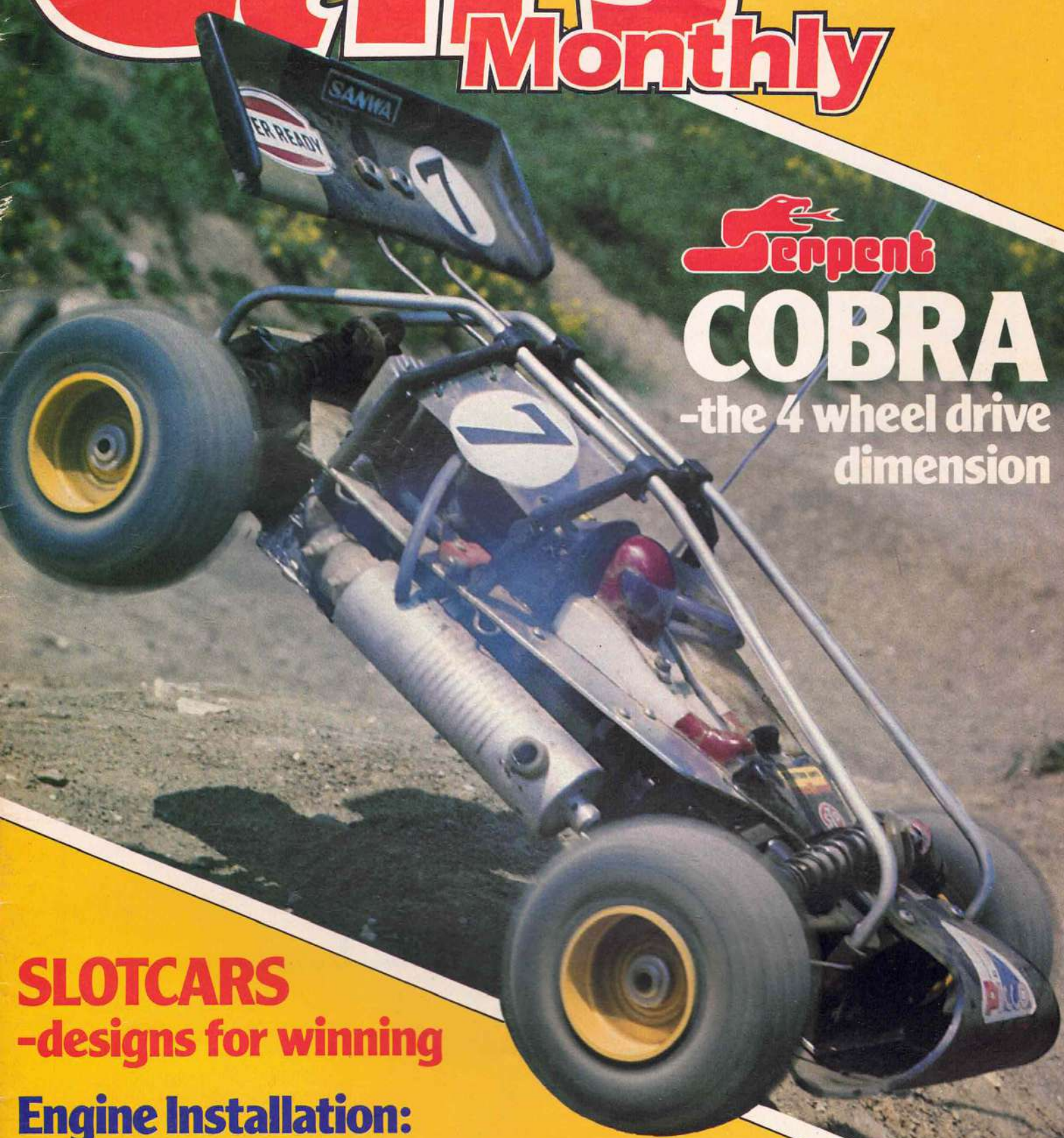


Model **CARS** Monthly



MODEL PUBLICATION



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dimension

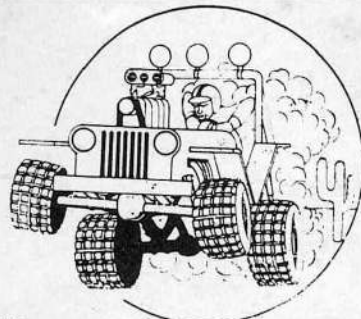
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Model Cars Monthly

September 1984
Volume 4 Number 7

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Cover

The impressive Serpent 'Cobra', four-wheel drive Off-Roader leaps into action on this month's front cover. The 'Cobra' is the subject of a full Track Test on page 46.

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Editorial

A lot has been said about etiquette and manners in general at race meetings, including abuse of marshals and timekeepers, now perhaps something should be said which is even more general. This has been prompted by an entry to our Photo Action Competition. Ay Okhai of Scotland used very high ingenuity but threw morals out of the window. He broke no rules at all, just found the loophole and used it by photographing a picture from the *Tamiya* catalogue. We on the editorial staff did not expect anyone to stoop quite this far in an attempt to win, although it is possible that he pulled it as a joke not expecting to get so far and maybe now is feeling rather ashamed — we certainly hope so! Ay Okhai (forgive the pun) is a name we should have noticed but Lewis, who judges the photos, was suffering brain fade at that time and is now feeling rather embarrassed.

Anyway, please no more pictures of professionals' pictures — it is breaking copyright and open to a law suit as well as being unfair.

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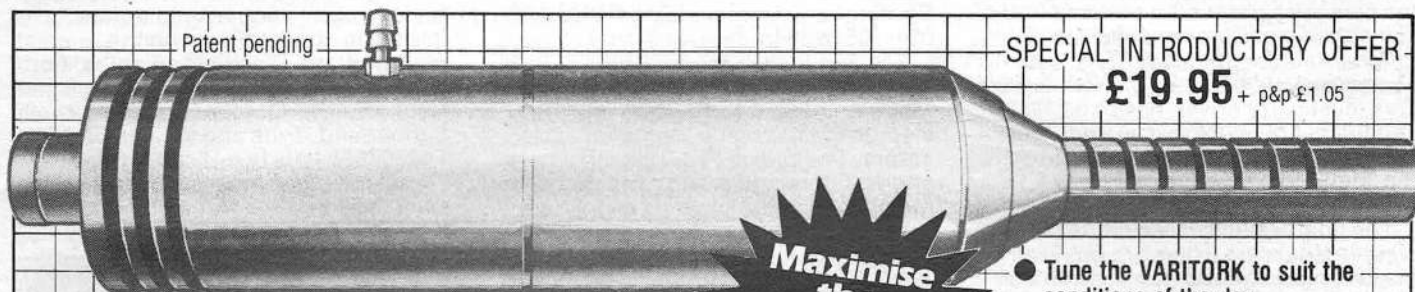
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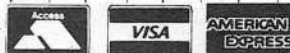
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CLUB CHAT

Derek Cooper, secretary of the **Stockport RC Car Club** has written in to inform us all of his club's activities. They meet every Friday night at the North Cheshire Lodge on Heaton Moor Road, Stockport. The members race most types of electric powered cars, 1/10th buggies, and 1/12th stockcars and circuit racers. First race is at 7.30pm prompt. Any new members will be assured a warm welcome as well as help in building and setting up their cars. Contact Derek at 103 Seal Road, Bramhall. Phone 061-480-5478.

Malc Davies, alias the 'Mobije Chicane' from **Leicestershire** has put pen to paper to inform us of racing in his area. In particular 'economy classes' for 1/12th scale electric R/C cars.

The first of these is the 'Mini-Stocks' class which is raced on Wednesday evenings at the Thorbus Estley Community College, Broughton, Astley, Leicestershire. The cars are mainly scratchbuilt using components from a variety of manufacturers. Contact is allowed!

The second type of 'Econo-Car' is the Vintage Models class, once again the cars are scratchbuilt but only four-cell ni-cad packs are allowed. No differentials and the body style must be between 1930-1939. Open wheeled cars must carry driver, head and shoulders figure, fly screen and steering wheel. This class is raced at the 'Mini-stocks' venue on Friday evenings.

The final 1/12th scale electric car class is stockcars which are raced at the **Leicester Electric Stocks Club** on Monday evenings at the Oddfellows Hall, corner of Fosse Road, Westleigh Road, Leicester. The cars must comply with the RSCA construction rules as the club is affiliated to the Association. Membership of the RSCA is easy as Malc is the membership secretary.

For more details contact Malc Davies, 47 Roborough Green, Leicester. Tel. (0533) 412600.

The Wheels Buggy Club (Birmingham) races every Sunday, come rain, snow, wind and sunshine. Brett Davis, the club's Press Officer, produces the club newsletter, a copy of which he has sent along for our perusal. The club committee has decided to adopt the BRCA rules (hooray!) using the £10.00 motor limit and five minutes race duration. A club championship is run every two months with awards presented plus an annual championship run on an aggregate basis.

The club race every Sunday from 1.30pm onwards at the Wheels Project, 136 Bordesley Green Road,



T.V. Stars! Bill Burkinshaw has at last made it to the big time, appearing on the BBC 'Blue Peter' programme in front of an audience of millions. Both members of the 'Model Cars' editorial team took time out to visit the BBC Studios to display the exciting action of 1/8th Scale Off-Road buggy racing. Both of the 'Blue Peter' presenters, Janet Ellis and Simon Groom, tried their hand at some fun racing and pronounced the experience 'highly enjoyable'. The above picture shows Bill explaining the joys and problems of going racing, truly a star in the making!

Birmingham. Contact Mark Russel on 021-705 0966 for further details.

The Southwick Model Club situated in Southwick, Sunderland meet every Monday, 7.00pm to 10.00pm for electric car racing on 'Primafelt' carpet. The club race 1/12th stockcars and 1/10th buggies with a full day's racing held approximately every four weeks on Saturday. Hopefully a 1/12th

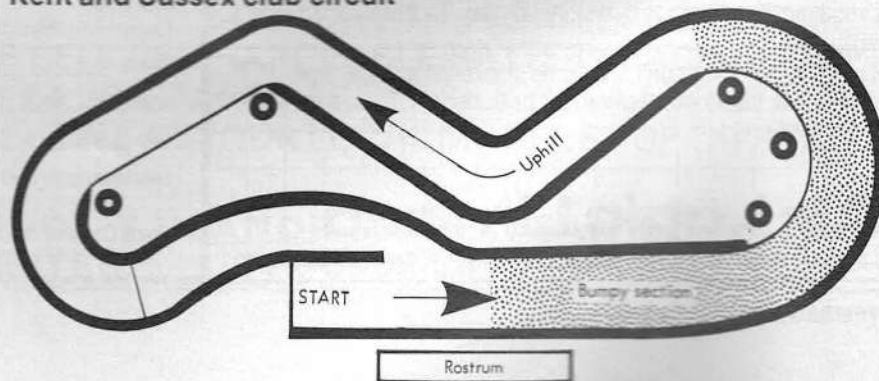
scale circuit racing league will be formed in conjunction with the Wallsend and Washington clubs. For more information contact Gordon Hanson, at 11 Garcia Terrace, Fulwell, Sunderland, Tyne and Wear, SR6 9DY. Tel. (0783) 48051.

Last but by no means least we have some up-to-date information on the **Kent and Sussex Off-Road Buggy**



Above: line-up for the start of heat at the Kent and Sussex Off-Road club meeting. Photo: Chris Whiteman.

Kent and Sussex club circuit



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Club from Chris Whiteman. Their race venue at the Hare and Hounds freehouse of Flimwell, has been the site for almost a full year's racing. Club membership is around 30 individuals of all ages and experiences. A club league is now underway with a trophy donated by **E&M Models** of Tunbridge Wells for the best overall driver over a six week period. A junior trophy will also be included.

A 'South of Watford' league is now another area of activity with the club competing against the **Crawley, Chingford, and Eden Park** Clubs.

For further details contact Chris Whiteman at 2 New House.

Events Focus

September 2

Swansea Electric Radio Car Club Open Meeting

Racing to BRCA rules (Modified) for 1/10th scale buggies.

Venue: King George V Playing Fields (opposite golf course), Mumbles Road, Swansea.

Entry fee £2.00. Send SAE to Steve Smith, 44 Mackworth Drive, Cimla Neath, West Glamorgan, S. Wales. Tel. Neath (98) 52306.

August 4/5

Liverpool Model Car Racing Club, two-day Open Meeting

Venue: Woodvale Model Show, Southport, Lancashire.

Saturday — Standard Class + 380.

Sunday — BRCA Modified Class.

Entry fee £4.00 per class — £7.00 for a two-day entry.

Details from Steve Newey, 15 Patricia Grove, Bootle, Merseyside.

Stop Press

Following on from the Cancellation of the BRCA 1/10th Scale National Meeting at Lilford on September 8/9th. Kevin Blears of the Manchester buggy club (Cheadle Swamp-rats) has offered to hold a BRCA Standard class meeting on the Sunday.

For details of entry fees and track location contact Kevin at the address given below:
90 Deans Road,
Swinton, Manchester.

Associated success!

The new Associated "RC10" 1/10th scale buggy (reviewed in MCM June issue) has scored its first major victory only days after its introduction onto the American Market.

The North American Off-Road Nationals was the venue and Associated team driver, Gil Losi Jr. of the *Ranch Pit Shop* took FTD in both standard and modified. J. Halsey won both events and 'RC10's' were 1st, 2nd 3rd and 4th in standard class.

The 'RC10' should be available in the UK about now and enquiries should be directed to *Elite Models* 145 Newgate Lane, Mansfield, Notts. NG18 2QD, Tel. (0623) 36062.

U.S. 1/12th Spring championship.

Northlake Mall in Atlanta, Georgia, USA was the venue for this meeting, attended by many of the top American 1/12th scale drivers. The standard (stock) class event was won by Mike Fromer of Florida whilst Frank Killam of California won the Modified event. Many of the top drivers travel quite vast distances across the states to compete in national events.

California to Georgia makes London to Stafford seem tame!



Gearbox

Marui Super Wheelie

A new kit from a new manufacturer. Very typically Japanese, with a strong influence from other Japanese companies (guess who?) but does not appear to be an inferior machine.

There are some interesting points to note on this 1/10th

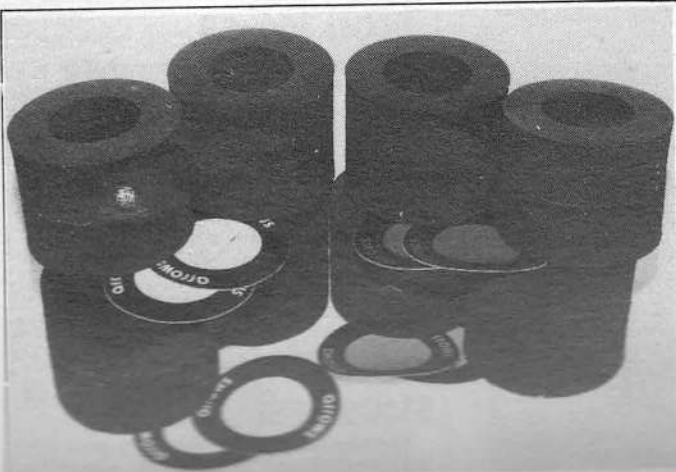
scale fun machine. It will do stunts but by changing the radio layout you can race it normally. A differential is included to help steering and handling as well as a sealed gearbox, independent front-end and solid sprung rear suspension. A three forward one reverse and two braking

levels speed controller is included and very nice moulded knobblies for tyres. The kit parts are well moulded and look reasonably strong to give good service. The body does have a high sided appearance although when running this should not be noticeable. The detail is very

good with a moulded instrument panel and fine body work.

The instructions are only average. The drawings are good but small and complex, however, they are typically Japanese — idiot proof, as long as you do not assume assembly is a five minute job.

The 'Super Wheelie' is imported by Amerang Ltd., who are better known in the model railway world. The availability should be good i.e. from most model shops and even High Street toy stores. Approximate price: £50.00.



Arrow Tyres

With sales of Elite Models seems intent to meet the 1/10th scale off-road tyre problem head on with the introduction of the Arrow range of off-road tyres. These are made from a high quality compound suitable for use on gravel, etc. None of the other 1/10th scale off-road tyre manufacturers

£5.50 a pair. Sidewall protection stickers are included denoting the grade of tyre. www.arrowtyres.co.uk recognised by the coloured sidewall sticker.

