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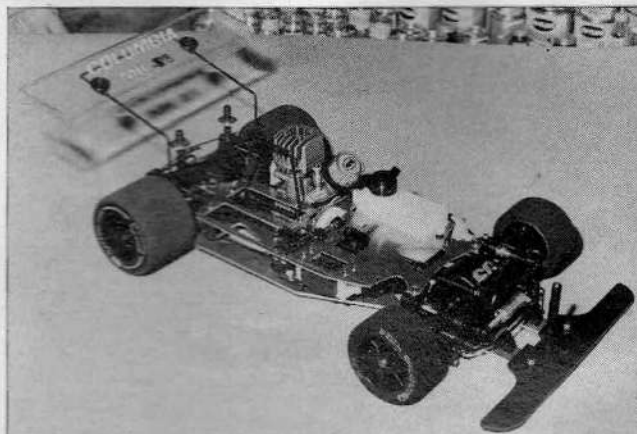
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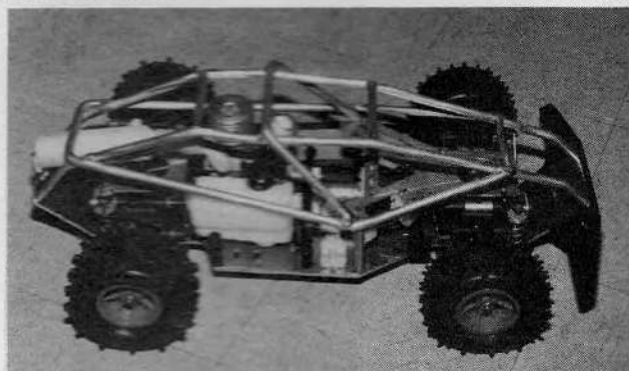
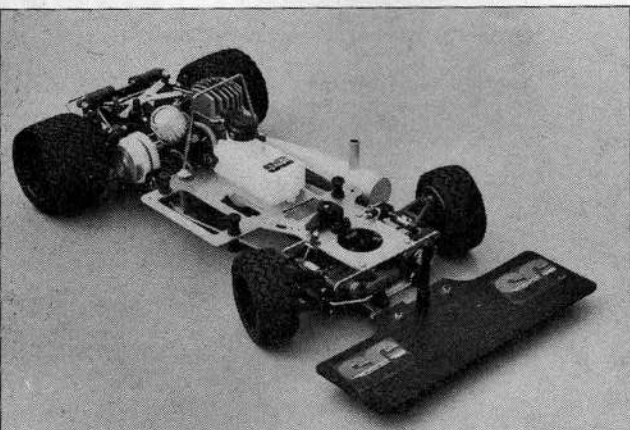
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Model Cars Monthly

February 1985
Volume 5 Number 2

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Group Editor BILL BURKINSHAW
EDITOR LEWIS ECKETT
Art Editor NICK HOWELL
Graphics JENNY HINE

Advertisement Manager Simon Harrison

Publishing Director JOHN FOSTER
Chairman and Chief Executive JIM CONNELL

Cover

Kyosho 'Progress' the amazing four-wheel drive, four-wheel steering 1/10 electric buggy from the orient. We can't wait to see how this fantastic new concept faces up to competitive use, judging by past experience of Kyosho products it's going to be great!

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Contents

SEEN AND HEARD	8
ROUGH RIDERS — Off Road news and views from Bill Burkinshaw	10
PHOTO ACTION — Win an Acoms R/C outfit in our photos prize contest	14
KYOSHO 'PROGRESS' — Track test of the incredible new buggy from Ripmax Models	16
TAKING STOCK — Mike Chilvers and Chris Loughran	24
ON THE CARPET — Pete Winton's 1/12 racing news	30
16D — Pete Crane	35
SLOT CAR ACCELERATION	36
AIR-TEX — a new airbrushing sensation described by Ian Peacock	41
ELECTRIC STOCKCARS — Chris Loughran	42
RACING ROUND UP	46
CHEQUERED FLAG — Lewis Eckett	48



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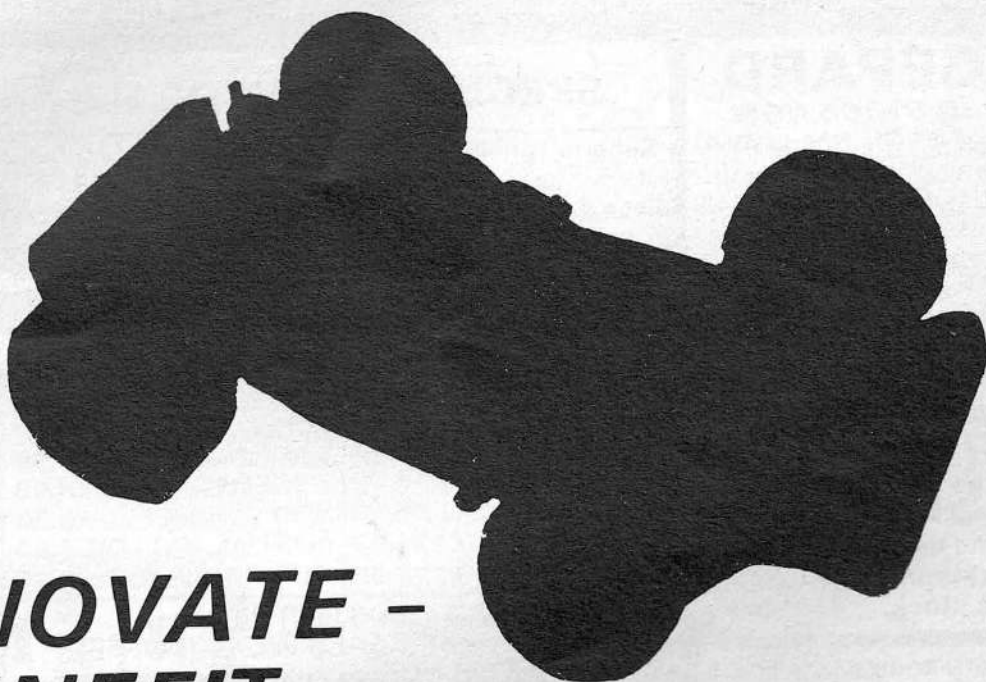
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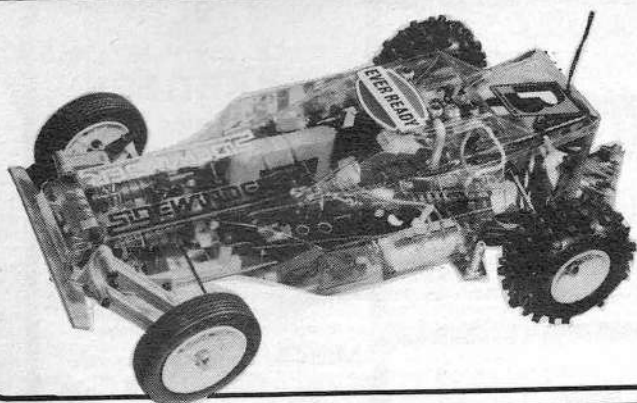


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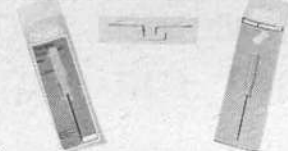
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The **SCORPION**, shown in the heading pic, won the World Champs and is probably the most successful off-road racer ever made with many exclusive race winning features. The **BEETLE** is essentially similar to the **SCORPION** but has a Lexan VW Beetle body shell plus some detail changes. Both kits are £84.95.

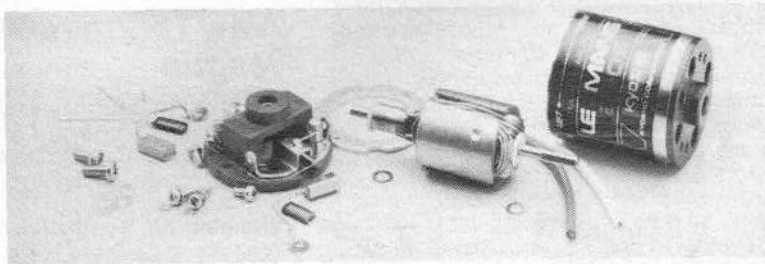


The **TOMAHAWK** (left) has been developed from the accumulated "know-how" gained from the world beating **SCORPION**. Weight of only 51 ounces (approx.) ready to run. Preassembled and sealed gearbox with built-in differential including metal cyclic gears. Strengthened alloy chassis with oil-filled dampers all round plus free-moving die-cast aluminium swing-arm suspension. Roller bearings on rear drive shafts giving low friction drive. High performance RS540 motor. New R/C installation with quick-change radio plate easily removed for cleaning and maintenance. Three speed and reverse motor control system with aluminium heatsink on top of gearbox for maximum efficiency. Definitely another winner. Price £97.50.

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For further details of the extensive range of KYOSHO R/C CARS and associated accessories plus specialist Futaba Radio Control systems designed specifically for car enthusiasts get your copy of the **NEW RIPMAX MODELLERS HANDBOOK** Price £2.50 available from all good model shops, or direct from Ripmax Models, Green Street, Enfield, Middlesex EN3 7SJ for £3.50 including P&P.



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Seen & Heard

Second World War Hero to open Model Engineer Exhibition



Brigadier Peter Young, DSO, MC, is to open the 54th Model Engineer Exhibition on December 31, 1984. Brigadier Young had a most distinguished war record as a commando and was wounded at Dunkirk in 1940. He was one of the first officers to land in Normandy behind the lines in 1944. Brigadier Young was Reader in Military History at the Royal Military Academy Sandhurst from 1959 to 1969 and has edited and written a wide variety of books on military history. He is particularly interested in the Civil War period and is 'Captain-General' of the 'Sealed Knot' Society of Cavaliers and Roundheads, which post he has held since 1968. He is also an enthusiastic player of wargames. The Model Engineer Exhibition, which he is to open, is being held for the 54th time since it first founded in 1907.

Clubs and societies

This time of year is usually one which involves a great deal of changing of hands in the many organisations that are included in the hobby. Annual General Meetings often produce new club secretaries and publicity officers and it is almost impossible to keep track of the changes.

Here at 'Model Cars' we are regularly asked for details of clubs from people who wish to begin racing. With an out of date club list it is obviously difficult to put these people on the right track, literally.

Please send us your up-to-date information as soon as possible so that we in turn can pass it on.

R/C CO₂ Racing Car

Three new products are about to be released onto the model market by a newly formed company, *Pewa Technic AG* in Zurich, Switzerland. These new releases are a racing engine kit which will run on carbon dioxide (CO₂ cartridges as used in domestic soda syphons) and scale model racing cars in 1/12th and 1/24th scale.

The CO₂ racing engine which weighs only 96g and develops 0.05 to 4 watts, is designed to be equipped with a radio control unit. It is capable of driving a miniature vehicle transporting one litre of water up a 45° incline. The unit comprises a light alloy engine, pistons with interchangeable rings, hardened steel gears and a 1:28 transmission. The engine has rapid acceleration and a high cruising speed. The CO₂ fuel is a clean, non-polluting, non-inflammable, non-toxic, alternative to conventional power sources for working models.

Pewa Technic are producing a racing car chassis to take the CO₂ engine which is now available in kit form with two bodyshells — *Porsche 924 Turbo* and *Lancia Beta Monte Carlo*.

Hopefully we will be publishing a detailed review of this new development in a future issue.



New 1/12th racing league

The High Swinwick Club at Sunderland, Tyne and Wear will host the first Northern 1/12th Carpet League open to all competitors in the country. It will be run by the **Washington, Swinwick and Wallesend Clubs** to National rules. Standard motors will be supplied for racing by the organisers and the league will be run over a twelve month period, ten full day events. Holidays,



Nationals and large events will be taken into consideration, hopefully there will be no clashes.

To qualify, a minimum of six events must be attended at a cost of £2.00 per event.

Everyone racing in an event will score points according to their

finishing positions in the finals of the day. There will be trophies for winners at the end of the year.

The first competing dates will be January 19, 1985 and February 16. The doors open at 9.00am.

BRCA AGM

This year's British Radio Car Association (BRCA) Annual General Meeting was combined with the individual section conferences and took place on Sunday November 4 at the Park Hall Hotel, Wolverhampton.



The decision to combine the whole operation was in hindsight a sound one as the number of members present was significantly up on previous years resulting in more

representative voting on the various issues.

As far as the individual conference decisions are concerned these are dealt with in the appropriate sections of the magazine. However some interesting happenings at the AGM should not go by unnoticed.

Nick Adams stepped down from the position of 1/12th scale section secretary having held the office since its introduction. This is a significant departure as Nick has been the lifeblood of this side of the hobby and he will be sorely missed. Nevertheless, Nick was quick to point out that he is staying within the hobby but taking a well deserved rest.

The question of membership fees was raised and a proposal to raise the £7.50 limit to £10.00 was put forward by the executive committee. Unfortunately the majority feeling of the assembly was that there should be no increase and greater attempts at promoting the BRCA membership

should be undertaken. The result was in favour of the latter and this produced some anxious moments when executive committee members took this to be a vote of no confidence and looked set to resign. The strict order of events was that Tom Martin stepped down from the position of Chairman after declining another term of office. Paul Pagdin was elected to the position and immediately sought an expression of confidence in the executive committee from the assembly which was immediately forthcoming.

So, we have a new Chairman, Paul Pagdin who many of you will know as one of the guiding hands of *PB Racing Products*. Tom Martin should also be thanked for his hard work as chairman during the past year.

Because of the numbers present the AGM was counted a success and the same plan of holding the Conferences and AGM together will be repeated next year.

Book review

"How to Photograph Scale Models" by Shepherd Paine and Lane Stewart published by Kalmbach Books.

The illustrative front cover of this latest paperback modelling book from Kalmbach states

"Your complete how-to-do-it guide to basic and advanced techniques for photographing all types of Scale Models."

An ambitious statement by any means but one that I feel to be fully justified having read this excellent publication.

Combining the two interests, scale modelling and photography is such an obvious step that it is surprising that very few people bother to do so. Making scale models is surely about creating an illusion of reality and this illusion can be furthered greatly with a few simple photographic tricks.

The authors of this book, Shepherd Paine and Lane Stewart provide these hints and tips in an informative and interesting way and leave the reader in no doubt as to the excellent results that can be obtained.

A quick look at the contents page shows the step by step approach beginning with 'Getting Started' and finishing with 'Professional equipment and techniques.' Along the way they deal with the subjects of 'Model Photography and artificial light'; 'Photographing models in action' and 'Special effects' and a whole lot more besides.

Obviously the illustrations are excellent with superb colour and black and white photographs plus very instructive line drawings.

All in all an excellent publication for modellers of all types of scale miniatures.

Kalmbach Books are available here in the UK through the *Aviation Bookshop*, 656 Holloway Road, London N19 3PD. The UK price has not yet been fixed but the retail cost in the USA is \$8.95.

How to Photograph SCALE MODELS

BY SHEPHERD PAINE AND LANE STEWART



Your complete how-to-do-it guide to basic and advanced techniques for photographing all types of scale models.



Ross Dunstan of Brentwood, Essex beat three times Le Mans 24-hour race winner Derek Bell at motor racing! Derek was present at a competition, to give away rail and admission tickets to this year's International Motor Show being held at Birmingham's National Exhibition Centre until Sunday 28 October. Spectators were invited to drive a model racing car around a giant 'slot car' circuit for two laps to try and win rail and admission tickets to the show.

MY COMMENTS concerning behaviour at race meetings struck a raw nerve in one or two people, even prompting G. Coffin to put pen to paper as follows:

"I would like to add my observations and support to the article by Bill Burkinshaw in the August issue under the heading Rough Riders (racing etiquette).

During October 1984 it was my misfortune to be present at an Open Meeting held in the South West for 1/10th scale when 'racing etiquette' appeared to be an unknown or forgotten phrase.

I have introduced a number of young persons to Radio Controlled Car Racing and I have always stressed, promoted and encouraged the long term benefits of adhering to 'racing etiquette'.

I was therefore appalled to see



Serpent Jeep

Off-Road Racing

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

most of the 'TOP' drivers in this event benefiting from showing a total disregard for this part of the sport.

The majority of these drivers were using four wheel drive vehicles (of which I am an owner/driver). The good road holding enjoyed by this type of vehicle was being repeatedly and deliberately misused to obtain an unfair advantage.

This was particularly apparent at the approach to corners where another vehicle had already established the 'racing line' through the hazard. The 'TOP' drivers were driving up behind and simply knocked the other vehicles off the 'racing line' and frequently off the course completely in the certain knowledge that they would gain the advantage and go unpunished.

I saw one very experienced driver drive his vehicle the entire length of the main straight, at a very fast speed, and then drive through and over two other cars that had become entangled on the course. There was ample opportunity to take avoiding action but the driver declined to do so. His driving resulted in one of the cars he had struck being so badly damaged that it could not be raced again for the duration of that meeting.

I feel that this type of driving should be penalised in the strongest possible manner. Disqualification should be automatically imposed, drivers having been previously warned at the drivers' pre-race briefing.

I appreciate that collisions will occur but this type of disregard for

'racing etiquette' which frequently goes unpunished can only do a great disservice to the sport when young persons watch 'TOP' drivers behave in this manner.

One must also take account of the unnecessary damage caused to other persons vehicles together with the cost of repairs.

In conclusion I would like to see referees at such meetings and/or much more positive action taken by the race controller."

Doesn't sound as though it was much fun for some of the drivers.

The BRCA 1/8th Off-Road Standards document has now been accepted as part and parcel of the racing rule book, it can only be a matter of time before the 1/10th fraternity get something similar on paper.

On the topic of 1/10th buggy rules,

MODEL CARS

the recent 1984 BRCA Conference changed very little, apart from an alteration in wording to the motor rule and authorisation for Committee initiative on batteries and motors. Motors for 1/10th Standard class must now be 'Unmodified, un-opened factory sealed units', whilst the Committee are empowered to revise the motor and Ni-Cad price limits to a maximum of £12 and £20 respectively if circumstances force the issue during 1985.

Both 1/8th and 1/10th sections now have separate committees headed by Tony Marsden and George Land respectively, and both sections will once again promote series championships for the Model Cars Trophies. In addition the 1/10th section will run

Firstly, I was elected as EFRA 1/8th Buggy Section Chairman for two years with Eivind Lloyd Petersen of Norway to head up a separate 1/10th Section. Our own George Land is 1/10th Section Vice Chairman and Austria's Gunter Konechny as 1/8th Vice Chairman. There were several items on the Off-Road Agenda that will eventually effect UK drivers. On the 1/8th side, the appearance rules were amended to prevent the use of roll cage style cars without the addition of a bodyshell beneath the roll-cage. The *Yankee 4 x 4* is a classic example of the style of cage car that is currently legal.

A change in European Championship Finals format was also agreed with the result that UK has an additional

driver allocation with a new total of 8.

On the 1/10th side it was agreed that the EFRA Classes for European Championships and GPs would be for Modified Motors and 7 cell battery packs. Our own application for the 1985 1/10th buggy European Championship was accepted, and the new Yorkshire Model Car Club circuit at Halifax is to be the venue. Details of the rules are still to be worked out but as soon as they are available we will publish them. An allocation of 15 drivers for the UK has been made but it is almost certain that there will be additional places. Date of the event will be early August, probably the first weekend 4/5th.

For the 1/8th 2-wheel drive enthusiasts there is to be a Grand Prix of Europe in France at the end of the season, run to a format to be devised by Alain Levy of France. This event will probably be in the South of France — Nîmes or Lyons. Finally, an EFRA 1/8th GP will be run at Goring on Thames in September.

Serpent 'Jeep'

Delegates to the EFRA AGM were treated to a preview of a new *Serpent* 4-wheel drive buggy based on the 'Cobra'. This is in the form of a Jeep and the main differences between it and the 'Cobra' are the addition of an extra silencer and reverse gear. That's right, reversel Designer Pieter Bervoets of *Serpent* says that it is designed specifically as a back garden or local park fun machine. The full competition 'Cobra' is too noisy and insufficiently manoeuvrable, reverse and a second silencer really do open up the possibilities for running this vehicle. Pieter has experimentally lowered the port timing on the *Picco .21* engine, this both quietens and reduces fuel



Heading picture and left: the new Serpent 'Jeep' a four-wheel drive fun machine fitted with reverse. The very latest in executive toys.

Left: the revised silencing system devised for the Serpent 'Jeep' in order to shut down noise levels.

both a Regional Champs with National Finals in August and a short EFRA rules series of four meetings. As for 1/8th Off-Road rules, well once again little change to a format that works well. An extra final has been agreed upon for Unrestricted Class (2 & 4WD) so there will be Unrestricted A and B plus Restricted (2 wheel drive only).

International News

For the second year I travelled to Zurich to represent the interests of the UK drivers at the EFRA (European Federation Radio Autos) Conference and AGM this year accompanied by George Land as representative of the 1/10th Buggy drivers. Owing to the resignation of Buggy Section Chairman, Herve Davione of France, I was to be Chairman of the meeting at fairly short notice. After two successive sessions extending into the non-too small hours of the morning I came away reasonably satisfied with the weekend's work.

FEBRUARY 1985

New release: Tamiya Fast Attack Vehicle

This latest 1/10th scale R/C buggy kit from Tamiya is based on the new generation of two man military vehicles designed for lightning strikes across any terrain. We do not have to many details but it looks like a cross between a 'Sand Rover' and 'Hornet.' The Fast Attack Vehicle will be on show at the British Toy and Hobby Fair at the end of January.



Rough Riders

consumption. Duration on a tank of fuel is now around 18 minutes!

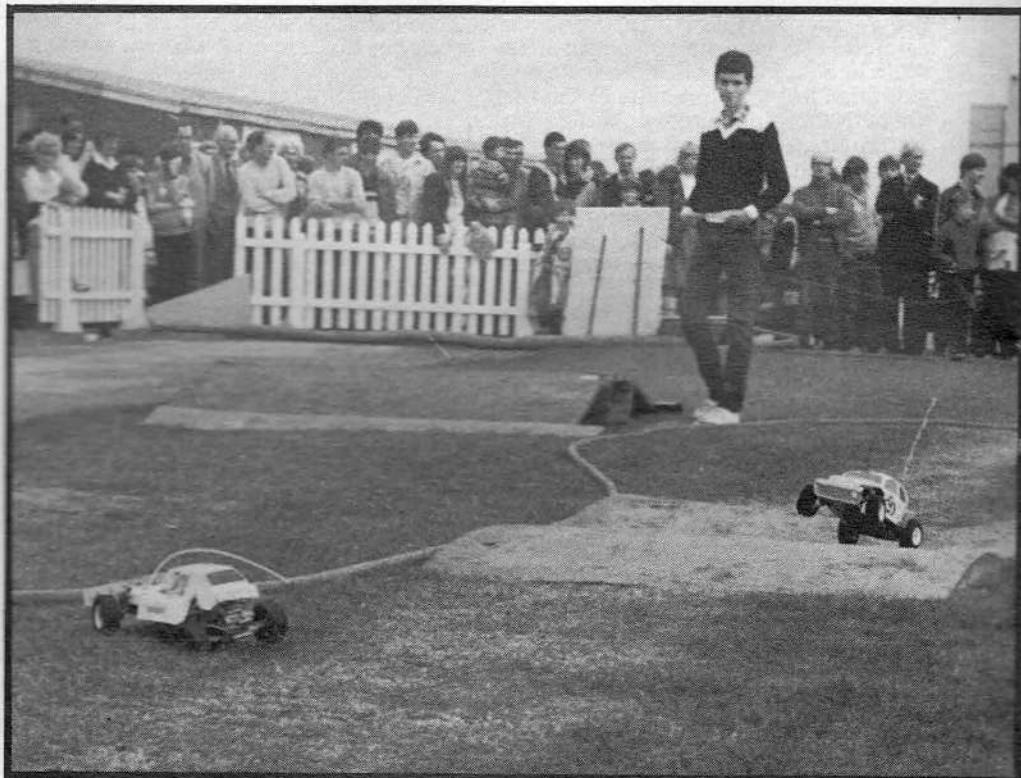
Operation of the reverse gear does require an additional servo but *Serpent* are thinking that maybe a 2-function R/C system can still be used. Their prototype used a 3-function R/C system.

