



MODEL PUBLICATION

Model **Cars** Monthly

**4 WHEEL DRIVE
ACTION**
-Hirobo
Rock'n'City
Track Tested

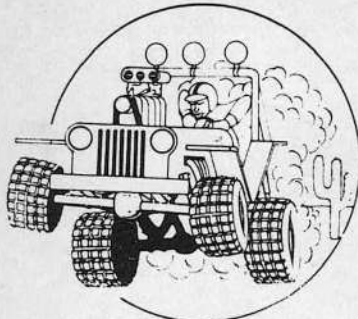
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Model Cars Monthly

(I.R. £1.48½)

April 1984
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Advertisement Director M. GRAY
Editorial Director R. G. MOULTON

Cover

Real space age stuff for this month's cover as we feature that latest challenger in the electric Off-Road stakes. The Hirobo four wheel drive 'Rock 'n' City is sure to create a stir amongst the racing fraternity, as the season progresses. A full Track Test is published on page 30.

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Editorial

Our recent editorial fact finding tour of the Nuremburg Toy Fair has given us considerable cause to be happy about the foreseeable future of the Model Cars hobby. The Nuremburg Toy Fair is the premier showcase for the world's toy, hobby and leisure industries. As such, new models and products are primed and planned for introduction onto the market at this show. Although all aspects of the R/C and Slot Car racing hobby were well represented, Off-Road once again took the limelight. In particular 1/8th Scale Off-Road for which no fewer than eight new cars were unveiled, and all featuring four wheel drive as a standard option.

Electric 1/10th Scale Off-Roaders also featured prominently a steady influx of Japanese kits and accessories which attracted the attention of buyers and journalists alike. Almost certainly the Nuremburg influence will be felt on the U.K. Off-Road racing scene, and we can look forward to seeing some of these items soon.

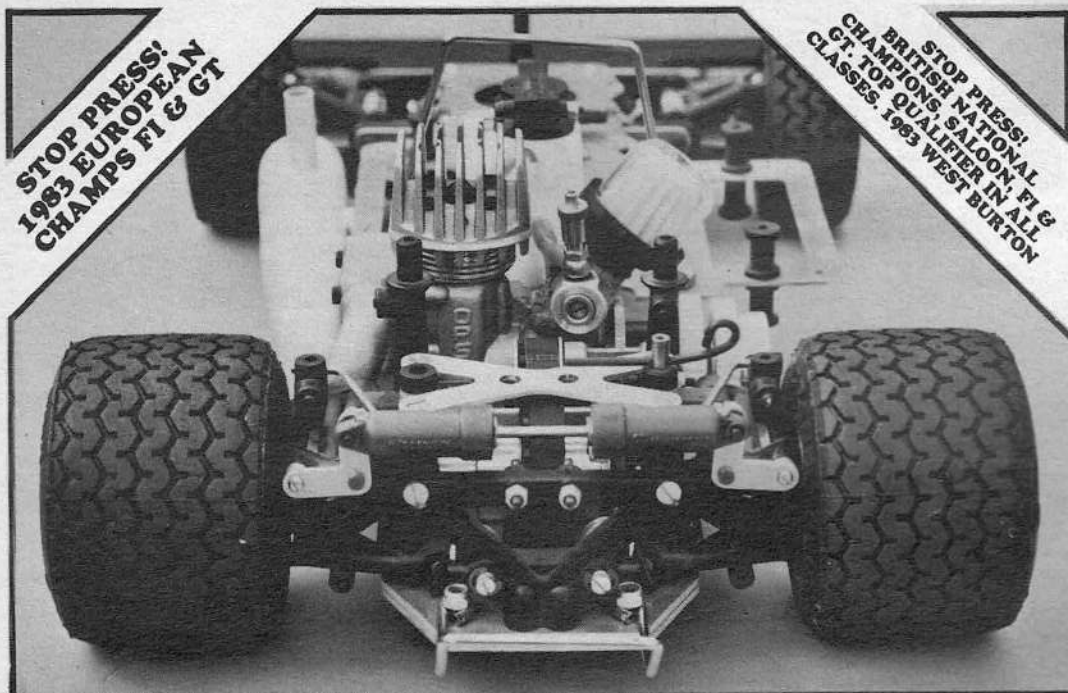
As far as our national racing scene is concerned, once again a full calendar of events for this year have been planned. The British Radio Car Association is actively promoting a National Championship series for both scales of racing and details of this can be gained from the Contest Calendar page. As more drivers become interested in racing at a national level then a greater chance of producing true national champions can be expected. Hopefully UK drivers will have the opportunity to race on an international basis in the not too distant future as the sport progresses worldwide.

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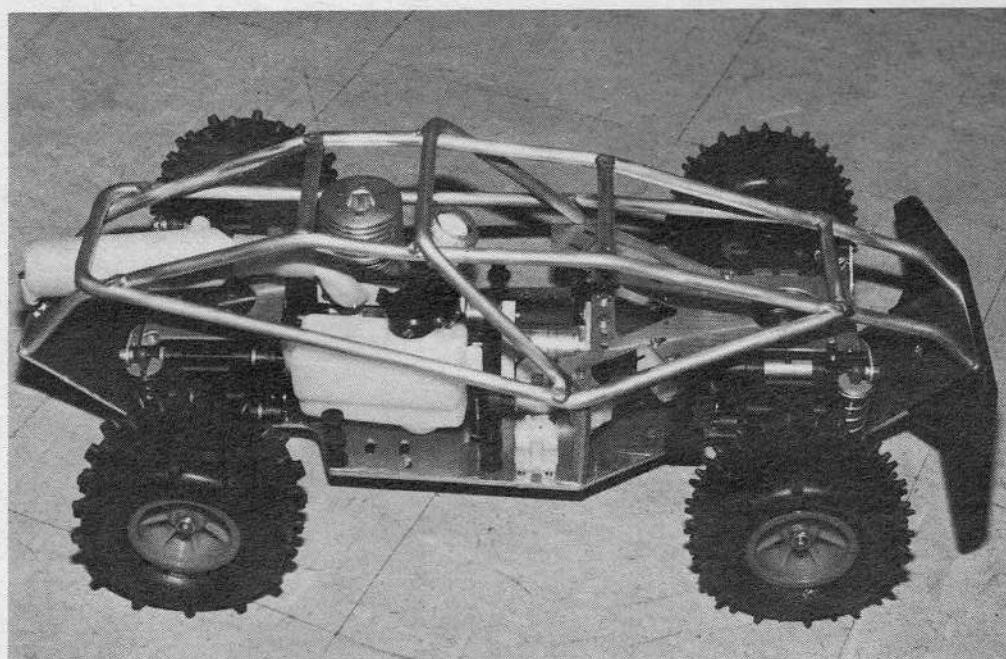
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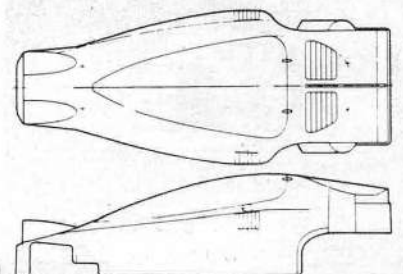
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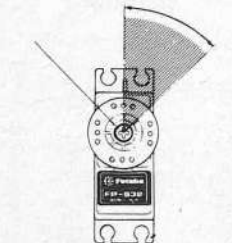


HIROBO

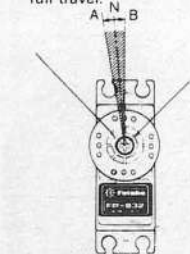
Check out the Futaba 2LGX

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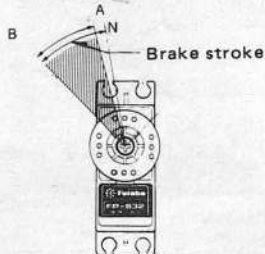
Check, too, the attractive LOW PRICE of the Drycell Combo available now at your local Ripmax stockist.



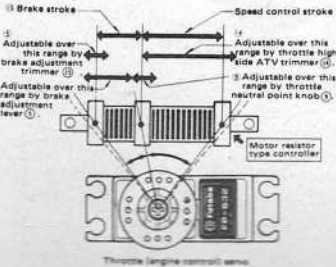
1. LEFT RUDDER ATV adjusts Rudder Servo for Left movement from 0% to 100% full travel.



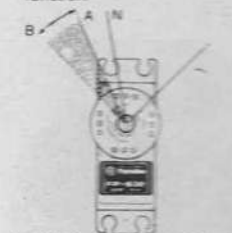
2. THROTTLE NEUTRAL POINT Knob adjusts Throttle Servo neutral over approx. 20° with no effect on brake-adjustment lever, or throttle ATV.



3. BRAKE ADJUST LEVER adjusts Throttle Servo Brake side stroke over approx. 30° with no effect on neutral setting.

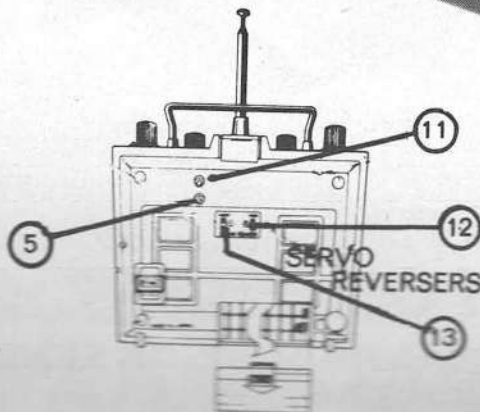


4. THROTTLE STICK controlling Throttle Servo function.

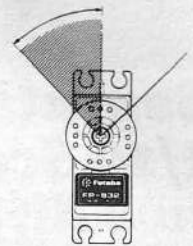


5. THROTTLE SERVO BRAKE SIDE STROKE can be adjusted about 20° with no effect on neutral point set with neutral point knob.

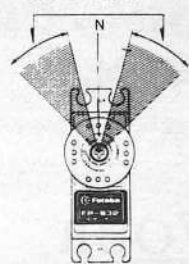
6. THROTTLE NEUTRAL LEVER adjusts Throttle Servo neutral position.



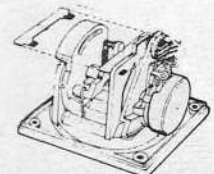
WORLD LEADERS IN DIGITAL PROPORTIONAL RADIO CONTROL SYSTEMS



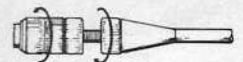
7. RIGHT RUDDER ATV adjusts Rudder Servo for Right movement from 0% to 100% full travel.



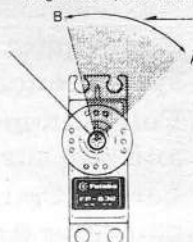
8. RATE KNOB adjusts Rudder Servo angular travel from 30% to 100%. Easily positioned so that you can adjust when running.



9. THROTTLE STICK readily changeable from self-neutralising to ratchet action by installing sliding plate and then removing spring and swing-arm.



10. Both sticks adjustable for length to fit your hand.



11. THROTTLE ATV — high side Trimmer.



12. REVERSING SWITCH for Throttle Servo.

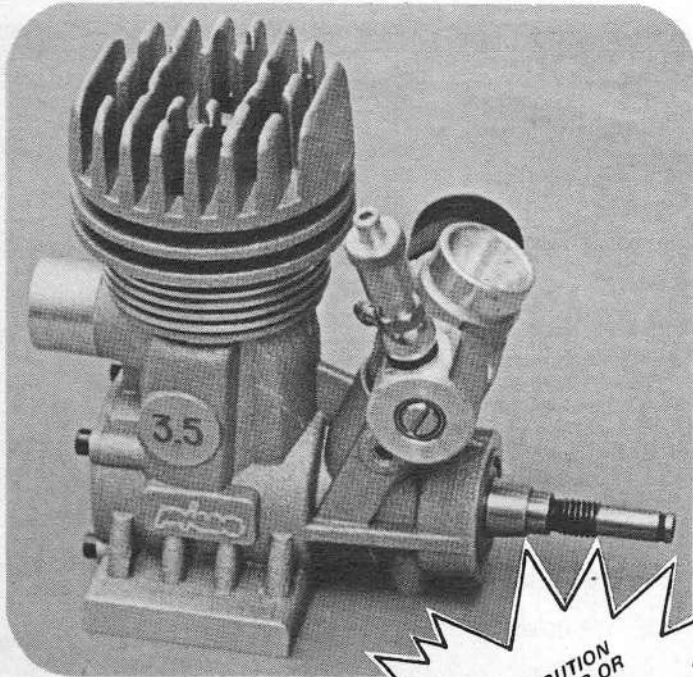


13. REVERSING SWITCH for Rudder Servo.

14. PLUS also change over from Dry cell battery to All-Nicad working when you want to.

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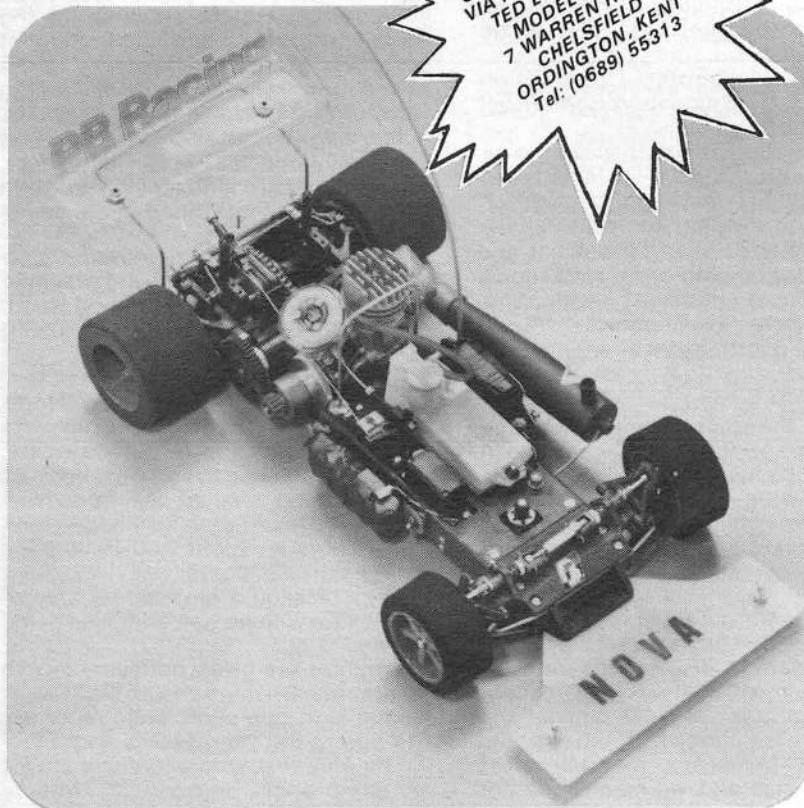
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Following a management evaluation of last year's sponsorship, *Ever-Ready*, the British battery company is to expand its involvement in model sports in 1984.

Model cars, powerboats and aircraft are to benefit from an increased sponsorship package involving assistance with administration, publishing and advertising costs, and other activities which traditionally prove a burden for the largely amateur-based governing bodies in model sports.

The main thrust of the *Ever-Ready* sponsorship programme, however, is linked to a programme of key, highly 'visible' activities, including National R/C Car Championships and an Off-Road Buggy Grand Prix.

Ever-Ready claim to be the brand leader in the UK battery market and, as a British company, is emphasising the quality of its products. Martin Burch, Senior Product Manager, at *Ever-Ready* explains:

"Our aim is to identify with achievement and excellence in an active market such as model sports. Obviously we must have a commercial return — and we hope that modellers will take a growing interest in what *Ever-Ready* is doing. Equally, there is a real value in giving practical support to a family-based, leisure activity in a way that will keep it growing healthily".

1/12th Scale World Champs

A recent committee meeting of the BRCA 1/12th section has produced the driver line-up for the World Championships to be held in Denmark during August. The eight-man team consists of Nigel Hale, Micky Booth, Jimmy Davis, Andy Dobson, Tony Wells, Les Pipe, Wayne Davis and Fred Hatfield. The above names represent fully, the cream of the crop as far as 1/12th racing in this country is concerned and perhaps the World for that matter. The committee meeting also named the Euro-Championships team which consists of the above eight, plus Phil Olson, Frazer Smart, Grahame Davies, Nick Adams, Stewart Chippendale, Jane Adams, Bill Jones, Chris Arnold and Rowland Leonard, a total of 17 drivers.

Considering the UK's stranglehold over this latter event it seems likely that one of the above drivers will be

crowned 'Euro-Champ' in West Germany during March. However, if it isn't one of the top eight qualifiers, then the 'Euro-Champ' will not be able to race at the World Champs. A situation which will hopefully be rectified by the time the world event starts regardless of nationality.

Finally, the new, 35 turn/23 gauge *Yokomo* standard motor will be BRCA legal from May 15 onwards.

Yorkshire Scale Modelling Weekend

Following the success of last year's 'Modelling Weekend' the various clubs involved have agreed to stage a repeat performance on the 7/8 July 1984 at Newby Hall, Ripon, North Yorkshire.

At the present time it is the intention to stage the following competitions/displays:

(a) Two Day Electric Off Road Model Car Competition (organised by the Harrogate Model Car Club Buggy Section).

(b) Model Boat Competitions (organised by the Harrogate Model Boat Club).

(c) Plastic Modelling Competition (organised by the Harrogate Scale Model Society).

(d) Model Helicopter Competition (organised by Knaresborough Model Flying Club).

These competitions/displays coupled with the existing facilities of the Newby Estate should provide an entertaining weekend for all the family.

For further details of the event and the various competitions please send a *large* stamped addressed envelope to: Mr. R. Thorn, 22 Chatsworth Place, Harrogate, North Yorkshire.

Club Chat

Despite the almost blanket coverage of Off-Road orientated R/C car clubs in recent 'club chats', we now have details of clubs running alternative events. The first of which is **Club Heathrow Racing**, details of which have been sent in by Club Secretary, Alan Wylam, who writes:

"Club Heathrow Racing, which was formed in 1977, race 1/12th Scale Circuit racers to BRCA standard class rules. We meet every Friday (except school holidays) at 7.00 p.m. at the Crane Junior School, Norman Avenue, Hanworth, Middlesex. The hall is of generous size and we race on carpet with the track layout designated by fire hoses filled with sand. The track design is changed every four weeks.

Annual membership is £6.00 for drivers aged 17 and over, and £3.00 for 16 and under. Nightly fees are £1.00 (members) and £2.00 (non-members).

We have a strong club with over 30 members and a regular 25 race every Friday. Races are held in four heats, three to four races per heat plus finals. The Championship runs for club

members every 12 weeks, giving three championships per year, and the first six places and the best junior (16 years and under), take championship prizes. To provide a change to regular race evenings, team races are held six times per year.

With the Southern League being unsuccessful our club is interested in holding Saturday or Sunday events, open to all other clubs. I would therefore like to hear from those clubs and individuals interested, please write to Alan Wylam, 21 The Maltings, Wey Meadow, Liphook, Hampshire GU30 7DG. (Secretary).

The **London Radio Car Club**, under the guiding hand of Club Secretary, Steve Fagg, will be providing an active racing calendar in 1984 for 1/8th Scale I.C. Circuit racers at their Crystal Palace Circuit. The club was formed by six members from the old Bromley Club in June 1982 after permission to use the area within the Crystal Palace National Recreation Centre Complex as a Model Car Circuit was secured.

Membership now stands at approximately 70, a low number if you consider the catchment area of the track, but the club are very hopeful of attracting a large membership in the near future from the many spectators who turn up to watch the club events.

The lap length of the circuit is approximately 250 yards at present. The track record is 19 laps set by Keith Pleded during the June 1983 points meeting.

Anyone is welcome to attend club meetings, details of which are available from Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DQ. Tel: (0689) 77464.

Returning to the electric side of R/C car racing and news of the **North Derbyshire Model Racing Club** who race both 1/12th and 1/10th scale cars. Club Secretary, Dave Jones, tells us that the club race at the Speedwell Rooms, Staveley, Nr, Chesterfield every Thursday night 7.00-10.00 p.m., racing starts 7.30 p.m.

They race on a blue carpet area of 20m x 12m with no tyre additives being allowed at all.

Trophies are given out every month to all three divisions and an eight week league is in operation, team races are run during the year.

The only restrictions on cars are (1) No sharp edges on body, (2) Nothing below basic chassis level (except tyres).

Any other club who race on carpet without using additives, are invited to get in touch with Dave Jones (0246) 825079 after 5.00 p.m. to discuss the possibility of holding a non-BRCA one- or two-day meeting.

The **Weston Off-Road Models (WORM) Club** down in the West Country have now secured an area for a permanent circuit at the Weston

BEATITLES



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Football Club. This is indeed good news as racers and spectators alike will be able to enjoy the social facilities of the Football Club house including bar, skittles, pool and TV.

The club are very hopeful that the track will be available for their first 'open' meeting to be staged on March 25th. Details of this meeting and all club activities are obtainable from Mark Pope (Club Secretary), 'Timberscombe', Bridgwater Road, Lympham, Somerset. Tel: (093-472) 516.

Finally, we have news of the **West Wales Buggy League** from League Secretary J. Williams.

West Wales buggy racing clubs, namely **Swansea Electric Radio Car Club**, **Teifyside Model Car Club**, and the **Carmarthen Radio Control Club**, discussed the future of Off-Road radio control racing in the area.

It was decided to promote the sport in the area by forming a league, which would run an inter-club championship, and an individual driver championship. This would provide a

club competition and national events.

The West Wales Buggy League will be run by a committee of two members from each club involved in the league.

Any other clubs interested in joining this venture or any drivers wanting more information please contact League Secretary J. Williams, Sunny Bank, Cilgerran, Cardigan, Dyfed SA43 2PE, or Roy Leighton Models on Carmarthen (0267) 236955.

Further details of venues and dates will be publicised in future issues of 'Model Cars'.

Model Cars Event Coupon

Name of Club.....

Competition Secretary.....

Address.....

Tel. No.

Track Location.....

Class of Racing.....

Entry Fee.....Date(s) of Event.....

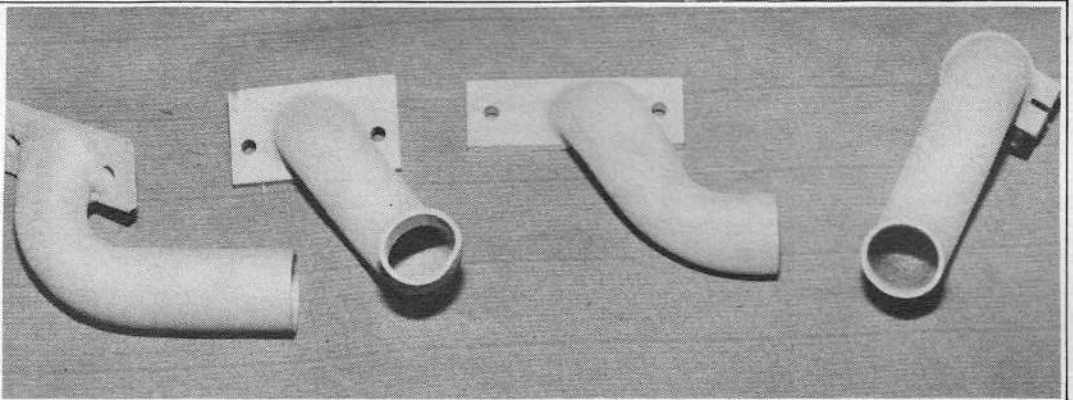
Event Specification.....

Facilities available.....

Gearbox

S.G. Manifolds

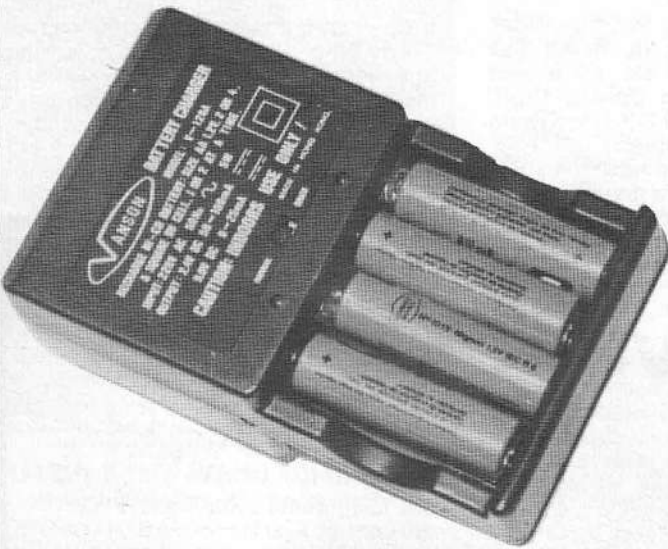
Phil Greeno Models of 9, Village Way East, Rayners Lane, Harrow, Middlesex are now able to supply a range of manifolds from S. G. Racing of Italy. These manifolds are designed for use with the following engines using forward mounting silencers or tuned pipes. OPS side exhaust, OPS rear exhaust, OS side exhaust and Picco rear exhaust. Prices £6.95 each.



Vanson Charger

For real ease of application this plug-in type Ni-Cad charger distributed by 'Highlights' of High Wycombe cannot be beaten. The charger incorporates two charging sections for 'AA' 500 MA and square 9v cells. This fully automatic unit can be set for either a slow or quick charge time as

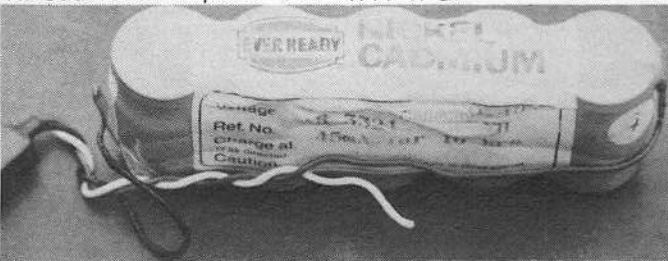
indicated by the appropriate LEDs. The approximate charging time for 'AA' size cells is 2-3 hours (normal charge time 4-6 hours) whilst 9v cells can be fully charged in 4-5 hours. The 'V-128A' charger plugs directly into an ordinary 3 pin household electric outlet. Available from most good Models Shops.



Ever-Ready Ni-Cad Pack

Ever-Ready Limited, Britain's largest producer of consumer batteries are now producing this handy 6 volt Ni-Cad receiver pack. This

pack has found considerable favour amongst the 1/8th scale circuit racing fraternity, where super quick servo's are almost essential. Details of all Ever-Ready batteries can be obtained from 50 Upper Brook Street, London W1Y 1PG.



New Scorpion Wishbones

In response to the rigorous 'testing' methods conducted by some Off-Road racers Stan's Catchpoles Model World are supplying these replacement wishbones for

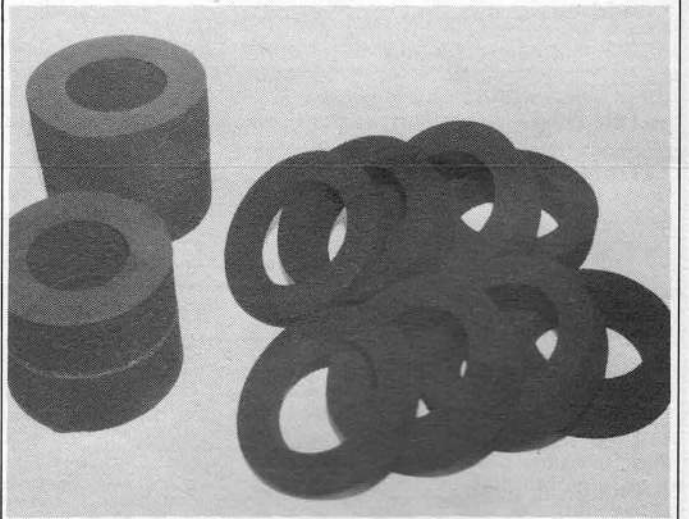
the Kyosho 'Scorpion'. These particular items will prove to be stronger than the kit items as they are moulded from glass filled nylon. Available from, Stan's Catchpoles Model World, 85 Bold Street, Liverpool, L1 4HZ. Price £3.50 per pair.



PB Tyres

A new selection of rubber from PB Racing's tyre range is now generally available and includes the 221 Super high traction rear tyre. '225'

rears are also proving to be popular on most circuits due to their low wear rate. Available from P.B. Racing Products stockists. Price £18.52 and £7.61 respectively.



Parma 'Panther' Update

With the 1/12th Scale World Championships only six months away it is hardly surprising to see *Parma* continually uprating their 'Panther' 1/12th scale competition car in readiness for the event. Indeed much of

the recent design innovations have come from our U.K. based *Parma* team, which is sponsored by *Helgar Racing*, Sole *Parma* importers for Great Britain.

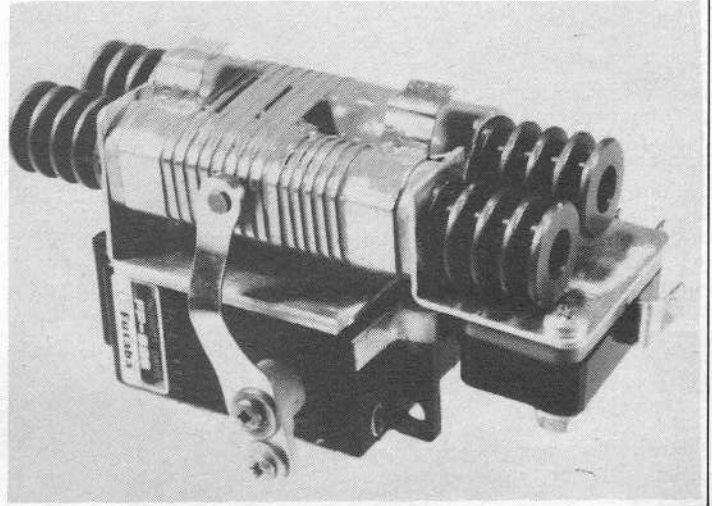
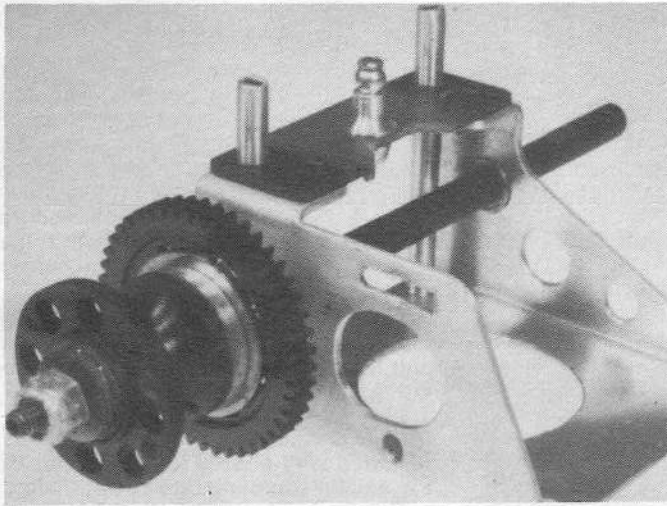
The 'Panther', has undergone a dramatic revision with the introduction of a new aluminium rear motor pod which apart from being

lighter also allows for easier motor removal and heat dissipation. The all new front end features adjustable width, ride height and castor and can be mounted onto any 1/12th scale car.

On the accessory side *Parma* are now producing an Off Road double barrelled resistor speed controller

which mounts directly onto the servo. A reverse micro switch is also included plus a double heat sink and epoxy coatings.

All the above are available from *Helger Racing*, 72, Lauderdale Tower Barbican, London EC2Y 8BY. A price list is available on receipt of an SAE marked 'price list'.



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Open International

Although to some it might seem to be a little risky, *Model Cars* magazine with the support of *Ever Ready* the battery manufacturers, have offered to host the first International meeting to the provisional EFRA (European Federation Radio Autos) rules. Risky because we haven't seen the rules yet, nor has anyone else in EFRA for that matter, as they are still in the course of preparation for circulation by the end of February. However, the rules are unlikely to present any real surprises, it is realistic to suppose that they will fall very closely in line with those already in wide use throughout this country.

This meeting has already been publicised in overseas magazines and the EFRA Newsletter and it is hoped that the chosen venue of Stoneleigh, which has the facilities available that continental European racers demand, will attract more than a handful of foreigners. Entry fees will be high by current standards £8, but this figure

Valley Holiday Village, near Filey N. Yorkshire on the Bank Holiday weekend of May 5 and 6. Format for this combined IC and electric meet will be practice Saturday PM, heats all day Sunday and Monday morning with all finals on Monday afternoon. This will be a BRCA Championship meeting and open to visitors at the MAP/Leisure one week hobby holiday, so send to *Model Cars* for entry forms early to make certain of your place.

New OPS buggy motor

Talking to Phil Booth, OPS engine importer, recently I discovered that a new OPS buggy engine is soon to be available. This new engine incorporates the internal parts of the very potent rear exhaust motor in a side-exhaust crankcase with probably an enlarged heat sink head. OPS reputation is second to none in producing high performance racing motors and a specialist buggy motor from the Italian concern should be good.

Incidentally, whilst chatting with ex-world champion 1/8 scale circuit driver Phil, he said that the idea of trying his hand at 1/8 scale off-road appealed greatly. Now there's a thought, a driver of his ability could really put the UK on the world map for off-road racing, so far, our driver's forays into Europe have not been significantly successful, although our UK teams for this year's EURO Championships have considerably more experience and should do much better than in the past two years.

