become much easier to drive, taming what might otherwise be a vicious but fast car. My only observation on the 'magic box' or other variable braking systems is that it can be difficult to detect any faults. You suddenly realise that the reason you keep burying cars at the end of the main straight is not just your lousy driving. The boxes are not inherently unreliable, but because they are enclosed it is impossible to monitor wear on their internal resistors which I think cause problems after prolonged use.

Just for reference here are some boring wiring diagrams which will ensure

your controller will work at any BSCRA club without causing damage to either yourself or their power supply. (Figures 2 & 3). Here also is a list of useful addresses, and remember you only get what you pay for and a good controller will give years of troublefree service. Happy racing.



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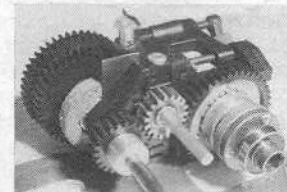
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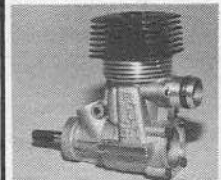
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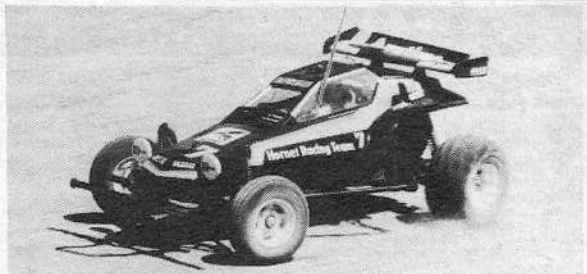
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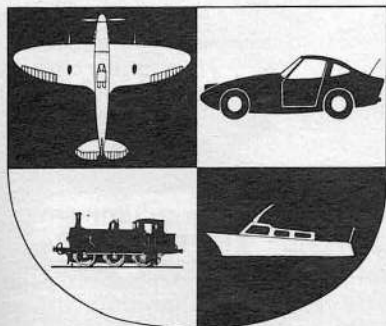


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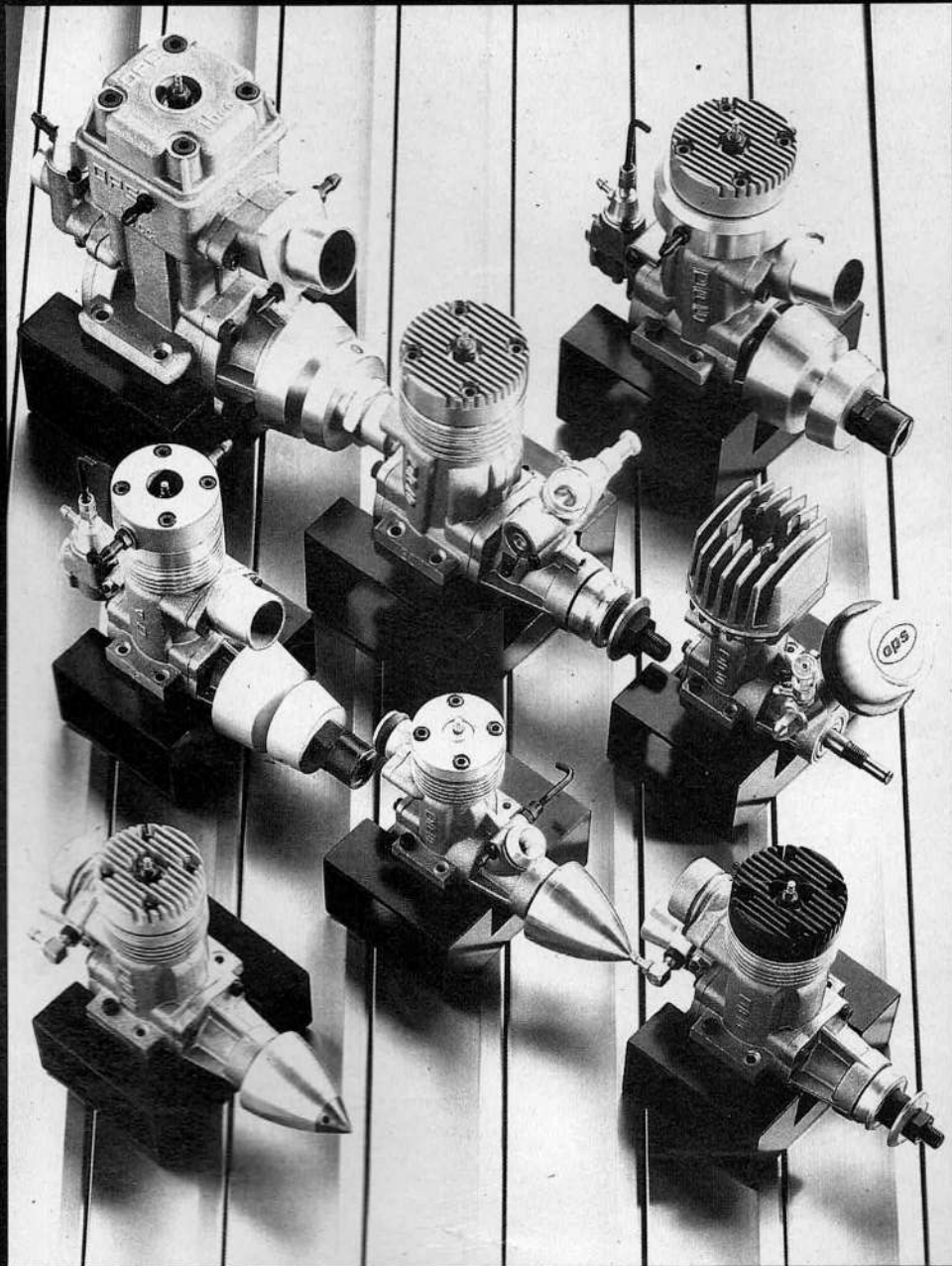
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