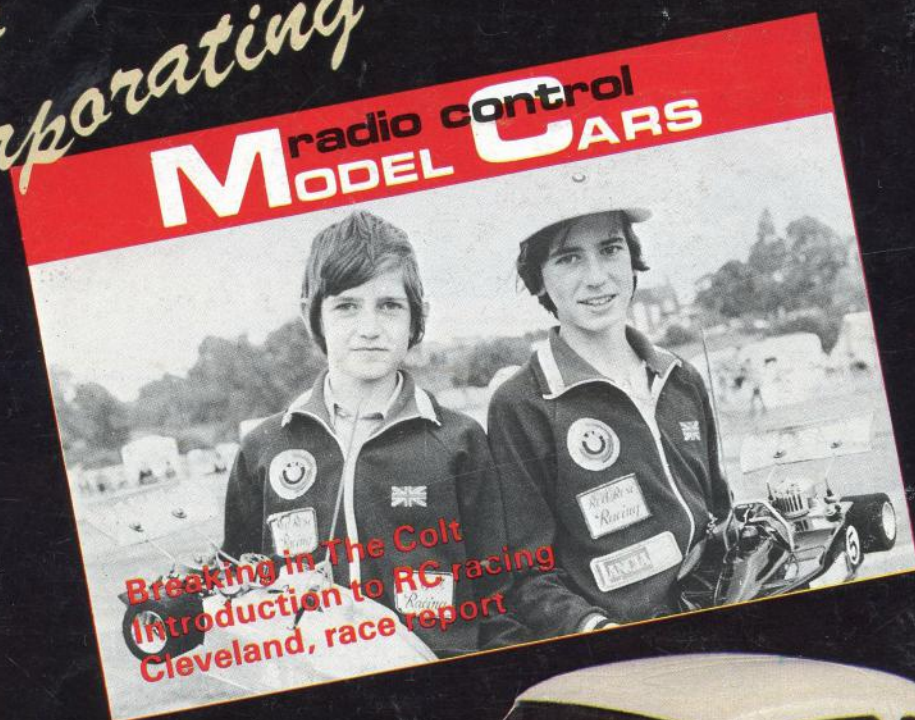


AUTO

Modeller

September 1980 Price 60p
Vol. 2 No. 6

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Model radio control CARS

**"Noisy,
Smelly,
Great
Things!"**

All Editorial Enquiries,
Publicity Material and
Review samples should be
addressed to:

Dickie Dickson,
Editor, RC Model Cars Supplement,
P.O. Box 30,
Hemel Hempstead,
Herts, HP1 1NL.

WELL, here we are in quite a new setting, surrounded, like Gulliver in Lilliput, by lots of little cars, 1/43rd scale, 1/36 scale, coming up through 1/32 beloved of slotters, to the giant midgets at 1/24th . . . 'Noisy, great smelly things!' did I hear one of the little fellas pipe up?

'I beg your pardon, sir!'

'Not you: the cars I mean!'

Of course he is dead right they **are** noisy (or noisier than electrics if we must mind our dBs) they **are** great (certainly greater than the tiddler sizes) and they **are** smelly! How can you possibly resist that smell of burnt Castrol R or its modern equivalent mixed with the tang of methanol and other expensive additives? I once seriously considered marketing an after shave with a smell like that . . . I could have been rich.

But seriously we all buy the magazine because of an attachment to a mechanical thing with wheels at all four corners - sometimes three only to include Morgans. To what extent our various specialities will spill over into each others has yet to be determined.

I can see only good coming from it - the purist super scale people urging less particular 1/8th scale people to keep more exactly within that 10% of scale exactness: the slot racer trying his hand at 1/12th electrics and so on . . .

Confession: I used to race cars round the pole, cable racing we called it, nowadays under FEMA it is called Speedsport; I was one of the very first to promote slot racing, or rail racing as it first was (do you remember Eldi Service with their crown wheels and gears?) I have even had a lot of fun motor cycle trials riding; I fell off too often in scrambles.


So do believe that our Radio Control Model Cars may even convert you with our very special sort of enthusiasm.

There's a Good Time Coming . . .

I note that the Wireless Telegraphy Act 1949 is to be amended so that low powered radio devices will be exempted from licensing. This means that we shall not have to pay £2.80 for a five year stint (less than 1p a day) - though we shall not be getting our money back on un-expired portions of our current licences. Some 250,000 current users are likely to benefit. This is the first time I have read an official estimate.

Without the business of sending off for a form and paying out money there should be another great jump forward in interest and development, so there's just one more reason for any car man to jump on the r/c bandwagon and have more fun than ever.

Dickie Dickson.



Club & Track Review...

Weymouth Radio Car Racing Club

Secretary: Kevin Murray
32 Spring Avenue,
Rodwell,
Weymouth, Dorset DT48XA

A short note from the secretary of this newly formed 1/12 electric club who informs me that meetings are taking place every Monday evenings at 7.30p.m. at the Upwey and Broadway Hall until October when the venue may be changed. New members will be very welcome.

Isleworth Electric Car Club

Secretary: Bert Hocking
39 Pemberton Road,
East Molesey,
Surrey.

Tel: 941 0605 or 942 7711 extension 112 (9-5.30)

The club holds meetings on Monday evenings in the Feltham West School, Boundaries Road, Feltham, Middlesex. New Junior and senior members who will be made very welcome are required. It is hoped to obtain an outdoor circuit during the next few months. Does this mean the club are moving in i.c. 1/8th racing, or braving the elements, as so many clubs are doing, to get 1/12th racing going on concrete or asphalted surfaces and bigger circuits?

Salisbury R/C car Club

Secretary: N.A. Sherry
44 Queen Alexandra Road,
Salisbury, Wilts.

Tel: Salisbury 28794

At present an active membership of ten i.c. drivers who meet at a private car park in Salisbury on Sundays and occasional Saturdays. They have made about 200 fibre glass discs (bots dots) which together with some 50 coupled wood strips mark out an interesting 200 yard track. Driving is from a 3ft raised wall commanding a good view of the circuit. Driving skills vary between beginner and medium skilled. New members welcome, apply to secretary.

Forth Valley Electric Racing Car Club

Secretary: Martin Wallbank
42 Priory Road,
Lingithlow,
West Lothian.

Formed a year ago by a six strong nucleus it now has a membership of 35. Racing takes place Monday evenings at the Bo'ness Recreation Centre, Bo'ness, West Lothian 7.30 - 10.30p.m. and on Sunday mornings 9.30 - 12.30. The club has been very successful in local meetings and plans to hold the Scottish National Championships for 1/12th electric at Bo'ness on Sunday

SPECIAL NOTE: It is intended to publish a club list in the next and following issues. If your club has not been advised to me, or there have been recent changes in venue, officers etc., please write in as soon as possible. Also with club news - always welcome, and probably more room now for club pictures (black and white).

5th October. Invitations will be going out to interested parties, or write in for full details. Circuit is permanently taped out on the track which measures about 250 feet. Members race Associated, Graupner, Antares etc plus scratch built 'concoctions'.

Solent Electric Car Club

Secretary: Mike Langridge
17 Cooks Lane,
Southbourne,
Emsworth, Hants PO10 8LG
Tel: Emsworth 71472

The club was formed in the summer of 1978, first racing at the back of Ray Brown's shop in Portsmouth, but later moved to larger indoor premises. After a mixed first year the first AGM was held and showed a book membership of 75 with twenty regular racers. Within two weeks of opening for 1980 members we closed the book at 50 and now have a waiting list of 20 although a new club has opened nearby to absorb some of the waiting list. Twenty to thirty turn up each week to race - just about a manageable total.

Racing takes place on Monday evenings and alternates between Cosham Community Centre and Court Lane Middle School in Cosham. The club has made its own bots dots in fibreglass and may be able to supply them to other clubs. An electronic lap counter made locally is now in use. Other activities include a sub section to race the new Tamiya Racing Buggy (luckily they have a keen Tamiya stockist in Fareham), and the prospect of starting a regular club news sheet. Well done Solent!

Northampton Model Car Club

Secretary: Bob Hemphill
16 Sandhills Road,
Whitehills,
Northampton NN2 8ER
Tel: Northampton (0604) 845256

This is a new club formed from the members of a previous club and has been racing 1/12th electrics for the past six months. Membership stands at twenty and racing takes place Wednesdays at the Headlands United Reform Church Hall, Headlands, Northampton. Club championships are running to BRCA rules, with

prospects of joining a Midland league. Visitors and new members welcome. Six minute heats and eight minute finals are the rule. Wooden floor which requires siliconed tyres.

Potteries Area Twelfth Scale R/C Electric Car Club. (PATS for short)

Chairman: B. Stanyer
'Hillcross', Fowlers Lane,
Light Oaks,
Milton,

Stoke on Trent ST2 7NB

Tel: Stoke on Trent (0782) 542144

This club was established some six months ago and now numbers 36, including an enthusiastic junior following. Regular Wednesday evening meetings take place at the Chesterton Hall which provides a good contest representative surface. A club ladder system operates and drivers can expect six or seven races an evening. A coloured spot system of handicapping is used. Will be interested to attend other club meetings and have to date raced at Bradford, Bingley and Thornaby. Hopes of running their own Open Meeting not so far realised as they need a hall big big enough to tempt the Neal Francis's of the movement. Visitors welcome, check with the chairman.

Bath Radio Controlled Car Club

Secretary: Mrs. K.D. McLaren
12 St. Marks Road,
Widcombe,
Bath.
Tel: Bath 20121 evenings.

This club is now part of the Civil Service Sports Association and racing at the Civil Service Sports Club, Claverton Down, Bath. The hall is superb, smooth, clean and coated with non-slip polish. It is very fast and soft siliconed tyres are the proper wear. Racing on Monday nights from 8.00p.m. new members and visitors welcome but prior arrangements with secretary essential to obtain access. There is a members bar.