New permanent circuits

News continues to trickle in of clubs up and down the country building permanent off-road racing circuits. This sport is definitely still on the up and up. Latest news comes from the Milton Keynes Model Society who have been lucky enough to be able to secure a place in an area set aside within the new city of Milton Keynes as a 'noisy sports area.'

The club expect to eventually have facilities for 1/10 and 1/8 scale off-road and 1/8 circuit racing. Work is proceeding fast on the foundations for a 'pukka' 1/10 electric circuit commencing with laying drainage for the area, to be followed very shortly by 150 tonnes of top soil for sculpting into an undulating surface circuit. Even though the land has been provided on a modest lease arrangement, the club still has to find cash to pay for the large quantities of materials required. Prospective members contact D. J. Meadows, 8 Drayton Road, Newton Longville, Milton Keynes.

Film stars

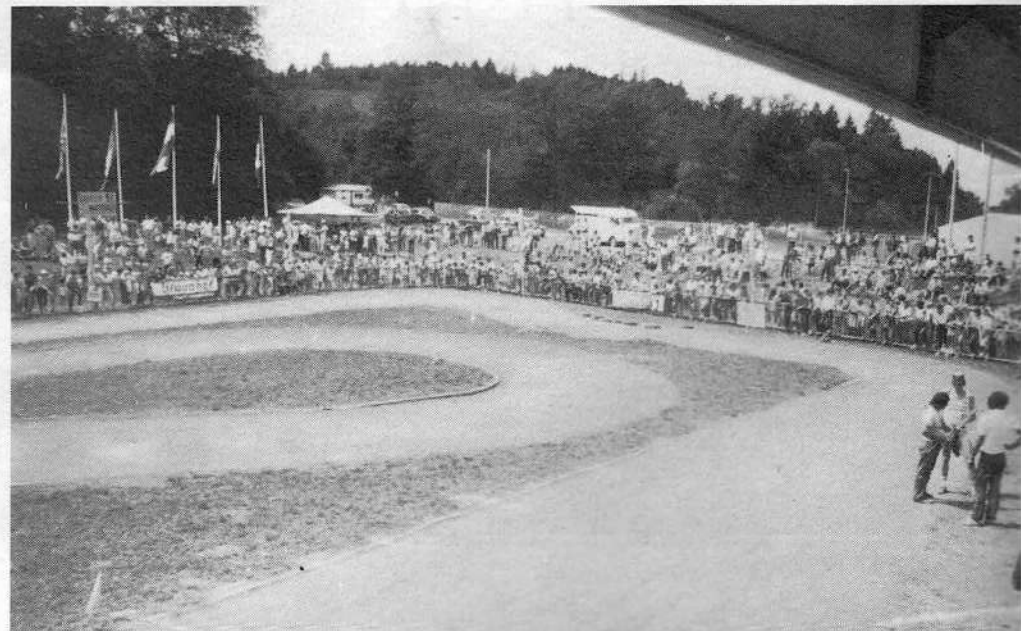
Just before Christmas I was asked whether I could arrange for half a dozen 1/8 buggy drivers to help out in producing some really good quality film footage for a video being produced to promote model sports in general. It seemed such a good idea that I jumped at the chance and twisted the arms of several of the 'Remote World' Goring



Above: the sort of facilities that UK organisers must provide when organising International Meetings. Covered pits for all participants including tables, chairs, compressed air cleaning hoses and refreshments! Right: European Meetings regularly attract large, often paying audiences.

has to cover such extra items as provision of covered pit areas, marshal's expenses, double timekeeping facilities etc. plus of course prestigious trophies. Entry is open to any BRCA member and forms will be available from *Model Cars* magazine offices. Offers of help are already to hand and Stoneleigh staff are able to offer plenty of help in producing a suitable circuit, so it looks as though Sunday May 27 could be a real 'Bonanza' Buggy day.

Still on the subject of Buggy Bonanzas this year *Model Cars* will be moving North for the first of its events which will be held at the Primrose



Robbe 'Presto' 4 × 4



Now available, the Robbe 'Presto' four wheel drive 1/8 scale car. All but dominated the finals at the 1983 Euro Champs, finished second. State of the art car features trailing arm front and rear suspension, with drive to the rear wheels by chains running from the inside of the swinging arms. Kit is available in two wheel drive and can be uprated step by step to full four wheel drive with two differentials.

on Thames circuit regulars to help out. The chosen day as always turned out to be cold with a suggestion of rain to come. The film crew comprising of camera man, sound recordist and director turned up, engines were started and warmed up and we were ready to begin.

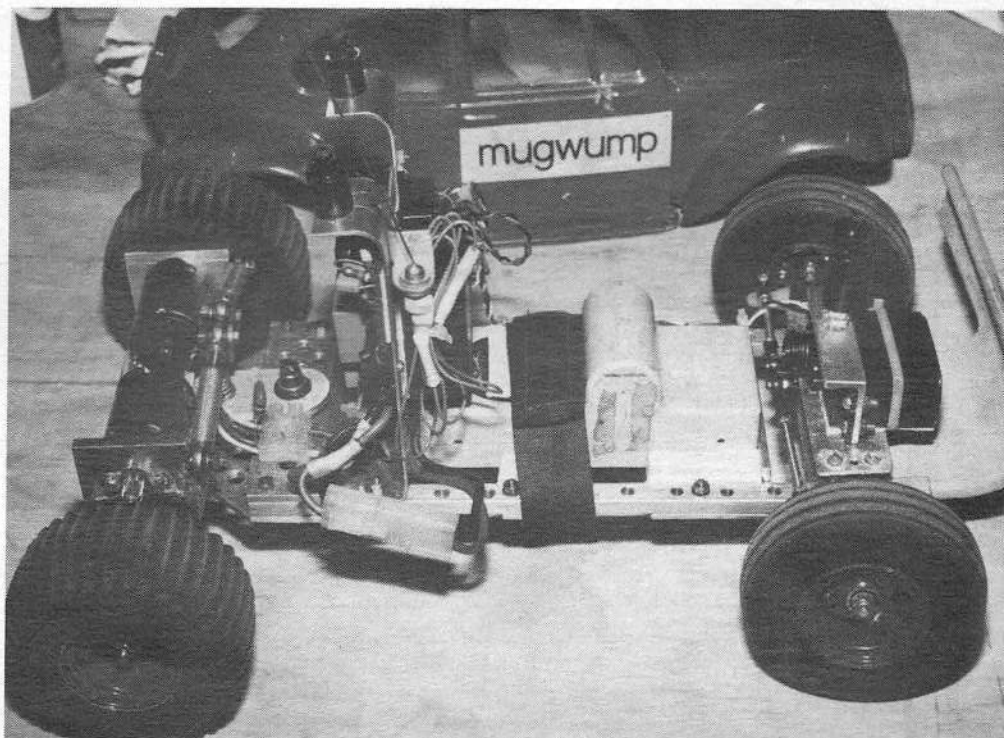
Those of you who have seen either home cine film or video recordings of model cars racing will appreciate that the average home movie maker has great difficulty in putting anything onto the screen that convinces. This crew really knew their job, having just completed the filming of the full-size National Rallycross Champs for the BBC and were prepared to put their camera in places that other cameras just couldn't reach! For example imagine putting your own video outfit on the ground in the middle of the fast straight then asking car drivers to race flat out around it! After some three hours of filming, several hundred feet of film and countless laps of the Goring circuit the director reckoned he had several shots that he could piece together!

I haven't been able to see the results yet but if possible I will try to get some 'stills' from the film for future publication in *Model Cars*.

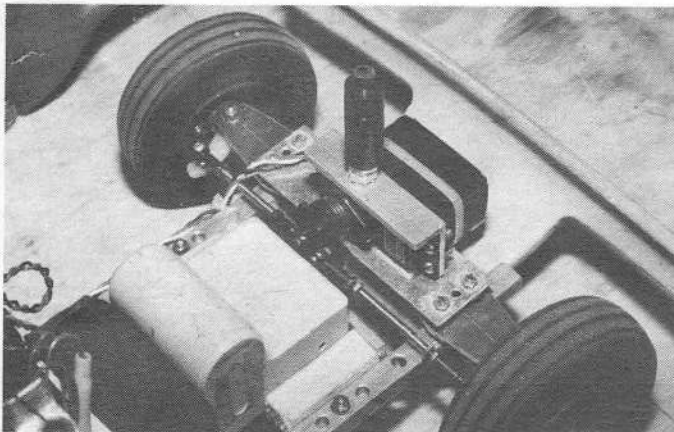
New electric buggies

The Wembley Conference Centre venue of the 1984 Model Engineer Exhibition provides a showcase for the first major public exposure of the new *Hirobo* four wheel drive buggy driven

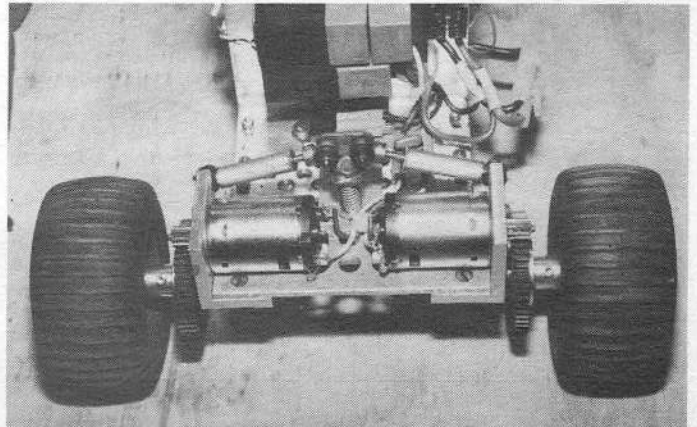
Below: an interesting, scratchbuilt electric off-roader spotted at the Model Engineer exhibition. The 'Mugwump' as it is known was drawn, designed and built by John Meyers of Aylesbury in Bucks. The chassis is of the aluminium ladder type with spacer plates front and rear. Two 380 size motors are included. One for each of the rear wheels, total weight of the car is 3lb 12oz when fitted with a Tamiya Ni-Cad pack.



Rough Riders



Above: the front suspension of the 'Mugwump' incorporates a single swinging arm system. A Schumacher servo saver with Tamiya track rods is also fitted.



Above: highly interesting 'Mugwump' rear suspension. Each of the two 380 motors are fitted to alloy brackets which flex upwards and downwards from the main chassis. Two horizontally opposed shock absorbers provide the damping.

to a well deserved B final win by Gary Marsden. The car looked to be handling very well, nicely balanced suspension and very powerful steering gave the *Hirobo* a solid look on the carpet circuit which, to be fair, favoured the light and quick *Bo-Link* 'Diggers' more than the other cars which certainly show up better on the more rugged outdoor circuits.

Cecil Schumacher's modifications to the basic *Bo-Link* car have steadily

improved the handling of the car until the 'Digger' can truly be said to have full suspension and refute the criticism that "it isn't a proper off-road car."

To my mind the very fact that this car and others of similar parentage on the 1/8 scale front (PB Alpha) must be considered 'proper off-road cars' if they win off-road races! Still you cannot please everybody.

Several of the new *Mardave* 'Apache' 1/10 electric cars were to be seen, im-

pressing one and all with their robustness and general stability on the track. Although the 'Apache' has taken a long while to emerge from the Leicestershire 'Tepee' of Wes Raynor's *Mardave* organisation, one can only be impressed by the excellent value of the kit. *Mardave* products consistently amaze me with the value for money given and although in current racing and other aspects of R/C car racing *Mardave* have not figured amongst the

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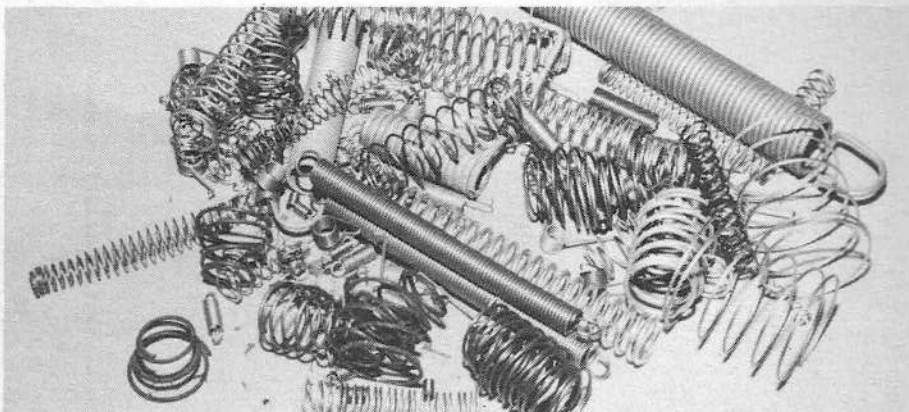
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Below: the sort of thrills and spills and general excitement that draws the crowds to International Off Road meetings.



Above: Proops of 52 Tottenham Court Road, London W1P 0BA are now offering this interesting pack of assorted springs for £1.00. Surely there must be something for everybody here.

winners for some years, countless modellers have been introduced to the sport in a low cost fashion by these products. One must not fail to mention that *Mardave* stock cars are still the tops and the 'Apache' looks to have the potential for big things.

I understand that there will soon be a number of up-rating devices on the market for the *Tamiya* 'Brat.' Don Ison of *Nodis* is soon to be marketing a replacement set of gearbox side plates

to take a 540 motor and a full range of gears probably a differential too. Ted Longshaw meanwhile will by the time you read this have differentials available for the 'Brat.'

Watching other people's 'Brats' at Wembley and also taking the offer of a drive with my daughter's example, the absence of front dampers was very noticeable and I will be looking into this very soon, hopefully for the next issue of 'Rough Riders.'

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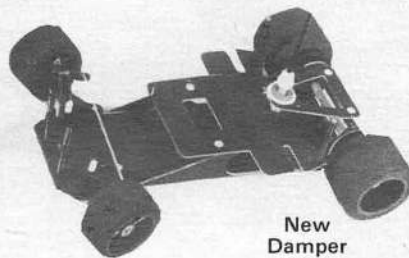
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Photo-Action Competition

PHOTO 1: Martin Spencer of Sandown on the Isle of Wight has chosen some particularly morbid subject matter for this "wet 'n' dirty" shot. The car is a 540 powered 'Sand Rover' and the photo was taken using a *Chinon XII* with standard lens.

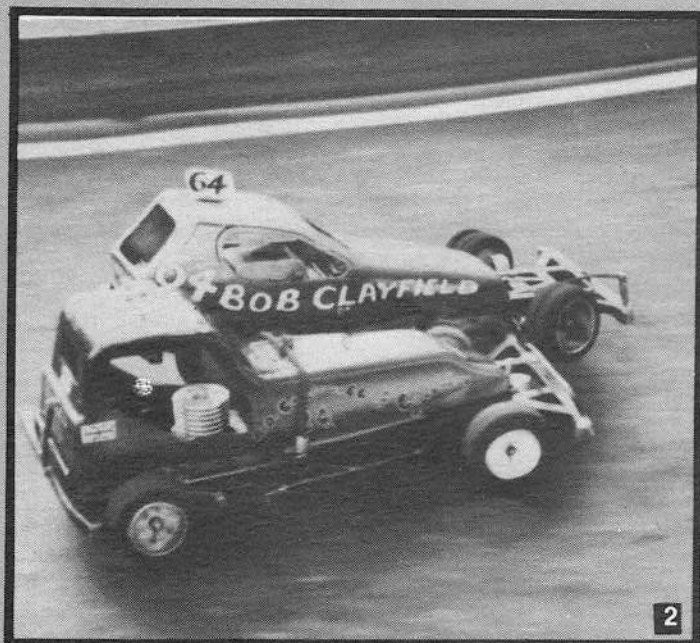


PHOTO 2: Yet more Coventry Model Car club stockcar action; this time from the 1981 European Championship meeting. Andy Fulford took the photo using a *Canon Ae-1* with 50mm lens.

PHOTO 3: Our winning Photo-Action shot this month is by T. Sandell-Codd, Club Chairman of the Lincoln Rallycross club and was taken at the club circuit. A *Praktica MTL5* fitted with 135mm lens, was used to great effect to capture this *Tamiya 'Superchamp'* at speed.

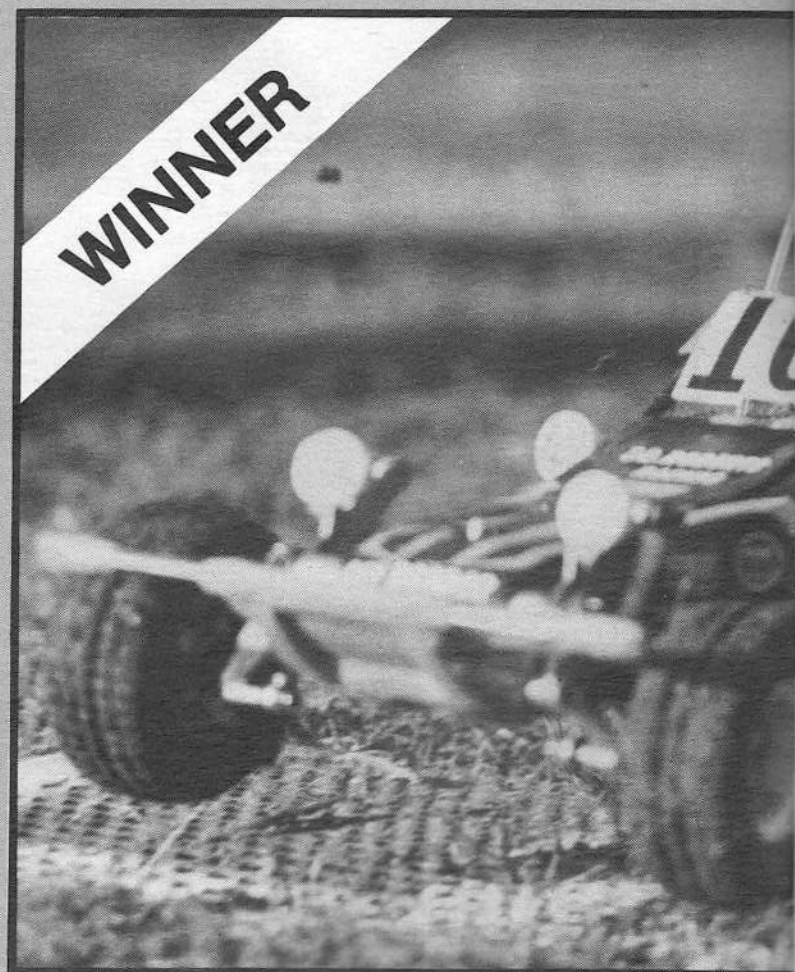


PHOTO 3: A *Mardave* 'Marauder' at speed on the Colchester club track captured by Gerry Canham of Ardleigh, Essex using a Ricoh KR 10.

PHOTO 5: from the Isle of Man comes this 'rallycross' shot of Keith Blackman's 540 powered, modified suspension 'Holiday Buggy' taken during practice runs. Keith used a *Canon* AE-1 with vivitar zoom lens.

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 - (4) Any number of photos may be submitted but please mark the back of the photos clearly with your name and address plus details of the models, the site and the camera used.
 - (5) If you wish us to return the photographs please include a stamped addressed envelope.
 - (6) The photographs must be your own work — commercial processing is allowed.
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 - (8) The judges' decision is final.
 - (9) *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.
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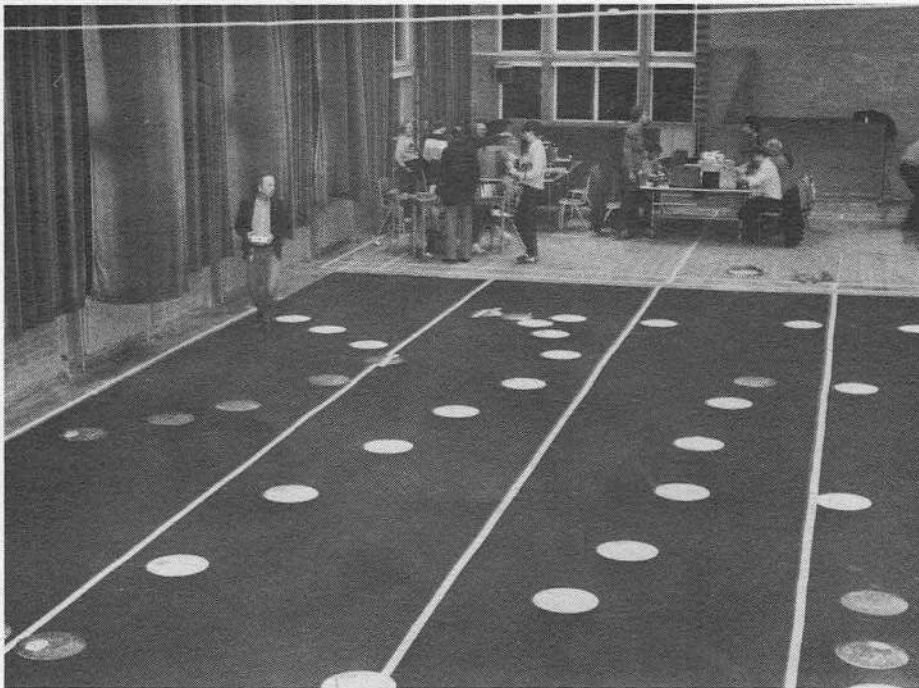
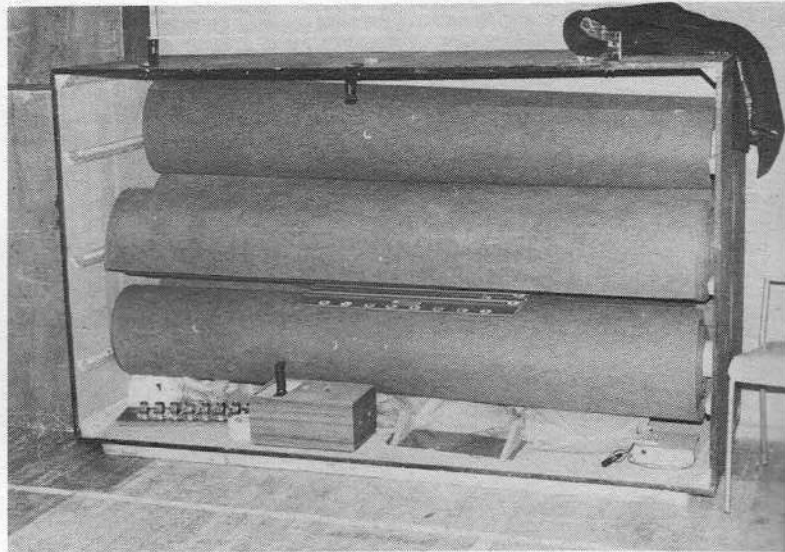
PHOTO 6: Some experimentation with racing in the snow provided Chris Whiteman secretary of the Kent and Sussex Off-Road club with an ideal opportunity to capture some exciting shots. Chris used a *Praktica* MTL 3 camera.

PHOTO 7: The ubiquitous 'Wild Willy' shot of wheels in the air was taken by J. P. Hibbert of Macclesfield, Cheshire using a *Zenith* TTL and 200mm zoom lens.

A gripping tale of simple racing folk

We've never been in the big league; occasional visits from local aces, plus our own hot shot, is all we needed to remind us of our place. Derek and Marion (they inherited the club from a local shopowner) have always maintained a convivial atmosphere for the participants. We number between 18 and 25 each week and our venue is the Students Union Hall of a local college. Most of us are on the right side of 21, or the wrong side of our bank balance, so racing is kept low cost and reasonably competitive. Our woodblock floor generated good grip and virtually any pattern of silicon stipple would work. However we share the hall with a roller disco, beer festival, pop gigs and other perfectly natural activities designed specifically (we reckon!) to ruin the

Right: a strong spacious lockable box is essential for any club if they wish to store the precious carpet at the race venue. This stops others from putting it to their own uses. Below: the local club, now with carpet and enjoying an upswing in interest. Bot-dots to denote the course allow more margins for driver error.



floor. Now, after two years, the grip is both variable and low and there is little or no prospect of the floor being stripped and resealed. Derek and I both had opportunities to race on carpet, but in its early stages at that club, tyre cleaners were banned. This gave rise to frustration, and ping pong bat rubber as tyres.

After the Eurochamps at Watford it was apparent that needlepunch provided a better gripping surface without cleaners, but that these tyre additives were the way to go. With cleaners allowed, 'hey presto' grip aplenty. And so was created our dilemma, with an alternative high grip surface available, what to do about our own club floor. We could move venue, but this might not maintain membership and there was no guarantee of a good floor. We could pay to reseat the

floor to its original standard, but why pay out a large sum so that others could wear it out? So we decided to try for a carpet. A few phone calls and enquiries revealed that the lowest cost surface was the needle punch used at the Eurochamps. This is available in 30 metre lengths, 2 metres wide. To cover our hall three rolls would be required to give a racing surface of 15m by 12m. Total cost £350+ including a storage box, tape for joints and incidentals.

After long and protracted negotiations, we gained permission to leave a box within the hall, so the project was on. Since the club does not have that sort of reserve of funds we decided to canvass our racers as to their wants for the future. We wrote a note explaining the problem and seeking agreement for purchase of the carpet by offering a two-year

'membership' of the club for £10.00. Coupled with loans and donations we needed 20 members to agree to raise the money and show that at least 60% of the club were willing to make the change. We chose this method so as not to raise our weekly race fee, and to provide a priority to those who had contributed towards improving the club, as opposed to those who might come when all the work had been done. Well, all credit to the brave, 20 duly stumped up the money. The next two problems were laying out, storage, and tyres. We made (well Derek made) a lockable box to store the six 15m rolls horizontally, providing room for 'dots' as well. We use masking tape for the joints as this carpet does not have enough weight to hold itself down flat enough to race over joints. This sticks well and provides good grip for tyres. On the tyre front our thanks to Nick Upton of *Michaels Models* for advice, and Pete Jones of *Tru-Tyres* who provided more practical support. Due to the aforementioned age or financial embarrassment we were trying to achieve a high standard of grip without tyre additives. After tests at the Ally Pally Carpet league we recommended 'Tru-Tyres' 06 rears with either 05 front or *Mardave* fronts and so far not one complaint, the members love it and attendance is improved.

So the question is, will carpet be the way to go for 1/12th racing. The answer must be yes but with reservations. Now that grip is assured it pays the 'works' teams to throw money at their efforts and thus the gap between them and us widens. Expensive motors, frequent new cell packs appear de rigueur for winning. The flipside of the coin is the real benefit. Much closer racing at the middle levels and driver skill, not tyre preparation, the deciding factor. At club level more satisfaction for newcomers and old hands alike, and of course Buggies for real low cost racing on the same surface.

A suggested checklist for your club if

you are considering a change.

(1) Work out how much carpet you will need, remember you don't have to cover your whole hall, with better grip you can have a tighter circuit.

(2) Locate somewhere to store your carpet, and, if required, get permission to build a storage rack or box. Don't forget to leave room for dots, lap counters, hose, etc.

(3) Canvass the support of club members for the change. Know exactly what you need in advance and present a complete plan to the members, remembering to cover all the options. If money is needed get a commitment early on so that you know where you stand, actual monies can be collected later. Only proceed if you have majority support.

(4) Negotiate with your supplier on cost and delivery to be sure of the price, colour and availability.

(5) Collect the carpet and lay it down on a club night. Allow a 'free for all' to start with for members to try different tyres and set-ups. Get the experts to help the beginners, then run one set of heats for everyone to try their set ups.

Having made the change we are very satisfied with the results. Tyre preparation before club night is minimal and consistency of grip is excellent. Best of all a home built chassis can win!

Tyre and Treatments

During the past few months, new products in this area have crept onto the market with little publicity.

True Tyres (TT) have released a new rubber compound called the '07.' TT used to have a numbering system which was simplicity itself, the harder the foam rubber compound, the lower the number. However, 07 is definitely harder than 06, so there goes another good idea. I race about one hour a week (9 six minute heats/finals plus practice) and the longest lasting tyre I have used are *Associated Rears* (kit Rears). Machined from blanks to 53mm diameter, they take about four hours to wear down to 47/48 mm diameter. TT '07' by comparison last only around three hours using the same tyre conditioner. However, '07' generate more grip than *Associated Kit Rears*, indeed more than any other tyre I have previously used, and are quite consistent in quality. Well worth a try, the '07' is available as rears at £2.65 a pair or fronts at £1.85 a pair. *True Tyres* also offer a glueing and trueing service. Their price list gives details, and having tyres round and concentric to the hubs is always a promising start!

There is still a lot of talk about tyre treatments and their effect on human health, but little of their affectiveness in improving grip on carpet surfaces. Almost everyone who races on the Prima-felt race tracks has used TEAC, the first commercial product available for tyre treatment. There have been a

number of attempts to initiate this both at a local and commercial level but no other product had caught on to any degree until now. Again from *True Tyres* comes a challenger called 'Tractite'. I have no idea of its formulation, but since skin contact is not recommended we cannot describe it as being safe as water, having used 'Tractite' for about two months I find it economical and effective. One is able to put small amounts on the tyre and run in with a cloth as late as eight minutes before going out to race and get even grip with good duration of that grip. Best results are achieved by applying an even coating around the tyre with a small paintbrush and leaving for 20-25 minutes until the tyre is 'dry' but sticky. Thus treated the tyre maintains a consistency of grip throughout an eight minute race which is remarkable and hitherto impossible. Currently priced at £1.95 for 60cl (by far its greatest attraction) 'Tractite' is almost half the price of the competition. But, I have a complaint, and a serious one in my view. The bottle supplied is most unstable being tall and thin in section. I along with several others have inadvertently knocked the bottle and only the gentlest of taps is required to give your pit area a 'Tractite' bath. Since it attacks most polystyrenes and some other plastics most vigorously a lot of damage can result. May I suggest the bottle is changed to a 'Track Wash' or TEAC type; short, dumpy and stable. I now (after the first spillage) decant mine into such a container.

True Tyres, are also marketing oil of wintergreen (methyl-salicyl) at £1.50 per bottle (the same unstable bottle as

'Tractite!'). This is equally as effective as the latter and safe to use, but has been banned in Europe from 1984 onwards due to the noxious fumes generated by 120 plus people using it in a confined space. Still, allowed in some clubs due to its safe nature. Wintergreen is still the best grip generator, pound for centilitre, that money can buy.

True Tyres '07', 'Tractite' and Wintergreen available from *True Tyres*, 31 Broadhurst Gardens, Eastcote, Ruislip, Middlesex, HA4 9JQ.

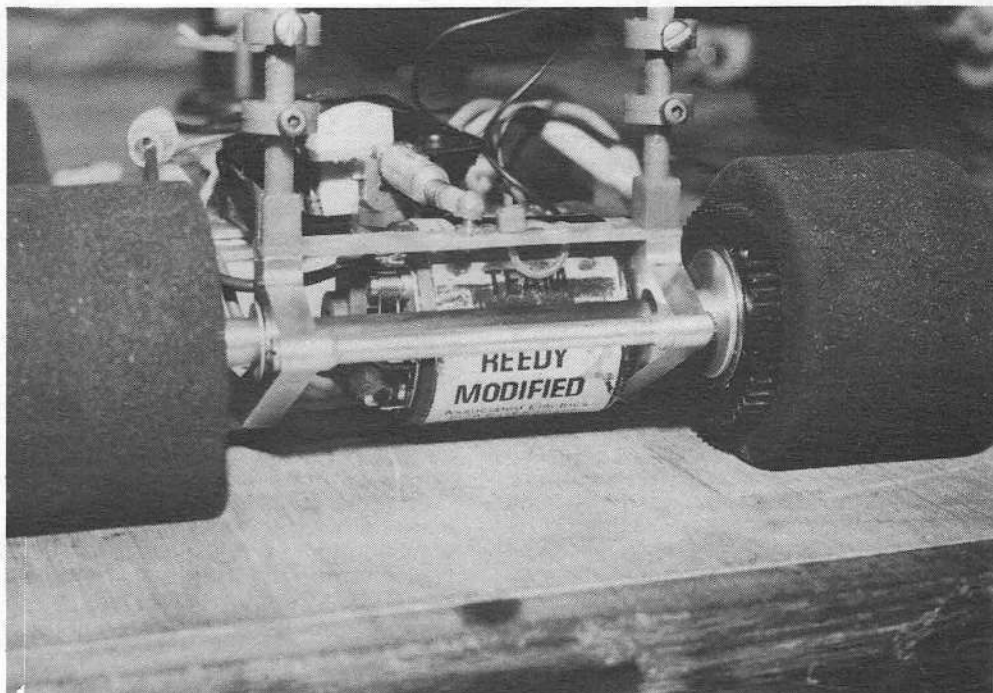
Manufacturers Modifications

New from *Schumacher* is a revised rear strap and roll stiffness adjuster for the 'C' Car. There are two outer screws to adjust the amount of roll stiffness on each of the chassis and a central aluminium cone which acts as a pivot for the side to side rocking motion.