These tyres are available through Supermodel Distribution. Tel: 01452 840000. Website: www.supermodel.com

Specialists Turned Parts

Following on from last month's 'Frog Update' feature, Specialists Turned Parts are now supplying the remedy to the wear and tear problem. The STP system includes one phosphor bronze pivot bush for the gearbox and steel rear arm pivot caps for the suspension arms. This gives a much better bearing than the original metal to plastic

version.

Also included in the kit are two, outer rear pivot stoppers manufactured from either steel or aluminium (you state the preference). Once again the wider bearing face greatly reduces the wear rate.

The complete kit is available from STP at Unit 3, National Trading Estate, Bramhall Moor Lane, Hazel Grove, Stockport, SK7 5AA. Price £12.00 including VAT and P&P.



Parma Goodies

Here are some more new releases from *Parma* to give the added performance/appearance to your car. First there is the new Lexan 'Chevy Blazer' bodyshell for the *Hirobo* 'Rock 'n' City.' This has an incredible

amount of surface detail in *Parma's* usual style for that concours winning look. Clear or painted will be available.

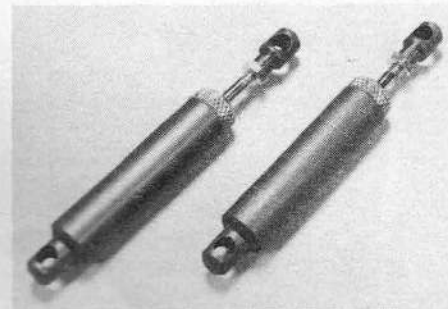
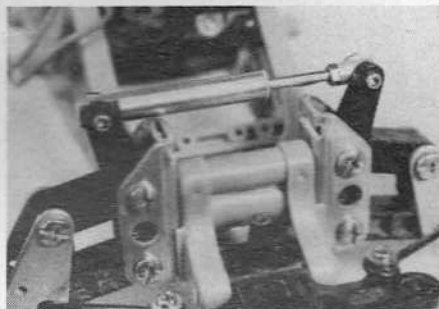
Next release is a damper set up for the 'Frog' to help keep the front wheels on the ground and increase steering power for extra performance. The damper is

fixed to the top suspension arms via bell cranks and the usual springing is left in place. The bodyshell slides in underneath.

Lastly, some *Parma* dampers. These are even better than the original dampers as the piston and seals are now made of Teflon to give much greater life.

Perhaps the leaky dampers solution? Again these are in three grades, soft, medium and firm.

Parma Products are available through most good model shops. Contact Helger Racing, 18 Manor Farm Drive, Chingford, London E4 6HS for details of price and availability.



Futaba Magnum

Our March edition of MCM heralded the introduction of a new, specialist car radio system from *Futaba* — the 'Magnum.' Now UK *Futaba* importers *Ripmax Ltd.*, are able to supply this in three forms. Those available are: 'FP-T3PGE' designed for IC powered cars and 'FP-T3PGM' for electric R/C cars. The two different

systems have been produced to meet the exacting requirements of R/C cars racers, in fact the only thing it won't do is drive it for you!

A 'Magnum Junior' system is also available and as the name suggests is not as complicated as its brothers.

All three sets should be available through *Ripmax* stockist approximate prices (FP-T3 PGE and M £250. (Magnum Junior) £150.00.

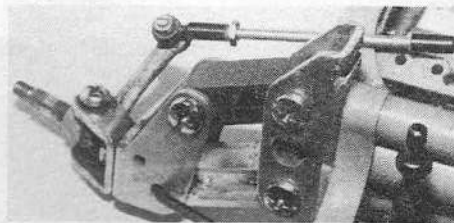


Trade Model Supplies suspension arms

These are new upper suspension arms for the 'Frog' designed to give greater reliability and longer life than the plastic items they

replace. Machined in blue anodised alloy for strength and resistance to wear they look good too!

Available from most good model shops or direct from *Trade Model Supplies*, 40 Bank Street, Morley, West Yorks. LS27 9JB tel: 0532 523023 for £2.95 a pair.



Robbe VW Cross Buggy

Robbe have now gone into the other side of buggies by producing this 1/10th scale electric Off-Roader. It is designed as a simple beginners' machine for an introduction into RC cars. Construction is very simple using very few pieces to help the novice and increase reliability. A very strong and

heavy duty speed controller is included (again high on reliability) with all motor and Ni-Cad wiring done. There is a moulded RC cover to protect all the gubbins, motor/gearbox and high quality Lexan body to top it all off with wheel arches etc. already cut out.

UK importer: *Cougar Craft*. The 'VW Cross' should be readily available from most model shops. Price £50.00.

Photo-Action Competition



1

PHOTO 1. Stuart Wilsmore of St. Albans in Herts. not only took this shot of his 'Sand Rover' but also processed and printed the film too. Stuart uses a Cosina CT1A camera.



2

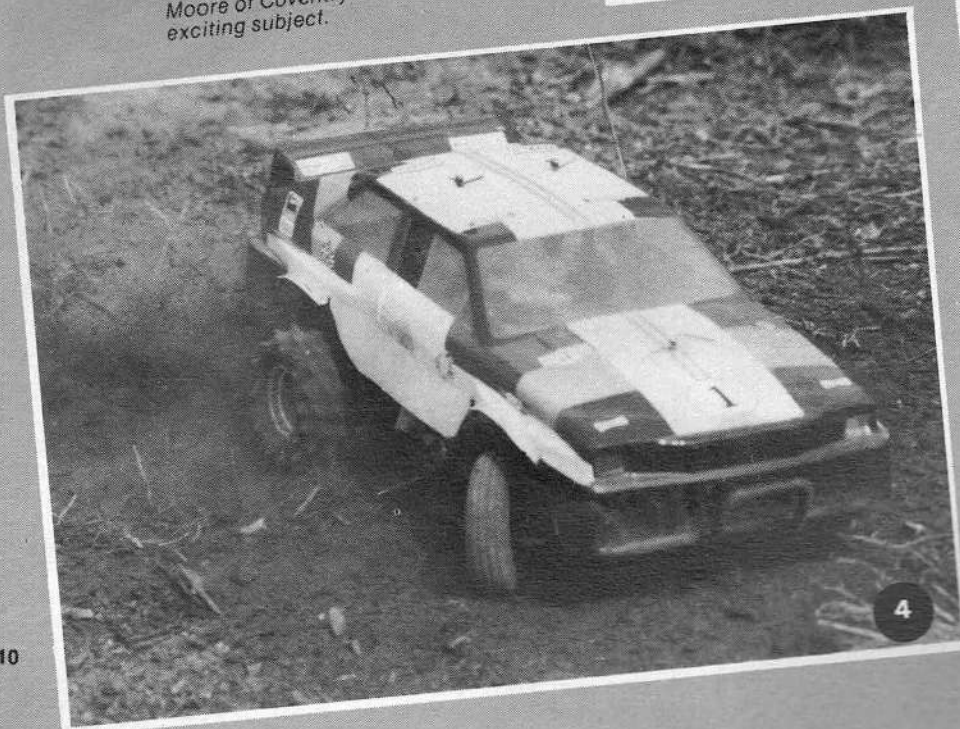
PHOTO 2. Shake, rattle and ROLL! Robert Mitchell of Romford, Essex obviously enjoys the rough and tumble of buggy racing. This 'Sandscorcher' was snapped with an Olympus OM1.



PHOTO 3. Scale Rally action is the subject of Ian North's entry from Rugby in Warks. Ian took the shot with a Zenit EM at the Ryton, Coventry Club buggy circuit.

PHOTO 4. Yet another Tamiya 'Audi Quattro' this time belonging to A. Morris of Liverpool. Canon Sure-Shot camera was used.

PHOTO 5. Stockcars again from Tom Moore of Coventry who specialises in this exciting subject.



4

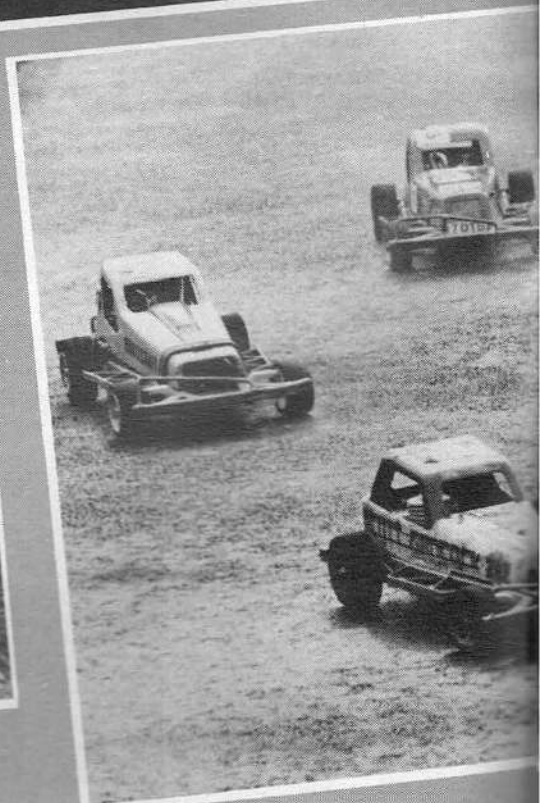




PHOTO 6: The ubiquitous Tamiya 'Frog' shows its paces around Adrian Pryke's garden in St. Leonards-on-Sea, Sussex. Adrian uses a Pentax MG.

PHOTO 7: This month's winning shot comes from Derek Norton of Leicester. Derek's all-action photo of the popular Mardave 'Apache,' 1/10th Off-Road Buggy was taken at Western Park, Leicester. A 2X Converter was used.



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 - (5) If you wish us to return the photographs please include a stamped addressed envelope.
 - (6) The photographs must be your own work — commercial processing is allowed.
 - (7) Entries will be judged by staff of MAP. No correspondence or telephone conversation can be entered into about entries.
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- SEND YOUR ALL-ACTION PHOTOS TO: MODEL CARS PHOTO PRIZE, PO BOX 35, WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD HP2 4SS.

Track Test

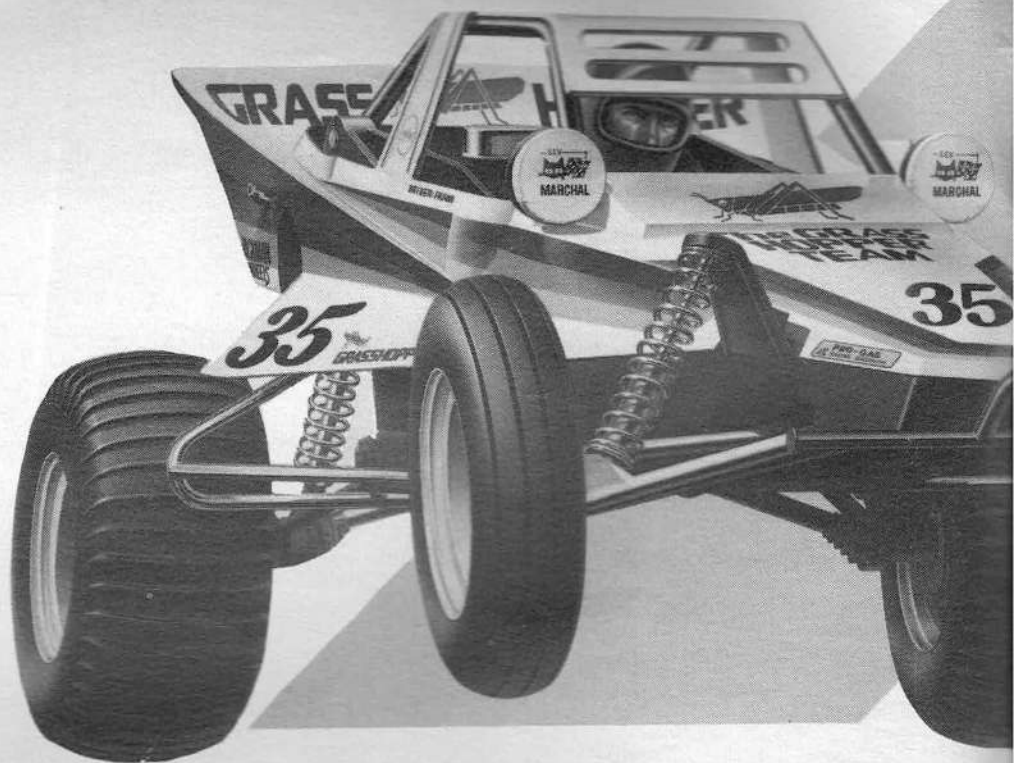
THE TAMIYA CONTRIBUTION to 1/10th scale Off-Road racing can only be adequately described as immense. Apart from starting the whole thing off, this Japanese company have produced, to date, 16 different variations on the Off Road theme. Never let it be said that with *Tamiya* you are left without a choice.

As featured last month, the sixteenth addition to the range is the 'Grasshopper' or 'Glasshopper' as it has been affectionately dubbed. This particular buggy can be termed 'new' in the proper sense, incorporating as it does a completely different chassis, gearbox design, bodyshell and suspension system.

The 'Grasshopper' kit obviously follows in the same mould as the 'Holiday Buggy' and 'Sand Rover' buggies, offering sprightly performance at a reasonable cost. Scope for uprating the 'Grasshopper' exists in abundance and undoubtedly 'Readers' Mods' will be flooding in within a short space of time.

Kitting up

Lovely box:
Brilliant instructions:
Great packaging:



Grasshopper

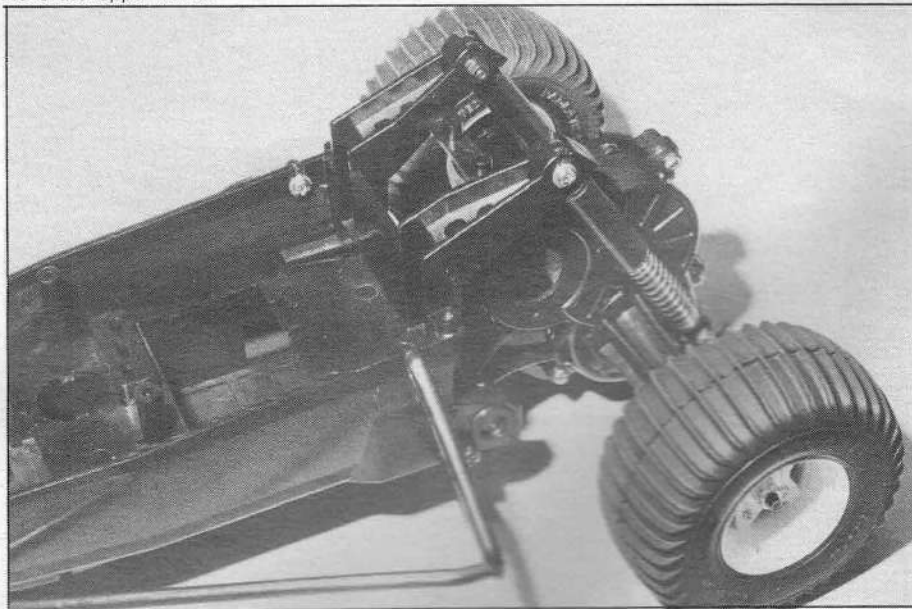
Lewis Eckett gets hopping mad with this latest 1/10th scale Off-Roader

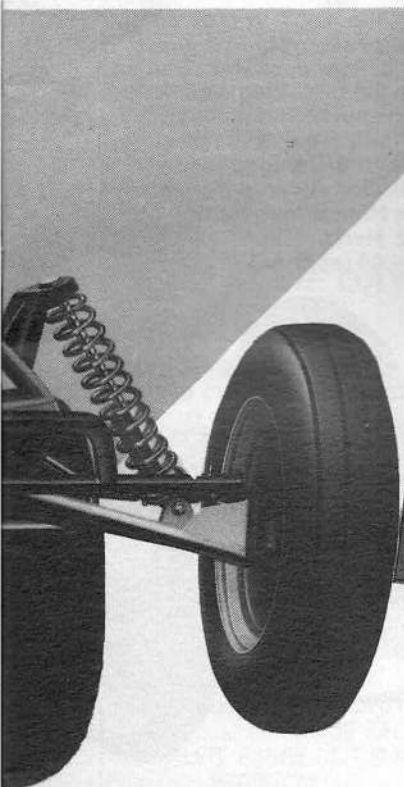
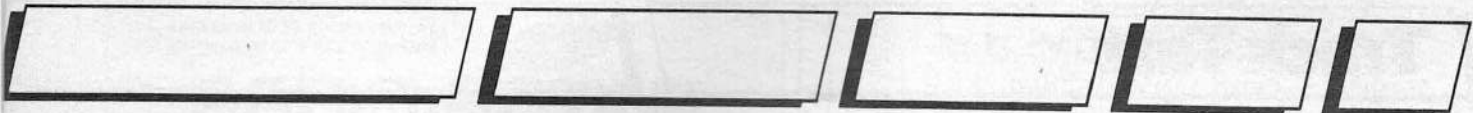
With the formalities over we can actually get down to building. At this point I am often tempted to put a clock on how long it takes to build a *Tamiya* kit. However, since this was a review item I felt it prudent to 'relax' a little so as not to miss anything.