And . . . the new PB

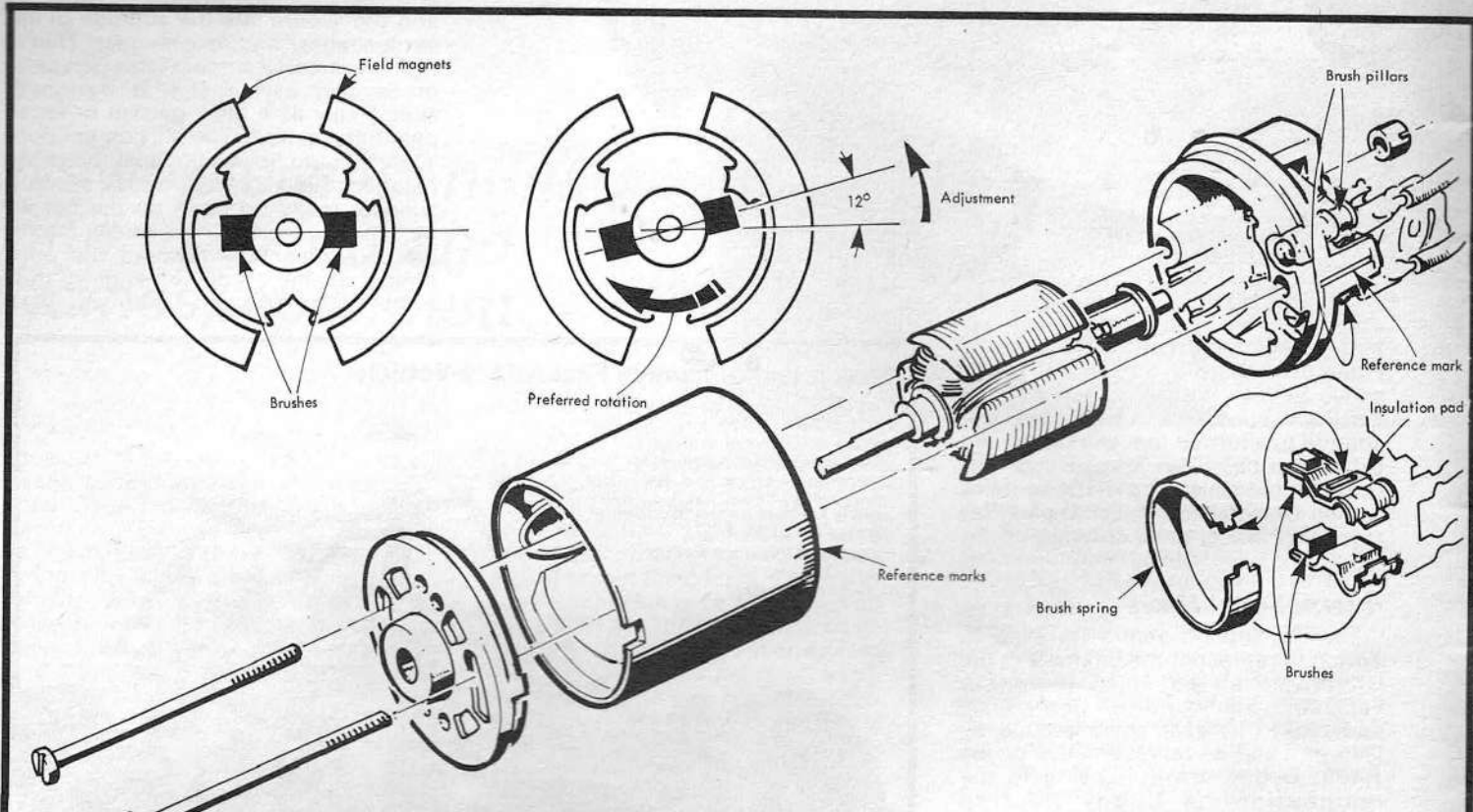
Talks with Keith Plested of PB Racing Products indicate that the new PB 4-wheel drive, 4-wheel steering 1/8th scale buggy will be on sale at about the same time as this magazine hits the streets. With PB Racing's track record, it looks as though we should be able to get our hands on a potential British made world-beater for 1985. Incidentally the car is to be designated the 'Mustang X4! Catchy, huh?

Receiver battery voltage

Some years ago before the advent of the current generation of high powered, high speed servos, the only servos that had gearboxes strong enough to take the punishment of 1/8th scale racing seemed to be *Futaba 17Ms*. These were a solid, tough unit but, slow . . . The obvious answer was to jack-up the battery voltage to the R/C system and drivers got into the habit of using 5-cell (6 volt) battery packs for



Above: watched by a large crowd the Lincoln Rally Cross Cars are put through their paces at the 'Wheels 84' exhibition. Photo: T. Sandell-Codd.



New release Tamiya RX-545 Technipower Motor

This new product is a standard class motor incorporating a lot of Modified Motor features such as: replaceable brush gear, timing adjustment and stripdown facility. This latter aspect will mean that the motor can be cleaned and kept in tip-top condition. We will give you more details as soon as possible.

their R/C system. Fine, no problems, that is until the R/C manufacturers started to produce servos that were faster and more powerful on a designed voltage of 4.8v (4 cells). Many of these servos use 'Coreless' motors which rotate at incredible speeds with very low inertia because of the low weight of the 'armature'. However, if they are run at faster than design speed, there is a risk that they will fly apart. Also because of the lower design voltage, their lower impedance allows far too much current to flow resulting in burn out.

Unless your R/C equipment was designed to run on a 5-cell battery, be advised, you could well damage servos by using one. Don't be misled by thinking that dry cells give 6 volts so it's all right, a fully charged 5-cell Ni-Cad probably gives up to 8.5 volts.

Lincoln Rally Cross - Club Display

On Saturday and Sunday 15/16th September, the Lincoln Rally Cross Club followed up their very successful display at the Ruston Gala with drag-

ster racing and specially rehearsed stunts, at 'Wheels 84' a large road safety exhibition held at the Lincolnshire Showground. The display drew very large crowds on both days and one of the organising officials commented that on the Sunday there was a larger crowd watching the model car display than watching the main arena. One of the high points of the show was the leaping, by both electric and IC cars, by means of a specially designed ramp over a Mantua 'Manta-cross' driven by Peter Scatliffe. Several electric cars made the jump and then the Club Secretary, Roy Racey, thrilled the crowd by clearing the Mantua with his Mardave 'Marauder'. The, by now famous, Lincoln Rallycross caravans again made their appearance and an electric car (a modified 'Super Champ') driven by Kevin Moore, a visitor from Coventry cleared six young spectators in a ramp jump. It is a pity that so enterprising a club containing a large proportion of young members has lost its circuit and is faced with severe financial setbacks in finding and developing a new site.

Readers' Hints and Tips

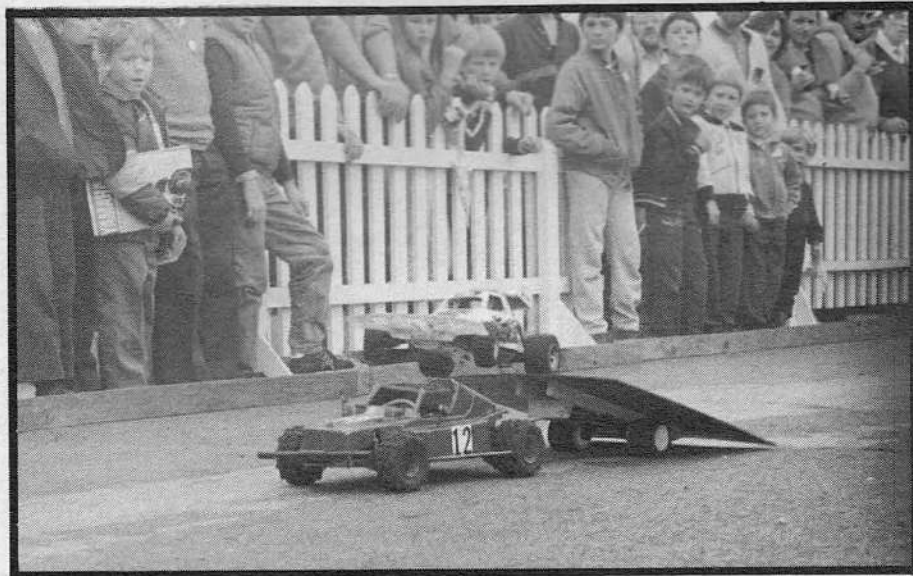
Just for a change, an idea for 1/8th IC buggy drivers, a simple airfilter from J. B. Bordoli. (See Fig. 1).

"I have recently had problems purchasing an air filter/cleaner for an O.S. 25 engine. To solve the problem, I decided to make my own. Not having any workshop facilities the design had to be as simple as possible and easy to produce from a modest tool kit. Being an ardent home wine maker, as well as modeller, I happened to have some Boots plastic fermentation locks to hand. (These only cost about 30p each).

Remove the lid of the lock and cut the main body approximately in half as shown. Cut a corresponding amount off the length of the lid so that it is still a 'snap on' fit. A small hacksaw will easily cut the plastic material. Tidy up the edges with some sandpaper.

The next operation is tricky but not difficult. Roll a thin piece of plastic foam into a cylinder and hold in place on the inner tube whilst the lid is put back into position.

All that remains now is to connect the filter to the engine with a suitable length of silicone tubing. □



Above: a very large crowd thrills to the sight of Roy Racey's 'Marauder' leaping cleanly over the moving 'Manta' during the Lincoln Rally Cross display. Photo: T. Sandell-Codd.
Left: one of the younger members, Peter Codd takes time off from driving his 'Scorpion' to show he can handle the real thing. Photo: T. Sandell Codd.

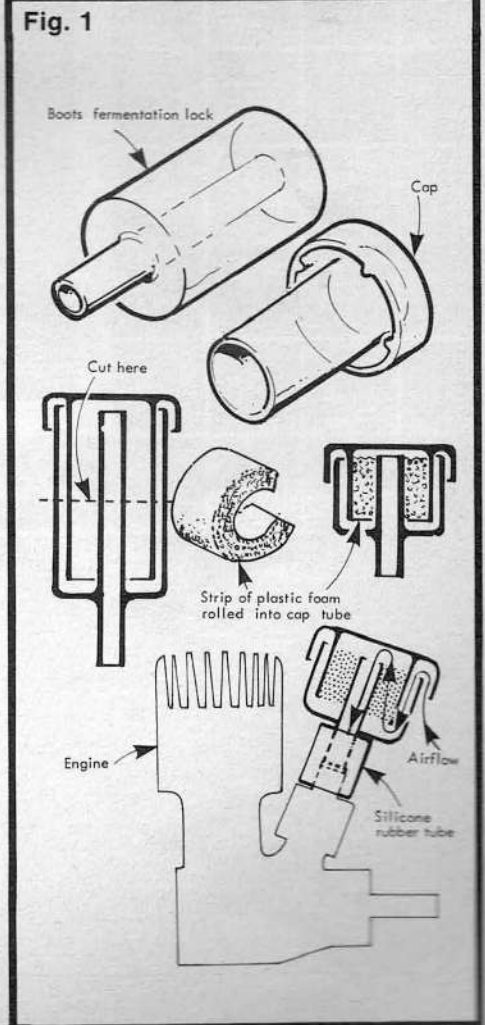


Photo-Action Competition

How to win a set of Acoms R/C equipment

- (1) Send *Model Cars* an action photo that you have taken.
 - (2) The photo may be of any type of R/C Model Car, the theme is ACTION.
 - (3) You may send black and white or colour prints (not negatives) or colour transparencies. Maximum size of 'Half Plate' please. Colour transparencies may be either 35mm or 120 size.
 - (4) Any number of photos may be submitted but please mark the back of the photos clearly with your name and address plus details of the models, the site and the camera used.
 - (5) If you wish us to return the photographs please include a stamped addressed envelope.
 - (6) Photographs must be all your own work, no copies of previously printed or published material will be eligible.
 - (7) The photographs must be your own work — commercial processing is allowed.
 - (8) Entries will be judged by staff of MAP. No correspondence or telephone conversation can be entered into about entries.
 - (9) The judges' decision is final.
 - (10) *Model Cars* retains the right to publish winning entries plus selected runners-up in any form it sees fit. All photographs will be paid for at our usual rates.
 - (11) The publishers, MAP Ltd., can accept no responsibility for photographic material submitted but every care will be taken to ensure its safe return when requested.
- SEND YOUR ALL-ACTION PHOTOS TO: MODEL CARS PHOTO PRIZE, PO BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD HP2 4SS.



PHOTO 1: John Garrison of Coventry took this shot at a Coventry Club meeting in Ryton with a Pentax Sla. We think the car is a 'Rough Rider' fitted with 'Audi Quattro' bodyshell.

PHOTO 2: Patricia Smith visited the inaugural meeting of the Yorkshire Club's new track and came away with this start line shot. Patricia comes from Hebden Bridge and uses a Yashica FXD.

PHOTO 3: The school playing fields was the venue for Carl Payne's action shot entitled 'Rally Cross.' The camera was a Chinon CE the car a 'Ford Ranger' and Carl lives in Arnold, Notts.





PHOTO 4. This shot comes all the way from Australia, New South Wales to be exact and was taken by Kevin Woodward. Kevin uses a Fujica STX-1 to shoot the *Tamiya 'Lancia Rally'* at the Grafton Off-Road Race.

PHOTO 5: A different view of things and sent in by Andrew Bray of Hockley in Essex. Andrew did well to capture this *Tamiya 'Frog'* using a Kodak Instamatic 100 camera.



PHOTO 6: This *Tamiya 'Rough Rider'* looks to be digging in hard and was photographed doing so by Michael Swann of Otley, W. Yorks, using a Fujica STX1.

PHOTO 7: Last but by no means least our winner for this month sent in by J. Dadd of Winchester, Hants. The *Mardave 'Marauder'* was shot on his school playground using a Practika Super TL 1000. The colour print was then converted to black and white by J. Dadd himself.

Kyosho Progress

**Lewis Eckett
tries out four-
wheel drive,
four-wheel
steering,
1/10th scale
Off-Roading**

FULL-SIZE motor racing is all about pace, development and innovation a fact mirrored in our own world of R/C car racing. In 50 years of motor racing, records have come and gone and true to form, 1/10th electric Off-Road racing has seen dramatic strides forward in performance during the past five years.

At the forefront of this development charge is a Japanese manufacturing company, *Kyosho* who have been producing the 'competitors' choice' of cars for the last couple of racing seasons. Not content with resting on

the laurels gained from the success of their 'Scorpion' and 'Tomahawk' kits, the *Kyosho* design team has come up with yet another racing innovation. The apt title given to this new machine is 'Progress' and in this case the cap definitely fits. For not only is the 'Progress' a four-wheel drive racer but also features four-wheel steering!

The *Kyosho* track record immediately suggests that this new car will be a winner, not only on the race track but also in the hands of the uninitiated R/C car racer. This is because *Kyosho*, in producing a highly competitive piece of racing hardware, have not lost sight of the fact that not everyone is an expert model builder. Kit presentation is therefore excellent and includes an instruction booklet that will give you no alternative but to produce a precise 'Progress' 1/10th Off-Roader.

As a components package the 'Progress' kit is complete, excepting the radio control equipment and Nickel-Cadmium drive batteries. These two subjects are also dealt with in the instructions. Also, be aware that very little in the way of modelling skill is required, not much more than the ability to wield a screwdriver. Subsequently, very few tools are needed and again a list of exactly what is needed is on page 3 of the instruction booklet.

Left: the impressive Kyosho packaging a true representation of what is in store for the builder.



Above: the finished 'Progress' looking very sharp and ready for the racetrack.

All this leads nicely into the construction part of this review.

Brief description

The 'Progress' is in fact the first R/C car of its kind to be produced and *Kyosho* are to be congratulated on taking the plunge. The prospect of producing a high performance four-wheel drive car, with four-wheel steering and fully independent suspension in 1/10th scale must have been a daunting one. After all producing a one-off is only a part of the story, turning it into kit form with 'idiot-proof' instructions is the ultimate test.

'Progress' features twin wishbone suspension front and rear with coil over shock dampers; two at the rear and a monoshock for the front end.

Drive is transmitted from the rear mounted gearbox via a chain to the front wheels. A geared differential is installed into the gearbox whilst the front wheels feature one-way roller clutches.

The four-wheel steering uses one steering servo only coupled to servo savers front and rear. Ball and pin drive shafts transmit the drive to the wheels.

The majority of components in the kit are produced from injection moulded plastic which is extremely resilient to hard knocks.



Structurally speaking

As mentioned above the 'Progress' instructions are really first rate but even so a few comments on specific areas of construction would not go amiss.

Dampers

These items are almost the same as those contained with the 'Scorpion' and 'Tomahawk' kits with one exception. A small 'bleed' screw has been set into the bottom of the damper barrel. This allows excess oil and air bubbles to be expelled when the dampers are prepared.

Oil for the dampers is included in the kit; so use it! You can mess around with alternative grades of oil later on. The coil springs are *Kyosho's* usual low rate (soft) type and can be adjusted by moving the collet up or down.

It has to be said that preparing dampers is not a once-only job; sooner or later the oil will seep out and so regular 'services' must be performed. Also take your time, follow the instructions carefully and you will have smooth acting damping.

Front drive

This is the next step of the operation and the instructions start off by showing the oilite bearings being installed into the front drive shaft holder with a hammer! Please; *don't* do this. Use a vice to gently squeeze the bearings in and remove the edge of the hole with a sharp modelling knife to ease installation of the bearings.

The drive shaft and chain sprocket assembly is clamped between the upper and lower injection moulded deck pieces. These two components are superb examples of the injection moulder's art and one shudders to think what the costs of tooling must have been. The quality of the moulding is excellent right through the kit, suspension wishbones and all other parts.

The drive chain which runs the length of the car has to be looped over the sprocket and care must be taken to ensure that the direction of the links is correct as specified in the instructions.

Various adjustments for chain tension are incorporated into the car to allow for chain stretch, the front drive shaft housing can be moved forwards and backwards because the screw holes are slotted to eliminate excessive slackness.

Front suspension

Close scrutiny of the instructions is needed here in order to make sure that

the appropriate right and left hand wishbone mouldings are being used.

The front stub-axle steering blocks pivot between the wishbones on ball and socket joints. A word of advice here. In order to maintain free suspension movement and steering, the metal ball heads on the stub axle blocks must be polished with very fine emery paper. The best way to do this is to spin the balls in a drill and apply the emery paper briefly. This will ensure that the movement does not bind and thus overload the steering servo.

When both sides of the suspension have been fitted the front mono-shock damper and servo saver must be fitted. Again, when fitting this item make sure that the movement of the steering through it is free. The servo saver is there to protect the servo against overloading, but it must also pass the servo movement through to the wheels as efficiently as possible. As expected the *Kyosho* instruction book also stresses this point.

To stop the steering blocks from locking over-centre a steering limiter is fitted both sides. The steering track rods can be finely adjusted later on.

Rear suspension

The same system of assembly applies to the rear suspension, follow the instructions carefully and make sure the suspension and steering pivots are free. In fact once you have built the front-end the assembly of the rear system will follow on easily.

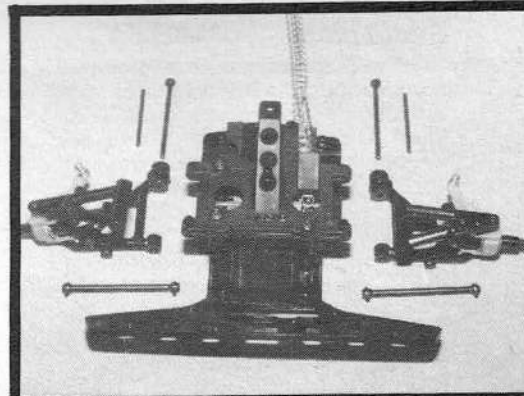
The way in which both suspension systems have been engineered suggest that *Kyosho* have made stringent efforts to keep the completed car as light as possible. Once again this is not only to please competition users who don't want sophistication at a weight cost, but also for lone hand racers who will require a reasonable running time per charge.

Main chassis assembly

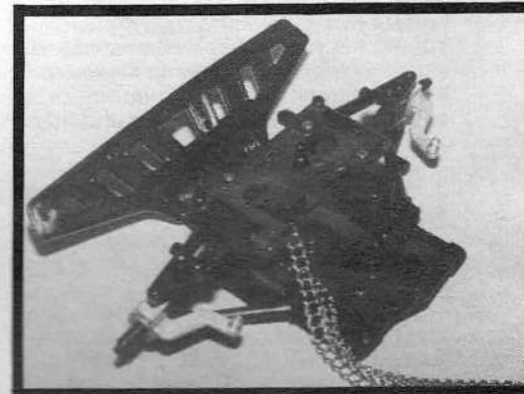
The main chassis takes the shape of a thin, stamped alloy plate, which on its own is quite flexible. However once the front and rear ends are bolted on and the top deck installed the completed box structure is very rigid.

The springing for the front suspension is via two torsion bars fitted longitudinally along the chassis. The torsion bar fits into a holder which in turn fits onto the serrated end of the lower wishbone. When the rear of the torsion bar is clamped into place the front holder can be adjusted on the serrations to twist the bar and thus increase or decrease the ride-height of the suspension.

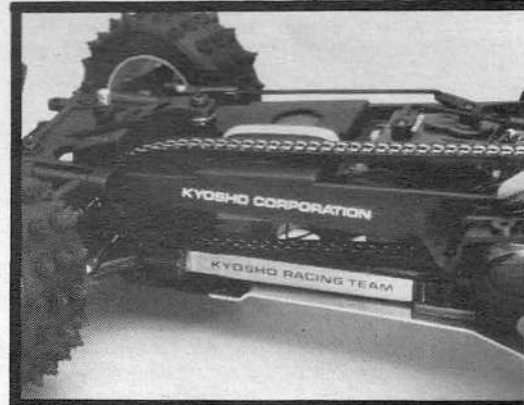
Right: the front end complete and fitted with monoshock oil dampers.



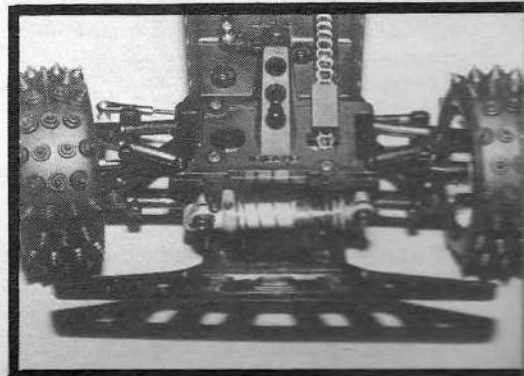
Above: the front end assembly showing front drive system and suspension/steering sub assemblies ready to fix on.



Above: the finished assembly. The flexible front bumper is fixed to the chassis so as not to damage the car in event of a collision.



Above: close up of the front torsion bar ride height system. The torsion bar holder can be twisted to achieve different settings.



Radio plate

This is the only part of the overall construction that necessitates some judicious use of a sharp modeller's knife. The radio tray or top deck as supplied features cut outs for small servos. The majority of builders will be using larger types and so the slots must be enlarged.

The instructions are very explicit on the subject of radio installation so do not be afraid to follow them.

The speed controller as supplied features a dropping diode to allow the radio gear to be run off the main drive batteries. This has the advantage of allowing the receiver battery box to be removed with a substantial saving in weight. The switch is retained but the battery box cut off and the wires connected to the speed control board.

Everything should fit into and onto the radio deck with the minimum amount of fuss and look neat and tidy at the same time.

One aspect of the instructions detailing the R/C equipment fitting that I personally don't agree with is the location of the receiver aerial. The instructions suggest that the receiver wire be fixed to the piano wire whip antenna. What this will do is extend the aerial length and de-tune the receiver making it susceptible to interference. The best method is to wind the aerial *round* the piano wire antenna or cut a length equivalent to the piano-wire whip off the receiver aerial before linking it up.