The object of the two screws is to allow the elimination of bias or 'tweak' in the chassis. Tightening one screw promotes more oversteer when turning one way than when turning the other. If both screws are tightened a similar amount then overall rear roll stiffness is increased, promoting oversteer equally in both directions of cornering.

The components come complete with four 'O' rings which when used in various combinations allow settings which can give a low roll stiffness for silicone surfaces, through intermediate to high roll stiffness as required for high traction outdoor or carpet surfaces. The kit directly replaces the existing single screw rear strap and is available from leading model shops or

Below: Nick Adams' Demon 'MF83' now sporting the new lightweight rear axle blocks.



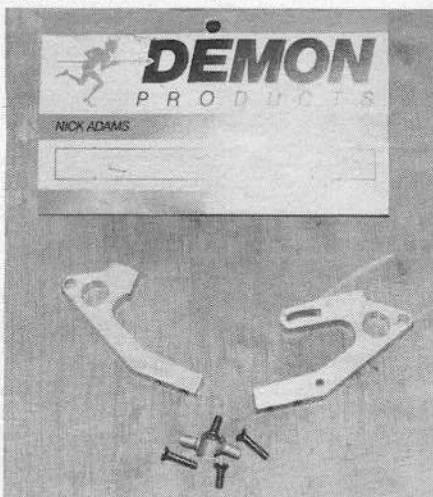
On The Carpet

direct from Cecil Schumacher, Rudge, Church Brampton, Northants NN6 8AU. (Don't forget p & p).

New from *Demon* for the 'MF 83' is a fibreglass front axle beam following Nick Adams' discovery that fibreglass works better than carbon fibre in model applications just as Cecil Schumacher did with his differential axle. New kits are now supplied with this item but old *Demon* kits can be updated for £6.90 per axle beam.

Undergoing trial by George Land recently were some aluminium rear blocks for the *Demon*, beautifully machined for maximum strength with low weight. Users report a useful improvement over the nylon items particularly in the area of rigidity and heat dissipation. These blocks require only one of the two rear clamp bars used to keep the old blocks in place. Like the beam they are a direct replacement for the standard items at £10.50 per pair.

Below: *Demon* rear axle blocks are quick and easy replacement for the original nylon items.



The Model Journal

The Model Cars tentacles seem to reach far and wide and bring in some unexpected catches. The 'Model Journal' has around 130 pages over 90% of which is editorial and comes all the way from the Far East (no not Norwich — Japan!)

A great number of components that we use in our racing swim across from the Land of the Rising Sun. Motors, cells and radio control equipment are almost exclusively Japanese in origin within both 1/10th and 1/12th electric racing. *Tamiya* are their best known producers of a prolific variety of R/C kit cars, bikes and Off-Roaders. I was therefore, very interested to look through a magazine about the model scene in Japan, and pick out some items which might be of interest to you. Let me first confess that my proficiency in written Japanese is about as good as Arthur Scargill's in humility. I have relied on detective and guess work in the absence of a translator on hand. Of

the advertisements in the magazine some were names we know; *Kyosho*, *Sanwa*, *Ripmax* and *Enya*, but no *Tamiya* to my surprise. There is coverage of all aspects of R/C modelling, cars (1/8th, 1/10th, 1/12th and 1/20th) boats and planes.

The first 1/12th item is about a car which is a *Jomac* '2000 Lightning' Look-alike, which appears to have two major differences from the car previously sold here a couple of years ago; firstly, the use of a centre mounting for the rear pod and secondly a *Delta* type damper at the rear to control the rear pod movement. Pretty conventional if slightly outdated in the UK.

The next page of the magazine reveals the almost unbelievable. An all aluminium (diecast or machined?) front wheel drive, independent suspension 1/12th scale car. A black and white picture does no justice to the colour original. The finest craftsmanship and detail have gone into this model. Front wheel drive is by some form of double universal joint system, but these are protected by rubber boots making it impossible to see. Front suspension is *MacPherson* strut (like Mk. I *Escort* or *Cortina*) with spring pressure adjuster and anti-roll-bar whilst the rear features fully trailing arms with coil over shocks and anti-roll bar. Unfortunately I am unable to make out whether this is a scratch-built car or on general release as a kit. The drive from the forward mounted motor to the front axle is by toothed belt, and the text refers to two ratios, 2.7:1 and 3.8:1 more of which later. Dimensions are given as 172mm wide, 193mm wheelbase and 145mm track. All wheels are 25mm wide, the same as our front wheels and are retained onto a hexagon shaft with a domed centre nut. As a guide on size, the *Demon* 'MF 83' has identical width, wheelbase and front track. Weight is stated as 1450grammes, about 3lb. 3½oz.! There must be some very long straights and short races in Japan, if you can pull 2.7:1 (say 15:44) in a car that is 1lb. 4½oz. over the BRCA legal maximum. Even 3.8 to 1 (12:46) is pushing things a bit.

There are a lot of meeting reports, mostly short on words and long on photos of the competitions. A three-page report on a 1/8th meeting shows pictures of Arturo Carbonell (current 1/12th World Champion Modified Class) racing in Japan with his *Delta* car. Can't tell you if he won, the only reference shows him as fourth but that may be fourth fastest qualifier. There is a 1½ page report on a JMRCA 1/12th meeting racing European style 1/12th cars, but only 30 people seem to be entered. On the other hand a two-page report on 1/10th off-road meeting has 162 people entered racing *Tamiya*'s, *Kyosho*'s and *Hirobo*'s.

Reviews of new products follow,



Above: the *Model Journal*, Japan's premier R/C modelling magazine, plenty of colour, lots of pages - sickening isn't it?

including one of six pages on the latest version of the *Associated* R/C 12i with the spring front bocks and a spring damper control system for the rear pod. Cars belonging to several different drivers are shown, (they may be the team drivers for all I know) and there are motors ranging from the new flat can *Yokomo* to an ancient looking *MRP* of unknown type. Servos are *Novak* or *Bantam* 'Midget' and bodies are universally *TOJ* *BMW*. Next there is a review of the new *AYK* centre geared differential showing what look likes a clutch mechanism to give a limited slip differential.

Those of you who bought a *Kyosho* motor recently will never have realised that in Japan you can also buy a kit to wind your own armatures. For 1200 Yen (about £3.50) you get an armature blank with commutator mounted, some nylon and steel spacer washers and sufficient wire to do the job in either 0.7mm φ (22 gauge) or 0.75mm φ. Reading (well looking for recognisable signs like numbers, or 1/12, or mm φ!) between the hieroglyphics, the article recommends 30 turns of 0.7mm or 26 turns of 0.75mm, inferring the latter is equivalent to a *Kyosho* 48OT. Only static balancing is shown, between two knife edges.

There are brief introductions to new items, much like our own *Gear Box* feature, which gives some interesting prices. The *Kyosho* 48OT is priced at 2000 Yen (£5.90), a *Tamiya* Black 540 SD at 3000 Yen (£8.80) or an *AYK* 1/12, 4 WD kit for 19000 Yen (£56.00). I cannot say what you get for your money as there are no photos of the kit contents, but the motors are the same as those available in the UK.

My interest was drawn to the last

pages of 'The Model Journal'. It contains a diary of meetings for September and October '83, and there are quite a few. On the 1/12th and 1/10th scene there are 62 events advertised for September and 11 for the first weekend of October. On the 4th September 1983, a Sunday, there are 20 events advertised. With this level of coverage and participation it is not surprising that Japan leads the world in many areas of modelling. To raise our own participation levels we should also advertise so, to reiterate Bill Burkinshaw's call in the February '84 issue, please send your event details to us at least three months in advance.

I hope you liked our brief look at 1/12th life on the other side of the world. The World Champs in Denmark in August '84 should be interesting if the Japanese bring along only some of the equipment shown in this magazine.

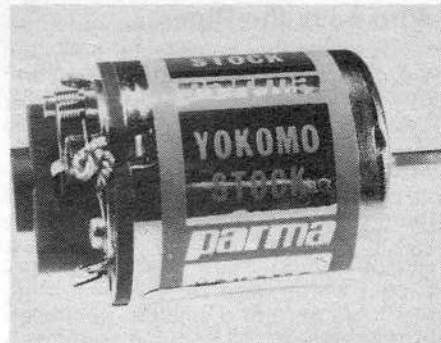
New Yokomo Motors for Standard Class

The BRCA Conference in November '83 increased the maximum price for a standard motor to £9.00. Almost immediately Parma and M.G. Model Products have introduced new items to their motor range both below the upper limit of £9.00. Based on the Yokomo principle of exposed commutator brushes mounted on a moulded plastic endbell (first seen at the World Champs) these are still 35 turns of 23 gauge wire armatures. Sintered phosphor-bronze bearings are used in the can and endbell. These are not the same as the Yokomos we have seen to date as modified motors. The can is fixed to the endbell with tabs currently found on the *Igarashi* '05' standard. It is

not possible therefore, to adjust the timing of the motor by altering the angle of the brushgear relative to the magnets; as we have seen on the Parma 'Ferrari', *Reedy* Modified, *Kyosho* 480T and *MG Yokomo* modifieds.

I purchased the review motor, a Parma 'Turbo Renault', from a club member who 'raided' *Red Baron Models* almost as soon as the first shipment reached the UK (end of December '83). The first thing was to check to see if the motor had been run in, removal of the brushes showed it had not. One commutator brush was very tight in its holder and would not slide freely. This was rectified by removing the burr evident on the inner face of the slot in the brush holder. However, on assembly (presumably in America) the forcing of the brush past this burr had resulted in the end face being clipped. Thus less than the full face of the brush was in contact with the commutator.

I decided to run the motor without any breaking in period and replaced the *Reedy* '05' in my car with the *Yokomo*, and that was my first mistake. On 50mm diameter tyres and 12.48 gear ratio (set up for the 05), the top speed could easily be measured with a sundial as an elapsed time recorder! After some experimenting the ratio was 13:46, but this gave poor acceleration. In the end I settled for 13:48 on 50mm diameter tyres, which produced an acceptable balance between speed and acceleration. At this point I canvassed the views of two other people who had bought motors that evening and found we had all ended up on the same overall ratio, taking into account tyre sizes. In our final that night we were all together, and it was



Above: the latest in standard class motors, Yokomo based and marketed by Parma International.

remarkable how evenly matched the cars were for speed. There was very little between us, and we went round virtually together for the full six minutes. All the buyers liked the motor.

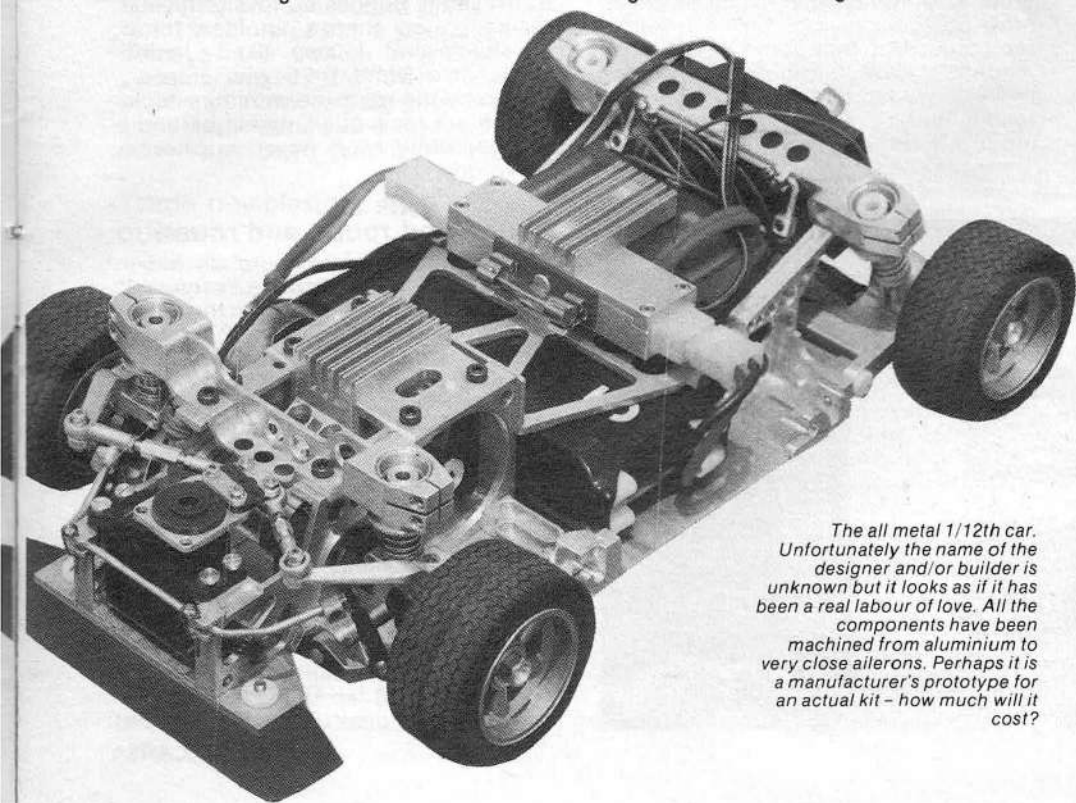
Back home, I ran the motor immersed in water for 30 seconds to remove the chip from the suspect brush. This made the motor a bit smoother, and next time out the car seemed to have more speed, having read and heard about the effectiveness of 'Mr. Cool' commutator fluid from M.G. Model Products, I tried this as well. The *Yokomo* endbell is ideally suited to the application of Mr. Cool since the fluid can be placed directly onto the commutator with the dropper provided. This was a definite improvement, the motor was now as fast as a good '05' and the effects of "Mr. Cool" last long enough to keep ahead even when the motor slows slightly towards the end of the race.

The best points about this motor are its low current consumption, low running temperature and (by far its best feature) the very smooth nature of the power delivery. Certainly it lacks the punch of a good '05' but it does make the car easier to drive as the rear wheels just put the power down with little tendency to oversteer on acceleration. If the sample I have is typical, this will be a very popular club motor, but may not show well at national level where the best '05's are definitely faster. Additionally, if the five now doing the rounds at my local clubs are any measure they are very evenly matched too, I also feel this motor will last longer, it being easy to monitor brush wear and clean the commutator when it looks dirty. I will bring further news in future issues on longevity.

If current manoeuvres are successful, this motor type should be BRCA legal by march or April, and I expect *Associated* will have a similar motor available soon.

Parma "Renault Turbo" Yokomo available from *Helger Racing*, 72 Lauderdale Tower, Barbican, London EC2Y 8BY.

M.G./Trinity Yokomo available from: M.G. Model Products, 38 Station Road, Finedon, Near Wellingborough, Northants NN9 5NX.



The all metal 1/12th car. Unfortunately the name of the designer and/or builder is unknown but it looks as if it has been a real labour of love. All the components have been machined from aluminium to very close tolerances. Perhaps it is a manufacturer's prototype for an actual kit - how much will it cost?

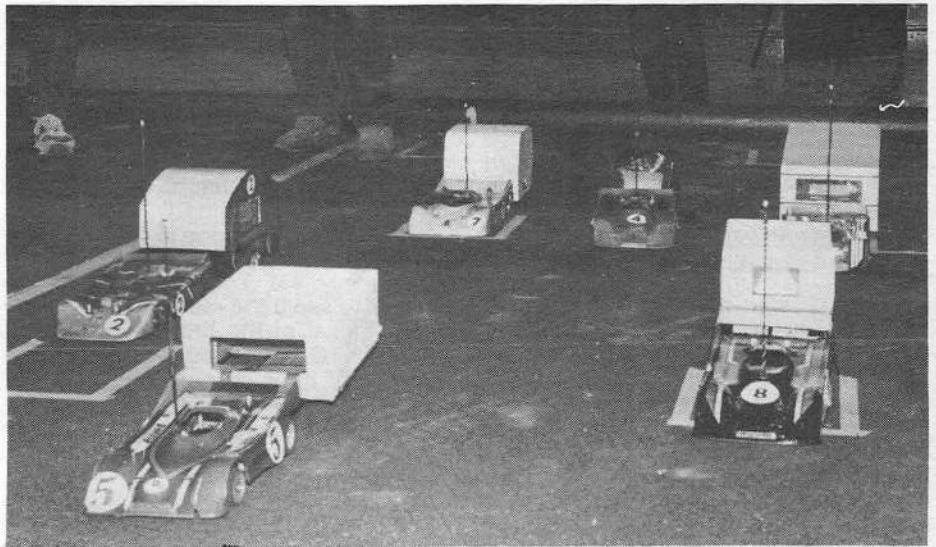
Who pays the Piper...

It is ironic that an association which together with its European and American controlling bodies expressly forbids the payment of cash prizes should nevertheless sanction reputedly vast payments by manufacturers to 'hired assassins' to promote their goods in open competition by winning nearly all the best races. Unlike those 'Boys Own' stories I expect we all used to read where the unknown hero of a small football club brings his team to Wembley against a host of villainous opposition, there is very little hope for this to happen in our model car world. Just a slight flash of success and the potential ace is snapped up by one or other of the Mr. Biggs first with the gift of goodies and then, not all that later, real money.

This has meant that there is virtually no developing inventiveness outside the manufacturers' workshops. Nearly every car that runs is a branded so-and-so. Never a start-to-finish own design. Bless me, you don't even have to put it together yourself: you can buy it ready to run and even have a kindly mechanic set it up for you so that the only skill is in the driving. This in itself is not a bad thing... the golfer does not make his own clubs but I have always hankered after a bit more of the aeromodellers' contest rule that the flyer must be the 'builder of the model' except in certain events (long distance) where a proxy flyer may be appointed.

I see the shortlived ban on four wheel drive cars for racing has been voted out. Lewis rightly commented that this could mean the 'serious' modeller must have two cars for wet and dry weather. Of course that's true but mostly the serious modeller has already been snapped up by some works team or other and hang the cost. Anyway it seems that the big firms are resigned to the cost of tooling up for 4WD so we may have enough of them to prove them all weather cars!

Below: Bill Jones of Supercharge Models produced this interestingly decorated caravan for the Luton meeting. Obviously a wry sense of humour is essential.



Above: caravan racing was the order of the day at the Luton Club's Christmas fun meeting. The caravans were mainly simple affairs, made from cardboard, balsa, GRP and assorted car spares. Great fun by all accounts.

Car entries at the ME Exhibition

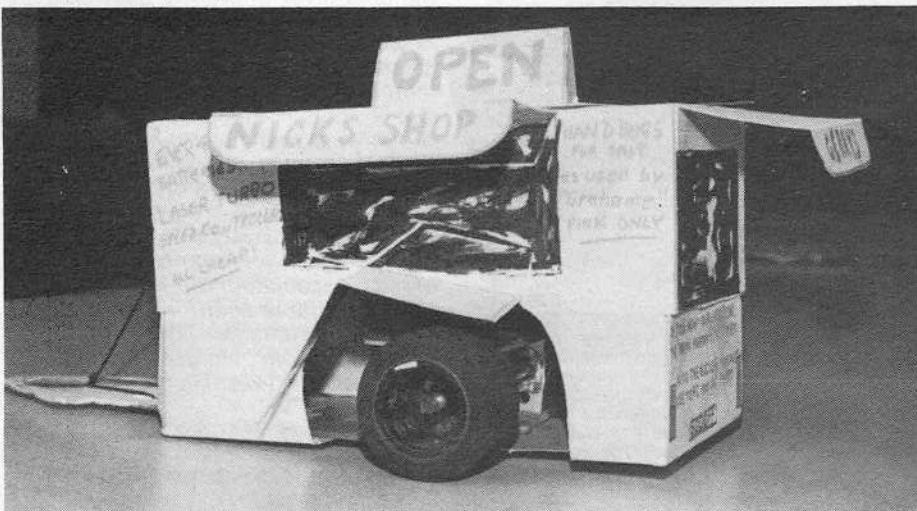
Once again judging at the ME Exhibition it was a pleasure to find an *engineering* model in the functional class worthy to be awarded the 'Model Cars Trophy.' Car in question is 1/5th (one fifth) scale model of Ford Escort Mk1 with Hirtenberger 61 installed midships inline fitted with generous heat-sink head plus cooling turbine. MacPherson style suspension struts and fairly detailed steering followed the prototype, whilst elegant saloon body in glassfibre and metal completed the picture. Well done entrant motor trader M. Hunt of Watford. There are usually several small firms offering cars designed for five or ten cc power units at Nuremberg Toy Fair. Traders have agreed that they have no future for racing but that some continental modellers like to enjoy the greater power provided and the opportunity to follow 'fullsize' design features. Other models in the class were two *Mardave*

'Marauders' and three *Tamiyas* — all nicely finished and with some additional features such as chromed wheels and non standard springing. Sole entry in the own design class was a neat little 1/12th car with some original features but rather suspect soldering.

A well supported non-working class produced a generous crop of well finished plastic, plus the missing Mercedes by John Stubbs which failed to turn up last year — truly a joy to behold. This plus Russell-Carter's 1911 Steam Fire Engine and a delightful double-deck bus in overall advertisement livery by G. W. Dwyer, Worthing made up a hard to separate trio. The bus looked about 1/12th scale and Bill B. irreverently suggested lovely for bus racing... so there's an idea for a novelty event! I also liked Janine Gallichan's BMW R-75 with sidecar, shown by the roadside with mini-tools spread out for a quick repair job and I thought BMW bikes never, but never, broke down!

Round and round and round

Enterprising Lilford secretary Steve Taylor is eager to promote Formula 1 style Oval Racing there, using the stock car circuit. What? Oval racing? Yes, just like — or fairly like — Indianapolis! Let's see what the Hoosiers do. Indy 500 Radio Control Car Club or Indianapolis, Indiana run a 75 lap Oval Event under the title of 'Mini-Indy 500 Race' some time in May getting as near the traditional Memorial Day event on May 30. Following big brother's style, last year's winner is entitled to Race Number 1, so that entry numbering starts at 2. Entrants may express a preference for some favourite number and if not pre-empted by someone else, actually get it. Qualifying takes the form of three 75 lap Mains filled in the usual way via heat times, from which





Above: another nicely decorated caravan, how long did it stay that way I wonder?

the eight fastest drivers are taken to run in the actual Championship Race to take the Championship Trophy.

I hope it comes off at Lilford. It will be interesting to see if drivers use the modified steering system unique to Indy (and I suppose US Speedway oval racing in general) with an 'intriguing bias,' and very much reduced opposite lock. As the remaining *Associated Ace* over here, Phil Booth could be relied upon to produce a suitable special ... perhaps with an A. J. Foyt Offenhauser (NOT the Ford please!) bodysell.

Have money will travel ...

I must confess to a degree of mis-giving (to say the least of it) at a report from the BRCA AGM which is printed in one of the few club newsletters that I get "... if you want to race for your country abroad (and can afford it/are good enough) inform the BRCA team selector ... I foresee qualifications appearing somewhat like this:" 1. M. Wurzel 21 points/£8,000 a year 2. John Doe 19 points/£7,000 a year and then down at the bottom Joe Soap 24 points/unwaged." But then I am forgetting all those who are good enough are already being subsidised with vast sums by assorted manufacturers ...

Trade newsletters and others ...

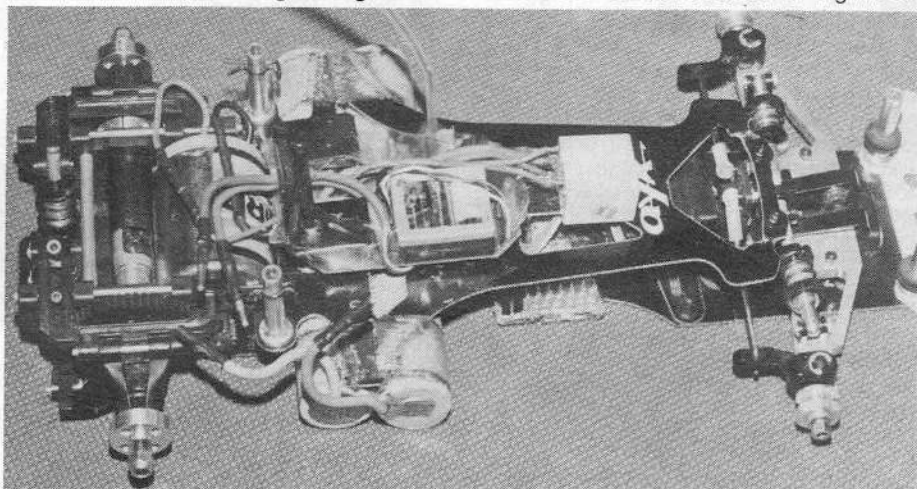
American Express, Access and Barclaycards all send me newsletters, usually exhorting me not to be chicken but buy something for heaven's sake ... the Church usually, or when it thinks of it, sends me one, reminding me time's getting short ... and now, much more welcome comes the No. 1 *PB Racing Products* newsletter! So far only a four-page tiny, but in very small print, just like Ted's TL's used to be, but full of news not only of *PB* items but club news and even a competition to win a hat just like the Guv wears. Also the kindly word that just anyone can join the *PB* 'Owners Club' without necessarily owning a *PB* car (Rolls Royce have the same generous attitude in their Owners Club — my neighbour belongs and has a Datsun). Bread cast

on the waters of course in both cases ... there will come a time ... I shall certainly pinch any news item of theirs if I can get there before that chap Lewis.

Which brings up BRCA's *Circuit Chatter*, latest copy of which shows Lewis Eckett as the new Publications Officer (address wrongly spelled or there's a new neighbourhood in Hemel!). As a former occupant of that hot seat I wish Lewis the best of luck; with all the elbow twisting force of MAP he may very well be getting so much news that it comes out as a supplement of MCM.

New secretary for BRCA ...

After a stint of over ten years Tom Martin has retired as BRCA secretary and treasurer. It surely has required the patience of an archangel and the negotiating skill of a Kissinger to achieve such a record amidst the fiery extroverts of BRCA who so often demanded two contrary things at the same time! Tom has always maintained a quiet profile whilst encouraging son Dave through his teenage years to win a great number of races in a typical family 'quiet way' coming through from



Above: this interesting 'Cyclone' 1/12th scale car put in an interesting appearance at the Model Engineer Exhibition. Manufactured by AYK of Japan.

behind as the opposition flagged. Meanwhile Tom got on with the administrative side of the association at the expense of his own racing time. Thanks Tom: it is good to see you now in the 'Upper House' as Chairman!

New boy Jeff Lindstrom is no stranger. After holding a variety of offices both in the Yorkshire RCMCRC (NOT Bradford as Keith Plested reminds us in his Newsletter!) and BRCA he is known to all racers as Mr. Handicapper and with his electronics skill has masterminded advanced equipment to detect naughty off beam transmitters at major meetings. As Editor of the Yorkshire Newsletter he often helped fill these columns with his comments. No one expects a Yorkshireman to present a quiet profile and we can look forward to an active

secretaryship. This in effect carries on the family interest in the sport so strongly supported by his parents Mr. and Mrs. Lindstrom Snr. in the early days when Middlemoor Circuit was 'nowt' but a dream.'

New boy at EFRA ...

So there is a new President for EFFRA. Welcome to Saul Manache, who, I understand is British and residing permanently in Switzerland. In all its days this is only the third President. First was Phillippe Rochat also from Switzerland, then the long term stay of Ted Longshaw who saw the ever, all-embracing span of EFFRA membership and helped negotiate the formation of IFMAR where he still holds office. Now, we turn once again to Switzerland to provide a leader. The two earlier presidents were both keen exponents of model car racing. Phillippe used to race cable cars with some considerable success in the immediate postwar years and had a model business. Ted continues to race though the young Lions are now beginning to have the edge on him. We expect to hear a lot from and about you Saul ... what about another big meet-

ing in Geneva, scene of the best ever to date World Championship with never a harsh word, circulated profit and loss account, and the only sad thing was the cad who sprayed Phil Greeno's Porsche with aerosol paint!

How's your syntony?

Even in his best reports I do not think Rex Boyer has ever referred to Tx and Rx as being 'syntonic.' I found this lovely word in a recent *Sunday Observer*. QED definition is: "denoting a system of wireless telegraphy in which the transmitting and receiving instruments are accurately tuned so that the latter responds only to the frequency emitted by the former." I could hardly have put it better myself! Try it on your friends.

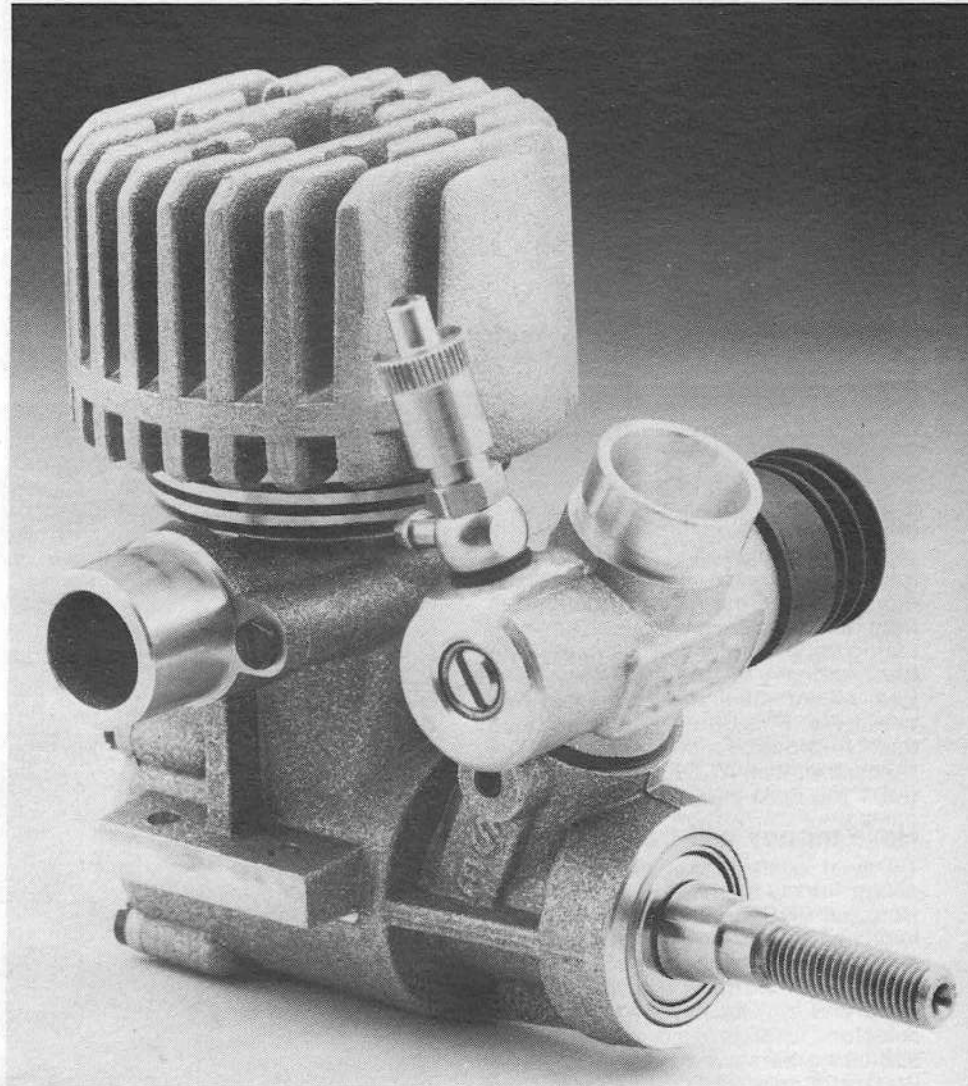
Picco P21 Buggy Engine

REFLECTING INCREASED interest in 'off-road' Rough Rider type events, the engine test series this month focuses on a 3½cc unit produced specifically for such applications. Other manufacturers are turning their attention to this class, and this side-exhaust engine released early 1983 happens to be first in line for a review.

Visually, the *Picco* 'image' has considerable individuality — the husky, almost glittering rough sheen of the castings is now virtually a trademark — one can pick out a *Picco* at some distance!

This almost masculine texture does of course enhance heat dissipation by virtue of increase in the generated surface area, and this Buggy engine is almost totally finished in this way. On test the resultant low-temperature running was a marked feature.

Prior information suggested that the engine would be releasing its power supply at comparatively low rpm (in keeping with the duty envisaged in off-road running), and it was surprising to find therefore only small differences in port timings as compared with the storming 'open' class *Picco* 21 rear-exhaust engine tested late 1981. Exhaust timing is almost identical — transfers opened 2° earlier in the R/E unit — boost opened 3° earlier. Front induction admittedly showed more difference — R/E engine opened 4° later and significantly (for high-speed operation) closed 12° later than does this new Buggy engine. Total period was 8° more. Bore, stroke and compression ratio identical, squish clearance though goes up from .009in. to .015in. A 7mm slide carb was used on both test engines. So, apart from the Side Exhaust layout and steel connecting rod in this new engine, the similarities led this writer to expect an Open exhaust performance little different from the earlier racing engine, though with a possible high rpm restriction on



this Buggy engine due to earlier Induction closure.

Mechanical pointers

It almost goes without saying at the present time that the overall layout is: one-piece crankcase, twin ball races, front induction, ABC piston/liner, large heat-sink head. Within this narrow though apparently essential concept, each manufacturer continues to pursue individual points of difference. As to the general layout the rotary drum could be an alternative route to overcome the (more powerful) rear

disc's mechanical unreliability at elevated rpms.