A hefty, plastic geared differential is included, similar to the 'Audi Quattro' item. Plastic bushes are included for the bearings, but I chose to fit proper ballraces. The completed assembly produces a solid axle drive system which makes independent suspension a bit difficult. *Tamiya* have got around this problem by allowing the gearbox and axle to pivot up and down at the front.

The kit includes a refined version of the '380' type motor usually found in the *Tamiya* electric flight kits. This motor is fitted to an adaptor which in turn fits to the gearbox. This means that the larger '540' size motor can be fitted without need for modification. The pinion supplied with the 'Subaru Brat' will give the correct ratio for the 'Grasshopper.'

Below: the assembled rear suspension system and gearbox. The dampers are simple coil-spring units which can be replaced with proper oil-filled units from the 'Frog' kit. If using these replace the springs with the 'Grasshopper' items.





Chassis

This takes the form of a single injection moulding which doubles as the radio crate and battery box. The chassis also incorporates the damper and suspension mounting pivots and is able to accommodate five or six-cell battery packs in either 'stick' or side-by-side configuration.

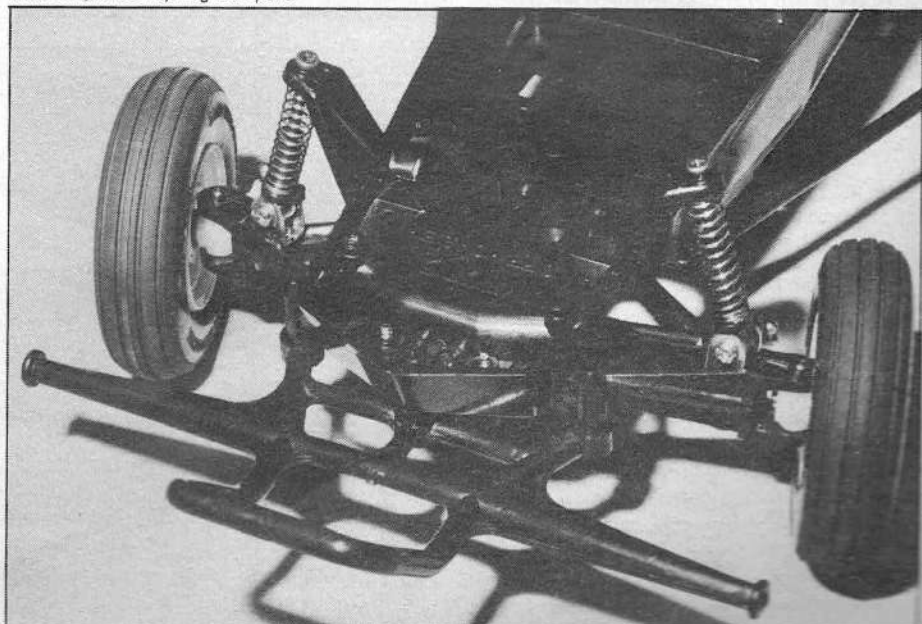
Dampers

The 'Grasshopper' kit contains simple, friction dampers, fitted with coil springs. However, the 'Frog' oil filled versions can be fitted to the rear suspension. The front dampers are simple coil spring units which gives the front suspension its ride height and springing.

Front suspension

In contrast to the rear end the front wheels are individually sprung on nylon injection moulded wishbones which incorporates the steering stub axle blocks. Steering linkages are carried between the chassis and wishbones.

Above: two shots of the 'Grasshopper' in action at the local club circuit. Below: the front suspension employs single wishbones either side with simple coil spring dampers.



Track Test

R/C installation

As mentioned earlier the main chassis also doubles as the radio crate. The instructions show how and where the servo's and such should be positioned whilst the kit includes servo mounting posts, servo saver, (steering) and linkages. The speed controller is the usual three step resistor board type which has proven to be fairly reliable under Off-Road conditions.

Important! If using a 540 size motor the fuse must be changed from the eight amp type supplied to a 15 amp.

The Ni-Cad battery pack fits into a compartment located underneath the chassis, a slide-fit cover keeps the pack in place.

Bodyshell

The 'Grasshopper' bodyshell is, as we have come to expect of Tamiya a superb, injection moulding which fits very neatly onto the chassis. Instead of the usual clip style mounting the 'Grasshopper' bodyshell is actually bolted onto the chassis becoming, in a sense, integral with it. A full decal sheet is supplied to decorate the 'Grasshopper' accordingly.

Hop it!

I must confess to being less than enthusiastic about '380' powered cars, they simply don't move fast enough for me. However, I was fairly surprised at the 'Grasshopper's' performance with the motor supplied in the kit. This must be attributable to the low race-weight (31b).

Nevertheless, when fitted with a '540' size motor the performance really perked up, the general handling of the 'Grasshopper' on smoothish surfaces was quite promising. This prompted me to try it out at the Chingford BRCA National meeting.

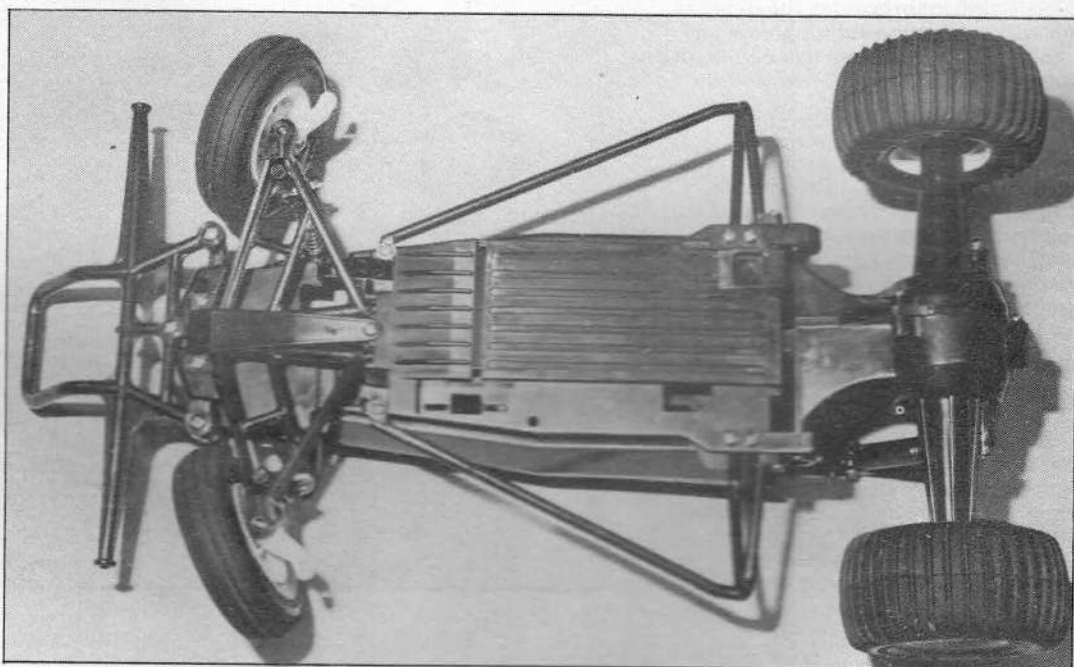
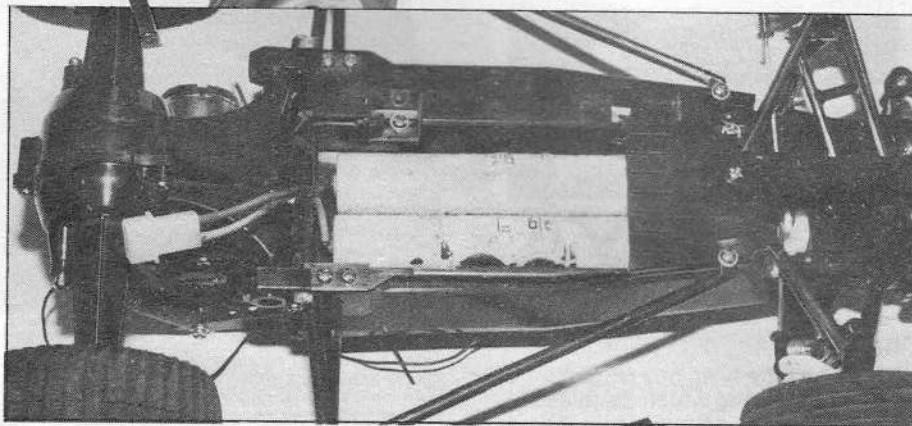
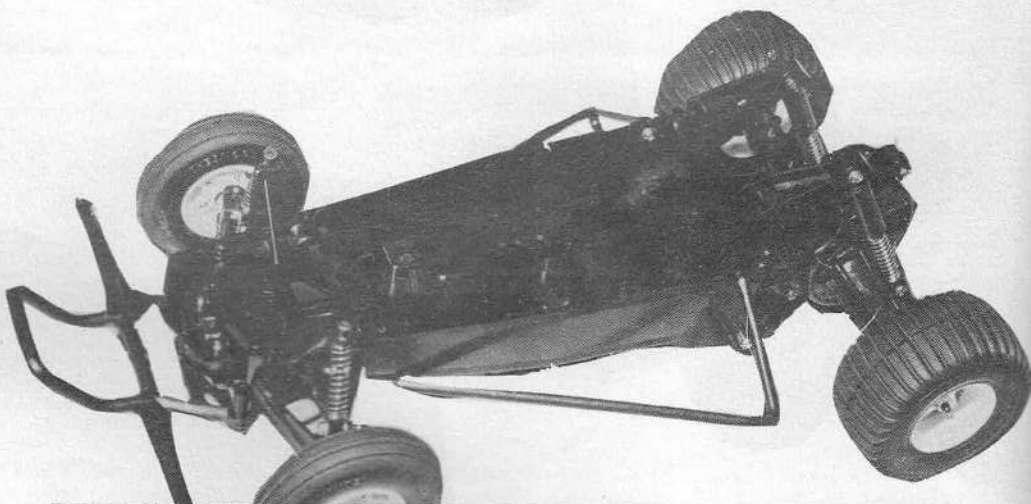
The 'Grasshopper' certainly lived up its name and 'hopped' all over the place. Unfortunately, the rudimentary rear suspension wasn't able to put the power down on the track, all of the time. Even the substitution of some proper, oil-filled dampers did little to keep the wheels on the ground. Nevertheless it was fairly fast and should go even better with some modifications to the rear-end.

Incidentally, the ready-to-race weight with 540 motor standard R/C gear and no receiver battery pack was dead on 31b which is the BRCA legal minimum.

Overall an excellent budget priced racer which will serve as the ideal introduction to R/C buggy racing.

UK Distributor: Richard Kohnstam Ltd., 13-15a High Street, Hemel Hempstead, Herts.

Price: £40.00 (approx.).



Top right: the completed rolling chassis ready for the R/C installation. The side nerf-bars protect the rear axle in event of a crash. 'Paddle' type tyres are supplied in the kit but other Tamiya styles are available. Centre: the Ni-Cad racing pack slides into a compartment along the bottom of the chassis. Tamiya six-cell packs can be fitted also. Right: the chassis underside with Ni-Cad compartment cover in position.

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Which way damping?

Single-acting, or one-way dampers, are becoming more and more common on both electric and I.C. power buggies. The question I am frequently asked is which way should the damping act, as the spring is compressed or as the spring rebounds?

Until recently I thought I knew the logical answer, but discussion with one or two other drivers and examination of a couple of kits with single-acting damping has caused me to ponder. My reasoning took the line that the damping should really be there to stop the car from bouncing as the springs recovered from compression during suspension movement. The contrary view says that the damper should act at the same time as the springing is compressed. Thus stopping the car from continually 'bottoming out' when the undamped suspension rapidly achieved maximum travel as the car hit a bump. One of the problems in analysing this situation is that even if it is easily possible to turn the suspension spring/damper unit upside down, the very best dampers receive such brutal treatment during a comparatively short

time that they only work at peak efficiency for a few minutes on the track. Many requiring servicing for every heat. I have tried a set of one-way dampers both ways up, but my subjective feeling was that I couldn't tell the difference! Take the dampers off altogether however and then the difference is noticeable. Perhaps we are pursuing a fruitless goal in seeking to perfect oil-filled dampers, maybe a simple, minimum maintenance, friction system would be just as good. I would appreciate comments on this vexed question:

Do readers have any sound technical explanations to offer?

Rear anti-roll bars

Several cars are now circulating our circuits that feature a mono-shock rear suspension system. Also, many of the latest 1/10th cars have such soft suspension that excessive body roll on both the former and latter can become a problem.

As the body rolls, a weight transference takes place tending to put more weight onto the wheels on the

outside of the curve. A simultaneous lifting of the front inside wheel clear of the ground then takes place. One method of controlling this is to fit a rear anti-roll bar. Front anti-roll bars are fitted fairly regularly but on their own they may not be enough with soft, long travel, suspension systems. **Fig. 1** shows how very simple rear anti-roll bars may be fitted to the Kyosho 'Tomahawk' and Tamiya 'Frog'. Plus how a rear anti-roll bar may be fitted to swinging arm style 1/8th scale car suspension.

Longer Races?

One of the things I least enjoy about electric racing is the short duration of the finals. We seem to have been brain-washed into accepting that the race length should be limited to the longest duration that an expert can squeeze out of a 6-cell, 1.2Ah Ni-Cad pack. Why can't we change batteries during a race?

Off-Road Performance

Move on ahead to better things



Mantua Devil

Mantua of Italy have now joined the growing string of 1/8th scale 4WD Off-Road car kit manufacturers with the introduction of their 'Devil' buggy. The 'Devil' contains all that is necessary to be competitive with the best, a choice of two or three differentials, adjustable coil-over shocks, alloy chassis and shaker plate and disc brakes. In keeping with fashion, shaft drive is employed with the engine mounted in-line. The 'Devil' beats the opposition on simplicity (relatively speaking) and price, working out at £180.00 for the de-luxe version. UK Distributor Jack Williams, Eastwood, Beverley Road, Walsington, North Humberside, England. HU17 8RP.