Address Changes

Strathclyde Model Auto Club

Secretary: John Wilkes
43 Lilac Hill,
Abronhill
Cumbernauld,
Glasgow G67

Yorkshire R/C Model Car Racing Club

Secretary: D. Louth
25 Hastings Terrace,
Bradford BD5 9PL

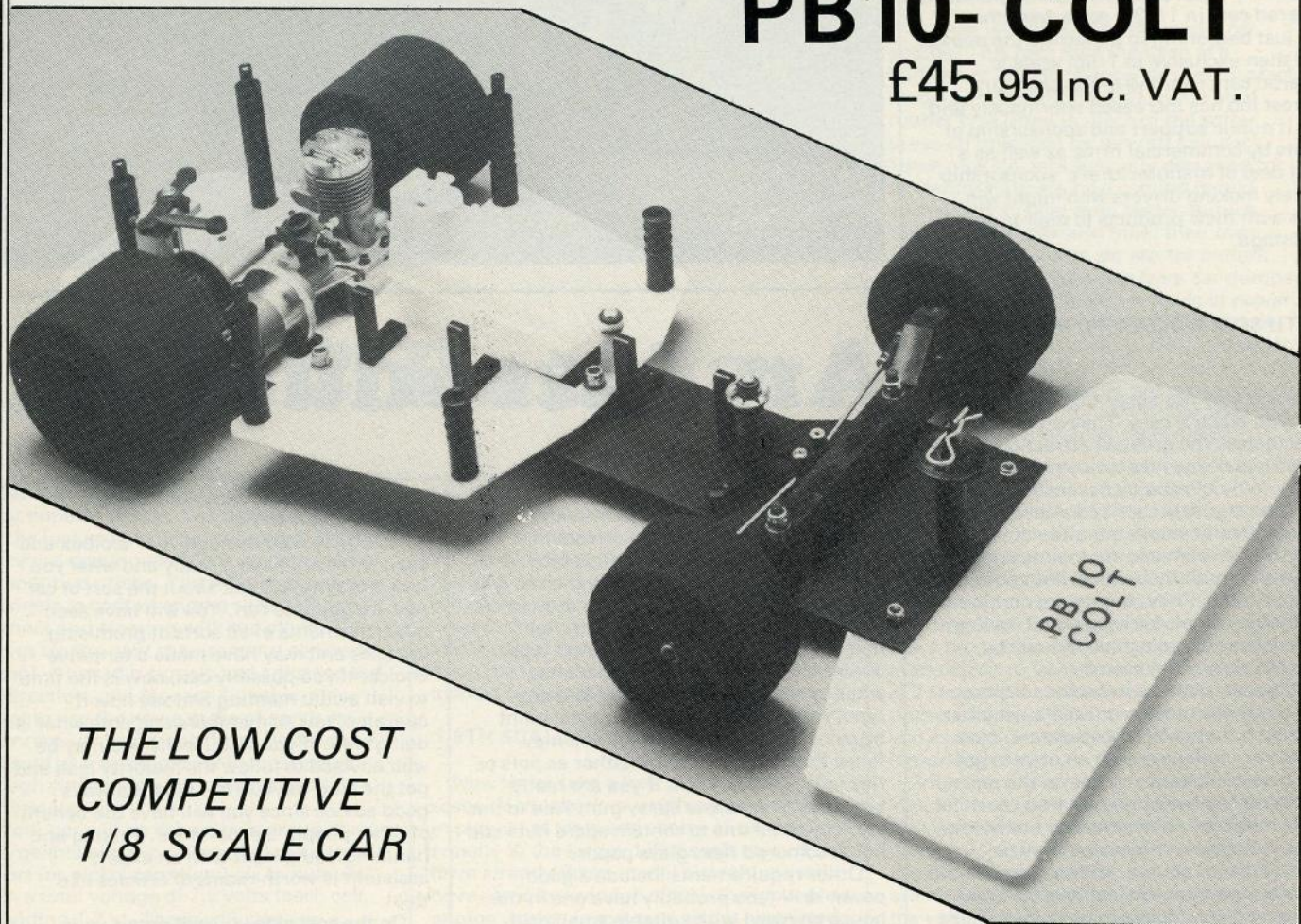


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INTRODUCTION OF Radio Control Model Cars into Auto Modeller seems a very suitable occasion to provide a 'how to do it from the start' article. Three years ago I did just that and in various forms that original article has been re-read, reprinted and generally

been the rounds. However, a great deal has happened during those years that makes the presentation to a would-be driver very different. For one thing electric powered cars in 1/12th scale were then only just beginning to penetrate the market until then exclusive to 1/8th scale ic powered cars running in the open air. Interest too has increased enormously and with it public support and sponsorship of events by commercial firms as well as a great deal of manufacturers' sponsorship of likely looking drivers who might win races with their products to their mutual advantage.

1/12TH SCALE ELECTRIC R/C CARS

Purists may not agree that I should deal first with electric cars. They are nevertheless the greatest attraction and the principal way into serious model car racing. Why? Probably because they demand very little care and attention to operate, do not smell, are quite quiet, and, in our British climate, are mainly operated indoors, frequently in the evening under artificial light. Price, too, to get on the road is rather less than for ic powered cars and some degree of racing success can be expected somewhat sooner.

Enthusiasts can be expected to come from the ranks of slot-car racers, whether clubmen or home circuit operators; from plastic car modellers with an urge to get their beautiful static models on the move; from model railway builders who yearn for a little more action where their knowledge of low voltage electric power may be useful. Plus, of course, all those even more numerous people who just love cars and driving and would love to go in for fullsize racing if only they could!

What do we need to make a start? First of all a few small tools. If you have followed



An Introduction

any other constructional hobby you probably have most of them already. Essentials are small screw drivers in assorted sizes including Phillips type, a stock of Allen keys in the smaller sizes (you will soon accumulate a lot more as they are included in parts kits very often), light hammer, small hobby saws, Xacto type, Junior Eclipse saw with spare blades, small spanners of open ended and box type, soldering iron, and the usual paint brushes, paints and enamels you may fancy for colouring bodies either as pots or tins or in aerosol form. If you are really keen then a separate spray gun. Add to this stock of small tins to contain spare nuts and bolts, coloured flex, glass paper.

Other requirements include a good power drill (you probably have one in the house anyway) with suitable small drill bits; plus some pliers in assorted sizes. A good tip is not to buy tools en masse but acquire them as the need arises. This stops

you buying things because they look 'useful' (I still do it!)

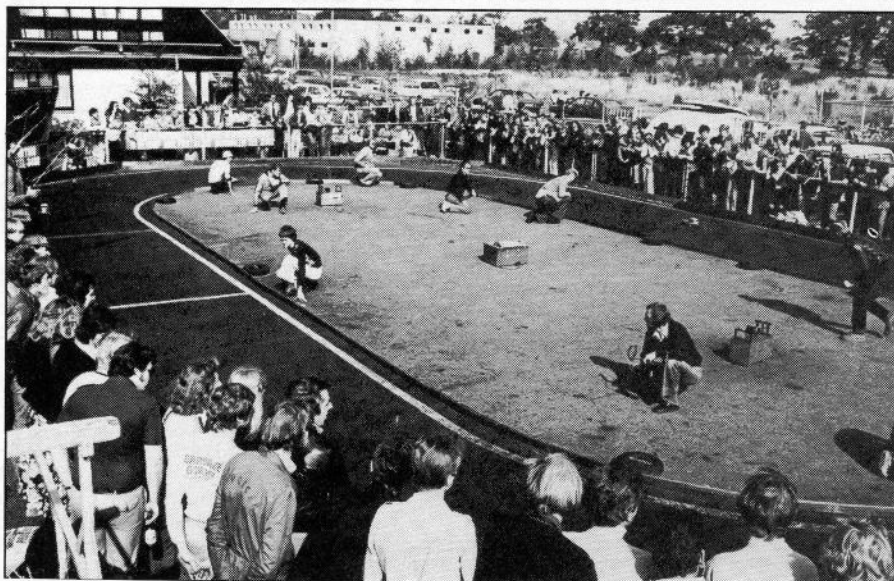
Having looked through your toolbox and seen what you have already and what you lack it is time to think about the sort of car you are going to run. You will have seen advertisements of all sorts of promising vehicles and may have made a tentative choice. If you possibly can, now is the time to visit a club meeting and see how it operates, talk to members and note what is doing well. If you visit locally you may be well advised to follow the majority lead and get the club 'favourite'. This is always good advice since you will have the benefit of other people's experience. Talking and handling equipment with an expert assistant is worth reams of articles like this!

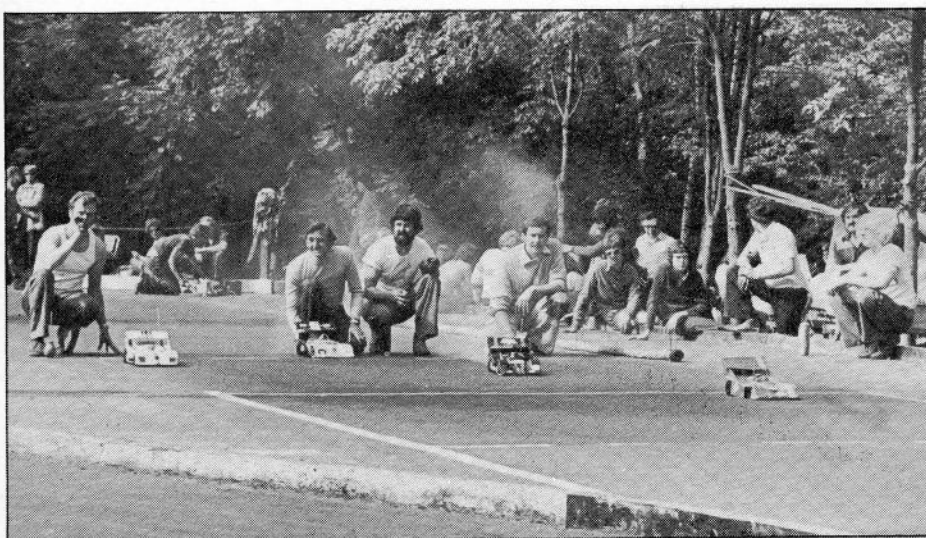
On the cost side you will note a wide range of prices from under £40 up to £80 or more. As a beginner to leap in at the top may be inadvisable. You will not initially be able to take full advantage of the more expensive car; you may damage it; you may even find you are not so keen as you thought and take up stamp collecting. The lower priced cars are nearly as likely to win races as any — a lot depends on the driver and the skill with which the parts have been assembled and tested. In any event at club level you will certainly be graded to race against people of approximately the same skill so that racing can be fun right from the start.

The other immediate need is for a radio receiver to put in the car and a transmitter to direct it. Again there is a choice. The

Above: A multi-car start at a race in Switzerland. Usually not more than eight or ten can run together — but here the Swiss Post Office has kindly allowed some extra frequencies.