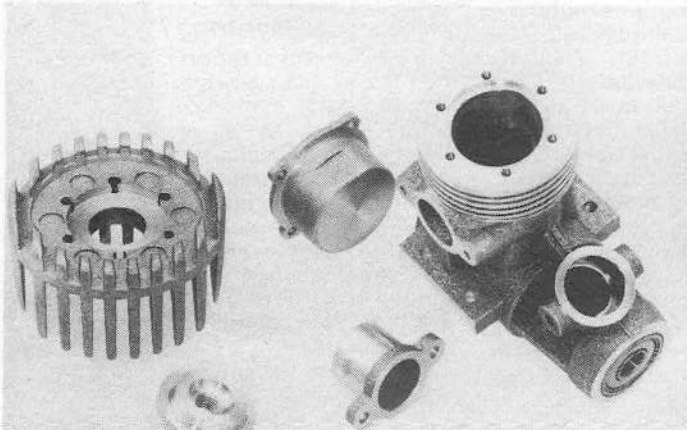
Information on material selection was not forthcoming from *Picco* themselves so there are some constraints on detail descriptions.

Mechanically the *Picco* 'Buggy' engine has the following individual touches:

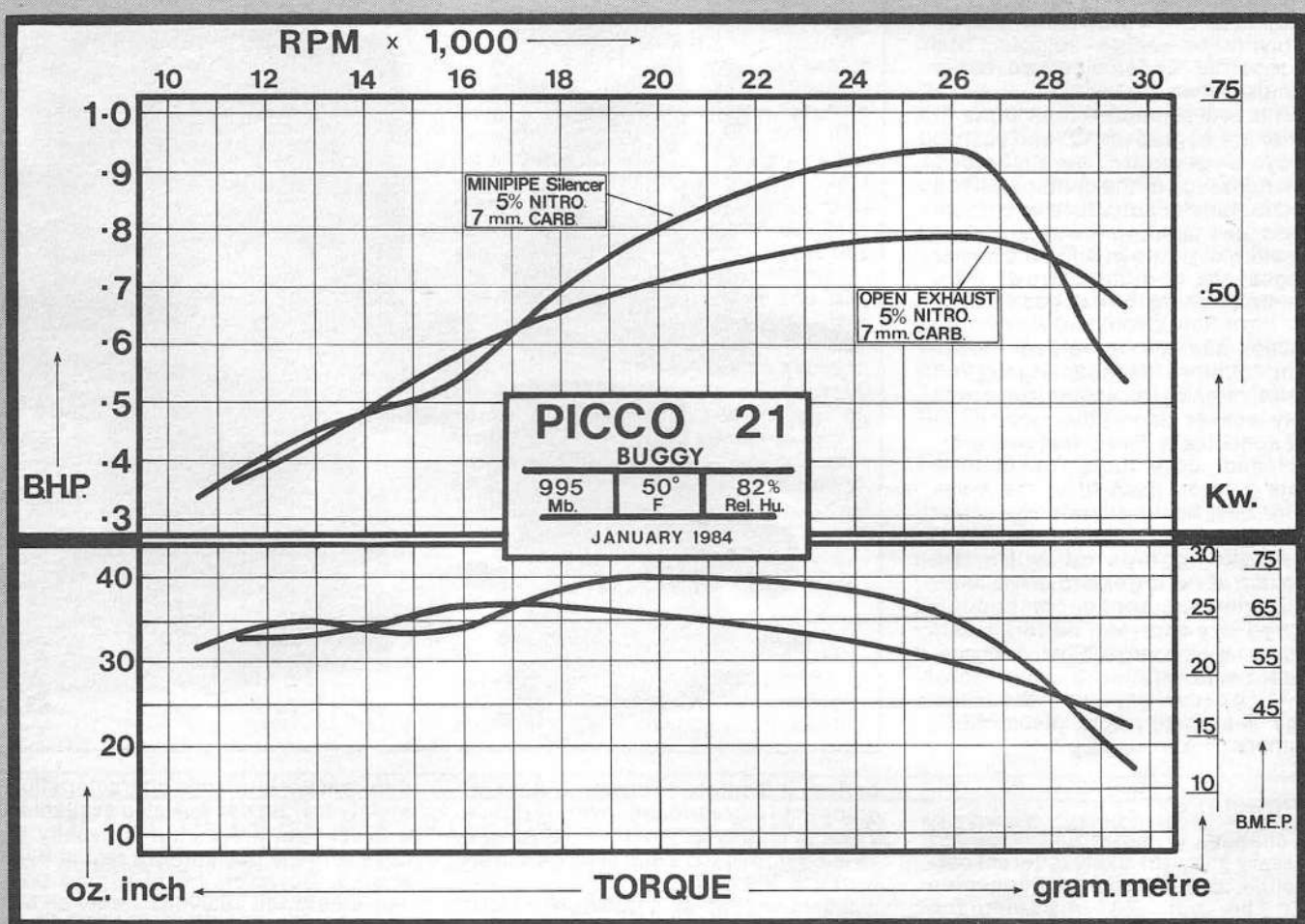
1. The slender hardened steel conrod is phosphor-bronze bushed at big-end only, and has one vertical lubrication hole into upper high-pressure zone of bearing. Little-end is honed to accept gudgeon pin direct.

2. Crankshaft has the oil-centrifuging feature of a 1mm angled lubrication hole connecting the induction bore to the crankpin. This hole breaks through into the crankpin surface (at top as seen at TDC) therefore the rod hole and crankpin hole both line up at TDC.

3. Crankweb is counterbalanced by circumferential slots, and the resulting full circle web is then covered with pressed steel rim to increase primary crankcase pressure by reduction of case volume.



Left: the external components of the *Picco* Buggy P21 crankcase, backplate, exhaust manifold and extra large heatsink head for greater heat dissipation.



Picco P21 Buggy SE ST

Dimensions and Weights

Capacity — 2099cu. in. (3.44cc).
 Bore — .6515in. (16.548mm).
 Stroke — .6298in. (16mm nominal).
 Stroke/Bore ratio — .966/1.
 Timing Periods — Exhaust 160°
 — Transfer 124°
 — Boost 121°
 — Front induction opens 28° ABDC;
 closes 48° ATDC; total 200°.
 Exhaust port height — .215in.
 Combustion chamber volume — .3cc.
 Compression ratios — Effective 8.55/1;
 Geometric 12.46/1.
 Cylinder head squish — .015in.
 Squish band angle — 0°.
 Squish band width — .118in. (3mm).
 Crankshaft diameter — .4722in. (12mm
 nominal).
 Crankpin diameter — .1967in. (5mm
 nominal).
 Crank induction bore — .327in.
 (8.3mm).
 Crank nose thread — .2452in. × 28tpi
 (1/4UNF nominal).
 Gudgeon pin diameter — .1585in.
 (4mm nominal).

Con rod centres — 30mm.
 Con rod centres — .232in. tapering to
 .216in. × .075in. thick.
 Weight overall with slide carburettor —
 11 1/4oz. (.319kilo).
 Mounting holes — 36mm × 16mm ×
 3mm holes.
 Width between bearers — 31mm.
 Width — 1.73in.
 height — 3.5in.
 Length — 2.48in. (Front bearing to rear
 housing).
 Frontal area — 5.3sq. in.

Performance:

Max BHP — .93 at 26,200 (PB Minipipe
 silencer/5% Nitro.); .79 at 26,100 (Open
 Ex./5% Nitro.).
 Max Torque — 40oz. in. at 19,130rpm
 (PB Minipipe/5% Nitro.); 37oz. in. at
 15,700rpm (Open Ex./5% Nitro.).

RPM standard propellers

8 × 6 Zinger — 14,210 Open Ex./5%
 Nitro.

8 × 6 Zinger — 13,900 PB Minipipe/5%
 Nitro.
 7 × 6 Taipan — 17,280 Open Ex.
 7 × 6 Taipan — 17,710 PB Minipipe.
 7 × 4 Taipan — 22,980 Open Ex.
 7 × 4 Taipan — 23,870 PB Minipipe.

Performance Equivalents

BHP/cu. in. — 4.43.
 BHP/cc. — .270.
 Oz.in./cu.in. — 190.5.
 Oz.in./cc — 11.62.
 Gm metre/cc — 8.14.
 BHP/lb. — 1.32.
 BHP/Kilo — 2.91.
 BHP/sq.in. frontal area — .17.

Manufacturer

Picco Gualtierangelo, Monza, Italy.

UK Distributor

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

Engine Test No.13

4. Crankcase mounting of the carburettor is by Allen grub screws in two sensibly large cast-in spigots. This held together under vibration better than most other methods.

5. The two separate boost ports in the liner are angled up 45° and each is fed by a separate parallel-sided transfer passage in the crankcase. The two main transfer ports receive mixture via passages tapering towards the top to accelerate gas flow. All four transfer passages are a quite narrow, 2mm depth, thus serving to keep gas velocity high.

6. Case has cast-in vertical 'beam' binding together the mounting lug and exhaust stack to strengthen this usually weaker side of the case.

Not specifically *Picco* features are:

7. Honed case bore to accommodate a close push-fit of the brass liner for best heat transference.

8. Liner is 2 thou. tight at the top of the stroke compared with the dimension at the lower end of the liner.

9. Bowler-hat shape combustion chamber is a separate 'button' insert held down by the large 2¼oz. heat sink cylinder head.

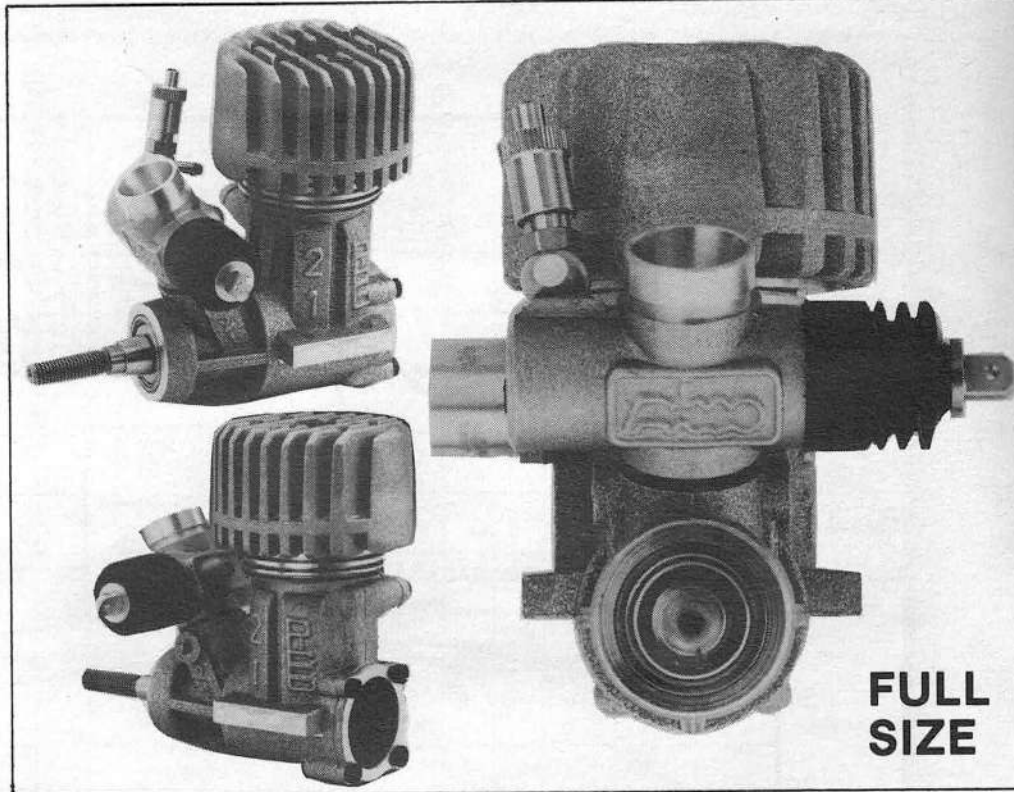
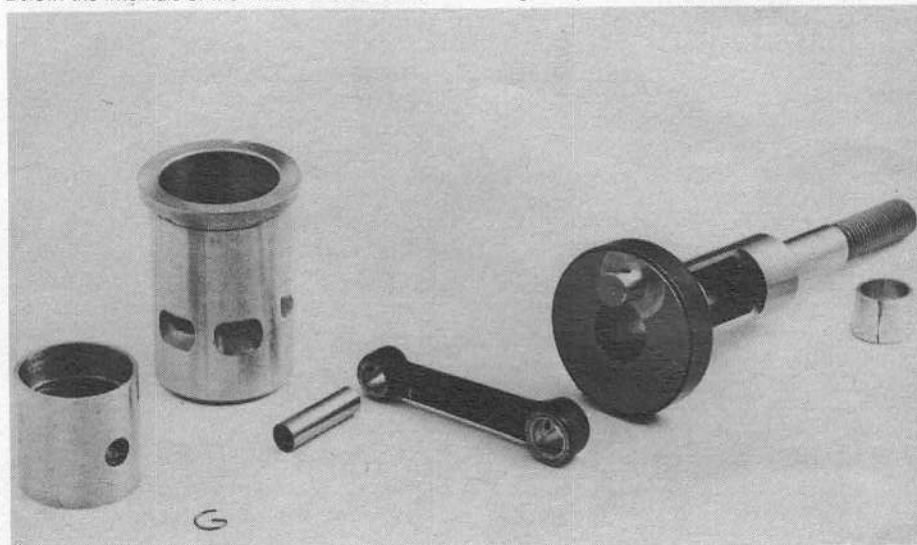
At 11¼oz. overall weight the *Picco* 'Buggy' is a chunky solid piece of I.C. machinery.

Performance

A change in procedure was felt necessary given the likely different performance, and use to which this engine would be put. So, nitromethane content was kept to 25% maximum, and a *P.B.* 'Minipipe' silencer was used (rather than full tuned-pipe) to maximise power band width, whilst the more flexible 7mm carburettor was retained for all runs.

These changes would be expected to reduce the peak power result as compared with the Open 1/8th car racing engine proper, and initial rpm checks following a short running-in

Below: the internals of the *Picco* 21 crankshaft, connecting rod, piston and cylinder piston liner.



period indicated a power output at comparatively reduced levels.

Test 1. Open Exhaust/5% Nitro and 15% Castor/*Picco* 7mm slide carburettor/*OPS* 300 plug.

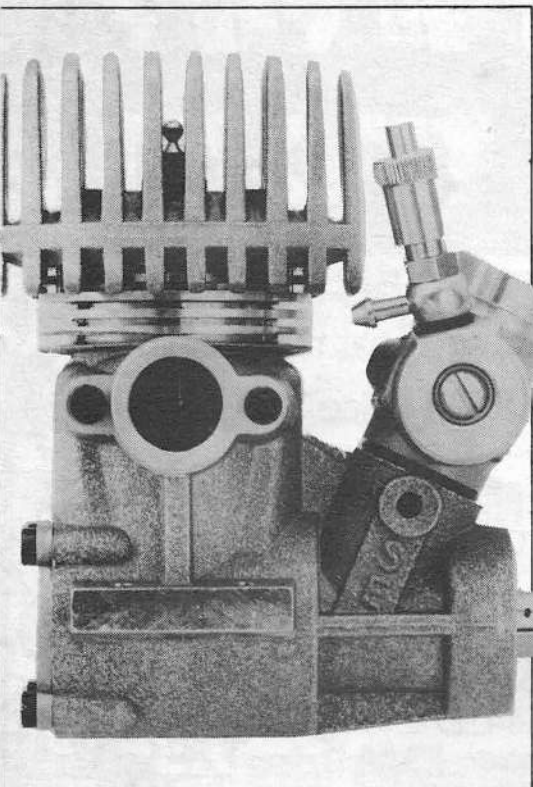
Commencing at 11,000rpm torque rose gradually up to 17,000rpm and then declined quite slowly towards the maximum rpm of 29,620. The motor was reluctant to rotate faster — with successive reductions in load past that point achieving little increase in rpm. Whilst maximum torque was itself not that exceptional, nevertheless a good mean figure was maintained over a wide rpm band of 10,000 to 30,000. Already then, some evidence of a

different performance characteristic — mainly that power was also available at a lower rpm point than is usually the case with the out-and-out racing 3½cc engine. However the peak bhp point was still in the 26,000rpm area as with those other engines. The resultant power band is both that bit broader and somewhat reduced, and cuts off sooner at the high rpm end. So those few degrees of timing difference seem then to have had effect.

Test 2. *P.B.* Minipipe silencer/5% Nitro and 15% Castor/7mm carburettor/*OPS* 300 plug.

The only change here being fitment of a silencer likely to be used in off-road applications. This enabled confirmation of earlier test results of the minipipe effect compared with open exhaust results. Well, they still seem to be affecting the outcome the same way as noted earlier and the varying styles of outer silencing cans fitted over the minipipe appear not to change the general shape of power curve — only its amplitude.

The very practical *P.B.* manifold/pipe unit plugs over the *Picco* exhaust stub and is held there by a strong retaining spring wrapping around the crankcase. The silencer portion then slides over the minipipe part at a convenient length for the particular car. As supplied the operating length of the minipipe is 5¼in. (piston face to pipe-end), and this dimension has previously given peak powers around 26 to 28,000 rpm depending on Exhaust timings. In this particular test this point was again confirmed with a maximum



power of .93bhp at 26,200rpm.

Test 3. Equipment as Test 2 but now using 25% Nitromethane.

The surprise of this particular set-up was a sufficiently similar bhp curve to lead to its omission from the graph to avoid confusion. The writer can offer no explanation for this lack of power increase with Nitro addition, given that motor has all the normal features necessary to release extra power. This slightly anomalous result at least has the merit of leading to economy of operation; plugs, fuel costs and fuel consumption all benefiting in this situation.

A mild vibration period was noted in the 29,000rpm area, and the very heavy heat-sink heads currently used on most makes of engine appear to add to inertia effects once such periods start and engine commences 'moving'. There seems virtue in the concept of

mounting car engines both by crankcase base and cylinder head bracket in some fashion — a side-winder mounting has been suggested, and in a

future test an attempt will be made to check effect on power/rpms of using such an upper engine restraint.

The relative jelly-like behaviour of metals is increasingly acknowledged, but whether this has significant effect on actual performance is uncertain. This writer's bet is that it does in some conditions, but whether this includes 'flying free' out on the tracks is yet another question.

The Picco slide carburettor (built as solidly as the rest of the engine) proved easy to adjust and an idle speed of 2,850rpm was quickly achieved. The vertical orientation of the main needle control is no doubt a useful feature in car installations — it certainly is so on the Dyno at least.

Summary

Another rugged Picco unit containing new individual features indicative of the manufacturers' continual search for improvements in power, reliability or style of performance. In this particular case the manner of performance was comparatively more akin to an electric motor with adequate controllable power available anywhere within a 10,000 to 28,000 rpm band.

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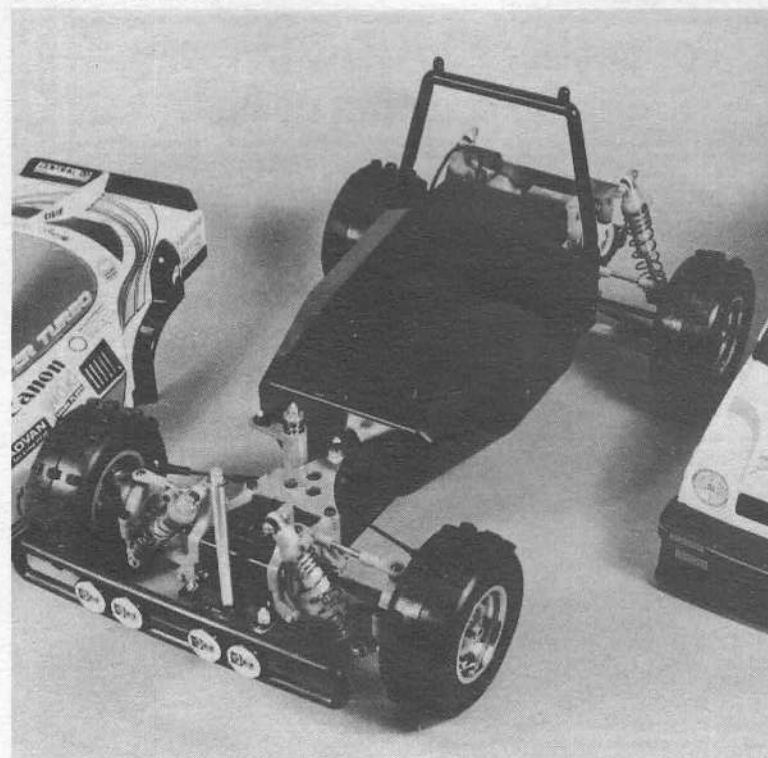
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TO ENTER THE highly competitive R/C model car market with a new design is a bold enough step for any manufacturer to make, but to introduce a radically different product is a praise-worthy move indeed. The *Hirobo* Company of Japan have done just that with the introduction of their 'Rock 'n' City' four wheel drive 1/10th Electric competition Buggy.

Up until now, 4WD cars have only featured prominently in the 1/8th I.C. Class of racing where their superior handling qualities have paid dividends on loose or slippery racing surfaces. However, it seemed impracticable to produce a competition orientated 1/10th scale electric powered 4WD car simply because of the extremely complicated nature of producing an efficient transmission system in such a small scale. The other main factor is the huge cost involved in actually tooling up for mass production of such a machine. Nevertheless, *Hirobo* have taken the bull by the horns and gone ahead regardless utilising their undoubted experience gained from the manufacture of very high quality R/C helicopter kits. Their expertise in this exacting branch of the R/C model hobby has given them a better chance of success than most. Whether they have succeeded or not is the subject of this Track Test.

Interestingly, the complete transmission system to each end including gearbox, differentials, and

Below: the Rock 'n' City ready for the track with a choice of bodyshells either the kit item or Lexan 'racing' version.



motor mounting is pre-assembled and set-up by the factory. The rest of the bits and pieces are packed into numbered bags and relate to the instructions. Although the kit is almost two thirds finished, the instructions start from scratch. Wheels and tyres, bodyshell and decals are all in there and can be left to later.

Transmission

As it comes in the box, the pre-assembled chassis is a very intriguing piece of machinery and definitely warrants a closer inspection. Not that I doubt the *Hirobo* factory assemblers skill, just that I wanted to know what makes it tick.

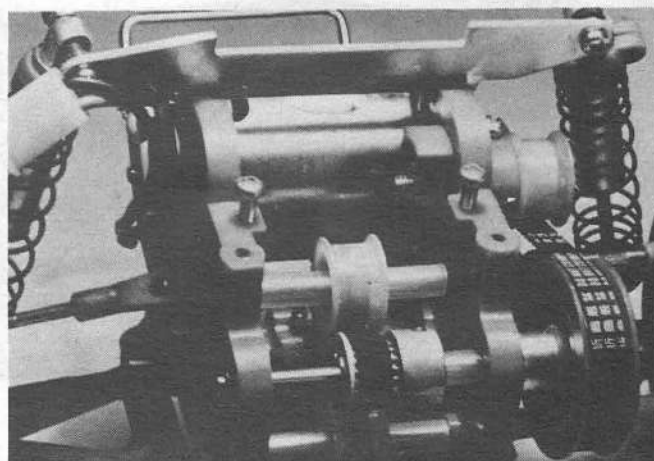
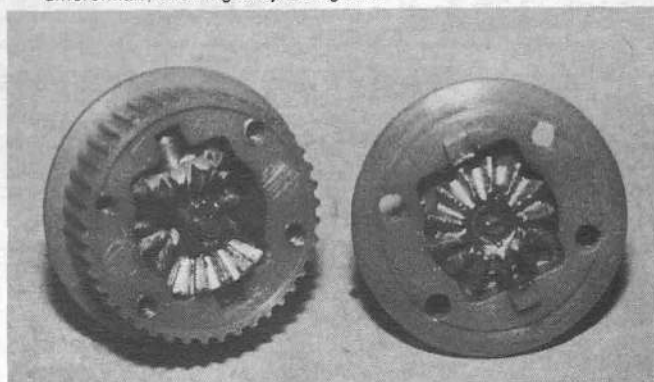
Drive to both pairs of wheels is via a toothed belt, running the length of the car and which engages around differentials either end with drive shafts transmitting the power to the wheels. A closer look at the differentials shows them to be of the

planetary geared variety using cast alloy gears, which have been greased, ball-races are supplied as standard for the differential outputs. Two jockey pulleys at the rear end, (one of which can be adjusted) give the main belt the correct tension. A smaller drive belt takes the power from the 540 motor to the main drive shaft and this also features an adjustable, ball-raced tensioning pulley. The other two inside the gearbox and the third one at the front are standard. Doubtless, by ball-racing these, an even more efficient drive system will be produced. Different gear ratios can be easily produced by changing the motor pinion/timing pulley and an alternative ratio is available from the importers.

Finally the drive belt channel is protected from underneath with a removable aluminium spine, the radio box when fitted will protect the top. If correctly tensioned and not overstressed the drive belt should last as long as the car.

Rock'n'City

Bottom: the rear belt tensioning pulley system comes pre-assembled by the Hirobo factory. Below: inside one of the differentials, showing alloy cast gears.



Suspension

Both the front and rear suspension systems feature single wishbones on each side. The wishbones, suspension bulkheads and most other parts are attractively produced in red, injection moulded nylon, a material which is not only strong but has a greater resistance to general wear and tear. The front end is by far the most interesting as obviously steering has to be incorporated whilst still allowing the front wheels to be driven. The *Hirobo* system features a steering pivot block which locks into an upright clamp. Caster or king pin inclination can be adjusted simply by rotating the hub carrier in the clamp and locking it up. Camber adjustments are also possible for both suspension set-ups simply by lengthening or shortening the tie-rods between the top of the hub-carriers and suspension bulkheads. Plain bushes are set into the hub carriers to support the wheel spindles, again, ball-races are a good

buy if you wish to get the best from this machine.

The coil-over shock absorbers are next on the list and before installation onto the car have to be filled with the oil provided. In many ways these items resemble those of the 'scorpion' as an adjustable locking collet to vary spring tension is fitted. The springs themselves are very soft, just the job to allow the suspension to do its stuff and keep all four wheels driving onto the track. The wheels and tyres are the same all way round with nice 'Off-Road Knobblies'.

With the body post and bumpers fitted this completes the rolling chassis ready for the R/C installation.

Radio Installation

A large vac-formed plastic crate sits amidships and will accept and protect any set of radio control equipment you care to fit. The kit also includes servo tape for sticking all the bits in plus steering and

throttle servo track rod connections, the Ni-Cad pack (not supplied) sits squarely in the middle, lengthways along the chassis.

The resistor type speed controller included in the kit box was duly fitted although an electronic type controller is my usual preference. This controller is fitted with diodes to drop the voltage from the Ni-Cad pack so that the receiver can be wired in directly, this allows you to get rid of the receiver battery pack an extra weight of 4-5 ounces. My only worry in doing this was the knowledge that Japanese R/C car enthusiasts only run four minute races. If the gear ratio was too high for our style of racing (five minutes) then there could be a danger of losing control early as the Ni-Cad pack lost its power.

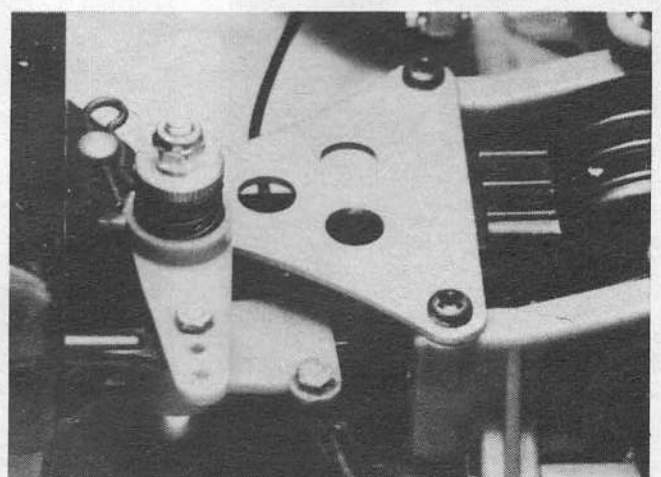
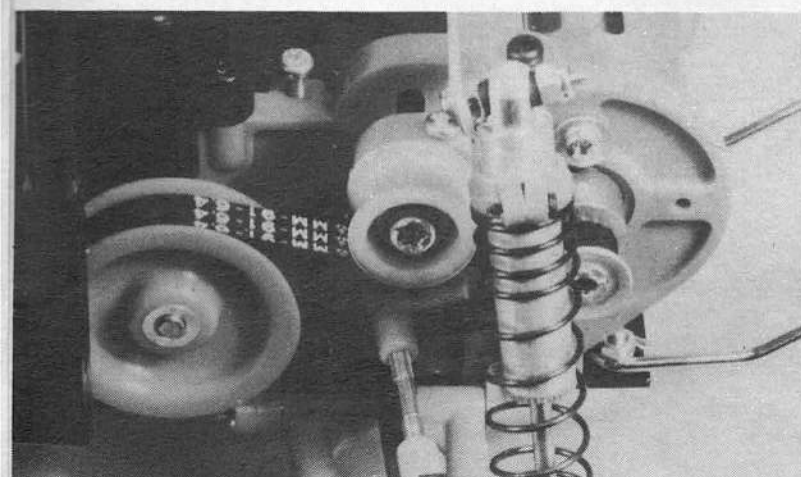
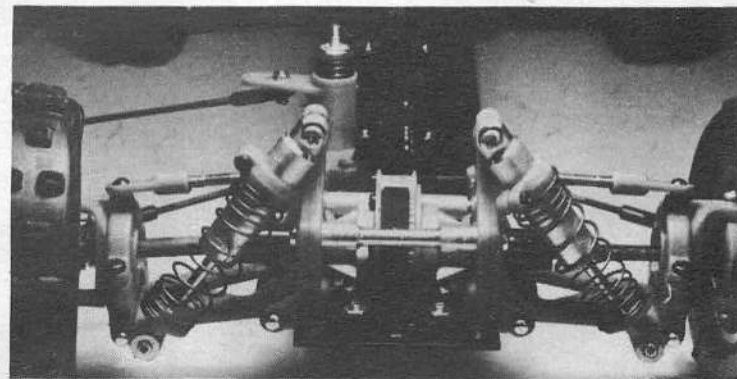
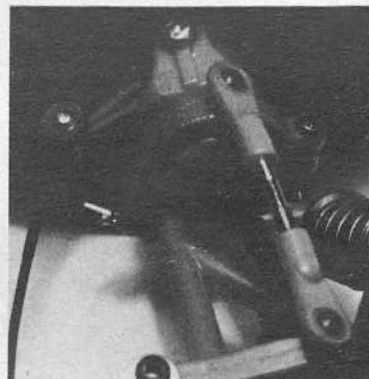
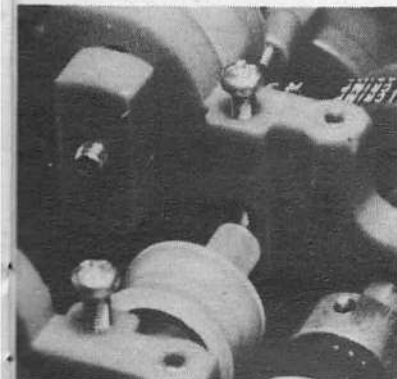
The body shell remains the only item left prepared, before actually getting the car moving. The body supplied in the kit can only be best described as interesting. I think its supposed to resemble a *Honda*

ity...

Get to grips with Four-Wheel Drive using the latest in 1/10th electric Off-Road racing machinery from Hirobo

Bottom: the motor to main belt transmission system. The centre pulley can be moved up and down to vary the belt tension. Below: left the main belt tensioning screws. Below left: front steering and drive shaft system.

Bottom: adjustable Hirobo Servo Saver sits to one side of the main chassis. Below: head on view of the front end, drive, steering and suspension set-up.



Track Test

'City' or something similar, to be honest I thought it looked like an upsidedown lunchbox, still an alternative polycarbonate 'racing body is available as an extra if the kit item isn't to your liking.

Setting Up

The instructions suggest that a little prudence should be exercised before launching the 'City' onto the track. This takes the form of setting the car up on a wooden block and checking that drive is being transmitted to all four wheels, and in particular the front wheels as the steering is applied. If all is well (and it should be) then a further charge to the Ni-Cad pack is all that separates you from the real test.

Out on the Track

Even though everything had checked out on the bench I still resisted the temptation to push the car too hard early on. The extra complications of a four wheel drive system suggest that a little running in is necessary particularly for the differentials. With five minutes of tooling around over and done with, an extra Ni-Cad pack was installed and off we go.