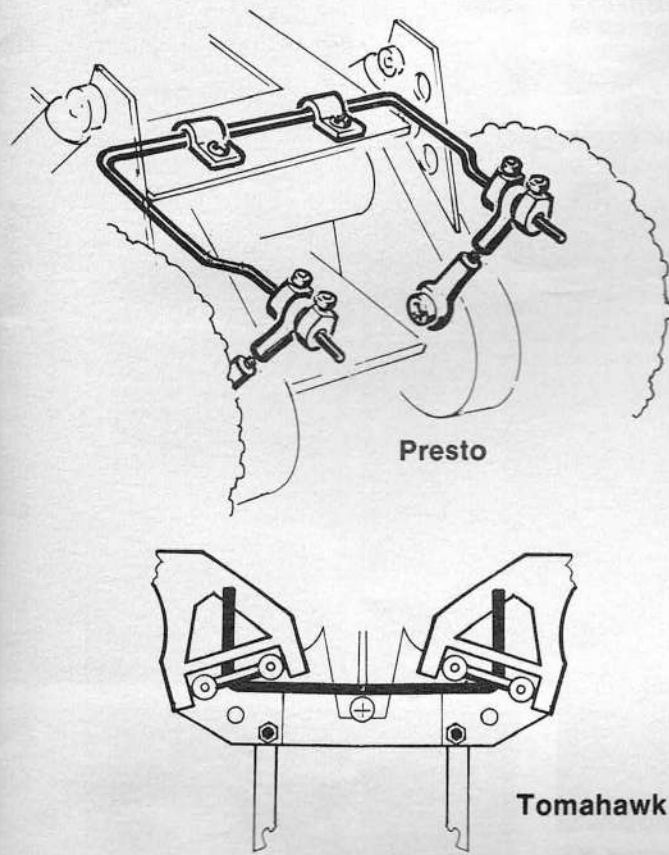
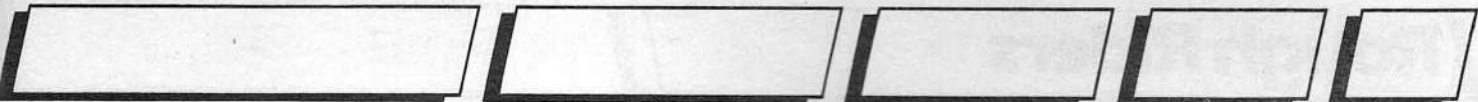
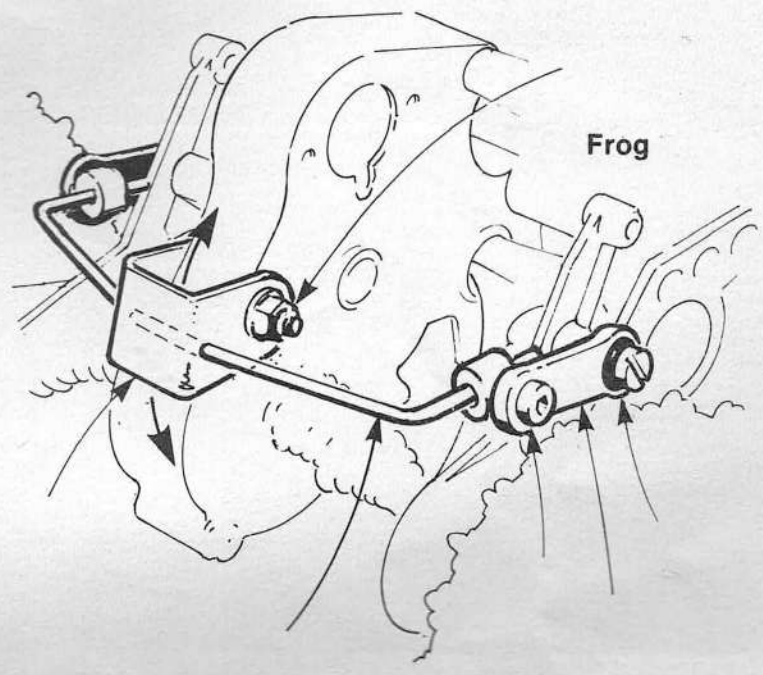


Fig. 1 Rear anti-roll bars



I am quite confident that with a little thought and care it would be possible to change batteries on most makes of 1/10th scale buggy in only a matter of seconds. One only has to look at the full-size world to realise that if a system is properly thought out and the necessary, simple, hardware is produced, all four wheels on a Formula 1 car can be changed in 10-15 seconds.

A race of 10-12 minutes including a pit stop would, I feel tend to even out the chances for drivers, removing the often insurmountable hurdle that a mere five minute race produces if a car is upset in the all too frequent first bend pile ups. Apart from that, the spectator appeal would also be increased. Many casual spectators find it difficult to understand the short duration of races and would enjoy the spectacle far more if a major final of some length could be looked forward to as the culmination of a days heats.

Shorter Races?

Of course elsewhere in the world we hear of groups of Off-Road racers who much prefer shorter races because they then are able to gear their cars to run faster. Hot motors and high gear ratios do not mix with long races when battery capacity is limited. I understand that both the Japanese and Californian racers run 4-minute races rather than our almost universal European 5-minute heats.



Mr. Y. Okhai of Dundee in Scotland won the 'Photo-Action' competition last month with one of the five shots submitted. Here is another which you will agree is a splendid all-action shot.

Our own BRCA 1/8th Off-Road racing rules again contrast with the European rules in that we race 8-minute heats here in the U.K. whilst across the channel heats are of 5 minutes duration. The 8-minute system was introduced simply to give drivers more time on the track. Even with an entry of 40 drivers, 4 rounds of 8-minute heats are possible within a days racing. A total of 32 minutes of actual racing or approaching double that in a comparable electric or Continental style 1/8th buggy race meeting. Shorter races do however make life a little easier for I.C. engine powered cars in just the same way as for electric

powered cars. Even with some quite economical engines a badly adjusted needle valve can erode the fuel safety margin to the extent that engines can drain the 125cc tank before the race time is up.

More cells maybe?

It looks certain that the EFRA (European Federation Radio Autos) rules for 1/10th electric buggy racing will allow a maximum of 8 cells of 1.2Ah capacity for the main 'Open' or 'Modified' class. As it is hoped that 1/10th racing will eventually become a World competition class, and the U.S.A. will be a powerful force within

Rough Riders

Below: Jimmy Hamilton of Badger Track Parts took this panoramic shot of the 'Swamp Rats' club circuit at Cheadle near Manchester. This venue will be the site for the BRCA standard class points meeting on September 9th. If this circuit is anything to go by it will be a contest of speed and duration.



the world scene, it seems that their preference — and to be fair, the preferences of several other European nations, will dictate this increase in cell number.

U.S. experience has I believe shown that the maximum is not necessarily the best option to go for. In fact 7 cells provides a really worthwhile improvement in car performance and also still allows full and proper charging to be accomplished using the usual 12-volt lead/acid car battery as a power source. It is possible to achieve a charge of an 8-cell pack from a 12-volt battery, but this battery has to be in very good condition otherwise the Ni-Cad pack is liable to never reach the peak voltage possible, and only very low charge rates can be achieved. Continued attempts to fully charge the pack by prolonged charging times will

only result in a badly overheated Ni-Cad pack.

If one looks at the peak voltage for a 6-cell pack, they can be in the order of 10.5 volts, couple this with an on-load voltage of around 11.5 volts for the lead/acid battery and *Ohms Law* says that only 1 amp can flow. Take an 8-cell pack of nominal 9.6 volts and on initial connection to the 12-volt battery a current of around 1.5 - 3 amps will flow. But with a potential peak voltage of anything up to 14 volts and a 12-volt charging source, it is easy to see that a full charge is next to impossible to achieve.

It is of course possible to use a charger incorporating an inverter to boost the 12 volts up to around 18-20 volts and then achieve a full charge easily, but all this costs money and makes what was once a comparatively

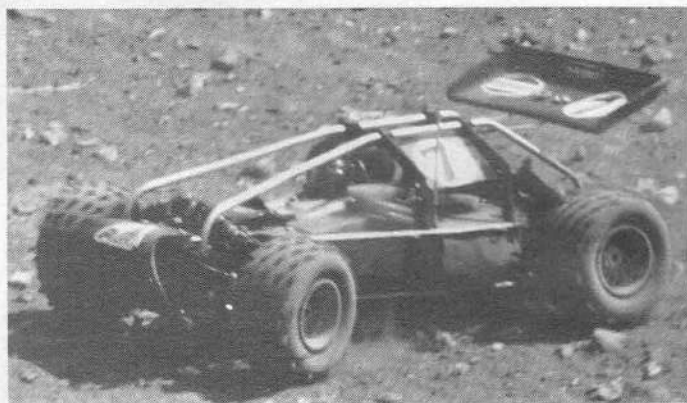


simple operation more and more beyond the reach of the drive-for-fun buggy owner.

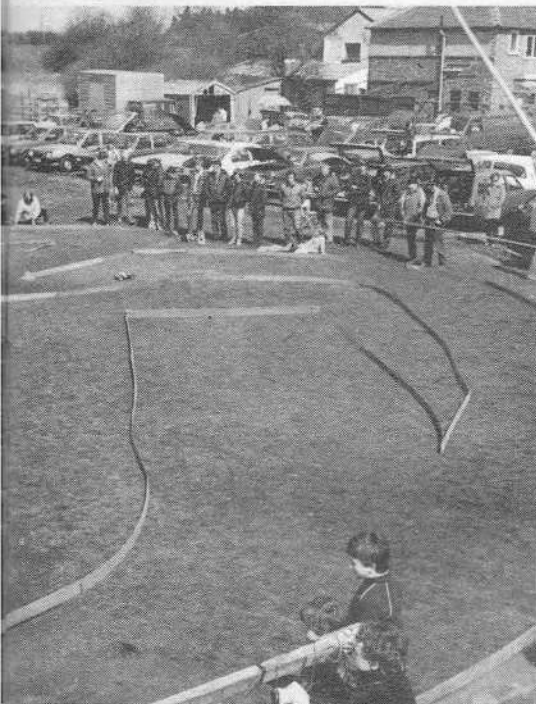
Using a 7-cell pack, a direct connection to a 12-volt battery in good condition will ensure a good charge. Around 20 minutes is usually adequate but monitoring of the charge should be standard practice so that peak detection can be accomplished.

As for special battery packs, well yes, it is possible to connect up and sleeve specially shaped 7-cell packs but probably the best and easiest solution is to arrange for the 7th cell to be connected into the pack by means of 'fly leads', then the 7th cell can be positioned anywhere in the car where it will be most beneficial to handling.

There is a further complication to be considered and that is in the area of speed controllers. We are assured that problems **will** be encountered if using 8



Left: snaking from left to right, the *Serpent 'Cobra'* is certainly capturing its share of the limelight in the BRCA 1/8th Off-Road Championships. The *'Cobra'* is a hot-tip to take the European Championship also. When the going gets tough...



Above: Tamiya's latest creation has similar handling characteristics to the 'Honda City Turbo' and 'Wild Willy' fun machines.

or 7 cell packs through existing electronic and resistor type units. The amount of current delivered by the Ni-Cad pack will be extremely high in the event of a stall or stoppage (and we know how many times that can happen). Resulting in damage to the speed controller and possibly the radio equipment. **So, be Warned!** Make sure your speed controller is up to the job, if in doubt check with the manufacturers.

Altogether a fascinating prospect, even if there are only a few U.K. buggy drivers prepared to put their skill on the line and take on the rest of Europe and the World. It will be interesting to see if the first European Champion at 1/10th electric off-road racing will be British.

European 1/10th Off-Road Championship

Wearing my EFRA representatives hat for once, I would be most interested in hearing from any Off-Road clubs who would like to offer to host a proper European Championships or EFRA Grand Prix meeting in 1985. Such a meeting will have to be a little more than a glimmer in someone's eye by the end of September.

Ideally the meeting should be on a permanent circuit with possibilities of camping, catering and hotels nearby with a club prepared to work with BRCA (British Radio Car Association)

Below: the 1/10th scale 'Mitsubishi Pajero' is the new R/C Off-Road machine from Tamiya, following hot on the heels of the 'Grasshopper'. This particular machine follows very closely the construction of the 'Hopper' but is designed as a stunt/fun machine. On paper the 'Pajero' looks simple to build and fun to drive. Plus, at 'Grasshopper' price standards will be a 'budget' racer.

and EFRA officials to put on a prestige meeting. It is usual for proposals for such meetings to be fairly detailed including track plans and photographs and an outline of the proposed facilities that the organisers can offer. Entry fees for these meetings are fixed by EFRA along with maximum allocations of drivers from each country. So there will be a guaranteed minimum income for the organiser as each nation is invoiced for the appropriate total entry fee which is then sent to the organiser. Drop me a line C/O Model Cars if you think your club could handle a Euro G.P. or even the Euro Championships themselves.

PARIS-DAKAR RALLY ACTION!

1/10 SCALE R/C MITSUBISHI PAJERO

EASY HANDLING AND DYNAMIC PERFORMANCE!
Here is an electric powered R/C car that is both easy to assemble and just as easy to handle. Following on the footsteps of the Grasshopper (5843), is the Paris-Dakar rally winner. It is a versatile stunt machine with performance abilities like those of the Wild Willy (5635) and Willy's Wheeler (5639) or, with a movement of the receiver battery, a high performance rally vehicle for outright competition. With only the minor change of moving the receiver battery, you can compete in wheelie competition or rally racing, all with the same vehicle.

INCLUDES THE POWERFUL RS540 MOTOR AND EFFECTIVE SUSPENSION SYSTEM.
The chassis design and suspension systems are most important in the overall performance of vehicle design. With coil spring suspension at all four wheels and a box type resin frame, the Pajero fits the requirements for a sturdy and high performing off road vehicle. Using many of the components found in the superlative Grasshopper, such as the front independent suspension and rear rigid axle, plus the sealed gearbox with differential, the Pajero will amaze all who own and drive it, or just watch its fantastic performance. If you are a beginning driver or still inexperienced, you can change the motor to the more sedate RS390 unit until you have perfected your techniques. The power source for this vehicle is the Tamiya 6V-1200mAh or 7.2V-1200mAh Ni-Cd battery. Of course, if you have the experience to handle a souped up version, tune it up with the many high performance parts available, and watch the competitors fall behind. The injection molded body was patterned after the Mitsubishi Pajero which won, in its class, the 1983 Paris-Dakar rally event. This race is considered, by most, to be the most grueling event in racing. The Tamiya acrylic paints makes the finishing of this model even easier.

TAMIYA
CORPORATION
DAKAR RALLY WINNER

THERE IS NO single subject which raises a greater diversity of opinion in 1/12th scale racing than cells. Their type number (ML, ND, NJ, etc.), charging method, duration and discharging are the butt of more 'this is the only way to,' statements than anything else. For this reason, your's truly has stayed well clear of any advice or comparisons until an acceptable expert arrives who can teach us all about cells in depth. However, I can put you on to two things which everyone agrees are essential to give top performing cells.

Ni-Cads develop a 'memory'. If you only ever discharge to a certain level and then, either put the cells away, or recharge. After three or four cycles the cells become very reluctant to discharge below this certain level. Therefore, before each meeting you should connect a 12V 3W car bulb to your cells and leave it there until it goes out completely, which could take up to an hour or more. At this point the pack voltage will be as low as 0.02 volts! Leave the bulb connected until you are ready to charge to prevent the cells accidentally reversing polarity. Now charge as normal, but do not let the cells get more than slightly warm. If the heat builds up they are overcharged and will be damaged. After a full discharge the cells have both lost their memory, and are individually balanced. You should notice an increase in duration after two full discharges. At the end of your meeting discharge the pack to around six volts before putting it away until the next week. Hopefully, I will find the required expert and can give more advice on cells.



1/12th Racing

Motors and Ni-Cads - getting the best power delivery

with one wire, two wires, or three wires (in parallel) at a time.

The single wind motors are quite sensitive to gear ratios, depending as they do on sheer power (high revs) to deliver their speed and acceleration. Some of the *M.G.* singles (24 turns) recently used have been suggested as suitable for ultimate ratios in the 29 to 32 mm/revs area.

Double winds have more torque available and can thus be used on quite a variety of circuits where exact ratio selection is less sensitive. Definitely the best compromise modified which you could expect to gear 34 to 37 mm/rev for most circuits.

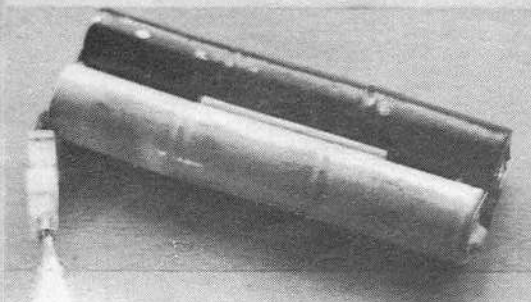
Triple winds are fairly new departure, the best currently available are from *Demon*, *Trinity* and *Associated* (white dot?). These winds are more torquey than the double wind type, but do need good cells to get the best from them. Typically geared at 38/41mm/rev by the fast boys, you will find these motors economic on long open circuits, but a cell killer if you try and use all the torque on a small circuit.

Whichever motor you choose, use it regularly so that you get to know it well. It is no use having lots of modifieds and then not knowing how to gear them

when you get to a meeting. Far better to have only one, or perhaps two and know their characteristics well enough to be able to put them in the car and be only 15 or 20 seconds out on cell duration. Practice makes perfect, and you will find that all the best drivers have one or two motors they always return to for the race that matters.

Modified motors also consume awesome amounts of current and consequently brush wear (particularly *Yokomo's*) is high. Wear on the commutator is something else to be watched for. A modified should be cleaned regularly, preferably by taking apart and washing carefully in lighter fuel to remove dirt and carbon dust. If you are unsure of taking your motor to pieces find someone who knows how to do it properly or can show you. If your commutator is worn, it will show as a reduction in diameter in the track where the brush runs. Comms can be re-trued inexpensively (*M.G. Products* do a re-truing service) to give an old motor a new lease of life. Badly worn comms waste power and ruin a good motor.

Run a new modified in by gearing it low for the first one or two runs then overgear it so that it dies before eight



Above: six-cell Ni-cad pack fitted with 12V 3W car bulb to achieve total discharge. Flattening batteries between heats is also possible by using a 30W car indicator bulb.

