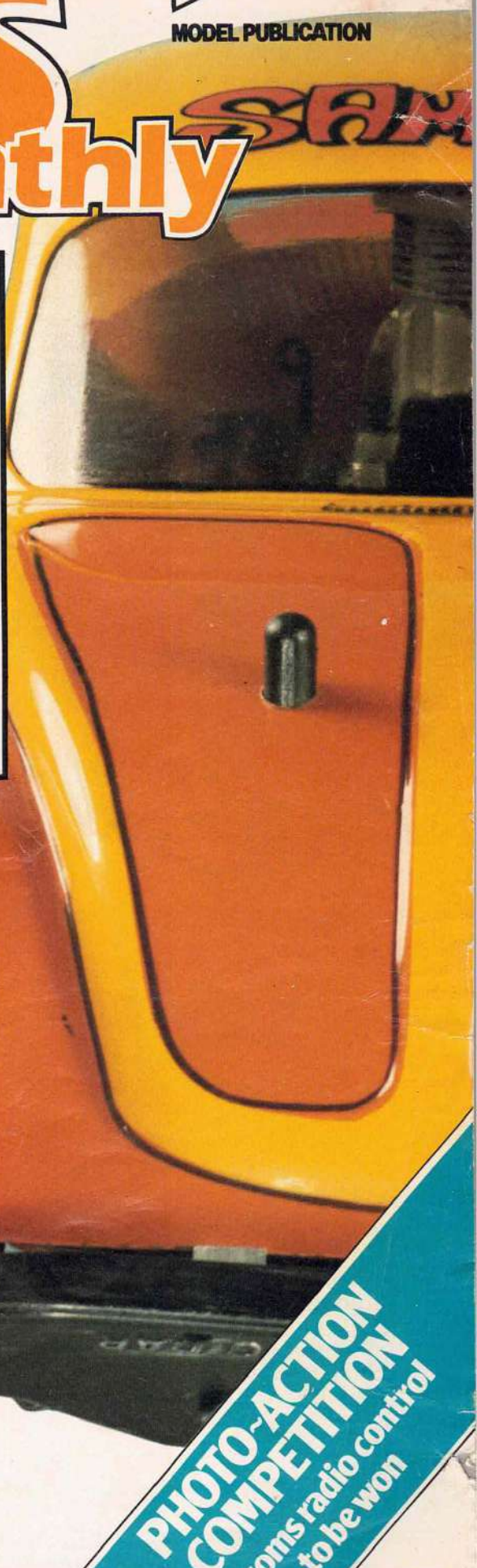


Model Cars Monthly



MODEL PUBLICATION



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TRUCKPULLER**
-America's hottest autosport in 1/10th scale

**ENGINE TEST
PICCO P21**
- the Italian Job

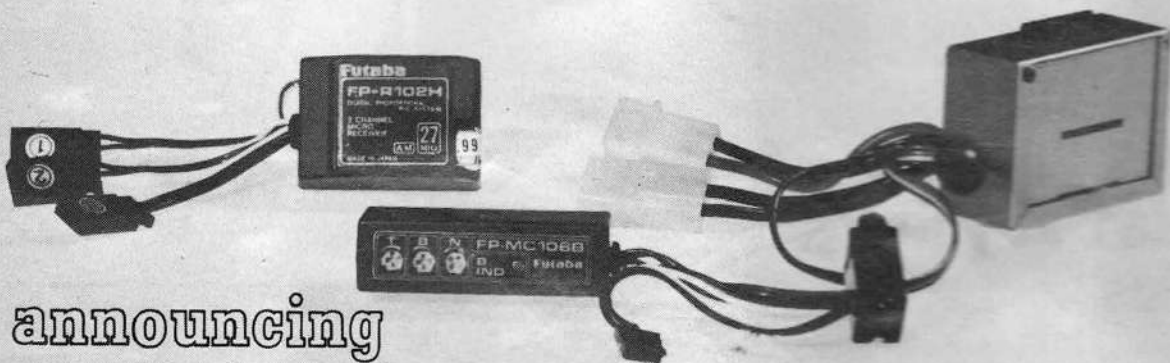
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FUTABA 106B Speed controller £50
FUTABA 102H Receiver 27 AM £20

Model Cars Monthly

March 1985
Volume 5 Number 3

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Cover
Beetlemania: The ubiquitous VW Beetle is the subject for our front page this month, with two models that we will be testing in the near future. Inset: the Robbe 1/10th Scale Beetle. Main picture S.G.'s 1/8th I.C. Off-Road car, the Samba.

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Editorial by Lewis Eckett

HAVING JUST returned from the 54th Model Engineer Exhibition at the Wembley Conference Centre I feel a few thank-yous and sung praises are appropriate.

The racing at this year's event featured for the first time 1/12th scale stockcar racing alongside the usual 1/12th scale circuit and 1/10th Scale Off-Road racing. Chris Loughran of the Leicester Club organised the whole thing and my thanks go to him for providing enjoyable entertainment for the large amount of drivers (52) and spectators.

For the 1/12th scale and 1/10th scale racing I had the good fortune to be aided (and abetted) by Pete Winton and George Land plus an armada of helpers. People constantly tell me that R/C Car Race Meetings are full of acrimony, cheating, abuse and even violence! I can only say that all four days of racing (over 300 individual drivers) were free from aggravation and every-one seemed keen to help with lap timing, circuit preparation and numerous other tasks. With over 100 drivers present on the Standard Class, 1/10th Off-Road race day and pit space in short supply it was pleasing to see people enjoying themselves.

Last and by no means least, praise for the people who manned the British Radio Car Association stand and in particular Jeff Lindstrom the Secretary of the BRCA. Jeff travelled down from Bradford, was there for all seven days promoting the BRCA and enlisting new members. The result was well worth while but only at the expense of personal time and hard work. Jeff was also aided by George Land, Pete Stevens and Phil Olson.

Well done fellas.

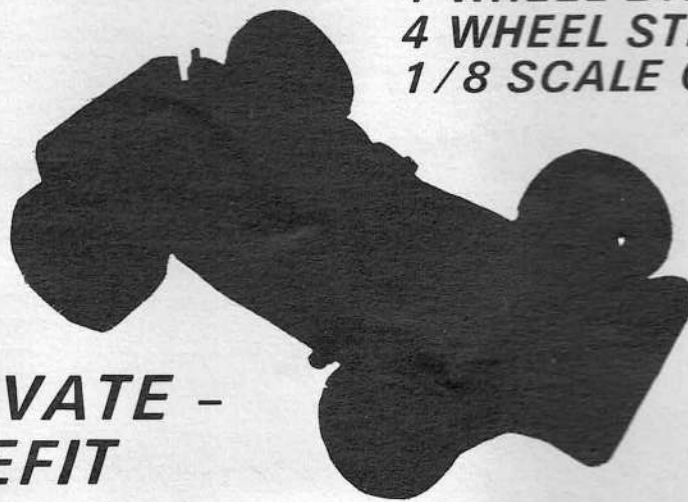


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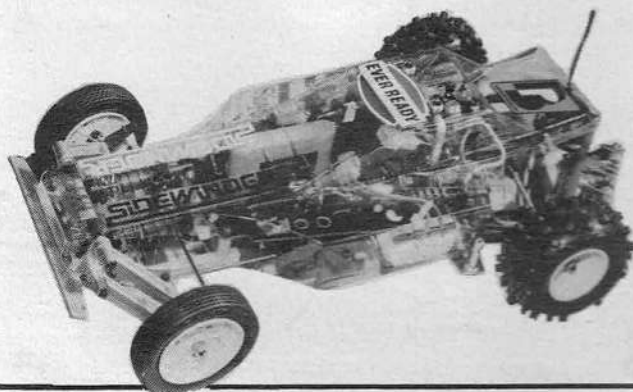
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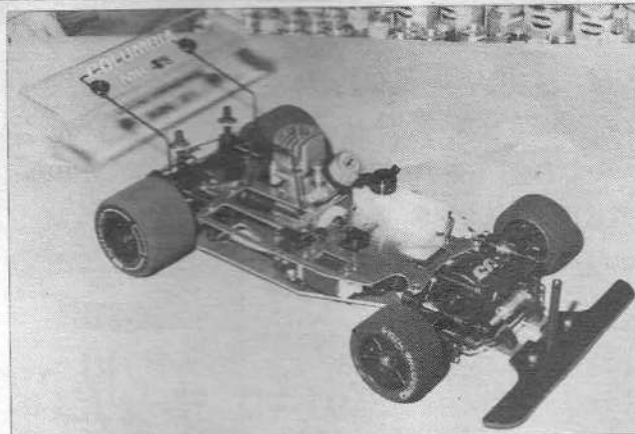
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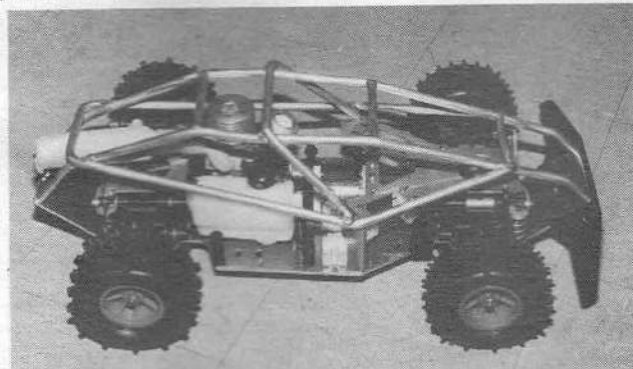
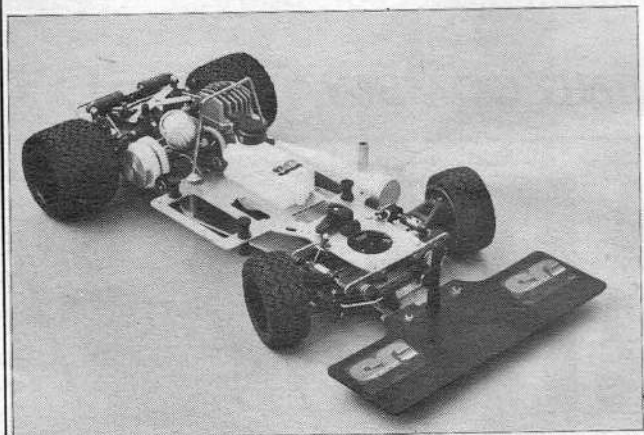
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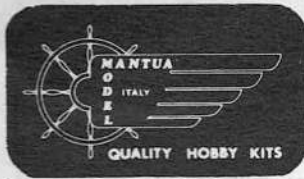
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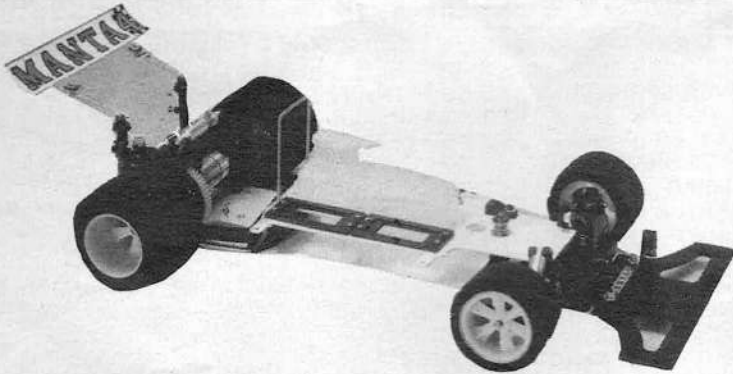
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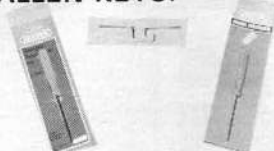
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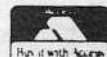
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MODEL CARS

Seen & Heard

Whoops!

'Model Cars' staff are currently attired in sackcloth and ashes after our dreadful error in omitting one of the Countries top racers from our 'Rule Britannia' roll-call. We of course refer to Gary Culver the 'Nationals' Formula and Sports GT Champion as well as Australian Champion 1984. To redeem ourselves we have printed Gary's letter in our 'Readers Letters' slot, plus reproducing a picture here. Sorry!



Gary Culver.
British National Champion F1.
British National Champion GT.
Australian Champion 1984.

Brazil Nuts

Once again the post has been winging its way between warm, sunny Sao Paulo, Brazil and the slightly less temperate climes of our Editorial Offices here in Hemel Hempstead.

Brr, Brr.

Peter Gogarten reports once again and this time he tells us that their new circuit situated in Rio de Janeiro is now in operation. By the look of the photograph it's a real beauty too, enough to make any 1/8th scale circuit racer's thumbs itch.

The trackside facilities are comprehensive and include: individual pit lockers, compressed air cleaning guns, tables, etc. No wonder that they consider it to be one of the best racing facilities in the world.

Unfortunately the international race scheduled for Mid-November 1984 was cancelled due to insufficient entries. However, a new date is being put forward, probably in March and Peter will keep us and you informed.

New Castrol Motorsport film:

Club secretaries should take note of this latest *Castrol* Film release to enliven club nights and social functions.

'Local Heroes' is a report on the 1984 Thousand Lakes Rally in Finland which is widely regarded as one of the most competitive events in the rally calendar. For World stars like Hannu Mikkola, Markku Alen and Ari Vatanen, the Thousand Lakes is their local event and a home win provides the pinnacle of success.

The spectacular progress of the cars as they fly over the numerous 'Yumps' which characterise the event is vividly captured. The novel opening and closing sequences are set to the theme music of the popular television series 'Hill Street Blues'.

The rally develops into the expected fight between the local heroes. Vatanen is supreme giving the *Peugeot* '205 Turbo' its first victory while fellow Finns, Alen and Henri Toivonen follow in their *Lancias*. Mikkola retires, but teammate Stig Blomqvist, from neighbouring Sweden, is fourth which secures the World Championship for *Audi* and *Castrol*.

Enquiries for the hire of of this film and others in the *Castrol* library should be made to:

Castrol Film Library,
Castrol Limited, Athena Avenue,
Swindon, Wiltshire. SN2 6EQ.
Tel: Swindon (0793) 693402.

'Local Heroes' is available on 16mm cine film at present, but will hopefully be produced on video during the new year.



Above: a view of the finished Brazilian 1/8th scale circuit racing venue situated at Rio de Janeiro. Photo: Peter Gogarten.

More Newsletters

Since our brief mention of club Newsletters in the December '84 issue several new examples have been coming our way. 'Spinout' is the club magazine of the **Eden Park Overlanders** and obviously this hefty, A4 issue reflects the state of their membership. 'Spinout' includes: Race Reports, Jokes Crosswords, points tables, kit reviews, diagrams and advertising. (*Hold on, we're being done out of a job here!*). Congratulations to Margaret and Nicola Beszant, Editor and Assistant Editor respectively on producing a lively, interesting read.

Below: Stig Blomqvist's Audi/Castrol 'Quattro' makes fourth place in the 1984 'Thousand Lakes Rally' and by doing so wins the World Championship.





Harrogate Model Car Club

The Off-Road section of the club now has a permanent circuit at the Ian Tetley Memorial School at Hamsthwaite near Harrogate. Meeting on Sunday afternoons, potential members are always welcome, although it is advisable to ring the secretary, Robert Thorn, on Harrogate 501970 to confirm that the club will be there since it is in great demand locally to attend at Fete's etc.

Also it is proposed to hold a discussion in March for all those in the area interested in the other aspects of model cars, i.e., stockers, 1/12th and 1/8th scale etc., with a view to setting up these additional activities. Further details can be obtained from:

Robert Thorn,
22 Chatsworth Place, Harrogate,
North Yorks. HG1 5HR.

Eden Park Overlanders
Electric Off Road Buggy Club
2, Hawksbrook Lane,
South Eden Park Road,
Beckenham
Kent
01-462 4866

Above: 'Spinout' the club newsletter of the Eden Park Overlanders.

Club Chat Chesham Off-Road Club

Two changes have recently been made to the 'Hooligans' racing operation. Firstly, outdoor race meetings are now being held on the last Sunday of every month starting in March. The race venue is still the Royal Oak public house, Little Missenden, Bucks.

Secondly, the 'Hooligans' have changed their club night and venue. Prospective members should earmark Wednesday evenings at the Emmanuelle Hall, Chesham as race night. The fun starts at 7.00p.m. racing

MARCH 1985

on Carpet with no tyre additives. For further information contact: Mick Childs, 61 Darvell Drive, Chesham, Bucks. HP5 2ON. Tel: Chesham 782212.

Lincoln Rallycross Club

Good news for Roy Racey and his fellow buggy racers, they have now found a new venue after being turfed off their old one. The Club now meets at a site next to the Reopham and Cherry Willingham Village Hall. For further details and directions (*Lord only knows where Reopham and Cherry Willingham is!*). Contact Roy Racey, 80 Montaigne Crescent, Glebe Park, Lincoln, LN2 4RR. Tel:

Wirral Model Car Club

This club is expanding its activities to accommodate 1/10th scale buggy racing as well as their established 1/12th scale stockcar activity. Tyre buggies will be racing indoors on a variety of surfaces. Hopefully regular trophy events and interclub meetings will be held during the year. Contact Dave Vine (639 8306) or Pete Wright (630 1352).

London Scalextric Club

Get up into the loft and dig out your old *Scalextric* cars and hand controller and pay a visit to the Church Hall in Lymington Avenue, London N22. The LSC meet every Tuesday at 8.00p.m. and race standard *Scalextric* cars although some modifications to tyres, wheels and axles is permitted. Racing is on a six lane track and the first evenings racing is free, your hand controller will need to be fitted with a 3-pin, 2-amp plug. Further details from Dave Robins, 6 Ivy Bridge Court, Lewis Street, London N.W.1. 8PX. Send an S.A.E.

Contest Corner March 24.

Blaby Off-Road Buggy Club 380 Championship

Entry is for '380' motor powered, 1/10th Off-Road cars only. Entry fee £4.00. Entries to Chuck Richards, 48 Shottery Avenue, Braunstone Lane, Leicester. Tel: 0533 898632.

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Tamiya Sand Scorcher £58.00; Tamiya Sand Rover £35.00; P&P on cars £2.50. Tamiya Nicads 6v £12.00; 7.2V £15.00; Fast Charge G.E. 4Ah Sticks suitable for Field Charger — Price on application. Acoms Slow Charger 6V or 7.2V £5.00 each; Multicharger £6.95; Pencil Charger (4 x AA) £4.95.

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Letters

It's back again, your chance to express opinions, solicit advice, give criticism or just plain sound-off. Let's hear from you.

Slotting it all in

Dear Sir,

I am writing both in my capacity as a BSCRA area delegate to inform you a little about our objectives but also as local co-ordinator of this year's National Finals to put in perspective a number of points raised in Trevor Tennant's report of that event (*Model Cars*, December '84). I should also point out that I am writing in response to the overwhelming number of people from all over the country who attended the Nationals and who have made a point of saying how good the event was this year and that Trevor's report did not give a true reflection either of our organisation or the Nationals in general.

One major problem for a small organisation is funds and when a major firm showed interest in both sponsoring the National Finals in 1984 and staging them we were obliged to await confirmation from this southern based firm. Unfortunately the final word was negative, leaving us very short of time in the originally proposed north west area to find a suitable venue. We chose Blackpool because there were two local clubs likely to benefit but also because the illumination season attracts a great deal of visitors to the resort.

Unfortunately, although many venues were investigated, the majority were already booked. The Winter Gardens Complex emerged as the only serious

possibility in view of the shortness of time. Although we were not offered a main entrance showpiece room it met racing requirements very well and the 'named' venue provided excellent publicity and sponsorship possibilities. Our only reservations were about the lighting which we were told would be very good on the day.

On the day the lighting unfortunately had not been improved by 1st Leisure who own the complex. Even had there been sufficient funds to hire further equipment 1st Leisure had stipulated that extra fittings of this nature could only be fitted by their electrician with advanced notice. However, the lighting only became a problem for about the last 30 minutes of one day's racing and was no worse than numerous club rooms even then. 1st Leisure also caused irritation in that the lease, sent after we booked the venue and far too late to change it, stipulated that we could only supply incidental exhibitors refreshments and that they would provide a public refreshment stand. The standard of 1st Leisure's catering was poor and we would certainly have provided better if given the chance but there were numerous fast food shops in close proximity to the venue. Unfortunately Trevor chose not to speak to the local organisers about these two problems he raised in his article.

With regard to his 3rd major complaint everyone I have spoken to is bemused. The Nationals track power supply used normally feeds 10 lanes spread over two club tracks as opposed to the six lanes of the Nationals Track - the technical rating

being way above requirements. Whilst lack of funds has left the track a little below par in grading of wiring required to cope with modern cars, every single plug, socket and wire joint was checked before the event and the general condition of the track was such that just about every record was smashed.

Also, if Trevor had spoken to us, he would have learned about all the positive steps that were taken in other areas to improve this year's event. For the 1st time the programme was professionally printed. To show how much effort we are putting into helping ourselves, 70 yes, 70 firms were approached for sponsorship - the result was hundreds of pounds sponsorship - another 1st. Also the event was previewed on BBCTV and given several mentions on TV-AM not to mention both local radio stations doing feature interviews, three days coverage (including front page feature) in daily local paper and also local weekly. Posters were placed all over town and 3500 handouts distributed as well as arranging for comprehensive AA signposting for the first time in memory. The result was probably the biggest public attendance of all time at the Nationals and certainly the biggest to have come solely to see slot racing, even when they had to pay to come in! However, for an organisation pushing to attract new recruits, perhaps the case for BSCRA should rest with the fact that 70 people were sufficiently impressed with what they saw at the Nationals that they have since tried their hand driving 16D cars and

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.

whilst some of these were only mildly curious half of them are now actively involved with the sport.

We respect that Trevor is entitled to hold his view but because of our genuine concern to keep the momentum going in slot racing we would greatly appreciate you printing the contents of this letter in '*Model Cars*'. We feel many people may have unjustly been put off trying our sport which offers the cheapest competitive model hobby going and whose organising body is doing its utmost to promote the sport on very limited resources.

Finally, may I thank you for the support '*Model Cars*' has generally been giving slot car racing and trust that this current unfortunately worded article will not deter you from continuing coverage of the sport.

Steve Sargent
BSCRA Area 2 Delegate

Track Talk

Dear Sir,

I am at the moment trying to arrange, with the local landlord, the use of a piece of ground on which I would like to lay out a track for racing 1/10th Off Road Electric Cars.

Should I be successful and provided that enough people are interested I hope that a club can be formed.

Could you please assist me by sending a specimen club constitution and a set of racing rules. If you do not have these at hand you probably know someone who could help.

Any guidance or hints that would save me from the pitfalls that others have experienced would be most

appreciated.

Euan Laing
Perthshire, Scotland.
The British Radio Car Association (BRCA) handbook contains a full set of Nationally accepted construction rules for 1/10th scale electric buggies. Some guidelines on track design are also included but we would suggest you contact the 1/10th Off-Road Secretary for further information. He is Derek McLarney, c/o 38 Henlow Avenue, Kirkby, Liverpool L32 9RW. For BRCA details contact Jeff Lindstrom, 6 Parkway, Queensbury, Bradford BD13 2HJ.

Ensure your insurance

Dear Sir,

I have just received my confirmation of entry for the 1/10th scale racing at the Model Engineer Exhibition. I notice that it is necessary to have third party insurance and I enquire where I can obtain such insurance.

R. J. Warren
Portsmouth.

ASP Modellers Accident Protection offers third party insurance cover up to £500,000 and is available from the Insurance Dept, **Argus Specialist Publications Ltd.**, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 4SS. Cost of membership to the ASP Insurance scheme is £3.00.

Sick Subaru

Dear Model Cars,

I am writing to tell you about my 'Subaru Brat' with RS 380 motor which I bought recently. After about a week I had completed the car and it worked but not as well as I expected. Then after about three 15-minute runs it didn't go at all. I rang the shop and was told to bring

the car in and leave it for a week. The week went by and I collected the car. I was then told that my car had not been made very well and that the motor in the car was 'dud'. After another three 15-minute goes the motor conked out yet again and so I am wondering if you can advise me what to do now.
Kevin Griffin
West Malvern.

Unfortunately without looking at your car it is a little difficult for us to offer constructive advice. However, if the shop said the motor was faulty when supplied, then under the 'Trade Description Act' you are entitled to a replacement free of charge. However, if the motor has been damaged, inadvertently by yourself then the only solution is to buy a new motor.

Finally, the **Tamiya 'Subaru Brat'** instruction booklet includes some very useful information on avoiding and recognising trouble with your car. We suggest you refer to this in future.

USA 4WD

Dear Sir,

The American Radio Operated Automobile Racing (ROAR) association has taken the position that the increased costs of 4WD cars and spares can only hurt 1/8th scale circuit racing. Everywhere in the world the basic problem is the high cost of 1/8th I.C. racing.