Depending on your previous experience with other cars and racing in general the 'Rock 'n' City'

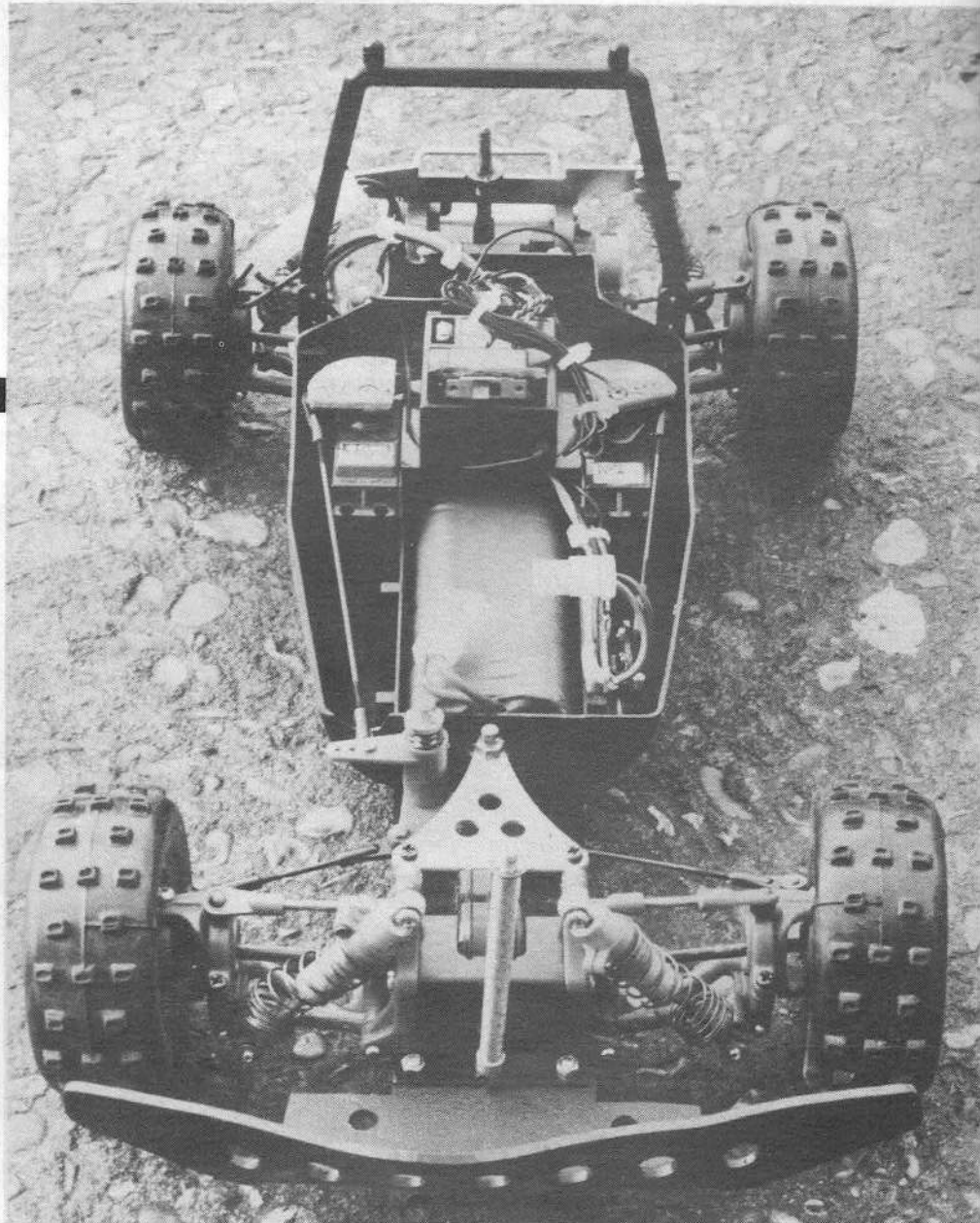
may appear to be slightly sluggish off the start line, and out of the corners. This is to be expected of course as there is the extra complication of a 4WD to be gotten over. Nevertheless once up at top speed the 'City' should hold it's own against the more conventional competition, certainly weight is not a major problem as in kit trim, the 'City' comes out at a respectable 3lbs, 12ozs with plenty of scope for further lightening work to be carried out. Apart from that, a full compliment of ball-races and a well prepared motor will add to the 'City's' pace.

On handling side the 'City' exhibits some interesting characteristics not the least it's incredibly stable and easy to drive nature on any surface. The super soft suspension really

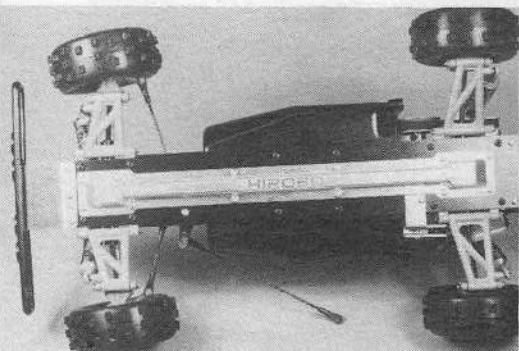
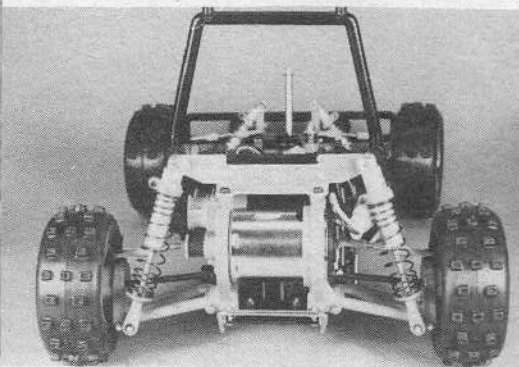
irons out the bumps and makes for a very smooth ride indeed, in fact the belt drive is so smooth and quiet that you can hear the armature whizzing around inside the motor can!

However, the 4WD aspect does pose problems not the least understeer which is particularly noticeable at high speeds, the front wheels tend to straighten up as power is applied resulting in a wide turning circle. On tight corners this problem is totally reversed; if you lift off from the throttle too early the front differential takes over sharply and the front wheels 'dig in' bringing the car to an almost standstill and prompting oversteer. This effect is quite noticeable on a fast circuit as the soft suspension causes the front end to 'dip' quite dramatically. The only real

Below: the completed Rock 'n' City ready for the track. Hirobo Importer Dave Nieman Models can supply a range of racing accessories as extra.



Bottom: the chassis underside showing the full-length protective 'spine' for the main drive belt. Below: the Hirobo rear suspension with long stroke coil-over shockers for maximum damping.



way to get over this is to get used to it and learn to gauge the speed properly in and out of the corners.

On a hard and fast surface, 4WD is probably not the best way to go, however, if the track is loose slippery or bumpy (and in this country it's usually all three) then a definite advantage can be expected.

As far as reliability is concerned, once again there are good and bad points to be noted. On the plus side the drive system and all its ancillaries have proven to be faultless. However, the suspension systems, in particular the front end, has a few problems. As we mentioned earlier the front steering blocks are held into an injection moulded clamp, unfortunately a hefty sideways knock to the front wheel will cause the

steering block to pull-out quite easily. Basically the simple clamping arrangement is not sufficiently robust enough and has to be modified in some way. Fixing it in permanently with 'superglue' is one way but this will lose you the castor adjustment. Perhaps the best method is to fit, two small tie-wraps around the two components to keep them together.

The drive shaft sockets also need to be fitted with small foam rubber cushions to keep the shafts central as the suspension moves up and down and so lessen the chance of a shaft popping out. Whilst you're at it wind some brightly coloured insulating tape around the shafts so that it can be easily seen if you lose one.

Another reliability improving tip is to

place washers over all the steering and suspension ball-joint connectors to stop them popping off.

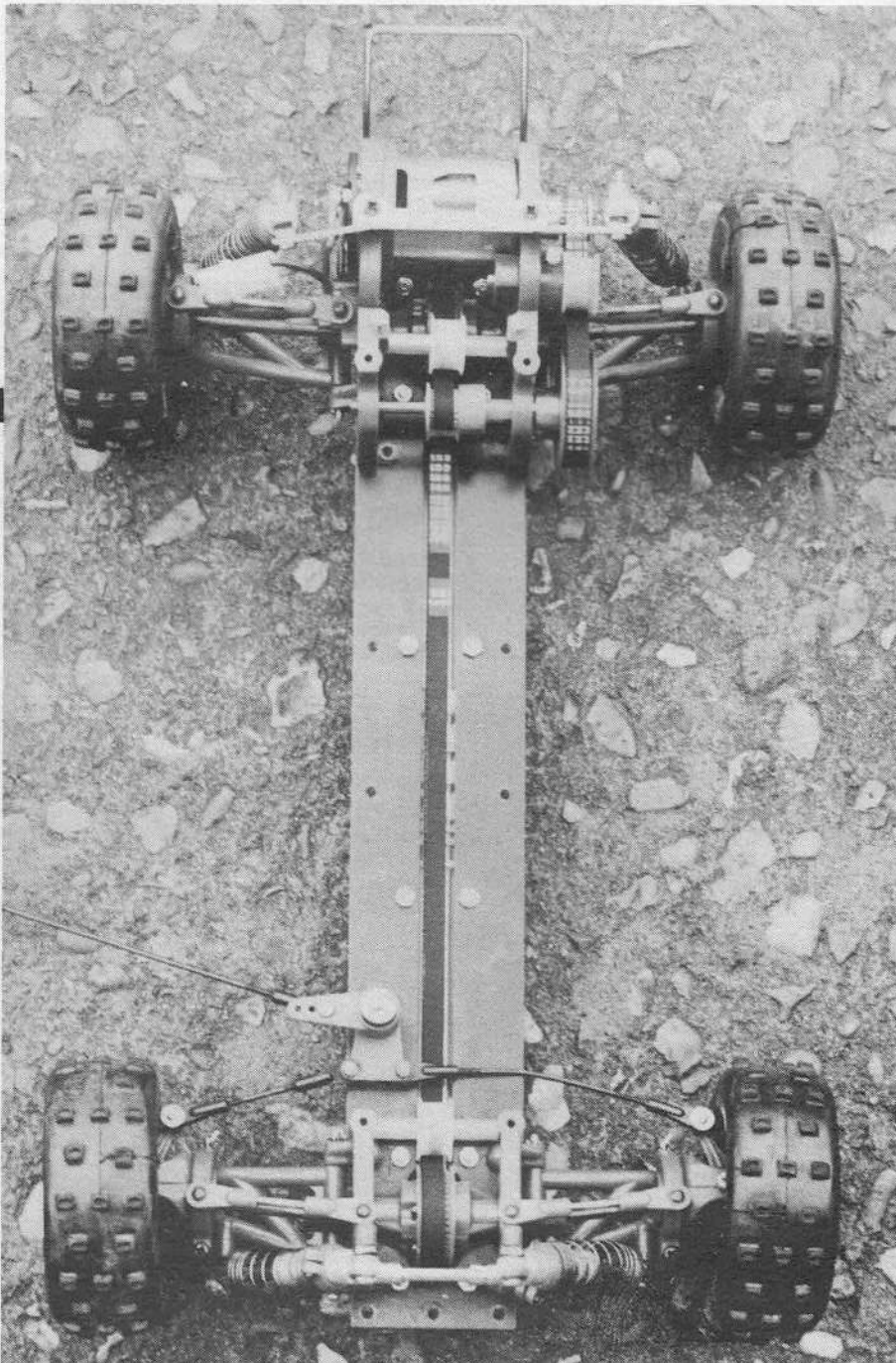
Finally, I have heard from other *Hirobo* owners that the suspension mouldings tend to be rather brittle and will snap. Unfortunately I cannot comment on this as I haven't broken one. Nevertheless I will say that anything will break if you hit it hard enough!

Conclusion

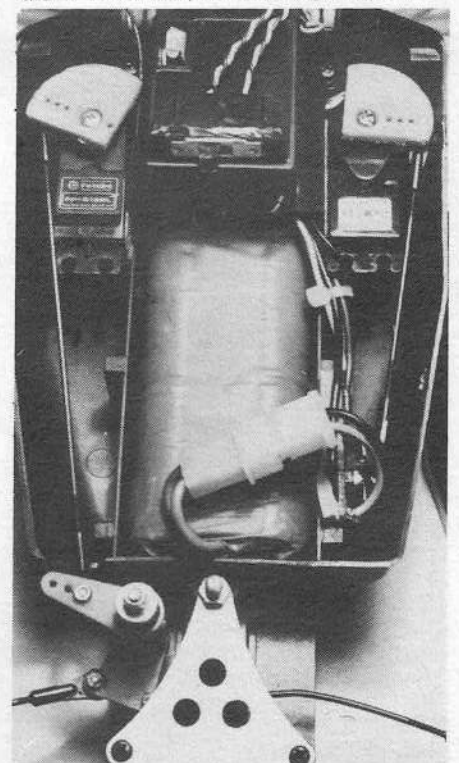
In my mind this is one of the most exciting R/C Car kits to come onto the market for some time not just because it is fourwheel drive but also because it offers the dedicated enthusiast plenty to work on and experiment with, whilst still remaining an ideal choice for the first time buyer. I'm sure that this racing season will see an interesting, extra dimension added to our racing scene as experimentation takes place. 4WD cars have proven to be superior in the 1/8th scale I.C. class and with a good driver on the sticks this fact can be mirrored in 1/10th scale racing. Certainly, you get a lot of car for your money and when comparing the contents and prices of other commercially available products a cost of £98.00 for the *Hirobo* 'Rock 'n' City' doesn't seem too bad.

U.K. Distributor, *Dave Nieman Models*, 34 Watford Road, Sudbury, Wembley, Middx.

Below: the *Rock 'n' City* minus the radio crate and showing the complete, full length belt drive system.



Below: the well thought out and spacious *Vac-Formed* R/C crate. R/C linkages are supplied in the kit but *Ni-Cad* pack is an optional extra.



Contest Calendar

BRCA 1/8th National Championship series

April 22

SOUTHAMPTON Three-day meeting. Saloon; Formula; Sports/GT at Weston Shore circuit. Contact Dave Farndale, c/o Eastleigh Model Centre, 2e High Street, Eastleigh, Hants. Tel. (0703) 617849.

May 6

TIBSHELF Three-day meeting. Saloon; Formula; Sports/GT at Parish Sports Ground Circuit, Newton Road, Tibshelf, Derbyshire. Contact Joan Heffer, 24 Back Lane, Tibshelf, Derbyshire DE5 5LN. Tel. (0773) 872805 after 4.30pm.

May 13

BOURNEMOUTH Two-day meeting. Formula; Sports/GT at Turbary Park Circuit, Bournemouth. Contact John Dales, 158 Beamish Road, Canford Heath, Poole, Dorset BH17 7SJ. Tel. (02477) 77163.

May 27

ABERDEEN Three-day meeting. Saloon; Formula; Sports/GT at Mineralwell Park Circuit, Stonehaven, Nr. Aberdeen. Contact I. Cowieson, 26 Newburgh Road, Aberdeen, Scotland.

June 10

LILFORD Two-day meeting. Formula; Sports/GT at Lilford Park Circuit, Northants. Contact Steve Taylor, Blackhorse Lane, Swavsey, Cambridge. Tel: (0954) 31323.

July 15

WOMBWELL Two-day meeting. Formula; Sports/GT at Wombwell Sporting Association Circuit, 7 Park Street, Wombwell, Yorkshire. Contact Phil Hague, 'Field View,' 103 Upper Hoyland Road, Hoyland, Barnsley. Tel. (0226) 745592.

July 22

LONDON Two day meeting. Formula; Sports/GT at Crystal Palace National Recreation Centre Circuit. Contact Steve Fagg, 75 Chislehurst Road, Orpington, Kent BR6 0DQ. Tel. (0689) 77464.

August 12

WREXHAM Two-day meeting. Formula; Sports/GT at Hoseley Circuit. Contact Jonathan Davies, 20 Windermerre Road, Little Acton, Wrexham LL12 8AN. Tel. (0978) 364854.

August 26

BRCA NATIONALS — MENDIP. Three-classes. Saloon; Formula; Sports/GT at Mendip MMRC Circuit, Nr. Weston-Super-Mare. Contact Dennis Jones, 76 Fosse Road, Newport Gwent. Tel. (0633) 278696.

September 2

WEST BURTON Two-day meeting. Formula; Sports/GT at West Burton Power Station Circuit, Nr. Retford, Notts. Contact Keith Davies, 37 Grove Coach Road, Retford, Notts. Tel. (0777) 703527.

September 16

YORKSHIRE Two-day meeting. Formula; Sports/GT at North Bridge Leisure Centre, Halifax. Contact Bryan Denton, 15 Highmoor Lane, Scholers, Cleckheaton, Yorks. Tel. (0274) 877177.

September 30

ALDERSHOT Two-day meeting. Formula; Sports/GT at Badshott Lea Circuit, Nr. Aldershot. Contact Jeff Stokes, 76 Sandhills, Farnborough, Hants. GU14 8ER. Tel. (0252) 46980.

1/8th Scale Invitation

June 10 Mendip
June 17 Tibshelf
July 29 Ballymena, N. Ireland
August 15 Bournemouth
September 9 Southampton
September 23 Heemstede 3 hour
October 14 Mendip 4 hour

Invitation meetings are open to all drivers and BRCA Membership is not necessary. Contact addresses for these meetings can be obtained from the championship series listing, the same contacts can give details of club events.

East Midlands PB League

March 25 Lilford Sports/GT
April 15 Tibshelf Saloon
April 29 Boston Sports/GT
May 20 Lilford Saloon
June 3 Wombwell Sports/GT
June 24 West Saloon
 Burton
July 8 Boston Saloon
August 15 Wombwell Saloon
September 9 Tibshelf Sport/GT
September 22/23 W. Burton Presentation

All drivers are welcome to race at these meetings but the aim of the series is to encourage lower handicap drivers.

International 1/8th Scale Meetings

March 18 Spanish GP, Madrid
April 29 European Saloon Championships, Sollenau, Nr. Vienna, Austria
May 20 Swiss GP, Brugg
June 3 Dutch GP, Heemstede
June 17 French GP, Paris
July 1 British GP, Southampton
August 5 European Championships, Brugg
August 26 Italian GP, Sicily
September 9 Belgium GP, Rumst
October 7 Monaco GP
October 21 Portugal GP

BRCA 1/12th National Championships series

April 7/8

STAFFORD Standard and Modified class meeting at GEC Stychfields Social Club, Stafford. Contact John Robson, 1 Aldersleigh Drive, Wildwood, Stafford ST17 4RY. Tel. (0785) 662242.

May 19/20

CHESTERFIELD Standard and Modified class meeting at Sharley Park Leisure Centre, Claycross, Chesterfield. Contact Sheila Goodyear, 40 Twickenham Crescent, Halfway, Sheffield S19 5HS. Tel. (0742) 483112.

June 9/10

HULL Modified and Standard Class meeting at Haltemprice Sports Centre, Hull. Contact Pete Wragg, 8 Finningley Garth, Bransholme, Hull GU17 4LH. Tel. (0482) 831221.

June 23/24

EAST MIDLANDS. Standard and Modified class meeting at Enderby Leisure Centre, Enderby, Leicestershire. Contact Phil Tatham. Tel: (0530) 412949.

July 28/29

EDINBURGH. Standard and Modified class meeting at Bo'ness Recreation Centre, Bo'ness. Contact Gordon Price, 36 Main Street, Kirkliston, West Lothian, Scotland.

September 8/9

DERBY. Standard and Modified class at Rolls Royce Sports Centre, Derby. Entry closing date 8/8/84. Contact Dave Towell (0332) 771805.

September 29/30

LEICESTER Standard and Modified class at Loughborough Leisure Centre, Leicestershire. Contact Alan Blakeman, 11 Newark Street, Leicester LE2 5SS. Tel. (0533) 898528.

October 13/14

CLEVELAND Standard and Modified class at Thornaby Pavillion, Thornaby, Stockton on Tees. Contact Tony Wells, 10 Fawcett Avenue, Stainton, Middlesbrough, Cleveland. Tel. (0642) 591239.

October 27/28

RUNCORN Standard and Modified class at Brookvale Leisure Centre, Runcorn. Contact Paul Hatton, 12 Southdale, Penketh, Warrington, Cheshire WA5 2AD. Tel: (092572) 5883.

BRCA 1/10th Off-Road Championship series

All drivers are welcome to enter these events and BRCA membership is not necessary although only BRCA members can score points towards the Championship title. The only exception to this is the European International Meeting for which only BRCA members can enter.

March 25

BICESTER Standard class. Contact Howes Model Shop, 9-10 Broad Street, Oxford OX1 3AS.

April

LIVERPOOL Standard class meeting at the Punch Bowl Hotel, Sefton, Merseyside. Contact Steve Newey, 15 Patricia Grove, Bootle, Merseyside.

April 22

CHESHAM Modified class at the Royal Oak Pub, Great Missenden, Bucks. Contact Jim Dunscombe, 5 Rickmansworth Road, Amersham, Bucks. HP6 5JN.

May 6/7/8

PRIMROSE VALLEY Standard and Modified class at Primrose Valley Holiday Camp, Filey, Yorks. SAE to Race Entry Model Cars, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

May 20

BRADFORD standard class at Littlemoor Park, Queensbury. Contact Tony Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

May 26/27

EUROPEAN INTERNATIONAL OPEN Royal Agricultural Showground, Stoneleigh, Warwickshire. SAE to 'Model Cars,' PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

June 3

SOUTHEND Standard class. Venue TBA. Contact John Newton, 4 Aylesbere, Thorpe Bay, Southend on Sea, Essex.

June 10

MILTON KEYNES standard class at Elfield Park, Milton Keynes. Contact Dave Meadows, 63 Aylesbury St., Stoney Stratford, Bletchley, Milton Keynes.

June 24

CHINGFORD Standard and Modified class. Venue TBA. Contact Dave Kendall, 16 Springfield Road, Chingford, London E4.

July 7/8

EDEN PARK OVERLANDERS two day meeting standard and modified class at London Transport Sports Gala. Contact Jim Paffett, 2 Hawksbrook Lane, off South Eden Park Road, Beckenham, Kent.

July 22

HARE AND HOUNDS standard class at Hare and Hounds, Batley, Yorks. Contact Tim Fountain, Hare and Hounds, 7 Batley Road, West Ardesley, Nr. Wakefield, Yorks.

August 5

LIVERPOOL Modified class. Details as above.

August 19

HARE & HOUNDS Modified class. Details as above.

August 26

MILTON KEYNES Modified class. Details as above.

September 8/9

LILFORD Modified and Standard class at Lilford Park, Nr. Oundle, Northants. Contact Steve Taylor, 30 Blackhorse Lane, Swavsey, Cambridge.

September 16

BICESTER Modified class. Details as above.

September 30

CHINGFORD Standard and Modified class. Details as above.

SEPTEMBER 23

BRADFORD Modified class. Details as above.

1/12th Open Series

Ally Pally Carpet League

28.1.84
3.3.84
21.4.84 or 23.4.84
26.5.84
16.6.84
21.7.84
1.9.84
6.10.84
17.11.84
8.12.84

Entry £3.00. 3 heats. A to F finals. 4.00pm at Watford Leisure Centre, Horseshoe Lane, Watford, Herts. Contact Nick Adams 01 866 5945.

Stafford Carpet League

22.1.84
19.2.84
4.3.84
22.4.84
27.5.84
17.6.84
16.9.84
7.10.84
4.11.84
16.12.84

Entry £3.50. GEC Stychfields Social Club, Stafford. Contact John Robson, 0785 662242. Motors will be issued by the organisers for use during the meeting.

International 1/12th Scale Meetings

March Danish GP
10/11
May 4/6 European Championships, Germany
August World Championships, Denmark
9/18

BRCA 1/8th Off-Road Series

March 4

WOMBWELL Restricted 1/8, Unrestricted 1/8. Entries to S. Smith, 12 Warren Road, Wickersley, Nr. Rotherham, S. Yorks. Entry fee £3.00. Non-BRCA members require proof of insurance.

March 25

BICESTER Restricted 1/8, Unrestricted 1/8. SAE to Alec Hudson, Howes of Oxford, 9-10 Broad Street, Oxford OX1 3AJ. Entry fee £4.00.

April 8

MENDIP Restricted 1/8, Unrestricted 1/8. SAE Denis Jones, 76 Fosse Road, Newport, Gwent NP7 0TB.

April 22

BASINGSTOKE 1/8 Restricted, 1/8 Unrestricted. Entries to S. Pyne, 11 Woodpecker Close, Kempshott, Basingstoke, Hants RG22 5QH.

May 6/7

PRIMROSE VALLEY 1/8 Restricted, 1/8 Unrestricted 1/10 Electric Modified and Standard. Entries SAE to Model Cars Buggy Bonanza, MAP PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS. Entry fee £3.00.

May 20

BRADFORD 1/8 Restricted, 1/8 Unrestricted. Entries to A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

May 28

STONELEIGH 1/8 Restricted, 1/8 Unrestricted. Entries SAE to 'Model Cars' Buggy Bonanza, MAP, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts. HP2 4SS. Entry fee £3.00.

June 10

REMOTE WORLD 1/8 Restricted, 1/8 Unrestricted. Entries SAE to R. Cloke, Gatehampton Farm, Goring on Thames, Reading, Berks. Entry fee £3.00.

June 17

SOUTHAMPTON 1/8 Restricted, 1/8 Unrestricted. Entries SAE to Tim Reynolds.

July 15

SOUTHAMPTON 1/8 Restricted, 1/8 Unrestricted. Entries SAE.

August 5

MENDIP 1/8 Restricted, 1/8 Unrestricted. Entries SAE to Denis Jones, 76 Fosse Road, Newport, Gwent NP7 0TB.

August 12

REMOTE WORLD 1/8 Restricted, 1/8 Unrestricted. Entries SAE to R. Cloke, Gatehampton Farm, Goring on Thames, Reading, Berks. Entry fee £3.00.

August 19

LILFORD PARK 1/8 Restricted, 1/8 Unrestricted. Entries SAE to S. Taylor, 30 Blackhorse Lane, Swavest, Cambridge.

September 9

BASINGSTOKE 1/8 Restricted, 1/8 Unrestricted. Entries SAE S. Pyne, 11 Woodpecker Close, Kempshott, Basingstoke, Hants.

September 16

BICESTER 1/8 Restricted, 1/8 Unrestricted. Entries SAE to Alec Hudson, Howes of Oxford, 9-10 Broad Street, Oxford. Entry fees £4.00.

September 23

BRADFORD 1/8 Restricted, 1/8 Unrestricted. Entry SAE to A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

BRITISH SLOT CAR RACING ASSOCIATION

Chairman's Address

Members of the Slot Racing World are both surprised and pleased to hear that 'Model Cars' will be featuring Slot Racing once again in its contents. We will do our best to give you up-to-date information on the equipment being used, where our clubs are situated and details of forthcoming events.

Slot Racing has gone through many changes since its last appearance within the pages of 'Model Cars'. Because we believe the hobby is healthy and is once again growing in popularity, it is our intention to cover all aspects of Slot Racing, from club level to National and International events.

The present Management Committee have a flexible and outgoing attitude towards the hobby and will do its best to help those enthusiasts who want to start their own clubs and will encourage racers at all levels to organise events.

If you have been involved in Slot Racing in the past and would like to try again then please contact us. It would also be useful if you expressed your feelings and ideas to 'Model Cars' direct, because they will be the most important link between us the BSCRA and you the enthusiast.

You can contact the Associations Secretary: C. Frost, 22 Phillips Road, Marnhull, Sturminster Newton, Dorset DT10 1LP. Tel: 0258 820770 or alternatively the membership secretary: N. Harvey, 22 Jefferies Road, Ipswich, Suffolk. Tel: 0473 214267.

If you run a Scalextric/M.R.R.C. Club or are involved in Slot Stox please contact the Association as we would like you to join us and would also like to be able to help you in organising events and put you in touch with other clubs.

The future of Slot Racing is looking very promising. The pages of 'Model Cars' will prove to be the turning point and will enable us to go from strength to strength.

Help us to Help you

— C. M. Gooding,

Chairman, BSCRA.

SLOT-RACING IS A SPORT. Even though scale or semi-scale models are usually raced, as soon as they are on the track the cars and drivers are racing against each other. They are not just demonstrating working models, nor are they attempting to model some previous full-size race and recreate all the incidents and changes of position that occurred during that event. Each cars potential performance is related entirely to the slot-racing components in its construction and the drivers skill on the throttle, not the body-shell's choice of prototype or the drivers ability with a full-size car. Thus, immediately that two people put their cars onto the track, slot-racing takes up an existence in its own right as an independent sport.

However there are obviously many parallels with larger car racing and a majority of slot-racers are interested in full-size cars and motor-racing. The 1/32nd cars that are raced in this country are restricted by the rules to using a scale/semi-scale body-shell. That is a scaled down prototype, although dimensions have been distorted slightly and unobtrusively to make it much more useable for modern slot-chassis' and the current rules. This generally takes the form of a slight flattening or lowering of the shape and most importantly bringing the body shell to the maximum legal width of 64mm.

Slot-racing is a very young sport having been around little more than twenty years. As can be imagined the

incentive to develop the cars is very strong and there have been vast technical improvements since the early sixties. Pressure to develop the organisational and structural side has been very much weaker and until recently little development has occurred.

Slot-racing in common with many other sports such as snooker, tennis, chess, etc., has the problem that only a small number of people can 'play' or race each other at any one time. Most tracks in this country feature four lanes. Thus to solve the problem of many more than four people turning up to race on a club-night or at a special event, a knock-out system has always been automatically and un-thinkingly instituted. Commonly this takes the

form of each driver doing a couple of heats of say three minutes, the lap and part-lap total of his best to count. The fastest eight then go through to two slightly longer semi-finals and the fastest four from the semi's move up to the final. Club-nights might feature four heats and perhaps quarter-finals, but usually less classes.

This kind of system works ideally from the point of view of trying to find the fastest racer there, to find a winner. Unfortunately it is disastrous from the point of view of participation. Life under this system is sweet enough for regular winners and finalists, but average racers will rarely see little more than the odd semi-final while beginners and weaker racers never get further than the heats.

This means the majority of racers at an event are not having that much fun, they are getting less racing and less exciting racing to boot! Possibly worse, they are constantly put in the position of 'being-left-out'. In crude terms the knock-out system says to them: 'you're not good enough, so you won't be allowed to race'. Opportunities to race on other occasions don't exist as besides four drivers you need turn-marshals around the track for replacing de-slotted cars as quickly as possible and a race-controller to push the switches and run the racing. A further point is that a slot car track is a very large piece of furniture and clubs never have more than one. I have long felt that this terrible approach to structuring the sport hugely contributed to the sharp decline in interest during the early seventies. It has to be remembered that most people do not want to invest the time and resources necessary to be at the top, they just want to enjoy racing slot cars.

When John Edwards and myself started the Bromley Raceway Club three years ago we decided on an entirely different approach that would emphasise equality of participation and enjoyment. We ran two heats for everybody, best to count, then everybody went straight into a final. The top four went into the 'A' final, the next four

BRITISH SLOT CAR RACING ASSOCIATION (BSCRA)

(formerly Electric Car Racing Association (ECRA) founded 1961.

Officers 1984

Chairman:

Charlie Gooding, 47 Salisbury Close, ALTON, Hants. Tel: 0420-87041 (work)

Secretary:

Chris M. Frost, 22 Phillips Road, Marnhull, Sturminster Newton, Dorset DT10 1LF. Tel: 0258 820770.

Competition Secretary:

Ian Fisher, 106 Chester Drive, Harrow, Middx. HA2 7PY. Tel: 01 866 8571.

Membership Secretary:

Nigel Harvey, 22 Jefferies Road, IPSWICH, Suffolk. Tel: 0473 214267.

Treasurer:

Sahra Harvey, address as above for Membership Secretary.

Press Officer:

John Goldsmith, 8 Albert Street, Bury St. Edmunds, Suffolk, IP33 3DZ. Tel: 0284 63038 (home); 0284 2121 (work)

Newsletter Editor:

Gary Cannell, 55 Ashby Road, Watford, Herts. Tel: Watford 42725.

to the 'B' final, etc. No move-ups, each final was a true final in its own right. If we wanted total overall positions, 1st to 4th were the 'A' finalists, 5th to 8th the 'B' finalists and so on. We gave out 1st to 4th place ribbons in each final, a different colour for each. In the many special events we have organised where we have given out small trophies we have presented a first and second place trophy in every final. (Same two sizes of trophy for each final), people sometimes query this, but if this was not so, a lot of racers would never, ever win a trophy. They still have to race for it, but it's a fair race against competitors of similar ability.

Our club-nights were hugely successful and many other clubs have since adopted similar systems. The second *One-O-One* open meeting last year used this multi-final approach and was one of the biggest and most successful races last year. This year at the BSCRA National Championship Finals there will be an 'A', 'B' & 'C' final in each class. This style of structuring isn't necessarily always the best for all events, but the finals-for-everybody approach must be the ideal approach for the bulk of slot-racing as you are catering for the vast majority of racers who are not the best in the country.

The Bromley Club unfortunately no longer has premises of its own, but we still organise successful race series employing the above race philosophy on tracks in S.E. England. Anyone interested in competing or finding out more please contact us. All are very welcome!

Tim Ryan — Tel: 01-460-4324
52 Hayes Road, Bromley, Kent. BR29AA
John Edwards — Tel: 01-236-6311 (wk)
01-290-5255 (hm)
21 Gladwell Road, Bromley, Kent.