With the rear dampers in place the only major constructional element left to overcome is the motor and gearbox.

Wheels, tyres and bodyshell

The tyres are the usual plastic 'spiked' type front and rear although the fronts are about a third thinner in width. The fitting of tyre to wheel involves application of cyanoacrylate (Superglue) and this is an item that the builder needs to supply, so do not get to this point of the construction without stocking up.

As mentioned earlier the front wheel hubs are fitted with one way roller clutches. The one way clutches produce four-wheel drive when the car is moving forwards but in reverse only the rear wheels are powered, the fronts free-wheel and also prevent the transmission from braking the front wheels on the over-run.

The bodyshell supplied is a typical 'Baja' type example moulded in clear polycarbonate. Colourful decals are supplied so the shell really only needs to be painted one colour. Make sure that suitable paint is used as polycarbonate reacts against oil-based paints. Acrylic paint is the best type.

Finally, a clear polycarbonate motor cover is supplied. Fit it. This is to stop muck and grime entering the motor.

Motor and gearbox

In the 'Progress' kit the whole motor and gearbox unit is supplied factory assembled. It seems wise then to leave it that way, barring a look inside.

The differential looks slightly different to previous *Kyosho* units, in that the gears look chunkier. In fact all the gears have a wider tooth area than the examples seen before, which can only be a good thing. Also the motor and gear mounting plate is thicker than that used on the 'Scorpion' which will not bend and thus throw-out the transmission. Another introduction is a plastic brace between the motor and gearbox to prevent the motor from flexing about.

Apart from the chain sprocket exiting from one side, the gearbox assembly looks pretty much the same as the 'Scorpion' and 'Tomahawk' unit. A little bit of manual dexterity will be needed to install the gearbox, drive shafts and slip the drive chain onto the gearbox sprocket.

Setting up

Quite naturally, the complicated design of a four-wheel drive; four-wheel steering Off-Roader necessitates more complex setting up.

The various areas that have to be dealt with are as follows.

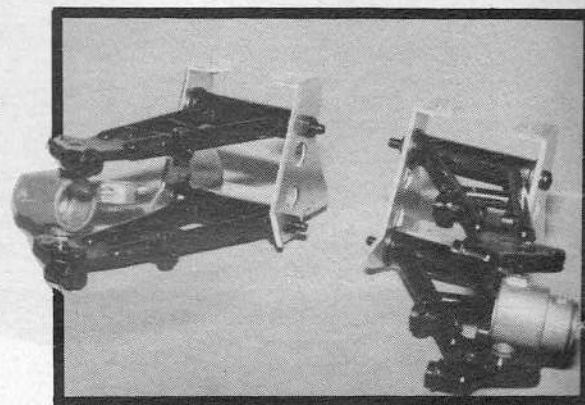
- Chain tension
- Suspension ride height
- Damping
- Steering ratio between front and rear
- Gear ratios.

The chain tension can be adjusted by three methods. The first is by sliding the front drive shaft holder forwards or backwards. The second is raising the upper chain guide by screwing in or out the centre screw. Finally, chain links can be removed individually to arrive at the correct chain tension.

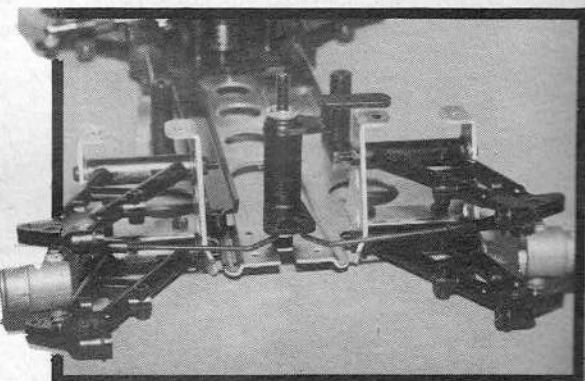
Having spoken to drivers or cars using similar drive chains I was made aware that the chain will stretch at first. This is normal and once run-in a point will be reached when the chain will no longer stretch. So after the first few runs check the chain tension each time.

The suspension front and rear should be set so that the lower wishbones are parallel with the ground when set on a flat surface. Basically the suspension must be free moving so that the car can follow the track contours.

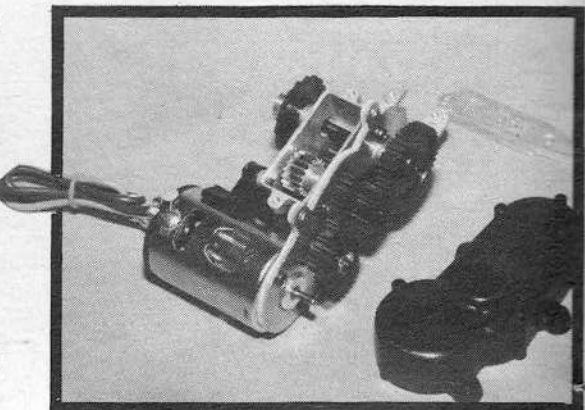
Damping therefore must be set so as not to restrict the suspension movement but compensate for the springing. As far as oil in the dampers is concerned, the grade supplied in the kit is fine, but any thinner grade of oil is not recommended. As a general rule of thumb 3 in 1 oil is probably the average grade necessary.



Above: the two rear suspension/steering/drive sub-assemblies ready for bolting onto the chassis.



Above: the two sub-assemblies in place and coupled to the rear servo saver via pre-formed track rods.



Above: the 'Progress' gearbox with the covers off to reveal chunky plastic gears. The motor is a plain bearing Mabuchi 540.

The four-wheel steering aspect demands double the necessary attention for this area. Even with the transmitter steering throw rates turned right up, the amount of steering lock looks minimal. However, because all four wheels are steering the rate of turn of the 'Progress' is actually increased. In actual fact the ratio between the front and rear wheels is 4:1 in favour of the front. If necessary however, more throw can be obtained by positioning the ball joints in the innermost hole on the servo saver output arms.

Exact adjustment of the gear ratios can be achieved on the 'Progress' because the motor mounting plate has slotted screw holes to allow fine positioning of the motor. This also allows combinations of pinion and intermediate gears to be used to achieve a precise running time depending on the track surface. Alternative gears are included in the kit but it is recommended that the low speed ratio be used first to give everything a chance to bed in.

To the races

Unfortunately due to the strictures of publishing deadlines our 'On the Track' report of the 'Progress' can only be thought of as a first impression.

We expected that driving the 'Progress' would be quite different to anything yet encountered by virtue of its four wheel drive/steering specification. Out at the local BMX circuit we met the standard British weather for Off-Road racing ... overcast, cold and wet. Still, the track conditions were fairly sound so we went ahead.

Off the line 'Progress' was slow to get moving obviously due to the four wheel drive transmission lag. Once moving however the 'Progress' displays a respectable turn of speed, not quite enough to compete against the lightest two-wheel drive cars on the straight, but wait for the first bend! One notable aspect was that on loose dry surfaces the 'Progress' showed no tendency to spin out and power could be applied instantly to accelerate away whilst the two wheelers pirouette on the line. The trick is to keep any buggy moving and four-wheel steering allows you to do this as the 'Progress' is virtually pulled around the corner without a loss in speed. This high velocity cornering takes some time to get used to as the natural reaction is to lift off the throttle, which isn't really necessary on all but the tightest hairpins.

The best test of this is to drive the car, flat-out, under full steering lock in as tight a circle as possible; the tendency of most four wheel drive Off-Road cars is power-on understeer, a general drift outwards and larger turning circle. With the 'Progress' use of rear wheel steering the circle is kept much tighter. It is very noticeable that the 'Progress' has very responsive steering and very small steering adjustments only are needed to alter the racing line or position on the track.

Another pleasant surprise was the ease with which a five minute race time was achieved using a car with plain bearings, a kit motor and average cells. This I can only attribute to the fact that little power is lost through wheelspin and cornering.

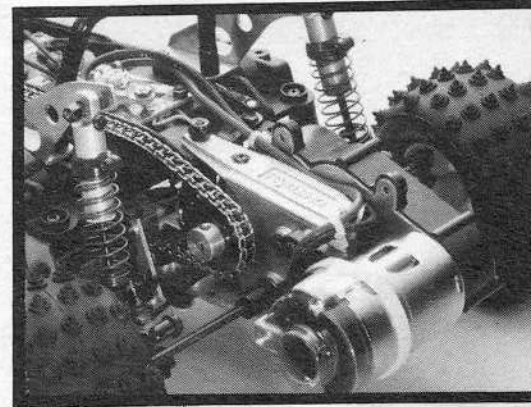
The trick to attaining longer running

times is smoother driving which means not throwing the car between forward and reverse every lap.

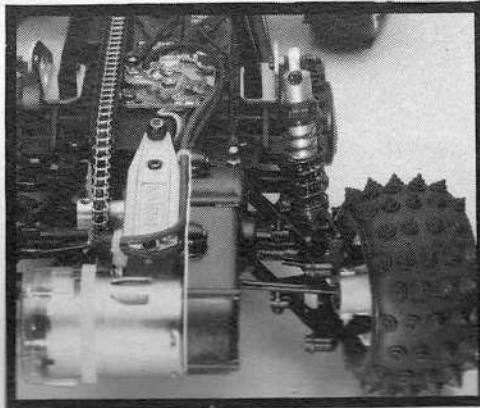
Overall, this is one fine car — Kyosho have once again produced the car you can't afford to be without for the top competitive level of 1/10 off-road racing.

UK importer: Ripmax Models.
Approximate price: £120.00.

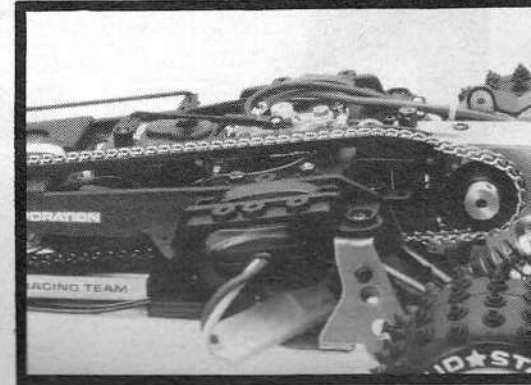
Below: detail of the assembled rear drive and suspension system.



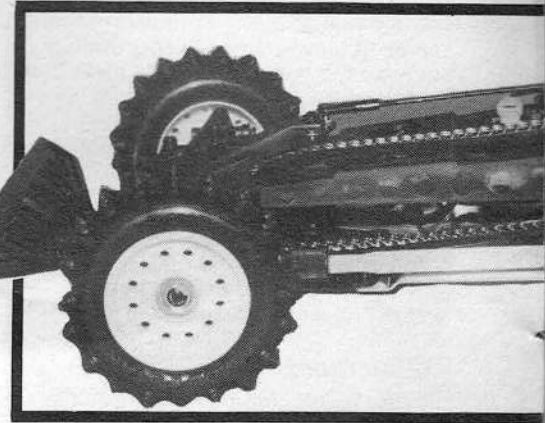
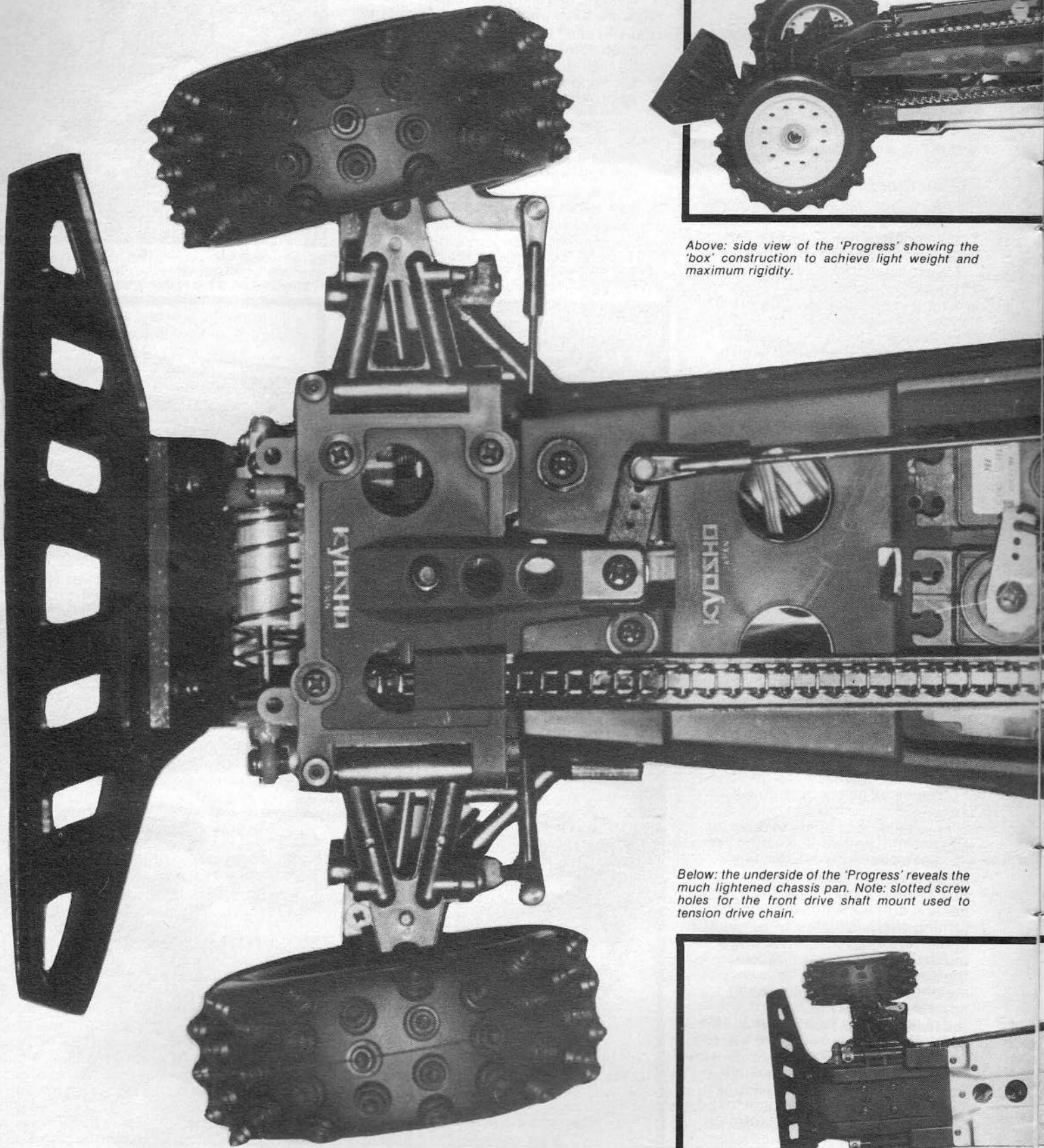
Below: another view of the 'Progress' power plant showing drive and steering to the wheels.



Below: the central section of the 'Progress' with intricately moulded top deck. The top chain channel can be raised to alter chain tension.

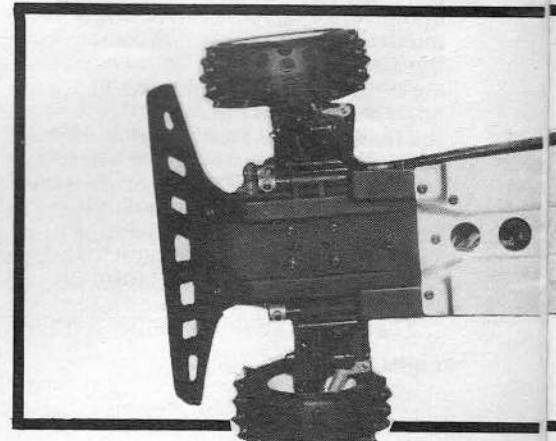


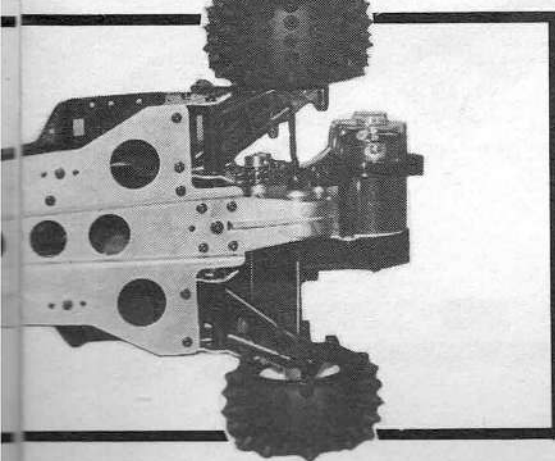
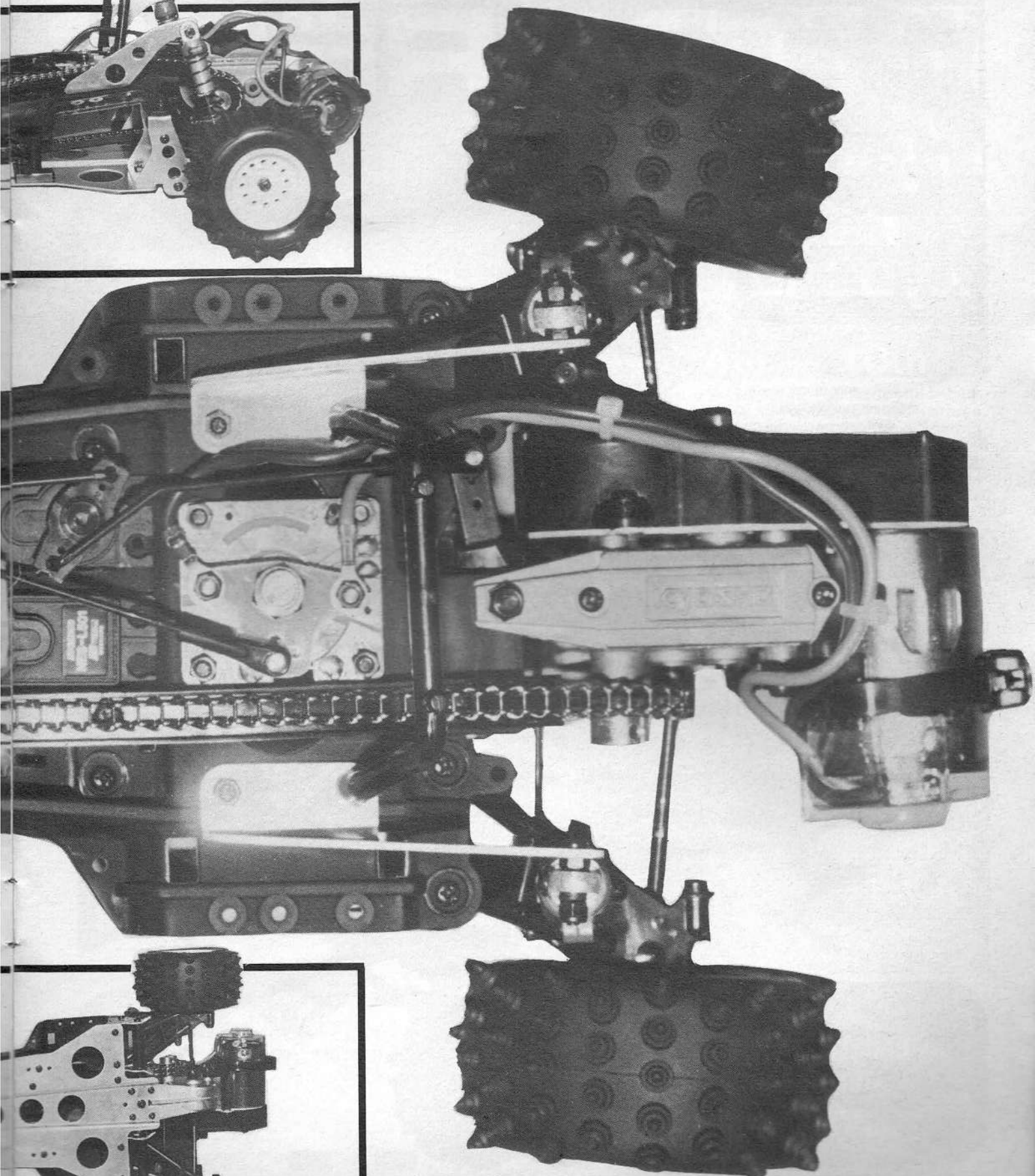
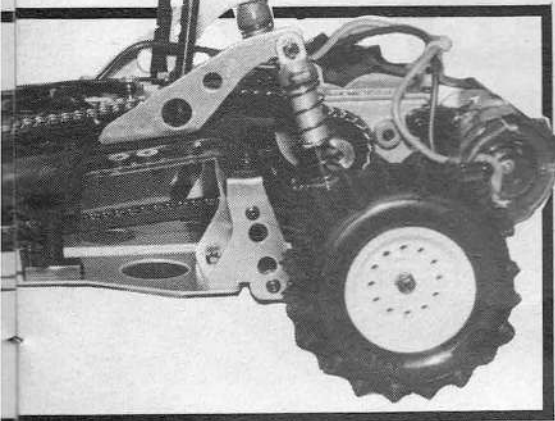
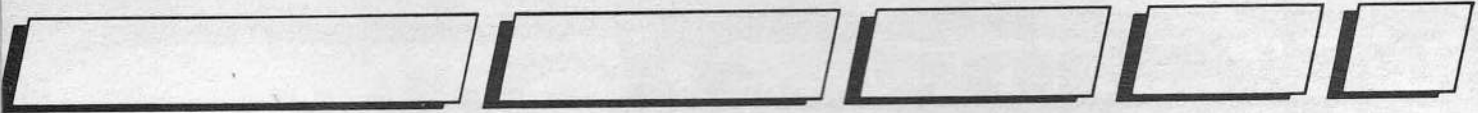
Track Test



Above: side view of the 'Progress' showing the 'box' construction to achieve light weight and maximum rigidity.

Below: the underside of the 'Progress' reveals the much lightened chassis pan. Note: slotted screw holes for the front drive shaft mount used to tension drive chain.