Below: Stock Car racing at Rosmalen in Holland — one of the best circuits for stock car racing in Europe.





to RC Racing

Japanese Futaba equipment is still the most popular choice, but other equipment can be just as satisfactory. Several British firms are making excellent equipment at competitive prices. You will only need two channels to control engine speed on one channel and steering with the other. This brings up the next requirement: servos to accept your radio signals and adjust speed or direction, one for each function. It is usual to use the same make of servo as your receiver and transmitter. Indeed they are sold as a complete set in most cases, though you can always buy any item separately.

Your car will be driven by a group of re-chargeable electric cells called ni-cads (short for nickel cadmium) six in number with a total voltage of 7.2 volts (each cell providing 1.2 v). These will give you a running time of six to eight minutes before they need to be recharged. Races will normally be of five or six minutes duration which allows you a few warming up practice laps before a race starts. Recharge time takes twice as long, that is, it needs twelve minutes charging to restore your cells to full strength for another six minute race. Re-charging is done by connecting up leads to a 12 volt (mark that **12 volt**) car or motorcycle type accumulator. You could of course also re-charge via the cigarette lighter socket on the family car with a suitable plug.

The long and satisfactory life of your cells depends a lot on their being re-charged correctly so a final piece of equipment is desirable (though not

absolutely essential at the start), a charger which goes between the 12 v. battery and the cells being re-charged. This may take a variety of forms, the most usual being a fast-charge unit with some form of protection against over charge. Others have voltmeters, ammeters, fault detectors and the like, but the more gadgetry on them the more expensive they are. A fairly modest type is recommended as a starter.

1/8TH SCALE I.C. POWERED CARS

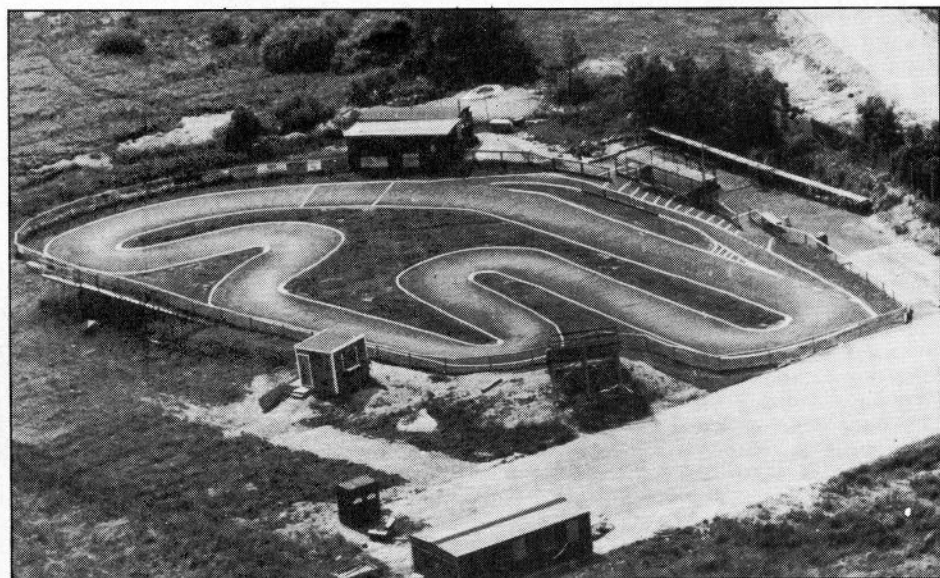
Now let us take a look at the 1/8th scale scene. Very nearly everything we have said in respect of tools and choice of car applies equally to the larger 1/8th scale cars. If you have already flown model aircraft you will have some knowledge of how the glow-plug engine works. In our case size is restricted to 3.5 cc (.19) which may surprise you, but you will soon find out on the track that this is just about as powerful as can be

effectively handled with top speeds around 60-70 mph, and acceleration faster than a sports motorbike! Any extra tools you may have collected for aeromodelling will come in useful here. You may already have a small 2 volt accumulator and lead to supply current to the glow-plug. This will require to be trickle charged from time to time through a special charger off the mains. Some of the chargers for electric cars can be adjusted for trickle charge rate.

A must is a starter for the model car engine. This may take the form of a Sullivan or Kavan charger as used to start model aircraft engines but with a hard rubber tyre fitted in place of the softer press-on provided for aircraft spinners. Some nice starters specially designed for model cars use are now coming in and seem likely to give even better service. Many enthusiasts also build their own starters from fullsize car starter motors obtained for trifling sums from car dumps. These are bulkier but have loads of power. In either event you will need that 12 volt battery as a power source. If you intend to follow both electric and ic car racing it will pay to acquire the larger and more robust 12 v. accumulator for cars rather than the smaller one suitable for motorbikes.

The racing man will often have to re-fuel during a race when a visit to the pits is made. The standard 125 cc. fuel tank will only provide for a five to seven minute run so in a 15 minute or half-hour event one to three pit stops will be needed. Quick filling fuel containers save seconds — one called the 'Big Shot' is the popular choice. It is like a big rubber ball with a tube spout and is squeezed to force fuel into the tank. A 2/3 second fill up is possible with a good pitman. Less skilful operations may cost you as much as a full lap during and important race.

After the day's racing is over the car should be cleaned down and any surplus fuel flushed out of leads and the whole made bright and clean again. Watch any of the experts and see how punctilious they are about this. Otherwise by next weekend the volatile part of your fuel mix will have evaporated leaving sticky goo oil to impede the flow. So a bottle of cleaning fluid is a good thing to have and squirt it over the



Above: A start at the beautiful Hoseley Circuit at Wrexham, scene of the Welsh Grand Prix.

Below: Scene of this year's European Championships in Sweden, where the Volvo car company will be sponsoring the event.

Left: Keith Plected 'Mr P.B.' himself at the World Championships in Geneva. One of his make won!

Centre: You can begin quite young! These two young men part of Red Rose Lancia team are already beating the field at top level. The two Taylor brothers and Dad form a successful sponsored team.

Below: Debbie Preston, the girl who can beat the best of either sex. Debbie is shown after winning the national Saloon Car Championship.



chassis and engine before wiping it clean. A mixture of pure petrol with about one part in seven washing up fluid will do the job. Your club may have some cheaper mixture to recommend that does an equally good job, where some member has access to a good flushing fluid source.

What are you going to race? Today the choice is much wider than it was, say two or three years ago. A lot of money has been poured into research by manufacturers; international competition has refined products considerably so that a number of construction kits all offer interesting racing possibilities. Happily the pendulum has swung back and forth so that several makes can point to racing successes to encourage you in their direction. I would make an important point here. Do not necessarily go out on a limb just because you take a fancy to so-and-so's kit. You will do far better to see what is the popular choice of your club and follow their lead. I gave this advice earlier for electric car drivers — it applies even more strongly to the ic side.

If you are still faced with the need to make an unaided choice then choose a kit that is initially modest in price but is part of a progressive family of kits that can be updated from time to time as you feel the need for a more sophisticated vehicle. For example, the recently introduced PB10 Colt is a straightforward job that can step by step be upgraded through to PB9 International standards, still using basic original parts. Another make, this time the American Associated can similarly be updated stage by stage. However, as one very expert driver reminded me, a simple kit properly assembled can be just as fast in the right hands as the most sophisticated and expensive outfit. The difference is that with the more expensive outfit less is left to chance, there is less risk of parts being bent or misplaced during racing, and you are more likely to reach expert class sooner since you are cutting out a lot of the 'bad luck' occasions which tend to dog even the best of us.

The same applies to choice of engines. Half a dozen makers have produced models speciall adapted for model car racing. I list them, not in any special order but as they come to mind: Veco 19 and Veco 21, K & B 3.5 OPS 21 Car, OS Max 21 ABC RC,



SuperTigre ST X21 Car, Irvine 20 RC, HB 21 PDP Car. These range in price from £30 to £65 in standard form. You can have them tuned by specialists for more money, but until you have learned to use the speed you have it will be rather a waste.

RACING ORGANISATION & PROCEDURE

Racing is arranged on a fairly standard pattern, strictly adhered to on open contest days, perhaps a little less formal when confined to club events. Let us deal then with a typical Open Contest to which drivers throughout the country are entitled to enter up to the limit of runners accepted by the organisers (usually at least 96 drivers per event with a top limit of 120).

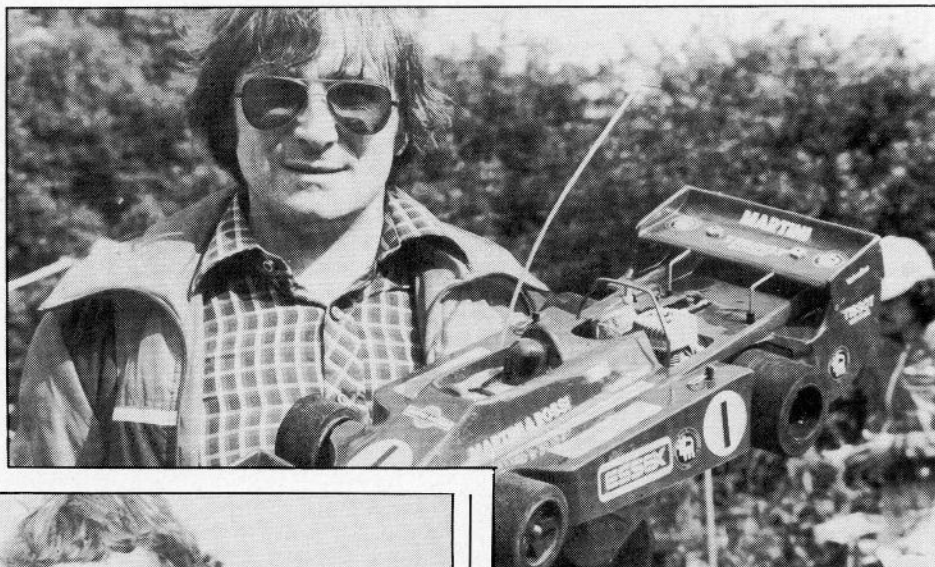
Entry forms will have been distributed in advance via the British Radio Car Association's regular Newsletter *Circuit Chatter*. Would-be drivers will complete and return forms together with their entry fees of approximately £2.50 to £3.00 per event. There will certainly be races for Formula 1 cars (ie. with open wheels like fullsize Grand Prix cars) and for Sports/GT cars with wheels enclosed, mainly saloon types like Le Mans cars in fullsize racing.