LETTERS

Dear Sir,

*With reference to the 'Seen & Heard' column in Dec./Jan. issue of 'Model Cars', I would like to inform you of the existence of the **Pirelli Slot Car Racing Club** in Carlisle. The Club races E.C.R.A. style cars powered by low cost 16D motors on a 4-lane 65ft track housed in the works canteen.*

I feel strongly that as Radio Control racing becomes more expensive, many people would appreciate information and articles on slot racing to enable them to continue in a hobby which does not require a mountain of money to participate at a competitive level. Indeed half of our present club membership including myself raced R/C cars and now find slot racing to be even more challenging and competitive. It may be said though to progress in a sport such as ours, new members require information and basic 'Know how' on the techniques of building and setting up both cars and tracks. A service I am sure you could supply with the assistance of some of the more experienced E.C.R.A. Racers.

**Norman Fawcett,
Cumbria.**

Dear Sir,

Many years ago I was a keen enthusiast of 1/32 scale slot racing and belonged to the North London Society of Model Engineers, Barnet, Herts. I bought 'Model Cars' every month.

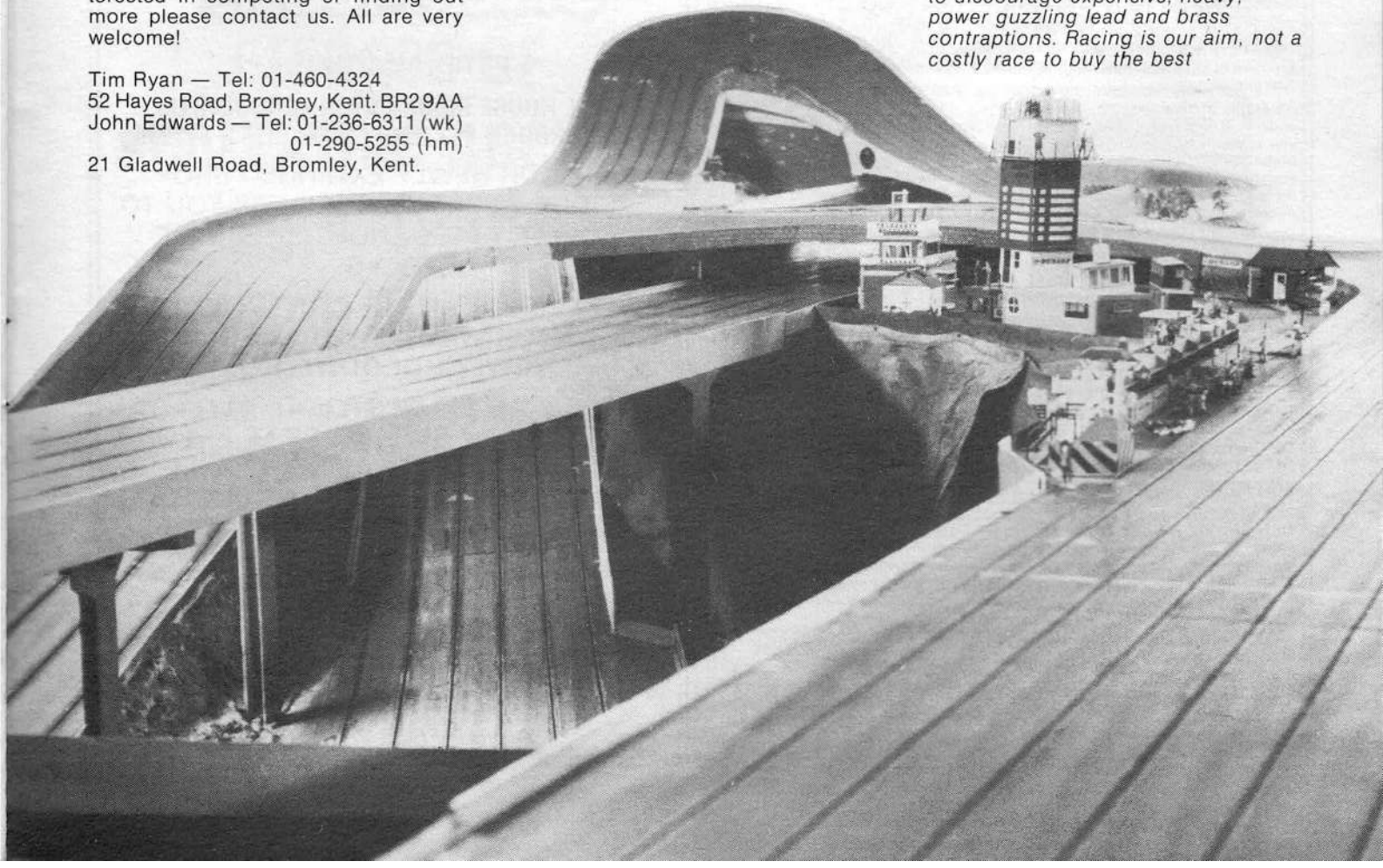
I have been trying to get my son interested in the hobby, but have found that this sort of racing is a thing of the past. Nobody in the Aberdeenshire area stocks kits, spares or any parts.

Has the sport disappeared? and if so what, if anything, has taken its place? Does the Electric Car Racing Association still exist?

**Ian Gibrey,
Banchory.**

Dear Sir,

I read with interest your comments in 'Seen & Heard' concerning the current slot racing revival. This letter is to inform you about developments in the South Manchester Area. During the 'off' season when there is little 1/8th or 1/12th R/C racing, we (Manchester Model Car Club) run slot race meetings at a local church hall in Stockport on Thursday evenings. We have a mix of slot and R/C racers who attend and the evenings have proved to be very popular, the biggest problem being to keep numbers to a manageable size. We use 'Polistil' track with one 1½ Amp 12V transformer to each lane to discourage expensive, heavy, power guzzling lead and brass contraptions. Racing is our aim, not a costly race to buy the best



Slot Car Acceleration

equipment. We hope in this way to be able to continue at our current level, racing during the winter without losing members who cannot afford to keep up.

'Official' racing of the night is done with our 'house' cars. We are grouped into fours and run once on each lane in each group. Laps are then totalled and we regroup into A, B, C, etc. finals and run again to determine an overall result. Manual lap counting and marshalling keeps everyone occupied. After 'official' racing, we run impromptu races for everyone to use their own car. We encourage the use of simple, lightweight cars such as Scalextric, MRRC, Airfix, etc., and tyre treatments are definitely not allowed.

The result of all the above organisation and rules is an evening of very close racing and the possibility of rising in the ranks by practicing your driving at home rather than having to try and buy success.

I know of a number of other informal groups like our own who race slot cars. I will try to contact them and encourage them to write to you about their own racing.

I am sure that coverage of slots would be welcomed, especially by

those of us who race R/C as well, since this would add extra interest to the magazine. I would suggest that the coverage, initially at least should cover the same sort of ground as you did originally for R/C. How to organise a club, where to race, race organisation, where to buy spares, etc. I would like to see an emphasis on the racing rather than the cars. It is easy to find half a dozen people with Scalextric sets who can meet in their own homes, pool resources and race very enjoyably for next to no cost. It is an enormous task to find more than a couple of die-hard slot racers with expensive brass chassis and rewound motors needing a car battery each to run. I think that slot coverage aimed at the first group would be very welcome.

**Colin Perrin,
Stockport.**

Dear Sir,

Your recent request concerning the revival of Slot Car Racing asked to hear from those in the sport, to let you know just what is or is not happening and if there are any Scalextric or 'Slot' clubs still in existence. I have taken it upon myself to make some kind of reply for and on behalf of the other clubs, this I

hasten to add will not cover the E.C.R.A. clubs, I am sure that they will let you know about this type of racing themselves as I would not be able to supply any information at all.

Most of the clubs race Scalextric cars as 'standard', any variations would be raced in 'Libre' events, but even having said this, one of the clubs also allows M.R.R.C. produced cars to race together and these can be 'modified', up to a certain percentage of the existing bodywork, so there is a certain amount of variance about.

Scalextric or Slot Racing never really faded or died away and it is surprising just how many people who raced in the 1960's kept their cars, and who still reappear from time to time to take up the throttle control again, or introduce their sons and daughters to the sport, more often than not becoming the mechanic of the family to show pride if the youngster wins or even makes a good showing in club or 'Open' events.

**S. J. Sharp,
London.**

Ted Longshaw Model Cars

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AMPLE FREE PARKING

THIS MAY BE the April issue, but as I write it is just into the New Year with the RSCA on Stand 151 at the Model Engineer Exhibition, and everyone getting to work in preparation for the 1984 seasons racing.

1/12th Clubs

The Rugby Model Car Club has a new man in charge, Jon Cutts of 107 High Street, Hillmorton, Rugby, Warwickshire (Rugby 72110). Jon says that anyone is welcome on Wednesday nights at 8 p.m. in the Newbold Village Hall, Newbold, near Rugby. The Club races to RSCA rules, but as yet they are not an affiliated Club, and have about twenty members, half of whom are regular racers. So if you live in the area, have a car, but nowhere to race, get in touch with Jon.

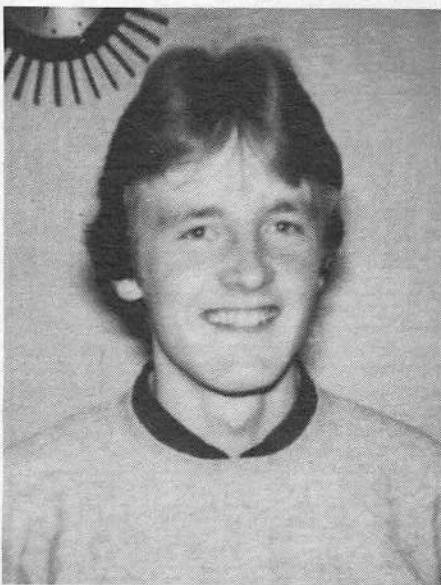
Two other Clubs asked me to give them a mention, they are the Vauxhall Motors Club who race at the Luton factory on Thursday evenings and the Hatfield Club in the Students Union at the Polytechnic, right beside the A1 on Mondays. Both these clubs race from 8 p.m.

Driver Profile, Dave Clark. RSCA No. 38

If you are a regular reader of *Model Cars* you will have heard frequent mention of Dave Clarke in the reports from Chris Loughran on the 1/12th scene. So I thought it was about time I gave a bit of space to this young man who has been chasing Steve Talbot so hard in the 1/12th Championship races and actually getting the better of him in the last two Nationals of the 1983 season.

Dave is an 18-year-old apprentice heavy vehicle mechanic at a main Ford agents in Loughborough and lives at 180 Leicester Road, Mountsorrel, Loughborough. His introduction into R/C car racing was via a second-hand 'Mkl' *Mardave* 1/8th car, unfortunately

Below: Dave Clark, subject of our driver profile.



he and his Dad encountered so many problems that they almost decided to give the sport up as a bad job.

1/12th scale stock-car racing had been in existence for just under a year at that time and so being a regular customer at *Mardave*, the latest 'Mkl' 1/12th car was put at the top of the Christmas present list. It duly arrived (so he does exist after all).

With four cells and no silicone Dave began to race at the Club his parents had organised in Loughborough called the Charnwood Electric Stock Car Association. (CESCA was the nearest they could get to the BriSCA). With his



Right: Chris Loughran's eye-catching 1/12 scale, six wheeled stocker.

past 1/8th experience Dave became the man to beat as everyone else was totally new to the sport, he has managed to hold on to this position and has won the Club Championship three times.

In 1982 Dave began to race at National events, but with little success mainly because his car was set up for one track only. At that time it seemed that the *Lectricar* was becoming superior to the *Mardave*, so Dave decided to try his hand with one, but found he could not set it up to his liking for the bends. Having had little success with the *Lectricar* he decided to return to his old faithful *Mardave* and with increased knowledge of racing on different tracks against top-class opposition he set about making adjustments to increase its speed and grip. This was achieved by altering gear ratios and experimenting with different tyre compounds at his local Club. He settled for 14:46 gearing with medium soft 'D's' on the back and standard *Mardave*'s on the front. This combination gave him regular second places in 1983 behind Steve Talbot.

The search for that extra little bit to get in front of his main rival resulted in modifications to the rear suspension which were perfected in time for the last two Nationals of the season which

he won. Tyres were maximum width 'D' mediums at the rear and hard fronts, all with two coats of light stippled *Loctite* clear silicone, an *Associated* resistor speed board and 13:52 gearing.

In Dave's opinion 1/12th racing is all about getting the car set up to suit yourself and it will be interesting to see if in 1984 he can carry on from where he left off, that is, in front of Steve Talbot.

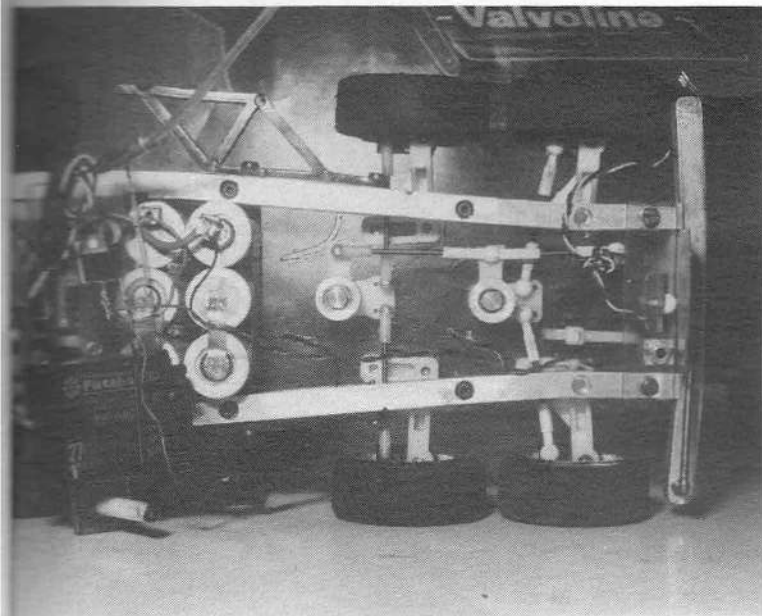
1/12th Six-Wheeler

When Andy Else told Chris Loughran that a full-sized six-wheeled stock car actually existed, that was all Chris needed to know to start him off building a 1/12th scale version to race legally as a 'reasonable representation of a full-sized car'.

Chris' main aim was to see if it was physically possible to include all the extra bits and pieces within the

standard chassis rails, consequently he chose the *Lectricar* chassis in preference to the *Mardave* as it is slightly narrower. If he could fit it all in, it would be even easier to do so in a *Mardave* and thus make the modification possible for all.

As he was already using *Associated* front steering blocks and a *Tamiya* servo-saver more of the same were purchased so that if the project failed they could still be used as spares. The main problem was how to link up the two sets of wheels in such a way as to make the rear pair turn slightly more than the front and so create tandem steering. This aspect is needed because the rear pair of tyres follow a slightly shorter course when turning a corner than the front, as in effect the wheelbase of the rear pair is shorter than the front pair. In the end this problem proved to be quite easy to overcome by using different hole spacings for the ball-joint linkages from the servo-saver, thereby giving more or less throw as required. Linking the two servo-savers was also easy, using a double-ended



Left: close up detail of Chris' four wheel steering system which incorporates twin linked Tamiya servo savers and two pairs of Associated front steering blocks. The chassis bottom, onto which the steering blocks are fitted, is provided with saw-cuts to give front end flex.

ball-joint as used to operate the ailerons on model aircraft.

Cuts in the chassis bottom are arranged so that each pair of wheels can flex independently and ball-joints front and rear prevent the chassis from flexing up and down but not side to side.

The bottom chassis is made from 2.5mm Lexan sheet, and the Ni-Cads are held in a cut-down Lectricar radio tray, with a Lexan top plate. Nerf bars are also cut-down Lectricar components. Whilst the back axle blocks are from a *Mardave* circuit racer.

Up until now the car has only been run a couple of times, but first impressions are quite favourable. The car is stable through the corners, and oversteer is less than expected. The only real problem is its weight, just under three pounds in race trim, but this could be reduced by three or four ounces if the *Mardave* chassis is used.

Chris is going to develop the car through the season, and will no doubt send me progress reports, but if you would like more details contact him at 36 Glenhills Boulevard, Eyres Monsell, Leicester. (0533-777529).

Club in Focus Radio Stock Cars, Leicester

Leicester is the 'home' of stock-car racing as it was here, about eleven years ago, that the *Mardave* factory first produced an eighth-scale stock-car, which was run at Newbridge for a bit of fun between formula car racing heats. As the number of drivers with stock-cars increased so RSCL (radio Stock-car Leicester) was born and from it later developed the RSCA, the national organising body. For the first ten years the Leicester Club used both a portable track that they moved around from location to location, wherever they could get permission to

race and also a part of the Newbridge circuit. Mencap, Bachelor Bowles and Newbridge were all used on a regular basis whilst the Club looked for a permanent base to build a purpose-built oval. An offer of land at the 'Airmans Rest' eventually came from *Everards Brewery* in the middle of 1982 which resulted in the formation of the 'Everards Tiger Raceway' at the 'Airmans Rest', Ratby Lane, Leicester, the home of the Leicester Club from the end of that year.

At the moment the Club has about sixty racing members, plus some associate members who help with such things as race control and lap-counting. Maureen Wragg, wife of Dave, and Jan Grocock wife of the current Secretary Dave provide this latter service. Jan is also Club Treasurer and claims she could kick herself for buying Dave his first stock-car as a Christmas present four years ago. The Club also runs a discount track shop, selling both stock-car bits and pieces supplied by *Norcol Models* of Leicester, as well as sweets and chocolates including "Curly Wurly's" especially for Coventry's Martin Robbins. Sales at the shop are in the hands of Jan and Dave's daughter Maxine.



Meetings are held every other week from March to November, with a special meeting at Christmas. During 1983 a couple of mid-week, flood-lit meetings were held and there are plans to run more during 1984. The Club has many top-line drivers in its membership, Bob Clayfield, Steve Talbot, Dave Wragg, Brian Sylvester, Cliff Emms and Stew Busby to name but a few. Competition is fierce if you are to reach the Final. Club race format is four heats, two semi's with the winners from the semi's joining the top four, straight through, qualifiers from the heats. The Clubs grading is based on the laps you score, including semi-finals (with the exception of the winners who count their laps from the final) and inserting a decimal point. (For example 150 laps = 15.0 points). The drivers in the final also get a bonus 6 points for the winner down to 1 for the sixth-placed man.

The Club believes racing is to be enjoyed with new drivers welcomed at all times. Racing is to RSCA regulations and help will be given to drivers whose cars may not at first comply with those regulations.

The new track was officially opened in 1983 at the 10th Anniversary Meeting of the RSCA and its major meeting of 1984 takes place on April 29th when the Club plays host to EMSA for the 1984 European Championship.

Anyone interested in joining or finding out more details of the Leicester Club should contact Dave Grocock at 27 Suffolk Close, South Wigston, Leicester.

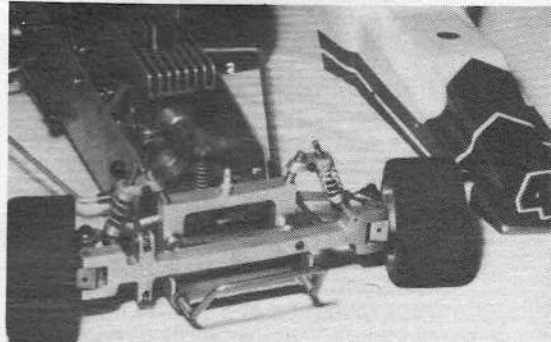
'Ovalling Around' USA style

A letter reached me recently from Roy Moody in America, who has been interested in the way stock-car racing has been developing in this Country. His letter also describes the way things have been moving across the Atlantic.

Readers may be aware that in the U.S.A. the basic form of full-sized oval tracks have always been the dirt oval common to many fair-grounds and special built facilities all across the country, with the cars being referred to as sprint cars.

Roy and his friends have used

Below left: Roy Moody's ready-to-go dirt oval sprint car. Below: close up of the front end showing coil sprung one piece axle. Inline motor is mounted in the centre of the aluminium channel frame chassis.



Taking Stock

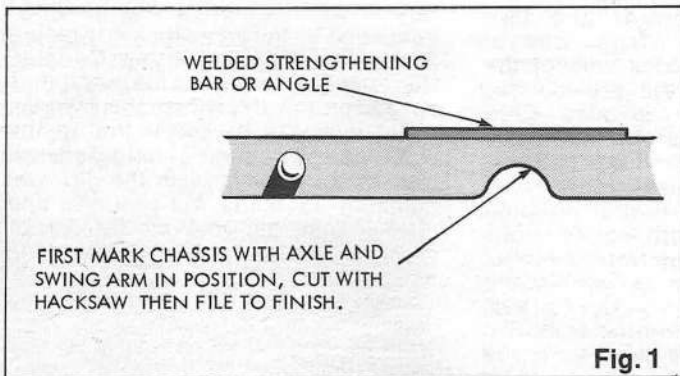
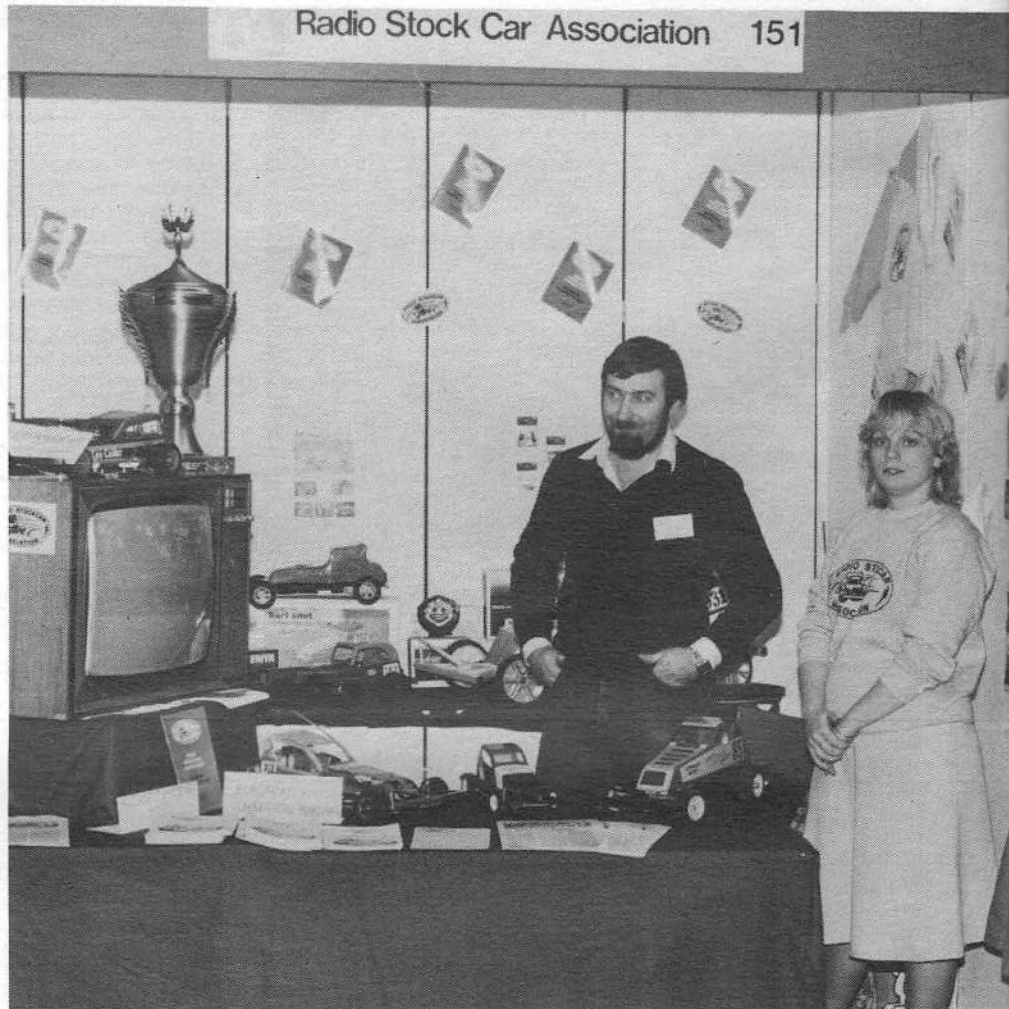
R.O.A.R. rules as a guideline to develop an 1/8th scale sprint car powered by a .21 cubic inch I.C. engine that parallels the full-sized car as much as possible. The car has an in-line drive arrangement which places the engine in the proper position and well within the confines of a narrow body style. Transmission is via an enclosed worm drive gear of 5½ to 1 ratio to a solid axle. No differentials are allowed, suspension is by coil springs with *Delta* shock absorbers at the rear. A *Delta* centrifugal clutch is used, and the exhaust minus silencer is routed properly through the car. Racing on dirt the cars use a large semi-pneumatic buggy style tyre on the right rear, and sponge rubber on the others.

At John Davis' track in Jackson, Mississippi, which is about 100 feet long and 65 feet wide with a running surface 12 feet wide, cars turn in a lap every 7 seconds.

Roy comments that although the cars can attain faster speeds on tarmac tracks, the close racing on the comparatively small dirt ovals is far more exciting with the cars drifting through the turns on opposite lock giving extremely realistic action. Although designed for the dirt oval they work very well on tarmac, and with suitable tyre changes the speeds are higher and possibility of tangles is increased.

It is hoped to run a 20 car Nationals in 1984 and anyone interested should contact *Roy Moody Automotive*, 755 Ash Street, Flossmoor, Illinois 60422.

Reading Roy's letter and looking at the photos I was struck by the similarities of the cars to RSCA rules



Above: stand 151 at the ME Exhibition providing plenty of action-packed entertainment for a great many potential stockcar enthusiasts. Right: Champions together! On the left, Les Calder 1983 World Champion and beside him Paul Dudley, RSCA Chairman and 1983 European Champion.

and hope that it is not too long before we see some of the U.S. drivers on our ovals and some of us over there. How about it?

Chassis Preparation

Frequently I am asked what preparation and improvements should be made to a chassis for a season's racing. To which I reply, "what I do to a *Mardave!*" Adding that the *Puma* does not require this.

The RSCA rules state that the chassis ends should be sealed which means filling the ends of the front and rear bumpers on the *Mardave*, either by

welding or brazing. This is not a difficult DIY job, for either you or a fellow club member to carry out (for the cost of a couple of pints or so). Failing that, a neighbour or your local garage might be able to help out. Whilst doing this I also insert a strengthening bar between the front bumper over-rider and main chassis to prevent the former being pushed back. Another good idea is to weld or braze a strengthening bar to the top of the chassis rail where the rear axle passes underneath and then cut away a semi-circle from the underside of the chassis to allow the axle to ride up into it and so create a lower ride



MODEL CARS

height. (See Fig. 1).

Once this work has been done I paint the chassis with *Humbrol* enamel prior to assembling the rest of the car, taking care not to get any paint on the pivots for the trailing arms, as doing so can lead to a very tight fit and suspension problems later.

Stock Cars at Wembley

The sound of 1/8th scale stock-car racing was heard by many at the Wembley Conference Centre every day from December 31st to January 8th, around Stand 151 at the 'Model Engineer Exhibition' where the Radio Stock Car Association were based.

The Association's Stand was a real

NOW! If you want a reply please include an SAE.

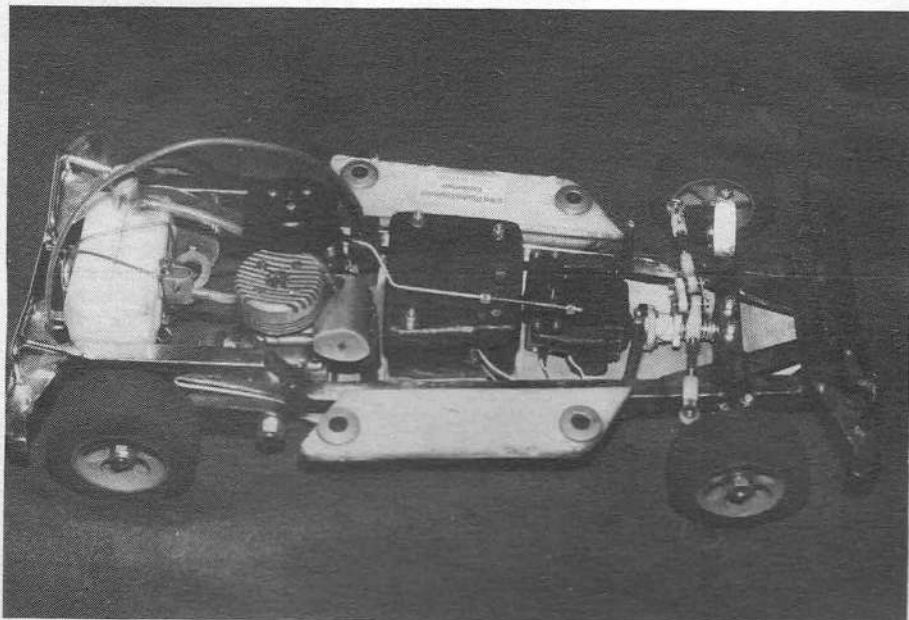
Areas that could produce Clubs from the interest already shown include the Ipswich region, Devon and the west of England near the Welsh border. There may be others. Part of the Milton Keynes Model Society developments should include a stock-car oval to be ready in late 1984 or 1985.

I feel sure that as a result of the RSCA's efforts the sale of stock cars in 1984 will increase, so I hope all involved with the sport will look out for growth and continue the good publicity for the sport during this year, following the example the RSCA has set them.

60p per pair, high tensile back axles £1.95 each and stub axles 50p per pair and more besides, so give Gerry a ring on 0533-895361.

Completely new for 1984 are a range of tyres from a new company *Motile Model Development* 41 Manor Street, Nelson. The firm is making tyres for all branches of the model car hobby and those of interest to stock-car drivers are called 'Pacers' for 1/8th cars and 'Prowlers' for the 1/12th. Tyres are being made available to model shops or can be bought direct from the manufacturers and are available loose in pairs or already glued to wheels. 'Prowlers' (1/12th) come in two grades, medium/soft £1.04 per pair (£2.32 on *Mardave* or *Lectricar* wheels) and hard, £1.11 per pair (£2.39 on wheels). There are three grades of 'Pacers' (1/8th) medium/soft £1.73 per pair (£3.45 on wheels) medium/hard £2.76 per pair (£4.49 on wheels) and Multi-Compound £2.36 per pair (£4.06 on wheels).

The most interesting of these new tyres are the 'Pacer 3's' the multi-compound tyre which is designed mainly for the front wheels, though I understand they have been found to work well on the rear also. The idea behind these tyres is to prevent the 'coning' effect that takes place on front tyres from the bends by incorporating different grades of rubber on the same hub — hence its description as multi-compound. The man behind the new range asked me not to mention his name out of modesty, but he knows a bit about stock-cars and tyres as he works for a French tyre company and races model stock-cars, writing about

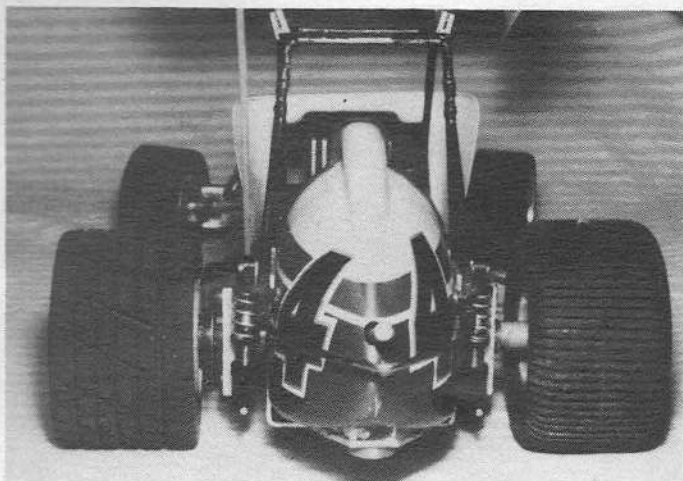


centre of attraction with its action-packed video of the 1983 European Championship in Holland and static display of 1/8th, 1/12th and even 1/4-scale stock-cars. Credit must go to the RSCA which is trying to project this 'Cinderella' sport into the public limelight and in particular to Chairman Paul Dudley and Secretary Linda Woodger. Both of whom worked extremely hard to set up the stand and man it during the entire duration of the Exhibition, assisted daily by RSCA members from the Clubs.

One notable factor that emerged was the number of people asking about Clubs in their area where as yet there were none. Very often people, from the same area, asked for information at separate times. As a result I have been asked if I would ask YOU to write to ME if you own a stock car, or are interested in stock-cars but have no club near you, the letters will be passed on to the RSCA who will see if there is anything they can do. So, just give your name and address, state whether your interested in 1/8th or 1/12th, whether you have a model stock car or not, and send it to me at 85 Elliott Road, March, Cambs., PE15 8BP — but please DO IT

APRIL 1984

Above: Les Calder's World Championship winning car, sporting Super Tigre X21 engine with PB slide carburettor. Servo's are Futaba S135 which cost approximately £40.00. Who said Stockcar racing was a cost conscious sport? Right: a final view of Roy Moody's 1/8th scale sprint car, showing softer sponge tyre on the inside and normal buggy type on the outside.