As of this moment, the vast majority of racers, dealers and distributors have 2-wheel drive cars. To make obsolete these cars at one go could be a death blow to our sport. We feel we owe all our racers, dealers and distributors as much support as possible, to ensure that 1/8th I.C. racing does not die.

Because of this situation, ROAR is in the process of changing its rules to have a 2-wheel rear drive only class, which would be

basically the cars we have been racing over the past two years. In addition, a new 4-wheel drive class would be created. At ROAR sanctioned races, a driver would be allowed to either run in the 2WD or in the 4WD class, but he could not run in both classes. This ensures that all drivers that have 2WD cars now, will have their own class to run in. It will not obsolete all the drivers and dealers equipment.

By also limiting a driver to run in only one class, it would not take any longer to run races with the two classes, as it does with one class, because the total number of entries would still be the same.

Because of this situation, ROAR, has made the following proposal to IFMAR:

1. At the 1985 World Championships in Japan, IFMAR would run two classes. A 2-wheel rear drive only class, and a 4-wheel drive only class.
2. Each driver could only run in one class of his choice, but he could not run in both classes.
3. There would be separate 2WD class qualifying and separate 4WD class qualifying.
4. There would be a separate 2WD Main event and a separate 4WD Main event.
5. There will be 9 rounds of qualifying.
6. The 10 fastest qualifiers go into the Main event. The next slower 10 qualifiers go into the 'B' Main and so on.

With the same 120 drivers at the World

Championships, it would take no longer to run the 2 class programme with this system, than in the past.

We feel this is a very workable solution to control the costs of racing for everyone.

Gene Hustings

ROAR —
IFMAR Representative

Ouch! Whoops! Sorry

Dear Sir,

It was with quiet rage that I read your article 'Rule Britannia' in Model Cars Monthly - January 1985.

In this feature you indicate that Bob Errington is National Champion in IC circuit racing, in fact he is 'Series Champion', this should be made clear. The title of 'National Champion' is reserved solely for the winner of the Nationals, this year at Mendip.

You do not give mention of the other significant international achievement for a British driver representing his country abroad.

G. D. Culver:

British National Champion

F1;

British National Champion

GT;

Australian Champion 1984.

Gary Culver
Dorset

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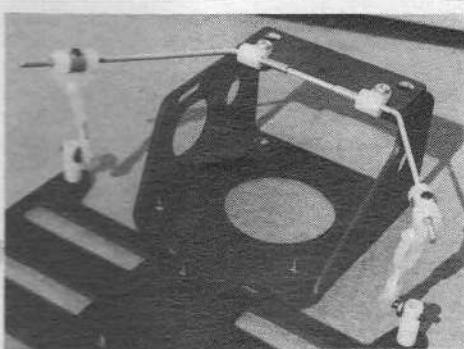
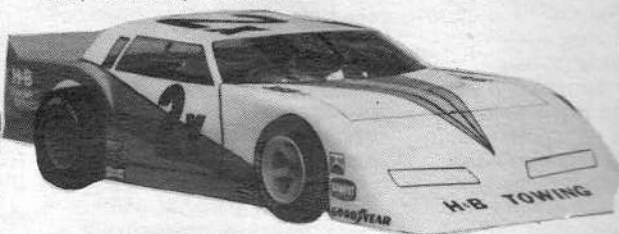
Parma bodies

Three new bodyshells from *Parma International* are on show here, all available in either clear or painted lexan polycarbonate. In 1/12th scale we have another two saloon bodies which should provoke some interesting comments around our race-tracks. They are the *Buick Regal* and the *Monte Carlo*. The third body is a replacement item for the *Tamiya 'Subaru Brat'* 1/10th scale buggy.

For owners of *Parma's* 1/12th scale 'Euro Panther' chassis there is now an adjustable rear anti-roll bar available as a direct fitting component for the existing chassis.

Details of all the above mentioned products can be gained from the UK *Parma*

importer, *Helger Racing*, 18 Manor Farm Drive, Chingford, London, E4 6HJ.

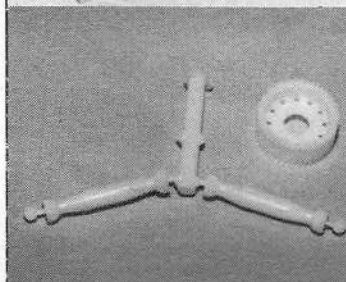


Tridon Multi Clip

"Grips, tightens, holds, seals, mends, secures" these are all uses described on the packet containing the 'Multi Clip,' multi-purpose fasten-device from *Tridon Serflex* of Thame.

The advantages of the 'Multi Clip' are its ability to secure objects of almost any size, ease of application, high durability and the fact that it is re-usable. The 'Multi Clip' consists of a flexible, threaded nylon band, with a nut and collar for tightening.

The 'Multi-Clip', which has won The Duke of Edinburgh's Design Award, is marketed by *Tridon Serflex Ltd.*, Lupton Road, Thame, Oxon, OX9 3XB and is available from AA centres, *Asda*, *Halfords* and other major retail outlets.



SRM Racing Products

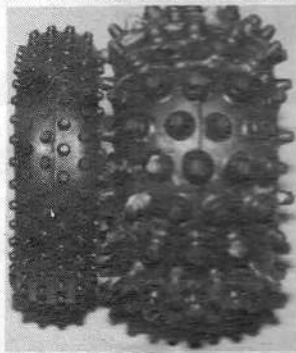
As you can see by the accompanying photos, *SRM Racing* of 140 West Street, Fareham, Hants are now importing a wide range of 1/10th buggy accessories from American company, *CRP*. Literally two carrier bags full of gear was sent to us for evaluation, so understandably it will take a little time to get through the lot.

Other items which *SRM*

are now supplying to UK racers are moulded polycarbonate drive shafts for the *Tamiya 'Frog,' 'Brat,' 'Lancia.'* These items are so much more durable than the kit items and will no doubt find their way onto a great many cars. Also available in moulded polycarbonate is a central gear for the *Thorp* differential which a great many 'Scorpion' owners find such an improvement over the *Kyosho* version.

Finally, *SRM Racing* are also importing rubber Off-Road tyres for 1/10th scale from *Pro-line* of America. The photo shows two of the most popular types particularly the front spiked tyre.

All the above products are available through your local model shop alternatively contact *SRM* for details of availability and up to date prices.



Trade Model Supplies

TMS are constantly supplying 1/10th Off-Road racers with all the necessary equipment usually as soon as it is needed.

Since the ratification of the BRCA electrica racing Ni-Cad ruling, *Ever Ready* 1.4 Ni-Cads have grown steadily in popularity mainly due to their availability (good) and low price (compared with American/Japanese equivalents). The other plus is that *Ever Ready* cells are good on performance and duration too. *TMS* are offering these cells at £17.95.

For owners of *Yokomo 'Doofighters'* there is good

news as *TMS* now supply bagged sets of four bushes to replace the kit items which wear out quickly. These are selling at £1.60 a set.

Lastly, *Tri-Flon*, a synthesised lubricant with Teflon which is claimed to be: "extremely efficient, multi-purpose, penetrates breakes corrosion, cleans and rejects dirt." And all in one can too! We will be investigating this stuff further so keep reading. *TMS* are lowering the usual price of £2.79 a can to £1.89.

TMS products are available direct from 40 Bank Street, Morley, West Yorkshire, LS27 9JB or through your local market shop.



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Photo-Action Competition

How to win a set of Acoms R/C equipment

- (1) Send *Model Cars* an action photo that you have taken.
 - (2) The photo may be of any type of R/C Model Car, the theme is ACTION.
 - (3) You may send black and white or colour prints (not negatives) or colour transparencies. Maximum size of 'Half Plate' please. Colour transparencies may be either 35mm or 120 size.
 - (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.
 - (5) If you wish us to return the photographs please include a stamped addressed envelope.
 - (6) Photographs must be all your own work, no copies of previously printed or published material will be eligible.
 - (7) The photographs must be your own work — commercial processing is allowed.
 - (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.

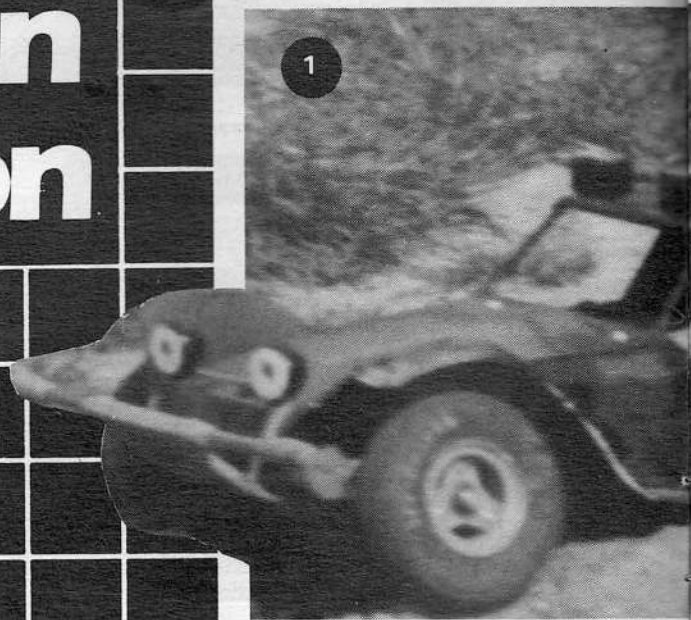


PHOTO 1: Michael Clark of Basildon, Essex took his Photo-action picture in the local park with a Halina Telewide.
PHOTO 2: Another 'Holiday Buggy' shot, this time from Alastair McLeod of Inverclyde, Scotland. Alistair's car is modified, with 540 motor and 'Ford Ranger' wheels and tyres. Camera used was Pentax ME Super.
PHOTO 3: Colin Gough's 'Super Brat' must be pretty watertight to withstand this lot! Colin used a Praktica TLZ Super Camera to record this shot.
PHOTO 4: Bollen Luc of Diest, Belgium takes first prize this month with his picture of a 'Sandscorcher' at full speed on the Diest Off-Road club circuit. Bollen used a Canon A1 camera to successfully record the action.



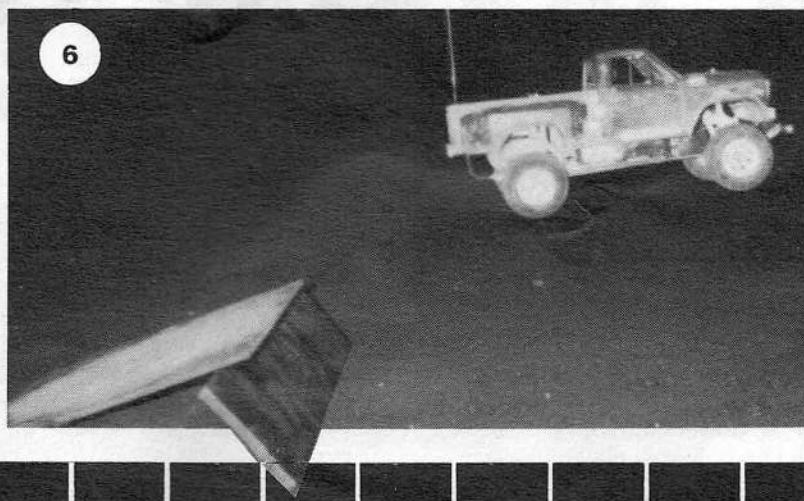


PHOTO 5: A close contender for first place this month was this entry from John Dale of Invercargill, New Zealand. John took his 'Ford Ranger' to the beach for this shot and used a XR5 Ricoh camera and zoom lens.

PHOTO 6: Justin Smith of Bungay, Sussex decided to wait for 'lights out' to take his Photo-Action entry. Justin calls his shot 'Nightrider' and took it with an Olympus XAZ.

PHOTO 7: P. D. King of Blackpool, Lancs, photographed this 'Willy's Wheeler' at speed over the hump in the road using an Olympus OM10.

I HOPE that my gradual loss of interest in electric powered buggies has not been too obvious to readers of this column. There, I've said it, finally admitted that 1/10th buggies aren't really my thing!

Going back a few years my earliest involvement with modelling of any sort involved engines and although I probably enjoy R/C gliding as much as any of my modelling activities, the addition of an engine with fuel, noise and smell gives the whole operation a little extra that the quieter side of things doesn't have. Don't get me wrong, I am not in any way decrying or diminishing the electric power side of model car racing, from many points of view it is because I find it more difficult that I have lost interest. Let me explain what I mean. On the fact of it electric power model cars seem to offer the absolute ideal form of power for a competition class; power of motors should be almost totally identical as they are

to you who is well able to keep you in touch with developments on the electric front. So, for the time being, Rough Riders will be under the joint stewardship of myself and Steve Newey.

R/C equipment maintenance

I have recently had a telephone call from *Ripmax Models Ltd.* concerning a growing problem they are experiencing on R/C equipment servicing. It seems that a lot of people are using water displacing sprays on their R/C receivers, transmitters and servos to supposedly protect them from moisture. Be warned, the use of any product containing *WD40* on electric equipment is not recommended. In fact the potential damage that can be caused can totally ruin the component, making it impossible to repair.

The answer to waterproofing problems is not to spray components with aerosol sprays not designed for

the purpose. Firstly, protect it properly so that water does not get to it, then if by any chance the waterproofing does break down and the equipment gets wet, dry it out gently in a warm place overnight, and airing cupboard is ideal.

There are water displacing sprays specifically designed for electronic components and if you can get hold of such from an electronic shop all well and good, if in doubt don't do it!

Waterproofing

From time to time this column has made mention of the various methods of waterproofing R/C equipment for use in buggies. Most systems cannot be thought of as complete waterproofing, more as splashproofing. After all, not many drivers wish to race submarines, or get soaked to the skin whilst standing out in the rain driving.

Off-Road Racing

New releases; hints and tips; fun and games; comment

mass produced to a close tolerance, batteries the same. Every driver must use an identical battery pack so the cars will all be equal, it's only driver skill that's needed.

But hand on a minute, I have got the right *Sanyo* batteries, the correct motor, the same tyres as everyone else and still my car is slower down the straight by a mile and it doesn't matter how well I drive, I'm beat!

where does the difference lie? Put simply 'I ain't got the dedication'. Dedication to finding the perfect way of charging my batteries, the absolute best batch of batteries even, or this week's top motor. I want to be able to take out my car, charge it up with a minimum of fuss, switch it on and know that it is as fast as anyone's. With IC engine powered buggy racing I feel that I can do just that, there is so much power available from the current generation of 0.21cu. in. Buggy engines that there are almost no drivers that can in all honesty say they lost the race because their cars were not quick enough. In fact quite the reverse is more often true, they lost the race because the cars were too quick for them!

So I am then forced to admit that I don't like being beaten, I don't have the time to spend on learning how to win so I'd best retire and introduce someone



Three basic methods are commonly used, they are:

Enclosing the receiver and battery packs in balloons. Tamiya supply particularly good ones for the 'Super Champ'. Once the component is inside the balloon, tie up the neck with a rubber band or tie wrap and install the wrapped component so that the opening of the balloon faces to the rear of the car. You could seal further by smearing silicone rubber sealant around the neck.

Use a small polythene bag exactly as above. Do beware though, the added volume of air inside the bag can contain a significant amount of water vapour and you could be condemning your receiver to life in a corrosive and damaging environment unless you unseal the bag in a dry atmosphere when you return from a day's racing.

Wrap with insulating tape, my own favourite method. I use the stretchy vinyl insulating tape, it is not only easy to use but very easy to obtain, something that cannot always be said of suitable balloons. If you stretch the tape fairly tightly as you bind the receiver it will conform pretty well to the shape.

Switches and battery packs are nothing like as important as receivers when it comes to waterproofing. Surprisingly, water is a poor conductor of electricity (at the low voltages that apply in the battery circuit of the R/C system) and as long as the switch and harness are dried out properly after

racing to prevent corrosion, then additional waterproofing is not strictly speaking a necessity. Do be sensible however, if you can put the switch somewhere that avoids the worst of the splashes and bag the battery, do so. Transmitters are the forgotten area of waterproofing and frequently they are the parts that actually cause the problems. The major source of trouble is water running down the aerial and into the case directly onto the circuit board. Too frequently drivers slip a polythene bag over the whole transmitter that keeps their hands nice and dry but allows the water to run straight down the aerial! Put a rubber band tightly round the bag where the aerial pokes through it to prevent this type of trouble.

I.C. engine noise

It had been quite noticeable to me during the latter part of the 1984 season that noise levels of 1/8th scale buggies had been rising. The racing rules state that a maximum noise level of 80dB is allowed but we have neither enforced this widely or have any reasonable way of measuring it. I know that noise level meters can be purchased, that it would be possible to set such an instrument alongside the track but I don't think that the results would be either realistic or particularly easy to interpret.

After giving the matter some thought I would like to make a request through this column for some help. My suggestion is that we use a form of

'Rolling Road' that cars can be placed on so that they can be measured under controlled conditions with throttles fully open at stated distances from the noise measuring device. I would also like to couple this with the thought that we should in any case lower the existing noise limit to the 70dB currently proposed for 1/8th scale circuit racing by EFRA.

Help is needed to produce a workable specification for the rolling road. A standard totally repeatable load is needed for the wheels of the buggy and an operating standard that will produce the consistency of result that is obviously needed. If anyone out there has any ideas I would be glad to hear from them, if anyone would like to take on such a project as part of a college project maybe?

4-wheel drive, 4-wheel steering

If 4-wheel steering is to be the thing for 1985, then it probably means a new car for most of us. Or does it? Pieter Bervoets of *Serpent*, manufacturers of the 'Cobra' 1/8th 4WD has knocked up a prototype that is really simple and quite easy to try with your own car.

Replace the standard rear suspension with a duplicate of the front end and using a torque rod running down the centre of the car from a re-sited steering servo, complete the hook up.

Over to you Steve . . .

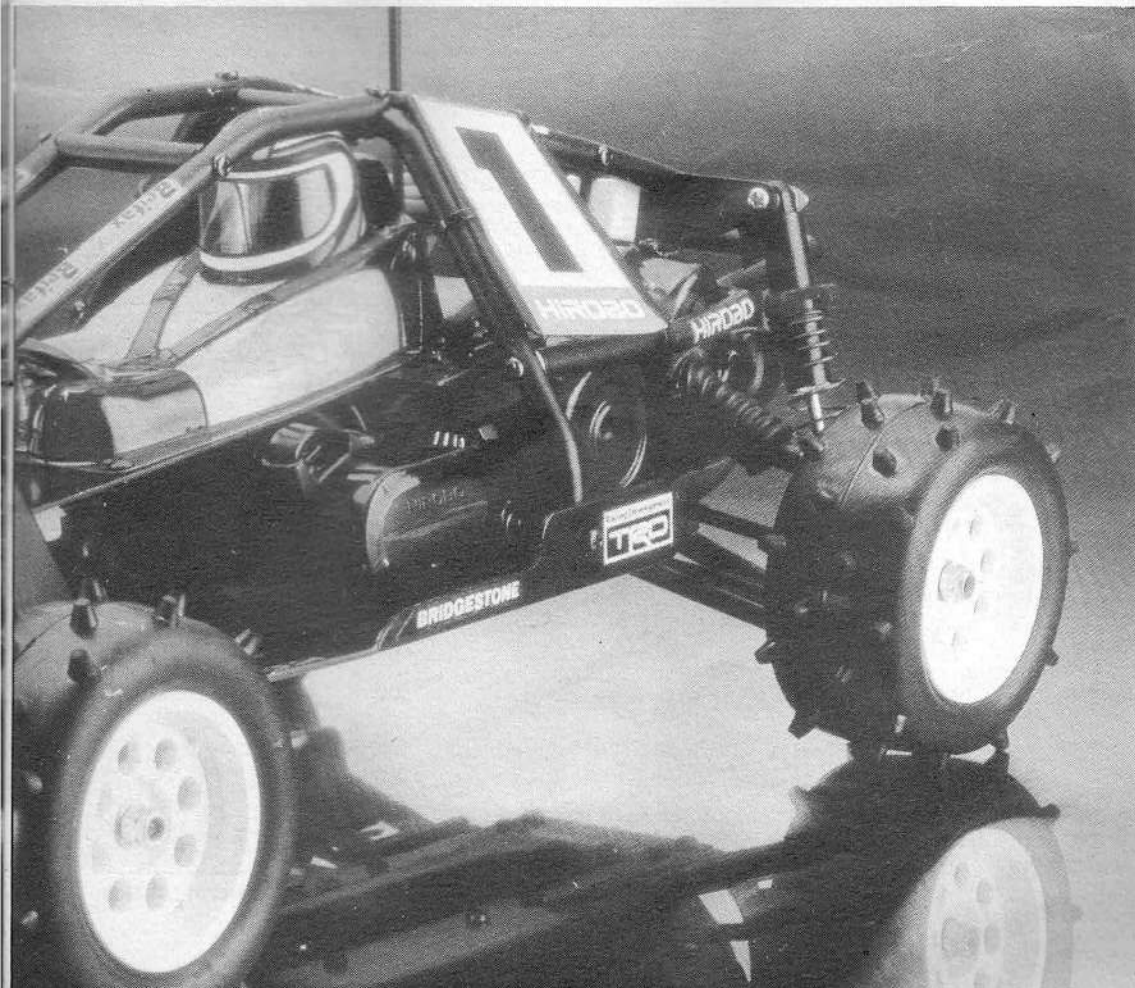
Zerda: the latest 1/10th Scale Off-Roader from Hirobo is soon to be available in this country. Owners of Hirobo 'Rock 'n' City's' will perceive that the four-wheel drive transmission system has been retained almost whole. However, a fair few detail changes have been made which gives the 'Zerda' greater racing appeal.

Chassis: this item is now a one piece affair, injection moulded from a tough plastic material. The chain guard channel is now integral and the chassis is wider. No radio crate is fitted as a Kydex Shaker plate supports the R/C gear. The Ni-Cads are positioned across the chassis whilst the steering servo is mounted onto the shaker plate with a direct output to the front steering arms.

Steering blocks: whereas the 'Rock 'n' City' parts were a two-piece affair to allow different castor settings the 'Zerda' has a single component.

Other features: Roll-cage bodyshell with driver figure; anodised coil-over shocks; drive belt guard.

'Model Cars' will feature full details in a future issue.



The Rough Stuff

Steve Newey begins his look at the 1/10th Scale Electric Off-Road racing scene

WITH THE TIME quickly moving on towards the start of the new season (not that there's a break anyway), 'Model Cars' has decided to give me a page or two to keep all you electric buggy racing hooligans up to date with the 10th Scale Off-Road Scene.

As far as the racing side goes, I'll be at a meeting most weekends throughout the year. So if you've any ideas, information, or malicious gossip that's printable, come on over and have a word and we'll see what we can do. (I'm the bloke who's usually banging his head against a brick wall or asking Kevin Blears for one of his three turns of coat hanger wire motors!). Or why not drop me a line, but please include an SAE if you want a reply. Also, I'll be giving a technical insight into buggy racing and maybe building and testing some new models, if anybody is crazy enough to let me loose with one.

Hello John gott'a new buggy

If you were lucky enough to get a new buggy for Christmas why not find out where your local club is. (Ask in your nearest model shop) and see if they'll let you have a go at demolishing their track.

You'll find a nice friendly atmosphere and plenty of willing hands to help you sort your equipment out.

I bet you'll have more fun and learn more on one club day than you ever will just running it up and down the garden. Incidentally our clubs informations is rapidly becoming out of date so all secretaries let us know.

Whilst on the subject of newcomers, people turn up at our club, **Liverpool Model Car Racing Club**, for the first time and their cars will only run for three or four minutes before the Ni-Cads go flat. This is because, through ignorance, the cells have been overcharged many times which ruins them. I would advise anyone new to the hobby to invest in an automatic charger. These chargers all cut out when full charge is reached, thus preventing the overcharge situation.

The most common ones that spring to mind are the *Star Electronics* at £15. The *Cord* at £25 and *Force Electronics*.

Which championship?

With the season just about to start in earnest many drivers will be making up their minds which events and championships to enter this year. There will be a BRCA Series run on similar lines to last year. Radio Race Car will run a series, again, I believe similar to last year. There will also be regional events run in different areas of the country, ask your Club Secretary for some info and may enter one of these meetings.

A couple of us Northerners have been busy organising a championship for this season to be called 'The Northern League.' Anybody interested in entering this league please contact myself or Derek Bailey as soon as possible. Besides the league we will also run an 'National' Day to decide the Northern Novice, Intermediate and Expert Champions. Only

members of the league can score points. (Meetings will be open to any driver) and enter the National Day.

Membership is £2.00 to cover administration. Any surplus will go towards trophies for league winners.

Two classes

With more four wheel drive cars arriving on the scene is it time we had a separate class for these more technical and expensive supercars?