Right: Walt Bailey of Mansfield a very successful driver shown with his PB9 in British Racing Green colours.

Centre: Ted Longshaw (left) President of ECRA (European Federation of Radio-Operated Automobiles) with World Champion Phil Booth & his PB9.

Below: Neal Francis with his winning Toyota Celica at the Hadley Hobbies meeting in the City of London



Possibly a Saloon car class, or Formula Libre according to whether it will be a single day meeting, Saturday/Sunday event or a full three day meeting to include a Bank Holiday Monday. There will also be details on the entry form of camping or caravan sites available, or invitations to ask for suitable hotel bookings to be made.

Meeting will start at between nine and ten in the morning with a series of five minute heats where entrants will be graded as far as possible by known skill, though a few unknowns may creep in and surprise the results. Number of completed laps covered in the time, which may exceed five minutes by amount required to complete last commenced lap, are timed precisely to fractions of a second and recorded on a board in the pits. Three heats are allowed to each driver, only the best time and most laps count. Usually with a big entry these days, heats comprise eight cars, sometimes even as many as ten, according to size of the circuit and capacity of the timing apparatus.

The four fastest timed drivers go forward straight away into the final for the class. Two semi-finals are then run for the next fastest cars, being evenly divided so that they are entered alternately in the two

semis according to speed down the list. This means that neither semi has all the fastest cars. These semis are run off for a longer period than the heats, at least a fifteen minute event, probably somewhat longer, certainly long enough to ensure pit stops. The winners, first and second, in each half then go forward in their turn to the final making a total of eight drivers. If ten car races are possible then first three drivers in each sub final go forward.

Then comes the Final with at least a half hour race to determine the winner. Here tactics may come into their own, with drivers being called in, to re-fuel as necessary, or perhaps pressing on at the end hoping fuel will hold out and save a stop only to grind to a halt yards from finish line bone dry, whilst number two sweeps past to an unexpected win!

The same procedure is followed for the two Handicap events usual at bigger meetings for those with handicaps of 0-15% and 20% + which means that drivers must beat their opponents by their handicap percentage added to their total times, so that we often have a winner 'on the road' who proves to have been beaten by a zero handicap man since the 'road winner' has not been far enough ahead when his handicap percentage has been added.

A final point! There are no money prizes at these events! They are strictly amateur with trophy awards, cups, plaques, medals and so on. The only help drivers may get is from sponsors who may supply parts and materials if manufacturers, or help with expenses and the like where they are not directly connected with the model trade.

This covers a typical 1/8th scale race for ic cars. Procedure is very similar for electric cars though finals are necessarily shorter because of need to re-charge ni-cads.

This should give readers some little insight into what goes on and what choice of cars and size there is. We have not as yet said a word about another fascinating type of car — Stock Cars or Stox as they are affectionately known. More on these shortly. There is yet more: off-road or 'green' racing is now taking place like fullsize auto-cross, and believe it or not r/c motorcycles are being raced ... all this and more ...



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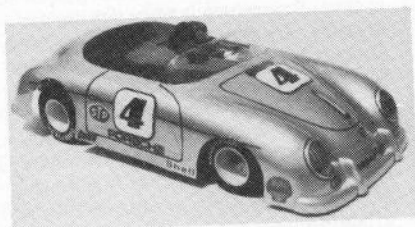
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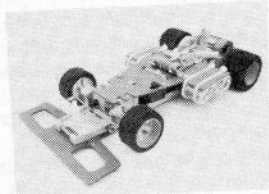
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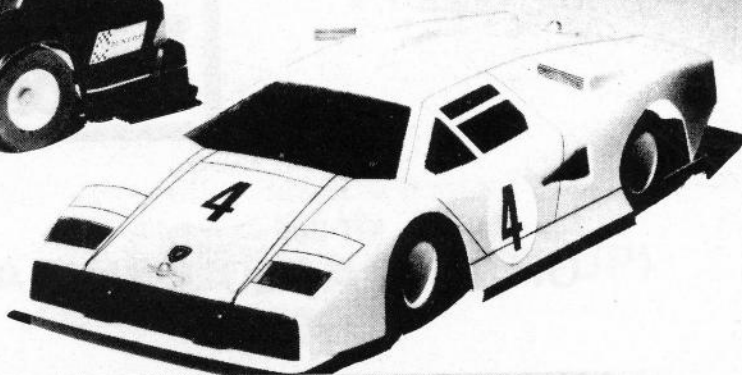
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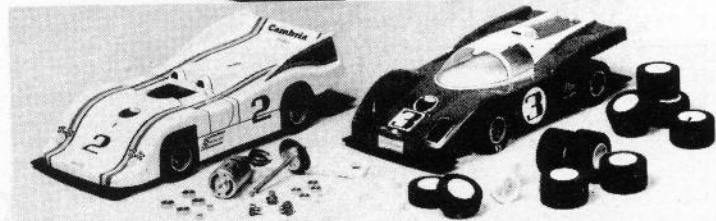


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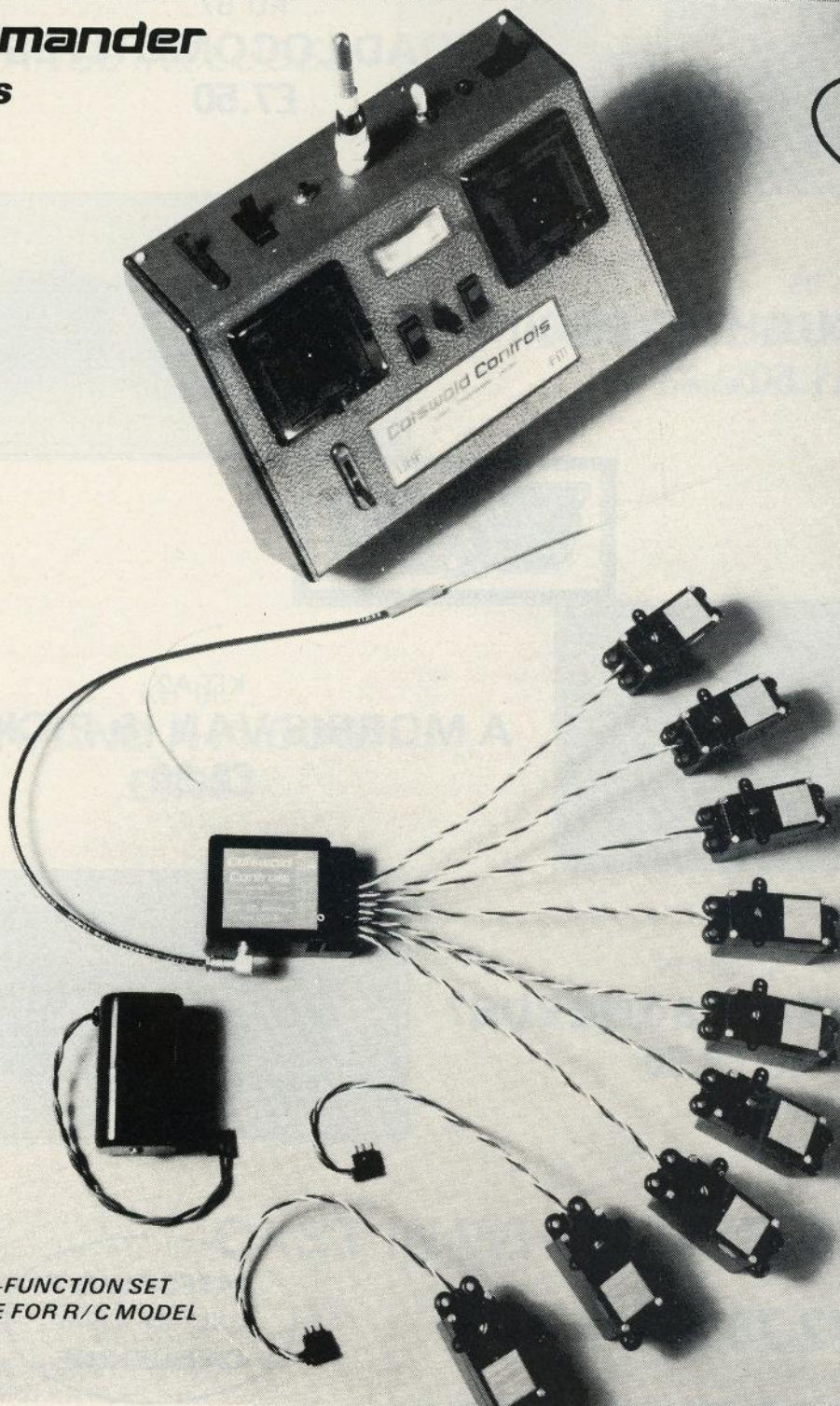
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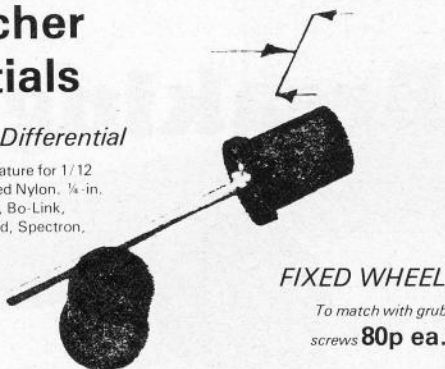
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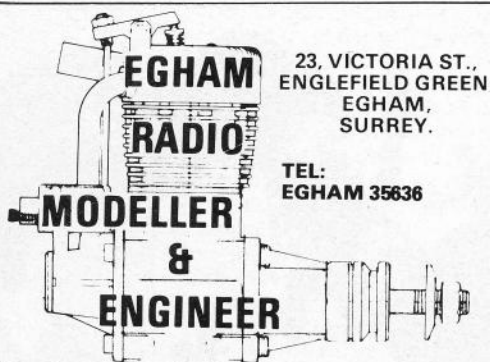
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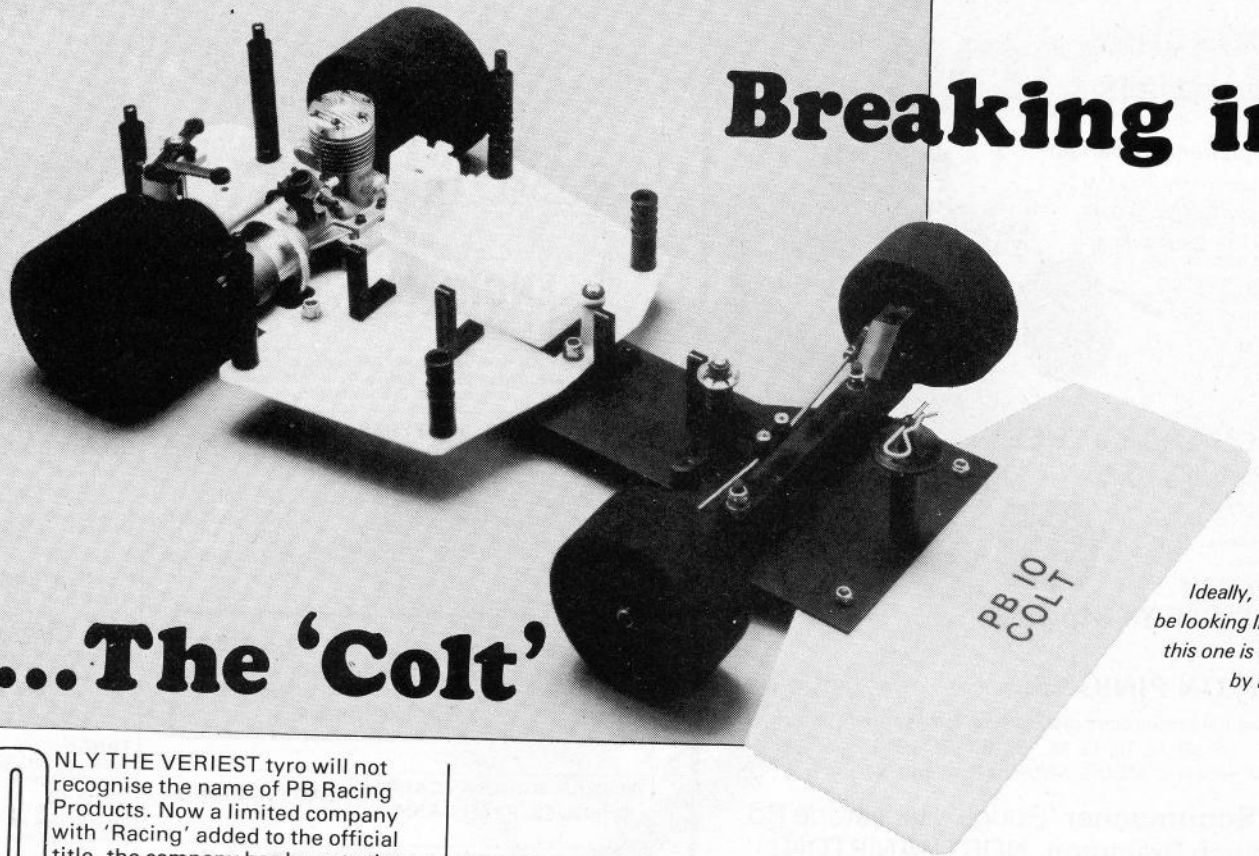
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Breaking in...