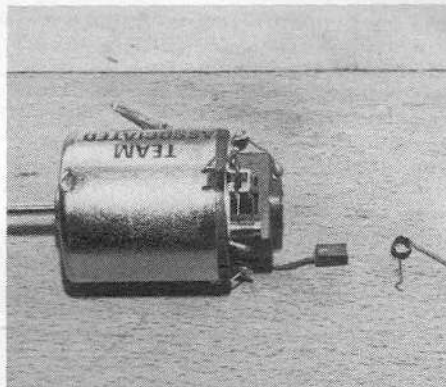
Modified Motors

There is now a bewildering array of modified motors for you to choose from which makes it difficult to decide which motor should benefit from your hard earned cash. The major difference between them these days is not the number of turns on the armature but the type of wind. You can now select a single, double or triple wind motor. This means that the armature is wound

minutes. Note the ultimate ratio and then gear down in 1-2 mm per rev steps until you get a full eight minutes. Remember to allow for different cell packs and if you have a really bad heat disregard the duration time and try again. When you have reached a happy compromise take a note of the ultimate ratio and use it as a starting point for all races in which you use that motor. Modifieds are expensive so look after them and remember, standard motors are quicker in National events and cost £26.00 less!

Yokomo 'Standards'

There have been reservations expressed recently that the now legal Yokomo standard motors are too easily



Above: standard Yokomo with brush removed to allow filing of the contact area. Springs have also been 'tweaked' to give optimum pressure.

This effect can be gained in the Yokomo by filing half the brush away and replacing it in the correct orientation in the holder. You can spot this by looking for brushes which are half width and placed in the holders. See Fig. 3.

Obviously both mods became undetectable if only a very small step or point removal is done and the brush is full width by the time an eight minute race is over. But if they only file a little off, they won't get any significant advantage.

Springs

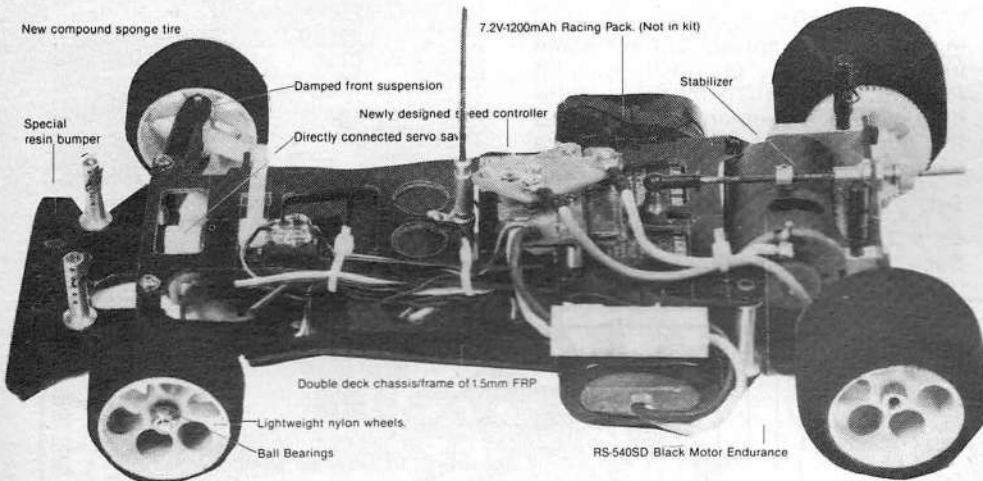
By connecting the motor to a set of cells and gradually increasing the brush spring pressure from zero to maximum, you can hear the motors highest speed relative to a spring pressure which is neither too low or too high. Adjusting the spring so that it sits at that pressure in its standard position, gives you a better performance. Spring pressure adjustment is not easily measurable since there does not appear to be a standard spring position. My advice to scrutineers is to get a new set before your meeting and compare spring angles with those from other motors being scrutineered. If there is a significant difference then warn the person concerned.

To keep your Yokomo motor in top condition, clean the brushes and brush holders regularly with lighter fuel. While the brushes are out of the holder, push a cotton bud dipped in 'Mr. Cool' down the holder and up against the commutator. Rotate the motor a few times by hand, then repeat the process through the other holder. Replace the brushes and springs. After brushes are about 1/3 to 1/2 worn you may find a drop in performance. Renew the brushes and the springs together if you suspect the springs may have relaxed due to heat build-up, otherwise just renew the brushes. See the item on motor treatments for further hints.

Motor Cleaning

I have been using two products from Bolink Industries (USA) which are designed to clean motors and restore performance.

The first is 'Electro-Whirl' to be used for cleaning old motors. Simply empty some into a jar, sufficient to fully immerse a motor, dip the motor into the fluid and connect to six cells for ten to 20 seconds. If the motor is well used,



Above: all new 1/12th scale electric car kit from Tamiya. Judging by appearances the 'Porsche' should go well and indeed includes similar features as seen on some of our 'state-of-the-art' machines. Should be a good introductory car for beginners as the kit is a complete components package, including differential and speed controller.

open to modification because of the undetectable access to the brushes and commutator. So, here are the current hot mods so that you can detect them at scrutineering and disallow the offenders' heat times.

Brushes

There are two changes which can give an improved motor performance. The simple one is to remove the brush and file the 'points' off to prevent overlap. Overlap describes the phenomena of the brushes shorting not across two commutator segments to promote rotation (see 'Motor

Torque', Model Cars, May) but across a single comm segment. This just drains the battery and gives a reduced motor performance. See Fig. 1.

Removing the brush from the holder and placing it end-on to a flat smooth file allows the points of the brush to be removed and prevents overlap. See Fig. 2.

This improves motor performance and battery life.

The most difficult modification to do (and to spot if it is done well), is the 'half brush' modification. On a modified motor the brush gear can be rotated relative to the magnets to 'advance' the motor timing and give more power.

Fig. 1

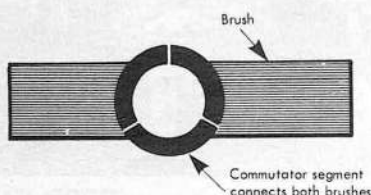


Fig. 2

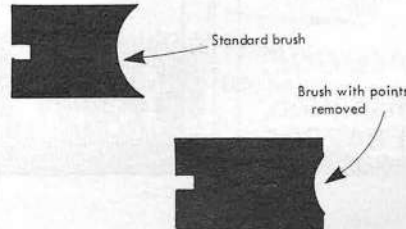
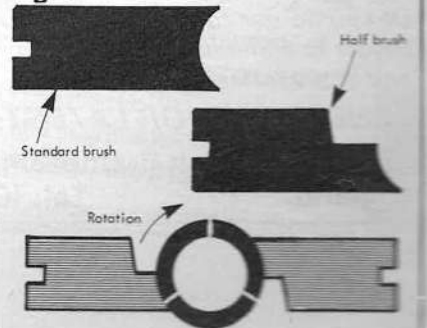


Fig. 3



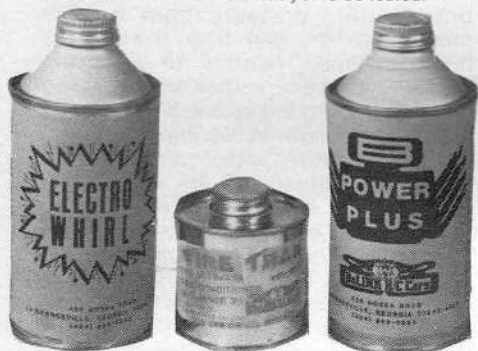
On The Carpet

the fluid turns black very quickly as dirt and carbon dust are flushed out. Disconnect the motor, withdraw from the jar and allow excess 'Whirl' to drain out of the motor back into the jar. Dry off the motor. This really cleans the motor, even the gaps between the commutator segments are free from dirt.

The second tin contained 'Power Plus'. Treat the motor in exactly the same way as for 'Electro Whirl', but only leave it running in the fluid for five to eight seconds. Drain off, dry and lightly re-oil the bearings. The motor is now ready to run.

I admit to being less than impressed

Below: three new 'cans of Jollop' from Bolink Industries the 'Tire Trak' has yet to be tested.



by cans of jollop claiming "Squirt some Power Plus on the comm of your motor, then fasten your seat belt and hold on!" (so modest the Yanks!) But this stuff (when used together) gives impressive results. My motors were faster and smoother. I cleaned one of Andy Benson's 05's at Chesterfield in May and he was equally pleased with the results. These are the most effective cleaners to have come our way, but are not available generally in the UK as this is written. The *Bolink* importer is Cecil Schumacher so if you want to try some 'Electro Whirl' or 'Power Plus', pester Cecil for price and delivery at 'Rudge', Church Brampton, Nr. Northampton, Northants.

Crystal Holder and Gear Tray from ATP

Alpha Track Parts, makers of bodies in 1/12th scale appear to have some unused capacity on their vacuum forming machine. To fill these spare hours, Alan Blakeman has designed two other vac-formed items which are made to very reasonable standards.

The first is a Crystal Holder, having 12 pockets to take a full set of split and solid colours for 27MHz operation. Each pocket has a colour coded label

above it, which must be expensive to make up and stick on. Since the brown and brown/grey labels had faded beyond recognition, I would have preferred etched letter (on the mould) which would produce indelible markings next to each pocket. The pockets were exactly the right size, and the lid at precisely the right height to keep the crystals securely in place without pushing on the pins. An excellent idea well made from durable materials.

The second is a Gear Tray, which features recesses to secure four drive

Below: Alpha Track Parts latest releases, gear tray and crystal holder.



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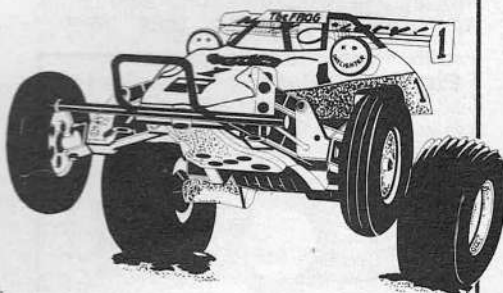
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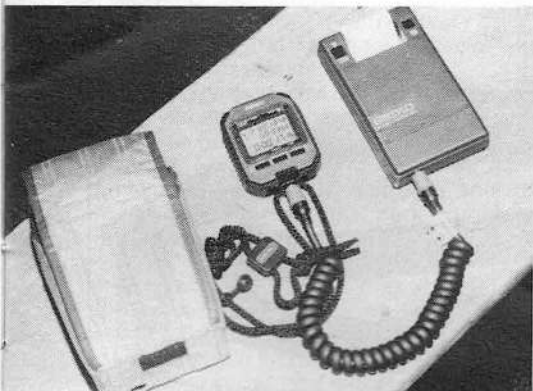
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Above: every team manager should have one. Seiko stopwatch plus timing modes to the nth degree and pocket printer for the hard copy.

gears (44 to 50 tooth) and eight pinions (8 to 15 tooth). The drive gears are a snug fit, some too snug, and the pinions easy to place and remove from their positions. The use of a strip of foam rubber in the lid prevents movement of the contents. Like the Crystal Holder, a good idea, well made, from durable (TEAC proof!) materials.

Both the Holder and the Tray cost £1.75 and are available from *Alpha Track Parts*, 11 Newark Street, Leicester LE1 5SS (don't forget P&P) or your local model shop.

Laser Compact Update

In the July issue we discussed lowering of C of G using the new breed of speed controllers with small dimensions suitable for mounting on the chassis plate. Having used the 'Laser Compact' for a couple of months I was happy with its forward operation but rather disappointed with the braking performance and the way the reverse only comes in when the car is stationary. You notice this because it takes so long for the car to stop! Being on loan I returned the 'Laser' to the manufacturer (Glynn Peglar) with my comments. Three days later Glynn gave the Compact back to me and said 'try that!' I don't know the details of the mod he made but it now brings the brakes on a par with my *Demon* and since it now stops sooner, the delay in selecting reverse is less irritating. Glynn advises that all 'Compacts' sold since the end of May include this change.

Dedicated 'Laser' users say that they can suffer the reverse problem because the forward operation includes switching off the power transistor completely making the controller more efficient. I can feel no difference, but the principal makes sense.

This controller is not cheap (£39.95) but it is now to be rated as one of the very best currently available. This market used to be a one horse race, it is now difficult to know which of the two leading horses to back. You choose between the devil and the strong bright light!

Backlash

- It is just as well Phil Olson is sponsored by *Parma International*, otherwise his European Championships win could have been costly. It transpires that Phil has put the complete car, yes just as it came off the track, on his mantelpiece next to the trophy. Phil was absent from the local meetings following the Euro's waiting for a new chassis, etc. to arrive!

- Andy Benson is to receive semi-works backing for his latest chassis choice, the ATP 'Omega', recently reviewed by MC. Andy was down to drive *Demon* at Chesterfield, but it is understood that he will now drive ATP the 'Omega'. You can read how he got on in *Racing Round Up*.

- I claim a record for ultimate ratio. In one heat I ran 14:44 on 50mm tyres, equal to 49.98mm/rev. for a full eight minutes. Unless of course you know better . . .

New Magazine

Railways is still the most popular area of modelling, and we're about to make it more popular still. Because September 21st will see the launch of **Your Model Railway**, the first really professional magazine for all who have ever been interested in making scale layouts.

We don't have space to tell you all about it here, but be sure to look out for it on September 21st. **Your Model Railway** — *The best!*

Out Fri. Sept. 21st

An Argus Specialist Publication

Your Model Railway

NEW

MORE information on locos, rolling stock and scenics.

BETTER advice on modelling for the enthusiast with special features for beginners.

IMPROVED coverage of news and new products.

PLUS far more features and improvements than we can tell you (or our competitors!) about here.

Track Talk

New circuits in the making — at home and abroad

Yorkshire success

At last! the new Yorkshire RCMCRC racing complex is now in existence following a great deal of hard work by the club members and John Russel in particular. The complex will also include an Off-Road circuit for 1/10th and 1/8th scale buggies plus an area for camping and car parking. Directions to the circuit are as follows.

Leave motorway M62 at junction with M606 to Bradford (do not enter M606).

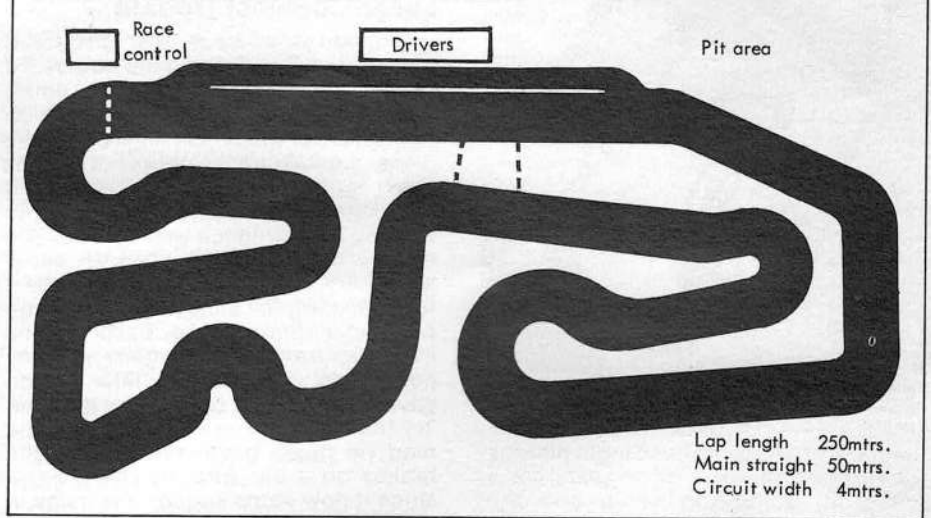
At roundabout take A58 to Halifax.

On dropping down into Halifax take left hand slip road at start of flyover following signs to Leisure Centre. (North Bridge Leisure Centre).

Turn left into Charlestown Road and at 200 metres turn right into Leisure Centre. Racing Complex is on the left.

As can be seen from the diagram and photograph, the circuit should provide plenty of interest during the BRCA Open Meeting on September 15/16. But will the sun shine?

Yorkshire RCMCRC circuit — Halifax

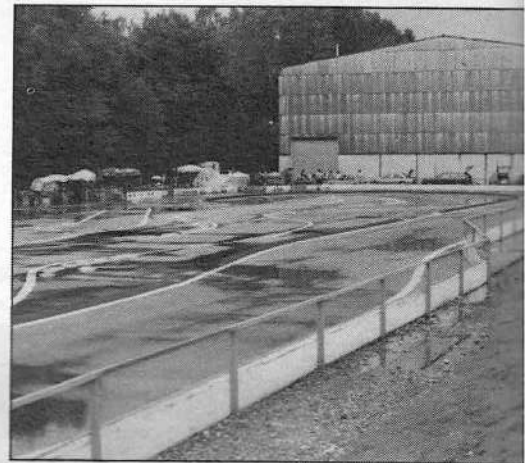


Brugg Beauty

The Model Car Club Brugg has recently re-vamped their purpose built 1/8th circuit in readiness for the European Sports/GT championship to be held there on August 5. In fact an EFRA GP (Swiss) has already been held there in May of this year.