I would like to hear your views on this subject and indeed anything else to do with buggy racing.

Next month I'll tell you how to get your car into racing trim and achieve that race winning performance.

Damper Mod

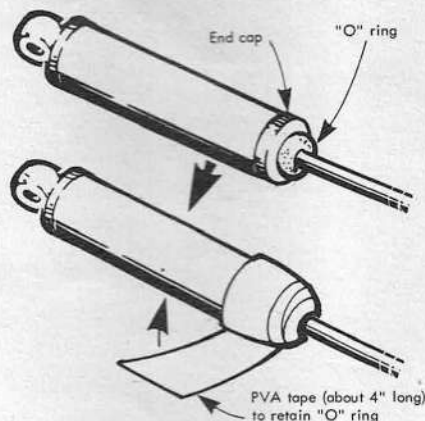
After finishing your day's racing and taking your buggy home for a clean down on the lounge carpet, do you notice that the dampers feel gritty. This is a result of dirt getting down between the piston rod and the end cap. This usually means that the oil is coming out faster than you can put the stuff in and leaves you with no option but to go out to your local model shop and spend some green stuff on a new set, and they are not cheap.

Try this simple modification to save your dampers and your pocket.

Dampers last two or three times longer with this simple mod. □

Buggy racers: send your hints and tips; news and views and any other general information concerning 1/10th scale electric Off-Road racing to Steve at this address. Steve Newey, c/o Model Cars, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts, HP2 4SS. Enclose an SAE if you want a reply.

Fig. 1

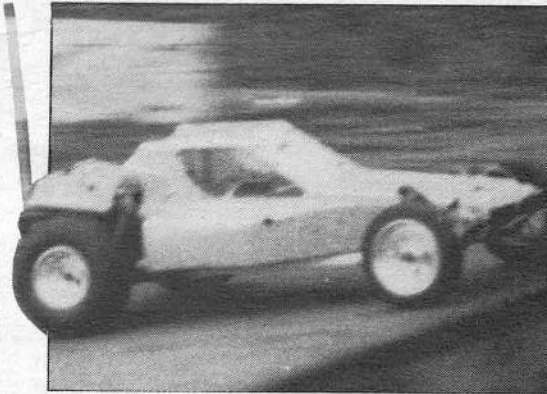


Racing from the South of Watford league final round 18th November 1984

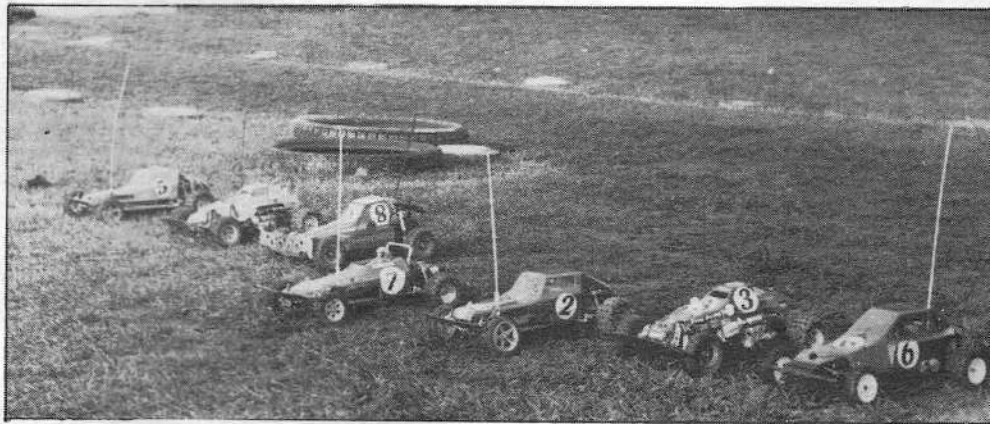


Above: Jim Paffett, race director, Eden Park Overlanders club secretary and reporter. Below: a panoramic view of the Eden Park Overlanders track, a delight for the power mod with plenty of fast corners and long straights.

Below: Barry Ward's 'Tomahawk' tries the ramp-jump for size.



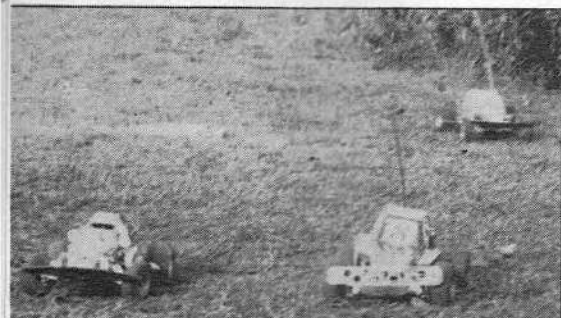
Above: Dave Kendall's 'Hirobo' also takes on the ramp-jump.



Above: the heats line-up for the start with the usual complement of different car makes: 'Scorpion,' 'Tomahawk,' 'Hirobo,' 'Frog' and 'Apache.'



Below: action from the heats with George Land's (whose?) Hirobo 4WD trying to steal Andy Bouse's 'Frog' on a bend.



Results

A-Final

| | | | |
|------------------|----|--------|----|
| 1. K. Moore | 13 | 319.82 | EP |
| 2. J. Paffett | 13 | 322.8 | EP |
| 3. C. Price | 12 | 306.46 | EP |
| 4. P. Cunningham | 12 | 311.06 | CR |
| 5. B. Brailey | 11 | 305.58 | EP |
| 6. G. Peek | 11 | 325 | CR |
| 7. D. Kendall | 7 | 309.76 | CH |
| 8. K. Funnell | 3 | 325 | EP |

B-Final

| | | | |
|---------------|----|--------|----|
| 1. G. Peek | 11 | 306.98 | CR |
| 2. K. Funnell | 11 | 319.08 | EP |
| 3. S. Turner | 10 | 303.58 | CH |
| 4. D. Clark | 10 | 323 | CR |
| 5. I. Diboll | 9 | 313.56 | EP |
| 6. M. Rogers | 9 | 325 | CR |
| 7. C. House | 3 | 325 | EP |
| 7. J. Taylor | 3 | 325 | EP |

C-Final

| | | | |
|----------------|----|--------|----|
| 1. S. Gilling | 11 | 300.02 | CH |
| 2. C. MacPhee | 11 | 310.72 | EP |
| 3. R. Dixon | 11 | 316.44 | EP |
| 4. C. Lyon | 11 | 321.26 | EP |
| 5. K. Edgar | 10 | 303.02 | CR |
| 6. D. Sheppard | 10 | 317.72 | CH |
| 7. P. Stevens | 9 | 325 | CH |
| 8. R. Lowes | 2 | 325 | CR |

Junior Final

| | | | |
|----------------|----|--------|----|
| 1. J. Tyson | 11 | 313.98 | CR |
| 2. R. Rix | 11 | 314.76 | EP |
| 3. N. Moore | 10 | 316.58 | EP |
| 4. D. Wilkins | 10 | 319.44 | EP |
| 5. N. Twitchen | 9 | 315.66 | CR |
| 6. M. Fowler | 9 | 325 | EP |
| 6. B. Dickins | 9 | 325 | CH |
| 6. D. Turner | 9 | 325 | EP |

| Final Placings | Points | Position |
|-----------------------|--------|----------|
| Eden Park Overlanders | 179 | 1 |
| Chingford | 236 | 2 |
| Crawley | 342 | 3 |
| Kenl and Sussex | 440 | 4 |

EP = Eden Park Overlanders
CR = Crawley
CH = Chingford

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| New! Hornet | £54.95 |
| Subaru Brat | £54.95 |
| Lancia Rally | £54.95 |
| Frog | £72.00 |

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| | |
|--------------------------------|--------|
| Scorpion | £78.95 |
| Beetle | £78.95 |
| Tomahawk | £84.95 |
| AYK Sidewinder | £89.95 |
| Yokomo 4 x 4 | £79.95 |
| Mardave Apache | £45.00 |
| Mardave 1/12th Stock Car | £37.00 |
| Kyosho Progress 4 x 4 | £99.95 |

CARS 1/8TH I.C.

| | |
|------------------------------------|---------|
| SG Leopard 2WD Off Road | £159.00 |
| SG Leopard 4 x 4 Off Road | £225.00 |
| New! SG Samba 2WD Off Road .. | £99.95 |
| Garbo Ghepard 4 x 4 Off Road ... | £225.00 |
| Serpent Cobra 4 x 4 Off-Road ... | £225.00 |
| Sigma BMW 2WD Off-Road | £139.00 |
| Mardave Marauder Off Road | £47.50 |
| Mardave Stockcar MK3 | £37.00 |
| New! SG Columbia Mk4 4 x 4 Circuit | £275 |
| SG Columbia Circuit | £169.95 |

ENGINES

| | |
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| Irvine 20 ABC | £39.95 |
| S/Tigre S21 S.E. | £41.95 |
| OPS Rear Exhaust | £68.95 |
| OPS Side Exhaust | £68.95 |
| <i>Also OPS with SG crank same price.</i> | |
| Picco 21 Side Exhaust | £57.50 |
| Picco 21 Rear Exhaust | £57.50 |
| <i>Also Picco's with SG crank same price.</i> | |
| <i>Any above Picco's with Buggy Head or Step.</i> | |
| Picco 9mm Carburettor | £15.79 |
| Picco 7mm Carburettor | £14.69 |
| OPS 8mm Carburettor | £18.50 |
| OPS Gold Plugs (10) | £17.50 |
| McGregor Glo-Clips | £4.95 |
| MacGregor Plug Spanner | £2.75 |

ACCESSORIES

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|--------------------------------|--------|
| OPS Air Filters | £2.20 |
| SG Wet Weather Filter | £3.50 |
| SG Ordinary Filter | £3.50 |
| SG Special Double Filter | £7.95 |
| Picco Air Filters | £1.70 |
| WMS Air Filters | £2.48 |
| SG Quick Fill | £2.99 |
| SG Starter Wheel | £3.99 |
| SG Starter Box | £34.95 |
| Nova Starter Wheel | £1.50 |
| Nova Starter Motor | £29.95 |
| Sullivan Starter Motor | £32.95 |
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| SG Flip Top Tank | £4.95 |
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| OPS Turned Pipe | £14.50 |

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|----------------------------|--------|
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| JR Laser | £56.95 |
| JR Jeep | £44.95 |
| Sanwa GC200 | £44.95 |

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| | |
|------------------------------|--------|
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| JR 4001 4.2kg Servo | £32.00 |
| JR 505 Std. Servo | £14.50 |

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|-----------------------------------|--------|
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| Kyosho Le-Mans 480S | £18.95 |
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| Mabuchi Black | £14.95 |
| Mabuchi Endurance | £16.95 |
| Mabuchi 540S | £4.66 |
| Mabuchi 380S | £2.99 |
| Demon Yoko Buggy | £9.95 |
| Demon Buggy Speed Controller .. | £39.95 |
| Parma Resistor S/Controller | £24.95 |
| Yokomo Resistor Speed Controller | £14.95 |

NICADS

| | |
|-------------------------------------|--------|
| Pencells | 99p |
| Sub C Saft | £1.69 |
| Saft 7.2v Tamiya | £13.95 |
| Saft 7.2v Tamiya | £13.95 |
| Saft 7.2v Flat | £13.95 |
| Sanyo 7.2v Flat Selected | £16.95 |
| Ever-Ready 7.2v Flat Selected | £16.95 |
| Receiver Packs Flat only | £4.40 |
| Sanyo Receiver Packs, Dumpy 450mAh | |
| 4 cell packs | £7.95 |
| 5 cell packs | £8.95 |

CHARGERS

| | |
|--------------------------------------|--------|
| MFA 5-6-7-8 Cell Fast Charger ... | £15.95 |
| MFA Field Charger (Pencells) | £11.95 |
| MFA Mains Transformer | £11.95 |
| Jester 5.6 cell Fast Charger | £14.95 |
| Jester Pencil Charger up to 16 | £8.80 |
| TMS 5.6 cell Fast Auto Charger ... | £16.95 |
| TMS 6 cell Mains Fast Charger ... | £21.95 |

TYRES

| | |
|--------------------------------|------------|
| 1/8TH OFF-ROAD | |
| MRC Front Ribbed | £7.41 |
| MRC Slimline C/lug | £7.94 |
| MRC Slimline Studded | £7.94 |
| MRC Super Single Studded | £8.45 |
| MRC Slimline | £7.94 |
| SG Wide Studded | £7.95 |
| Bajoma Studded/Padal | pair £7.95 |
| Bajoma Studded | pair £7.95 |
| Garbo Studded | pair £5.41 |
| Mardave Marauder | £6.00 |

1/8TH CIRCUIT TYRES

| | |
|-------------------------|------------|
| Bajoma Moth | £6.95 |
| Arrows Red | £5.95 |
| Arrows Yellow | £5.95 |
| Associated Yellow | £7.95 |
| PB QL Eco | pair £3.85 |
| UFRA Eco | £5.25 |
| UFRA Specials | £5.95 |

1/10TH OFF ROAD

| | |
|------------------------------|------------|
| Mardave 4 x Spiked | pair £3.00 |
| Mardave 3 x 2 Spiked | pair £3.00 |
| Mardave Square Pattern | pair £3.00 |
| Tamiya Rough Rider | pair £3.50 |
| Tamiya Frog | pair £4.50 |
| Tamiya Lancia Fronts | pair £5.50 |
| Tamiya Lancia Rears | pair £6.60 |

BODYS

| | |
|-------------------------------------|--------|
| Rough Rider 1/10th Lexan | £7.95 |
| Beetle 1/10th Lexan | £9.95 |
| Audi Quattro 1/10th Lexan | £9.95 |
| Frog 1/10th Lexan | £12.99 |
| Garbo Devil 1/8th Lexan | £13.20 |
| Ford Granada 1/8th Lexan | £8.95 |
| Opel Commodore 1/8th Lexan | £8.95 |
| Corvette 1/8th Lexan | £9.95 |
| + Sports Catah Formula 1/8th Lexan. | |

SPECIALS

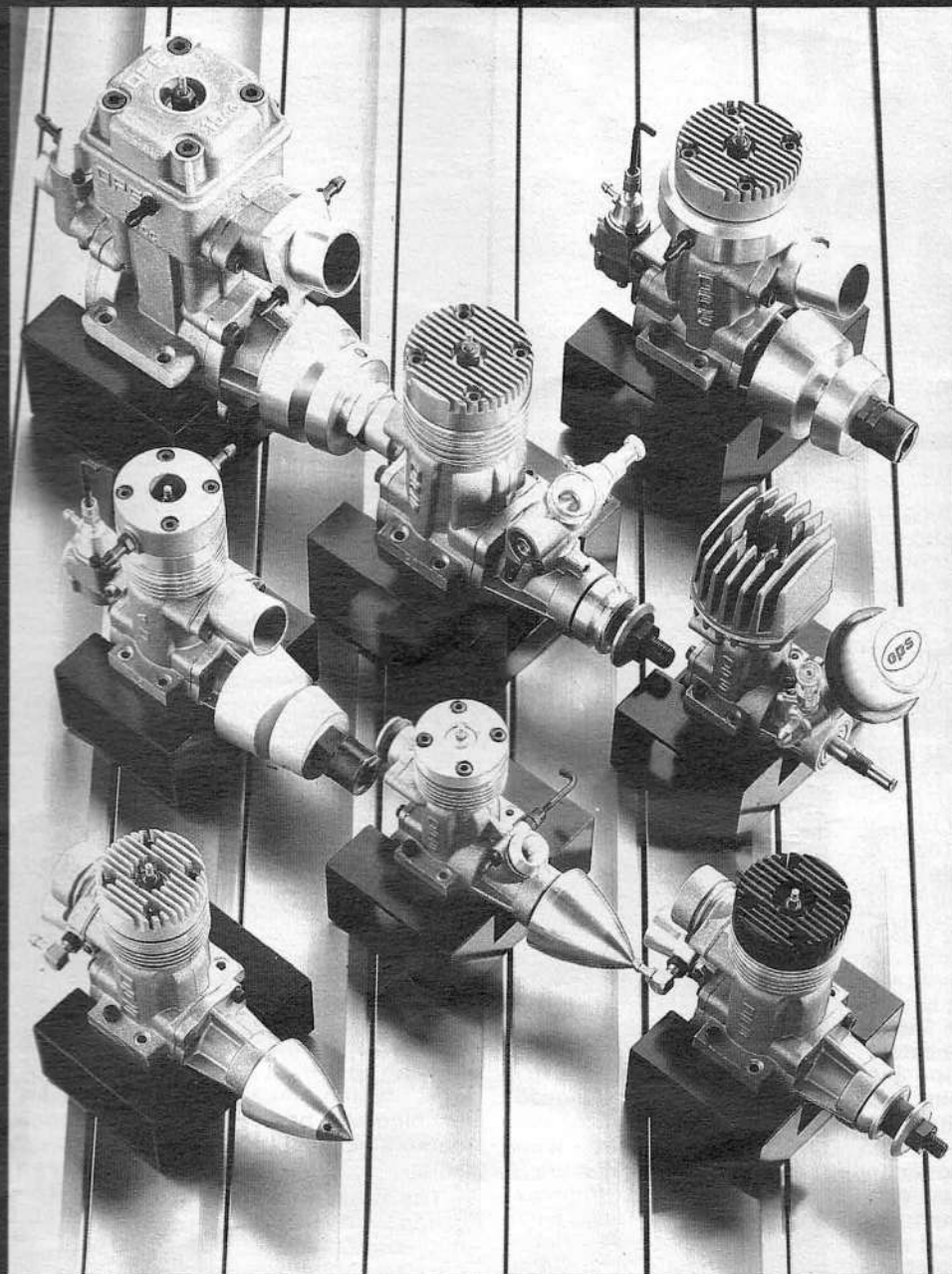
| | |
|--------------------------------------|-------------|
| Bat Eliminator | £2.85 |
| 3 Speed Board fit Tamiya | £3.30 |
| 7.2v Connectors Male | 57p |
| 7.2v Connectors Female | 57p |
| 6v Connectors Male | 57p |
| 6v Connectors Female | 57p |
| Flexan Spray | £2.25 |
| Humbrol Lexan Paint Tin | £1.55 |
| Tamiya Lexan Paint | £1.30 |
| Frog Diff. | £8.50 |
| Scorpion Diff. | £7.95 |
| Frog Shocks | pair £8.50 |
| SG Shock 1/8th | pair £10.65 |
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| SG Mono Shocks 1/8th | each £7.50 |
| Coil Conversion Tamiya | £5.95 |
| Brass Collets for Shocks Scorpion | £1.60 |
| H/Duty Kydek Bumper R/Rider ... | £2.95 |
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| Bail Races Tamiya | £1.75 |
| Bail Races Scorpion | £1.95 |
| Heat Sink 540 Motors | £4.95 |
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| Pinion Gears, Frog Brat Type | |
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Formula one at your fingertips

HAVING WATCHED the latest full size Grand Prix and decided that you would like to have a go — only you can't quite afford a full season of Formula One — come to that a single race would be very expensive — in fact, you can't really afford the deposit on a set of rear tyres, then where do you go from there?

Well the nearest thing in the radio control model car world is 1/8th scale IC circuit racing and as far as scale representations go, this one is very close. 1/8th scale circuit racing is the Formula 1 of the model world and as such, faithfully reproduces the most important facets of full-size motor racing. Speed, driver skill, excitement and competition. Controlling a 4lb piece of racing machinery around a specially built circuit at speeds of anything up to 60 mph calls for judgement, precision and nerves!

Racing

The race meetings themselves follow to some extent full size practice, comprising of qualifying sessions and races or finals as they are known.

The qualifying sessions comprise of eight cars at a time racing around the track for a five minute period with the object of completing, as many laps as possible. Participating drivers are seeded according to ability based upon a national 'handicap' value which in turn is derived from previous performances. Drivers start at 0% and work their way up to the dizzy heights of 50% if ability allows.

All the cars in these qualifying heats start together in line across the track and with every driver eager to be first away and have a clear track, it all results in some incredible

Right: an exciting start-line scene as mechanics rush to get their drivers' cars onto the grid before the start signal. Below: cars rush around the fast corners neck and neck and jostling for the lead.



start scenes making the real thing look very tame indeed.

These qualifying scores are compared and from these a driver's best score is taken and used to produce a qualifying list from which the Finals are based. Five finals are run in total. The main or 'Open' final comprises of the eight fastest drivers of the day and is run for 30 minutes. During this period each car has to stop for fuel every six minutes and so a certain onus is placed on good pit crew as re-fuelling and tyre changes can prove deciding. Many finals have finished with the first three cars on the same lap and the crowd excited as these three jostled for position. The number of laps completed in half an hour is dependent upon the length of the track

and can vary from 90 to 130 laps, which means that catching and passing back-markers is all part of the game.

The other four finals are divided amongst the rest of the entrants equally, thus giving a very good prospect for a driver to qualify and run in a longer race.

Different classes of cars are also raced and these can be either Formula One Style, Sports/GT or Saloon cars three different cars are not needed just different body-shells on the same chassis but imparting their own particular aerodynamic trails and also giving each competitor another chance to qualify.

Many of the clubs around the country run fun style races. For example, the

Mendip Club has featured caravan races and also experimented with 'S print' events, both of which have proved popular with members. Other clubs concentrate on a series of meetings to make a club championship and many of these also arrange inter-club fixtures with nearby rivals. Social activities are never forgotten and there is always the monthly club meeting where members relate how they could have won the last meeting. If Only... "If Only" being the phrase most used by IC circuit racers who feel that victory would have been theirs "If Only" they had gone quicker, or "If Only" the car hadn't run out of fuel or indeed "If Only" the marshal had run faster to retrieve the car after they had accident-

ally crashed it.

Hardware

So what equipment does one need to go racing? Well, believe it or not, the first item is a car! There are currently six manufacturers producing competitive machinery, one in England, one in Holland, two in Italy and two in America, all of these are readily available within the British Isles. Each manufacturer has tackled the product in a different way and thus each offers a slightly different result. So the choice is yours, but the best advice would be to select a make which has seen favour by your local club and/or model shop.

However to paraphrase slightly, all six cars do have features in common. Fully independent suspension is the most obvious and just as in full-size motor racing each manufacturer has approached the concept in a slightly different way. This gives us a situation where each car has its own individual handling characteristics. To complement the suspension we have a complex damping system which involves oil filled damper units of varying types again according to each manufacturer.

All cars are designed for use with 0.21cu.in. (3.5cc) size internal combustion engines and examples specifically tailored for this class of racing are widely available. The engine has to be fitted with a centrifugal



Above: the circuits are purpose built and produced to very high standards to promote fast, exciting racing for drivers and spectators alike.

clutch, carburettor, air filter and tuned exhaust system. The car's fuel tanks are all produced to a specific size according to national and international regulations.

At present these are the basic similarities between the cars although just as in full-size motor racing the pace of development is every bit as fast as the racing itself.

Subsequently manufacturers are constantly trying out new ideas and some of these (not all) find their way into production. As you can imagine rivalry between the manufacturers and their 'works' teams is fierce as results prove the product.

These cars are not only

great fun but are also highly competitive, complex examples of racing machinery. Because of this, kit prices are quite expensive, between one and two hundred pounds. It doesn't stop there as radio control equipment has to be brought an engine plus a whole host of extras which are detailed later. At a rough estimate the cost of going racing at the outset is approximately £500. Once you have managed that there are the on-going costs such as fuel, tyres and travel to contend with.

Having made your choice the next vital piece of equipment is an engine! Rules unfortunately prohibit the use

of ex-lawnmower motors, and anyway they just wouldn't be quick enough! Choice is again up to you but do ensure that the engine will fit the car you have chosen and that exhaust manifolds and silencers are also available. Current top line motors emanate mainly from Italy where no less than five makes are produced. American, Japanese and British complete the line up but there are many other manufacturers who produce quality goods albeit not quite so competitive. Nevertheless, these motors produce around 1.5bhp and can really push it.

If you have now visited a club you may have noticed how certain combinations of car and engine seem to marry well. This is mainly due to each manufacturer's allegiance to one particular engine producer resulting in perfect harmony and availability of exact fitting components between the two. On the other hand, some combinations will not work at all — advice — check with your local club/model shop or contact your favourite magazine (us!).