...The 'Colt'



Ideally, your car should be looking like this - though this one is a studio picture by PB themselves.

ONLY THE VERIEST tyro will not recognise the name of PB Racing Products. Now a limited company with 'Racing' added to the official title, the company has been to the forefront of manufacture and racing since the beginning of the hobby in Europe. Proprietor Keith Plested came to the very first organised r/c car meeting in England at Easter 1971 held in the grounds of Ashlyns School, Berkhamsted, and if I remember rightly was one of the winners of tankards together with Ted Longshaw, now President of the European governing body for the sport.

Over the years he has been producing ever more successful cars in his range of PBs culminating in the PB9 International currently holder of the World Championship title as raced by Phil Booth of Derby, one of his associates in the development programme. Now comes the PB10, happily named Colt a word which means something in any of the civilised tongues.

The Colt is a return to beginnings. It has been devised as a low-priced 'starter' kit with all the basic characteristics of its big and more famous brothers, but which can be up-dated to the builder's choice without losing any of the running pattern of the accustomed car, and still able to use any collection of wheels and tyres and other accessories that may have been built up on the way to becoming an expert driver.

The kit is comprehensive and contains everything that is required for a rolling chassis, including an ABS bodyshell. All the builder needs to get moving is the engine of his choice, plus silencer, air and fuel filters, and the radio equipment. Chassis, power pod, steering unit, servo-saver to protect his steering servo, servo

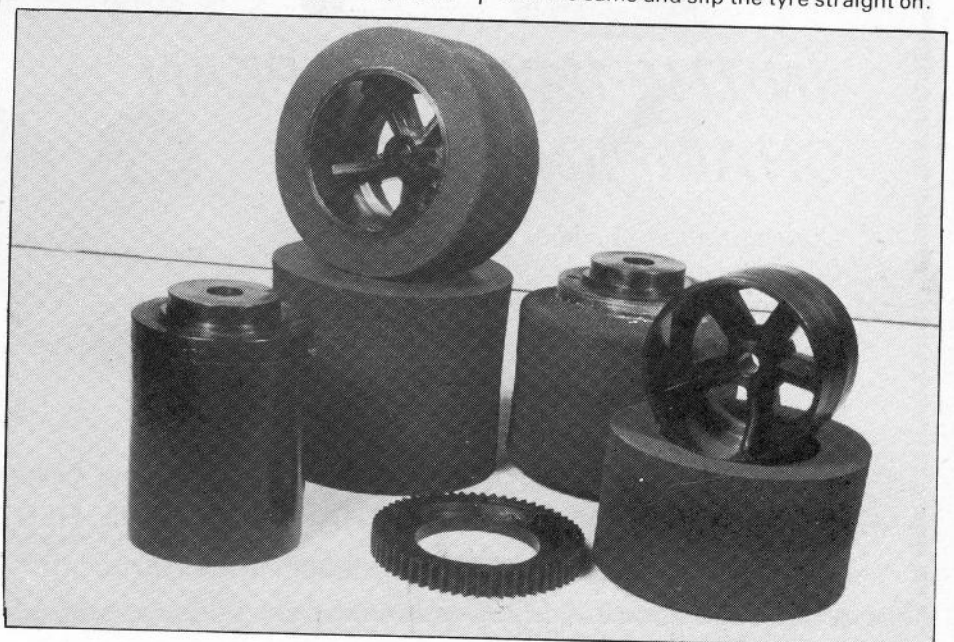
brackets, radio plate to hold the receiver etc., fuel tank with spring loading filler cap, wheels, tyres, back axle, and clutch unit with brake, driving gears, body fixing brackets, nuts, screws and washers to put the parts together ... the lot in fact for £45.95!

Related items are packed in separate polythene bags (keep them — they come in useful!) with constructional details for that particular item. A single sheet of general instructions is also included but this only makes suggestions as to building order, lists the various grades of rubber tyres available and their uses, plus details of transmission gearing and clutch adjustment. Order of building is very much

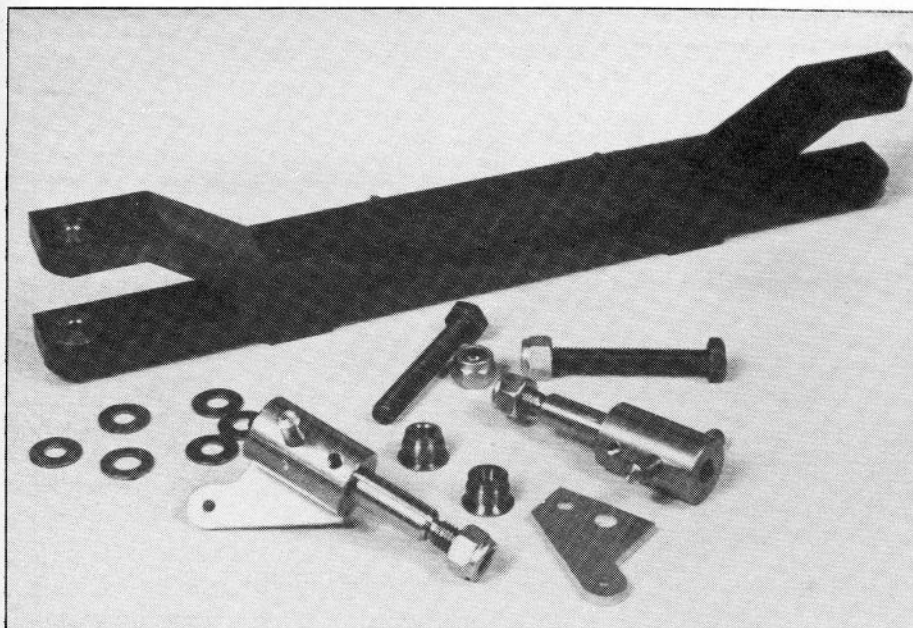
a personal matter and I differ from Keith by always sticking the tyres on the wheel hubs as my first task.

I do this because it is a messy job and well out of the way. Sticking the tyres on? I hear the novice say. Yes, that's the job. Tyres are not the inflated fullsize type but solid rubber or neoprene which must be attached to the wheel hubs securely, otherwise as they get hot in running they will expand and slip off.

First step is to rough up the plastic hubs with fairly coarse sandpaper to give the adhesive something to grip. Then using Evostik or similar contact glue, coat the inside of a tyre with a thin coating and the hub the same and slip the tyre straight on.



Wheel hubs and tyres and toothed ring gear in stout nylon.



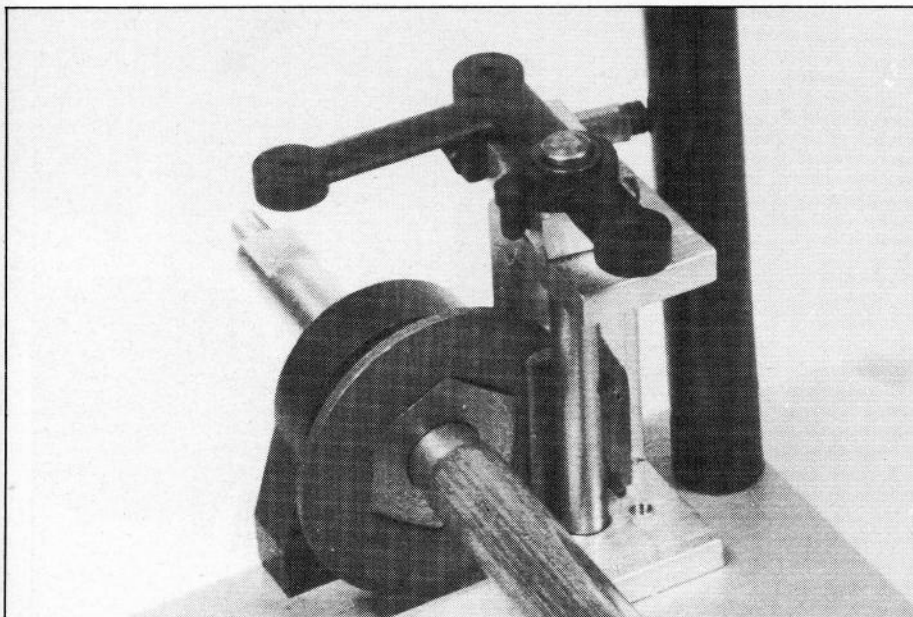
Do not wait for the glue to get tacky but push it on at once. This can be a rather messy operation, but not if we have saved a plastic bag or so from shopping or the kit, which is slipped on the hand like a mitten, which reduces the amount of Evostik deposited elsewhere than on the tyre/hub combination. Clean off surplus either with the Evostik cleaner available or just using petrol or lighter fuel.