As can be seen from the diagrams and photo the new track is much smoother flowing with a lap length of 330 metres. The kink at the end of the straight is little more than that so few problems should be encountered there. The middle part of the circuit looks like it could be quite fun if taken fast and a European Championship final will provide the thrills.

We hope to have a report of the meeting in the near future, so watch this space.



Above: general view of the Brugg circuit during a local club meeting. Even the Swiss have to put up with rain. Incidentally, the large building in the background is the sports hall used for the 1980 European 1/12th scale Championships. Photo: S. Manashe.

Tyre treatments — the gripping truth

A lot of opinion has been voiced recently concerning the practicality, and lately, legality of treating tyres with various substances to increase grip.

The main argument for treating tyres rests on the fact that harder grades of tyres (Delta A's, B's, Associated 2402's and PB 215's) could be used with comparable results to the so-called 'Super-tyres' (Gandini, Bajoma, Houdini). This is all very well but by applying additives to these tyres and thus increasing grip all you do is increase tyre wear. Simple because the additive actually cleans and softens the rubber.

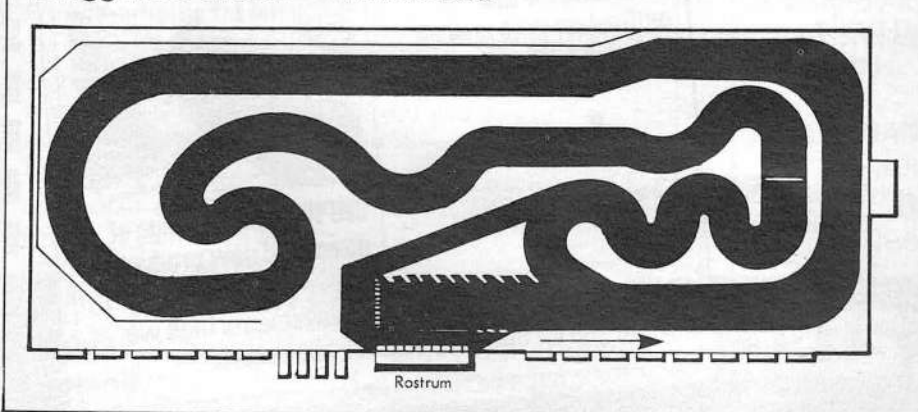
When considering the application of tyre additives the following points should be noted.

a. An increase in the co-efficient of grip between tyre and track surface will accelerate tyre wear.

b. Tyre additives will be an extra expense (depending on who's selling it!). Also a great deal of 'treatment' will be needed to cover all four tyres before each heat.

c. If tyre additives will increase the performance of cheaper, low grade tyres, just think what it will do to Gandini's Bajoma's etc.

Brugg MCC circuit — Switzerland



Above: the beginnings of the Yorkshire Club circuit situated near Halifax. By the time you read this the hard core should have been laid and treated with weed killer and the tarmac topping rolled out. Photo: G. Linstrom.

d. Who can afford to use a set of treated, 'super-soft' tyres for every heat in every national meeting? Answer — the sponsored few.

Basically by allowing the use of tyre additives all that will be increased is the expense of going racing. The effect of tyre additives will only last five minutes anyway. So it's back to square one in the final, unless you can vacuum impregnate your tyres beforehand.

What is vacuum impregnation?

Well basically by putting your tyres into a container and then sucking all the air out to create a vacuum the tyre can be treated all the way through. The sort of machine you will require to do this is something like a vacuum-forming device. You know the sort of thing used for making bodysells. Of course if you haven't got one of these ... tough!

The only plus side to the whole question is that tyre additives can improve grip in the wet.

European Corvette Championships

Bob Errington was there to race and report

WELL THIS IS what the meeting should have been called as no less than 90% of the entrants were running 'Corvettes' of one style or another, the highest placed non 'Corvette' was Rody Roem's (*Serpent*) who finished up 13th.

Beautiful Downtown Sollenau, south of Vienna was the image impressed on my mind as I for one packed shorts, sandals, sunglasses, short sleeve shirts, etc. ready for the start of the



Above: spectators' view of the 'awesome' Sollenau circuit. Note excellent pit/drivers' rostrum and crowd control facilities.

tanning season. The Easter meeting at Southampton had just passed with the fabulous weather, further stressing the point that good times were ahead.

So to the racing. The circuit looked as immense as ever, the straight truly formidable only lacking a rubbish Skip to place all the broken engines in, or so I thought! Gearboxes would be an obvious choice here. But no — only about a dozen cars were using them. Engines would surely be blowing every few minutes — but again — very few 'blew' over the whole meeting. Gary Culver's was the first seen, one of his Mark IV 'thrompers', No. 46 to be precise.

The practice was good and all cars seemed to circulate nicely. The race sheets were produced and the last three heats looked like the final line up by themselves. These were going to be the heats to watch. So with Thursday drawing to a close it was back to the hotel for a nights rest.

At the start of the qualifying it was actually snowing, although not laying and the first four heats were quite

greasy. Thereafter the snow ceased, but the track remained damp. Out with the *Drinkwaters!* was the cry heard as most of the English contingent delved deep into their tyre boxes to find the Ken Drinkwater specials.

At the end of Round 1 the qualifying chart looked like this:

			Laps	
1.	Michael Mielke	I SG/OPS	12	5:18.8
2.	Bob Errington	GB SG/OPS	12	5:22.5
3.	M. Constantini	I SG/OPS	12	5:26.4
4.	Francesco Placenti	I SG/OPS	12	5:35.6
5.	Viltoriano Orazi	I SG/OPS	11	5:00.3
6.	John Chamberlain	GB SG/OPS	11	5:01.5

At this stage it started to snow again, but only for the first few heats and so Round 2 looked as if it would be similar to Round 1. The track seemed greasier somehow and where as our *Drinkwaters* were not quite so good, the Italians managed to find something that worked a little better thus giving results as follows:

1.	Domenico Colce	I SG/OPS	12	5:10.7
2.	Viltonano Orazi	I SG/OPS	12	5:12.2
3.	Roberto Bartolasi	I SG/OPS	12	5:12.6
4.	Steve White	GB SG/OPS	12	5:19.1
5.	Massimiliano Constantini	I SG/OPS	11	5:00.0
6.	Luilio Gherso	I SG/OPS	11	5:00.0

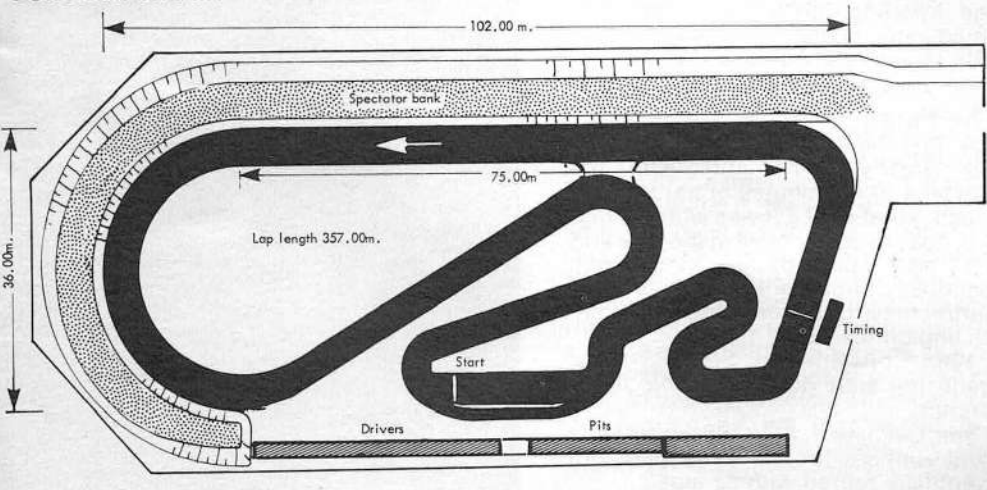
English drivers were fairing well and after these two rounds the lunch break was called and the overall result chart displayed their qualifying positions thus far.

12.	Phil Greeno	SG/OPS	11	5:04.6
21.	Paul Pagdin	PB/Picco	115:25.6	
34.	Dave Dixon	SG/OPS	10	5:23.8
38.	Nigel Sayles	PB/Picco	10	5:34.2
41.	Phil Hague	PB/Picco	9	5:04.5
53.	Gary Culver	PB/Picco	9	5:29.2

The remaining 5 English drivers all had problems and had not had complete heats.

By the end of the lunch-break the track had dried completely and it was obvious right from heat 1 that the previous two rounds were going to count

Sollenau circuit — Austria



Chequered Flag



Italian SG team driver, Vittoriano Orazi after winning his first European title. Vittoriano is SG's chief test driver and also qualified for the Carnoux World Championship Final.

for nothing, as the track characteristics returned to normal. The leader board again contained the same names as follows:

1. Lullio Gherzi	I	SG/OPS	15	5:03.9
2. Roberto Bartolomasi	I	SG/OPS	15	5:04.1
3. Vittoriano Orazi	I	SG/OPS	15	5:06.5
4. Stefano Calpista	I	SG/OPS	15	5:07.0
5. Francesco Piacenti	I	SG/OPS	15	5:09.7
6. Massimiliano Constantini	I	SG/OPS	15	5:09.9
7. Franco Sabatini	I	SG/OPS	15	5:11.4
8. Phil Greeno	GB	SG/OPS	15	5:12.4
9. Steve White	GB	SG/OPS	15	5:15.2
10. Bob Errington	GB	SG/OPS	15	5:15.4
12. John Chamberlain	GB	SG/OPS	15	5:15.6
16. Gary Culver	GB	PB/Picco	14	5:00.0
18. Phil Hague	GB	PB/Picco	14	5:02.1
24. Paul Pagdin	GB	PB/Picco	14	5:13.1
27. Debbie Preston	GB	PB/OPS	14	5:21.6
30. Keith Plested	GB	PB/Picco	13	5:00.1

The fourth and final round was set to be faster than ever with no less than 80 of the 100 entrants going faster than before. This made the last three or four heats a bit 'scrappy' at times. Fast — but still scrappy.

The final qualification print-out looked more like an Italian 'open' meeting with no less than 9 Italians in the top 13. S.G.'s seemed to have a reasonable domination too with 12 out of the same 13.

After 4th Round

1. Roberto Barolomasi	I	SG/OPS	16	5:15.4	Main
2. Vittoriano Orazi	I	SG/OPS	16	5:16.4	Main
3. Stefano Calpista	I	SG/OPS	16	5:19.3	Main
4. Domenico Calce	I	SG/OPS	16	5:19.9	Main
5. Michael Mielke	D	SG/OPS	16	5:20.2	Semi
6. Steve White	GB	SG/OPS	15	5:03.7	Semi
7. Giulio Gherzi	I	SG/OPS	15	5:05.1	Semi
8. Franco Sabatini	I	SG/OPS	15	5:06.6	Semi
9. Klaus Hosechen	D	SG/OPS	15	5:07.6	Semi
10. Michael Salven	S	Serpent	15	5:08.0	Semi
15. Bob Errington	GB	SG/OPS	15	5:09.9	Semi
16. Phil Hague	GB	PB/Picco	15	5:10.1	Semi
17. Phil Greeno	GB	SG/OPS	15	5:11.2	Semi
19. Gary Culver	GB	PB/Picco	15	5:13.2	1/4
22. John Chamberlain	GB	SG/OPS	15	5:15.6	1/4
24. Paul Pagdin	GB	PB/Picco	15	5:16.3	1/4
25. Debbie Preston	GB	PB/OPS	15	5:17.3	1/4
38. Dave Dixon	GB	SG/OPS	14	5:05.03	1/8
41. Dave Preston	GB	PB/OPS	14	5:07.3	1/8
43. Keith Plested	GB	PB/Picco	14	5:08.0	1/8

Gary Culver was the unlucky 19th qualifier, just missing the semi's and thus would have to run in one of the quarter-finals. All finals in European meetings are run on the Sunday now and encompass the top 80 qualifiers in what has been described as a 'Christmas Tree' arrangement.

Colin Strauss made the first English appearance in the second of the 1/32 finals and again luck deserted him leaving him 75th overall (coincidentally his entry number was 75). Nigel Sayles on this his first big meeting, finished 84th after a fine display of driving before troubles beset him.

The second 1/16th final saw John Russell drive a steady 47 laps in the 20 mins. but unfortunately 51 were required to reach the 1/8th finals and this left John in 58th place.

Dave Dixon's 23 laps and radio interference left him 49th after he had led his 1/8th final for the first 5 minutes.

Keith Plested and Dave Preston both featured in the second 1/8th final, Keith drove 43 laps to place 45th whilst Dave achieved a worthy 52 laps to get him into the second 1/4 final where luck too left him, leaving him 38th.

John Chamberlain and Paul Pagdin both drove well in the first 1/4 to make the semi by achieving 54 and 53 laps respectively.

Gary Culver and Debbie Preston teamed up, yet again, for the second 1/4 final, Gary with 41 laps and 34th whilst Debbie drove 53 which was just 1 short of a semi-final placing leaving her in 27th.

And so to the first Semi-Final with no less than four Englishmen competing. Steve White drove his usual smooth race to second place with a guaranteed place in the final. The other three could not match Steve's 56 laps and were left as follows: John Chamberlain 54 laps — 16th, Phil Hague 50 laps — 22nd, Paul Pagdin 47 laps — 23rd.

The second semi looked fairly hard and was at a quick pace straight from the onset. Phil Greeno arose to the occasion (*again*) and won with a worthy 57 laps, where as yours truly had irritating mixture problems and could only manage 53 laps to place 18th (Must be a sign of old age).

The Final:

At last the main final was upon the ten worthy contestants with the prospect of 45 minutes of hard racing ahead. What a race it was with the first two, nose to tail for most of the time and both taking pitstops for fresh rubber. Eventually Orazi took a 1 lap lead on Bartolomasi to become the European Champion for 1984.

10th: Constantini, I. SG/OPS never made the start due to chronic interference.

9th: Calpista, I. SG/OPS up with the front runners for the early part, but eventually retired with 82 laps.

8th: Steve White, GB. SG/OPS an early clutch problem cost him dearly in time leaving him with only 103 laps at the end.

7th: Mielke, D. SG/OPS cheered by the German contingent in the crowd, Michael drove well to reach 115 laps.

6th: Bergonzini, I. SG/OPS another rising Italian ace scored 118 laps.

5th: Veronesi, I. Mantua/OPS, Sergio had come through from the quarter-finals and the speed of his lightweight Mantua was impressive eventually amounting 120 laps.

4th: Phil Greeno, GB. SG/OPS, Phil drove well to make 123 laps.

3rd: Calce, I. SG/OPS yet another fast Italian, a name to watch, made 124 laps.

2nd: Bartolomasi, I. SG/OPS. A superb drive by this experienced man, lead for the first half of the race and totalled 127 laps.

1st: Vittoriano Orazi, I. SG/OPS his 'Pink Panther' look-alike car was always impressive. A magnificent 45 minutes faultless drive to secure 128 laps and the title — European Saloon Champion 1984.

A great meeting and one to remember. Interestingly very few motors blew despite the length of the straight and the fact that Windscreens on the bodysells had to remain intact thus restricting airflow. 20% Nitro was all that was used by all the leading runners, perhaps this helped, but it certainly didn't reduce the performance. Next year, however, sees only one class of European Championships to be raced, with the class to be decided at the EFRA A.G.M., unless of course they decided to do otherwise.

What do you think is best?

Making a splash! Andy Stafford (dry) obviously fed-up with Colin Strauss' (very wet) verbal gymnastics uses the Stonehaven river to good effect. Mr. S. Goary of Bentfleet, Essex, took the picture and includes a message from Colin to Andy with it, "Watch out Stafford - you're next!"



MODEL CARS

Slotstox

Build yourself a Slotstox race car with our full-size plans



Below: typical Slotstox circuit, down the straight and into the chicane, the better drivers will either get through first or hang back and then 'nerf' their way to the front.