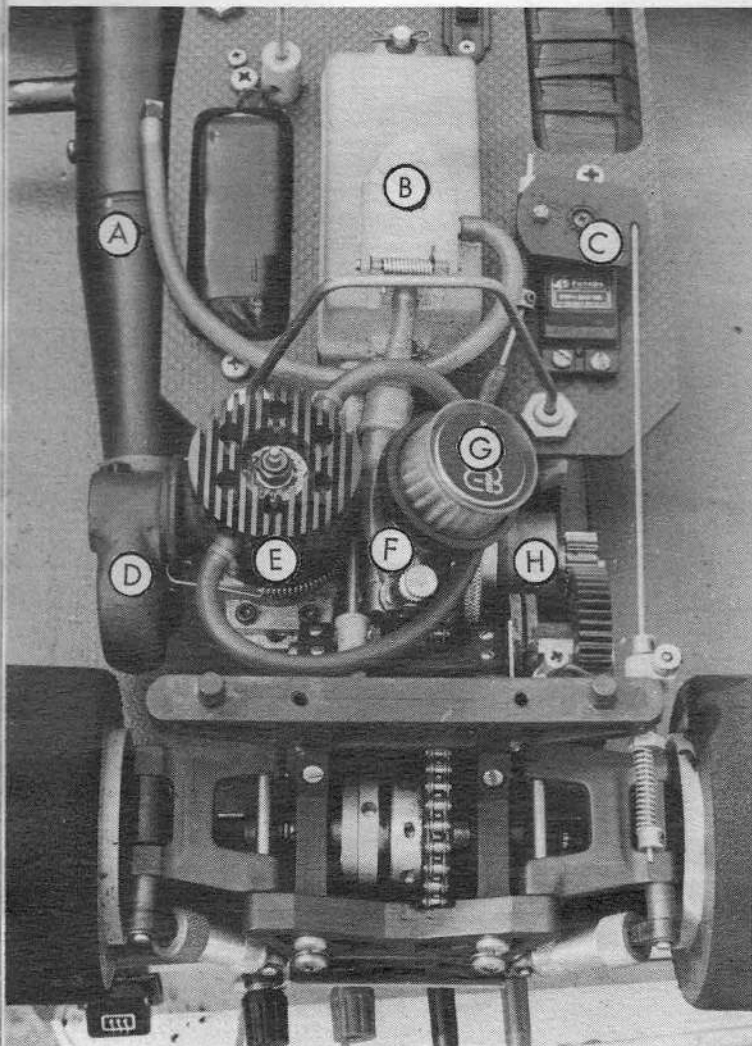
Spares

Having now selected the car and engine, you will also require a small selection of wheels and tyres to suit and also a few spare parts to keep you going should something break. Many club meetings

Below: a prime example of the circuit constructor's art. This one is situated at Carnoux, Southern France and was the venue for the 1983 World Championship event.



Starting Point



Above: the internals of an 1/8th scale circuit racer. A: Tuned pipe exhaust. B: Fuel tank - 125cc capacity. C: Throttle and brake servo. D: Exhaust Manifold. E: Engine. F: Carburettor. G: Air filter. H: Centrifugal clutch.

feature someone selling spares to other members and if this is the case then you should ask to what is most likely required, usually items like the nylon suspension mouldings, clutch shoes, wheel clips, glow plugs etc. This is not to say that break-ages always occur, it is just that 'Sods' Law' will dictate that if you don't have any spares then something will break or fall off. It should be noted that many nylon parts become brittle in the cold of the winter and this can result in components breaking which under normal circumstances would give no problems.

Start-up

Bump starting an IC car can prove very frustrating so an electric starter is

necessary. I would therefore recommend that you either arrange to borrow a friend's starter or better still obtain one for yourself. The best idea is to have a unit on which the car can 'sit' and which when pressed down against a spring, will operate the starter motor which in turn would spin the flywheel of the engine and hey presto! These units often include a device for supplying the glowplug and are certainly the easier way for single handed operation. A cheaper alternative is to purchase the starter motor only, this entails simply holding the body of the motor in your hand whilst aiming the attached rubber wheel towards the flywheel and activating the finger switch provided. Practice is definitely required to perfect the technique but once

mastered causes no problems. A cheaper version still would provide a full size car starter motor fixed into a stand, which when fitted with a suitable (100mm) rubber tyred trolley wheel, would give excellent results and the only drawback being of greater consumption from the battery.

"What battery?"

"Ah yes!"

Of course you require a 12v car battery for any of the above methods, in fact, many drivers remove the battery from their full size vehicle and there would certainly be enough power at the end of the day to start your full-size car. (Providing it's not a...).

Model Cars has previously published articles on engine maintenance, installation and setting up, photostat copies of which are available from us at a cost of £1.50.

So now you 'borrow' a tankful of fuel from a friend (alternatively — and this is really a desperate last resort — go and buy a gallon).

Model Car racers use alcohol based fuels comprising of methanol, oil (castor or synthetic) and nitro-methane. The latter is used in varying percentages depending upon the amount of 'oomph' required. As a general rule of thumb at least

5%. Nitro is necessary in order to set up the engine. Most racers use between 20 and 30%. Fuel is usually available from model shops who deal with model car racing.

A wide variety of R/C systems from various manufacturers are available and again specialist car types are produced. Basically though 27Mhz, two-channel (throttle and steering) operation is required coupled to appropriate servos. These latter items should be the best that you can afford as in 1/8th scale circuit racing they take a lot of punishment. Cheap servos are just not up to the job and replacement and repair will cost more in the long run.

Once you have kitted yourself out you will obviously need somewhere to race. Running your car in the local car park is all right for a while but the ultimate thrill is racing against like-minded individuals in open competition. Thirteen 1/8th scale circuit racing clubs and permanent racing venues exist in the UK and the details of each are given here. Perhaps the best idea is to visit your nearest club (Sundays are usually race days) to get a clearer picture of what it is all about. □

Below: using an electric starter to fire-up the engine can be awkward until familiarity with the components is attained.



Permanent Racing Circuits

West Burton
Situating at West Burton Power Station, Nr. Retford, Nottingham. After nine miles turn right for Sturton-le-Steeple, signposted West Burton Power Station. Club Sec: Keith Davies, 37 Grove Coach Road, Retford, Notts.

Wrexham
Hoseley Circuit situated off Hoseley Lane, Marford, Nr. Wrexham. Marford is on the A483 Wrexham to Chester road and Hoseley is near the Trevor Arms Hotel, the junction is signposted for meetings. Club Sec: Chris Meyer, 28 Llys-y-Wern, Sychdyn, Mold, Clwyd, CH7 6BJ.

Wombwell
Wombwell Radio Controlled Car Club. Approach off M1 or A1(M). Leave M1 at junction 36 on A61 (Barnsley). In 100 yards turn right at traffic island signpost, Chapelwom. At first traffic lights turn left to Wombwell. At lights in Wombwell turn left and immediately right. Track over railway bridge on left.
Leave A1(M) at A635 towards Barnsley. In approximately seven miles turn left onto B6096 for Wombwell. Track in 1 1/2 miles on right before railway bridge.

Yorkshire
Yorkshire Radio Controlled Model Racing Car Club. New circuit built at North Bridge Leisure Centre, Charles-town Road, Halifax. Club Sec: Ian Briggs, 29 Littlefield Walk, Wibsey, Bradford, W. Yorks. BD6 1JU.

British Radio Car Association (BRCA)
6 Parkway
Queensbury
Bradford
W. Yorks BD13 2JA

BRCA 1/8th Circuit Racing Secretary:
Bob Errington
19 Archdale Close
Bournemouth, Hants

Mendip
Leave M5 at junction 21. Take road into Weston-S-Mare. At 3 1/2 miles turn left at traffic lights (signposted A370 Taunton M5 South). Follow this road for 1 1/2 miles at T junction turn left (signposted A370 M5 South). Follow this road for 1 1/2 miles turn right at Anchor Inn (Signposted Brea & Model Racing Circuit). Track is 1/2 mile along this road on right. Club Sec: Dennis Jones, 76 Fosse Road, Newport, Gwent.

Southampton
Southampton Radio Control Model Car Club circuit at the Westons Shore. From River lichen Toll Bridge (south-east of Southampton) turn into Woolston, left into Victoria Road and continue to end. Drive over kerb and follow rough track to circuit car park.

Tibshelf
Tibshelf circuit situated in the village of Tibshelf, Derbyshire. Travelling from the South take exit 28 on the M1 onto the A38 (A615) then left onto the B6406. Pass under the M1 and enter Tibshelf on 6025 through Newton. From the north take the M1 exit at junction 29 onto A617 towards Chesterfield. Turn left towards Chesterfield. Turn left onto B6037 to Holmewood then left on the left into the sports centre. As you approach towards Poole, still on the A348, the gatehouse, turn right down the old motor racing circuit and follow round until you reach the Palace aeriels can be seen for miles — a useful landmark. Club Sec: Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DD.

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Lilford
Lilford Park Model Club. Situated off A605 Oundle. Thrapsdon road, 4mi, from either place. From North use A1 and South use A1 and join A604 to Thrapsdon at Brampton. Turn off A605 at signpost 'Lilford Park'. Enter Park through main gate and follow roadway (one way) to signpost Lilford Model Club. Club Sec: Steve Taylor, 30 Blackhorse Lane, Swasey, Cambridge.

London
Crystal Palace Circuit situated at Crystal Palace National Recreation Centre, Norwood, London SE19. The circuit is approximately two miles from where the South Circular passes through Dulwich. If approach- ing Dulwich from the West turn RIGHT into CROXTED ROAD and continue on this road until you reach a roundabout. Take FIRST exit and continue up the hill to a 'T' junction where you will see in front of you the larger of the Crystal Palace aeriels. Turn right and continue to roundabout, take FIRST exit down ANERLEY HILL and take first turning on the left into the sports centre. As you approach towards Poole, still on the A348, the gatehouse, carry on towards Poole, still on the A348, turn left into Poole Lane, second right is Turbary Park Ave, 500yds down there is a gravel track on the right, turn up here and the circuit is just over the hill. Club Sec: J. Dales, 158 Beamish Road, Cantorf Heath, Poole, Dorset.

Aldershot
Badshott Lea Circuit situated, Badshott Lea village, Surrey. Details from Club Sec: Jeff Stokes, 76 Sand Hill, Farnborough, Hants. GU14 8ER.

Bournemouth
Turbary Park Circuit. Take the A31 Ringwood to Wimbourne roundabout, then the road to Trickett's Cross, then the A348 to Longham and the Bears Cross roundabout, carry on towards Poole, still on the A348, the gatehouse, turn right down the old motor racing circuit and follow round until you reach the Palace aeriels can be seen for miles — a useful landmark. Club Sec: Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DD.

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Aberdeen
Stonehaven Model Racing Circuit, Mineralwell Park, Stonehaven, Nr. Aberdeen. On main road South of Aberdeen (A92). From the South follow signs for Aberdeen. Proceed north through Stonehaven village to north end of town, immediately after garage, approaching bridge, take second road on left which follows the river. Carry on past the Distillery for a quarter of a mile; track is at the end of this road.

Commodore Hotel, first on right across the bridge, then as above. Club Sec: Game Murray, 35 Clarendon Place, Aberdeen (0224) 51959.

Bournemouth
Turbary Park Circuit. Take the A31 Ringwood to Wimbourne roundabout, then the road to Trickett's Cross, then the A348 to Longham and the Bears Cross roundabout, carry on towards Poole, still on the A348, the gatehouse, turn right down the old motor racing circuit and follow round until you reach the Palace aeriels can be seen for miles — a useful landmark. Club Sec: Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DD.

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Truckpullin'

Take a peep at this 'Wild Willy,' sledpullin', Mean Machine. America's hottest autosport in 1/10th scale.

By Roy Yuval.

DID YOU EVER get to wondering what 'Wild Willy' does on his weekends off, when he gets downright brassed off with charging about the landscape, through the mud 'n the blood 'n the cornfields, when he has really had enough of poppin' wheelies and bending his rollcage? No? Well I'll let you into a little secret — he goes a truckpullin'. And what, you may well ask, is truckpullin'?

Well, basically, truck pulling is the modern version of an old traditional, agricultural test of strength between teams of working horses. The team, usually a pair, were hitched to a rudimentary, flat-bottomed wooden 'sled' that was weighted and had to be pulled by the team over a

given distance, without stopping. Between each series of pulls, more weight was added to the sled, usually in 500lb. increments, until the 'Hayburners' could no longer move it. The winner was obviously the team which pulled the heaviest sled, the furthest. It was a sport very popular all over the early American Mid-Western agricultural belt and also in England, where I believe it originated.

Modern Truckpulling simply (!) substitutes tractors, 4WD, 2WD and specialised versions of the foregoing to heave that ol' sled a maximum of 300ft. down a specially prepared track. And where, you will probably ask next, can this rather boring sounding modern version of an old

agricultural sport be observed? Simply answered, just about in any large town or city throughout the American Mid-West, on almost any weekend during the summer months — if you can get into the race-track or the stadium that is, mostly its standing room only folks.

If you think it sounds boring, try asking the 58,000 roaring fans that filled the Houston Astrodome every night for a week in September 1983, to watch the cream of America's pullers battle it out on the three dirt tracks that had been laid in the middle of the giant stadium floor. Imagine if you will, the sight and sound of a modified tractor chassis into which have been shoehorned four (yes 4!) blown, injected fullrace

Below left: Roy's 'Wild Willy' Truckpuller looks ready for the Houston Astrodome with his 'droop-snoot' stance, chromium exhaust pipes and bonnet flames. Right: 'Wild Willy' hooked up to the sled and all set for the big pull!



(drag, that is) Chevy small-block motors, each blasting out around 1800bhp as the monster attempts to drag 18,000lb. of dead weight sled 300ft! Or a 460cu. in. Ford 'Ranger', also blown and injected, with both diffs welded solid as the 4WD power train digs its way to the 260ft. mark towing 6,000lb. behind it — I had the great good fortune to be in Houston last year and will never forget it...

Scaling it down

What has all this got to do with 'Wild Willy'? Well, one of the incredible vehicles I saw pulling during the '83 season, had in fact a Jeep body mounted on its chassis and although 4WD, bore a marked resemblance to the Tamiya 'Wild Willy' that I had built the previous year. (Actually, it was originally a 'Willy's Wheeler', but I got bored with wheelies and high-speed stunts and bought the Willys body to liven things up a bit.)

On my return from the States, faced with the prospect of a 'pull-less' year or so and feeling more than a little bored with my usual model ships, I cast aimlessly around for something to fill my seemingly endless weekends. Catching sight of 'Wild Willy' peeping out of a dark corner in my workshop,

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stirred vague and exciting feelings in the pit of my stomach. Eureka! I screamed, of course, why don't you build a truck puller... Thus it was, that what had been simply a passing interest in model cars, developed into a passion only to be surpassed by my love of scale model ships — Weekend Warrior Racing was born!

To work

Having rolled 'Willy' about ten consecutive times on as many corners on my first outing with the beast, I had long ago come to the conclusion, that more than just a few simple mods would be required to make 'Willy' handle and perform to my liking! Now that the decision had been taken to add truck-pulling to 'Willy's' repertoire, the time had come to dig him out and reach for the tools.

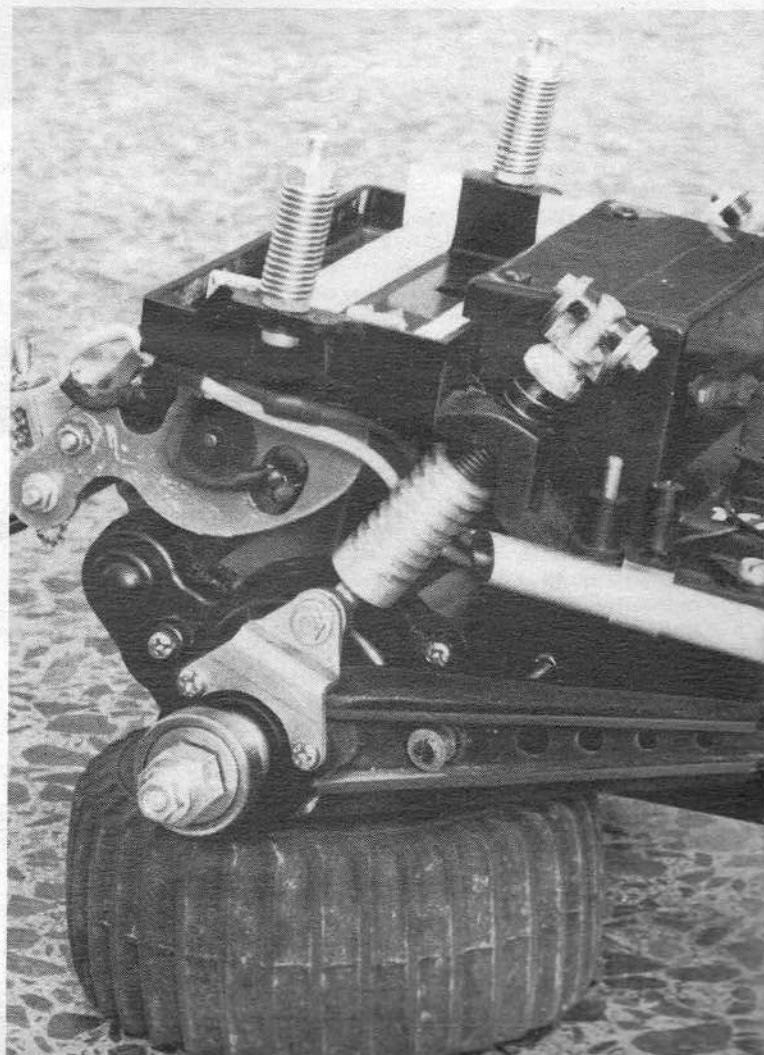
Apart from truck-pulling, I intended that 'Willy' should be able to perform around asphalt and dirt oval-tracks, take part in the occasional 'Wild Willy' race and maintain his wheelstanding capability — no smalltime stuff here folks — this baby's gonna earn his keep!

The obvious first task was to attack the stability problem, or rather the lack thereof. As it was patently impossible to radically alter the vehicle's weight dis-

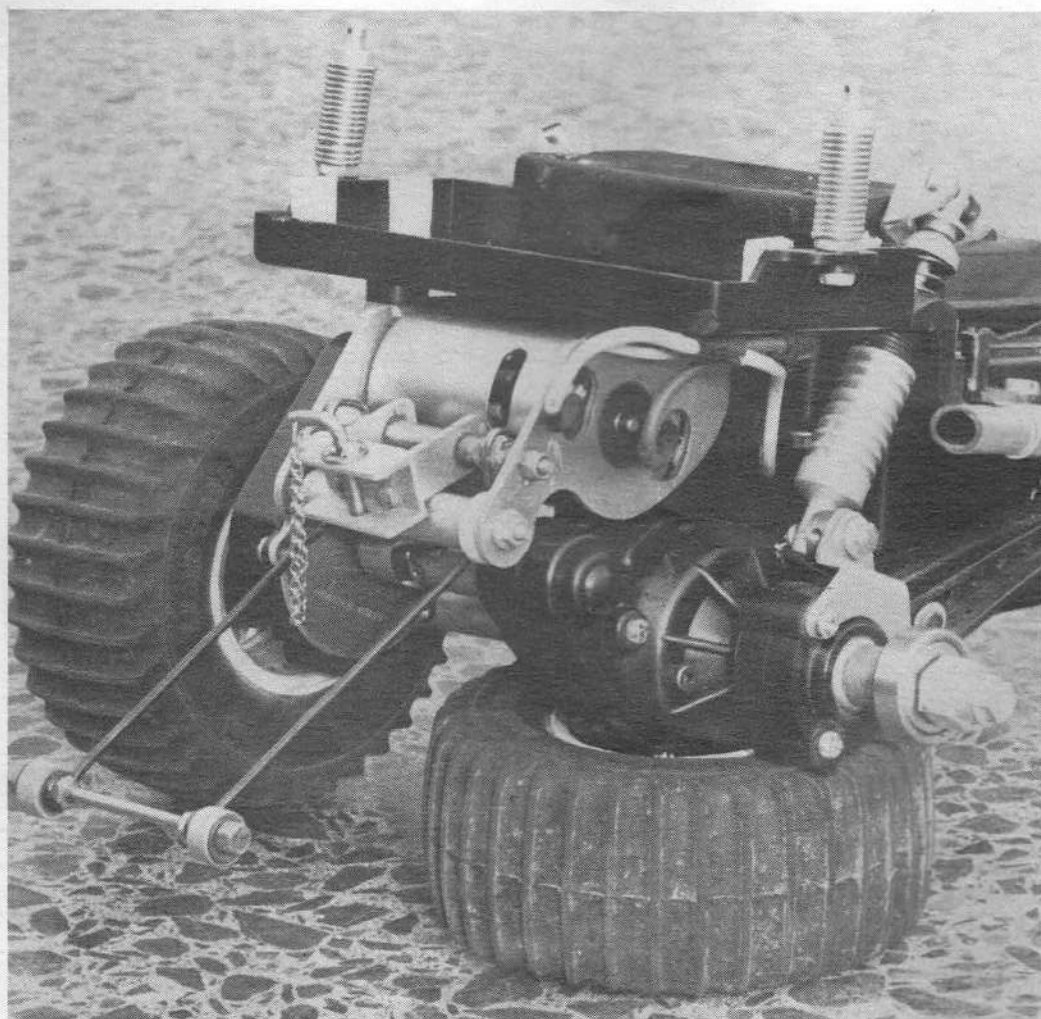
tribution, I decided to try and lower the front end while at the same time stiffen-up the rear suspension in an attempt to curb excessive body-roll. I had a pair of 'Subaru Brat' front wheels which were destined to grace 'Willy's' front axle, so I will begin at the front and work backwards.

Not being greatly enamoured of the kit method of fitting the front wheels, I had already altered the front 'A'-frames and this mod' became the basis for mounting the 'Subaru' wheels. The original sheet-metal screw had been replaced with a steel 4mm screw, 30mm long which had been screwed into the plastic axle-boss until it would go no further and then the head cut off, leaving 20mm of threaded axle protruding from the 'A'-frame. To provide a bearing surface for the front wheel-bearings, I used brass 'top-hat' shaped wheel collets intended for model aircraft wheels, which just happened to have an internal 4mm thread and an outside diameter of 5mm. One of the collets was threaded onto the axle with the flange nearest the 'A'-frame, until it was tight against the plastic. The wheel, complete with both bearings was then mounted onto the axle and a second collet was then threaded

Below: detail of the rear damping modifications. Note: the Subaru/Frog steering stub axle mounts bolted to the R/C crate to act as damper mounts. Extra screws are needed to keep the lid firmly in place. ▶



Home Improvements



Above: rear view showing new wheelie-bars, oil-filled coil-overs and tow hitch. The radical amount of negative camber exhibited by Willy's front wheels, is a result of the counterweight bar fitted to the front bumper and vanished once the weights are removed.

onto the axle with the flange facing outwards. This second collet had been shortened slightly, so that the flange just held the centre of the wheelbearing firmly, too tight here and the wheel will not turn at all. The usual 4mm Nyloc nut was then used to finally tighten-up the whole assembly and prevent the collets from working loose, especially on the left-front axle. With the spare set of 'A'-frames included in the kit, I permanently mounted Willy's balloon tyres using this method, preferring to change the complete front-end when required. This became necessary due to the fact that the steel screw in the plastic axle-boss, expands the plastic inside the original wheelbearing and effectively prevents its easy removal, however, that's my personal method, doubtless each modeller will

have his/her own preference. 'Willy' was now beginning to look the part as he adopted a distinctly 'nose-down' attitude with his new wheels.

At the rear

To stiffen up the rear-suspension I intended to mount a pair of oil-filled coilovers in place of the elliptical 'bed-springs' supplied in the kit. To this end, the original top mountings in the chassis were drilled out to 13mm and new mountings for the coilovers, (namely, part 'g'1 from the 'Frog/Brat' steering assembly) were mounted on the side of the 'mechanism box-lid'. This necessitated two further screws being used to hold the lid covering the radio battery securely. I simply used the two discarded rear 'suspension' screws (parts no. n8) from 'Willy', drilling

vertically downwards through the lid and chassis-plate, two flanged nuts being used beneath the latter to close the whole thing. Of course you will need to fit a radio-charging socket to your chassis-unit, or be faced with the necessity of dismantling the rear suspension each time. Well, I didn't say anything about making things easy now, did I?

The lower coilover mountings utilise all kit parts, apart from a longer mounting bolt. The coilovers themselves, are mounted with the suspension springs uppermost. To locate the upper coilover centrally in its new mount, two spacers cut from plastic tubing are fitted on either side over the mounting bolt, this prevents the coilover from becoming misaligned and the suspension spring from fouling the chassis.

With this set-up, I have found 'Willy' to be far more

controllable on loose surfaced tracks and I am able to actually ease off on the 'gas' even in the middle of a corner being taken at 'fullbore', without 'Willy' deciding to roll base-over-apex for the next half-hour or so. On hard surfaces the vehicle will corner on full power and full-lock, exhibiting violent and impressive understeer — waving the unemployed front wheel gaily in the air. However, don't chicken out here as ease off on the 'juice' — 'cause if you thought that your 'Wild Willy' would roll with his big wheels on — you ain't seen nuthin yet! And wheelies — oh boy!!!