Bits and Pieces

The start of the new season has produced some new products and prices from *Kingsway Kar Components* of 203 Kingsway, Leicester LE3 2PP. Their products include the polypropylene beam axle at £2.75, alloy axle blocks complete at £1.90 per pair, nylon 40 tooth drive gears £2.47 each, alloy silencers £4.45 (state engine), replacement nylon bushes for alloy axle blocks

them in a rival magazine!

Anyone else who makes bits and pieces for the model stock-car hobby, please let me know and I'll give your products a plug in future issues.

Well that's it for this month. Don't forget the Series Round at Nottingham on March 25th, or to write to me at 85 Elliott Road, March Cambs. if you are interested in the sport or have any contributions to make to the column.

IT WOULD BE difficult to imagine any R/C modeller with an engineering background failing to have been brought up with a jolt on first sight of the new 'Unimat 1' multi-purpose modelling machine tool. If nothing else created the desired effect the striking red and black finish of this mini machine is a surefire attention grabber. *Unimat* is already a well established indeed familiar name to large numbers of modellers worldwide, the 'Unimat 3' multi-purpose machine tool has been fully accepted by hobby enthusiasts and educational establishments everywhere. With a price tag of well

under £100, the 'Unimat 1' instantly appeals to a whole new group of would-be engineers that otherwise would have been unable to take advantage of the increased scope such a tool gives their modelling activity.

The Concept

Unimat machine tools are manufactured in Austria to very high standards and we are led to understand that when the concept of a machine tool produced from light alloy and plastics was first put to *Emco* staff, the idea was less than enthusiastically received. Once

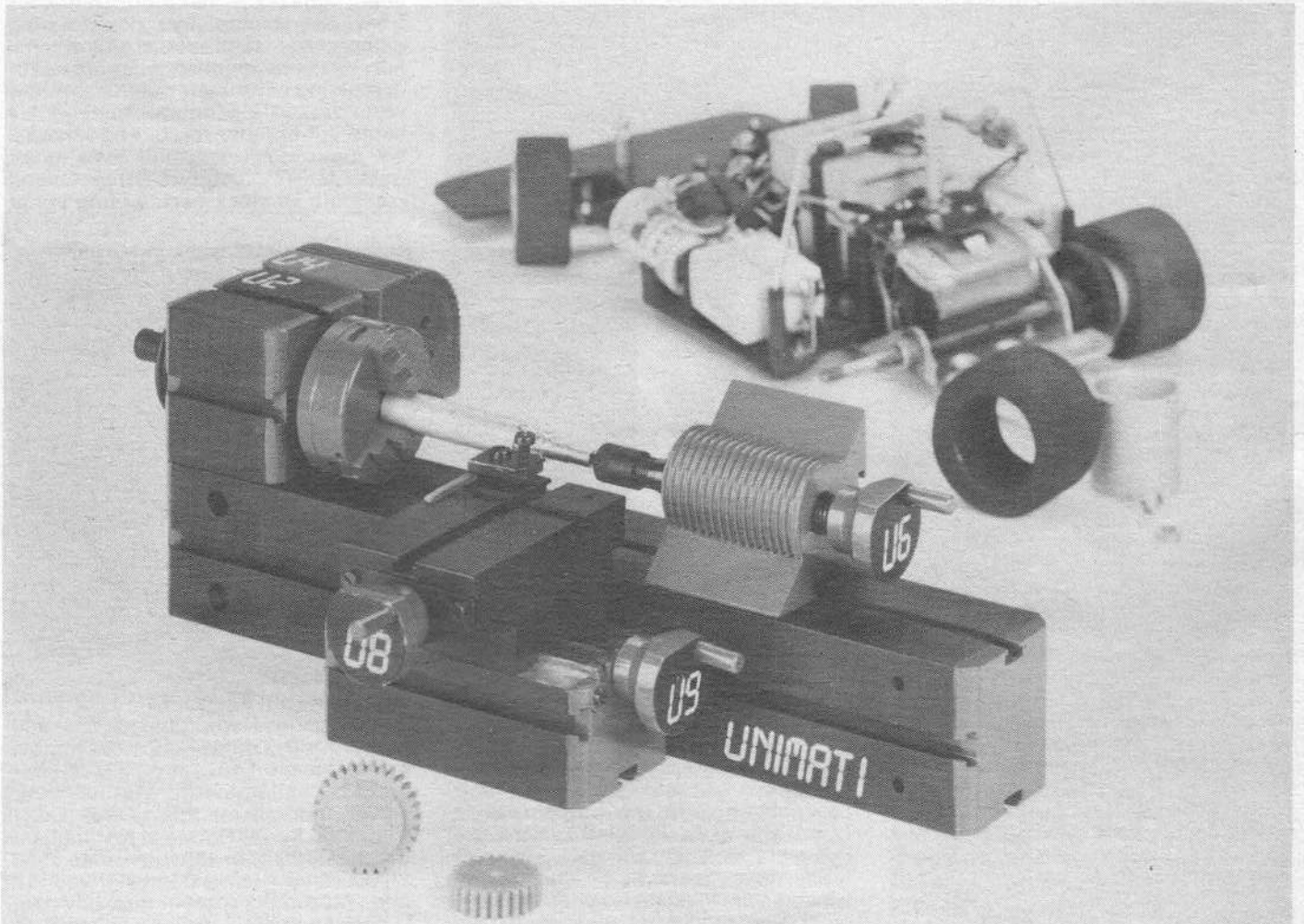
investigation proceeded the Austrian engineers began to realise that here was a concept that could work contrary to their original feelings. Austrian engineering has a high reputation for quality, so perhaps their reservations were based on their current expectations of machine tools and perhaps an early unwillingness to make the sideways jump to the standpoint of modellers such as ourselves.

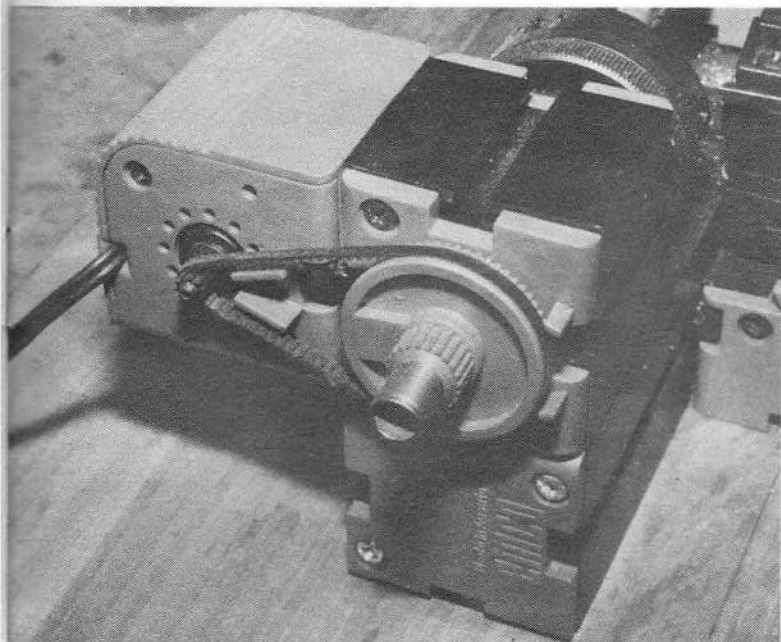
Whatever the background *Emco* engineers have obviously adopted the concept with enthusiasm and produced a piece of equipment that they can be proud of. The 'Unimat 1' is a low voltage Direct Current powered multi-purpose machine tool capable of machining wood metal and plastics. It can be assembled in a variety of configurations using the units supplied in the 'Unimat 1' package to turn, mill and drill. Additional accessories will eventually become available that increase the scope of the machines operations.

The package is absolutely complete down to the fine detail of small samples of suitable material to actually work on once the machine is assembled, plus the necessary tools

Unimat-1

This fascinating mini machine tool will find a place in many car modellers' workshops. Bill Burkinshaw puts it through its paces.





Left: the Unimat 1 uses a low voltage motor similar to a 1/12 scale electric R/C car motor and toothed belt drive to the spindle. Two speeds are available. Below: set up in lathe format which is probably what modellers will use the most.

very good fit in their corresponding 'T' slots in the various parts, it is essential to make sure that the various modules are assembled true to one another. I recommend a partial tightening of the locking screws followed by pressing the assembled modules flat faces down onto a really solid flat surface whilst final tightening is carried out. Two speeds are available for the spindle, an intermediate packing piece has to be inserted between motor and spindle module to achieve the higher speed. For most purposes the low speed will be most suitable, i.e. small motor pinion large spindle gear. Drive from the motor to spindle is by toothed belt. A tension adjustment is provided.

Once this module — the headstock, is assembled it is very easy to use those same 'H' blocks to fit together a compound slide to turn the drive unit into a lathe. Proper lubrication and adjustment is essential, a light grade good quality oil should be

for assembly and cutters for the basic operation of the machine.

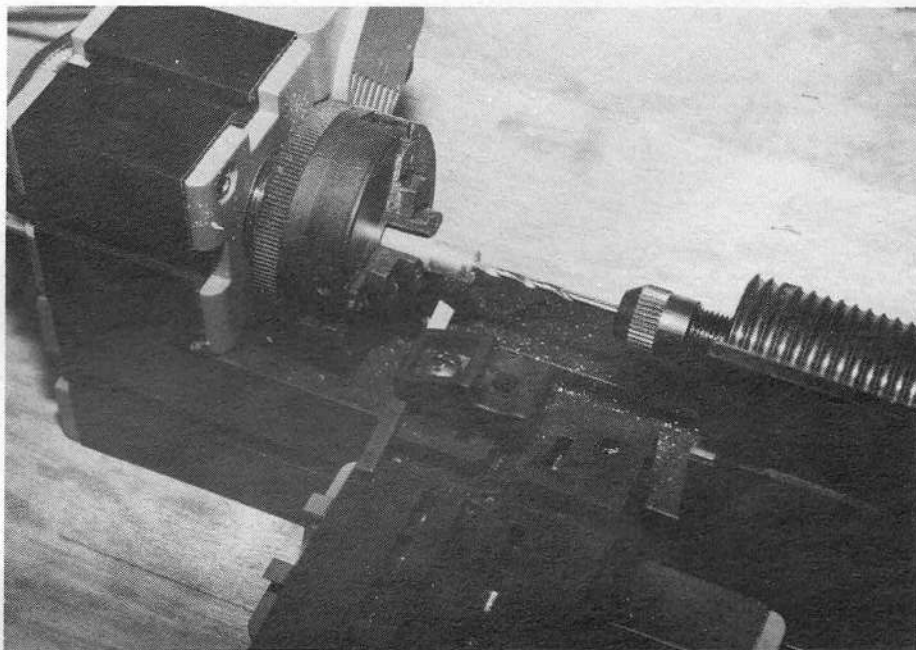
Putting it to Work

Before any work can be attempted, first assemble your machine. Here I felt was the only weakness in the package, the multi-language instructions were brief, terse if you like and although comprehensive, a 13-year-old 'guinea pig' found some problems in assembling the machine. My own experience following on from this showed the instruction to be reasonably adequate for someone with a good understanding of machine tool operation and principles, but a fuller manual would be a welcome addition.

Unimat 1 Lathe

The most basic of all machine tools is the lathe and although the 'Unimat 1' can obviously be used in other formats this was the obvious starting point for investigation into its limits. It is essential to make the baseboard described in the instructions before any work is started. The machine is very light and even the most simple manipulation of the controls is awkward without the machine fitted to a firm base. I simply constructed this using a piece of chipboard, some 2 x 1in. softwood and a Supergloy 'Hotmelt Glue Gun'. Bolts for fitting the machine onto the base are supplied, but do ensure that with the screws fully tightened into the 'Tee' nuts supplied, they do not project into the slots in the light alloy bed pieces and cause damage. Washers may be needed under the heads of the bolts on the underside of the baseboard.

The machine can be operated from dry batteries or of course re-



chargeable Ni-Cad batteries which fit into the main bed of the machine which thus doubles as a battery box, an alternative mains transformer is available as an extra.

The low voltage (6-volt) motor is already fitted into its housing which, in common with all the modules of the machine, is fitted to its matching part using a clever 'H' section plastic clamping piece. These clamping pieces need to be assembled and are tightened using the 'Phillips' screwdriver supplied. The motor assembly is more or less permanently fixed to the main spindle unit as this drive system is common to all the various configurations.

Although the 'H' connectors are a

applied to the V slide and leadscrews as the machine is assembled.

Particular care should be taken to thoroughly tighten the screws and clamping pieces that hold the modules together, much of the future success of the machine depends on solid assembly.

A moulded plastic 3-jaw chuck is supplied, this is of the self-centering type, that is, all three jaws move simultaneously to meet in the middle and is capable of having the jaws reversed to hold larger pieces of work. This type of chuck is designed to hold round and hexagonal section material only. The cutting tool is simply clamped onto the top face of the cross-slide of the machine. As

Test Report

supplied the tool was ground in such a way as to need no packing to set it at the correct centre height.

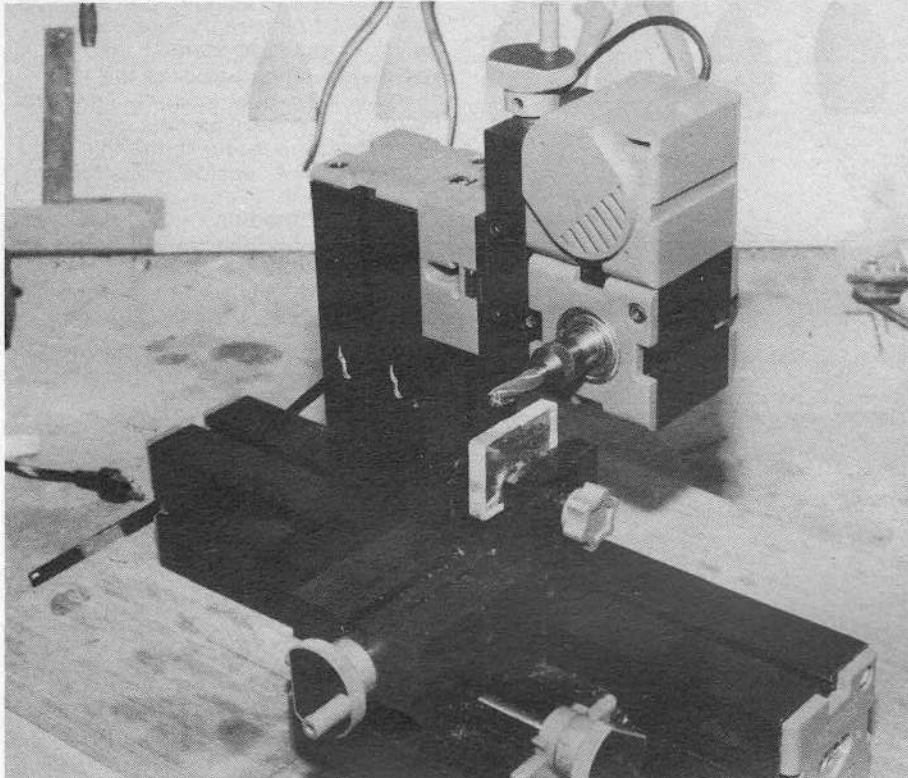
Once ready to run, pause before placing a large piece of steel into the chuck. This machine has a low voltage motor, is built from plastic and light alloy and whilst it will machine steel, progress is very slow. Its real forte is in machining non-

to take a series of plastic collets supplied. These grip anything from 0-6mm in. diameter. A centre drill — combination type, is necessary for best results and also a check that the front face of the tailstock is flush with the front face of the bed before drilling is started. Following centre drilling, holes of 3mm diameter were successfully drilled down the test pieces.

Vertical Milling

My own major interest in the 'Unimat 1' lay in its potential as a milling machine and I was therefore eager to reassemble the modules into the vertical milling format. Contrary to machining on a lathe, during the milling process the cutter revolves whilst the workpiece is moved relative to it. This enables flat work to be produced, grooves, slots, steps or just thinning down already flat surfaces. In the vertical milling configuration even more care is needed to ensure that the modules are properly locked together as greater overhang of parts from the module is needed to allow the insertion of the slide required to impart vertical movement to the motor module.

The plastic collets supplied include a suitable size for the end mill cutter included, there is also a tiny machine vice to hold workpieces onto the compound slide. Using the same low speed I was able to mill flats onto a variety of materials and following this I milled a 1.5 x 1.5mm keyway axially along a section of aluminium rod using a dental style burr. It is particularly necessary when using the side cutting facility of the milling cutter to feed the work against the direction of rotation of the cutter. With such a lightly built machine failure to observe this basic piece of 'good practice' will result in the cutter trying to climb off the workpiece thus damaging it and probably causing the machine modules to move relative to one another.

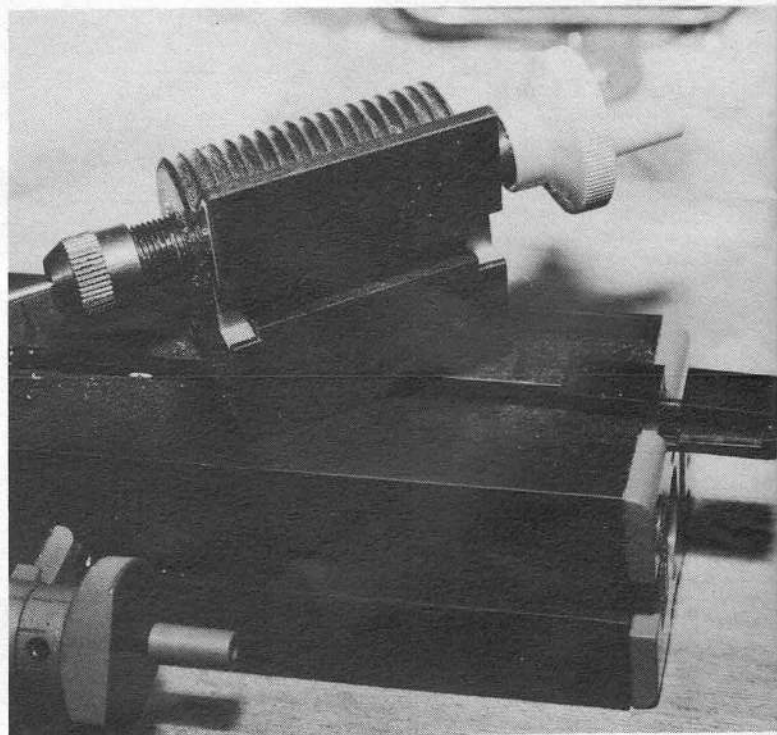


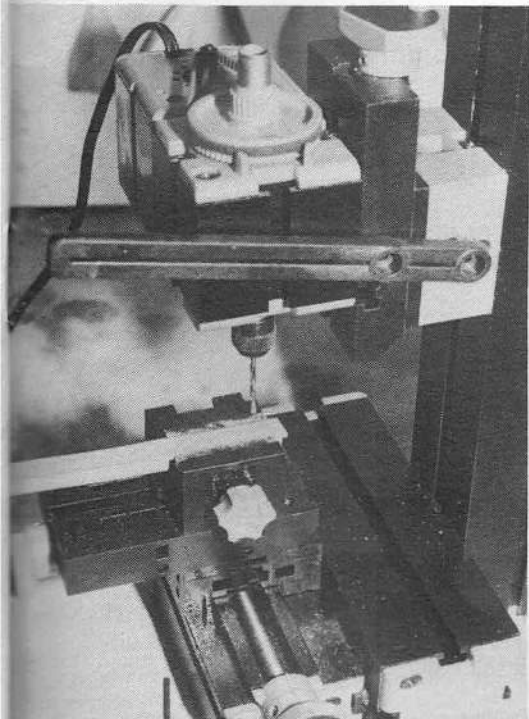
ferrous metals such as aluminium and its alloys, brass, plastics and wood. With these limits in mind turned parts for all manner of R/C models can be attempted but with a gentle touch. It is advisable, and indeed generally good practice, to lock up the slide not being manipulated so for facing off a piece of stock, lock up the lengthways slide using the allen key provided. Adjustment of the slides should be such that the slide moves smoothly with no trace of jerkiness, but on the other hand is not able to move sideways under pressure.

The turning tool supplied is ground at a suitable cutting angle for aluminium alloy and will also give good results on most plastics and wood. However, an alternative needs to be ground for good results on brass.

I tested the machine by turning a spigot on the end of aluminium alloy rod 10mm dia., ditto for brass and nylon. Following successful completion of these basic tests I assembled the tailstock for drilling in the lathe operation. The barrel of the tailstock is threaded and taper bored

Above: horizontal milling is possible although probably this is the only set up that will give any cause for concern over rigidity. Right: tail stock with small drill fixed into the collect chuck. Note the 'H' section clamping piece used throughout the machine.





Above: set-ups for drilling and vertical milling are both the same apart from the drilling feed lever shown fitted here.

Drilling Machine

With the machine assembled as a vertical mill it is a matter of a few seconds work to convert to a vertical drill press. The vertical leadscrew feed wheel is unlocked, a lever is inserted into the holes provided and with adjustment of the slides for smooth movement, the whole headstock module slides vertical up and down. Quite large holes can be drilled, I tackled 4.5mm in aluminium alloy but achieved this by stages from 2mm first then 3mm, 4mm and finally 4.5mm.

Horizontal Milling

Last check of all was to cover horizontal milling, a technique used for removing larger areas of metal at a pass and some slitting operations. This variation produces the least rigid of the machines set-up but in context, results were all that I expected. I found a slight discrepancy in the instruction booklet here, as the illustration in the book showed an arrangement of modules that I could not get to work. The photograph should illustrate how I finally set up the machine. I used the end mill provided in the slab-

cutting mode and felt it unfair to attempt milling aluminium alloy with this, the only cutter available.

A thick slab of perspex was used, this was soon flattened off using this technique.

Conclusion

A very practical machine, it will perform within reasonable limits all that the manufacturers claim. Limitations are in the rigidity and power of the machine and it is fair to say that exactly these same limits apply to each and every machine tool available. For general R/C modelling application, model railways and a host of other small uses this tool will expand the range of activities of every modeller who chooses to purchase it. In many traditional craftsmen's eyes the 'Unimat 1' may be seen as a toy, but don't be fooled by appearances, this machine can do useful work if approached with an awareness of its fitness for purpose. There will be a multitude of these machines in modellers workshops soon, allowing them to enjoy facilities that they never thought they could afford. A very welcome addition to any R/C modellers workshop.

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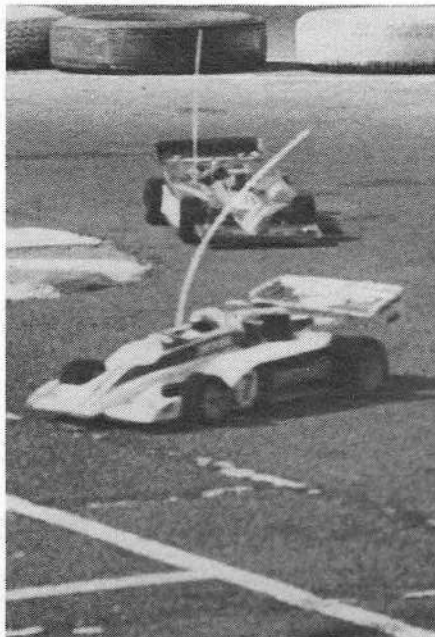
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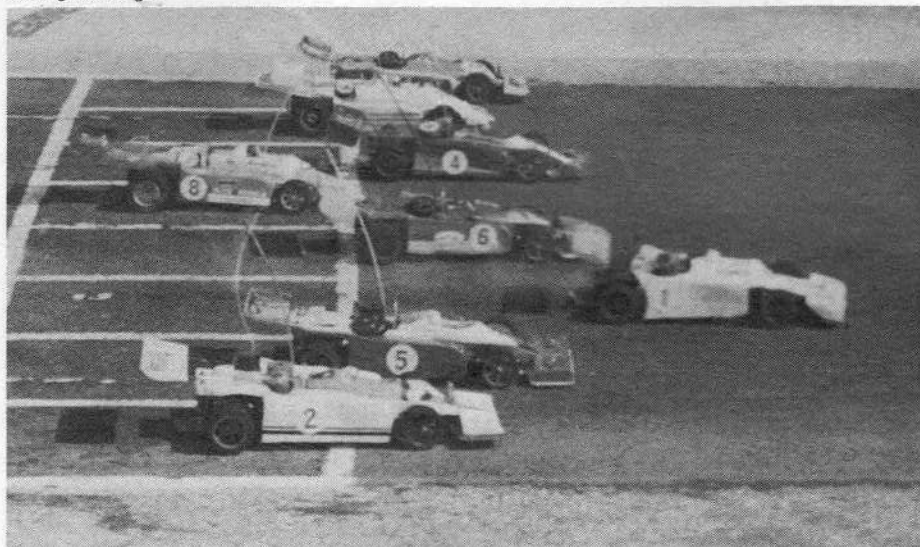
by Lewis Eckett

Invitation versus open

It is with some trepidation that I begin to put pen to paper on the thorny subject of our national 1/8th scale racing scene. I particularly refer to the situation arising from the earmarking of calendar dates for the running of BRCA Open Meetings only. The 1/8th section committee have emphasised the exclusivity of these dates which means, that wherever the Open Meeting is held or however many entries it attracts, no other club can organise an opposing invitational meeting on that same date. The argument being that the invitation meeting would attract drivers who might otherwise have travelled to the BRCA sanctioned Open event. On the other hand, whilst the Open Meeting is in progress, club drivers cannot achieve a full, enjoyable days racing and get the maximum return from their hard earned equipment unless they race amongst themselves. Subsequently, on the Open Meeting



Above, below and bottom right exciting race action from three of last years National Championship points scoring meetings.



exclusive date 12 out of the 13 purpose built tracks situated around the Country are not being used to their full potential. Add further to this, the number of clubs who, last season, improved their circuits either by re-surfacing or actual shape changing and it is easy to see why many clubs are anxious to recoup their expenditure by holding larger meetings.

Are we not guilty of attaching too much importance to Open Meetings and their results, more so than is necessary? Is it true to say that *all* the best drivers go to Open Meetings? The answer to these questions has to be, yes and no respectively, and with that in mind it would seem wise to promote this section of the R/C Car hobby at the grassroots level. The best examples of this have been the organisation of the East Midlands and Southern Leagues which have encouraged the less

nationally orientated club driver to compete on an Open basis against like-minded drivers.

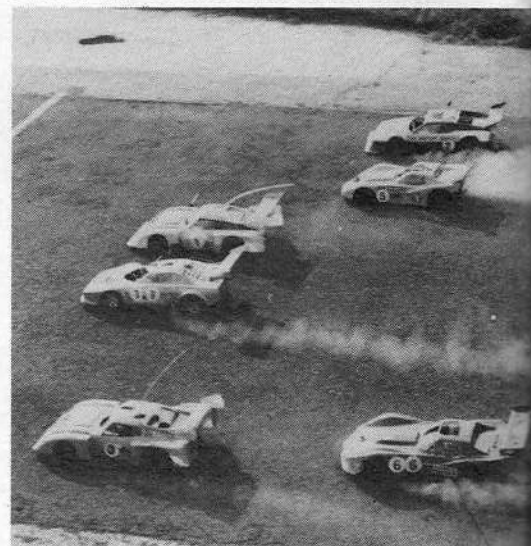
The recent BRCA AGM highlighted the problem of declining membership which now stands at approximately 700-800 members. Why the decline? Simply because the average club member is not interested in travelling all over the Country, incurring horrendous expense, to race his 1/8th scale car. We now have the situation where the majority of club members do not belong to the BRCA, why then should those enthusiasts dance to the Open Meeting tune? They shouldn't, as emphasised by BRCA Chairman Tom Martin who stated at the BRCA AGM, that the BRCA, an organisation devoted to promoting the sport of radio controlled car racing, can not offer the club driver anything worthwhile for his £7.00 membership fee. The situation

must now be that there are more drivers 'out' than 'in' and unfortunately those who are BRCA members are the people calling the tune at club level. The parallels are all too easy to see, ECRA the slot car racing organisation by adopting these self same attitudes divorced itself from the slot racing majority and caused the eventual decline of its links with that sport.

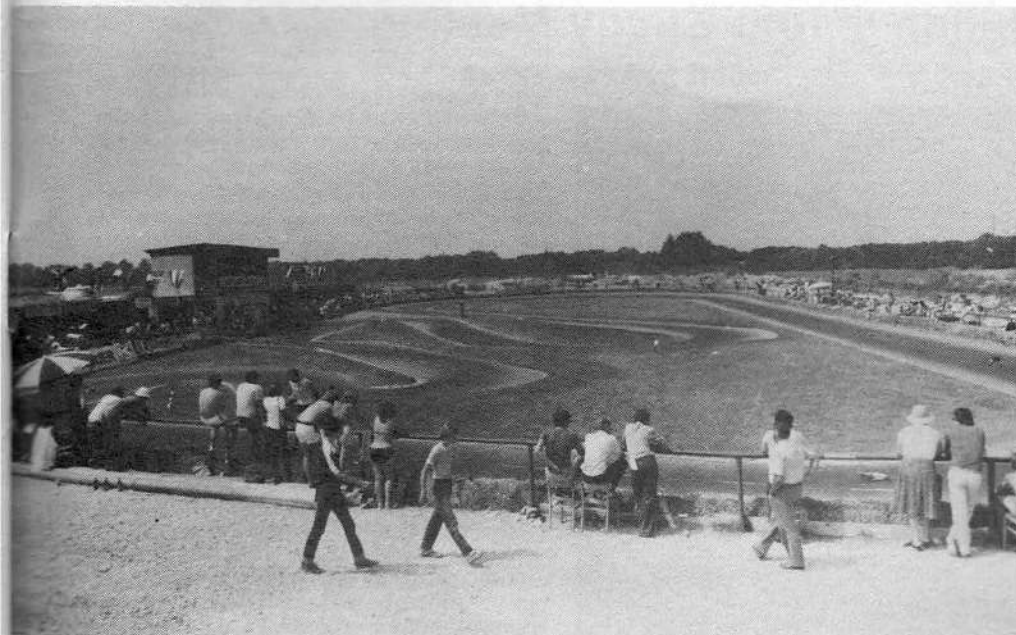
What is the answer? Unfortunately there will never be a solution to please everybody but I would think that to regionalise our national 1/8th scene could be the way to go. By allocating more meetings to each region and subsequently lessening the amount of travelling needed to attain the maximum results aggregate we would see a proper 'National' Championship. Hopefully this would encourage more enthusiasts to join up and rejuvenate the sport as a whole. After all there can never be any satisfaction in racing against the same faces and knowing that you are only the best out of the sixty or seventy drivers who turned up on the day.

Sollenau — the Big One

As can be seen from the European GP list, this years Saloon Car Championships is to be held at the Sollenau circuit near Vienna, Austria. Sollenau is the longest and fastest circuit in all Europe with a long 100m straight (twice that of Lilford) and a lap length of 375 yards. Engines are particularly vulnerable on this circuit as the exit and entry to the straight is via two, very wide, sweeping bends. If full power is applied all the way then the poor engine is hitting top revs for approaching twelve seconds. Paul Pagdin of P.B. Racing claimed to have been going through engines at the rate of one every two heats last time he was there with other top teams suffering the same. Hopefully the development of two gear automatic transmissions will alleviate this hideous expense. Great Britain has a driver allocation of ten



MODEL CARS



Above; the spectators viewpoint of the Sollenau circuit near Vienna, Austria. As usual, splendid facilities and desirable locale make this a favourite amongst international drivers.

drivers plus reigning Euro Saloon Champion Steve White.

This year will see a change in European GP procedure with the introduction of the 'Christmas Tree' method of qualification. The system works like this.

The meeting is split into two days of racing, qualifying and the finals. A total entry of a 100 drivers each have four heats to ensure them a place for the next day. Only 80 drivers go through and they are graded into finals according to their previous days results. The 'Christmas Tree' is the range of finals from 32nd to 16th, 1/8th 1/4 semi and then open. From the bottom the fastest 3 drivers from each final move up into the next final and so on. The 32nd to 1/4 finals are 20 minutes long whilst the semi's are of 30 and the Open final is of 40 minutes duration.

Finally all of the European Championship meetings will have automatic lap counting systems in operation.

Meanwhile, back at Bradford

As mentioned earlier the Yorkshire Radio Controlled Model Car Racing Club are moving house to a new permanent circuit situated at the North Bridge Leisure Centre close to Halifax town centre. Eventually the new circuit will comply with all the EFRA GP requirements such as covered pits/drivers rostrum, foolproof timing equipment and catering/toilet facilities. At present the circuit is still only defined on paper with backup from a papier mache scale model, nevertheless the local Council has been fairly enthusiastic about the project, although understandably are not prepared to foot the whole bill. Work will hopefully have begun by the

time you read this under the guidance of Circuit Co-ordinator John Russell. John has also the unfortunate job of drumming up the sponsorship needed to finance much of the project.

Finally, the Yorkshire RCMCRC are hoping to have their new circuit ready for the BRCA two day Open event on July 22/23rd.; We wish them well.