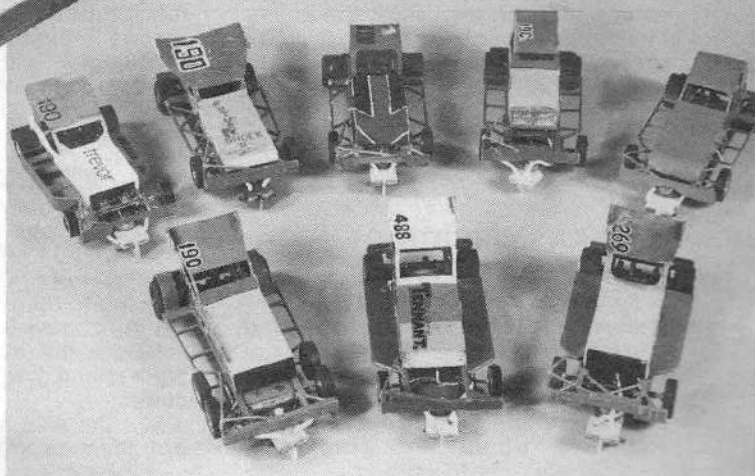
TO WIN CONSISTENTLY it follows that you need a consistent car. An obvious remark perhaps but one which I feel is not fully appreciated by some slot-racers I have met over the years. I had it brought home to me very forcibly about 20 years ago when driving against one of the top rated drivers of the time in my first National meeting. The problem was that I didn't finish the race because a rear wheel on my car fell off. One of the onlookers at the time commented to me that rotten or non-existent car preparation will never win races. It's advice I have never forgotten. Although most Slotstox races are very short in duration, I make a point of always methodically checking the vital functions of the car before the start of the race. The car construction should be such that whilst strength will always be a big factor. Performance must be the main priority if winning races is the desired objective.

A car can be described in several sections.

- 1: Chassis considerations;
- 2: Motor type and power output;
- 3: Transmission of power to track;
- 4: Current collection from track;
- 5: The Body.

MODEL CARS

Right: a collection of race-ready Slotstox cars built by Trevor Tennant for both club, inter-club and national events. Note six-wheeler prototype based on a full-size car, front row, left.



1. CHASSIS

I have used with great success a very simple design which will work with most motors, provided it is assembled correctly. No special jigs are required but a flat surface such as a 6 x 4in. piece of *Formica* faced chipboard will ensure that at least your chassis is something like flat. If the frame is not built square and flat there is no way it will work, added to that it follows that to get a first class result good quality materials should always be used. The main frame members should be best quality piano wire although the supply of this can be a problem. Most of the wire on sale in model shops is unsuitable, because as soon as you try to solder anything to it the coating on the wire repels the solder and produces a nasty mess. The use of any fluxes only makes matters worse. The only satisfactory solution is

to use the bright nickel plated-wire — if you can find it.

The brass can sometimes be obtained at model shops. Unless you are very wealthy I would recommend either a brass stockholder such as *I. M. I. Righton* who are excellent, or a scrap metal dealer who deals in non-ferrous metals. I have obtained large quantities of new unmarked brass this way for very reasonable cost. *I. M. I. Righton* incidentally make a thick wall brass tube which is ideal for axle tubes. The best way to find a stockholder is to look in Yellow Pages. Normally you will have to buy the brass in 10ft. lengths, but if you can share this with a friend the cost will be more tolerable. Failing that, you may be able to buy some short offcuts if you are lucky.

The chassis design I use may seem dated in concept but experience has proved the soundness of the design. The 'Flexi-Board' chassis doesn't seem to work with rubber tyres. This is because the tyres cannot generate enough traction to get the weight transfer system to work. The simple two rail design will give a very smooth and easy to drive chassis.

2: MOTORS

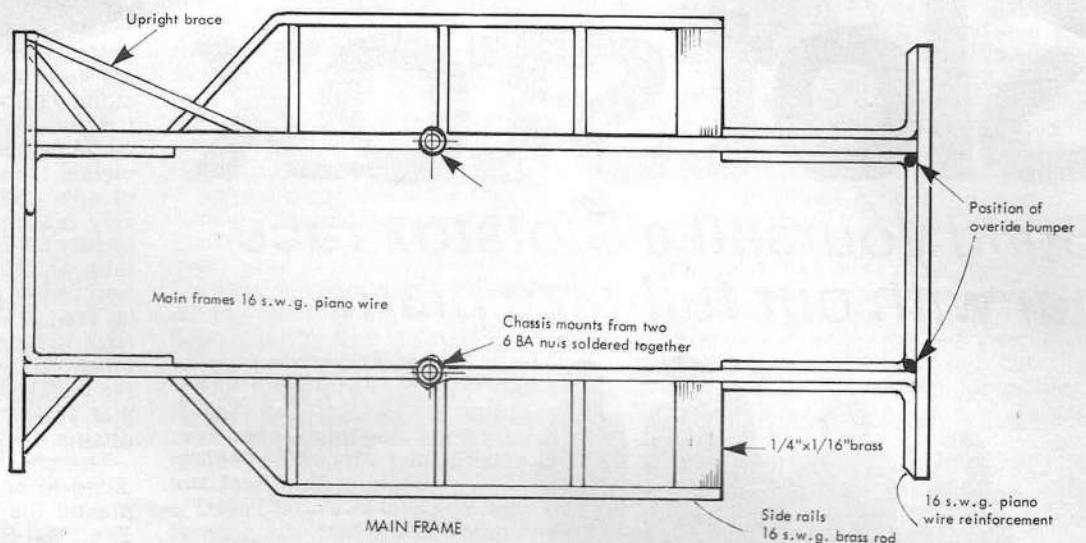
The motor is the most important consideration when designing a car. Now that the New *Parma '16D'* has been sorted out it is the obvious choice as a standard motor. I have fitted a pre-production motor in the car described and the performance is very impressive. The brakes may not be as strong as some people prefer but this can easily be cured by fitting stronger brush springs. In fact the car was raced at a Teamrace event on the *Pailton* circuit with great success coming home first in the Final. One thing to consider however is these motors do use a lot of current to perform properly. If your track's power supply is frugal then the standard version of the motor is the best bet. I don't use a *Mura* motor in my Slotstox because in spite of many attempts I have yet to have any success

Slot Car Acceleration

Model Cars
Slotstox
plans

Full
size

designed
by
Trevor
Tennant



with them. The power delivery, for me, is all wrong with the vicious mid-range kick causing the rubber tyres to lose traction.

The vital thing to remember is that all the really great slotcars have always been very easy to drive. Assuming of course that the driver has the ability. The important point is to never race a car which is too fast for the ability of the driver. People when they try my own built cars normally remark how easy they are to drive very fast, without a lot of difficulty.

3: TRANSMISSION OF POWER TO TRACK

To obtain this smooth easy to drive feature it follows that the drive train must not affect the power delivery. Worn motor bearings and badly set up gearing will not give a smooth power delivery. The motor should be examined when purchased. If a

selection of motors is offered, choose the one which has the least amount of end float. The ideal amount of float is very little, about 5thou. of an inch. If the motor has more float it must be stripped and spacers fitted to obtain the correct amount. It's a good idea to retain the endbell with some Allen grub screws either 6BA or 8BA. This modification will help greatly when you need to clean the motor. Fit a nine-tooth pinion on the motor shaft next to the bearing face. Remove the excess shaft length with either a fine tooth hacksaw blade or a grindstone. Carefully solder the pinion to the shaft leaving a small amount of clearance. Coating the teeth of the pinion with a thin layer of grease will prevent solder sticking to them. I find the best way to set the gears up is as follows.

Solder the motor to the mounting plate taking great care to get the motor central.

Cut the axle bearing plates out and drill them as shown.

If possible part the axle tubes off in the lathe, leave both tubes overlength for trimming later. One end of each tube must be squared off with all burrs carefully removed.

Now solder the inner and outer chassis rails to the motor plate with the droparm in place as a spacer. The next step is to fit the *Beatties*, 42-tooth contrate on the centre of a drillblank axle.

Fit the axle tubes on the axle followed by the bearing plates.

The whole assembly will to a degree be self-aligning, the plates rest on the rails butted against the motor plate.

Ensure that the axle is both square and level to the motor and chassis.

Leave a clearance to allow the end float of the motor to occur without the pinion smashing its way into the contrate.

The mesh should be free without any backlash.

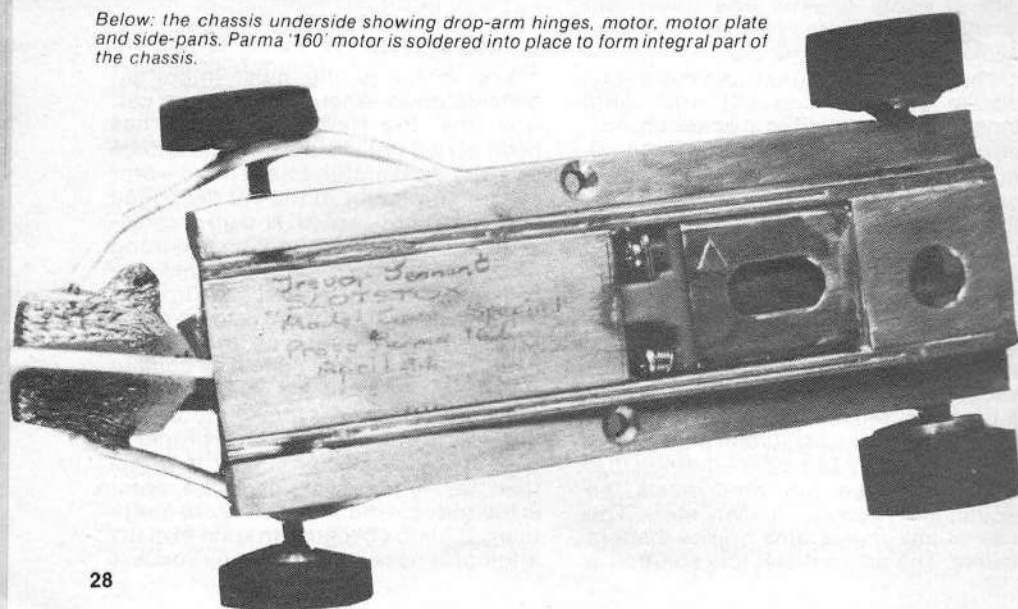
Meshing gears is an art which can only be learned by experience. If you are not certain what you are doing my advice is to consult the local expert if possible. The use of tyre goop to lubricate the gears will prolong the life of them greatly. The ratio specified has been found to give the best results on a wide variety of tracks. The availability of suitable rear tyres are a problem at the present, the ones fitted on this car are some prototypes. Hopefully in due course these will be freely obtainable. I suggest that the *Supershells* 3/8 in. wide soft slicks are an excellent substitute. The rear hubs are standard 1/2 in. wide 1/8 hole spacesavers. The rear tyres must be sanded true for best results.

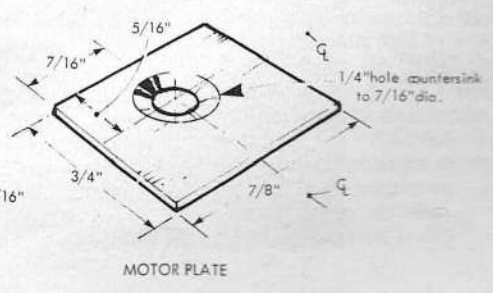
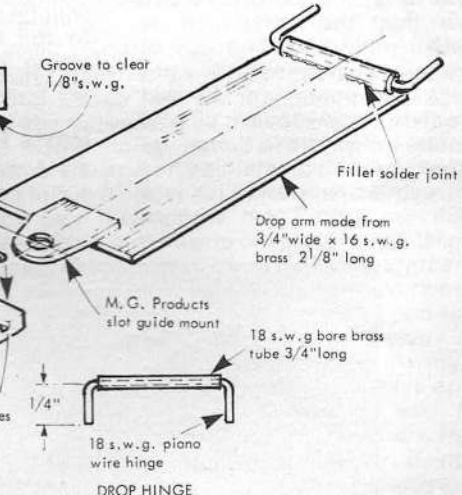
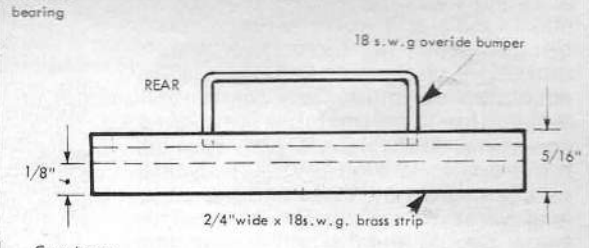
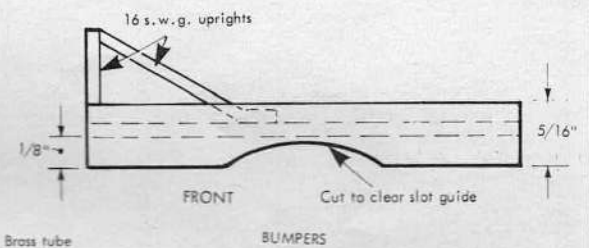
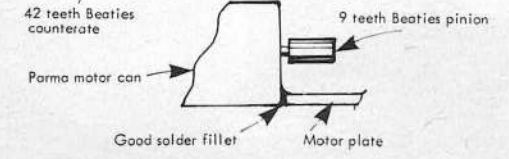
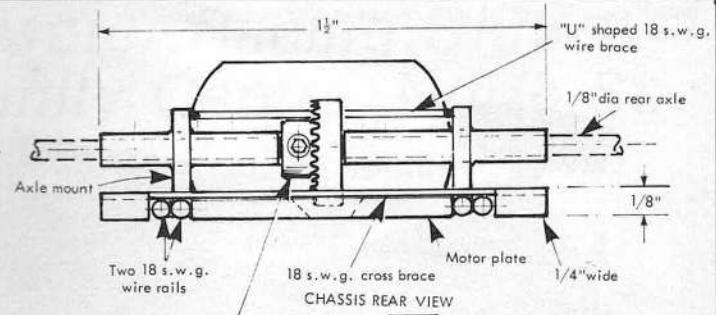
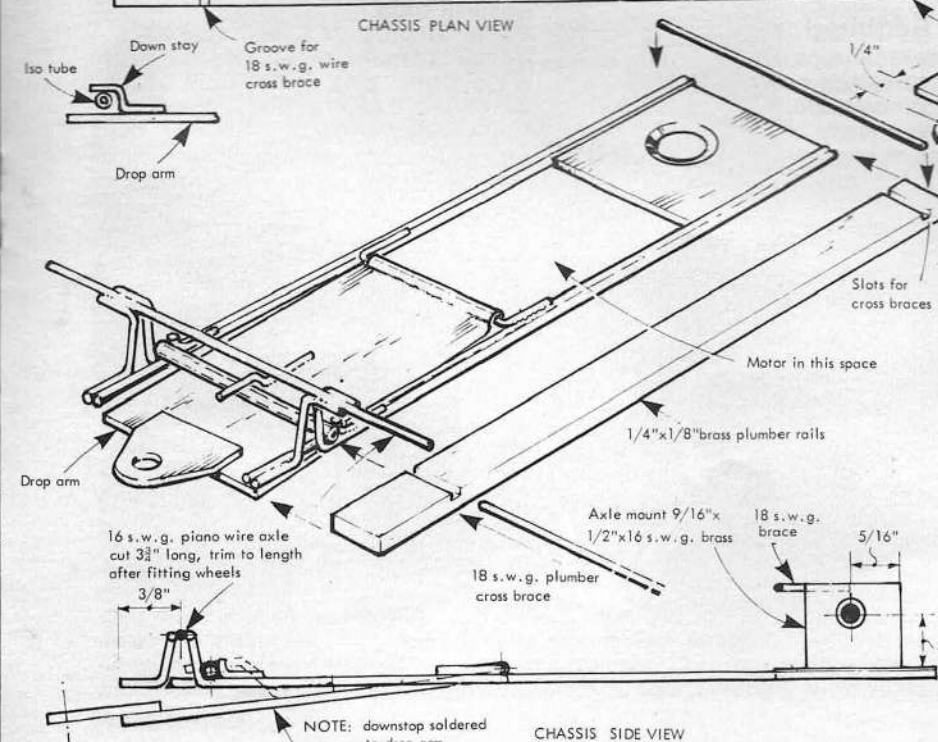
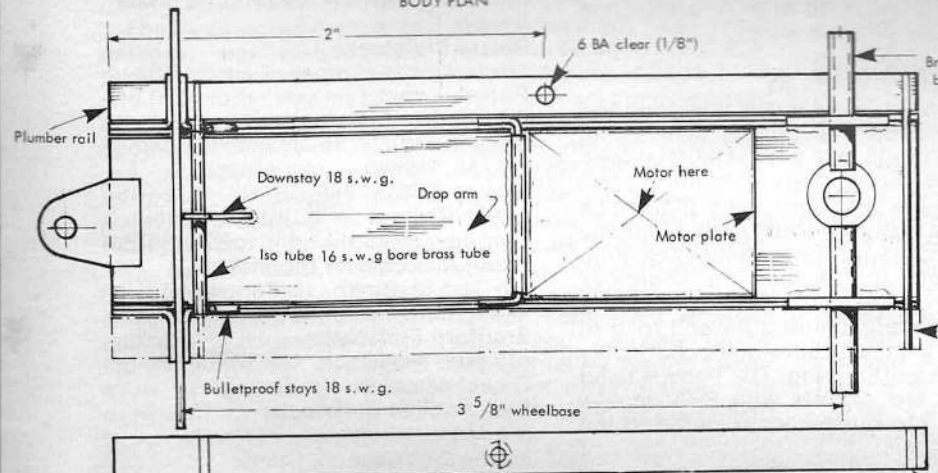
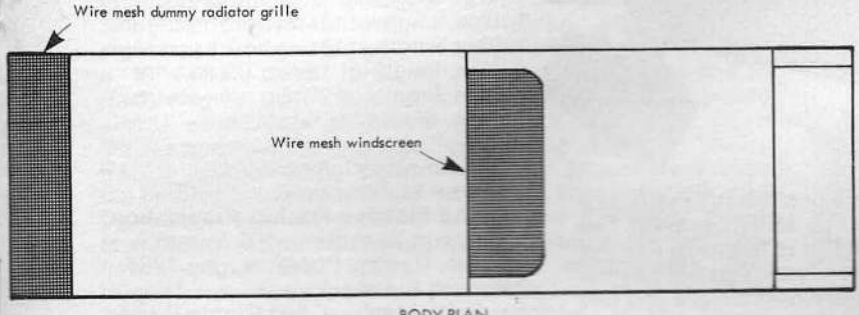
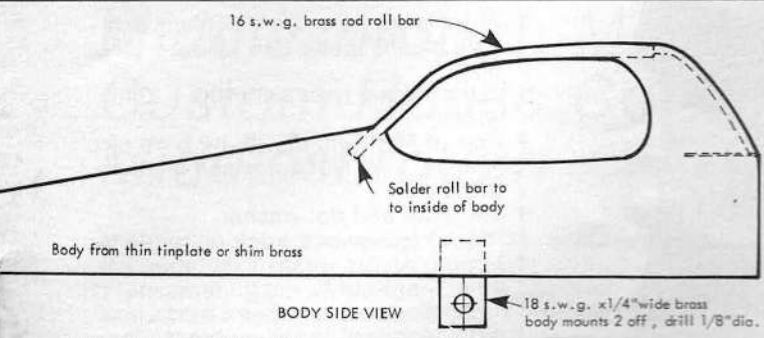
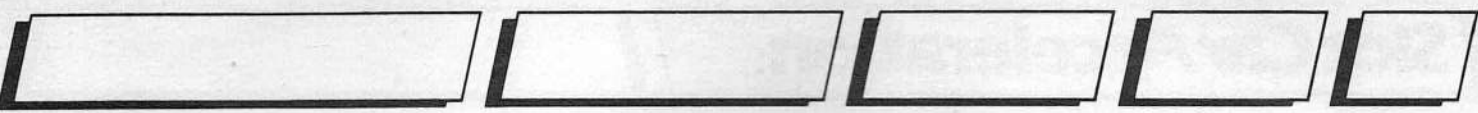
3: CURRENT COLLECTION FROM TRACK