Talking about wheelies — after wearing out two pairs of 'wheelie-wires' in about ten hours of running, the time had come to alter that situation as well. In any case, the original items allow too much of a good thing if you are considering racing 'Willy' seriously (what do you mean, you're not!). With the motor mount stripped down, work commenced on a pair of real wheelie-bars and a tow-hitch for truck-pulling.

On two

The towing-hitch was constructed as simply as possible from two aluminium 'U' profiles, the larger 20mm x 20mm x 10mm, the smaller 20mm x 10mm x 10mm. The larger piece was then drilled through its two longer 'arms' using a 5mm drill on the centre lines and 5mm in from the ends of the arms. The smaller piece was then drilled and bolted to it using 4 x 2 mm bolts and 3 Ms, A-2 two part adhesive. A towing pin was fashioned from 2mm dia. brass wire with a brass washer soldered just below the right-angled bend and then drilled at both ends for the safety pin and chain respectively. The smaller part of the tow-hitch was then drilled to accept the pin as shown, plus one smaller hole for the safety chain. The hitch now finished, attention turned once more to 'Willy'!

With the motor-mount disassembled, a mounting for the tow-hitch and the new wheelie-bar was constructed. Part no (n7) was discarded and a long 2mm

dia. countersunk-head bolt inserted in its place. Two pieces of brass tubing, 5mm and 6mm outside dia. and 50mm long were then cut and the smaller tube fitted over the new bolt as a sleeve.

The 6mm tube was then cut into three pieces, one 17mm long and two 15mm. These three pieces serve as locating spacers for the tow-hitch, the two smaller ones doubling as mounts for the new wheelie-bar.

The wheelie-bar itself was fashioned from two, 2mm dia. Tamiya steel antennae, with a steel axle soldered through the two small loops at the ends. The axle was then fitted with two aluminium rollers, being held in place by 3mm nuts screwed to the axle-ends and finally soldered in place. The antennae were then cut to a length of 10cm and a

loop of 6mm inside dia. fashioned at their ends. The two smaller brass spacers, cut during the last operation, were then inserted into these loops and soldered to the antennae approximately 4mm from the outside ends. The long bolt was next withdrawn from its sleeve and the tow-hitch, spacers and wheelie bar fitted over the latter. The complete assembly was then re-assembled into the motor-mount, together with the securing bolt, taking care that the wheelie-bar arms were *inside* the original wheelie-wire mounting bar, part no (n3). Before the securing bolt was finally tightened, pressure was applied to the arms of the new wheelie-bar and using the old mounting as a fulcrum, the arms were slowly bent into the required

angle. The height of the wheelie can thus be determined by the angle of the arms, on my vehicle the front wheels reach a maximum of about 60mm, which for my purposes is quite enough.

Drop snoot

The final modification needed to turn 'Willy' into a fully-fledged truck-puller, was to curb his wheelstanding. Being basically a scale 'freak', I decided to simply follow prototype practice and mount a series of weights along the front bumper, à la tractor fashion.

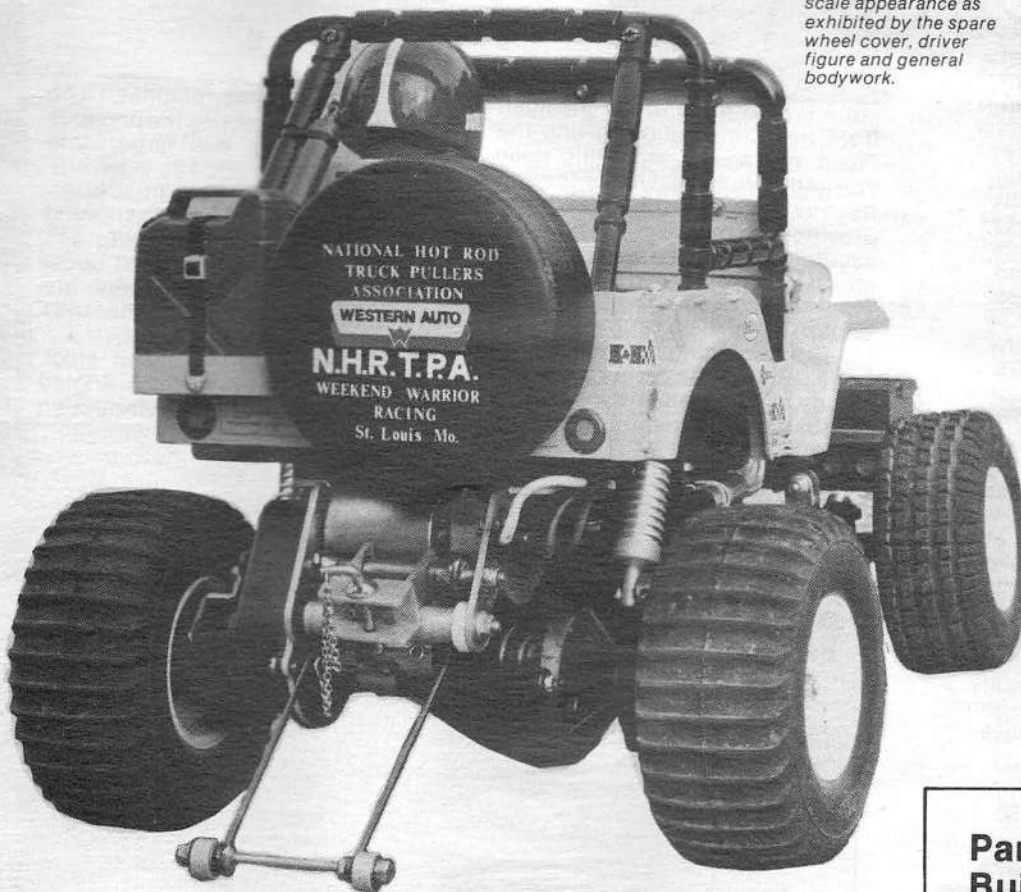
Despite 'Willy's' now pronounced 'droop-snoot' stance, the first time he was hooked-up to the 12Kg full-weight sled, he heaved his front wheels in the air and took off at a tangent, hauling that sled in almost a complete circle — which as

one can imagine, is not really what was required of him, the track being straight! Oh, the shame of it all...

By trial and error, it was determined that at least 400 grams were required to keep his front wheels on the ground and steering effectively. I had already discarded the 'sprung-bumper' from the outset of 'Willy's' career and so it was a very simple matter to make up a carrier for the necessary counterweight from a piece of angle aluminium, which was drilled so that the bumper mounting bolts could be used to hold it firmly in place. The counterweights themselves were small plastic boxes filled with lead shot and secured to the carrier by means of a brass angle bar and two long 2mm nuts and bolts as shown in the photo.

When 'Willy' was next hooked-up, complete with counterweights, the results were startling — with rear wheels spinning and hurling clouds of dust and small stones rearwards in true truck-puller fashion, he hauled that 8Kg dead weight, right out the end of the 30ft. track, not just once but four times in a row, thoroughly trouncing all opposition! The only thing missing was the mighty roar of his 'V-6 Buick' engine, however, to the accompaniment of a pre-recorded tape, all the ingredients of a full-sized truck-pull came together, quite astounding the watching members of our local R/C car club. After all, here was a 'mere' elektro-modell, hauling no less than 8KG dead-weight behind it and on loose, fine gravel to boot! The seed was sown and after I had shown my slide collection made over the years at a vast number of full-size truck-pulls in America, four other members, all fanatical 'glo-plug' racers, started building electric truck-pullers and we also began to discuss rules and regulations. Who knows, this could be the start of something big...?

Left: Roy obviously places great store in scale appearance as exhibited by the spare wheel cover, driver figure and general bodywork.



**Part two next month:
Building the sled**

Picco P21 Delta Packing a Whallop!

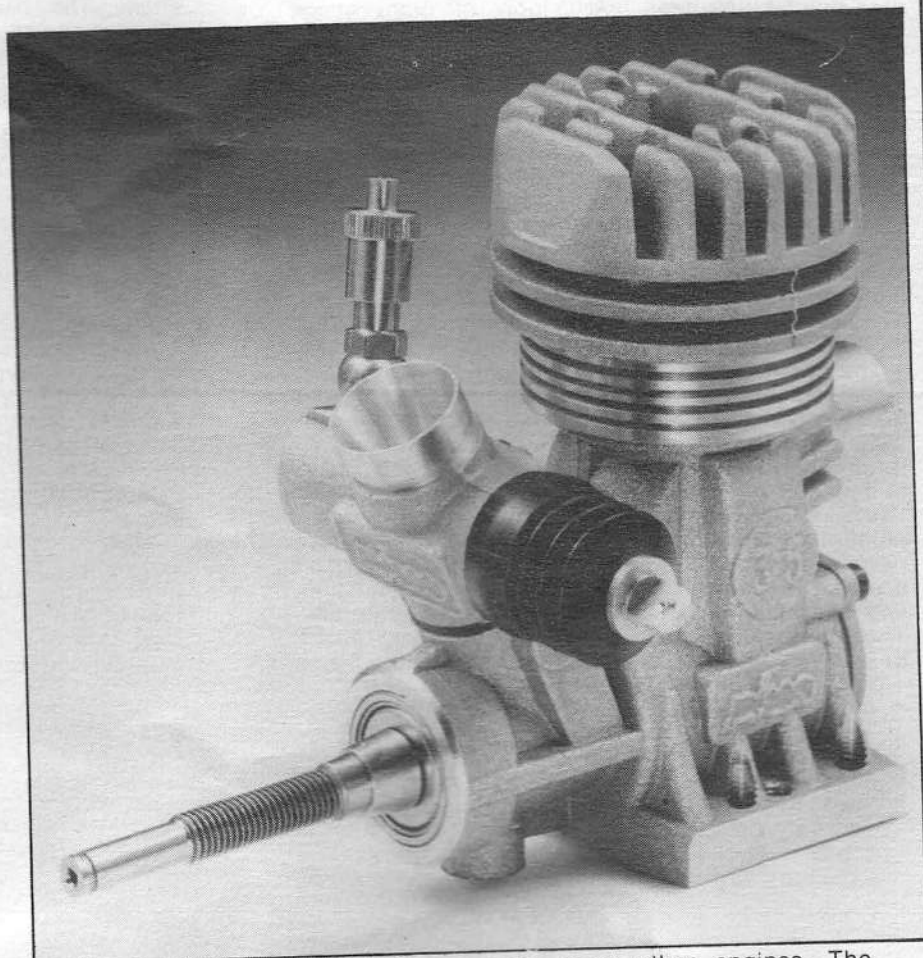
CONTINUING THE competitive march forward, the 1984 'MkIII' base-mount Open class car engine tested here incorporates design changes directed as much towards greater reliability as to power increase itself, and this reflects interestingly on the racing priorities as seen by this factory.

The flexure-free performance afforded by the new wide stance base mounting plus the inherently more reliable steel connecting-rod should both result in longer life at high power outputs. General consistency of handling and vibration-free running at all rpm's during this particular test were noteworthy. Increasing the exhaust timing plus some other small changes (which continually flow from the Picco factory), have now enabled this most recent 1984 unit to respond much more strongly to tuned pipe fitment.

This rather unusually concentrated series of 'Model Cars' Engine Tests (just one engine size and type) has certainly enabled a clearer view that the release of an expected 50 per cent power uplift by use of tuned pipe and 50 per cent nitromethane fuels is a difficult goal to attain, and one at which not all engines have succeeded — at least not in this series of tests. It does seem that correct matching of pipe and motor parameters is not an easy matter, but once realised the result is clearly audible and obvious on the dynamometer, as was the case with this new Picco 21.

Points of mechanical interest:

Crankcase — at 4.7oz (with bearings), Picco's distinctive rough-cast aluminium alloy one-piece unit now incorporates a base mount with four pillars either side. Even more sensible, a mounting

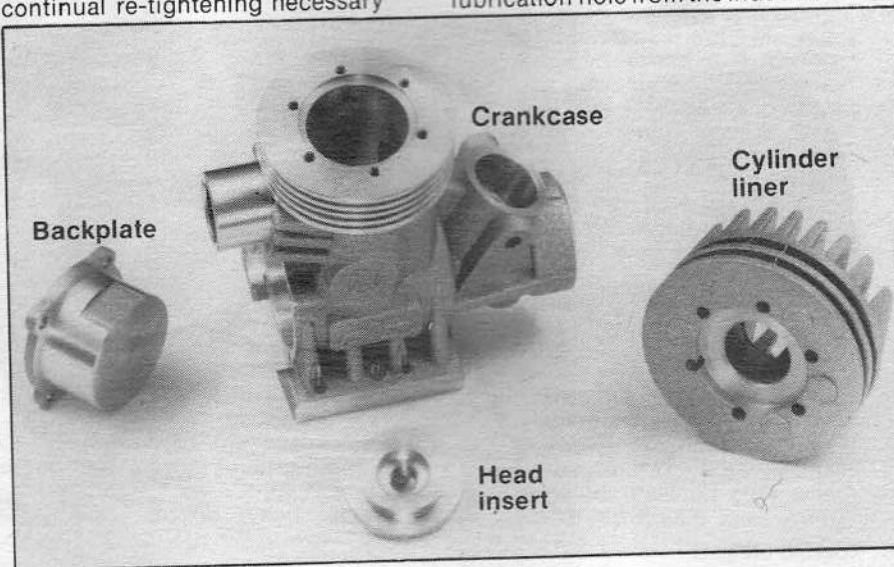


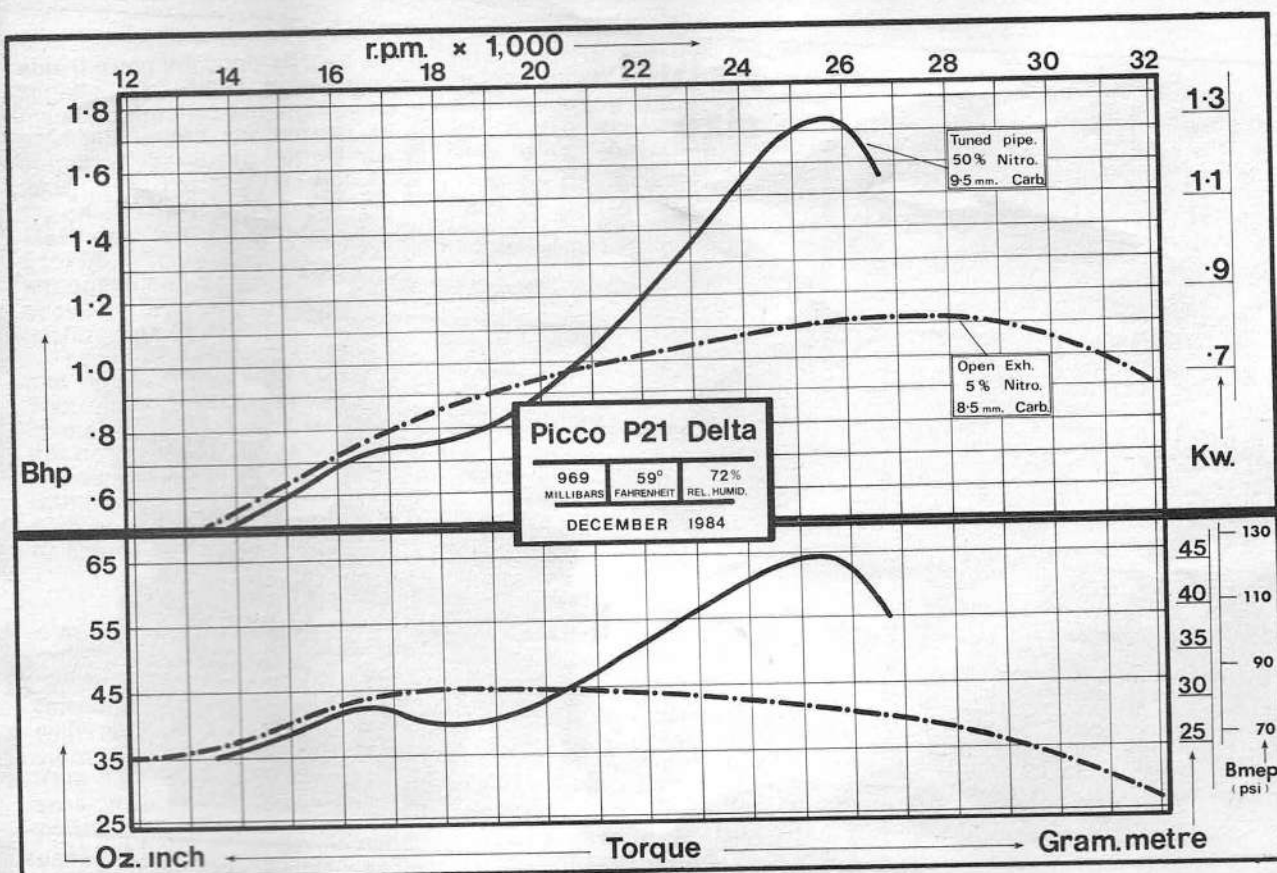
point is also fitted under the main front bearing position, giving the Picco the widest mounting base currently available. Use of the one front screw and just two rear ones provides a massively wide and secure triangulated area to hold steady any likely power release (and also makes engine easier to photo!). The Allen grub screw carburettor mounting bosses held the large 8.6mm slide carburettor rock steady at all rpm points without the continual re-tightening necessary

with some other engines. The crankcase still retains the previous two boost and two larger side transfer ports.

Liner. This brass chromed component now has exhaust timing increased to 170° — giving 21° lead over transfer. The 126° boost and 128° transfer timings are reversion to those of the 1981 engine.

Crankshaft. In hardened steel, and still using Picco's angled lubrication hole from the induction





Picco P21 Delta

Dimensions and weights

Capacity — 210cu.in. (3.44cc)
 Bore — .6515in. (16.5mm)
 Stroke — .631in. (16.0mm)
 Stroke/bore ratio — .968/1
 Timing periods
 — Exhaust — 170°
 — Transfer — 128°
 — Boost — 126°
 Front induction
 — Opens 27° ABDC
 — Closes 53° ATDC
 Total 206°
 Exhaust port height — .236in. (6mm)
 Combustion chamber vol. — .32cc

Compression ratios
 — Effective — 7.6/1
 — Geometric — 11.7/1
 Cylinder head squish — .012in.
 Squish band angle — 0°
 Squish band width — .120in.
 Crankshaft dia. — .472in. (12mm)
 Crankpin dia. — .1967in. (5mm nominal)
 Crank bore — .335in. (8.5mm)
 Crank nose thread — .245in. x 28 TPI (1/4 UNF)
 Gudgeon pin dia. — .1586in. (4mm nominal)
 Connecting rod centres — 30mm
 Conrod shank dimensions — 6mm tapering to 5mm x 2mm thick
 Width — 1.77in.
 Length — 2.47in.
 Height — 3.57in.
 Base mount holes — 3mm
 Frontal area — 5.32sq.in.
 Overall weight — 12.00oz (.34 Kilo)

Performance:

Max. BHP — 1.74 at 25,740rpm (Picco pipe/50% nitro/9.5mm carb)

— 1.12 at 27,000rpm (Open Exhaust/5% nitro/9mm carb)
Max Torque — 64oz in. at 25,740rpm (Picco pipe/50% nitro)
 — 45 oz in. at 18,400rpm (Open exhaust/5% nitro)

RPM Standard Propellers:

8 x 6 Zinger — 16,330 (Open Ex/5% nitro)
 7 x 6 Taipan — 18,620 (Open Ex/5% Nitro)
 7 x 4 Taipan — 24,100 (Open Ex/5% Nitro)
 7 x 4 Taipan — 26,090 (Picco pipe at 210mm/50% Nitro)

Performance equivalents:

BHP/cu.in — 8.28
 BHP/cc — .506
 Oz in./cu.in. — 304.7
 Oz in./cc — 28.6
 Gm metre/cc — 13.4
 BHP/lb — 2.32
 BHP/kilo — 5.11
 BHP/sq.in. frontal area — .327

Manufacturer:

Picco Gualtiero, Monza, Italy.

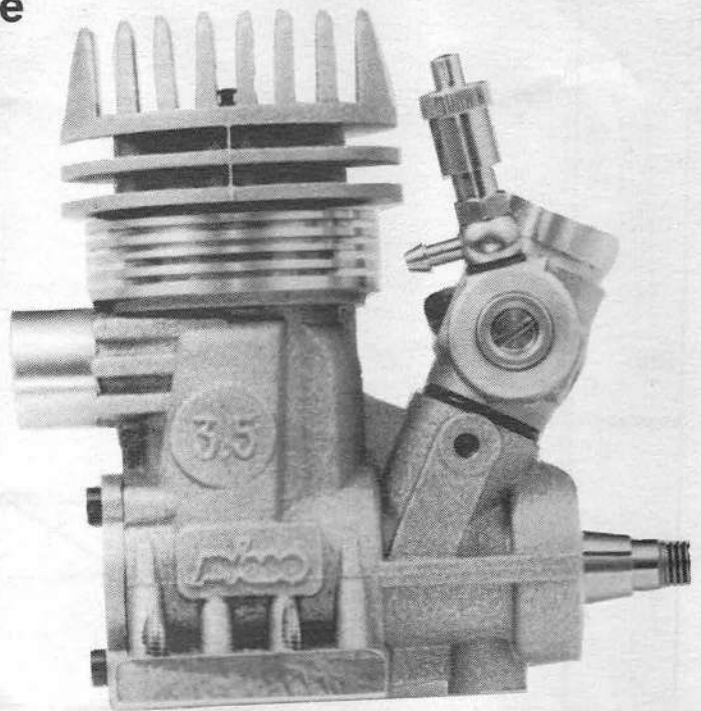
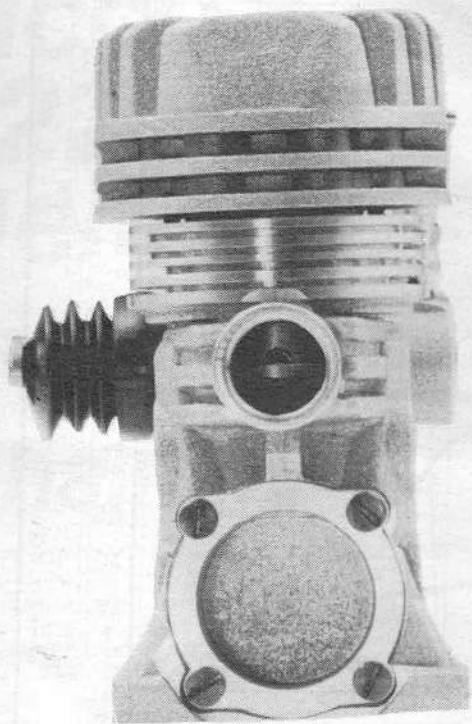
UK Distributor:

PB Racing Products Ltd., Downley Road, Havant, Hants.



Engine Test No. 17

Actual size



bore to outer face of crankpin. The induction timing now opens and closes some 6° earlier than before.

Head insert. On this engine the squish band is set at .012in. though other changes have led to a reduction of effective compression ratio to 7.6/1, and this led to quite long plug life during the high nitro runs.

Connecting rod. With information from the manufacturer on material selection still being hard to obtain, an estimate of the new steel rod structure is nickel/chrome/moly steel — subsequently, selectively hardened at big and little ends by masking the main body with copper plating — thus leaving the thin but highly stressed rod shank in unhardened but tougher condition. A

phosphor-bronze bushing is nevertheless still used at the big-end, with one vertical lube hole above the crankpin. Rod weight is an ethereal 4 grams.

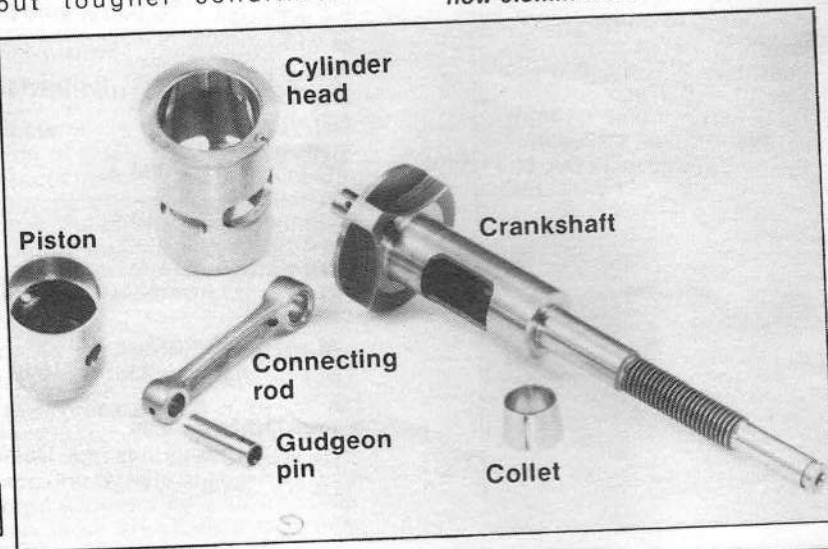
Power Test 1

Open exhaust/5% nitro and 15% Castor/8.6mm carb/Rossi R8 plug. By comparison with the 1981 test; motor torque figures were somewhat higher, up to 23,000rpm, though the final resultant bhp at 27,000rpm was of similar order at 1.12.