Be careful to get the tyres squarely on the hubs. Rotating the hub with a small arbor through it, either slowly on a lathe if you have one or with a friend turning a hand-drill will help in getting them on evenly. Later when the car is ready for assembly they can be trued up with glass paper running the driven rear wheels and with the front wheels again in arbors on a power drill.

This done, we can get to fixing the power pod to the chassis. Note that chassis is not symmetrical — right way up has the ready drilled holes for fuel tank and steering servo on the left — looking from the back to the front. Attachment is with safety nuts which must be screwed right down. This is best done with a box spanner holding the screw head and an open ended spanner turning down the nut — or the other way if you prefer — but it won't just spin down for a couple of last turns to tighten.

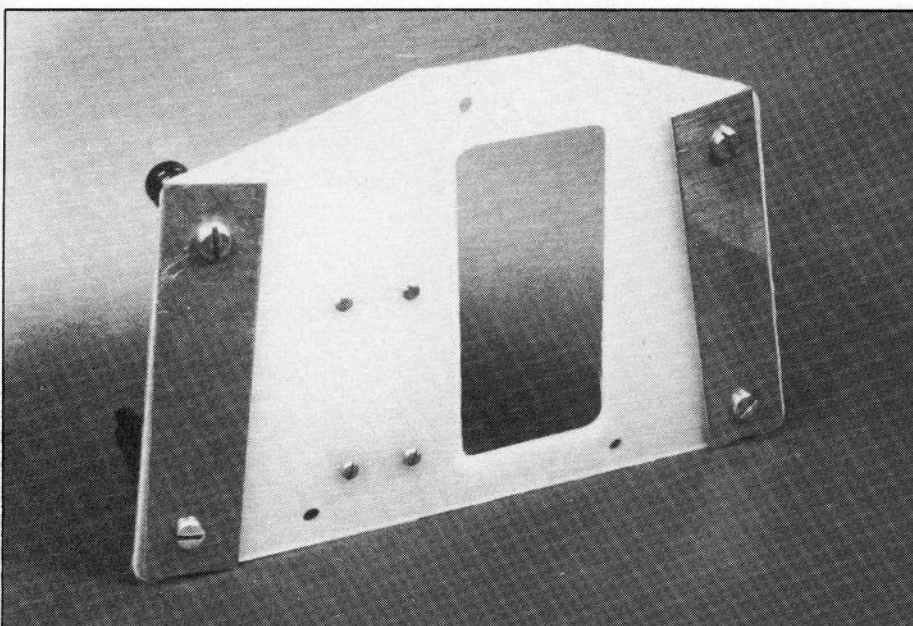
Next job is to fit the rear axle with its two plummer blocks. This involves installing back axle and the brake. Believe it or not, a disc brake unit is supplied, which must be the first time this has been provided in a kit at the price! Be careful with the little brake lining retaining pins — don't drop them and lose them. I usually tip parts from each bag into a box or tin to stop them from getting knocked off the bench. 'Press' the instruction says: don't bang them in with a hammer! Use a machine vice or similar to close them in gently. Take some trouble deburring and radiusing: it pays. Note that brake lever permits use also for a slide carburettor if fitted.

If we follow suggested assembly order a choice must now be made on the engine. Perhaps you have acquired a run-in engine from a club mate, or you may be getting a new one. What to have should be influenced by engines in use at your club, since you may need expert advice later, and even loan bits and pieces. With a big campaign for 'Buy British' an Irvine 20 would not be inappropriate giving you an excellent stout engine capable of holding its own at club racing level and not too tricky to tune. You need to make the choice since the engine mounts, whilst threaded to fix on power pod are not drilled and tapped for the engine of your choice. If you are at all doubtful of your skill in this direction (you may not even have taps and dies) get your local model shop to do this for you. You may even be able to buy ready tapped mounts to fit your engine. At the



Steering unit with its various parts.

Disc brake unit assembled on rear axle. Post behind will support wing unit.



Radio ('shaker') plate from the rear showing reinforcing plates to prevent possible buckling.

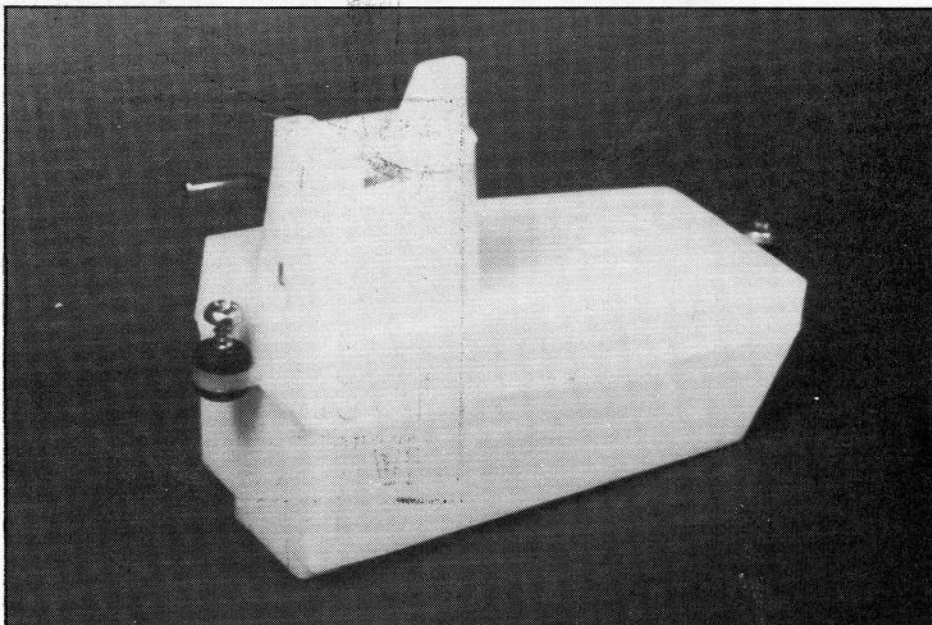
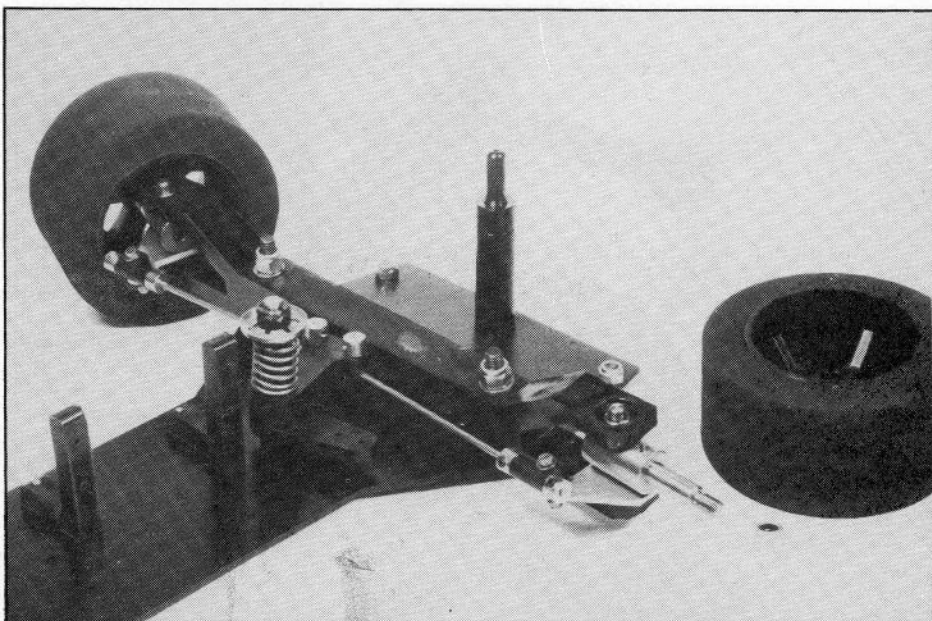
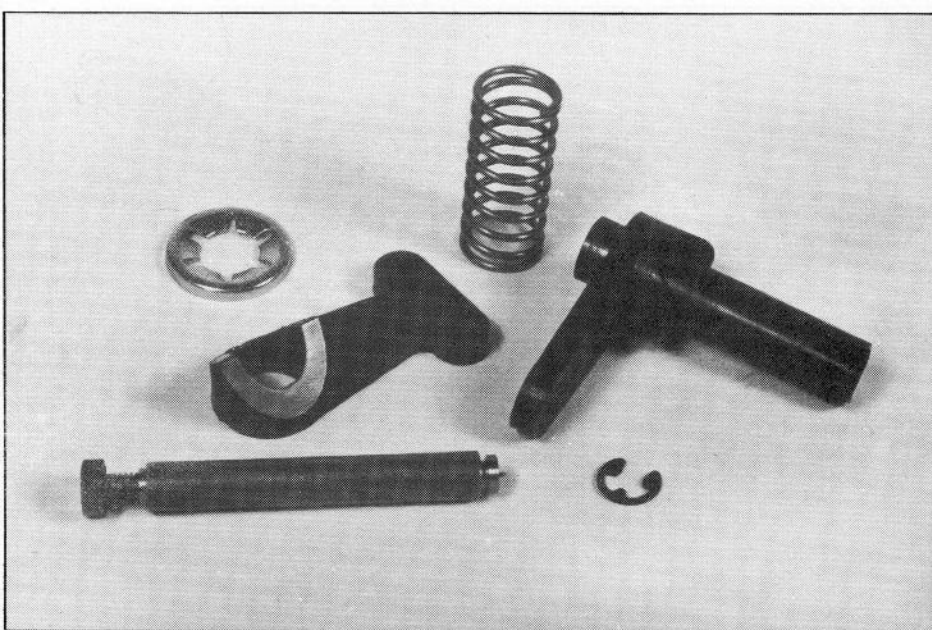
same time you should buy a silencer at the shop (he will be more willing to help with the mounts!) Get the PB silencer with internal baffles to keep the noise well down since nowadays you must not exceed 80 DB under strict rules.