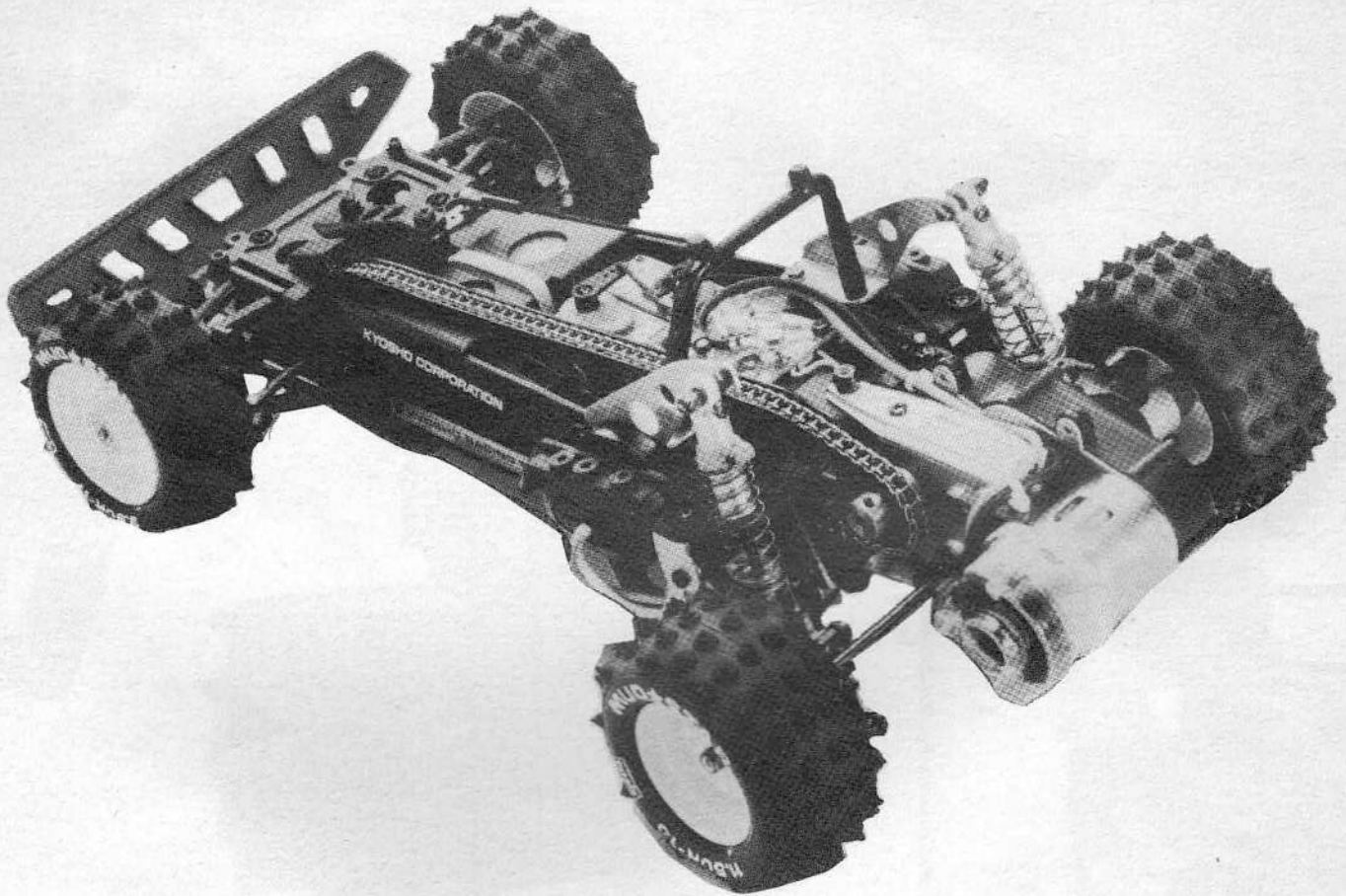


PROGRESS 4-wds

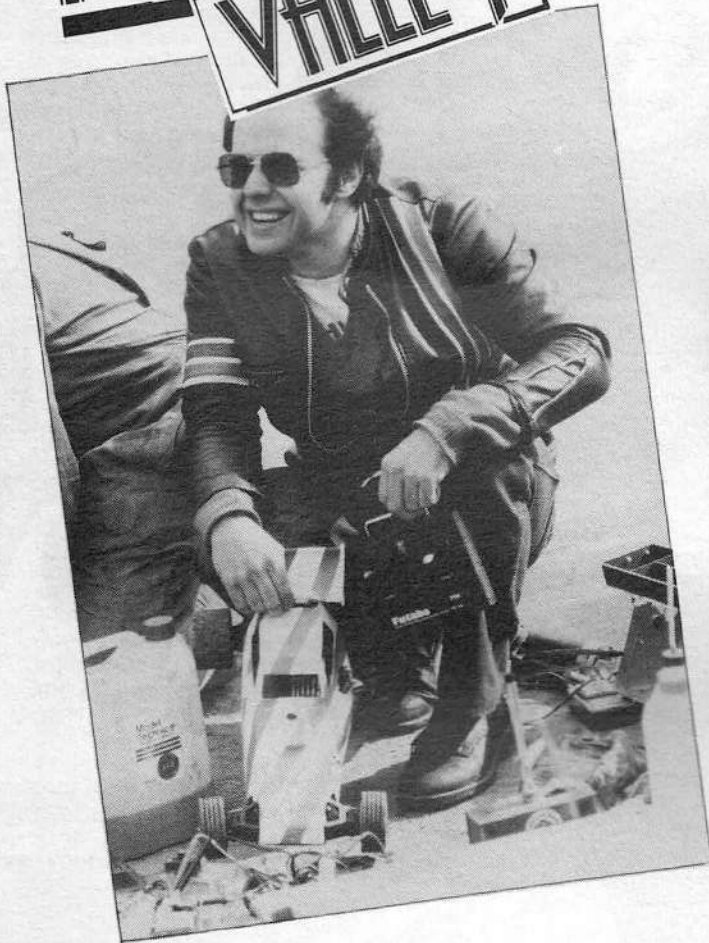
KYOSHO
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TECHNICAL DATA

- Length/395mm (15.6')
- Width/230mm (9.1')
- Ground clearance/27mm (1.1')
- Wheelbase/262mm (10.3')
- Front tire/85mm dia×32mm (3.35×1.25')
- Rear tire/85mm dia×40mm (3.35×1.6')
- Motor/Mabuchi RS-540S
- Total weight/1640g (57.8 oz)



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THIS MONTH'S issue really sees the 1984 racing season behind us and begins to pave the way for the 1985 series of events. During the winter months 1/8th scale racing virtually ceases, with only one or two Club meetings taking place in November and possibly a 'one-off' fun meeting around Christmas or New Year, a few Club meetings in March and then major events begin in April.

The 1/12th National scene also ceases during these winter months, starting again in March, but of course the Club scene is very much alive during the winter, with most clubs racing on one evening a week which often attracts 1/8th scale drivers trying to keep their hand in and keeping warm at the same time. If you want to join this growing band of enthusiasts please contact the RSCA 1/12th Section Secretary, Chris Loughran at 36 Glenhills Boulevard, Eyres Monsell, Leicester LE2 8UA.



Below: an interesting way of getting at the radio control equipment without having to remove the complete bodyshell. Haven't we seen the idea somewhere else?

Racing Stockers!

Mike Chilvers details the stockcar racing scene

1/12th Scene

I would once again like to thank Chris Loughran for sending me information on the 1/12th scene, including the reports on the major meetings. Chris tells me that a total of 103 drivers have contested the National Meetings during 1984, representing eleven different clubs. I should point out to those who read the RSCA Handbook that of course not all the clubs represented are affiliated to the RSCA, but those members racing in the Nationals are all paid up members of the Association, and as such are eligible to participate. It does seem a pity though that some of the clubs feel it is not worth paying £5 per year to affiliate themselves to the RSCA and so benefit from the additional publicity.

Dates for 1/12th Scale Diary

Please enter the following into your new 1985 Diary, as they are the dates and locations for the 1985 National Meetings.

March 3rd, Buntingford.
April 14th, Leicester.

May 18th or 26th Pendle (date TBA).
June 9th, Loughborough.
September 8th, Biddulph.
October 13th, Wirral (to be confirmed).

Please note that once again there are no meetings during July and August due to holidays.

1/12th National Championship meeting Loughborough - October 21st

The last meeting of the year promised to be most crucial to the outcome of the Championship with only two points separating the top three drivers, making it the closest finish ever. Dave Clarke was leading and with Loughborough being his home track he was the pre-race favourite. However, Martin Higham, also on home ground was only two points behind, and with Adam Longrigg sandwiched between them every heat was going to be vital to all three.

The Loughborough track is a new one to the National scene, is quite long,

and rather on the narrow side. It is also the only National track that can be securely bolted to the floor, which means it does not change shape every time a car hits the barriers, and so is very unforgiving on those cars which do!

The attendance at the last National of the year is traditionally low, but with the interest in the outcome of the Championship being so high there was a very good turn out of 56 drivers. The most noticeable absentee being Kelvin Hawkes who you will remember had retired after the last round. Practice started promptly and the home drivers were instantly noticed, as they were the ones on the right tyres. However, by the end of practice everyone was happy with the grip they had found.

After practice came the judging of the Concours, where once again the standard was high, the winner being young Andy Tollett with a car sporting a white body, flames up the front and a fox's head amongst them, hence the name 'Firefox'!

When the racing got underway it did so with the now usual first bend pile-up

in heat 1, but once that was sorted the racing was quick, if at times somewhat scrappy. 50+ appeared to be the lap target for a place in the Final, and Dave, Adam and Martin all got down to setting the pace with 54, 51 and 52 respectively to win their heats. Tim Walker also recorded 51 along with Ian Johnson, both being headed by Shirley Clarke's 52.

Round two of the heats saw some other drivers pushing up their scores, with John Cutts and Steve Hubbard recording 53s, Adam, Martin and Ian all recorded 54s, whilst Dave set the pace with a 57.

After the lunch break it was back to business with a vengeance, Dave and Martin were in the same heat and Martin got off to a very good start and by lap 11 had lapped Dave. But then he either hit, or was hit, by everything on the track, twice ending up on his roof and once nearly flying over the outer fence, with the result that in the end Dave was three laps ahead, to record yet another 57.

It should perhaps be said at this time that drivers were trying to do two things. One, to qualify for the Final and the other to win the heat they were in, gain 10 points and so catch up or overtake your rival in the National Points table. Adam and Martin knew that if they were to catch up, let alone overtake Dave, they could not afford to drop points in the heats by coming second whilst he was winning, other-



Above: Dave Clarke 1/12th Scale electric National Stockcar Racing Champion.

short time during his heat to replace his body which had all but fallen off, but he still managed to finish in first place.

After the heats it was Dave with a three-point advantage over Martin and Adam who were trying for second place. So all Dave had to do was finish in third place or above to guarantee himself the title, whereas Martin and Adam both had to go out for a win and who ever was in front at the end would take second place at least. Those drivers who had made their way

Fielden (in borrowed car) and Phil Smith.

So to the Consolation. This was a close fought, sometimes scrappy and hectic race. First Shirley and then Gregg led, whilst all around cars were going into and over the barriers. In the end it was Shaun who finally took it, mainly due to the fact that he managed to stay out of most of the trouble during the race, thus he joined the others in the Final.

So to the Final itself, which turned out to be the closest finish so far to a National Championship, with the final outcome of a year's racing dependant upon a five minute dash. Right from the start Dave made it clear that he was out to win, and not just for the points to secure the Championship. Dave and Adam ran together for the first few laps, but then Adam got caught in a couple of accidents which allowed Martin to slip through to take up the challenge. Shaun was also well up, until a stop to adjust the suspension lost him four laps. Rob had been going quite well despite hitting a few things a bit hard until he lost a wheel, which being the inside front made it a little difficult to steer. Shaun and Martin collided hard, letting John Cutts through into fourth place. Meanwhile Martin was catching Dave whose tyres seemed to be going off towards the end, through when the hooter sounded for the finish it was still Dave in front, but only half a lap ahead of Martin, with Adam in third just ahead of John.

So that's it. Dave Clarke is the National Champion, and will be sporting the silver roof for next season. Martin was in second place, with Adam third. Thanks go to Barry Hubbard for sponsoring the meeting, which brought a very good season's racing to its conclusion. Well that's it for another year. The Championship is now decided, and everyone has gone home, working out ways to go faster next season, when it is hoped Dave will be racing in defence of his title. Overall it's been a good year, with more drivers participating and more clubs started. ▶



Left: the impressive array of trophies presented at the Loughborough National 1/12th Stockcar Championship event.

wise there would be no possibility of them being able to overtake him in the Final.

In the final round of heats Adam's troubles continued, a broken wire on the speed control forcing him to retire, and this let Martin catch up on the points difference. Dave pulled off for a

through to the final, apart that is from Dave, Martin and Adam, were John Cutts, Ian Johnson, Rob Harrod and Steve Hubbard. Those to fight it out for the one remaining place via the Consolation Final were Shirley Clarke, Shaun Riley, Terrance Linacre, Simon Farrer, Tim Walker, Gregg Lloyd, Tim

Final Placings for the 1/12th Stockcar Championships 1984

Name	Club	Points
D. Clarke	Loughborough	262.5
M. Higham	Loughborough	258.5
A. Longrigg	Pendle	257.5
J. Cutts	Leicester	237.0
S. Riley	Pendle	227.5
I. Johnson	Loughborough	227.5
S. Clarke	Loughborough,	189.0
T. Walker	Biddulph	187.0
T. Fielden	Pendle	183.5
P. Smith	Coventry	177.5

Taking Stock

Loughborough National — 21st October 1984

Name	Car Type	Cells	Gears	F. Tyres	R. Tyres	Controller
D. Clarke	Modified Mardave	Soft	13:55	Prowler 12/004	Prowler	Bolink
M. Higham	Mardave	Yuasa	12:46	Mardave Med. 'B'	Med/Soft 'D'	Associated
A. Longrigg	Mardave	Sanyo	13:54	Prowler 12/001	Prowler 12/002	Lectricar
J. Cutts	Standard Mardave	Sanyo	12:50	Hard in Soft out	Soft	M'dave
I. Johnson	Modified Mardave	Enduro 1200	12:50	Med/Soft 'B'	Med/Soft 'B'	Bolink
S. Hubbard	Standard Mardave	Enduro 1200	13:48	Std. Mardave	Med/Soft 'D'	Bolink
R. Harrod	Modified Mardave	Sanyo	12:50	Mardave Hard	Mardave Soft	Mardave
S. Riley	Scratch-built	Sanyo	12:54	Prowler 12/002	Prowler 12/001	Parma

Concours: A Tollett. Junior Trophy: G. Hubbard; FTD: D. Clarke and M. Higham (57 in final).

some of the 'big names' were not present, but the first round of heats showed that those who were, would take some catching. Steve Talbot, Cliff Emms and Peter Butlin set the pace with 42 lappers followed by the Northern Region Champion Peter Butterworth with 40 and Colin Bunyard and young Darren Buckley on 39s. Next up were Allan Griffin and Robert Thorpe on 38s.

Round two once again saw Cliff setting the pace, this time with 41 laps, one lap down on his first round score; then came Allan with a 40, a couple of laps better than round one. Where I hear you ask was Steve Talbot? Well Steve was down with Peter Butterworth, Pete Butlin and myself all with 39 laps which shows that he had problems as I've never been known to

Champion of Champions 1/8th Scale meeting - Keighley - October 14th

In the words of the old son 'Early one morning as the sun was rising . . . I set out on my way from March in Cambridgeshire to Keighley for the 'Champion of Champions' meeting, having earlier been informed by the RSCA that I was one of the lucky ones to qualify for this end of season, invitation only event.

Having completely miscalculated how long it would take me to get to the Keighley track I arrived much too early and proceeded to chat to the other early arrivals and familiarise myself with Keighley town centre — the latter in an attempt to locate the nearest loos. As drivers began to arrive I was pleased to note that there was a fairly good number of Midlands drivers who had made the journey North, as it was clear that few from the South would be prepared to undertake the trip. In the event there was no Southern driver amongst the 29 who had responded to the invitation. From the Midlands came a very strong contingent of Coventry club drivers consisting of defending Champion of Champions and British Champion Cliff Emms, Trevor Heasman, Martin Robbins, Andy Fulford, Colin Bunyard and Adrian Mallin. Leicester was represented by the lone, but very much 'on form' figure of RSCA Champion and Series Champion Steve Talbot. Nottingham was represented by the two young Buckleys, John and Darren, the two not quite so young Butlins, Peter and Paul, and Robert Thorpe, whilst Lilford was represented by your's truly. World Champion Paul Dudley had booked in, but did not arrive; the remainder of the entry coming from the Northern clubs.

The track was swiftly put up by the Keighley lads under the guidance of Club Secretary and Chairman Kath and Phil Richardson, Phil had decided not



Above: the top three drivers in the Champion of Champions event at Keighley. The Champion, Steve Talbot (centre), Cliff Emms runner up (left) and third place Colin Bunyard.

to race but instead look after the organisational side. The Club's portable track impressed me by its design, being reasonably light to handle as it is made of wood, and in convenient lengths to be stored in the caravan which Phil has to tow to and from the meetings. The lengths are simply but effectively bolted together and the finished product is kept in place by nails which hold it to the tarmac — it is the only portable track I have seen which did not move when a car crashed into the boards.

As soon as all was in place, practice began, and for many it was quite a while before the right tyre set-up was found. But as the entry was quite small and the locals, who clearly knew which tyres to use anyway, did not arrive too early, there was plenty of time for the visitors to get things sorted. Scrutineering went off without too much trouble for drivers, though one or two cars did have to shed a little weight.

So to the racing. It was a pity that

keep up with him otherwise!

After a relatively slow round two, round three was just the opposite. Once again Cliff showed the rest of us the way with a 44, but hot on his heels came Steve, Peter Butterworth, Colin Bunyard and Peter Butlin all with 43. Close behind came Adrian Mallin on 41, a good drive from this Coventry 'blue' top, with Robert Thorpe and Darren Buckley on 40s. Martin Robbins and Andy Fulford at last got into the act with 39s along with John Buckley. At this point in the proceedings Mike Smith dropped out of the meeting with a servo that was playing up, and Lee Griffin also dropped out. I had been going well in my heat till a hefty knock bent the front right hand side bumper back onto the front wheel locking up the steering. My problem swiftly rectified by an alert Colin Bunyard aided by a pair of Mole grips, and I was on my way again only to record 34 laps having been in the lead.

As is so often the case, the delay



Above: Robert Thorpe watches as his car is scrutineered, Andy Fulford waits his turn, before the beginning of the Champion of Champion heats.

between the announcement of the round three heat times and the start of each driver's final race is one of great tension. As it is not good for the driver wanting a good last heat to get over tense, as inevitably it adversely affects performance. My car had suffered a



Above: Steve Talbot's car on its way to victory in the Champion of Champions final.

weight reduction, as the bent front bumper fell off in my hand after the last heat, and I knew that this was not going to help me scrape into the Consolation. Martin Robbins needed a good run to cancel out his first round score of 29 laps, Trevor Heasman needed to cancel out his second round 10-lapper and so it went on, until Phil's mellow tones over the PA system told us to get the final round underway.

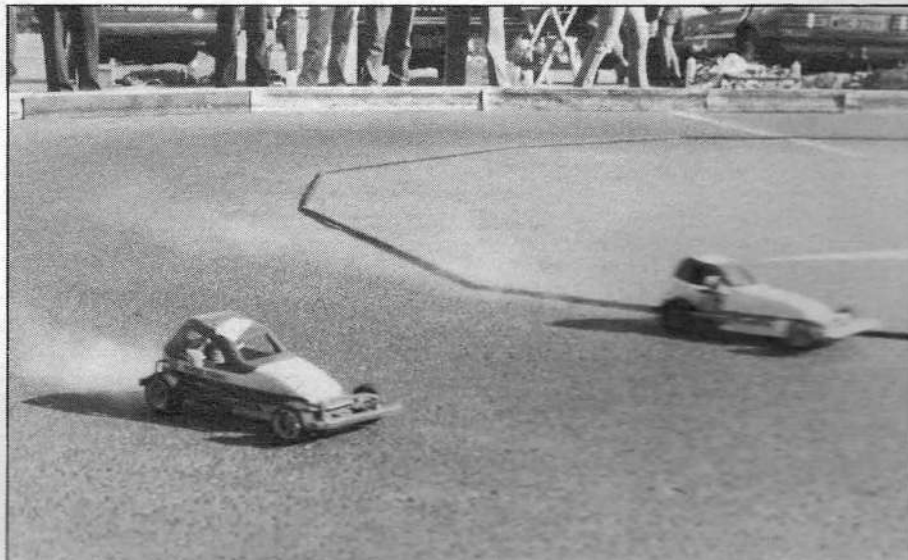
In the event eight drivers recorded over 40 laps, Cliff once again leading the way with the FTD of 45, followed by John Buckley with 42, Martin Robbins, Peter Butterworth, Allan Griffith and Colin Bunyard on 41s, and Steve Talbot and Trevor Heasman with 40s. Behind these came Adrian Mallin and

Robert Thorpe with 39s and myself with 38. It looked as if most people had raised their scores and the wait for the qualifiers to be announced was almost too much to bear.

When the awaited announcements were made it was Cliff Emms (131), Steve Talbot (125), Peter Butlin and Peter Butterworth (124) who had made it through the Final, whilst those to fight over the two remaining places through the Consolation were Colin Bunyard (123), Allan Griffin (119), John Buckley (119), Adrian Mallin (117), Robert Thorpe (117) and Darren Buckley (117).

There was the expected delay as drivers prepared for the Consolation, but it was a race worth waiting for, though perhaps Allan and Darren would not agree with that, as their involvement lasted 26 and 25 laps only. Still, the other four cars were very close, with Colin and Robert both recording 41 laps, Colin just ahead at the line, but both making it to the Final. Adrian and John, both scored 40 laps,

Below: action from an early heat with Cliff Emms on the inside.



Adrian just getting the verdict ahead of the teenager.

In the delay between the Consolation and Main final. Colin did a quick battery change for the receiver, as he felt it was running out of power. Soon all the cars were on the track and the question on everyone's lips was would Cliff keep up his good day's record of leading everyone and retain his title?

The answer was only five minutes away. Peter Butterworth's race only lasted for just over two minutes when he was forced to retire, having completed only five laps, but the others were still very much fighting for the lead. Gradually, Steve Talbot began to pull ahead at the front whilst Robert Thorpe was being left by the others, who were all very close together. When the final hooter went, there was no doubt who had won, it was clearly Steve, but there was some question as to who had followed him home in second spot. The official results showed Steve Talbot to have won with 56 laps, Cliff Emms to be in second with 53, Colin Bunyard third with 52, Peter Butlin fourth with 51, Robert Thorpe fifth with 48 and Peter Butterworth in sixth with 5.

So ended a most enjoyable day's racing. Congratulations to Steve on his win, to Phil Richardson and his wife Kath for their organisation and the Keighly Club for their hospitality.

Club in Focus: Sussex Radio Auto Club

At last I can get back into the good books of those very nice people down in Sussex who expected this article to be in the July '84 issue. The Editor tells me it had not been a ploy to boost the sales of 'Model Cars' in the south, but has been due to a lack of space (*True, true... Ed.*)

The Sussex Radio Auto Club has its base in Brighton where it has established close links with the town. It was formed in early 1980 by Dave Heighes who moved from Carshalton to Hove. He was already interested in stock car racing being both a member

Taking Stock

of the RSCA and the Chessington Club. However due to his job as a newsagent and the travelling involved to get to Chessington he decided to see if there was enough interest in the Brighton area to start a Club. It soon became clear that the interest was there, and right from the start the Club set out to obtain the best equipment it could afford. By the end of the first year the Club had built a portable track, purchased a caravan to act as Race Control and was equipped with a PA system and electronic Lap Counter/Timer. A race entry system was also devised so that all drivers would race against different drivers in each race, and also know in which race they were to compete before the meeting started. An attempt was made to try to branch out into electric racing cars and Off-Road racing, but they found the site unsuitable.

During the past few years the Club has raced fortnightly from March to November for the annual Club Championship and also the Southern Drivers Championship. In 1983 the Club held a meeting as part of the Brighton Festival, the venue being the Brighton Aquarium Roof of all places. This was repeated in 1984 and looks like becoming a regular part of both the Club Calendar and the Festival. As well as serious racing the Club also runs regular novice and caravan races, plus fun events to raise money for charity, raising over £500 in 1983 for a local newspaper charity appeal. It has also done its bit to promote the sport by organising demonstrations and shows, including one at the World Hot Rod Championship at Ipswich in 1981.

The Club also looks forward to the challenge of holding major meetings. In 1982 it was host to the Final of the Series Championship and the following year the RSCA Championship — and I'll not mention the weather on both occasions! Also in '83 the Club held the first Southern Inter Club team event, which was such a success that it has been repeated in '84, this time at Chessington and I hope to have a report of that in the next issue.

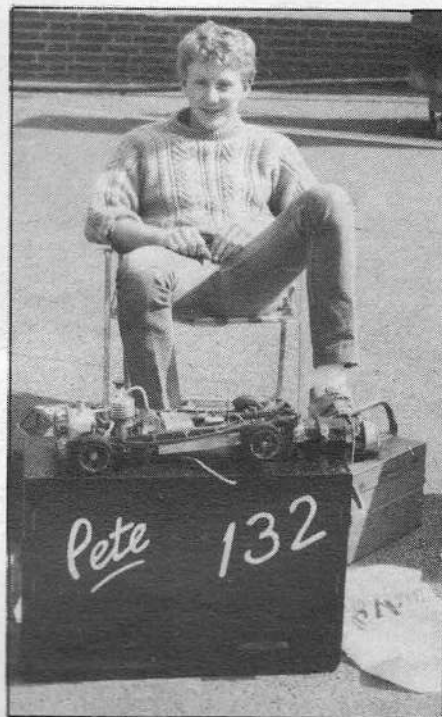
Below: the final gets underway as does Marshall Paul Butlin from centre of track having set brother Peter on his way. Note the Steve Talbot car at rear of field.