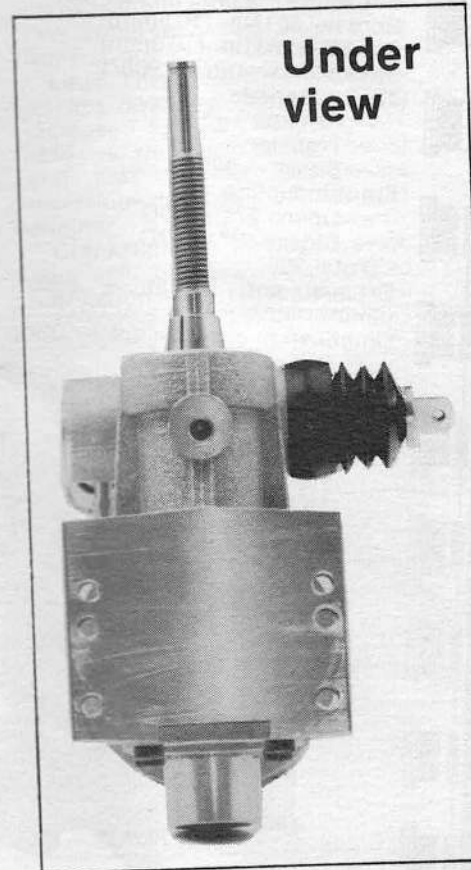
Test 2

Picco quiet tuned pipe (210mm plug to first max. dia.) 50% nitro/10% castor and 8% ML70 synthetic oil. Rossi R8 plug./Carburettor now 9.5mm slide.

As with all previous rear-exhaust tests the pipe was taken back in a straight line from the rear-exhaust outlet (by use of suitable tubings and sleeves) and the resulting length was similar to that obtain-



Under view



able if using the oddly shaped and slightly constricted right-angled manifold supplied with the engine.

At this length, the correct 'resonance' occurred at almost 26,000rpm, i.e. not far short of Open Exhaust peak point. Maximum torque recorded was 64oz in. ... (currently only the very strongest engines are reaching above the 60oz in. mark using this 'standard' equipment).

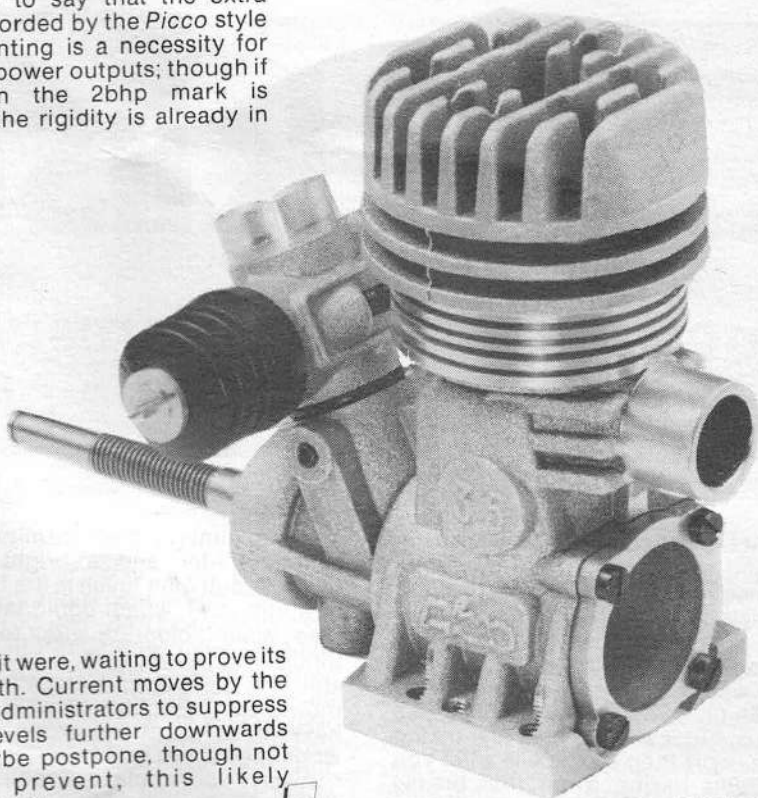
The result was a high 1.74bhp — and as usual this is a corrected figure after having accounted for atmospheric conditions, which on this occasion included a quite low pressure of 969 millibars, together with high humidity around 78% — both of which place restraints on IC engine performance.

Summary

Apart from the power figure itself, the most positive aspect of the *Picco* performance was the rock-steady running at all rpm's; with no points where damaging vibrations occasionally intrude. This fact alone made the test session a much less 'jangling' period than normal.

At this point in the development of the 'Open' Car engine it may be

premature to say that the extra rigidity afforded by the *Picco* style base-mounting is a necessity for very high power outputs; though if and when the 2bhp mark is reached, the rigidity is already in



place as it were, waiting to prove its real worth. Current moves by the sport's administrators to suppress noise levels further downwards will maybe postpone, though not finally prevent, this likely achievement.

HOWES

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INSTANT CREDIT

1/10th BUGGY DEALS

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|---|---------|
| TAMIYA | |
| NEW HORNET | £49.95 |
| DEAL with 2-channel Acoms, radio, Tamiya 7.2v Ni-Cad and mains slow charger | £109.95 |
| WILD WILLY or WILLY'S WHEELER | £74.95 |
| DEAL with Futaba/Acoms 2-channel radio, 7.2v Ni-Cad and Mains Slow Charger | £135.00 |
| PAJERO | £39.95 |
| DEAL with Futaba/Acoms 2-channel radio, 7.2v Ni-Cad and Mains Slow Charger | £99.95 |
| GRASSHOPPER | £39.95 |
| DEAL with 2-channel Acoms/Futaba radio, 6v Ni-Cad and mains slow Charger | £99.95 |
| OPEL ASCONA 400 RALLY | £69.95 |
| DEAL with 2-channel Futaba/Acoms radio, 7.2v Ni-Cad and Mains Slow Charger | £129.95 |
| SUBARU BRAT or LANCIA RALLY .. | £52.95 |
| DEAL with 2-channel Acoms/Futaba radio, 6v Ni-Cad and Mains Slow Charger | £112.00 |
| BLAZING BLAZER 4WD | £99.95 |
| DEAL with Acoms 4-channel radio, 6v 4000mAh Ni-Cad and Mains Slow Charger | £205.00 |
| HOLIDAY BUGGY or SAND ROVER .. | £38.95 |
| DEAL with Futaba/Acoms 2-channel radio, 6v Ni-Cad and Mains Slow Charger | £89.95 |

MARUI

| | |
|--|---------|
| NEW HUNTER | £52.95 |
| DEAL with Futaba/Acoms 2-channel radio, 7.2v Ni-Cad and mains slow charger | £114.95 |
| TOYOTA LAND CRUISER or CJ7 GOLDEN EAGLE | £39.95 |
| DEAL with Futaba/Acoms 2-channel radio, 6v Ni-Cad and Mains Slow Charger | £97.95 |

MARDAVE

| | |
|---|--------|
| APACHE with 7.2v Ni-Cad and fast charge lead | £58.00 |
| DEAL with Futaba/Acoms 2-channel radio | £99.00 |

KYOSHO 1/10th BUGGIES

| | |
|--|---------|
| SCORPION or BEETLE | £75.50 |
| DEAL with Futaba/Acoms 2-channel radio, 7.2v Ni-Cad and Mains Slow Charger | £135.00 |

| | |
|--|---------|
| TOMAHAWK | £86.50 |
| DEAL with Futaba/Acoms 2-channel radio, 7.2v Ni-Cad and Mains Slow Charger | £145.00 |

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

1/10th TUNE UP PARTS

| | |
|---|------------|
| 1536 Kyosho rear shock adaptor. Allows the use of the more efficient larger Kyosho shocks on the rear | £5.50 |
| 1516 Kyosho coil over with two sets of springs (silver-light gold-heavy) to fit CB88/89 shocks, packet of 8 | £11.95 |
| 1517 Shock rebuild kit for CB88/89 shocks, comes with "O" rings, brass retainer and Teflon piston | £5.50 |
| 1527 Kyosho adjustable coil over. Set of 4 springs and adjustable brackets. (Fits standard kit shocks) | £10.95 |
| 1525 Shock "O" rings for Tamiya Kyosho shocks, packet of 8 | £1.95 |
| 1701 Kyosho rear trailing arm hinge. For hinge points in steel | £4.95 |
| Shock oil, contains a special agent to reduce oil leakage. You can adjust the damping by changing the oil. | |
| 3502 Shock oil 10w, 2oz | £1.85 |
| 3503 Shock oil 15w, 2oz | £1.85 |
| 3504 Shock oil 20w, 2oz | £1.85 |
| 3505 Shock oil 30w, 2oz | £1.85 |
| 3506 Shock oil 5w, 2oz | £1.85 |
| MRP Front arms (Scorpion) | each £6.99 |
| MRP Rear arms (Scorpion) | each £6.99 |

ASSOCIATED TYRES ETC.

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|--|------------|
| 3440 Differential with graphite axle | £18.70 |
| 3610 Rear wheels pair | £3.32 |
| 3611 Rear tyres "S" pair | £2.94 |
| 3619 Rear tyres "T" (green) | pair £3.36 |
| 3661 Front tyres "K" | pair £2.63 |
| 3658 Front tyres "S-K" | pair £3.00 |
| 3662 Front tyres "K" | pair £3.40 |
| 3667 Front tyres "T" (green) | pair £2.94 |
| 3501 Reedy 05 motor 35T | £8.95 |

NI-CADS

| | |
|---|--------|
| Demon Sanyo Sticks 1.2Ah (OF) | £17.95 |
| Sanyo Sticks 1.2Ah (NJ) | £16.95 |
| Sanyo (cut-offs) Sticks 1.2Ah (OD) | £17.95 |
| Sanyo 1.2Ah Single Cells | £1.60 |
| Saf: 1.2Ah Single Cells | £1.50 |
| 7.2v 1.2Ah Ni-Cad pack (Tamiya shape) | £13.99 |
| 6v 1.2Ah Ni-Cad pack (Tamiya shape) .. | £11.99 |
| HP7 500mAh pencil Ni-Cads | 90p |

LASER ELECTRONIC SPEED CONTROLLERS

| | |
|--|--------|
| Laser Turbo Compact 1/12th with full power relay | £39.95 |
| Laser Turbo Buggy, with full power relay in forward and reverse | £41.50 |
| Laser Variable Rate Automatic Pulse Charger 1-7 Amps output, 12v battery input | £22.95 |

HEATSHRINK TUBING

| | |
|------------------------------|-----|
| 3.5mm 1/2 metre length | 50p |
| 5mm 1/2 metre length | 50p |
| 6.5mm 1/2 metre length | 50p |
| 10mm 1 metre length | 49p |
| 16mm 1 metre length | 49p |
| 26mm 1 metre length | 60p |
| 37mm 1 metre length | 60p |
| 52mm 1 metre length | 99p |
| 65mm 1/2 metre length | 70p |
| 90mm 1/2 metre length | 90p |

OXFORD

Checklist

Good preparation gets results, so win your races in the pits

LIKE ALL Boy Scouts I was taught to be prepared. As I travel around various race meetings from club level through Nationals to the European Championships, it is clear that not many Boy Scouts took up 1/12th racing.

You will have heard the saying, "that to finish first, you must first finish". It's obvious; but if you are only just taking up the sport then practice is what you need, and having a car that breaks down every heat will severely cut the time you get on the track learning how to drive correctly. Similarly, if by poor maintenance and preparation the rolling resistance of the car is high, then too much power is being lost to friction.

There are two areas to deal with, mechanical and electrical. The most common electrical failures I encounter are the cause of bad soldering and lack of forethought in wiring layout. If you cannot solder then find someone who can and get them to teach you. A good

soldered joint will have the minimum of excess solder and a bright silvery finish. A dull matt finish is the first sign of a 'dry joint' which could fail at any time. When soldering wires to tags or themselves make sure they are held still, don't hold a wire yourself so that it moves as the solder hardens or you have to let go at the wrong moment when it gets too hot!

Always use reputable connectors for cells and motors. Mate 'n' Lock or Tamiya type are good, but ensure the female connectors do not get spread out and give poor conductivity.

Constant usage tends to make the female connector 'bell out' and gives a loss of power due to the high resistance of poor contact. Check regularly and using pliers gently squeeze the female connector back into shape. (see Fig. 1).

Keep wire runs as short as possible and regularly check all your soldered joints for security. Also look to see if wires are starting to fracture next to solder joints, this is a slow process and may go unnoticed until the last strand parts company with the soldered end and your car stops. Always insulate connectors and joints, never have any metal exposed which carries current. Murphy's Law says that if it can possibly short out, it will! If you are looking for the very best output from your car and can put up with the inconvenience involved, then solder the wires directly between the motor and speed controller, eliminating the plugs. Similarly, you can solder one of the wires to the cells directly. Repeated heating of the cells is not recommended, so solder a copper rod to the cell and solder the wire to the copper rod, leave one plug in the system to act as an on/off switch. (see Fig. 2).

I've not tried these modifications personally since my racing is mainly at club level where such installations are inconvenient. Those in the know say it is worth doing at National level races.

On the mechanical side there are reams to be written on correct preparation. The mark of good car preparation is that breakdowns due to

facts within one's control never occur. When first starting 1/12th racing you will encounter breakdowns due to failure of one mechanical component or another. The motto is to repair it so that it will not occur again.

After every club meeting, there is a routine to go through to check the car over to clean certain parts. This makes sure that any faults are spotted quickly, and that things last longer. Examine the steering blocks, king pins and stub axles. The camber angle, castor angle and toe in/out should be as you set them, and the same each side. Sit the car on a flat surface and place an engineer's square against each front wheel to check camber and even ride height (see Fig. 3).

Fig. 1

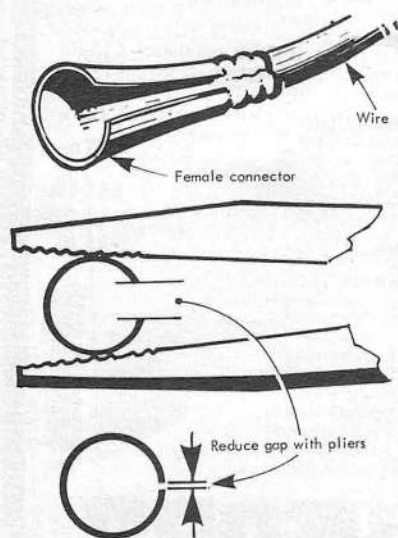
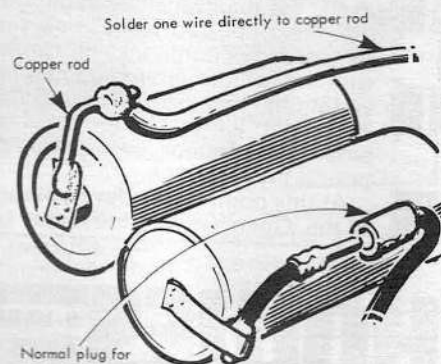


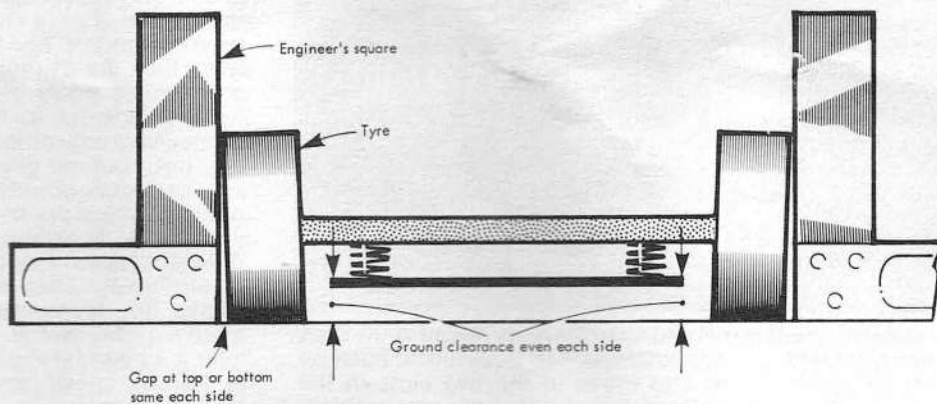
Fig. 2



If you find any irregularities check for bent king pins and stub axles or fractured axle beams, wishbones or chassis's. Next ensure that the steering operates freely without binding. Disconnect the track rod and rotate the steering block. The freest possible movement is required with a minimum of 'slop'. Using the correct screwdriver/s, test all the screws holding the car together for the correct tightness. If any have come loose see if there is a reason, like stripped threads, or if you forgot to tighten them properly! If in any doubt, use a good threadlock compound. Remove the front wheel bearings and clean them out in lighter fuel (*Ronsonol* or similar) to guarantee cleanliness remove one of the shields (See Fig. 4).

Insert a sharp thin blade (scalpel type) into the groove where the circlip is held in the outer race and gently move it inwards. Slide the blade round the inside and the circlip will gently lift out. The shield can now be removed. If you take out the inner shield and are using normal front wheels, there is no need to replace it since the 'tube' of the wheel boss will prevent the ingress of dirt. (See Fig. 5). Always replace the outer shields.

Fig. 3



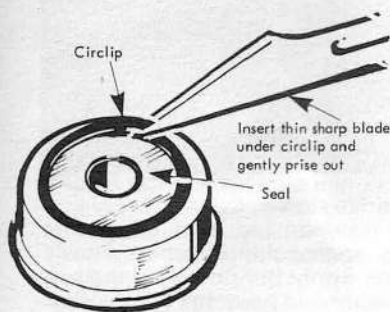
The same method can be used on rear wheel bearings for cleaning, but leave all shields in since it is not possible to enclose the rear axle completely and dirt can easily get to the bearings. While the rear axle is out, clean the differential (see 'Model Cars' June '84). Check the spur gear for damage and replace all gears which have worn or chipped teeth.

Lastly, carefully reassemble the car and check that all operations are as they should be. Regular checking, maintenance and preparation will improve reliability and give you guaranteed track time.

Laser update, update

These things always seem to happen to me. I must have 'mug' written on my

Fig. 4



face; or some other prominent feature which marks me out for special selection by those in control. If you want to make someone look silly try Winton, he's OK.

Undaunted by this handicap, I bring you news of the latest products from Laser. Yes, I know we only talked about them last month but 'those in control' saw fit to send Glyn Peglar to me with the up-to-date range and information less than a week after the last article went to press!

Glyn Peglar was part of *Laser Electronics* but recent events mean he is now on his own. As a result, the range of *Laser* products have been rationalised, and this will be of great advantage to you and me, since it also means better service. The range is now four major products, two chargers and two speed controllers. The *Laser 'Compact'* speed controller is familiar to many 1/12th racers. There is still little competition to touch it and it is becoming more popular all the time. People clearly know a good product when they see one. I can only repeat previous remarks about this, it is excellent and in my experience very reliable. Price £39.50.

The *Laser 'Bug' Speed Controller* is aimed at the Buggy market. Glyn is one step ahead here as he has designed the unit to work from up to seven cells, proving care is taken with the motor wind used. Should we follow America the *Laser 'Bug'* owners will be OK to run seven cells straight away. The use of three relays to improve reliability obviously works since friends who also run buggies describe the 'Bug' as reliable, indestructible, or bullet proof! Priced at £42.00 for the 'Bug' Mk. 1 or £39.50 for the 'Bug' Mk. 3' without reverse override relay. The 'Bug' is designed to fit neatly into the *Tamiya 'Frog'* chassis frame to give maximum protection. It will also neatly fit any other buggy which has more space than a 'Frog'.

Both these speed controllers have been on the market for almost five years. Glyn can upgrade old controllers to the latest specification for much less than the price of a new one, but you should obtain a quote from him first.

On the charger front the old resistor based series have been dropped from the range. The two units now available are both pulse charges with all solid state internals. There is a choice of variable rate pulse or fixed rate pulse, both with 1/2 amp trickle charge and 9.5 volt cut-off. The charging methods

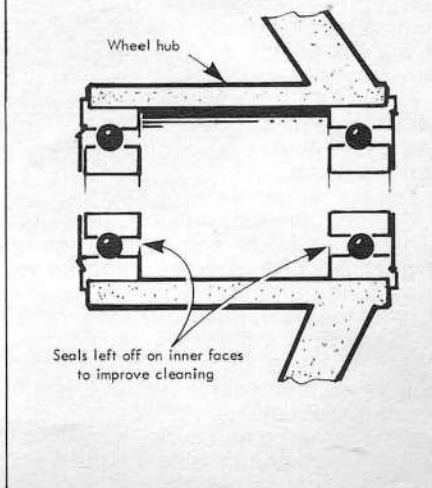
given in the last article are those recommended by Glyn, you will need to hold the start button 'on' to peak cells.

Being all solid state now, the heat problems are not critical any more. Prices are £20.00 for the fixed rate devices and £25.00 for the variable rate units. These are still the best quality of value items on the market bar none!

Glyn is currently experimenting with MOSFET speed controller and we will bring you news of this as soon as one is available for test. It is his intention to offer conversions to 'Compact' speed controllers as well so that costs are kept down for the latest technology.

Glyn welcomes trade enquiries for any of these products. Anyone wanting to return *Laser* items for repair, service or update must enclose £1.00 to cover p&p. All cheques, POs, money orders, etc., should be made payable to Glyn Peglar and sent to 230 New Road, Booker, High Wycombe, Bucks. HP12 4RG. Quote and other information can be obtained from Glyn on 0494 444238.

Fig. 5



On The Carpet

IN THE LAST article on the *Tamiya* 'Porsche' 1/12th scale 'Racing Master', we outlined the equipment you require to start your 'career' in twelfth. This section will deal with the setting up of the car, and the first outing to a club.

The excellent instructions give details of how to set the car, showing the effects of moving the rear damper backwards and forwards along the mechanism plate, and how to set the front end so that both front wheels rise together. I found that this was not as easy as it looks, but after some trials came up with the following method which gives easily repeatable results.

Disconnect the rear damper rod balljoint from the mechanism deck. Using the combination spanner provided release the post on the mechanism deck and move it to the furthest forward position. Check that it



Porsche 956

Pete Winton takes a second look at this introduction into 1/12th scale racing

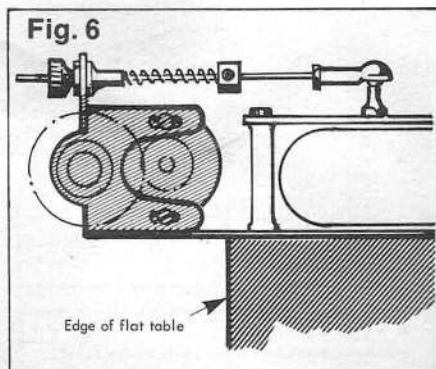
does not foul the resistor. Tighten the post and replace the ball joint.

To set the spring on the rear damper rod, remove all the wheels and place the car on a level, flat surface. A kitchen or dining room table is ideal. Allow the rear pod to overhang the edge (Fig. 6), and then move the collar so that all play between the springs and its two stops is eliminated. Do not compress the spring at all. Do up the Allen screw on the moveable collar.

Replace the wheels, fit all the items necessary for racing (excluding the body) and place the car on the surface you are using.

The car should sit level, and the rear pod should be level with the underside of the chassis, or angled up slightly (Fig. 7). Now lift the front of the car as shown in the instructions. Before moving the mechanism plate as shown, drop the front wheels over the edge of the table so as to remove all weight from them. If you don't then setting will be more difficult.