1985 World Champs

Believe it or not preparations for this, the 5th World Championships to be held, are well under way both in Japan and throughout the membership countries of IFMAR. Osaka is to be the site and the dates will be set during the

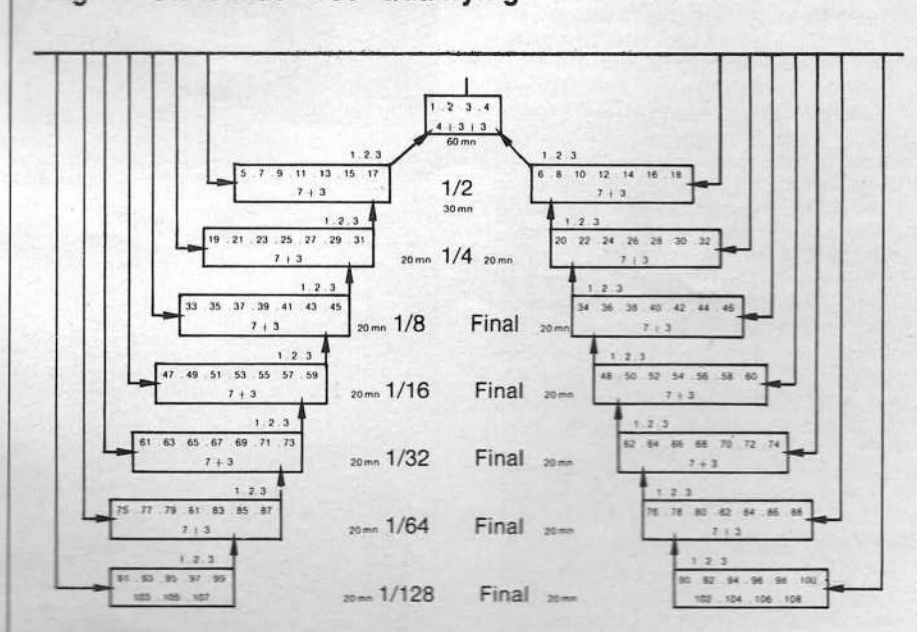
months of either June, July or August. The Japanese fame for attention to detail and efficiency will, we hope ensure that a repetition of last year's events does not occur.

Meanwhile Ted Longshaw is canvassing for interested parties to accompany him on a 2 week Far East Package Tour, the idea being to visit a few tropical paradises laze around on sun drenched beaches, sample the local delights and see some R/C car racing as well! The approximate price will be about £1000 for 2 weeks including hotels and travelling. The ideal situation would be a European 'party' taking off from a selected international airport. Anyone interested should contact Ted at Beach Tree House, Westhill, Downe, Orpington, Kent, England.

New R/C Car Computer Game

Although specific details are not yet known, it is certain that a computer cassette game, from one of the major UK producers, will be released on April 1st 1984. This game, it is claimed, will actually put you into the driving seat of an 1/8th Scale I.C. Circuit Racer (horrific!) and if that's not enough the object of the game is to complete 100 laps of a simulated circuit. (Probably Mendip). The real test of your skill and reactions is that you are racing against five other cars, all of which, have been programmed to reproduce the 'racing' characteristics of Phil Greeno's SG 'Colombia'. (Your car is a PB 'Nova'). The manufacturers hope that this game will provide very exciting (no-kidding!) entertainment. The name of the game is 'Take-Out' — as if you couldn't guess.

Fig. 1. 'Christmas Tree' Qualifying



Model Engineer Exhibition 1/10th Buggy Meeting

Wembley Conference Centre — January 2/3

Report by Lewis Eckett



FOLLOWING ON from last year's highly successful 1/10th electric off-road meeting, 'Model Cars' once again provided the M.E. Exhibition venue for drivers from all over the country. The prospect of racing indoors on a high grip carpet surface in front of an enthusiastic audience and the chance to see the exhibition as well produced an extremely high driver entry. Over 80 drivers raced on the Bank Holiday Monday and only slightly less entered for the Tuesday event. Because the 1984 BRCA rules were not publicly available beforehand, a compromise of 1983 'open' class car rules were used in conjunction with 'Production' class motors (£10.00 price limit). This system seemed to be popular with the drivers and only very few scrutineering problems were encountered.

The main Auditorium of the Wembley Conference Centre features a main stage comprised of large, hydraulic blocks which can be raised and lowered independently of each other. Using this facility an interesting but fast course was devised featuring a ramp up to a second level and a series of steps back down again. The overall surface was normal house-type pile carpet with a liberal sprinkling of ABS 'bot-dots' on top at strategic points (like hairpin corners, chicanes, etc.). Even with these 'hazards' the course was still extremely fast providing incredible grip and putting a firm emphasis on driver skill, battery charging and motor selection.

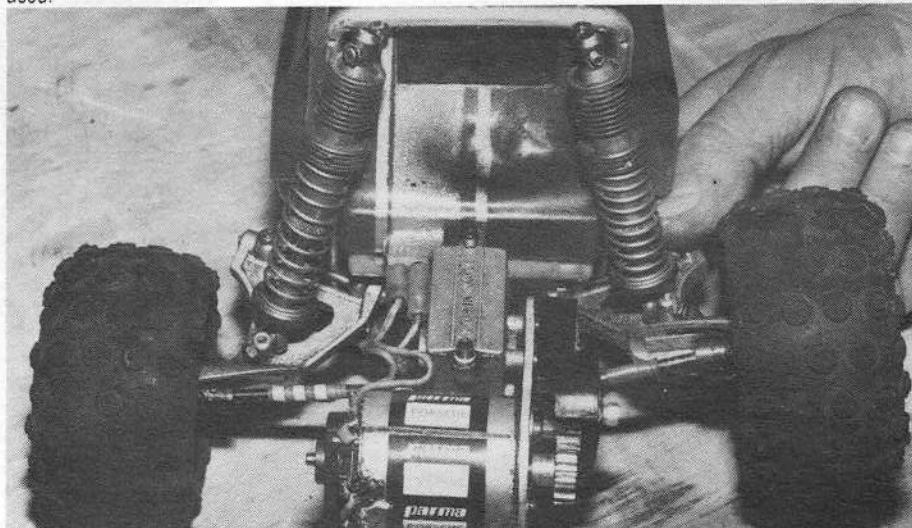
Monday, January 2nd

Monday's racing began just past 10.00a.m. and many of the top drivers watched the early heats to gauge the

problems likely to be encountered. Right from the start it was clear that the grip was to be a key factor with cars rolling over on the turns even at quite low speeds. Super soft suspension and a low centre of gravity was essential and it was here that the *Kyosho* 'Scorpions' and *Bolink* Diggers paid dividends. The low suspension spring rate of the former allowed the 'Scorpion' to 'lean' into the corners.



Above: little and large. The Secretary and Chairman of the BRCA 1/10th electric Off-Road Committee. Derek McLarney (left) and George Land. Below: revised rear damper mountings on the Team Parma 'Scorpion' driven by George Land. Parma long stroke shock absorbers and Yokomo standard motor are used.



Both of these cars also benefitted from differentials which again proved to be the key for fast times in all cars.

Whilst on the subject a wide cross-section of manufacturers makes were raced with no particular one having any numerical supremacy. The current favourite, the *Kyosho* 'Scorpion', was perhaps the most evident and in a variety of guises. The *Parma* team sponsored by U.K. Importer, *Helger Racing*, and consisting of George Land, Pete Stevens and Richard Delves were present with their modified 'Scorpions'. Team *Schumacher* were also in attendance with Andy Dobson, Glynn Peglar and Paul Stallard all sporting the new revised 'Digger'. Going down the list, a fair number of *Tamiya* 'Superchamps' and 'Subaru Brats' were being used, plus a liberal sprinkling of *Mardave* 'Apaches'. This particular car looks to have the potential for great things with its combination of strength, stability on the track and speed; understeer seemed to be the only problem however. Even the all new *Hirobo* 4WD 'Rock 'n' City made an appearance most notably in the hands of Gary Marsden from the Yorkshire club.

By the end of the first round of heats it was clear that 20 plus laps was the aiming point with Andy Dobson leading the field after scoring a 21 lapper. In fact Andy's time was only seriously challenged throughout the four rounds by his fellow team-mates, Glynn Peglar and Paul Stallard. Andy went on to beat it himself in the fourth round and in the process setting FTD at 22 laps. In fact many drivers only came good right at the last in the fifth round, including Pete Stevens, Jim Paffett and Dave Kendall all of whom scored 20 lappers. George Land went one better with 21 along with Paul Stallard. To finish off the A-final came Richard Isherwood also with 20 laps to his credit.

Three finals were run, novice, 'B' and 'A' with all three featuring 8 drivers. The novice final was first off and featured a long tussle for the lead between Mark Hopkinson and C. Nunn, further heightened by John Bicknell's race commentary and the cries of encouragement from the respective fathers. Despite some post-race confusion and official checking from the computer lap-counting operators, C. Nunn was declared the winner.

The B-final featured the 'almost but not quite' brigade of Paul Battye, David Bexley, Dave Meadows, John Bicknell, Terry Calcott, Gary Timbs, Kevin Moore and Gary Marsden. The latter really took the bit between his teeth and forged ahead at the start signal. The rest of the field fanned out behind and contented themselves with fighting for second place. The 4WD *Hirobo* really knocked the pundits for six as Gary posted a 21-lapper which would have qualified him fifth fastest for the A-final. Paul Battye beat off Gary Timbs and Terry Calcott for second place with the latter pair taking third and fourth respectively.

Onto the heady heights and superstardom of the A-final with Andy Dobson on pole position. Andy took the lead instantly and pulled out a half lap advantage as the rest of the field took themselves out at the first corner. Emerging from the pile-up first and into second place, was Paul Stallard with George Land in hot pursuit. Both these drivers set about the hopeless task of chasing the lead car. However by half-way both drivers and the rest of the field had been lapped once and were well on the way to being lapped again as Andy destroyed his FTD time. Towards the end only Paul Stallard managed to make up any ground to finish in second place with 23 laps. Glynn Peglar made it into third place to produce a 1, 2, 3 win for Team Schumacher.

Tuesday, January 3

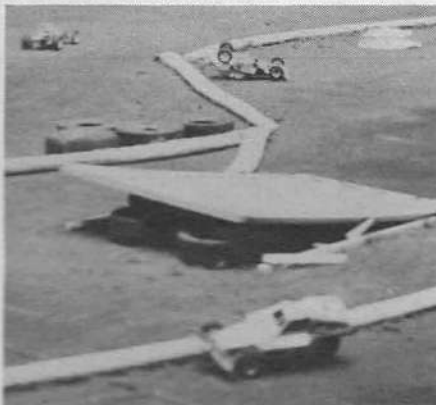
Despite being held on a normal working week-day the Tuesday event attracted a hefty entry of over 50 drivers

with many drivers returning to have a further crack at the Model Engineer circuit. The track was virtually the same as the previous day, except that the strategically placed bot dots were now taped down to prevent them being moved to the sides by the cars.

Interestingly, lap-times were noticeably down, compared to the Monday despite the circuit familiarity gained by many drivers. Still, the top heats produced some fine races between Pete Stevens, Dave Meadows and George Land in heat 6 and Andy Dobson and Glynn Peglar in heat 8. Once again the *Bolink* 'Diggers' displayed their supremacy with outstanding speed, even so the fixed positions of the bot-dots presented a handling problem which the more conventional machines exploited to the full.

By the end of round five it was surprising to note that although FTD had

The course also featured a ramp-jump which gave both drivers and spectators alike an exciting time.



been set at 21 laps (that man Dobson again) an 18-lapper by Gary Timbs qualified him for the A-final.

The novice final got underway and contained a determined Mark Hopkinson intent on winning the 1st place trophy. Despite some adult opposition, Mark (who is only 8) managed to lap the field and come home first.

The 'B' final produced perhaps one of the best races of the day in particular a very close tussle for second place between Dave Meadows, Andy Butt, Nick Marshall and Cecil Schumacher. Unfortunately, whilst these four kept themselves busy, Richard Isherwood romped home to win, two laps ahead. The second place trophy was finally won by Nick Marshall, but only just.

The A-finalists came to the line for the last race of the day with all eyes centred on the two Team Schumacher cars of Andy Dobson and Glynn Peglar. Andy duly shot into the lead but was soon passed by Glynn and then John Bicknell. John, also driving a 'Digger' was well in contention for the first few minutes of the race, that is until one of his front wheels fell off and finished his chances. Andy Benson moved up into second closely followed by young Terry Calcott from the Chesham 'Hooligans' club. Andy Dobson meanwhile had slipped back to fourth with apparent handling problems, a result of an earlier pile-up. So it was that Glynn came home first to produce another win for Team Schumacher.

Hopefully next year's event will be equally well attended to produce as much fun and competitive racing as these two days. Roll on '85!

RESULTS

Monday

Novice Final

1. C. Nunn
2. M. Hopkinson
3. D. Chung
4. M. Hayers
5. M. Stitson
6. A. Swann
7. H. Eckett
8. J. Worley

'B'-Final

- G. Marsden
- P. Battye
- G. Timbs
- T. Calcott
- D. Meadows
- D. Bexley
- K. Moore
- J. Bicknell

'A'-Final

- A. Dobson 24/8.8
- P. Stallard 23/8.3
- G. Peglar 22/2.3
- P. Stevens 21/11.7
- D. Kendall 21/18.2
- R. Isherwood 20/.8
- G. Land 20/1.7
- J. Paffett 18/5.2

Tuesday

Novice Final

1. M. Hopkinson
2. J. Cheeseman
3. C. Burkinshaw
4. A. Bishop
5. H. Eckett
- 6.
- 7.
- 8.

'B'-Final

- R. Isherwood
- N. Marshall
- C. Schumacher
- A. Butt
- D. Meadows
- P. Pichel
- J. King
- R. Dixon

'A'-Final

- G. Peglar 21/4.8
- A. Benson 10/10.8
- T. Calcott 20/16.0
- A. Dobson 19/1.3
- P. Stevens 17/2.0
- G. Land 17/3.6
- G. Timbs 17/8.1
- J. Bicknell 12/DF



Above: the triumphant Schumacher team of (from left to right) Glynn Peglar, Andy Dobson and Paul Stallard.

Model Engineer Exhibition 1/12th Meeting

Report by Pete Winton

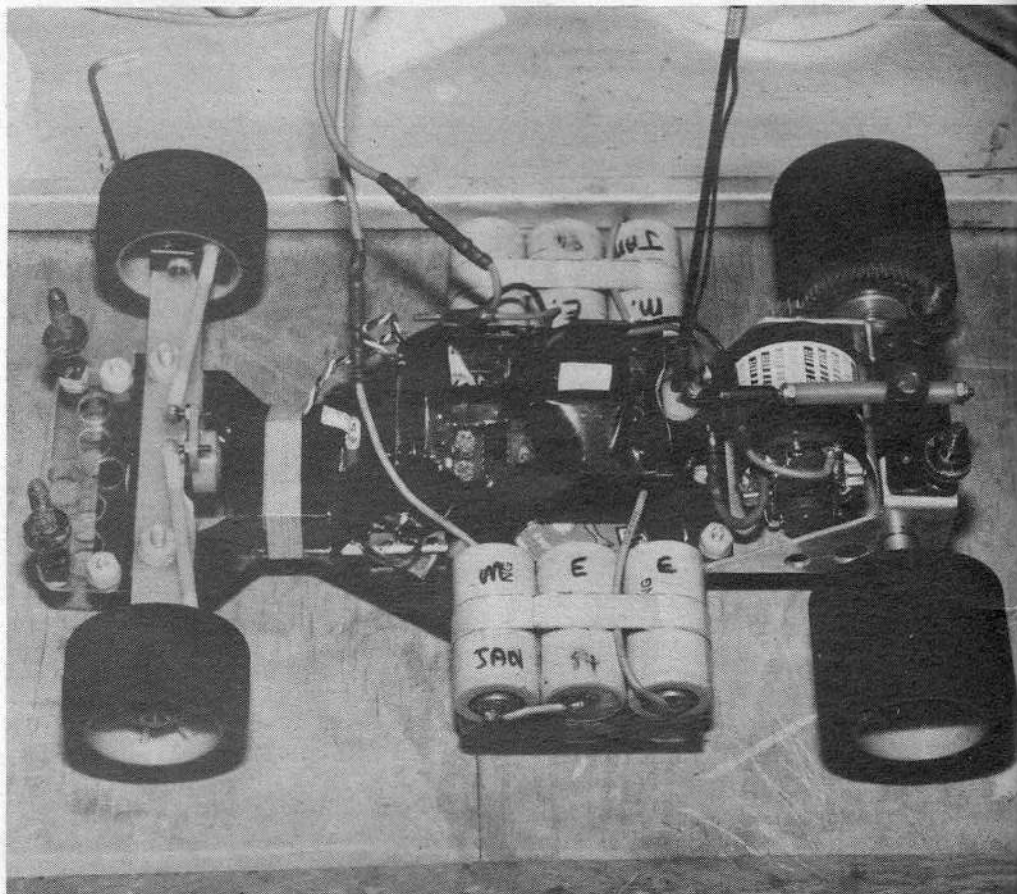
Saturday, 7th

Having set the lark's alarm for them we duly awoke before dawn and rushed down the M1 to the Wembley Conference Centre. Arriving in the Main Arena I found that over half the competitors were already ensconced in the pit area and helping to lay out the circuit. This year the Ally Pally club carpet was again pressed into service and a reasonably tight circuit was devised by the organisers, Nick & Jane Adams. Sixty-one people booked in to race. There were 10 heats with four rounds and a final for each contestant.

Round one started at just after 10a.m., with most people having practiced before-hand to try and sort out tyres and chassis settings. This carpet is different from the normal 'Prima-felt' and thus took some getting used to, even though most of the Southern racers had raced on it when the Ally Pally club was open.

After Round One was over, Nigel Hale held sway over the field with 33:8, followed by David Gale on 32:0 with six others all on 32 laps. In heat 7 of round 2 Andy Leonard scored 33:0 followed by David Gale on 33:6, both of whom were surpassed in Heat 8 by Phil Davies with 34:2. Fred Hatfield raised the highest score to 35:4 but in Heat 10 Andy Dobson (21 today!) posted 35:1 to take FTD. During the next two rounds there were some excellent heats as the top drivers all tried to gain an A Final place. At the end of the fourth round five drivers had tried to wrest FTD from Andy and come very close, Nigel Hale (35:6) Grahame Davies (33:3) Phil Olson (35:8) and the aforementioned Fred Hatfield. Fred joked that he is now having to take Phylosan and Multivitamins intravenously to keep up with the youngster! Commentator Nick Adams suggested that Fred was just 'plain over the hill!' A look around the pits showed that most of the competitors were using the latest motors (*Yokomo*). Whilst a count up of the chassis', raced resulted in the following makes being by far the most popular, *Schumacher* with 24 examples and *Demon* with 21 customers present. Of the rest were 6 *Delta's*, 5 *Parma's* 5, *Associated* 12i's and the lone *Alpha Track Parts* 'Omega' of Alan Blakeman.

Finals got underway around 5.30p.m., although it wasn't until the 'C' final that the racing started in earnest for the more experienced pilots. Nick Adams won through after a most stirring drive during which he was chased by David Gale, Tim Dakin and Andy Benson. David's Ni-cads went flat and he lost his place on the last straight, which was only 18 metres long, thus handing second place to Andy Benson and third to Tim Dakin.



Above: the latest Parma 'Panther' driven by Phil Olson and sporting the ubiquitous Demon 2C Speed Controller. Parma have instigated some radical changes in time for the World Champs. Unfortunately none of the UK team drivers will have a change to drive it in Denmark.

The 'B' final started with a five-car pile up on the start straight. Andy Leonard emerged into the lead and had a small advantage over Glynn Peglar, Jane Adams and Bill Jones who emerged from the startline in that order. As the race progressed Bill took third after Jane hit a track marker, and then came up to second at the four-minute mark as Glynn started to slow with speed control problems. Phil Davies appeared briefly in the top four at this point getting as high as third place before he too slipped back with flat batteries. In the last thirty seconds Chris Arnold came up from last to take third from Jane. At this point there was furious activity in the *Schumacher* pit as the motor from Phil Davies' car was removed and fitted to Andy Dobson's. As there was no fixed time between finals the 'A' was not started until moments after Andy appeared on the track to take up pole position. From the start-horn poleman Dobson shot off into a lead that he was never to lose. Grahame Davies moved into second, Phil Olson third and Pete Jones fourth. Fred Hatfield was last at the first corner but, shrugging off the 'over the hill

effect', he stormed through to finish best of the rest, since Grahame and Andy were in a class of their own. When the dust died down Andy had taken FTD on 35:1, but won the final with 37:4, a superb achievement.

Sunday, 8th

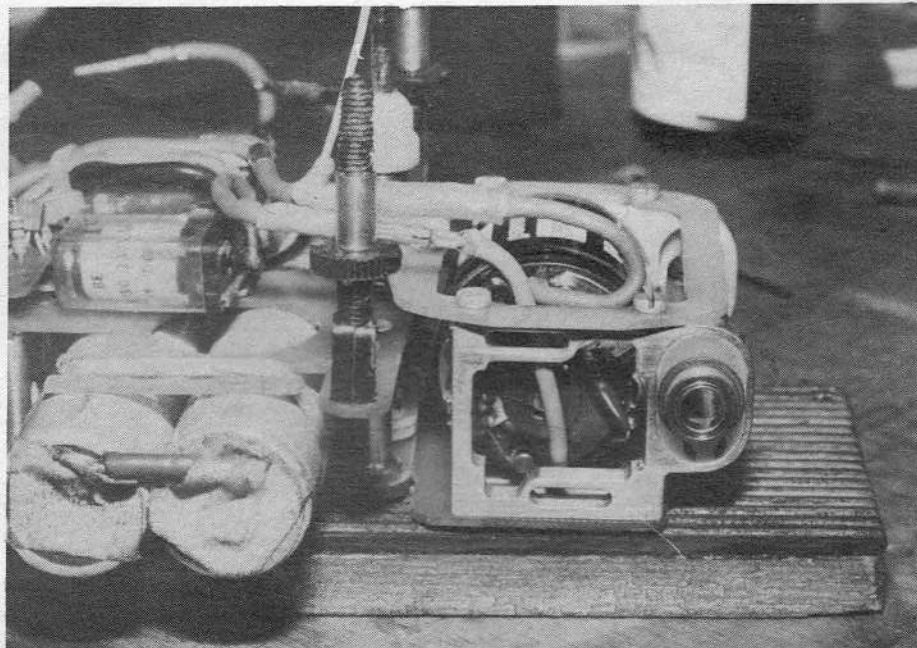
Sunday again dawned bright and cold (I know, I saw it!) for those who returned to Wembley for a second bash on the tight little circuit. As drivers climbed up the learning curve, times got closer and a final place in the upper levels was determined by split seconds, not laps. In round one Bill Jones and Phil Olsen, opened proceedings with 34:9, only one lap behind yesterday's FTD. Phil is driving for *Parma* this year and he had their best results of the weekend, making both 'A' finals. Chris Arnold was not far behind, contesting the 'B' final with the third *Parma* man, Tim Dakin, in the 'C'. The revised 'Panther' looked very stable and Phil was proving his usual competitive self, so things look set fair for *Parma* in 1984.

Round two was equally competitive, Bill Jones now sharing FTD with Phil

Davies, the new *Schumacher* recruit. Only two-thirds of the team were present, Les Pipe choosing to stay away from this meeting. Phil started going well once he and Andy Dobson found a motor that worked for a full six minutes. Since it was a *Parma* 'Ferrari', the less said about that the better, but it was mind-bogglingly fast! Andy equalled his FTD of Saturday, but Phil upstaged the old man (21 on Saturday!) by grabbing FTD a lap up on almost everyone at 36:9 consistent experimenting throughout the weekend by Phil and Andy showed through, and they are so approachable.

Round three was the best round for Nick Adams the *Demon* team chief. He scored 34:3, but was suffering from a migraine which resulted in him wearing sunglasses on stage. He struggled on gamely, but it was left to Grahame Davies to record the teams best time of 35:5 with Jane Adams slightly slower scoring 34:10 in round two. Grahame featured in the 'A' final on both days, but Nick drove some great heats in combat with Glynn Peglar and Rowland Leonard. They were by far the busiest team, Jane operated the lap counter virtually non-stop on both days, Nick organised, commented, ran an agony aunt service for *Demon* speed control users and prepared 60% of the team cars! Grahame spent most of his time doing the lions share of commentaries, and they were superb, lacking in Murray Walkerisms and very funny.

In round four it was do or die time. Phil Davies flew round for his FTD and several people broke 35 laps for the first time. One such was Mickie Booth. This was the stuff Eurochamps are made of. Only he and Nigel Hale of the Associated team were there both days, although Wayne Davis raced and made the 'B' final with his last round time of 34:8. Nigel was in the form which could have lost him the British Championship. His car didn't seem very easy to drive, but those famous Reedy motors and a gritty drive for 35:8 put him into



Above: the latest rear end system for the 'C' Car now incorporates a ride height adjustment. The GRP inserts come pre-drilled but with different hole locations to lower or heighten the rear axle.

last place in the 'A' final. Mickie was heading for disaster, he recorded 32:0, 30:8 and 29:1 in the first three rounds, but showed some professionalism by sorting it all out for 35:2 at the last, second fastest qualifier.

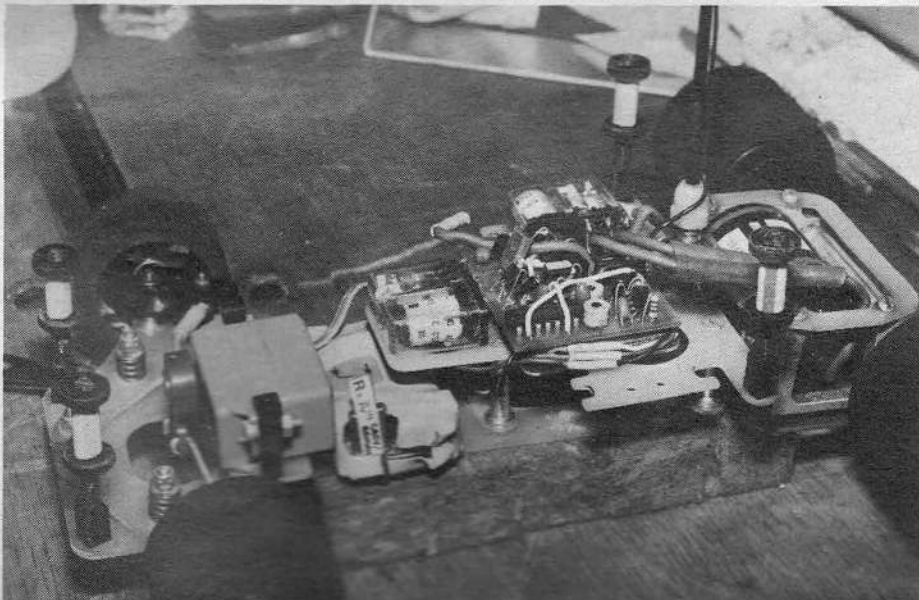
There are no tech charts for the 'A' finals (personal brain fade) so just a few words about what was being used. We can assume the teams use their own products, so motors are really interesting in the *Demon* and *Schumacher* camps. Nick dished out *MG Yokomo's* to his *Demon* drivers, *Schumacher* the unmentionable *Yokomo*. The rest of the competitors used *Yokomo's* and *Igarashi's* in about equal numbers with varying success. There were all manner of tyre combinations to be seen, but the most common I found was *Parma* medium rears and *Mardave* fronts. Poor Pete Jones (Mr. *True Tyres*) was almost besieged by people requesting some of

his '07' rubber which were due, but had not arrived. Andy and Phil used them to good effect, they must have stored them away like squirrels.

Having no computer on hand it took Jane and helper over half an hour to sort the times into order and another 20 minutes to write out the sheets and confirm the frequency changes. This done, finals got underway without a hitch. Only 5 seconds covered the 'D' finalists, and as Russ Giles set off from Pole position he was hounded by six other people capable of winning. Bob Brailey pinched the lead from Russ and by the 1½ minute mark these two were pursued by David Gale, Dave Spencer and Robert Marks. David moved smoothly up into the lead at Halfway and the field strung out behind so there was little action. At the close, Dave passed Robert to retake the fourth place he lost at the two-minute mark. They finished in the order: David, Bob, Russ, Dave and Robert.

Pole position in the 'C' Final was no help to Jane Adams who was caught in the now familiar first lap accidents and so when they got going properly, Tim Dakin led from Tim Biggs, Pete Jones, Mark Manning and Jane. The front two started a good dice at the two-minute mark when Tim D. went wide at a corner allowing Tim B. to slip through. Unfortunately he immediately went wide at the next corner and Tim D. restored the status quo. Mark Manning slipped out of the top four, along with Pete Jones, allowing Jane into third and Mark Brown into fourth place. Just after half-time Mark B. passed Jane for third, and Tim B. slipped into the lead, while Tim D. and Mark M. were waltzing a two-step in the infield. Tim D. excused himself and set off after the front man, retaking the lead at five

Below: 'Dobbo's' 'C' Car the fastest 1/12th Car in Britain and perhaps even Europe.



Racing Round-up

minutes with a fine inside overtaking manoeuvre at the hairpin before the main straight. That's how they finished, probably the best of the top four finals in terms of action.

Andy Benson was on the second row for the 'B' final, but he too suffered from the first lap horrors, and had to fight back from last. It took him half the race, but by three minutes he'd made it, passing Wayne Davis for the lead. Although Glynn Pegler moved from third to second, they finished in the order: Andy, Wayne and Glynn. Nick Adams was a hard finishing fourth and these four lapped the field.

In Saturday's 'A' final Andy Dobson had added two laps to his FTD in winning. Today he was back on the third row, such a position being so unusual he was given a map to show him the way to the front! Phil Davies on the other hand had the problem of a clear track in front of him, this problem however was soon solved at the start as the pack swarmed over him and he was down in fourth place before you could say accident. But it was the Euro Champ, Mickie Booth, in front followed by Bill Jones until the third corner when 'Dobbo' came through into the lead followed by Bill, Phil Olson, Phil D.

and Grahame Davies. Nigel Hale climbed up from last position to as high as second at one point, but had to give best to Phil D., who moved up from fourth to second by halfway. Phil O. dropped back and Grahame moved into fourth. By four minutes the order was Andy, Phil D., Nigel, Grahame and Mickie. That remained the placings to the end with only the speed of Andy to

admire, another 37 lapper to him.

Trophies were presented by Lewis Eckett, who managed to avoid being terrorised by Wayne Davis. Thanks are due to the organisation of Nick and Jane Adams with helpers and to Grahame Davies for commentary. I hope that next year we will see 'Prima felt' carpet in use, but otherwise a good, reasonable priced meeting.

RESULTS

Saturday

'A' Final

1st	A. Dobson	37-6	Schumacher
2nd	G. Davies	35-5	Demon
3rd	F. Hatfield	34-4	Schumacher
4th	P. Olsen	34-6	Parma
5th	P. Jones	26-0	Schumacher
6th	N. Hale	19-10	Associated

'B' Final

A. Leonard	35-2
B. Jones	34-3
C. Arnold	34-8
J. Adams	34-9
G. Pegler	33-1
P. Davies	32-1

'C' Final

N. Adams	34-8
A. Benson	33-5
T. Dakin	33-6
D. Gale	33-5
R. Leonard	33-9
P. Hatton	28-0

Sunday

'A' Final

1st	A. Dobson	37-6	Schumacher
2nd	P. Davies	35-5	Schumacher
3rd	G. Davies	35-7	Demon
4th	N. Hale	34-3	Associated
5th	M. Booth	34-9	Associated
6th	B. Jones	32-3	Demon

'B' Final

A. Benson	35-10
W. Davis	34-3
G. Pegler	34-5
N. Adams	34-9
C. Arnold	33-1
R. Leonard	32-7

'C' Final

T. Dakin	35-6
T. Biggs	35-8
M. Brown	35-9
J. Adams	34-10
P. Jones	34-11
K. Funnel	33-1

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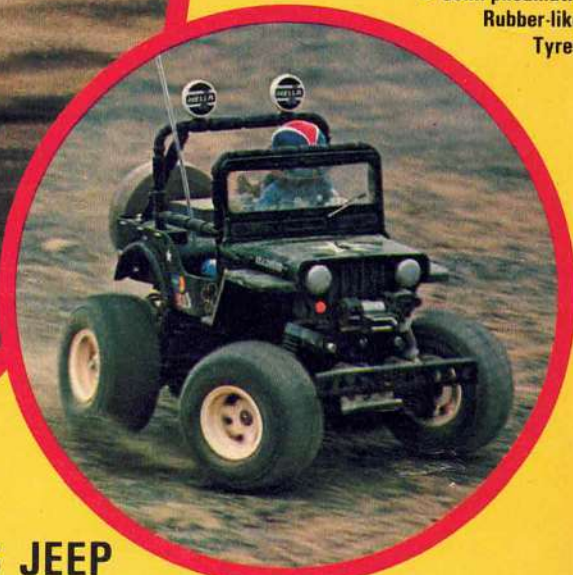
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