Up to the end of the 1984 season the Club held its meetings at a local School, but for various reasons, not the least being financial, they began to look for a new, permanent home. Attempts to interest Brighton Council did not succeed, but an approach to Adur Council at Shoreham did, with the result that the '85 season should see the Club at its own purpose built site complete with an Off Road track by the River Adur overlooking the sea. The Club hopes that this new venture will be the start of even bigger things to come, with more people coming to watch and so more recruits. Also, with the permanent facility it should enable drivers to practice when they like, which not only helps the experienced drivers to sort their cars, but is also a great incentive to the novice driver who can go and practice getting round the oval when there is no one else in their way.

The Club has regular social meetings, where members gather to chat about the Club, away from the frantic atmosphere of a race meeting. During recent months much time has been spent on preparing the new venue and as always there have been difficulties which have put back the date of completion. It had been hoped that it would all be ready for the final meetings of the 1984 season, but now it will be the start of 1985. I hear whispers, quite loud ones, though not yet official as I write this, that it is possible that the new venue will be put to the test in May for the RSCA European Championship Meeting 1985.

So if you are sunning yourself down on the south coast this summer, or resident in the area with thumbs that need a bit of extra exercise contact Dave Heighes (Brighton 419278), Alan Matthews (Brighton 412340), Dave Phillips (Brighton 418875), John Ford (Lancing 762268), all of whom will be happy to give you more information about the Club and its activities. Failing that, go down to the Adur recreation ground, on the A259 at Shoreham and see what is going on, but remember the racing season does not start until March.



Above: Pete Butterworth an up and coming young driver at ease with racing equipment.

Odd and Ends

Rob Tyrer of *Windmill Models* in Burnley has recently acquired a new site which at the time of writing he is converting into a large model centre. He has already had planning permission and work is under way. When the work is completed sometime next summer, there will be a retail shop for modelling bits, a trade shop, a manufacturing and warehouse section and to top it all purpose built racing circuits. I am told that the intention is to have a carpeted section for 1/12th racing cars, a purpose built Off-Road track, and ovals for both 1/12th and 1/8th stockcars. This must be one of the first, if not *the* first complete centre for modellers to go and race any type of car they wish. Also there are plans to build several meeting rooms so that Clubs can meet on a social basis as well as to race. The racing circuits are planned to be open early in the New Year (that means just about as you read this) with the rest being completed by the end of the Summer. The centre is apparently only a mile away from the motorway exit, and there will be more than ample car parking. The address of the centre is Ganow Lane, Rose Grove, Burnley, and Rob Tyrer can be contacted at *Windmill Models*, Burnley if you require further details.

Well that's it for another month. Please do keep dropping your comments, etc., to me at 85 Elliott Road, March, Cambs. PE15 8BP, remembering the SAE if you want a reply. Have a good New Year, and I'll see you ovalling around in 1985. □

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AT THE RECENT BRCA Conference a proposal was voted in that limited the cost of speed controllers to £50 maximum. The reasoning of the proposal was very flimsy but ran along the lines of wanting to prevent the latest type of American produced MOSFET speed controllers coming in at rumoured prices around the £100 mark. What this unnecessary rule also did was to put a limit on UK development of better types of devices. This is a great shame since our pioneering in this area led the Americans to develop MOSFET speed controller since they were fed up with being left on the start line at big events. The US drivers use resistor controllers which react slower than electronic types. Now it appears that the Yanks will be able to flex their development muscle while British manufacturers work under a straight-jacket of limited income and low profits.

It is inevitable that either the American MOSFET controllers will be sold here at over £50, or that a UK producer will market a MOSFET at £49.99! It seems prudent to take a look at these systems before you all rush out and buy one. What is important is to establish the difference between current controllers and the new generation of devices about to hit the market and then to decide if one is needed at all.

A MOSFET is a transistor, or to be precise a Metal Oxide Semiconductor Field Effect Transistor. By its nature, it is very efficient and not subject to the power losses normally associated with existing power transistors. The more MOSFETS run in parallel; the less heat build up, and voltage drop which is why American producers use four or six.

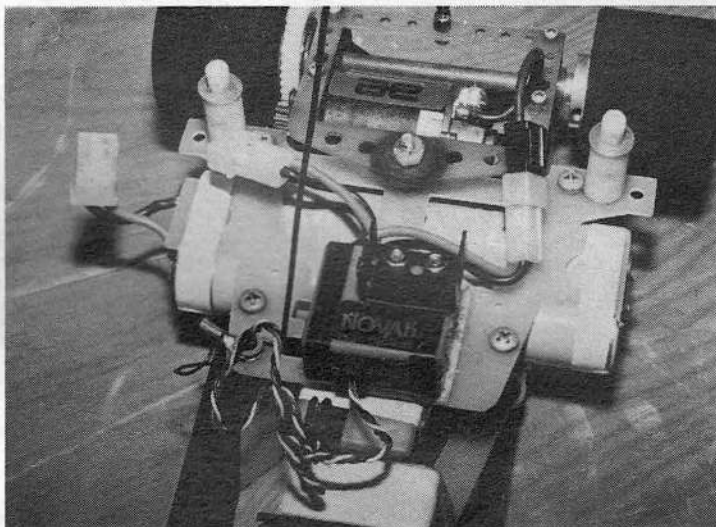
Transistors are only switches similar to mechanical relays. Hence we are able to substitute MOSFETS for the present forward relay. Also, because they are 'chemical' switches MOSFETS have a more reliable surface area contact for transmitting current than cheap or worn out relays. This should in theory give even better response to acceleration than presently available, but that also means increased current consumption and potential lower run time on the game gear ratio/cell/motor combination.

Since MOSFETS are much smaller than mechanical relays, there is a weight saving. All weight that can be shed is of course very useful in increasing run time. However, if to keep the heat dissipation up we need to use a larger heatsink or more MOSFETS, then the weight starts to creep up and the difference can be minimal. Don't run away with the idea that MOSFET controllers are very light. The American ones are, because they have no reverse feature, which normally requires a relay. In an egg for eggs comparison a reversing MOSFET controller is less than 1/4 oz lighter than its

Mosfets

What are they? What do they do? and how do they affect the price of speed controllers?

Right: an example of American produced MOSFET type speed controller from Novac Electronics. As can be seen it is extremely small by virtue of its lack of reverse.



equivalent relay based competitor.

MOSFETS are a balance of alternatives. There is no magic in them, nor are they likely to improve the efficiency of your car, or driving if you already use an electronic speed controller. Their only positive advantage is that they are smaller than relay controllers, but not that much if a reverse relay is used.

There is no doubt that the current market leaders *Demon* and *Laser* will test MOSFETS and may offer a version of their existing relay based devices to the market. We hope to 'drive' one and bring you a report soon. Between now and then, if you're thinking that you 'must have one to keep up,' forget it. Let the market settle, see what happens and think several times before converting your cash into MOSFETS.

BRCA 1/12th Conference 4.11.84 Park Hotel - Wolverhampton

At the 1/12th Conference, proceedings were started by 1984 Chairman Paul Hatton, giving the Chairman's address. He noted a decline in support

during the middle part of last year, most of which has now returned, the last National Meeting at Runcorn being well attended. Secretary Nick Adams presented his report next in which he described a year of apparent paradoxes.

In each area of our hobby he pointed to statements of decline not being borne out in fact. The National series being a prime example. Much has been said of falling support for these meetings, that beginners and club members do not want to attend (or that they cannot afford two days away from home) and yet over 170 people in each category (modified and Standard) have attended a National event this year.

The re-election of officers marked a milestone in 1/12th Scale racing. Nick Adams has been the Secretary since the section started four years ago and he announced that he did not wish to stand again. No praise is high enough for the work Nick has done in this period. As well as setting the rules he has presided over four European Championships, two World Championships, countless National Meetings and travelled all over Europe as our representative to the European Federation

of Racing Automobiles (EFRA). Everyone who is involved in 1/12th owes a great deal to Nick for his current high standing in the R/C world and will join with me in a big thank you for his work since 1979. The new secretary is Bill Jones, who's highly individual style has made him known to many. We wish Bill every success in his new job which in its first year may include some exciting new prospects for all racers.

Also retiring at this annual conference were Chairman Paul Hatton, Eligibility Officer George Land and Qualifying Officer Phil Tatham. All these people must be thanked warmly for the tasks they have done.

The new Chairman is John Robson, energetic organiser of the GEC Stychfields club. John hosts a National, the end of year Grand Prix and a league series every year and we look forward to some interesting times ahead. Qualifying Officer for 1985 is Steve Haywood whose computer system has provided all the handicaps and results for the National Points table in 1984.

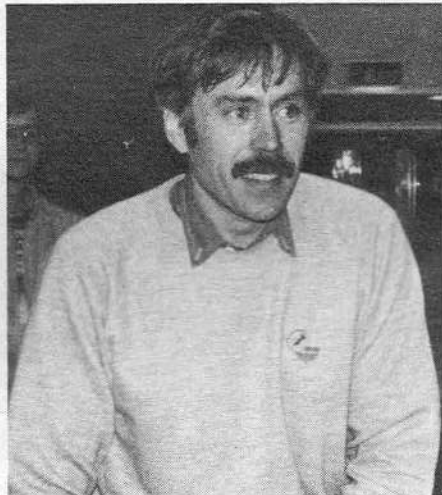
The job of the Eligibility Officer is to approve new equipment for inclusion in the lists of allowable motors, cells and speed controllers, and check that competitors adhere to this at meetings run under the sanction of the BRCA. Pete Jones has been elected to undertake this task in 1985, for which he is well qualified by virtue of his engineering background.

The now customary rule changes were discussed. Several proposals were put forward for consideration, but it really was a farce since only 32 people bothered to turn up and vote. As a result the 200 plus 1/12th members of the BRCA will now have to work to new rules which were voted in by as little as 16 votes in one case. Those that did turn up provided short, reasoned and humorous argument on each of the proposals. The changes are:

- 1 The BRCA Committee has the power to review the price limits during the year. Any change will be notified via the BRCA publication (Circuit Chatter — PW) prior to the changes! The object is to provide continued supply of motors and Ni-Cads if the pound continues to lose foreign exchange value.
- 2 The price of modified motors which must be made available to the model shops for eligibility in BRCA sanctioned events must be 'at a realistic trade mark-up price.'
- 3 A new rule on track layout (surprise surprise!) "The start line must be at the beginning of the longest straight, which must be at least 8ft. wide. The width of the track to be measured between the side tape markings or the side barriers, whichever is the narrower."
- 4 To ease the burden on National meeting organisers, it is now not necessary to lodge your second set

of Ni-Cads with the scrutineer. Both sets used must be correctly marked as current practice.

- 5 The reference to 1.2Ah rating on cells has been deleted. This means that the *Ever Ready* cells marketed by Cecil Schumacher are now BRCA legal.
- 6 The use of 'Toblerone' track markers has been outlawed at BRCA sanctioned events. It was felt that these do more harm than good by launching cars into the air, with unknown landing sites.
- 7 Due to certain members present running scared from reports of £100 plus MOSFET speed controllers, we voted in a rule setting a maximum price limit on speed controllers. For BRCA sanctioned events the speed controller used must cost less than



Departure

Above: Nick Adams who is leaving the job of BRCA 1/12th section secretary after holding the office for four years.

£50. The actual wording will be most interesting when it appears in the BRCA handbook.

There followed a long discussion on the merits of four cell racing and a proposal to consider its inclusion in the rules during 1985 was accepted. The committee will draw up some rules and their contents will be carried in Model Cars as well as Circuit Chatter. The meeting rounded off with consideration of the state of the current standard class. It is quite clear that finding a good standard motor is more expensive than a good modified and some people wanted the inclusion of an 'openable' 35 turn motor so that full motor servicing could be carried out. The meeting did not approve this change, but the need to find a closer form of standard class racing has been notified to the committee and I don't think it will be ignored.

All in all a good morning's work,

1/12th lives and will thrive in '85.

Charge account

Whilst racing at Club Heathrow, Brian Harns asked me when I was going to do a progress report on the Laser Variable Rate Pulse Charger reviewed earlier in the year. Needless to say if the ability to remember things was gold I wouldn't have enough for a new bottle of Tractite, so here it is; better later...

The unit has been used continuously since March and it has not failed in any way. Despite reports from some people that the auto cut-off fails, this has not happened to me. Keeping the unit below "very hot" is a must and I was aware of this before I used it in the summer months. Hot is a relative term in this respect and there is no problem with the unit in the current season. However, on a hot Summer's evening the cut-off can get erratic if a fan or some air movement is not directed at the unit during charging. I found this annoying, and so removed the lid (by undoing the four self-tappers and carefully sliding it off) and drilled ten 1/4 in. holes in the top to let the hot air out. This did the trick, and no more problems were experienced.

Current outputs from 1/2 to 5 1/2 amps plus are available by turning the dial



Arrival

Above: Bill Jones the new Secretary of the BRCA 1/12th section. Bill has been racing nationally and internationally with success for a few years now.

but an ammeter is needed to set current accurately since the numbers on the dial do not relate to actual current output. I don't use one, preferring to rely on time to give an indication of charge rate. On the highest setting (11) a flat set of cells takes nine minutes to charge. At around the middle (6) a full charge will be finished in 15 minutes or so. There are various charge methods, but try these two which work well for both output and duration.

On The Carpet

Set at full charge rate, press start button and wait until the digital volt meter (dvm) reads around 9.75 volts. At this time reduce the charge rate to a level so that dvm displays around 9.45 volts. Allow the charge to continue until the dvm again reads 9.75 volts and then reduce charge rate until the dvm displays 9.45 volts or so. Repeat this process until the charge rate is low enough to prevent the pack voltage exceeding 9.75. Do not allow the pack to get more than slightly warm and switch off when this occurs. Do not use 9.75 volts as a norm for your cells. New cells will read as low as 9.50 volts when the charge rate needs dropping and old cells may go up 9.95 volts or above (hold the button in to achieve this). The idea is to top up the cells at constant voltage rather than current, and prevent them heating up which is so damaging in the charge phase. This is not a method that allows you to leave your pit, monitor the process personally.

The second way to get a full charge is slightly different and can be left to its own devices to a certain extent. Set the charger to a rate between two thirds and full, and let it go full cycle and cut out. Then, during the heat before your own, set the charge rate to 2 or 3 and switch on. The dvm will rise very slowly to between 9.10 and 9.40 (depending on age of cells) and then stop. This takes about six minutes on settings 2 or 2½. Allow the cells to warm slightly and switch off. If you set the charger to 1, the process takes about 10-12 minutes and this is the method I use at Nationals.

Definitely recommended for all types of six-cell charging; this is the best value on the market. Shortly the charger will change its physical appearance as new boxes and knobs are put into production, but the solid state internals remain. Incidentally, these units are specially fitted with diodes which burn out if you inadvertently connect the 12 volt supply or six-cell batteries to your unit the wrong way round. This renders the charger inoperative, but provides *Laser Electronics* with a tell tale clue as to your misdemeanours! So don't send it back and tell them you didn't connect them up wrongly because they will know!

Your £25.00 should go to your local model emporium or Glyn Peglar, 203 New Road, High Wycombe, Bucks. (0494-444238).

EFRA News

On November 19 1984 an EFRA (European Federation of Radio-operated model Automobiles) meeting was held, attended by our EFRA 1/12th Chairman Nick Adams, new BRCA 1/12 Secretary Bill Jones, and six other European voting delegates.

Amongst the items on the agenda was a report on the World Champs in

Denmark. What amused me was that they minuted a recommendation to IFMAR to prevent what they considered to be inexperienced drivers attending. How do you determine experience with no graded licence system?

More importantly, the meeting also changed the rules to allow the use of any cells which conform to the 'sub C' 1.2 volt rules; no longer do they have to be 1.2Ah rated. A proposal to ban four wheel drive cars was defeated.

The format for the European Championships has been changed. Entrants will now be divided into two groups of

in every year so far we will take these and more. The total entry is 112.

The 1986 Euro's will be in Holland which gives more UK people a chance to go and spectate. Denmark has applied for the 1987 Championships. The 1985 European event diary is as follows:

January 12/13 GP Holland.

February 16/17 24 Hour Paris.

March 9/10 GP Denmark.

April 26/27/28 Euro Champs Norway.

May 18/19 GP Austria.

Details on the above from Nick Adams on 01-866-5945.



Above: the Laser trio of chargers with the Variable Rate Pulse charger on the left. These units will change their appearance very soon.

seven heats and run rounds of heats for Group A, then rounds for Group B. This reduces the waiting time between heats, and allows time off when your group is not racing. There will be five heats which can be used to get your best lap score. The UK system of the top eight being the A-Final, next eight B-Final and so on has also been adopted in place of the semi-final system. To prevent the title of European Champion being decided on one eight minute race, the A-Final will be decided on the best of three basis.

The laps/time for a competitor's two best 'A-Finals' will be added together and the A-Finalists with the highest laps in the shortest time will be the winner.

A proposal to limit the number of batteries and motors used by a competitor was defeated. The minutes record that this is because it would achieve "no worthwhile results at this level of competition." You can't argue with that, since fully 70 per cent of drivers in the Euro's are sponsored.

Allocation of places for the Euro's were also agreed and once again the UK is receiving the largest block. Seventeen places (including the current EuroChamp Phil Olson) are available to UK drivers and no doubt as

Euro-Champs - Norway

This event will be held in Fredrikstad Norway on the 26, 27 and 28 of April 1985. The venue will be the ice hockey rink, close to the centre of Fredrikstad which is situated 100Km south of Oslo, 30km from the Swedish border.

For spectator information, you can write to Fredrikstad RC Bilklubb, c/o Anne Karin Kjoniksen, Pettersand 42, 1600 Fredrikstad, Norway. The BRCA committee will sit shortly to select the team to represent the UK.

IFMAR News

The last meeting of IFMAR (International Federation of Model Auto Racing) 1/12th section was held at the World Champs in Denmark on August 17, 1984.

Several proposals were made and a postal vote was carried out, for which the results are published on an area by area basis. Most information concerned the IFMAR World Championship format, but two rules will interest the ordinary UK racer.

Proposal Seven was to remove the 1.2Ah rating on cells at World level. This was defeated by five votes to four. EFRA voted entirely for removal (having just changed their own rules this was obvious), FEMCA (Far East Association, includes Japan) voted one for, two against (each area has three votes) and the Americans (ROAR) voted three against. The power of Sanyo rules perhaps. This leaves IFMAR out of step with EFRA (so what!) but more importantly leaves the world's major supplier (Sanyo) with an uninterrupted run at the market.

Proposal two (carried unanimously) was to delete the standard class from the World Champs. This may mean that standard class disappears altogether as the years go by, since there is no longer any need to have experience of this type of racing for either European or World competition. The rejection of standard motors at world level is also indicative of the problems of finding a close racing formula. Those who attended the World Champs know full well that the position achieved in Standard Class was directly proportional to the quality of the motor issued. Happily IFMAR recognise this problem and only modified motor class is being run at the World Champs in 1986.

Also of interest was the defeat of a proposal to remove all restrictions on the type of motor which can be used in modified form. From our point of view this is good news.

Wee MacGregor back in control?

Many of you will be familiar with the name *MacGregor Industries*, importers of JR radio equipment and makers of their own radio gear in the famous blue alloy cases. They featured a sticker of a cartoon Scotsman, with the legend "Wee MacGregor's in control."

Current information is that Wee Mac may be in control of more 1/12th cars in the future, as *MacGregor* put a toe back into the 1/12 R/C car market. Some very interesting equipment is already around under test and informed sources suggest a 1/12th radio set with one servo for less than £50.

It would be excellent if *Futaba* could be given some hurry up, especially in the area of equipment service. I used to own a two-channel *MacGregor* 'A' series for my boat, and the service was excellent, though not cheap. I look forward to this development and will bring you reports and tests.

Well done!

I cannot leave this month without congratulating Andy Dobson on winning both classes of the National Championship and Jimmy Davis for leading both points tables for almost the whole year. Going into the final round at Runcorn Andy had to win both

days to clinch the titles, and despite the pressure he duly did. The titles are decided by taking the best six scores from the ten rounds and on this basis Andy dropped only two points in modified (five wins and a third) and three points in standard class (three wins and three seconds). This consistency is quite amazing and must make this the most difficult series of races to win in the world.

Praise also to Team *Schumacher* (Andy, Les Pipe, and Phil Davies) who took the team prize for the second time in three years. The battle for the '85 title starts in February on the Isle of Man.

BRCA 1/12th National Championship results

Standard Class

Pos./Name

1. A. P. Dobson
2. J. E. Davis
3. P. P. Davies
4. L. Pipe
5. A. Benson
6. F. Smart
7. M. A. Booth
8. D. Gale
9. T. Wells
10. C. Arnold
11. N. T. Hale
12. P. A. Olson
13. T. J. Dakin
14. P. L. Jones
15. G. Peglar
16. W. F. Jones
17. N. Adams
18. C. Evans
19. T. J. Biggs
20. P. Angus

Modified Class

Pos./Name

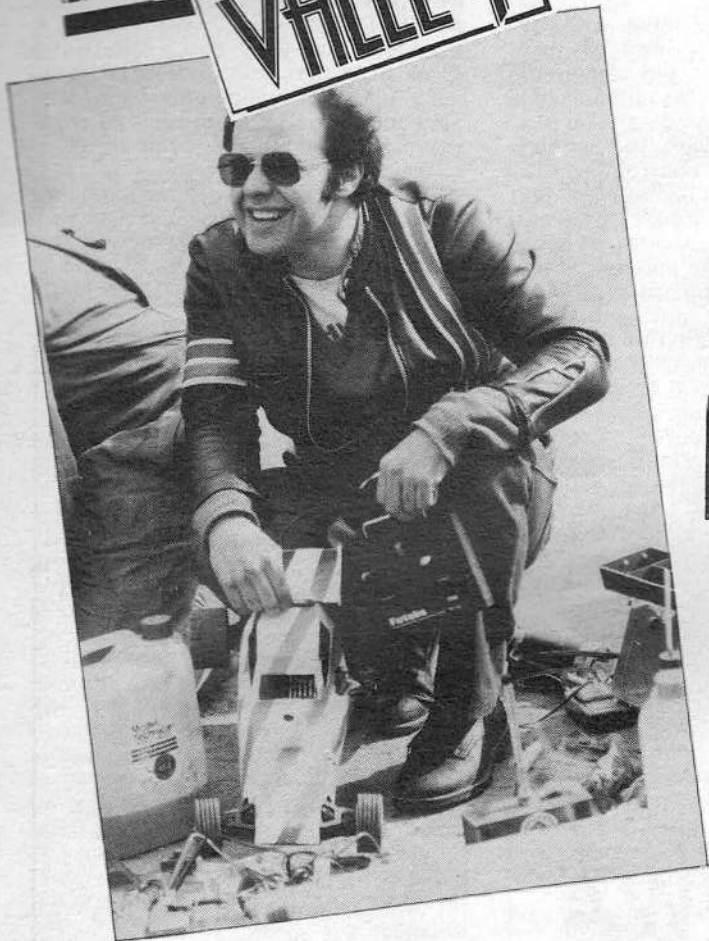
1. A. P. Dobson
2. J. E. Davis
3. L. Pipe
4. N. T. Hale
5. P. P. Davies
6. F. Smart
7. C. Arnold
8. G. Peglar
9. D. Gale
10. A. Benson
11. M. A. Booth
12. P. A. Olson
13. T. Wells
14. T. J. Dakin
15. P. L. Jones
16. G. B. Davies
17. N. Adams
18. W. F. Jones
19. T. J. Biggs
20. P. Angus

NEW FROM SANWA



Left: Japanese R/C equipment manufacturer Sanwa are now offering a budget price AM system for use in R/C cars. The 'Dash R2' System offers servo reversing on both channels plus charging socket for Ni-Cad operation and throttle neutral kick down. The 'Dash R2' System should be generally available soon and will cost approximately £50.00.