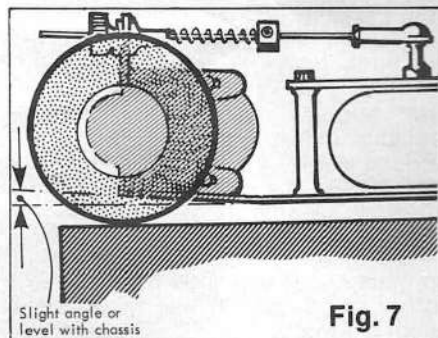
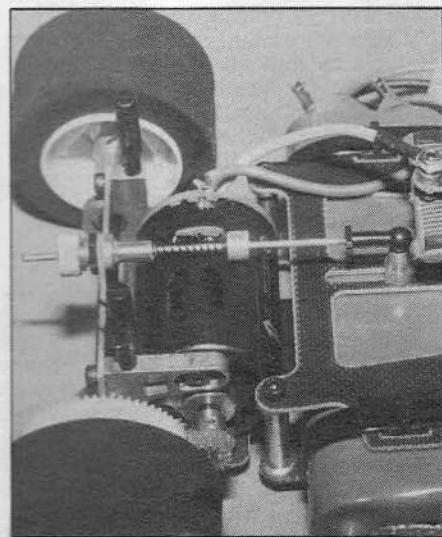
Now fit the body. There should be at least 3mm clearance between the tyres and the wheel arches. Before you rush



off and raise the body height at the rear, note that the rear body posts must be free to move in the two slots in the body. This is so that the rear suspension can 'work' whilst the car is in motion. If after raising the rear body to clear the tyres the large body clips trap the body when fitted (which they did on my car) then the only other solution is to carefully cut away the top of the wheel arch on both sides to clear the tyres. Use a sharp scalpel or sharp scissors. The front of the body does not work in this way, so adjust the body clearance as required. Now you are ready to go racing.

to only half the width of the front tyres (you can believe this since I got caught by my own recommendation, and had to change). Leave this to 'dry' for at least 15 minutes. The first time you use tyres they are at their worst. The car may handle oddly at any time during the first race, ignore this and make no suspension adjustments at all. During the heat before yours, remove any excess treatment with a dry cotton rag, until the tyre is dry to the touch. When your heat is called, check that the previous person using your frequency colour has switched off; switch on your transmitter; plug in the cells; and turn on the radio switch. The servos will 'glitch' once. Set the transmitter trims so that the speed control is at neutral, and the car travels in a straight line 'hands off'. Setting a small amount of steering 'toe in' as recommended in the instructions helps straight running. The first thing you will notice is that this car has an enormous turn of speed. Driving slowly using only part of the resistor seems to do no damage, but don't touch the resistor after a race if

Below: the rear motor/axle pod of the 'Porsche' showing the rear damper adjustment.



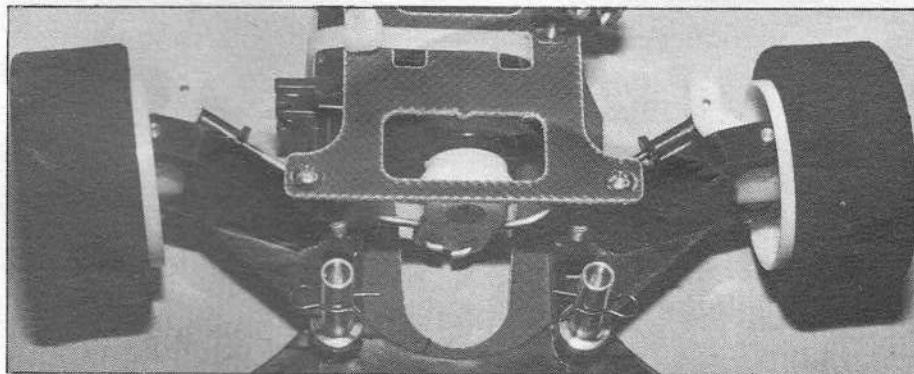
Track time

On arrival at the club, put your cells on charge. Whilst they are charging, apply your tyre treatment. On the rear tyres, using a medium sized paintbrush, apply the treatment across the whole width of the tyre. At this point I must apologise to anyone who followed the advice in the last article to treat the front tyres as described. You will no doubt have found that the car tended to spin out in corners. This is because at this width there is too much grip on the front tyres. Apply treatment

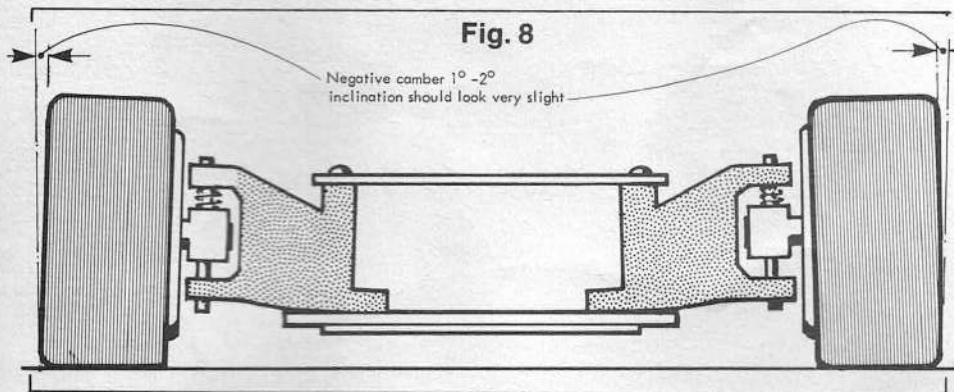
you do drive slowly, it can get very hot. Almost any driving technique that includes approaching corners slowly will work. Apply the power on the exit to the corner and point the car towards the next one. After the third or fourth run you may wish to change the handling characteristics. The most marked effects can be made by varying the treatment applied to the front tyres. The greater the width of treatment the twitchier the car becomes. At $\frac{3}{4}$ width, the car will tend to spin out in the corner (oversteer). Between $\frac{1}{3}$ and $\frac{1}{2}$, the car is nice and stable, tending towards a lack of steering response (understeer). Now is also the time to check that all the screws and Allen bolts are still tight. Reset any that have become loose and make a note to keep an eye on these in the future.

having been sent this car for review I must admit to thinking that it was going to be just a kid's toy, and about as relevant to 1/12th racing as a hairbrush to Duncan Goodhew. I'm never wrong, but this time I was mistaken. On its first outing at the local club I held FTD for one round, qualified for the A-Final and won it. That soon raised interest and everyone wanted to know what it was.

The signs are all wrong. The wheelbase is $\frac{5}{8}$ in. longer than the currently accepted standard which should make it very difficult to get round corners. There is a lot of lateral flex in the chassis, which should suggest the same (which is why I initially suggested lots of treatment on the front tyres). It is also a bit heavy



Above: close-up of the 'Porsche' front-end. The standard set-up will be replaced with a fast-acting mini-servo to give more linear steering response and also save weight.



(21b. 20z.) which should make it difficult to get good acceleration. Needless to say it corners very well, turning inside any current car if care is used on the approach to a corner, and accelerating well, due mostly to the performance of that motor.

Cornering was improved by setting the front wheels with a small amount of negative camber (Fig. 8). To achieve this loosen one of the screws (A2) at a time and move the wheel assembly in fractionally until the front wheel 'leans' in relative to the back wheel. Repeat for the other side, and re-check that both wheels rise at the same time. If they don't, and are only marginally out, this seems not to affect the handling at all.

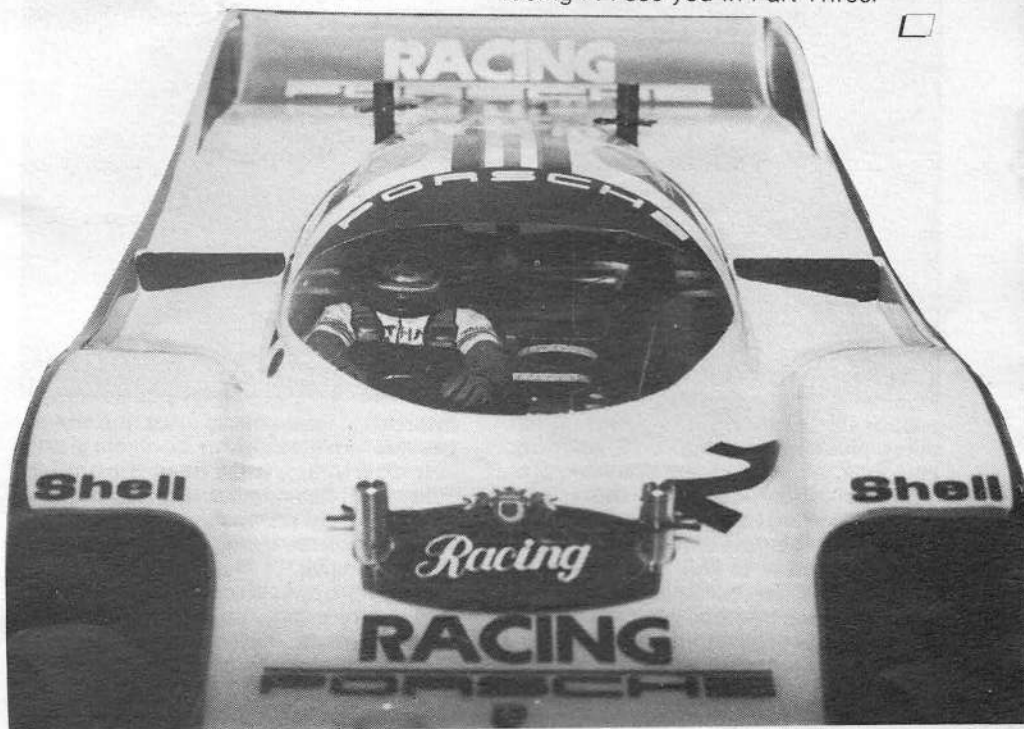
Every silver lining has a cloud, and in this case it is the differential. The excellent design has somewhat failed in its execution, due to the amount of slack in the system. This causes the car to judder when power is applied on the exit of a corner. We will investigate fitting a Schumacher or Associated differential and report on our findings. On my car the spur gear lasted only one heat before snapping a tooth clean off. The car ran OK if noisily for the next three heats, and at the end of the evening had lost four teeth. A replacement was obtained which has lasted ever since. The tyres were excellent, showing minimal wear and providing plenty of grip.

I used a normal 12 volt car battery (best carried in an Addis plastic bucket) as a supply to my Laser pulse

charger. Use a DVM (Digital Volt Meter) for monitoring the state of charge in the cells. As the cells charge up, the voltage rises to a 'peak'. At this point the voltage shows a steady reading. Charging beyond this is of no use since it causes damage and the cells get hot. Depending on the age of the cells this voltage will be between 9.50 and 10.30 volts.

Small fishing tackle boxes are used to store the small bits and pieces (spares) which are supplied in the kit, and a range of tools. As a minimum, carry the small tools supplied in the kit, plus a good screwdriver (that is one which fits the screw heads), and some insulating tape. If you intend to take this seriously then add some small metric spanners, a set of watchmaker's screwdrivers, a flat Swiss file, and a small tube of superglue.

Tamiya seem to have done it again. Encouraged by this outing I am now going to fit the diff outlined above, an electronic speed controller, and a fast acting mini-servo. At the risk of the odd gibe or two we will try and do battle with the big boys at a decent local meeting. Those of you already running Tamiya 'RM12s' may like to send in your hints and tips for publication. I would be most interested to hear from anyone running the car on silicon, a small reward awaits the best contribution in this area. Meanwhile, good racing... see you in Part Three.

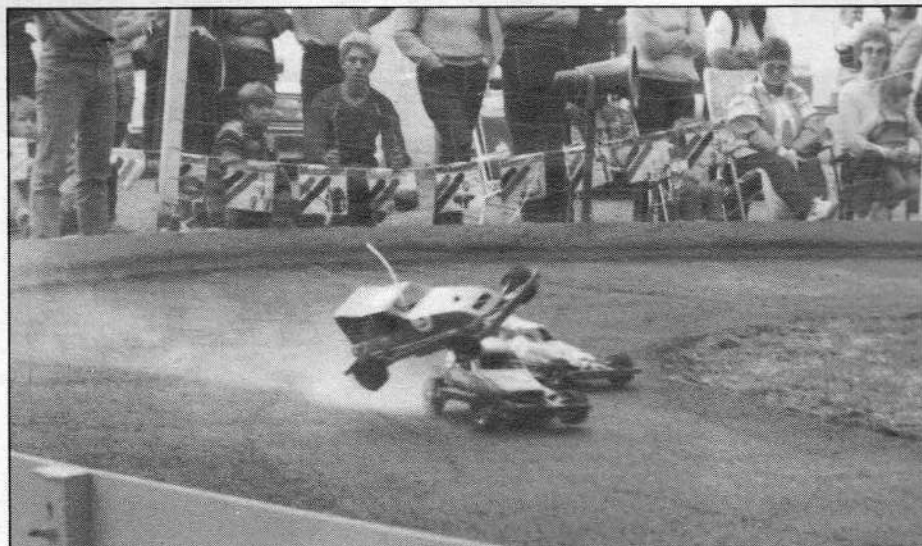


Racing Stockers

The 1/12th and 1/8th stockcar racing world in focus

AS I WRITE it is towards the end of November, a little earlier than usual, as the Editor is off for a couple of weeks well earned rest, or so he says, with the result that 'copy date' has been brought forward.

Talking about organisation reminds me that I've just had the list of



Above: exciting racing action as three 1/12th scale electric stockcars battle it out for the inside line through the turn. Left: 1/8th scale IC racing has its share of thrills 'n' spills too!

proposals for the RSCA AGM which takes place at Leicester on December 2nd. I am pleased to see that no major changes are proposed to the racing rules. There are however two proposals to increase the cost of the 1/8th kit, one to £50 the other to £55. The maximum kit price has been £45 for the past two or three years and has resulted in little scope for development or modification. I shall await the result of the voting with

interest to see which price the membership have opted for.

In past years it has been the engine ruling that has come under fire, but this year the only proposal on that point is one to exclude the O.S. engine as it is too expensive.

Other proposals on the 1/8th side are really very minor, but I did notice one that suggests that major Championship winners should not fall below Red

grade at any time. This has been a problem for some drivers who like to travel, and as a result do not score points on their own home track which are counted for grading purposes. They are then left in an embarrassing position when they lose a major title.

On the 1/12th side there were only three proposals, one of which calls for the opening of motors from the first three finishers at National Meetings.

The results of these proposals will be made known at the AGM, as all members of the RSCA should be voting by postal ballot and I will pass them on to you in the next issue along with any other information.

One other thing that has pleased me this year as a Club organiser is that the 1/8th fixture list showing dates of major meetings has come out in good time, enabling people like myself to sort out our domestic programme around these major events. This should put an end to the problems that usually arise at the AGM and after, when you realise that your dates clash with someone elses. It all points to good planning and as I always say, indicates some of the problems associated with organisation.

Mardave MkII 1/12th Electric

Cries of 'Oh no! Not another one!' greeted me as I walked in with that smartly decorated box announcing that I have been tempted yet again. This time temptation came as a result of the 1/12th meeting scheduled for Wembley on January 1st. Knowing that I was going to be present it was too much to expect that I could be there without a car, and Chris in his November 'Starting Point' and made the construction side look so easy, I just had to have a go.

Below: Mardave 'MkII' electric stockcar, this one belonging to Wes Raynor, who is the man behind Mardave racing products.



The Mardave comes complete with a four-cell Ni-Cad battery which I had enlarged to a six-cell pack. In the box the chassis, undershield and body come as loose items, everything else is packed in plastic bags or in the case of batteries, a jiffy bag. There is a written set of assembly instructions, which take you step by step through the stages of construction and these together with the exploded diagram sheet should enable anyone to construct the car without difficulty. On the reverse of the exploded diagram sheet are some photos which help to check all is as it should be.

The first task is to locate the rear suspension arms on to the moulded nylon chassis, plus the rear axle and drive cog, then bolt up the undershield and front axle beam. Within no time, and following the instructions, one reaches the time to place the batteries in position. First however, the fiddly work, as the top of the battery cover also serves as the location for the speed controller servo, and has to be cut to fit. This did not take long and meant it was time to fit all the radio gear into place, as well as the speed controller. This latter item is designed to fit directly onto the servo with double-sided tape provided in the kit.

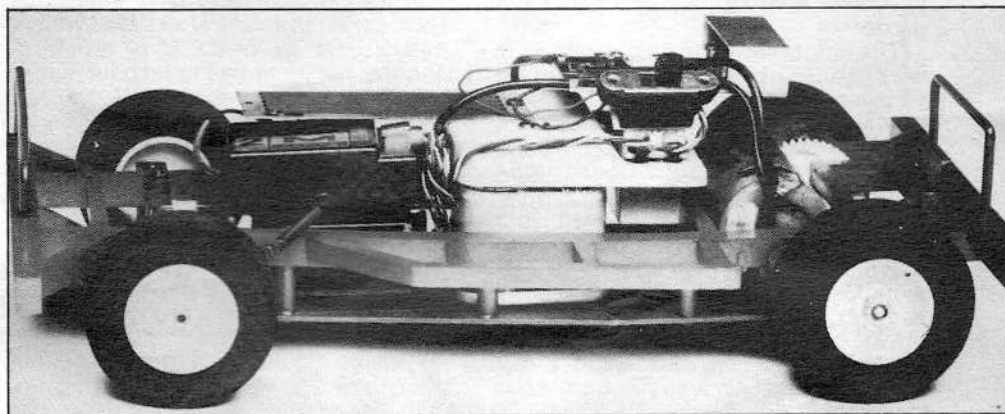
Before sticking it into position it is as well to check the positioning of the board, to ensure it will fit into the body when you get round to that stage. Wiper contacts have to be bent to shape, but all details are clearly laid out in the packet, which also contains a useful picture of what the finished product should look like. The steering servo is located in position using double-sided servo tape and packing to the undershield, the packing is required to lift the servo sufficiently to allow the servo arm to move without catching the undertray. Wire is provided for all linkages, pre-formed for the steering linkages, but you have to do your own thing for the connection between servo and servo-saver.

Mardave suggest that the wire is made with a kink in it, so that final adjustment can be made by bending or straightening this kink. Velcro tape

having found an old body post (from my days of racing a 1/12th Lectricar saloon 'tank') which I managed to squeeze in just in front of the steering servo/receiver block.

So it was out into the garage to check if all worked, which to my relief it did. It also reminded me that I still had the front and rear bumper to bend to shape and locate, which although did not take me long did make me wonder why Mardave don't do it before they send out kits. I feel sure it would be easier for them to bend them to shape, rather than expecting people to be able to do it at home from a diagram that is not to scale.

Cutting and painting the body was another evenings work, but I must admit to feeling quite pleased with the finished product. Now all I am waiting for is a selection of Prowler tyres, and for January 1st to arrive, when no doubt the 'experts' will show me the way around the Wembley track. Still, more of that in the next issue.



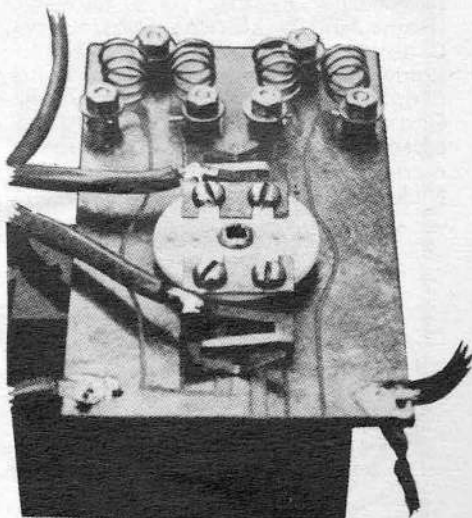
Above: the 'MkII' without the body on to show the radio gear, motor, speed controller and Ni-Cad pack. Below right: close-up of the speed controller board.

(included) is applied to the steering servo and receiver, as this is the method of location. It seems to work on the bench, I wonder if it will on the track? It is suggested that the Rx battery is located in a cut-out slot at the rear of the car, and I found that by cutting a slot in the rear of the chassis alongside the rear body mount, I could hold the Rx battery in position with a tie wrap.

Wires were quite easily soldered into position by following the instructions, but this is a job I would not recommend for some of our younger modellers.

All that now remained was to plug in the radio, loop the aerial out of the way onto a piece of plastic card provided and attach to the battery, and work on the body.

The body is attached at the rear by a neat body pin, but at the front Mardave still persist in offering the spring attached to the chassis by a screw looped over another screw on the body, one either side. I must admit to



The Mardave can be bought from most model shops for around the £40 mark, but remember it comes in four-cell battery form as standard, so you may need a couple of extra batteries, which are about £2 each. The kit comes with a charging lead, but of course a twelve-volt car battery will be needed to charge it up from during a meeting. ▽

Taking Stock

1/8th Team Meeting, Leatherhead, October 14th

Having thought that I had written the last report of the '84 season for the 1/8th drivers; what should arrive through the post, but a report from Wendy Lawrence. This one, a team meeting organised by the southern drivers, and staged by the **Chessington Radio Car Club** at what is to be their new venue at Leatherhead.

It was a bright sunny day as the six teams of drivers arrived to battle it out over a format of three heats per driver a final for the fastest lap scorer from each team and a half-hour relay.

(Reminds me of the Unity Cup days). As some drivers did not turn up the team list was **Chessington, Brighton, Bournemouth, Haywards Heath, Chessington/Brighton, Hastings/Haywards Heath**. Drivers stayed in the same heat all the time, and the heats were arranged so that red grade drivers raced against each other, through to white grade drivers. Each team had a specified number of drivers in each grade.

The points situation between rounds was that after the first round Chessington were in the lead with 28 points, followed by Brighton with 24, and Haywards Heath with 22. At the end of the second round Chessington were still in the lead with 55 points, Haywards Heath have moved into second place with 44 points and Brighton had slipped into third spot with 33. These positions remained the same at the end of the third round.

Next on the programme was the final for the six fastest, or should I say highest points scorers, one from each team. This brought out Mark Ticehurst (Haywards Heath), Dave Mawson (Haywards Heath/Hastings), John Cleaves (Bournemouth), Jesse Baldwin (Chessington), Nick Bunn (Brighton) and John Cork (Brighton/Chessington). This proved to be a good close race with Nick and Mark both recording 52 laps, the verdict going to Nick.



Above: the victorious Brighton team, winners of the Chessington team meeting. Left to right: Dennis Crowe, Nick Bunn, Tony Bunn, Graham Lawrence, John Allen.

So at this stage of affairs Chessington were still in the lead with 84 points and Brighton and Haywards Heath neck and neck with 80 points each. It was clear that all was going to rest on the relay, which I know from personal experience can be very hectic and needs good team organisation. The idea of the relay is to keep one team car on the track at all times, which means that as one car is removed another team car has to take its place. Yes, I know it sounds simple, but remember radio gear for one car has to be turned off before the next team car can be turned on! Not always quite so easy in practice. The team that appeared to have things sorted out more than the others was the Brighton team, which was reflected in the scores when they were announced thirty minutes later. They were 60 laps ahead of Chessington and 30 ahead of Haywards Heath, in fact the Brighton team had 298 laps, Haywards Heath 260, Haywards Heath/Hastings 239 and Chessington 238. It seems a pity perhaps that one lap should be the difference between third and fourth places after half an hour, and no doubt the Chessington team will be talking about that one lap for a long time. But it did mean that the final scores were Brighton 98 points, Haywards Heath 95 and Chessington 93.

Wendy asks me to pass thanks onto all the drivers who took part, especially thanks to Dave Glasscock and John Cole for running the meeting. The Brighton performance was the more creditable when you realise that they only had five drivers in their team and not six. They are looking forward to defending their victory at Brighton next season.

Bits and Pieces

Puma Racing have been supplying useful odds and ends for the stock-car driver for some time. Two new items that have just caught my eye are a throttle linkage kit for £1.50, and a body fixing kit for also £1.50. The latter comprises a short front post, two rear stubs, nylock nuts and three body clips. Let **Puma** fix your body!

One thing that has surprised me during the past season's racing is that no one has come up with a brake kit for a stock-car other than that of using the old **Mardave** band on clutch drum arrangement. Come to think about it I have seen very few cars actually fitted with brakes, despite them being made legal. I wonder if the price increase of the kit, which looks to be inevitable as mentioned earlier, will encourage someone to develop something specifically for the stock-car, perhaps a disc working on the rear axle or pulley?



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Slot Car Acceleration



Above: the Scalextric Parmalat Brabham takes on a very scale appearance as it circulates the circuit.

likely to pick up dust and fluff off the floor which can be a nuisance with the cars.

The maximum practical size for a single baseboard is 8ft. x 4ft. The material should be 12mm thick plywood for best results. I do not recommend chipboard because it is too easily damaged in movement and the plywood will accept screws better. By all means have a larger baseboard if you can leave the circuit permanently erected. Two piece layouts can be difficult to assemble so that the joints are level and the electric supply is satisfactory. I have found that with a little careful planning a good track can be

Homeset racing

The easiest way to get into Slotcars – if you make the right preparations

THIS SUBJECT is most interesting as the intention is to cater for the younger members of the readership. You may have considered in the past the possibility of obtaining a slot racing circuit and cars for the younger members of your family or even for yourself. Nowadays there is only *Scalextric* and *T.C.R.* (Total Control Racing) sets on sale in toy stores and catalogue clubs. The *MRRC* Products are on sale in some model shops and by mail order. I consider the *TCR* system to be too finicky for the sort of racing I have in mind whilst *Parma* only make a few cars and controllers which are relevant in this context.