Now for a change we can go to the front of the car and fit the steering, track rods and connections and instal the servo-saver. Care in assembly pays dividends here. A little deburring makes work but do not worry if the final job seems a little stiff — it will work off in a lap or two on the track. Note that caster has been built into the front axle moulding and this should lean back. Again press the kingpin bushes in rather than belt them with the hammer — flanges face inwards. Track rod kit is next opened and the Allen screws inserted straight away into the locking collars. Assemble them on the two track rods and note how they are fixed onto the steering arms. As provided they will match, so that neither wheel will be at a different angle from the other. They will already have a calculated amount of toe-in (which helps to keep them steady on their directed path). If you wish to decrease this amount then the locking collars can be moved a fraction inwards to shorten lengths for a start.

That important item the servo saver is next. In case you do not know its function it serves not only as the pivot from the servo about which the wheels are turned, but also by means of its sprung column protects your expensive servo from risk of being overloaded if you ask it the impossible, such as going on past an immovable object! It is also designed to provide a degree Ackermann steering, in adjusting the turn so that the inside wheel follows a shorter path than the outside wheel on a turn (like dancing girls on the end having to move faster when turning in line).

One vital thing remains before we have completed the mechanical assembly. This is the clutch and its bellhousing. Operation is really ridiculously simple and has altered very little since the beginning of motor cars. Two free moving shoes are placed so that, as the engine turns, they are thrown against the inside of the bellhousing which goes over them and so takes up the drive through the gear on the end of the bellhousing, which drives the rear wheels. According to the degree of clutch slip, so is the smoothness of the take up from stop to full speed. It may be necessary to file a little off the crankshaft end to get the assembly together precisely — but do not do this unless you are sure it is absolutely necessary. Much depends on the make of engine you have chosen.

The car can now be fitted with its wheels as a rolling chassis. Radio plate (or shaker



Servo saver parts before assembly.

Steering unit in place on chassis. Note the simple adjustment possible. Servo saver is in place, and to the left the servo mounting posts have been installed. Post in front of steering unit is for body mounting. According to type of body this may be altered to a shorter post.

Fuel tank of 125cc capacity, which mounts on radio plate. Filler is spring loaded to ensure quick re-fuelling stops.

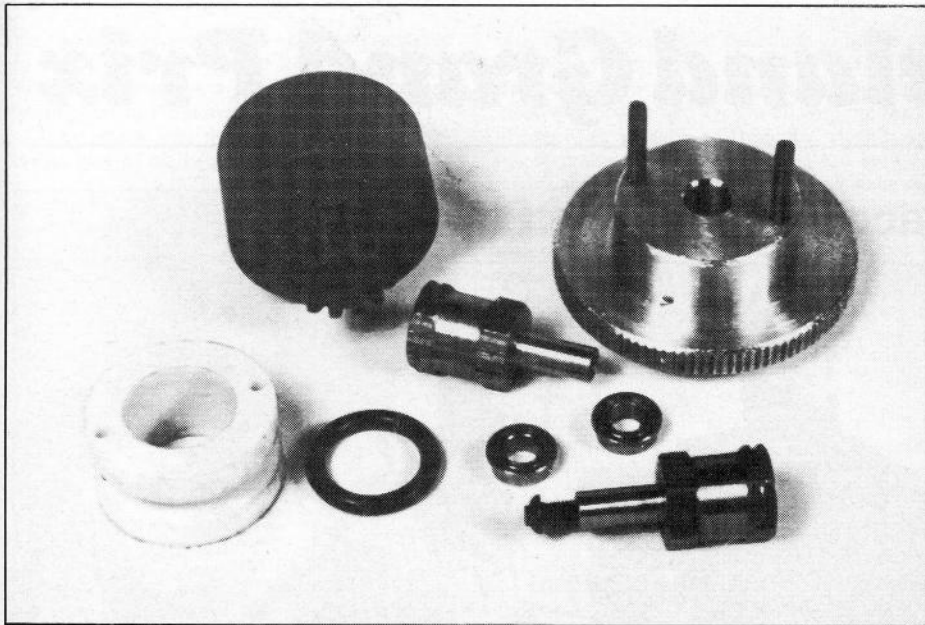


plate as they call it in USA) goes in place with a suitable space for the fuel tank to come through. This packet also contains the four servo brackets which must be drilled to take the self tapping fixing screws using the holes on the chassis plate as templates. Further holes must be drilled to take the servos to be fitted. Here the actual servos can be the templates to show where the holes must go. In screwing in self tapping screws a little Vaseline is a useful lubricant. Do not try to do the job holding the bracket in the hand — secure it in a vice then if the screwdriver slips it will not gash you. Make these screw threads thus rather than doing it direct at attachment point, drilling under size where necessary to give you a start.

Four other nylon pillars will be found in the packet. The two longer ones go to the back of the radio plate, the shorter ones to the front. They should be located about half an inch from the edges of the plate and separated by a suitable distance to take elastic bands from which are sprung the radio receiver and nicad battery for same to reduce the shocks they might receive in running. Two light alloy plates are also included in the bag. Drill these to match the supporting post holes and instal under the plate to prevent it perhaps buckling under pressure of the elastic. Three further holes must be drilled on the plate to fit it to the chassis. Use chassis as a template to locate them. Note that rear radio posts are also used to secure bodyshell in place (of which more later).

The fuel tank comes with two nylon supporting posts. Where the car is to be used without a radio plate (as in some PB marques) these support it. In our case they must be shortened to allow them to support the tank on the radio plate. It will be necessary to drill them through at one end to take the self tapping screws provided.

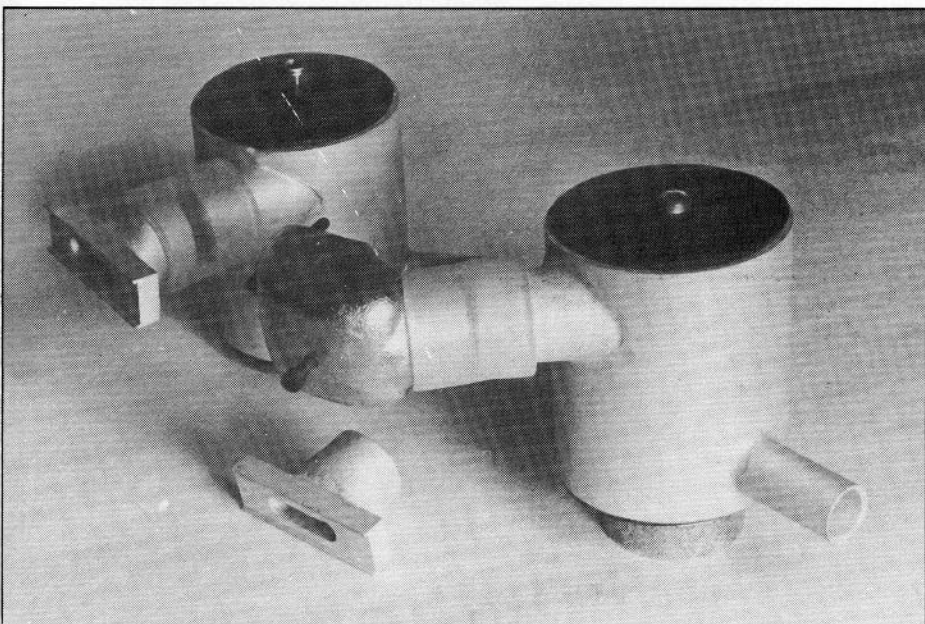
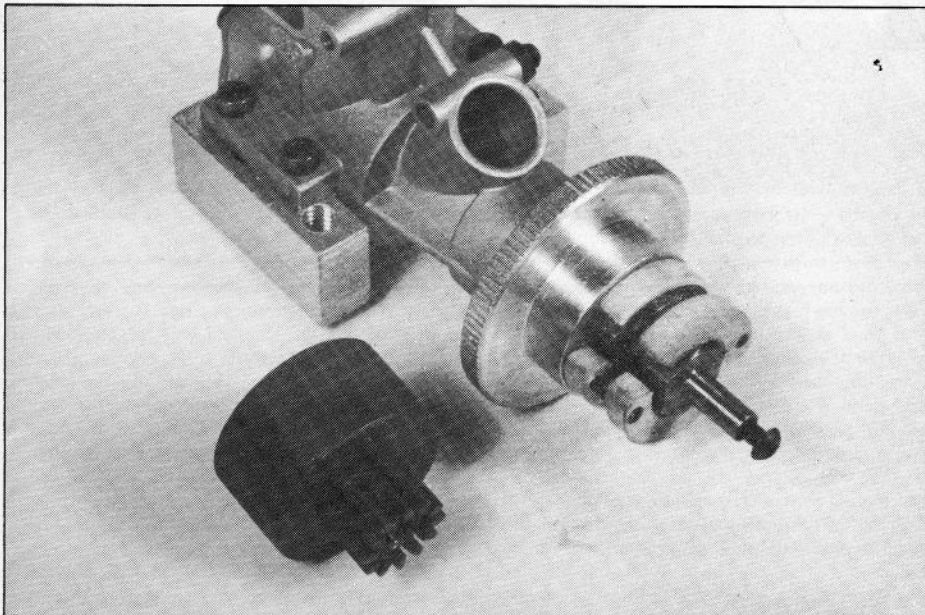
If you have already acquired your engine it is time to open the clutch unit pack. Note that there is a choice of crankshaft adaptor nut according to the engine you have chosen. One is a standard $\frac{1}{4}$ in UNF thread the other is metric; this takes care of the available engines on the market — one or the other is sure to fit! Details of cutting the PTFE shoe ring are given in the bag — small Xacto saw or similar will do the job splendidly. Do not experiment with cutting back the shoes at this stage, just trim them as set out. Take care slipping the O ring over the assembly. Happily, the pivots onto which the shoes slide have already been fitted in place.