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LEISURE CARAVAN PARKS

WOULD YOU LIKE to be competitive in a national championship for under £20? Then read on, follow these three easy steps and discover why the slot-racing world is humming to the sound of '16D'.

Step 1 — Buying and preparing your car

Look through the pages of *Model Cars* to find your nearest stockist of the Parma '412' ready to race 1/32 scale car and MRRC 'Clubman' (5 ohm) hand controller.

The car is sold with a variety of painted bodysells (I recommend the Mazda) and needs only a few 'tweaks' to be a winner. Remove the body by pulling the wire near the back wheels

Then buy, beg, steal or borrow some thin slabs of lead, cut them into 1/2 in. squares which are about 1/8 in. thick and use evo-stik to glue them into position on the chassis as shown in the photo.

The last modification is to the back tyres which are too wide for our twisty English tracks so enlist the help of a friend to rev up the car while you hold the chassis with the back wheels in the air, then with a sharp modelling knife carefully cut into the spinning tyre until you are left with enough sponge to just cover the wheel when viewed from above (see photo). Your car is now ready to race BSCRA sanctioned, '16D' championship standard events. Connect a 2 amp 3 round pin plug to your hand controller in accordance with the box instructions and on to . . .



Above; Potential Championship winners: Two Parma '412' Cars with 'Clubman' hand controller. Below; standard car at left and modified car right showing very few modifications except the addition of lead weights and smaller diameter narrower rear tyres.

16D

or, how to be
National Champion
for under £20.00 by
Pete Crane

outwards then sellotape some black card with an attached driver (from your old Scalextric car perhaps), to the inside of the shell. Then obtain some sharp scissors and cut about 1/16 in. off the bottom of the nylon guide flag.

While you are working with the guide now is a good time to swap the motor wires around as this will make the car move forwards on a BSCRA track, thus avoiding much future embarrassment.

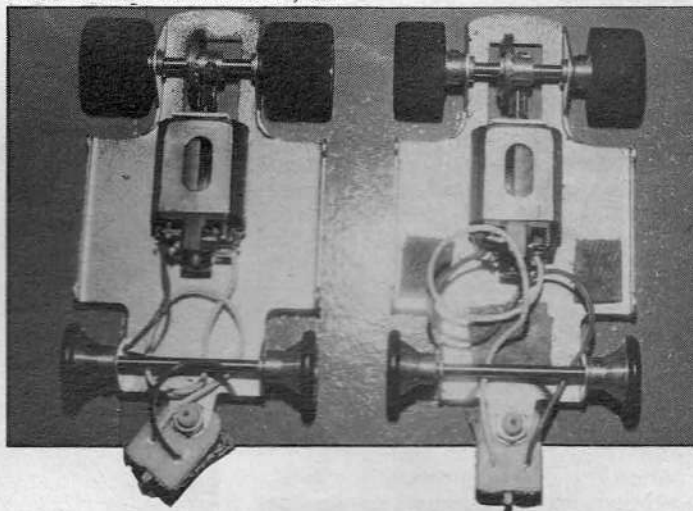
Step 2 — Join your local BSCRA Club

Telephone your '16D' delegate (a list is printed at the end of this article) who will be pleased to direct you to your nearest BSCRA club. Your car and controller will enable you to join in racing straight away and you may be surprised how well you can do with your £10 car once you have learned to

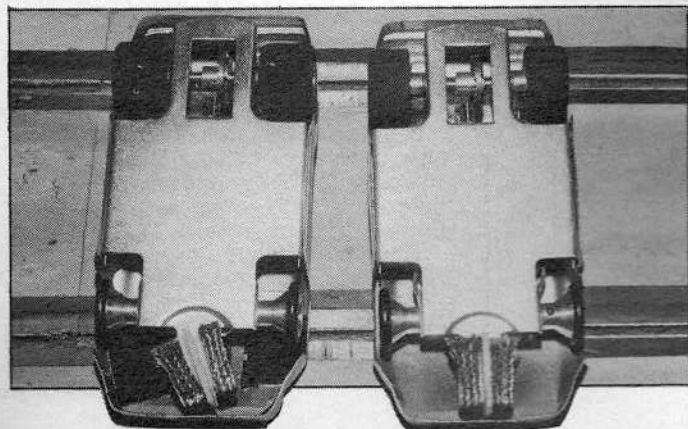
drive without de-slotting. The secret is to establish a rhythm with your controller which will enable you to lap smoothly and consistently. Once you are happy with your driving technique move on to . . .

Step 3 — Enter the '16D'/Parma '412' National Championships

Your BSCRA club secretary will show you how to enrol in the national '16D' competitions, a copy of the regulations was printed in the September issue of *Model Cars* which will also carry regular news of this exciting new form of slot racing for all. □



Left; although the '412' car has a very basic chassis the cars handle surprisingly well with their '16D' motors. The car on the right has had the front nylon guide blade cut-down to prevent it from bottoming out in the slot.



List of 16D contacts

- North West:** Pete Crane
Hesketh Bank 3227
- North East:** Mark Roberts
Stockton 584575
- Midlands:** Keith Packer
Coventry 84982
- London:** Gary Cannel
Watford 42725
- South West:** Nigel Thompson
(0454) 316245
- South East:** Dave Harvey
(0634) 389004

Slot Car Acceleration

THIS MONTH it is a pleasure to be able to describe some really good British equipment. Two manufacturing concerns have been forthcoming with equipment and their products are covered in this review. Other firms have not responded to our request so are not mentioned. As the only nationally available magazine covering Slot racing in the UK it seems strange that some manufacturers should decline our offer, after all if people do not know what is available the potential sales must be limited.

Classic and Betta

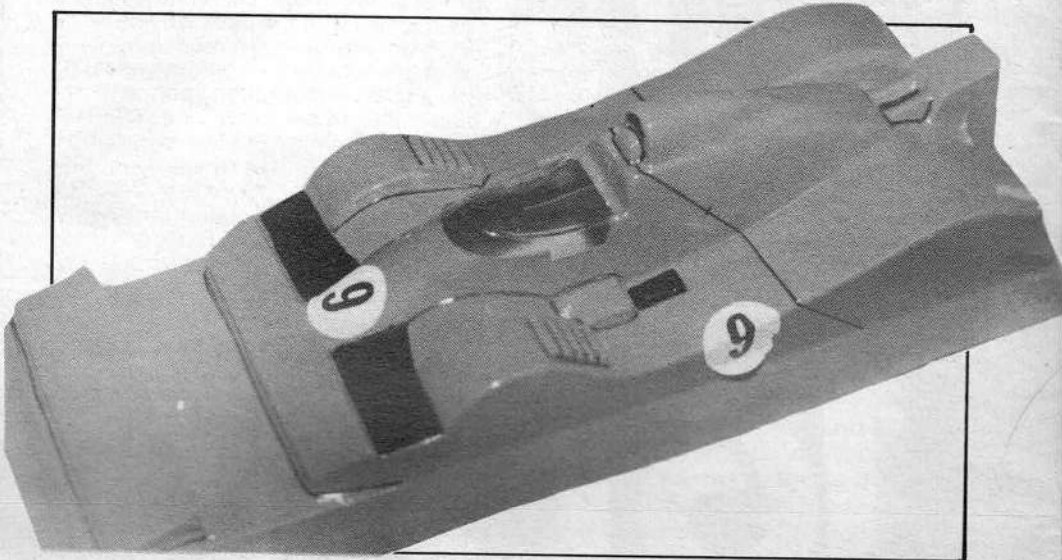
Charlie Fitzpatrick has been interested in model cars since 1956! He was a member of the Worlds first rail racing club S.M.E.C. along with pioneers like the late Walkden Fisher and Colin Sinclair who introduced many to the hobby way back in the early days. At this years Nationals event Charlie had a display of Historic Rail and Slot Cars on the *Betta* stand. The interest generated was considerable.

The first products to be offered were the 'Classic' range of 1/32nd scale fibreglass bodies. In all, 45 types are listed and they include Grand Prix, Indianapolis, Sports Racing, Saloon and some pre-war racing cars. The most impressive are the *Oldsmobile "Tornado"* and the *Willment "Galaxy"* Saloons. The bodies make excellent Static models because the scale fidelity is first class. The whole range of bodies is still obtainable to special order and the list of types is obtainable from *Betta*.

When the clear, lightweight, plastic body became the essential wear for slot racing cars in the mid sixties Charlie joined the trend along with Gordon Tapsell. Some of the G.T. bodies are still on sale but for the last dozen years

or so the main serious body producer has been *Betta* with over 350 types in both 1/32nd and 1/24th available. At first the bodies were vacuum formed from Butyrate sheet but in line with the fashion the shells are now produced from *Lexan* polycarbonate.

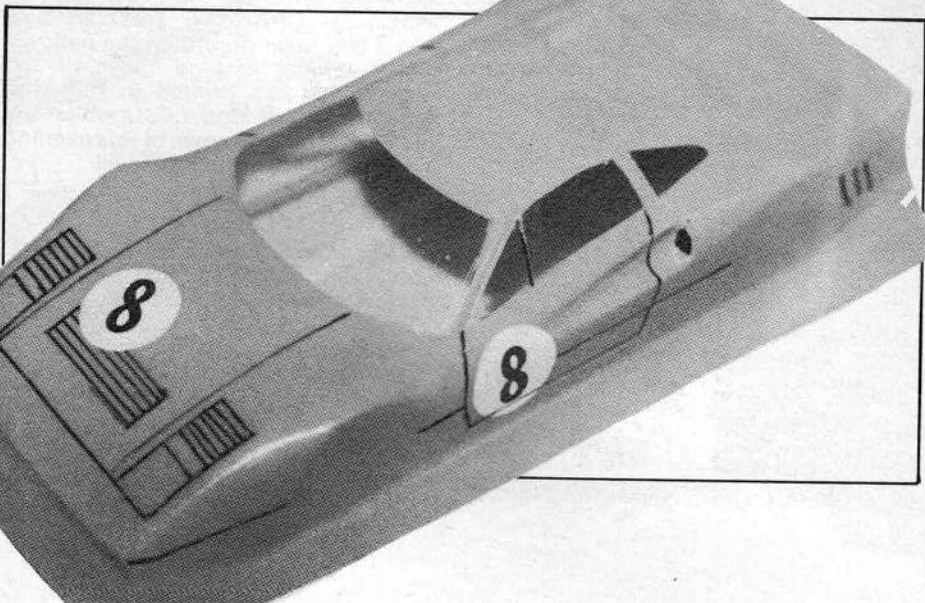
Below: the 1984 Can-Am March RK 847 bodysell in 1/32nd scale by BETTA bodies. A wing is included in the moulding to be cut out and positioned.



Slot Products

Trevor Tennant looks at some of the high quality slot racing equipment available from British manufacturers

Below: the BETTA bodies 1/32nd 1984 Ferrari 308 GTO bodysell which is available in clear or painted versions.



The latest bodies are the 1984 Can-Am March RK 847 and the 1984 Ferrari 308 GTO. As well as Clear bodies, painted bodies can be supplied to order.

Prices are:

Classic fibreglass: 95 pence.

1/32nd Betta Clear bodies: 70 pence.

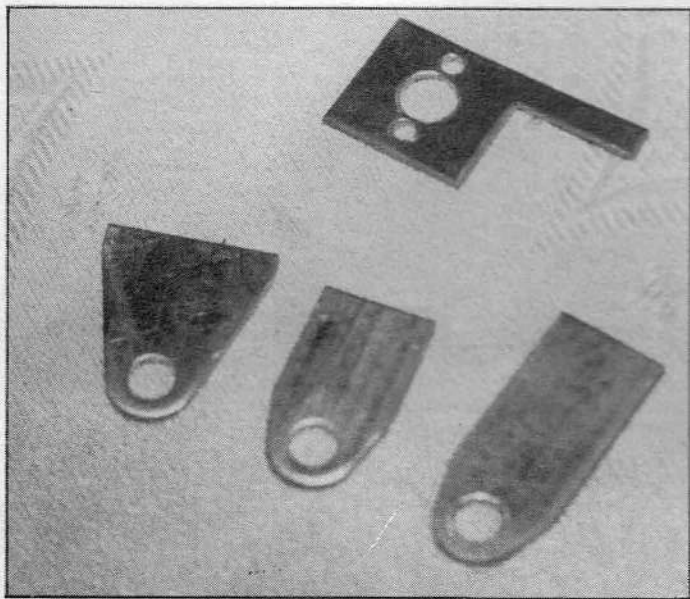
1/32nd Betta Painted: £1.75

1/24th Betta Clear bodies: 95 pence.

Interiors are included with each body but painted interiors are 50 pence extra.

Painting Lexan bodies is an art made easy if the correct paint is used. *Betta* offer a range of suitable paint in several colours at 65 pence a bottle. The correct thinners is 80p or £1.20 a bottle.

Charlie normally releases at least one new body every month. The choice of subject tends to be influenced by its suitability from a slot racing point of view which means that a certain



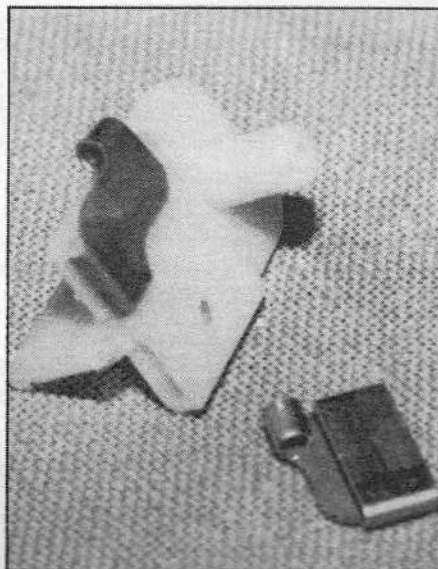
Left: press formed brass slot guide mounts produced in three sizes by SCD Products. Below: 'Superclips' fitted to a slot guide to produce a more dependable pick up system. Bottom: SCD 'Rhythm Stick' hand controller a well manufactured and easy to set up unit.

amount of artistic licence is taken to ensure that the shape will work when fitted to a slot car.

In recent years, since son Ian has been involved in engineering, Charlie has started to produce Slot Car hardware and there are now several interesting items available.

Betta/Mutley spur gears

These gears are made in 33 to 39 tooth sizes. The Fass 38 teeth equivalent is 0.660ins. dia. As such smaller diameter rear tyres can be used to obtain the same gear ratio which is just as well as current trends point to obtain the same gear ratio which is just as well as current trends point to smaller tyres to promote a lower centre of gravity. The tooth form is altered to obtain the varying number of teeth on the same size blank. These gears are made from high quality aluminium bronze and it is recommended that Fass pinions are used for best results.



Betta Aluminium Allen Screw Wrench

An essential tool for any slot racer who uses either 6 B.A. or 5-40 allen screws on his car. I have used the American equivalent for years. Far superior to soft "L" wrenches. Care must be exercised because the drill blank tip will not bend like a soft wrench. Replacement tips are available.

S.C.D. Products

Chas Keeling has been producing value-for-money slot racing equipment for many years now. He started racing in the 1960's with Les Procter and Les Davey and after many racing successes he with Les Procter formed Slot

Car Developments. The first products were 'Chaso' tyres which were a great success. Shortly afterwards the 'Treblick' tyre was introduced and obtained the reputation as the best rubber tyres available at that time. Only the introduction of the Cox sponge tyres made 'Treblicks' obsolete.

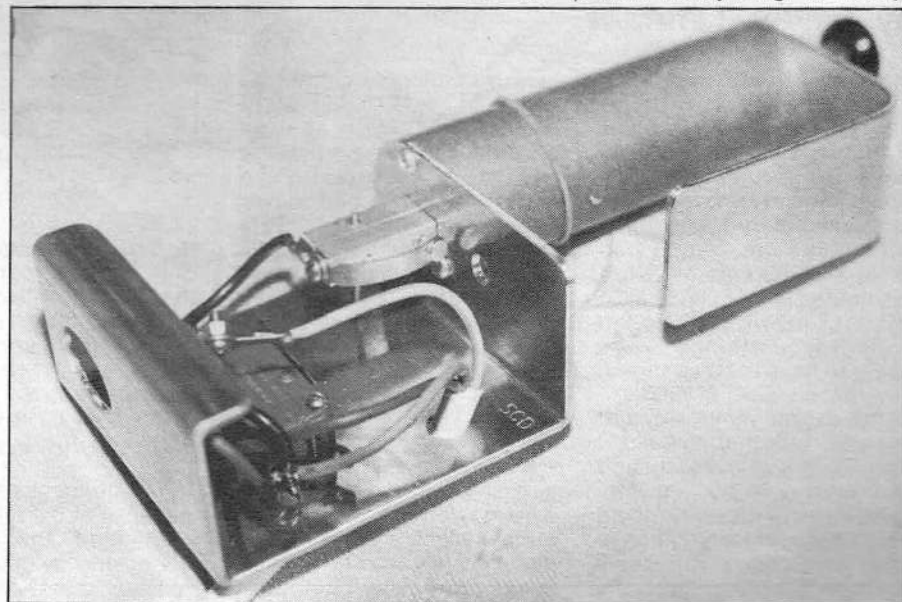
However with the advent of Slotstox racing the 'Treblicks' have had a new lease of life and I gather from Chas. that he intends to mould some more using the original rubber.

Other products are a range of press-formed chassis parts. These are, 3 type of slot guide mounts in hard brass, a '16D'/Mura motor mount for inline or sidewinder use, a Formula 32 chassis which will suit the new '16D' class. Delrin $\frac{5}{16}$ th \times $\frac{3}{16}$ th set screw front wheels are ideal for '16D' cars because they will skid when fixed to the 3/32nd axle as required by the rules.

An alloy handled Allen key wrench to fit 6 B.A. or 5/40 U.N.C. screws is available as well as spare tips. The slot guide 'Superclips' are a useful accessory these allow the lead wire to be clamped and soldered to the slot guide not as cheap as using the wire entry holes but far more dependable.

With the emergence of the 13 UO size motor Chas has produced his version using a pressed-up can. The cobalt magnets can be supplied to fit the various sized armatures now in use and a machined down Mura endbell to fit the can is also on sale. The motor set ups are to special order. Full details of the armature to be used should be specified at the time of order so the best set up can be supplied.

The 'Rhythm Stick' controller is a robust unit which utilises the M.R.R.C. resistor. All you need to operate it is to fix the resistor in place and attach a suitable plug to the lead wire. The construction is an alloy frame, tufnol handle with a good quality microswitch for full power. Everything is neatly



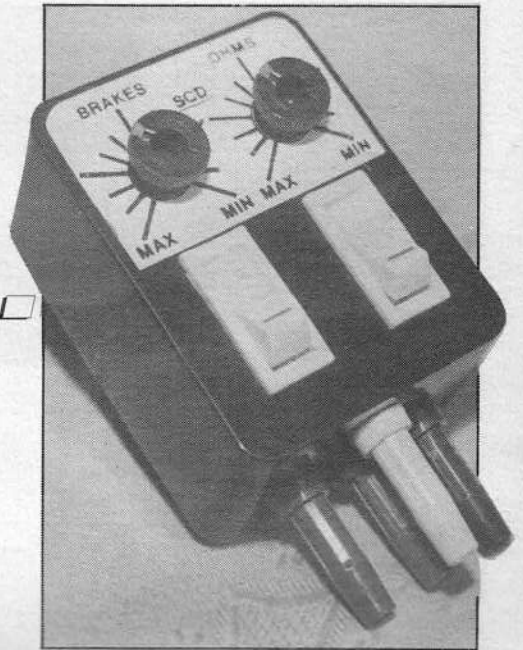
Slot Car Acceleration

enclosed in the design of the controller.

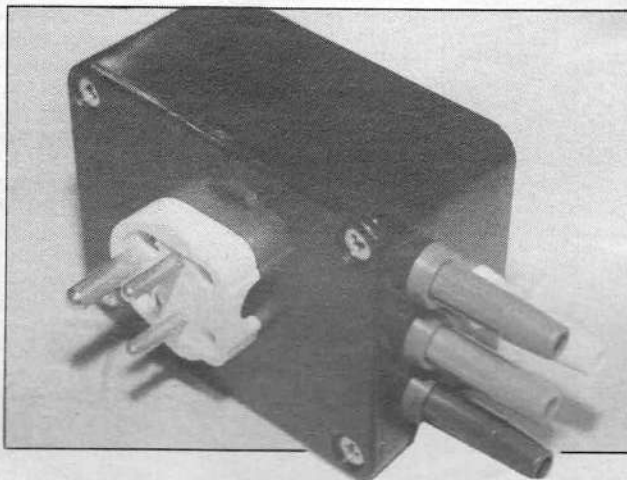
The 'Magic Box' is an interesting development. This consists of variable resistance which is wired in circuit with the main resistor so that the controller's overall resistance can be altered. This feature means that the controller can be tuned to suit each car in your stable. If the main resistor is rated 2.5 ohms then the minimum ohmage will be approx. 0.9 ohms. The box will also allow you to alter the braking perform-

ance of your car. In the case of cobalt motors the braking can be a bit of a handful, but with the variable braking control it can be adjusted to suit the individual driver. A very neat system which can be used on several different controllers if each controller is fitted with the correct colour banana plugs.

As can be seen by the above products there is good British equipment on the market which deserves the support of all Slot racers. The more we buy the better the quality will become.



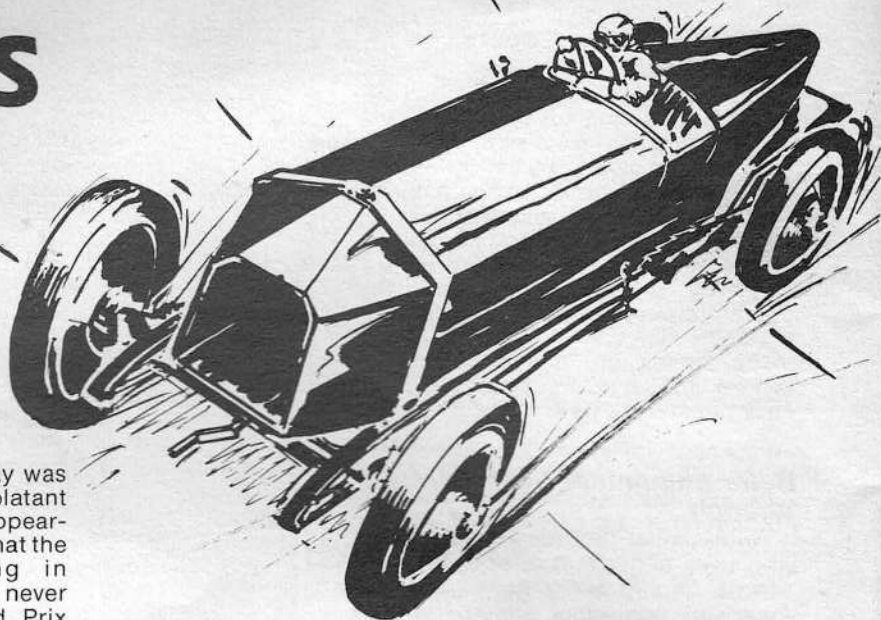
Above: the SCD 'Magic Box' the complete tune-in system for all your cars by varying the overall resistance of the main controller.



Right: the plug in feature of the SCD 'Magic Box' which can be fitted to any controller providing the appropriate modifications have been made.

Slot Classics

1965 Nationals winner
Gordon Tapsell's 1912
Brooklands Rolls Royce
Laurie Hedley's 1963 Ford
Thunderbird two seater
by Trevor Tennant



This was the year when the 'boycos' drove a lorry through the loop holes in the rules. Up until this meeting the rules regarding wheel and tyre diameters were considered adequate, but when John Templeman of the **Beckenham Club** assembled the E. H. Hives 1912 London/Edinburgh *Rolls-Royce* things were going to have to be changed. The reason was not because of the overall dimensions of the car, but that the scale wheel size was over 1in. and very narrow in section. The tyres fitted to the model were only approximately $\frac{3}{4}$ in. dia. and were twice the scale width in section. The scale

racing lobby of the day was incensed by this blatant disregard of scale appearance ethics. The fact that the car was very long in wheelbase and had never been raced in Grand Prix only made matters worse. The result was that very rapidly the rules were tightened up to prevent a re-occurrence of the dastardly deed.