There are several important considerations to be considered before selecting an outfit.

The first consideration is the ages of the operators. *Scalextric* state on the packaging that the contents are unsuitable for children under 3 years of age. Basically I feel this a correct assessment. However if you family has children both older and younger than that

mentioned then a certain amount of trouble is bound to arise! With some amount of organisation and a willing spirit this can be overcome. The main thing to remember with any of these sets is that the components are not unbreakable and without adult supervision things can get damaged very quickly.

The second consideration is the amount of space you have to operate the outfit. I strongly recommend that whichever set you intend to obtain that the track sections are firmly attached to a rigid baseboard. This will do several things.

1. Will speed up getting the outfit set up for operation.

2. The track sections will not be damaged by repeated assembly and disassembly as the track joints are delicate and will not stand rough usage.

3. The electrical continuity will be better with a fixed circuit.

4. It will ensure that the joints between track sections will mate more accurately.

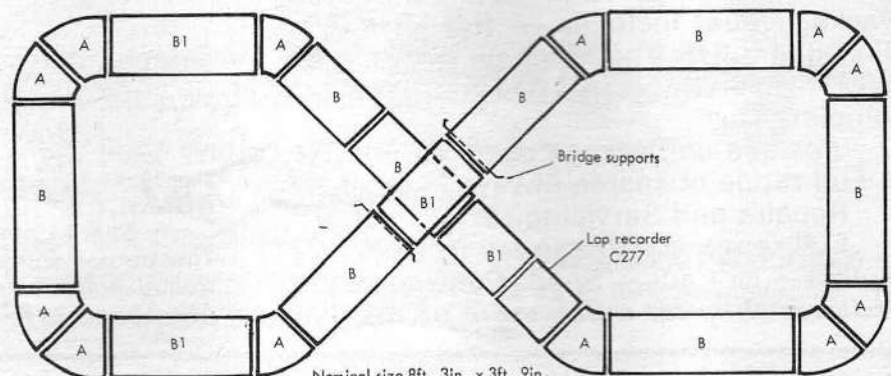
5. The track sections will be less likely to distort if fixed in place.

6. The track will be less

accommodated on a 8 x 4 sheet.

The circuit shape for best results should have as much straight track as possible in the size and the corners should be as wide a radius as possible. Do not fall into the normal design trap of trying to make the shape difficult to drive on. This is normally done by making tight corners and short straights to get as much track in a given space. This will produce a circuit which will be irritatingly slow. I have always found that the simple looking, open type of circuit will be good fun because the

Fig. 1



Nominal size 8ft. 3in. x 3ft. 9in.

KEY A sections = C151
 B sections = C160
 B1 sections = C159
 Lap counter = C277
 Standard curves 12 required
 Straights D 13 3/4" long 90ff
 Straights C 67/8" long 3 off

cars can be driven to the limit of their performance. The moral is to keep it simple for best results. I am of the opinion that hump-back bridges, skid chicanes and loop-the-loop gimmicks are a waste of time. What Slot racing is all about is drivers racing against others in an interlocked battle of wits. The better the circuit the quicker the drivers will have to learn to drive to enable them to win. The use of well-placed, normal, chicanes will teach the driver the lesson of aggression and discretion!!

It follows that from the above views the cars should be able to perform up to the design limits of the circuit. This I am afraid to say is not the case with a lot of the cars on sale today. The selection of the correctly performing cars to suit the track is most important. The same considerations should be applied to the hand controllers and power supply.

or *Parma*. The power supply should incorporate a battery to smooth all the AC ripple out of the transformer rectifier unit. The battery need not be a full-size car type. I have found that a motorcycle battery will give good results with the motors normally used in this type of racing. In fact with youngsters in mind the removal of the mains voltage from the system is a good idea. Sod's Law will ensure that the mains power unit's cable will not reach into the outlet socket without an extension lead. The battery only system can be contained in a sealed box to prevent inquisitive little fingers from coming to any harm. A fully charged battery should give several hours of racing with no trouble. It is advised that a fuse link is incorporated into the system for safety. A fuse of 5 amps should be enough for these cars. The fuse holder can be a car or motor bike item.

If your children are very young, may I suggest that you restrict the power to the cars until a degree of proficiency is attained. The best starting point is to trim the cars' speed so that with the hand controller set full on, the cars will circulate the track without de-slotting on every corner.

An amusing aside here is the case of my own son who started racing Slotstox at 2 years old. He used one of my old Nationals winning chassis with a standard motor. The car was very easy to drive with no handling vices. To prevent him losing control on every corner the hand controllers travel was restricted by the simple procedure of fitting slot car tyres under the operating plunger. The secret was to trim the controller accurately. The amusing part of this was that the boy finished every race and scored points which put to shame a lot of much older people in the club.

The same idea can be used for a home set but the controllers must be up to the job. The other way is to insert in the track power feed a resistor of approximately 3 ohms.

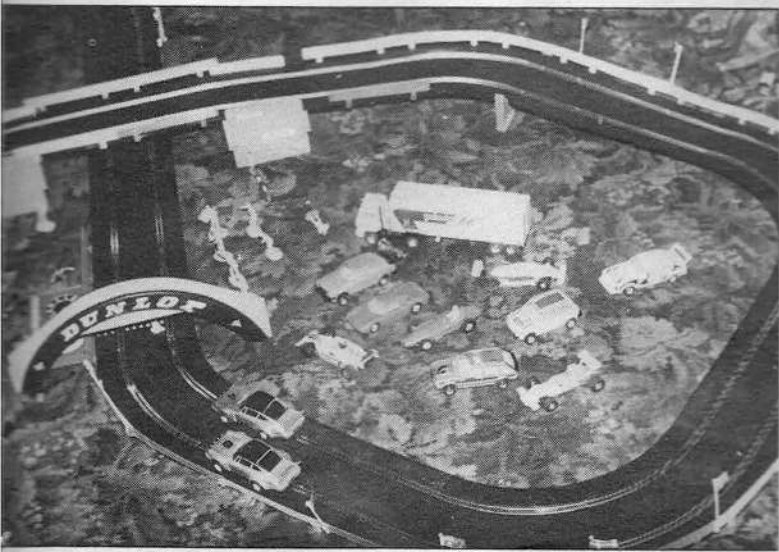
Regarding the track layout shape, may I suggest the accompanying design (see **Fig. 1**) which is especially tailored to fit on an 8ft. x 4ft. board. This layout, if correctly assembled, will give a fast, difficult challenge to the tyro driver. Do not be deceived by the simple shape it will take a lot of practice to master.

There are several methods of fixing the track sections to the board including using contact adhesive. This method is quick and neat.

Assemble the circuit then position it on the base board. Mark around the outside and inside of the track with a soft pencil. I suggest that you assemble the corner sections together with a straight piece of track section at each end.

Apply the adhesive to the corner pieces not the straight pieces. This will allow the whole circuit to be assembled. *Dunlop 'Thixofix'* is a contact adhesive which will allow a certain amount of positioning before the final jointing is achieved. There is no reason why small nails or screws can not be used. A point here is to place the fixings close to the edges of

Left: the pits filled with cars of all different types and sizes. Below: an ideal circuit layout, wide sweeping corners with plenty of straights.



Another important consideration is the aspect of obtaining the best value for money in respect of a given circuit selection. It may be found that it is more economical to assemble a circuit where the track sections are one make, the cars, controllers and power supply are other makes.

When it comes to choice the largest range of track sections is *Scalextric*. Cars may be either *Scalextric*, *MRRC*, *Parma* or even Spanish *Scalextric*.

Controllers in my opinion are a choice between *MRRC*

Slot Car Acceleration

the track. This will prevent the sections distorting. The standard bridge supports are poor, may I suggest that you assemble new supports from wooden blocks. To obtain a smooth camber progression, the entry and exit of the bridge section should incorporate some wedge shaped pieces of wood. Care here will improve the flow of the circuit to a very high degree. One point to watch is to make sure that the clearance under the bridge will allow all the vehicles to pass. This may seem obvious but the *Scalextric* 'Road Train' lorry will only just pass through the standard bridge supports.

The importance of correctly positioned barrier fencing cannot be overstressed. I recommend the whole inside and outside edges of

'feathered' off so the cars will not catch on the fencing when passing. Advertisements can be cut out from motor magazines, etc., to give your circuit the authentic touch. These cut outs should be fixed firmly to the fencing with contact adhesive.

The standard power connections are good and can be adapted to allow alternative controllers to be used. The standard racing connectors uses 2 amp, 3-pin plug and sockets. These are however difficult to obtain. I suggest you try the trade counter at your local electrical wholesaler; they are normally very helpful in obtaining obscure parts. For a 2 lane track you will need two plugs and two sockets. These will have to be wired in accordance with the

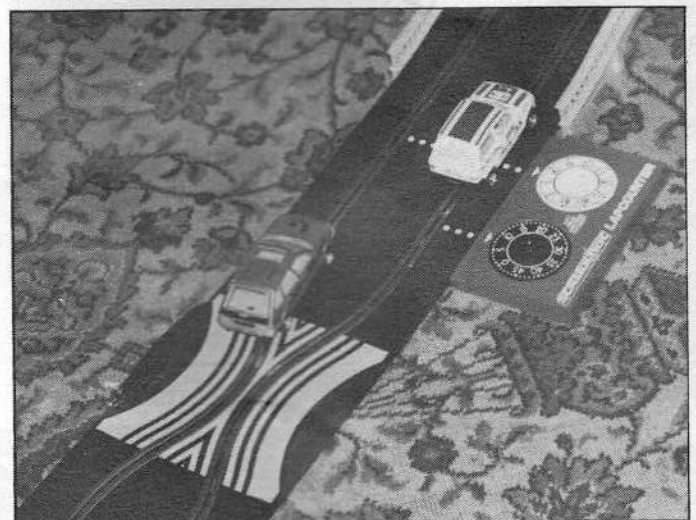
The best solution is to use *MRRC* 15 ohm, Hi-Speed controllers. The other benefit is the fact that the track can be simply wired for dynamic braking. This principle is when a slot car freewheels to a stop, performing like a dynamo. If by the use of a simple switch on the controller we short out the motor on the overrun it will stop much quicker. This will add another dimension to the racing. As the racers improve in technique then a reduction in controller resistance can be tried say 10 ohms. When people start off, the racing should be made as easy as possible.

A lap recorder is a must if you intend to carry out some races. It will settle arguments about race results. The new *Scalextric* lap recorder works well but should be positioned so that the cars are moving quite fast as they approach the counter section. Do not site the counter after a bend or hazard. The mechanism needs a lot of force to work properly and can stop the

a car leaves the slot. This will improve your racecraft and make you almost as rough a driver as me! People soon learn not to overtake you on the outside of corners if they know that they will get nailed. Make a race winner earn his victory.

Turning to the cars I can remember back 20+ years when *Scalextric* cars were excellent performers. The current crop are produced in a different economic climate and straight out of the box the cars' performance does not live up to my memory. The trouble is mainly the tyres. They are noticeably out of round and a dramatic improvement can be made by carefully sanding the tyres round and flat. This problem with the tyres could be easily overcome at source. For the price the cars are sold at it is not good enough. The other problem is the cars turn over too easily when cornering, this can be improved by the addition of weight to the cars, either lead strip or, safer for the young ones, *Plasticene*.

Below: do not place hazards just before the lap-counter so as to maintain the car's speed and thus ensure the lap is recorded.



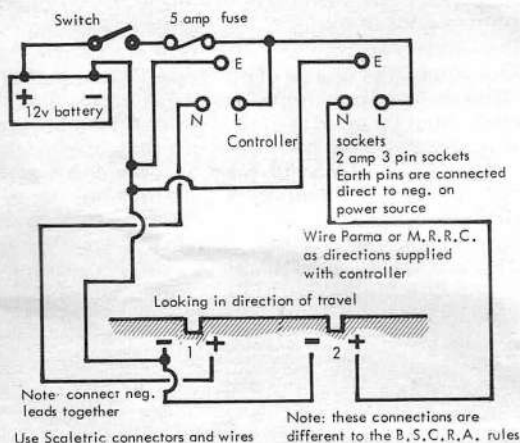
cars unless they are going fast.

If more than two people want to race then let each driver run for two minutes on each lane. Add the scores together and the two people race off in a final, say over 50 laps. To obtain a fair result, start and stop the race by turning the track power switch off or on. To liven things up, try giving a penalty of one lap every time

We have track tested many *Scalextric* cars with the following conclusions.

The 'Road Train' is liked by my young ones because it is very noisy and swings all over the place when driven fast. The Grand Prix cars handle quite well when looked at regarding tyres and ballast. The 'Metro', 'Escort' and 'Maestro' did not handle as well as the GP cars and were not liked by the

Fig. 2



the circuit are lined with a safety fence. The early *Scalextric* sets used a good idea where the barrier was flush fitted to the edges of each track section with spring clips. The current method is not good because it is a fiddlesome operation to install and worst of all reduces the room on the track for the car to operate. Once again a home brewed solution is the answer. With the aid of plastic card sheet and contact adhesive excellent barriers can be produced. It will be found helpful to vary the height of the barrier at different parts of the circuit. On the outside of corners cut the card 1 1/2 in. wide and anywhere else make it 1 in. wide. The joints in the fencing should be

diagram. (See Fig. 2) The sockets should be correctly fixed to the baseboard. Think carefully where you intend to site each socket, it's a good idea to site them at opposite sides of the circuit so that the drivers do not obstruct one another.

The standard hand controllers whilst they will do reasonably well are not the best tools for the job. It is difficult to restrict the travel as discussed earlier. The resistors start to smoke when held at an intermediate setting for more than a few seconds. This is not serious it is only the coating on the controller resistor burning off with the heat. If this happens, stop running the car for a time until the controller has cooled down.

kids. I found them hard work to drive well, the roadholding is poor. The 'Capri' was better and the Le Mans Porsches were quite fast in a straight line but once again very difficult in the corners. Out of the sample cars the kids liked the Lorry and the Ligier GP best, the others would not corner well enough for their skill level. I suggest with better tyres and some engineering on chassis a 500% improved product would result. It might be argued that this product is intended to be a toy for the kids but that is no excuse for poor workmanship. These sets are not cheap to buy and people have a right to good value for money.

Turning to the Spanish Scalextric Cars these look to be a thoroughly competent range. I gather they use the excellent Tri-ang motor, a lightweight painted body



Above: another Formula 1 favourite from Scalextric; this time a Saudia/Leyland Williams FW07.

cars are good value and are also good competent replicas of the real car. Steering is fitted but is not really needed.

Now we get to the cars that Dad can have some fun with when the kids are in bed. The Parma '412' cars will really

binding. The blade depth will certainly need reducing. Be careful with the trimming, remove a little at a time until the car runs without binding. These cars are not expensive but on a fun level are unequalled.

To summarise. Use Scalextric track sections, MRRC controllers and which ever cars take your fancy. The best of luck with the racing and if you have any questions I will try to reply via the magazine.

Suppliers

Scalextric — most large model shops and toy stores. **MRRC** and Spanish Scalextric cars. Barry's, Ashley Road, Boscombe, Bournemouth.

Parma — Helger Racing, 18 Manor Farm Drive, Chingford, London E4 6HJ.

The Other Viewpoint - by Andrew Niblock

My interest lies more in home family entertainment than the 'cut and thrust' of more serious competition with which Trevor is usually associated, although I jumped at the chance of having a go on his new set.

The track clipped together easily enough, although the controller wires were rather fiddly to clip on. I had to resolve a contretemps between the children caused by the wires to the controllers being too short for them to be adequately separated. The cardboard bridge was flimsy, and for the average family, will not

last very long. The plastic supports became dislodged during racing.

Much fun was had by one and all. We had many exciting races, although the children were, at times, more interested in orchestrating spectacular crashes (too much 'Dukes of Hazzard', perhaps?) I feel that this type of racing kit, as a present, is unsuitable for children under six years of age.

Whilst my elder son (6) was driving slowly round the track, smoke started to pour out of the controller. When I see smoke coming from electrical equipment, my reactions are, firstly, to switch off, and secondly, to return the goods as faulty. Trevor assured me that the problem was only an overheating resistor. I suggest that a higher dissipation resistor should be fitted to eliminate the occurrence of this frightening phenomenon.

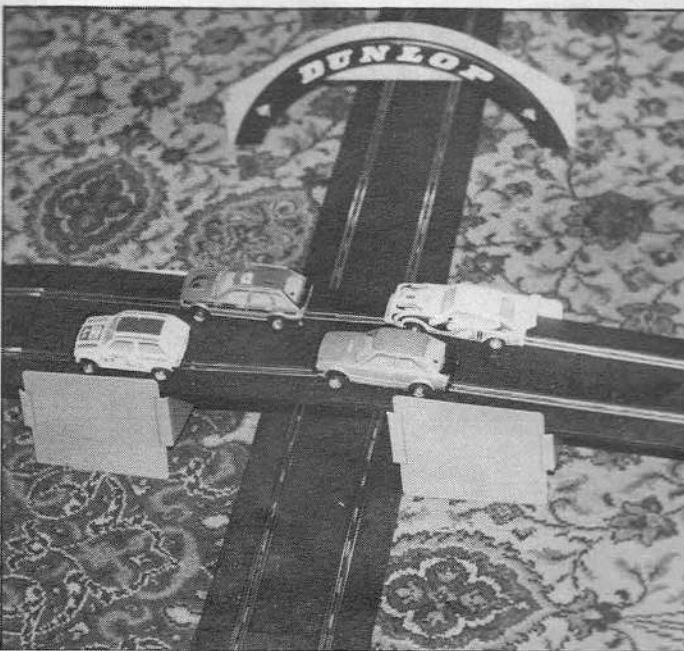
The cars had a tendency for the rear wheel to get stuck off the track edge. Perhaps a wider track or a lip along the edges of the track would help eliminate this problem.

The roadholding abilities of the cars varied greatly.

The lap counter worked fairly well, although cars being driven slowly tended to get stuck and require a push, as they did when crossing start junctions.

A minor irritation with the lorry was that it would not fit under the footbridge.

To conclude, then, a lot of fun, but a few technical improvements would make a vast difference for family entertainment.



Above: the bridge supports contained in the Scalextric kit should be replaced with more robust items.

and sponge tyres. These sound the way to go, pity the importer won't send us one to photograph.

The other home set suppliers are MRRC who produce a small range of cars which will run on Scalextric track. The later GP cars perform very well when the tyres are sanded and weight is added. The Brabham when tuned would beat the Scalextric cars easily around our track. The

motor on these tracks but a 10 ohm resistance controller and a battery supply must be used. The motors fitted are very powerful and consume a lot of power. Scalextric parts will literally melt if exposed to this treatment but the performance will be staggering. The cars look nothing special but my, will they perform! The only work to make them perform on the track is to thin the slot guide so it will fit in the slot without

Racing Round-up

1984 ARRA Open Meeting 24/25 November Southport Report: Pete Crane

1984 Arra Open Meeting

The ARRA slot car club of Southport held their annual open meeting over the weekend of 24/25 November and were rewarded by 26 top racers participating in the weekend's sport. The meeting was enlivened by visitors from foreign parts such as Middlesbrough and Birmingham, and as most returned with some swag their journeys were not in vain. A new format for open meetings was used based on the ARRA clubnight system as devised by Charlie Fitzpatrick; instead of 2 x 3 minute qualifying heats each competitor has a 2 minute race on every lane (4 at ARRA). His worst score is then dropped and the remaining three added together to give semi-final qualifying positions. The clever part is the way the system is worked to ensure that any two people race together the minimum number of times. Semi-finals were of 5 minutes' duration and the top 4 from 8 semi qualifiers moved into classic 100-lap finals.

Saturday evening saw the 16D racing 'just for fun' although National F1 champion Mark Harrison was engulfed in motor changes and chassis setups to try and find the 'edge'. Some people just don't understand...

Home club drivers, Steve Cross and Bob Williams, showed the worth of 16D as they fought throughout the final with Mark and nationals saloon top qualifier Steve Mutimer, and at the end of 50 laps Steve Mutimer was a worthy winner from Mark, Bob and Steve Cross.

Sunday dawned with many bleary eyed racers staggering around looking for the

front door to be opened, when I eventually arrived (sorry!) The day's first race was won by Graham Walker who claimed the best car-box space next to the refreshment bar manned all weekend by an ever cheerful Margaret Fitzpatrick — thanks Margaret. At 11.00 am Concours d'Elegance was judged with Mark Roberts winning Formula 1 and saloon, Mark Harrison claiming sports although standards were a bit low compared to the efforts seen at the recent Blackpool nationals.

The action began in earnest at 11.15 when the first of the day's 65 two-minute heats began, to everyone's surprise these were completed by 3.30 pm thanks to Bob Williams' efficient race control. Semi-finals produced the usual close tight racing but the best race of the day was undoubtedly the saloon final where Mark Harrison and Lee Tucker had a monumental scrap for the lead decided in Lee's favour on the 97th lap! Mark's shouting at corner marshalls causing him to lose his concentration and the race, a lesson for us all...

BSCRĀ nationals sponsor Dave Harris (of *Harry Welch Ltd*) chased as hard as his car would allow but the pace of the leaders was so hot that a good third over Graham Walker was his only reward for a valiant effort. As Lee's car crossed the finish line for its hundredth time, the spectators broke into spontaneous applause for a great race undecided until the very end.

The packed clubroom was buzzing as the contestants for the sports final lined up. Mark Harrison had demolished the outright lap record by over 1 lap, could anyone stop him? Graham Myers had the

sheer speed necessary but it was causing his car to be a little unstable under the awesome acceleration it was exhibiting (pure grunt rules OK, says Graham) and a few hard trips into the barrier saw him lose his early lead to a cool Mark; Graham managed to take a lap back but Mark was not to be denied and he drove under terrific pressure with great composure to take a popular win with his well prepared concours-winning car. Unluckiest racer of the weekend was Doug Paxman, who was in a menacing second place in the sports final and looking to have a good chance of retaining his trophy from last year until a sudden heavy cloudburst caused some drips of water to leak through the clubroom roof and drip into his expensive 'magic box' with car crushing consequences; that was his story of events! Geoff Taylor thus finished third after making yet another comeback, what price some wins if he stuck at it?


The day's first final though had been Formula 1 with Mark and Graham again battling tooth and nail, with

Mark using his superb car to its best effect in a smooth manner while Graham chased, in great fashion. Ronnie Petersen would have been proud of some of the angles Graham was pushing his car at. Derek Cooper stayed well in touch with the leaders but local knowledge ultimately won the day for Mark who should know the track after being involved in the 24 hour world record attempt on it. Andy Beskaby made a welcome appearance in an ARRA final and was only 4 laps down on the less favoured red lane after a workmanlike drive with his well presented car.

The meeting served to underline the fact that Mark Harrison is the man to watch at open meetings these days, and he duly won the coveted Victor Ludorum trophy after his wins in Formula 1 and Sports/GT. The well attended prizegiving saw every finalist receive an excellent selection of goodies thanks to the generous sponsorship of the meeting by *Betta Bodies and MRRC (Barry's of Bourne-mouth) Ltd*; the day's sport concluded by the sensible hour of 5.30 pm.

Results

| Class | 16D | F1 | Saloon | Sports/GT |
|--------|-------------|-------------|-------------|-------------|
| Winner | S. Mutimer | M. Harrison | L. Tucker | M. Harrison |
| Second | M. Harrison | G. Myers | M. Harrison | G. Myers |
| Third | B. Williams | D. Cooper | D. Harris | G. Taylor |
| Fourth | S. Cross | A. Beskaby | G. Walker | D. Paxman |



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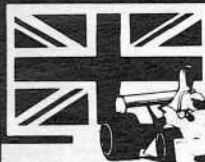
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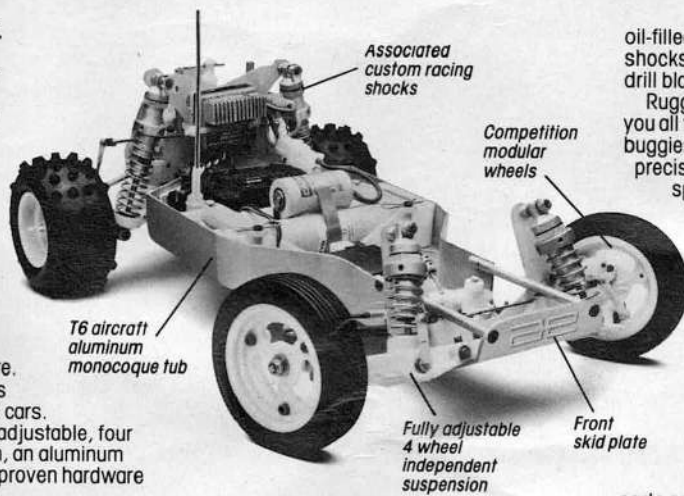
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