The car should now be looking like our heading picture — though there is still quite a lot to be done. I will be covering installation of the radio gear, cutting out the ABS body and painting it in the next issue.

Clutch unit parts. Both types (Metric and UNF) crankshaft adapters are shown here, but in practice you get one or the other threads.

Clutch unit installed. Shoes have been cut and O-ring fitted. Bellhousing with 12-tooth gear is shown on left.

A couple of silencers shown with manifolds fitted. Different engines will require differently shaped manifolds — so be sure you obtain the right one for your engine.



The Cleveland Grand Prix

Race report by Les Pipe

THE 1/12TH SCALE model car fraternity arrived at the Thornaby Pavillion for the fourth Open National event of 1980. This was a new event for the calendar and proved to be one of the pleasantest events I've had the privilege of attending.

By new, I mean that this is the first event of this type, held at this venue, by this organising body, as against the previous events held this year (with the exception of the JDM extravaganza) - the rest have all been done before!

The pavillion itself turned out to be a most suitable venue. The track, as we have come to expect of national events so far, was very large and exceptionally demanding on car and driver. The more than adequately long straight was excellently complemented by a very testing intricate infield consisting of a series of 'S' bends and 180 curves, topped off with a delvishly cunning chicane (I swear the dreaded Trowbridge had been at work there!).

The expected motor testing fiasco, as promised at the end of the Maidenhead meeting, failed to materialise in the shape of the electronic equipment but was adequately replaced by Cleveland club member Gary Catterick, who, in the face of stiff opposition, managed to sift through all the 'red spots', reedies, and their equally undesirable canned power plants. He emerged from all this smiling at the end of the day - quite a feat after such an ordeal. His splendid labours provided us with some of the most competitive racing yet.

Good scores were difficult to come by. Clean driving being the order of the day brought rich rewards, untidy driving was punished by the plate type bots dots. Cars flying through the air became a common sight. As the day wore on, the driving improved and scores started to come together. Top scorer of the day was Neal Francis with an immaculate 24 laps. This score was never approached, the nearest being 22 laps (achieved by half a dozen drivers) and a host of drivers with 21 laps. The practice of qualifying was that the four fastest drivers went straight into the final, followed by two eight car semis providing the other four fastest drivers to complete the line-up for the final.



Team Petra — winning team. left to right, Fred Hatfield, Ross Troman and John Pearson

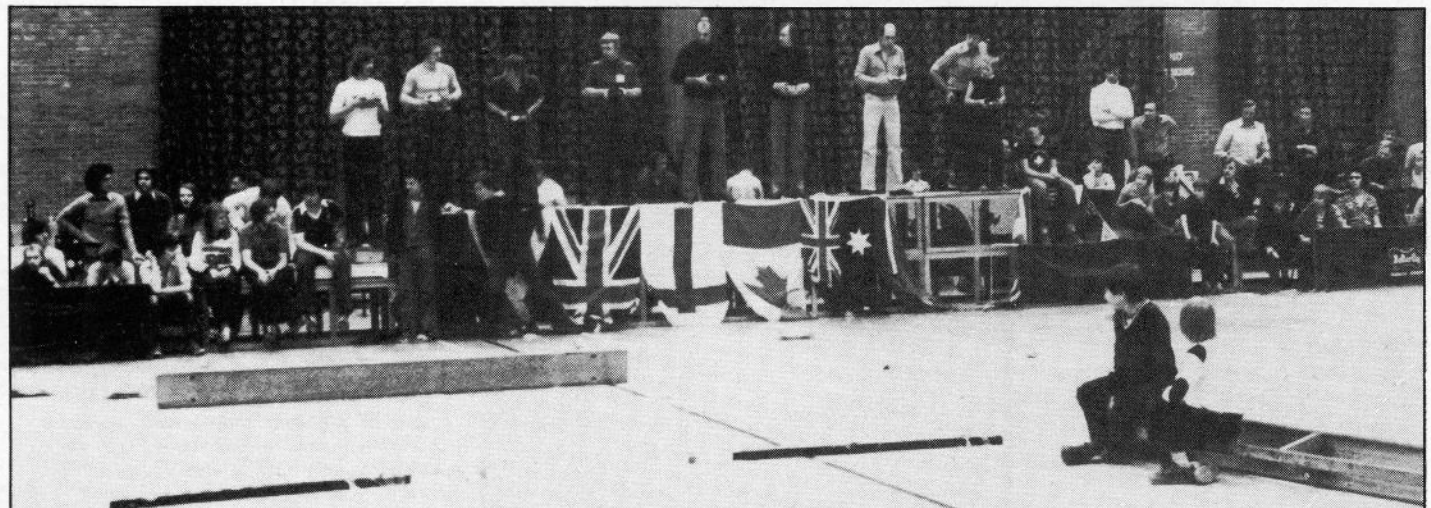
With the absence of quite a few top name drivers, the feeling was that this may have turned out to be a second rate meeting. Having witnessed the day's proceedings, I can only say that the meeting was a tremendous success. The day's racing went off smoothly with very little hassle. The atmosphere was friendly and we all received superb hospitality from the host club (Cleveland). The standard of driving proved to be of the highest order. The meeting followed the traditional BRCA pattern of three finals, rewarded by a more than adequate number of trophies.

The Open Final proved to be the highlight of the day, with an exceptional display of driving by all, but, especially, by Bill Maisey and Neal Francis. Neal found himself in the unfamiliar role of chasing Bill's rear wheels from start to finish.!

An interesting note should be made that Bill (having struggled during the day for rear end traction), went (to quote Bill) 'cap in hand' to Neal, and asked to borrow a set of rear tyres! Neal like the 'good 'un' we know he is, gave Bill one of his best sets. The result we know now and they are still the best of friends! This was a good example of the super sportsmanship present in 1/12 scale at the moment - let's hope it lasts a long time. Having known Neal from when he started on 1/12 scale I am sure he would do the same thing again.

Another notable figure in the Open Final was Stephen Tilley who, as most regular drivers know, is a talented 12-year old. He won the 20% + Handicap Final at Maidenhead in fine style and now has a fourth place to his credit in this Open Final. To cap his rise up the ranks of

Open Final at Thornaby



the handicap drivers, he has now been recruited to drive for the re-shuffled Jim Davis Models Team. This must be a guiding light to you all 'young hopefuls' out there!

A big thank you must go to Dennis Trowbridge plus all his helpers for putting on a very



Bill Maisey — winner. Own version of light-weight associated.

fine meeting. Every last detail was thought out (including 5-star accommodation). The fact that the local council was heavily involved with this meeting probably had a lot to do with the excellent facilities available at Thornaby. Dennis was full of praise for the support and I'm sure we would all like to thank them for their help and financial support. Perhaps we can use their example to persuade our local councils to help with future events.

Main Open Final

1. Bill Maisey
2. Neal Francis
3. Tom Morgan
4. Steve Tilley
5. Dennis Trowbridge
6. Fred Hatfield
7. Derek Scotland
8. John Pearson

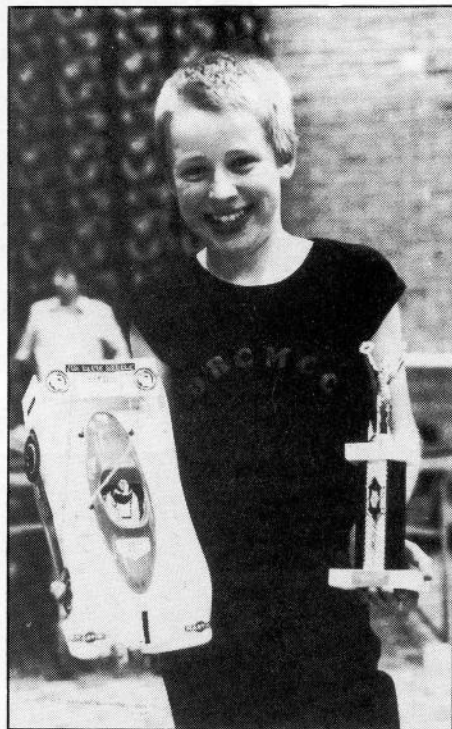
0-15% Handicap

1. Tony Wells
2. Graham Coffey
3. Mark Trowbridge
4. A Chalkner
5. John Butler
6. Pete Clarke
7. Kim Henderson
8. Steve Robinson

20% + Handicap

1. Ken Rigby
2. Roger Hainson
3. Tony Stephenson
4. Peter Sturdy
5. Roy Johnson
6. R. Morrison

Concours: Ian Kerry. Best Local Driver (apart from finals) Paul Lukacher. Team Results: 1) Team Petra; 2)Spectron Developments; 3)Team Hobbysport.



Steve Tilley, 12 year old — 4th in open final

BRITISH RADIO CAR ASSOCIATION

This is the official body controlling the sport in the United Kingdom. Application to any of the Regional Representatives should provide you with the name and address of the nearest club to you likely to cater for your special interests. In the issues to follow club lists and club news will be appearing. Let us know what your club is doing — words and pictures (black and white very welcome).

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 5. **East/E. Midlands:** E. Booker, Kennel Bungalow, Barnwell, Oundle, Peterborough. Tel: Oundle 2910.
 6. **South Midlands:** J. Elliott, 116 Dominion Rd. Glenfield, Leicester. Tel: Leicester 874683. Glenfield, Leicester. Tel: Leicester 874683.
 7. **North Midlands:** Association Vice Chairman.
 8. **North East:** A. Maulson, 1 Scrubwood Lane, Molescroft, Beverley, E. Yorks. Tel: Hull 882329.
 9. **North Central:** Eighth Chairman.
 10. **North West:** F. Livesey, 'Hibre', 107, Station Rd., Delamere, Cheshire. Tel: 0606 883888.
 11. **Scotland:** G. Murray, 35 Claremont Place, Aberdeen.

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- Twelfth Secretary:** M. Newman, 79 Harlow Road, Lidget Green, Bradford, BD7 2HT. Tel: 0274 572075.
- Regional Representatives**
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- Midlands:** T. Morgan, 47 Lichfield Rd. Sutton Coldfield, West Midlands. Tel: 021 354 9489.
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- South:** N. Adams, 79 Northumberland Rd., North Harrow, Middx. HA2 7RA. Tel: 01-866 5945. J. Bicknell, 2 Kimberwell Close, Toddington, Beds. Tel: luton 417777 (Day only). J. Chamberlain, 40 Beverley Garden., Maidenhead, Berks. SL6 6SN. Tel: Maidenhead 22637.

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