The Prototype was an interesting choice for slot car. It was an old design and looked it. Aerodynamics was very much a black art in 1912. The special body was fitted on a standard London/Edinburgh

Rolls-Royce chassis, the only modification was that the rear axle ratio was raised. In this form the old bus flew round the very bumpy 'Brooklands' racing circuit at an average speed of 101mph. The wheel base was almost 12ft. and the track was 4ft. 8in.

The dimensions were ideal because at the time the rules demanded that the track dimension had to be scale; plus or minus $\frac{1}{16}$ in. In the

early days of slot racing it was the business to run as long a wheel base as possible and they did not come much longer than this machine.

After the first model was built by the Beckenham lads it was apparent that this car was going to be a winning combination. For the ECRA National finals that year the whole Beckenham Team were equipped with the

Rolls-Royces. The Team totally destroyed the **Ashton Club** in spite of the fact that speed wise Ashton was quicker on the straights. Where the event was won was in the corners. The long *Rolls* wheelbase and hard rear tyres would be more tolerant of driving errors than the shorter and softer tyred opposition.

The end result showed on the track surface of the day that once again a better car had won, not better drivers. The fastest car in the event was the example raced by Stan Alton and Gordon Tapsell promptly borrowed it for the Grand Prix the following day. Gordon won the event by less than a lap from John Snewin.

The winning car was a very simple device. Pressed plastic card body, plywood chassis details, *MRRC* 3 pole motor with twin pole pieces, 3:1 ratio brass bevels, *MRRC* steering unit with *VIP* guide, reversed *Super Shells* hubs with *SCD* 'Chaso' tyres. I believe the contemporary reports of the day claiming that *Super Shell* tyres were used was wrong. Apart from the slot guide all the parts are still around to enable one to build a replica. I built a replica using correct diameter wheels and tyres and it was a very fast car

indeed judging by the lap times it could achieve in spite of seeming very slow to drive. My car ran a *Pitman* 196a motor with *Taylor* 10:54 contrate gears.

There was little about Laurie Hedley's car to which the scale faction could object, apart from the fact it had two motors and was four-wheel drive. The car was one of the many to come from the very successful team of John Ramsdale and Laurie Hedley. John made the bodies which were normally hand carved from obechi. This car was the 1963 *Ford* 'Thunderbird' two-seater which has the desired long wheelbase and wide track features so in fashion then. The motors were the interesting feature of the car. They were the West German *Marx-Luder* 'Milliperm', although both motors were rewound by Lawrie to a fairly high performance level. Along with the smaller 'Microperm' motor these motors were very popular with some London Clubs particularly the **Brooklands** and **Thirties** clubs. The person who set the ball rolling with these motors was Andrew Lance who developed the motors in some secrecy. The cam braking system which was

used on all these cars was another Lance invention subsequently marketed by *MRRC*. The cam braking system was an essential extra with these motors because before dynamic braking was universal it was very difficult to stop the cars for the corners. Some cars even had cam brakes front and rear. When dynamics brakes were in use brakes were then used on the front only. Compared with the opposition, Laurie was able to out brake everybody going into the corners and as a result win the race. The braking performance was considerable when the cams were used and certainly would surprise the opposition the first time a car so equipped was raced.

The chassis on the car was very simple being a space frame which consisted of $\frac{1}{16}$ in. brass tubing and oilite axle bearings. The motors were retained with Selotape binding.

The gear ratio was 36 teeth *MRRC* contrate gears front and rear meshing with *VIP* nine-tooth pinions. The wheels were *Super Shells* threaded alloy hubs. The tyres were normally a soft grade rubber on the front hubs and a harder compound on the rear. *MRRC* tyres

were the usual choice. Once again the slot guide was a *VIP* which at this time was the universal choice of the experts.

My own experience with these motors was quite considerable. The club where I started my racing career **Ecurie Spa**, Leamington Spa was a circuit on which four wheel drive was very successful. The first Open meeting I attended there was totally dominated by twin 'Microperm' or twin 'Milliperm' powered cars. Even quite late into the 1960s the track seemed to favour them even when they were outclassed elsewhere. It was only the onset of the sponge rubber tyre and traction additives which finally made four wheel drive obsolete.

Can anyone help me with a small problem? I am short of some of the earlier copies of 'Model Cars' to complete my collection. The missing copies are:

1964 July, September, December.

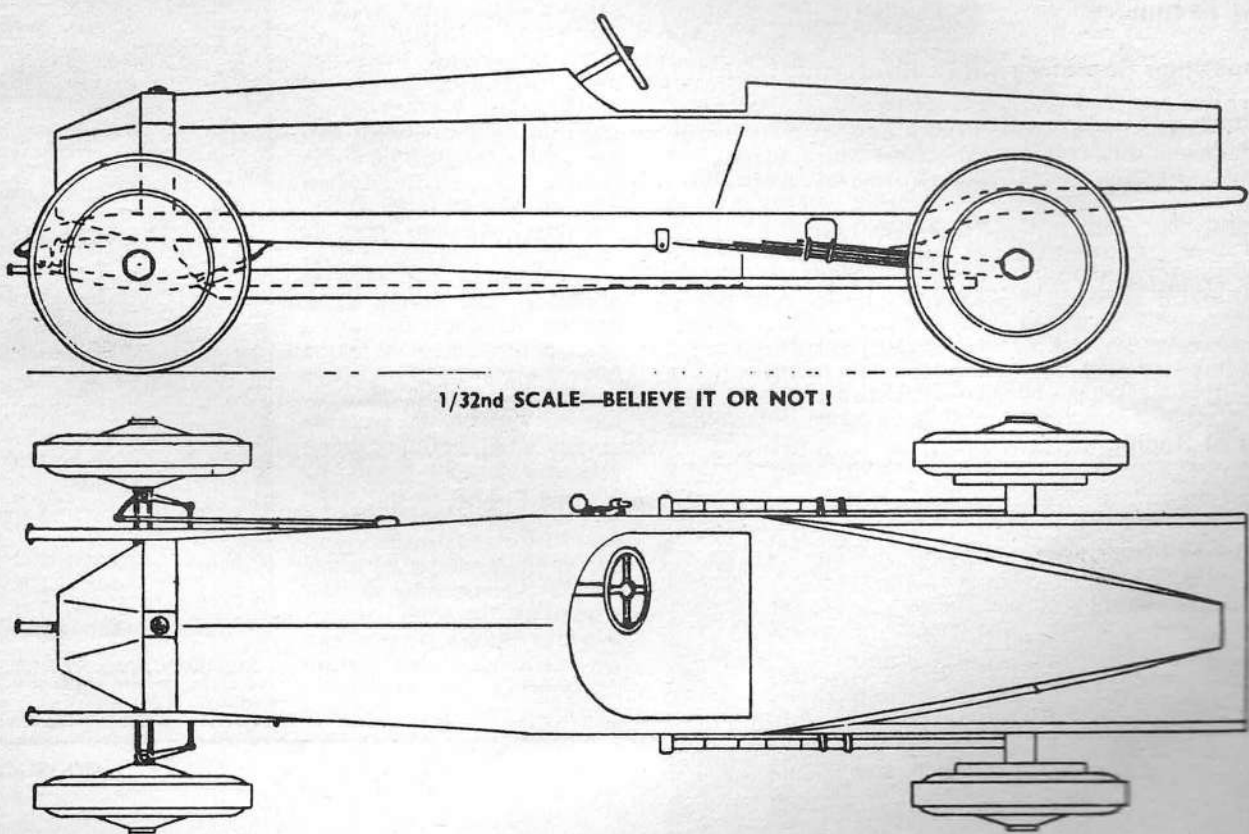
1965 January, May, August, September.

1966 February, March, April, December.

1967 May.

1968 August.

I have many duplicates and am keen to have a complete record. □





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Badger Air-TEX

Ian Peacock looks at a new product for producing one-off club 'Tee'-shirts

IT PROBABLY won't come as any surprise to regular readers, that my interest and enthusiasm for all things to do with spray painting and airbrushing leads me into areas other than modelling!

One such area is an old established art form — that of decorating fabric. However, only recently has my attention been drawn to this aspect of airbrushing as a product new, to me at least, showed signs of being of use to the modeller.

'Air-tex' from *Badger* (distributed by *Morris & Ingram* here in Great Britain) is an airbrushable fabric dye. *Badger* is 21 years old this year and has marked the

anniversary with a new 'anniversary catalogue' containing all the established favourites together with several items that I had not seen (or maybe just not noticed!) before.

Now, the decorated Tee shirt is an accepted form of Pop Art these days with slogans and pictures of every conceivable subject. Indeed clubs and groups have availed themselves of specialist suppliers and had club badges, mottoes, etc. printed to order. However, this business is a quantity affair and the cost of artwork is shared between the 'hundreds off' production cost to keep within reasonable bounds. 'One off' pictures and slogans are, therefore, financially just not viable. With 'Air-tex', however, the subject takes on a slightly different viewpoint. Anyone who can wield an airbrush, even moderately satisfactorily, can produce 'one-off' Tee shirts almost at the drop of a hat!

Individual as well as club slogans can be produced using simple cut paper stencils as outlined many times within the modelling press. In fact all of the spraying techniques discussed over the years are valid — only the material being sprayed and the subject being painted have varied. Of course, those of you who have persevered with the practise lessons will have by now acquired sufficient skills to work freehand, as well as with stencils and, if you can do it with paint on a model — so you can with dye onto a shirt.

'Air-tex' is a peculiar substance, having excellent properties for the job in



Above: the complete 'Air Tex' range of colour dyes and cleaner; colours available are Black, Aqua, Brown, Crimson, White, Blue, Yellow, Flesh and Violet.

hand. It comes in a good range of colours and is packed in a flip-top spouted polythene bottle. Its consistency is right for airbrushing 'straight from the bottle' without need for thinning although I found that using the very finest airbrushes, for extra fine detailing, produced a tendency for the nozzle to block after a short use, necessitating regular cleaning. However this is only a minor irritation and is of no real consequence. There is a bottle of 'Air-tex' cleaner available as well and this, in use, is perfectly adequate, removing all traces of dye — both liquid and the dried on residue round the rim of the fluid cup.

'Air-tex' is simplicity in itself to use, drying quickly enough to avoid smudging when using the next stencil or next colour. Surprisingly 'Air-tex' doesn't 'bleed'. I half expected dye this runny to travel along the woven fibres by capillary action causing a spread of colour and restricting the use to bold patches of colour. This, in fact, does not happen and fine lines can be achieved — certainly as fine

as the capability of one's airbrush!! As supplied, 'Air-tex' is *not* colour fast, in fact it may be possible to wash it out altogether, either using the cleaner supplied or with hot soapy water, although, at the time of writing, I have not tried this. However, when satisfied with one's handiwork, 'Air-tex' is made colour fast by the simple expedient of placing the garment on an ironing board, covering it with a sheet of clean brown paper and ironing with a domestic iron (temperature should be that commensurate with the fabric of the garment).

This technique works — I've tried it myself and the colours do not run when washed.

So with 'Air-tex' a whole new vista is opened up to the modeller. Individual decoration, club and team shirts, team overalls, matching family outfits and many more besides. Who knows, perhaps a 'new look' in modellers' flying apparel may arise from the availability of 'Air-tex'.

'Air-Tex' is available from artist suppliers and stockists of *Morris and Ingram* products. □



Above: Ian's inimicable artistic style is coupled with a morbid sense of humour... we think! Right: another creation from the airbrush of Ian Peacock; this 'Wild Willy' Tee-Shirt.



THIS ARTICLE is designed to follow on from my earlier piece in which I discussed the types of materials which are available for building a chassis. (Model Cars, September '84). You will have noticed, I'm sure, that the current trend in 1/12th stockcar racing is to either 'modify' or 'scratch-build' a car, based upon a *Mardave* or *Lectricar* chassis. A quick look down the tech. charts for the National meetings this year will show that 'standard' cars are the exception than the rule nowadays.

This article will try and show you how to design your own chassis by point out the problems you may encounter when starting from scratch.

You will notice that there is no specific design included

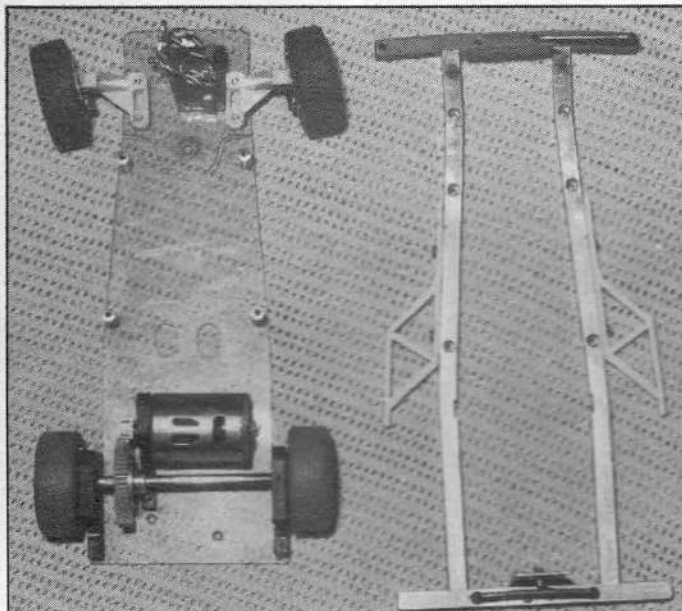
Below: a completed 1/12th scale electric stockcar built to competition specifications. Note the component layout which can be altered to suit individual preference.



Electric Stockcar Chassis Construction

Chris Loughran details some simple changes to improve competition stockcar performance

Below: the top chassis and Lexan undertray fitted with front and rear axles, plus motor.



in this article, as availability of parts, together with driver preferences make this rather impractical.

The design

What's the first step? Well, first, you have to design a car that is legal, to R.S.C.A. rules. Secondly, it must be an improvement in some way over your old car, or there's not much point in building it. Finally, it must be reliable, or no matter how fast it is, you won't win many races if it keeps falling apart.

The main aim with all the 'modified' cars at the moment is to lower the centre of gravity, to improve the car's handling, plus introduce some degree of flexibility into the chassis to increase cornering speeds. A secondary factor is to reduce the overall weight of the car, which will increase the top speed. So now we have our 'specification' for the new car.

Improving the handling is achieved by fitting all the running gear, i.e. front and rear axles and motor, to a flexible 'undertray', as opposed to bolting everything solidly to the main chassis. This also lowers the CG in the process.

The construction

O.K. so you've got your piece of Lexan, or whatever, and your *Mardave* or *Lectricar* chassis, depending on which you already have/prefer. The first thing is to cut out the shape of the chassis you will be using.

The easiest way to do this is to take your top chassis, lay in on the Lexan, and draw round the outside of it, then cut it out following the lines. This gives you the maximum size of undertray that you can use, and everything should fit within that outline, as it did on the original car. (If you're using a *Lectricar* top chassis, it's a good idea to leave the Lexan about 1 inch wider at the rear of the

car, to allow for the axle blocks, as the *Lectricar* is narrower than the *Mardave*).

Align

When you've cut out the undertray, put the two chassis' back to back, and mark the centre-line of the back axle. This gives you the starting point from which you can work out the position of the front wheels.

Now measure and mark a centre-line down the length

will not be 8 inches. Now carefully mark and drill the holes to take the front axle beam, ensuring that it is at right-angles to the rear axle centre-line. If you are using the *Associated* blocks, before you drill the holes, check that the wheels are not more than 6 inches wide, or the car will not fit in the scrutineering box.

For the rear axle blocks, I've found that *Mardave* 1/12th racing car blocks are the most suitable, as they are

the motor mount and motor. (You will have to slot the undertray to clear the spur gear.) You've now got a rolling chassis.

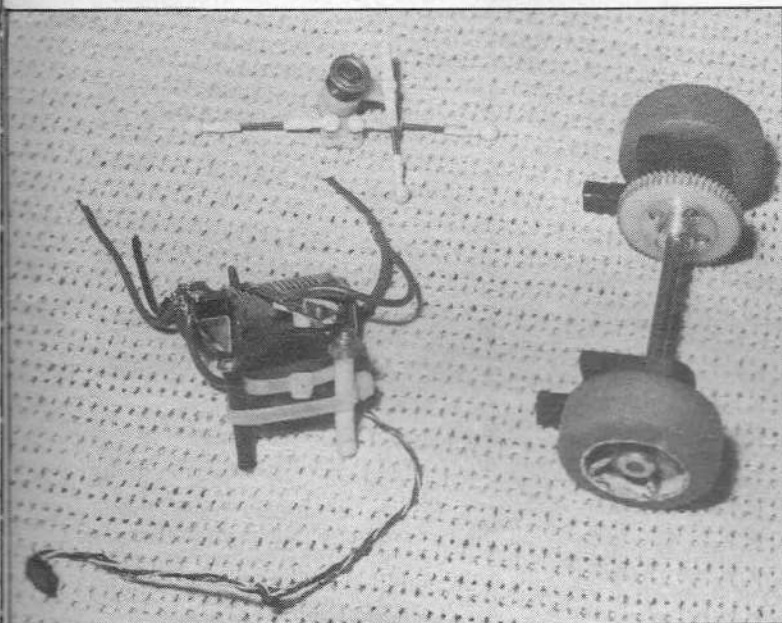
The next step is to mark and drill the holes to take the top chassis. On the *Mardave*, drill holes to suit the moulded pillars. On the *Lectricar*, drill through the existing holes which normally take the screw inserts. With the *Mardave* chassis, use self-tapping screws into the pillars, packing out with washers if needed to get the correct bumper height.

Lectricar nylon mounting pillars can be cut to the desired length, and mounted with self-tapping screws through the insert holes to attach the top chassis to the undertray. You now have the basic scratch-built stockcar chassis, and the rest of the parts i.e. radio gear, Ni-Cads, etc. can be positioned, before the holes are finally drilled.

corner capability. An ideal method is to use the *Lectricar* bottom radio crate, cut down to take your batteries. The radio crate is then screwed onto the bottom of the top chassis with self-tapping screws.

The speed controller usually takes up most of the remaining space, so if you are a little short on clearance you can raise the speed controller up on those nylon pillars, and then mount your servo onto them with the servo mounting lugs. This will give you space underneath to clear the motor, or to mount the receiver. Alternatively, a small plate can be mounted onto the bottom of the top chassis rails to provide receiver and switch mounting, as well as to enable you to fit a body-mounting post in a suitable position.

To save weight, and to increase flexibility, areas of the undertray can now be cut away. A square cut-out



Above: the rear axle, servo saver and speed controller modules ready for installation in the stockcar. Note nylon pillars fitted to the speed controller to give clearance over motor.

of the undertray. Again, this gives you a reference for working out the position of the front axle blocks. The wheelbase of the car (i.e. distance between front and rear wheel centres) should be 8 inches, so measure and mark this distance on the centre-line of the undertray.

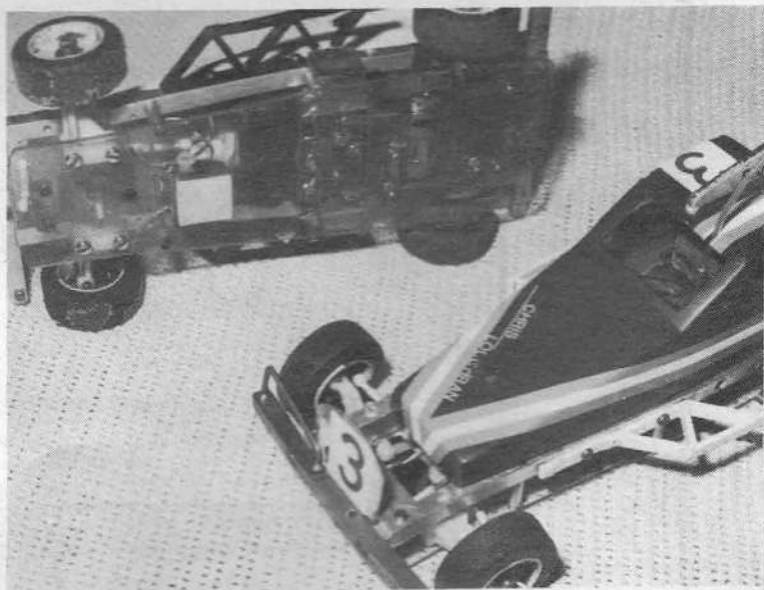
The front wheels can be mounted on a *Mardave* or *Lectricar* front beam, or you can use *Associated* 1/12th racing car blocks, which can be obtained with different amounts of castor angle which will increase the car's ability to turn into the corners. However, whichever front axle arrangement you see, check to see if there is any offset between the stub axle centres and the centre of the front block, as you will have to allow for this offset when positioning your front axle, or the wheelbase

both cheap, and readily available. Also, a lot of the plastic can be cut away if you wish, to save weight. I also use one of these blocks as the motor mount, as it comes ready cut to take a 540 motor.

Drill

Now lay the top chassis onto the undertray, and mark and drill the holes for the rear axle blocks, ensuring that they do not foul the top chassis. (On the *Lectricar*, you may have to fit the blocks outside the main top chassis rails so as to leave enough room for the motor — this is where the extra width of Lexan at the rear comes in handy.)

With the front and rear axles mounted on the undertray. You can work out the position of the gears, and

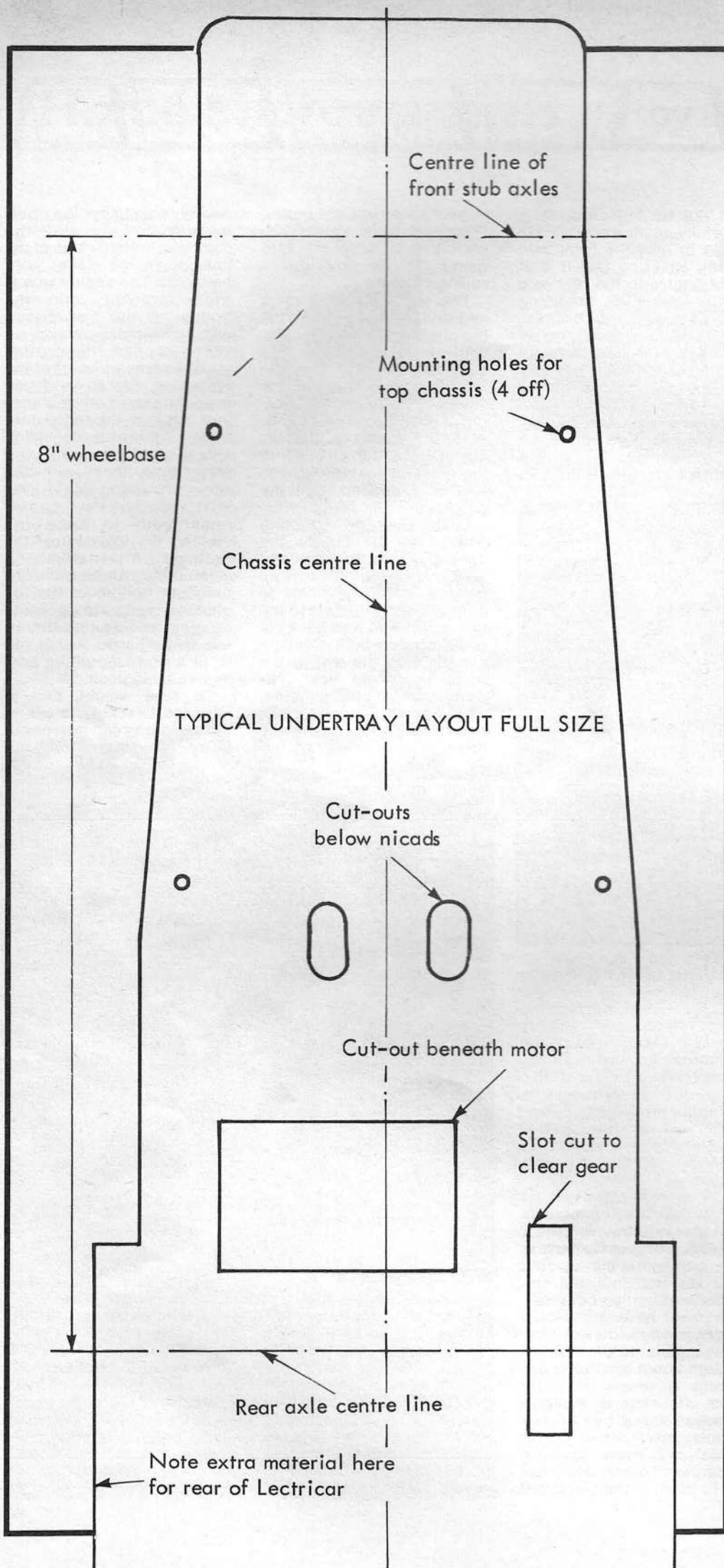


The finished scratchbuilt car showing top and bottom view. Chris Loughran can be contacted at 36 Glenhills Boulevard, Eyres Monsell, Leicester LE28UA.

R/C installation

I would suggest that you mount the nicads as far back as possible, so as to give a 60/40 weight ratio (rear to front), otherwise the choice of front tyres becomes rather critical. Also, if you can mount the Ni-Cad pack onto the top chassis, this helps to stop the bottom undertray from 'sagging' in the centre, which affects the car's

beneath the motor will improve cooling, as will several holes beneath the Ni-Cad pack. Also, the centre section of the under-tray can be reduced in width, which allows the front and rear axles to act, to a certain extent, independently of each other. However, be careful not to remove too much from the undertray, or you'll find yourself with two



halves of a chassis if you hit the fence too hard!

Modulation

Another good idea is to have the car built up from separate 'modules', so as to make repairing and maintaining the car that much easier. For instance, if you have used the *Mardave* racing car rear axle blocks, by undoing 4 screws, the whole back axle and gear set-up can be removed. Similarly, the speed control unit could be made to come out as one piece by unscrewing a couple of screws, and if you have a spare unit ready made, replacing it between heats becomes a simple matter.

Setting up

Finally, setting up the car. This can only be done by trial and error, until you get the car to suit your particular driving style. However, a good point to start at is to fit hard tyres on the front, and either 'Prowler 003's' on the back, or medium-soft 'b's. This should give you a fairly good 'feel' with the car, and then the final adjustments can be made.

By the way, if you happen to break your chassis, don't throw the old one away — you can use it as a template for marking out the holes in the new one. If nothing else, it saves you having to read all this again.

I hope that you have a go at building yourself a scratch-built car, and that you have some good results with it. Some of the more awkward points are shown in the photos and diagram, but if you want any further information, just drop me a line, or give me a ring, and I'll be glad to help if I can.

So until next time, enjoy your racing, and good luck.

Left: typical shape of chassis undertray. This can be made from 3mm polycarbonate (Lexan) or G.R.P. sheet. Both materials are usually available from specialist model shops.

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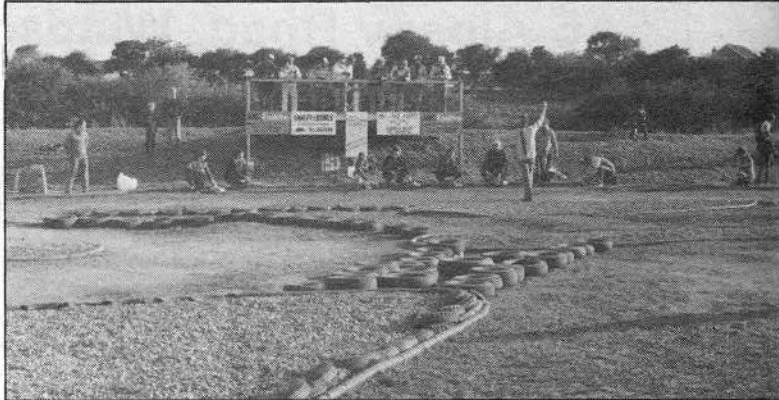
Racing Round-up

East Coast 1/8th Off-Road Meeting October 7, 1984 Report: Jim Richards

THE FIRST of a major new annual Championship for the Off Road fraternity, organised by the Scarborough Radio Control Model Club took place on Sunday October 7. The event was held at the club's purpose built tract at McCains Sport site at Cayton, Scarborough and sponsored by Yorkshire Carpets of Scarborough. The date was only decided upon six weeks previous when the Managing Director of Yorkshire Carpets asked the club's Chairman if it would be possible for his firm to sponsor an event. The outcome was an annual event to be held for the 'Yorkshire Carpets Shield.' Obviously advertising for this year's championship was late starting and had to consist of letters or phone calls to clubs etc. Even so 30 entrants were attracted from as far away as Reading, Wakefield and Stockton on Tees. Next year, on the success of 1984 championship, it is hoped many more will enter. Yorkshire TV were attracted and have promised to give more coverage next year.

It was with trepidation, after a week of terrible weather forecasts, that Sunday morning October 7 dawned and was found to be bright and dry even if a little cool. The caravan was

Right: the start of the main 4-WD final with a view of the excellent drivers' rostrum.



from many of the top drivers in the country, we wondered quite what the reaction was going to be. The Scarborough track uses plastic flexible drainage pipe, half buried, as can be seen in the photo, to form the inner and outer extremities, forestalling wide excursions into the undergrowth, unlike many of the other tracks.

The first round of heats went quite peacefully, as everyone got used to the track conditions. However after alterations to suspension settings, tyres and gear ratios the second and third rounds saw much more aggression. Walt Bailey driving a 'box' standard *Serpent* 'Cobra' appeared to be on rails, very smooth and fast with Gary Marsden throwing the 'Gepard' around at all angles trying desperately to catch him. All competitors had to make 24-27 laps to gain access to the 'Champion of Champions' Final.

saw 'Nevada Cross' — 'Devil' — 'SG' — and 'Alpha' start off, led from the line by Jim Richards until a fracas on the first lap saw him finish up way down the field, two laps behind the leader Stephen Minto. At the eight minute stage pit crews were working overtime refuelling and by the 18th minute Jim and Stephen were on the same lap, Jim just taking an extra lap by the finish with 47.

The open 'B' final followed, made up entirely of SG 'Leopards,' which apart from the two of Trevor Kersey and Paul Lamming had a few problems. Trevor finally taking the flag with 51 laps to Paul's 49.

The 'Champion of Champions' final was to be a battle between Walt Bailey's 'Cobra' team and the 'Gepard' and with the expected fight extra marshalls were drafted in at strategic positions. Walt Bailey and Gary Marsden had a glorious battle, the lead changing repeatedly until the 36th lap saw Walt unhappily retire with a broken steering servo. Gary then decided on some excursions which saw him pitted for some considerable time. In the meantime Mick Harney and Derek Brader were smoothly pulling out a considerable lead. Gary appeared back on the track until an unfortunate bump put his steering at a very strange angle, he carried out through to the finish in this condition. Derek by the finish had amassed a colossal 63 laps which put him well clear as winner.

The presentations followed and were made by Peter Gardner the Managing Director of Yorkshire Carpets who said how pleased he was with the event and looked forward to attracting more entrants next year and becoming a major National event. Derek Brader receiving the beautiful 'Yorkshire Carpets' Champion of Champions shield looked well pleased. This trophy he keeps until next year. He also took a replica to keep.

Overall a very satisfactory event for the Scarborough Club. The impression of the circuit was from good to excellent and well worth the journey. Facilities were also on a par with hot snacks available and the use of the McCain Sports Club 'club house' with even a bar available at lunch time. No



Above: general view of the Scarborough Off Road club track showing the excellent track markings and potential for alternative track layouts.

duly set up at the start and finish line and the computer programmed for lap timing. By 9.30 most competitors had arrived and after a short practice session, the Race Director issued the championship rules and the first of the three rounds of five heats got underway at 10.30.

With this being the first time the club's track had been open to scrutiny

By 3pm a large crowd of spectators had gathered, and with the places for the three, 20 minute, finals sorted out, the finale to a good day's entertainment commenced with the restricted class final.

The track conditions had by this time altered with the drying wind, initial surface dampness giving way now to dust. A mixed field of two wheel drives

breathalysers were needed during the afternoon session though! The date for next year's Championship will be announced as soon as possible but will probably be at a similar time of year.

Results

Unrestricted Open A-final (Champion of Champions)

1. D. Brader	63 laps
2. M. Harney	51 laps
3. G. Marsden	49 laps
4. W. Bailey	36 laps
5. T. Long	36 laps
6. J. Glazbrook	31 laps
7. S. Marr	14 laps
8. J. Skidmore	1 lap

Cobra	Lincoln
Cobra	Ripon
Gepard	Wakefield
Cobra	Mansfield
Cobra	
Gepard	Reading
Cobra	Wakefield
Gepard	Morley

Below: Derek Bader receives his 'Yorkshire Carpets' Shield from Peter Gardner for finishing first in the unrestricted class A-Final.



Restricted A-final (Two wheel drive Champions)

1. J. Richards	47 laps
2. S. Minto	46 laps
3. J. Edmond	43 laps
4. I. Johnston	43 laps
5. D. Kennedy	33 laps
6. S. Nicholson	32 laps
7. G. Murray	14 laps
8. T. Richards	2 laps

Nevada	Snainton
Devil	Middlesbrough
SG	Scarborough
Alpha	Middlesbrough
?	Leeds
Manta	Middlesbrough
Nevada	Stockton-on-Tees
SG	Snainton

Unrestricted Open B-final

1. T. Kersey	51 laps
2. P. Lamming	49 laps
3. A. Goddard	21 laps
4. D. Allison	15 laps
5. C. Shelton	5 laps

All three finals 20 minute.

Leopard	Rotherham
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FTD
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Serpent Cobra

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AS MENTIONED last month *Serpent* have also entered into four-wheel drive kit production with their 'Quattro 4' circuit racer. In contrast to the SG 'Columbia MkIV,' *Serpent* are producing conversion kits for owners of two wheel drive 'Quattro's' to uprate their cars to the new specification. The transmission system uses toothed belts to carry drive to all four wheels. As can be seen from the photographs the basic configuration of the 'Quattro' is unchanged and the necessary modifications incorporated easily.

Pieter Bervoets of *Serpent* stresses that the 'Quattro 4' has no great advantage over their existing car in the dry but is far superior in wet and even damp conditions. The approximate prices for the new car are £199.95 whilst the conversion kit will be £54.95. Contact *Elite Models*, 145 Newgate Lane, Mansfield, Notts. NG18 2QD for further details.

Serpent Quattro 4



The *Serpent* design team headed by Pieter Bervoets have produced the 'Quattro 4' with all racers in mind. A *Serpent* four-wheel drive car can be brought as a complete kit or conversion kit if you already own a 1984 'Quattro.'

More 4WD

The four-wheel drive technology war really hots up with the announcement of two new cars

PB 'Nova X14'

Yes, it's true! *PB Racing Products* are toolled up and ready to enter the 4WD fray with their own car designated the 'Nova X14'! This new machine is also available as a conversion kit ('X14C/C') so those racers with 'Novas' already can update their car. No pictures are available so I cannot tell you exactly which form the new car will take. However, the 'Nova' does look pretty easy to convert to 4WD. Also bear in mind that the *PB* 1/8th Off-Road car is almost bound to feature four-wheel steering!

The new 'Nova' will be unveiled at the Nuremberg Toy Fair at the beginning of February, so we will have to wait until then.

New Finals Format

At the recent BRCA 1/8th section conference a new procedure for finals in National Open meetings was proposed out.

The Open Final remains the same but five more finals were introduced, A, B, C, D and E.

The handicapping system is now worked out in one per cent increments instead of the five used previously. The system works by taking away eight from the total driver entry (to go into the Open final) and then dividing the remaining number by five. This gives an equal block of drivers for each of the A, B, C, D and E finals.

The way in which drivers are sorted

into the correct block for qualification to the appropriate final is by their handicaps.

Entry total: 88 drivers

Open final: 8 drivers

Remaining 80 drivers divided by five

A — Final = top 20 handicap drivers

B — Final = next 20

C — Final = next 20

D — Final = next 20

E — Final = lowest 20 handicap

drivers.

The general feeling was that this is a much fairer system for all drivers although the fine details have as yet to be sorted out.

To go with this new system a revised awards procedure was sorted out to reduce the costs to organisers of

MODEL CARS

trophies. Basically the first three drivers in each final have trophies but the remaining finalists only have to receive an award. What form the award takes is up to the organisers but certificates, and medals were discussed as alternatives.

Whilst on the subject of decisions taken at the 1984 conference the

Nationals were awarded to Tibshelf in the absence of any competition from other clubs.

Finally, the question of 4WD which received heated discussion. However, ultimate decision was left up to those members present who voted wholeheartedly against the ban or separate class in 1985 for 4WD. Apart from a few

for EFRA races was also raised at the 1/8th scale meeting of the European Federation of Radio Operated Model Automobiles Conference. Also expected was the division of thought on what was to be done about this latest innovation. The proposals included a total ban of 4WD, a separate class for the racing of such cars and a 'suck it and see' proposal to last one year. The latter met with majority approval and so 2WD and 4WD cars will race against each other in the 1985 EFRA race series with a review of the situation for 1986. Incidentally, the Italian delegate stated quite rightly, that 4WD cars have been available for almost four years and so why was there all this fuss now?

The Italian representative also presented a proposal for a Flat Chassis European Championship meeting to be held in Italy. Apparently this class of racing is still very popular in both Italy and France and a few other countries. The idea is to hold the event for non-EFRA driving licence holders to attract lesser experienced and younger drivers. The proposal was passed, so if you are still racing your 'flattie' then watch this space for more details.

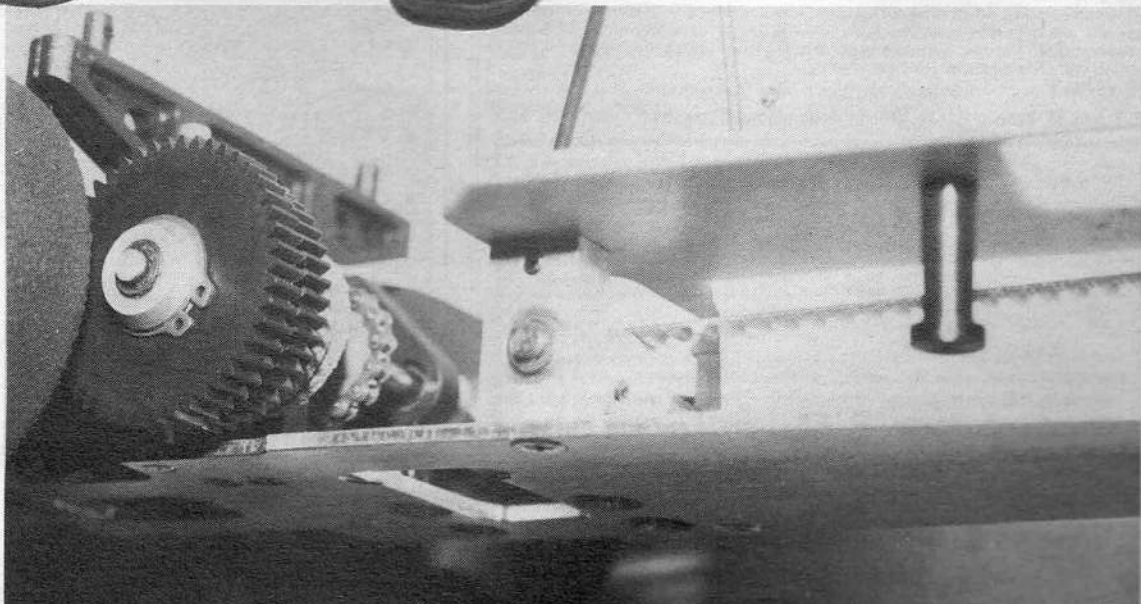
Of the other decisions made the following are the most noteworthy:

- The exhaust pipe outlets will now have to face downwards for all EFRA races.
- A stricter control will be made on noise levels with an ultimate reduction to 70dB in the maximum noise level fixed in 1986.
- Monaco proposed a new race start procedure which entails a grid like start as in full-size Formula 1. Organisers of EFRA races now have a choice between this system and the 'Le-Mans' style start.
- Finally, the new Chairman of the 1/8th section is Mr. Van der Linden.

EFRA '84

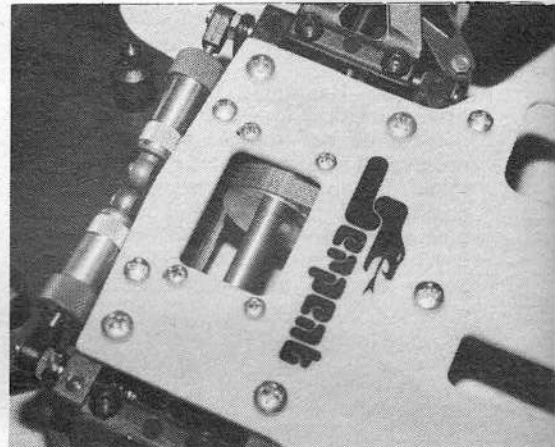
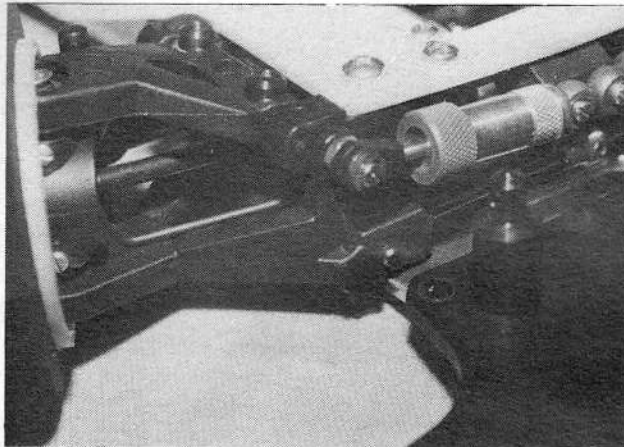
As expected the issue of whether four-wheel drive cars should be legal

Right: a view under the shaker plate revealing the forward layshaft and full length driver belt extending towards the front end. The shaker plate support posts now double as layshaft axle blocks.



Chequered Flag

Far right: no differential is fitted at the front end but one way roller clutches are installed in the front wheels. Right: drive to the front wheels is via hexagon headed drive shafts. The steering, stub axle blocks are fitted on knuckle joints between the upper and lower wishbones. Below right: detail of the rear end showing the transmission system to take drive from the rear axle to the front end via toothed belts.



abstentions (which were noted) the members felt that the new finals systems would negate differences between the two types of car. The situation will be reviewed at the 1985 conference.

1985 EFRA Racing Calendar

April 27/28 European Saloon Championships — France
May 25/26 Grand Prix — Denmark
June 15/16 European Sports/GT Championships — Holland
July 6/7 Grand Prix — Switzerland
July 13/14 European Flat Chassis Championships — Italy

August 10/11 World Championships — Japan
August 17/18 European Junior Championships — Germany
August 24/25 — Grand Prix — Germany
September 7/8 Grand Prix — Austria
September 28/29 — Three-hour team race — Heemstede, Holland
October 5/6 Grand Prix — Monaco

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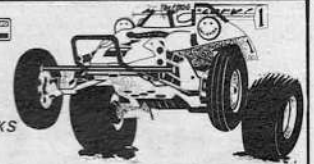


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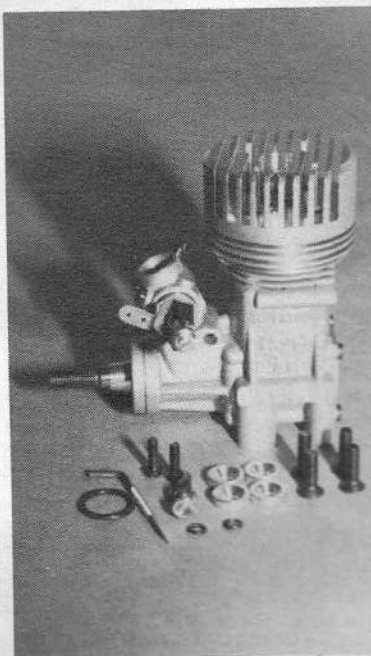


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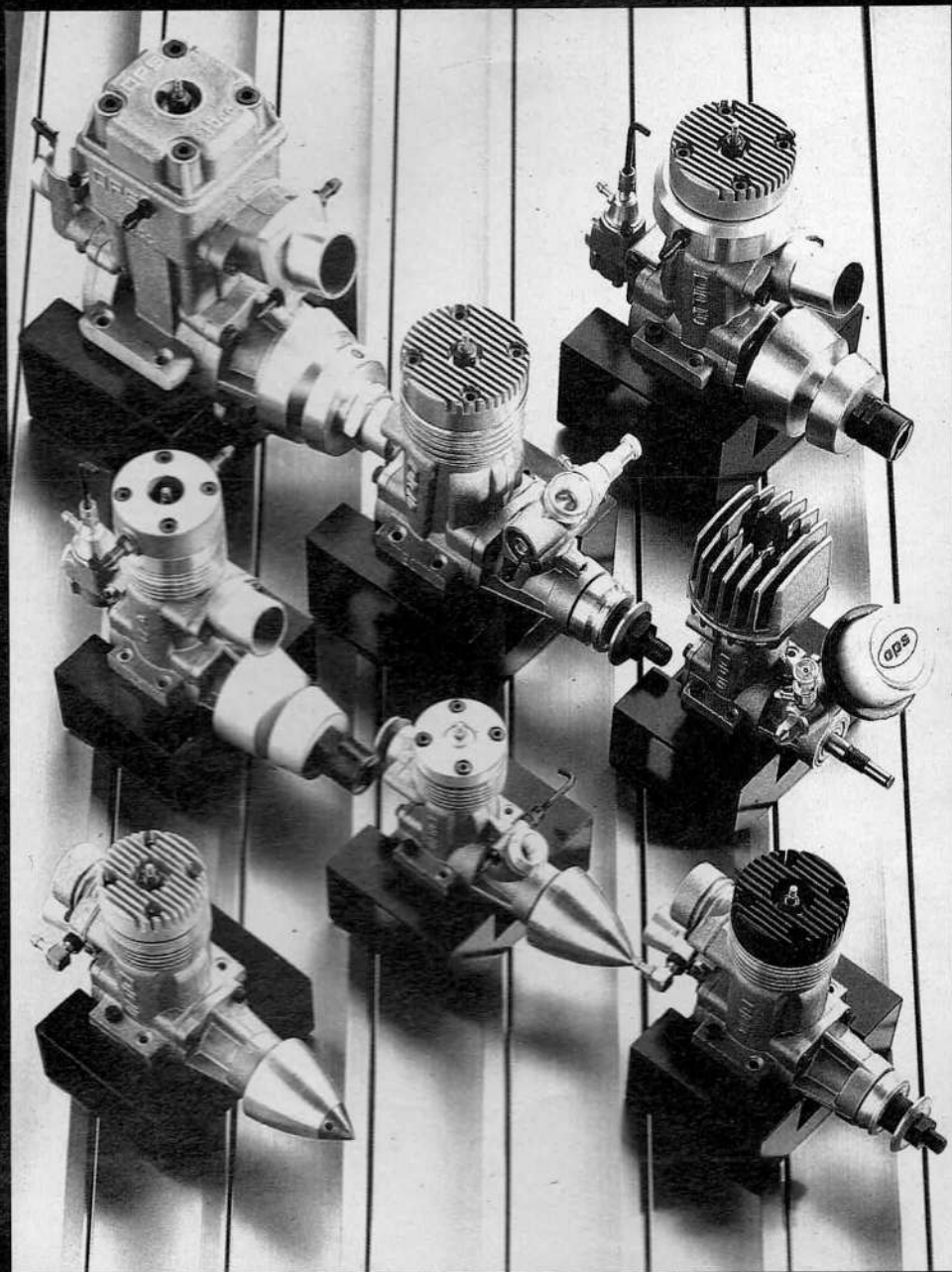
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