This car uses a droparm which is old-fashioned, but in the rough and tumble of contact racing is an absolute necessity. The tracks we race on being

MODEL CARS

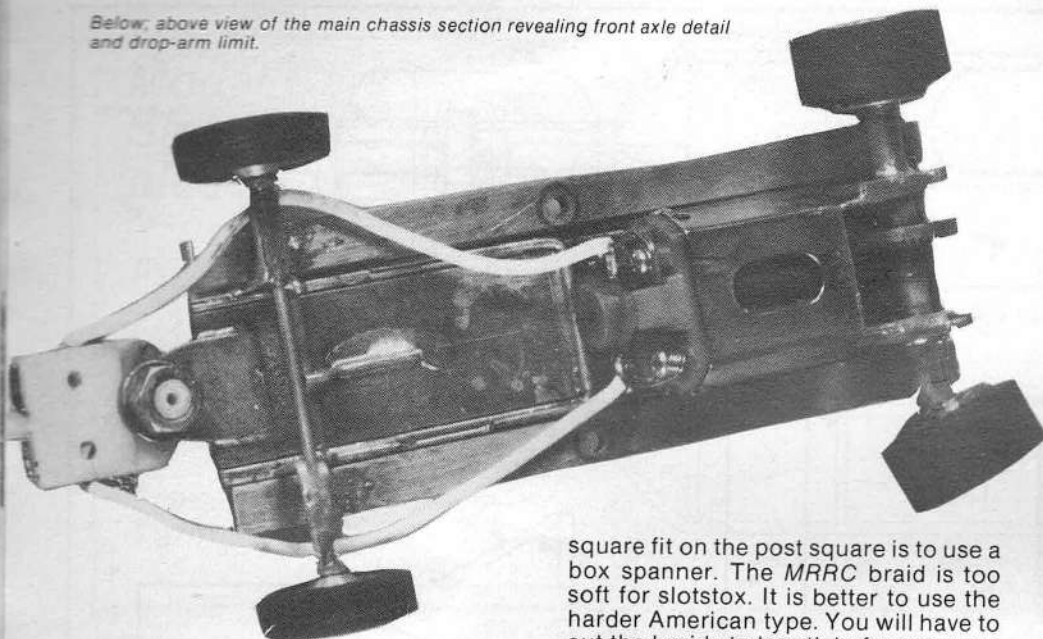
Below: the chassis underside showing drop-arm hinges, motor, motor plate and side-pans. Parma '160' motor is soldered into place to form integral part of the chassis.





Slot Car Acceleration

Below: above view of the main chassis section revealing front axle detail and drop-arm limit.



portable are not always very smooth so anything which helps the slot guide to stay in the slot is worth having. Do not be tempted to have too much movement on the droparm, $\frac{3}{16}$ in. is the absolute maximum, any more will make the car unstable on hard cornering. Always use a limit stop on the droparm to limit the travel. Some people who should know better use the lead wires to restrict the travel. The same people then wonder why the leads pull out of the guide after a good shunt. I never weight the droparm, but make sure that the movement is smooth with no binding. The use of springs to keep the droparm in the slot is not to be recommended, all that springing will do is make the car de-slot in the corners. I always use *Simco* Jet guides and my method of retaining this guide is to use a 5mm nut. This is a good fit on the guide post without being to tight. The best way to ensure a

square fit on the post square is to use a box spanner. The *MRRC* braid is too soft for slotstox. It is better to use the harder American type. You will have to cut the braids to length before you use them. For hook up wire my preference is the *MG* silicone wire.

4: THE BODY

The body is cut out of thin plate and soldered together, bearing in mind that the body will take a lot of hard knocks. Making a body is very easy, the tinplate can be cut with light snips and can be formed with little trouble. By reference to photographs other shapes can soon be made up. My favourite source of tinplate is beer cans. Beware, the latest cans are aluminium; I haven't tried to solder them with alloy solder but it may well be worth trying. The body is fixed to the top chassis with 6BA screws fitting into brass nuts soldered to the top chassis.

Parts Required

- 1 *Parma* '16D' motor.
- 1 Set of *Beatties* gears; 42 teeth contrate, 9 teeth pinion.

- 1 $2\frac{5}{8}$ in. long \times $\frac{1}{8}$ in. dia. drill blank axle.
- 1 Pair of *MG* hubs $\frac{1}{2}$ in. wide \times $\frac{1}{8}$ in. bore.
- 1 Pair of rubber tyres 23mm dia. \times 10mm wide.
- 1 Pair of *MG* $\frac{5}{8}$ in. dia. $\frac{1}{16}$ in. bore pin wheels. 1 Jet slot guide and medium braids.
- 1 5mm nut and flat washer.
- 1 Pkt. of *MG* silicon hook up wire.
- 1 Length of $\frac{1}{8}$ in. brass axle tube.
- 1 12in. length of $\frac{3}{4} \times \frac{1}{16}$ in. brass.
- 1 12in. length of $\frac{1}{4} \times \frac{1}{16}$ in. brass.
- 1 12in. length of $\frac{1}{4} \times \frac{1}{8}$ in. brass.
- 1 12in. length of 16swg bore brass tube.
- 1 12in. length of 18swg bore brass tube.
- 1 36in. length of 16swg piano wire.
- 1 36in. length of 20swg piano wire.
- 4 $\frac{1}{16}$ in. dia. brass washers.

The following clubs cater for wouldbe Slotstockers:

Midland Slotstox Racing Association
c/o Shaun Drakeford, 107 Yates Avenue, Rugby. Phone Rugby 3284.

Racewell Slotstocks
c/o Peter Mayhew, 342 Ripple Road, Bacup, Lancs.

Bacup Slotstocks
c/o Granville Holmes, 7 Hoyle Street, Bacup, Lancs.

Rosendale Slotstocks
c/o John Willis, 16 Delamere Road, Flixton, Urmston, Manchester.

Torbay MRC
c/o R. Perrow, 36 Audley Avenue, Torquay, Devon. Phone (0803) 36781.

South Manchester Slotstocks
c/o Ted Sharman, 12 Conewood Walk, Manchester.

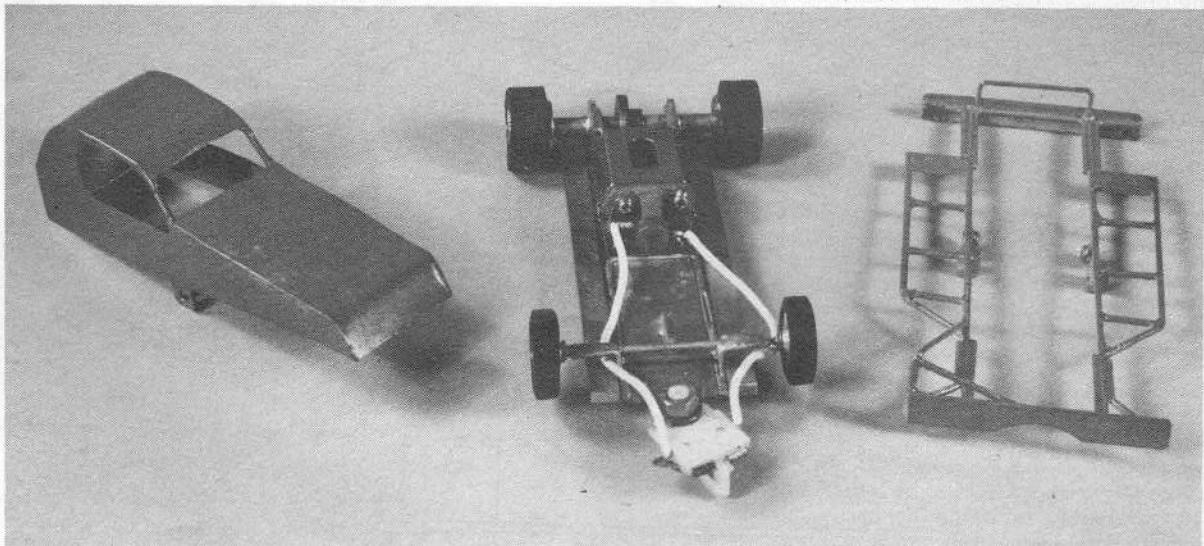
Bradford Slotstocks
c/o Mrs. A. Nelson, 106 Westgate, Cleckheaton, W. Yorks.

East Anglian Slotstocks
c/o Marcus Johnson, Wisbech Raceway, Wisbech, Cambs.

Reddish Club
Barrie Gregory, 24 Balmoral Road, Denton, Manchester M34 2JO.

Wirral Club
Dave Vine, 8 Seaton Road, Wallasey, Merseyside L45 5HJ.

Right: the three basic chassis sections, bodyshell, main chassis and main bumper frame. Bodyshell is manufactured from a beer can and can be painted with enamel paints.



Middlesbrough Model Motor Racing Club Custom House Community Centre, North St. Middlesbrough — Dave Hodgson provides the details

M.M.M.R.C. was formed in the early 60s using a 4 lane, 114ft. track. Also within the same area a commercial slot racing centre was started using an 8 lane figure-of-eight track, which later led to a 6 lane, 95ft. track (including a 180° banked curve) which was used for the National British Slot Car Racing final in 1967. When the centre closed in 1968, the track was stored and in 1971 M.M.M.R.C. acquired it and has used it ever since, through two changes of club rooms, up to 1983.

The track stored in various garages, was re-furnished through the summer of 1983 and in October was installed at a local community centre above their multigym.

A portable track was borrowed for display purposes, a 3 lane, 65ft. long example and fits within a 16ft. by 4ft. area, 1/32nd Parma cars are run on 6 volts and provide very competitive racing with no possibility of the cars being damaged even if driven by total novices.

car as competitive as the next.

We backed this Championship with a publicity campaign, using 200 posters distributed around model shops, car accessory shops, garages, chip shops and in fact anywhere that would display a poster. A good outlet was the main library who sent 40 posters to their outlying branches. We also contacted the local newspapers and radio, and the council magazines. This publicity resulted in 20-25 competitors, in the Parma Championships, 10 of whom have moved on to B.S.C.R.A. cars and competitions.

Parma cars are purchased as a kit for £8.00. They can also be run on Scalextric tracks with a slight modification to the 'jet' guide.

We allow no modifications to the cars except strengthening by soldering the motor to the motor bracket, the earlier cars were end-bell drive and so had to be revised to match the newer can end drive motors. The motor bracket was also bent



Above: slotcar racing can provide a challenge and a thrill for all ages. Experience is not necessarily for 'fun' racing.

and a 10hm resistor introduced to each lane, this allows the use of normal hand throttles. The race time is also reduced to 2 minutes. Despite this the cars can produce lap times approximately 75% as fast as outright 1/32nd sport cars i.e. 17.5 laps/2mins.

The Parma Championships is being run over an 8 week period, each driver must complete a minimum of 20 races, there being no upper limit. At the end of the eight weeks each driver's bottom 20% race results are discounted (allows for breakdowns and marshalling errors, etc.) and the total number of laps remaining divided by the number of races remaining provide a Race Average.

Initially 3 grades of drivers were selected, Grade A drivers who could consistently produce 15 laps in 2 mins. Grade B Drivers who could consistently produce 12 laps in 2 mins. Grade C Drivers as a novice class.

A trophy is being provided for each class winner.

All drivers compete together regardless of grading, since at the moment there seems to be a shortage of Parma cars (come on Parma), the grade A competitors are confident

enough to lend their cars even to novices in the knowledge that no serious damage can be done. This allows the novice to be convinced that it is the good driver who sets the good time, not the car.

For a club to fully benefit from this type of racing, it should open another night purely for these cars with all regulars in attendance enabling novices to be introduced to slot racing in a competitive friendly atmosphere at relatively low cost i.e. Parma cars £8.00; 2 1/2Ω controller, £4.00. We also find that a number of father and son competitors are present, the youngest driver being three years old.

By using Parma cars we are able to have open nights for schools and troops of scouts and cubs, this adds to the publicity being pushed out, news-papers like this sort of event.

We all enjoy our Monday evenings in the Parma Championships, try it, we think you will too.

So come on Slot Clubs around the county - publicise your existence. No amount of BSCRA rules changes or chassis design is going to improve your membership if the public don't know you exist.



Above: The M.M.M.R.C. Club circuit provides an evening's worth of entertainment and interest for the local visiting cub pack.

We found this to be so much fun due to the close racing that we decided to purchase our own Parma cars and promote and run, a championship on a separate club night entirely for Parma cars. The main idea being to allow novices to enter slot racing at a low cost, with a

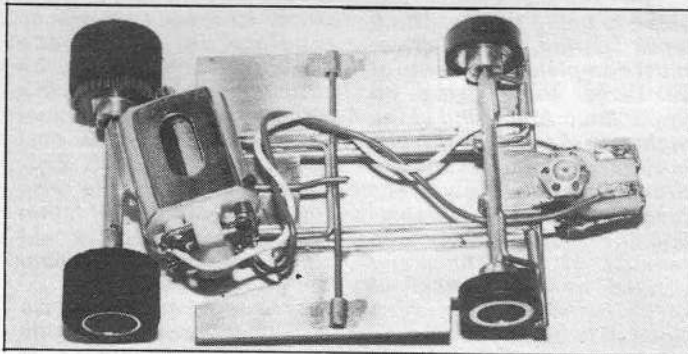
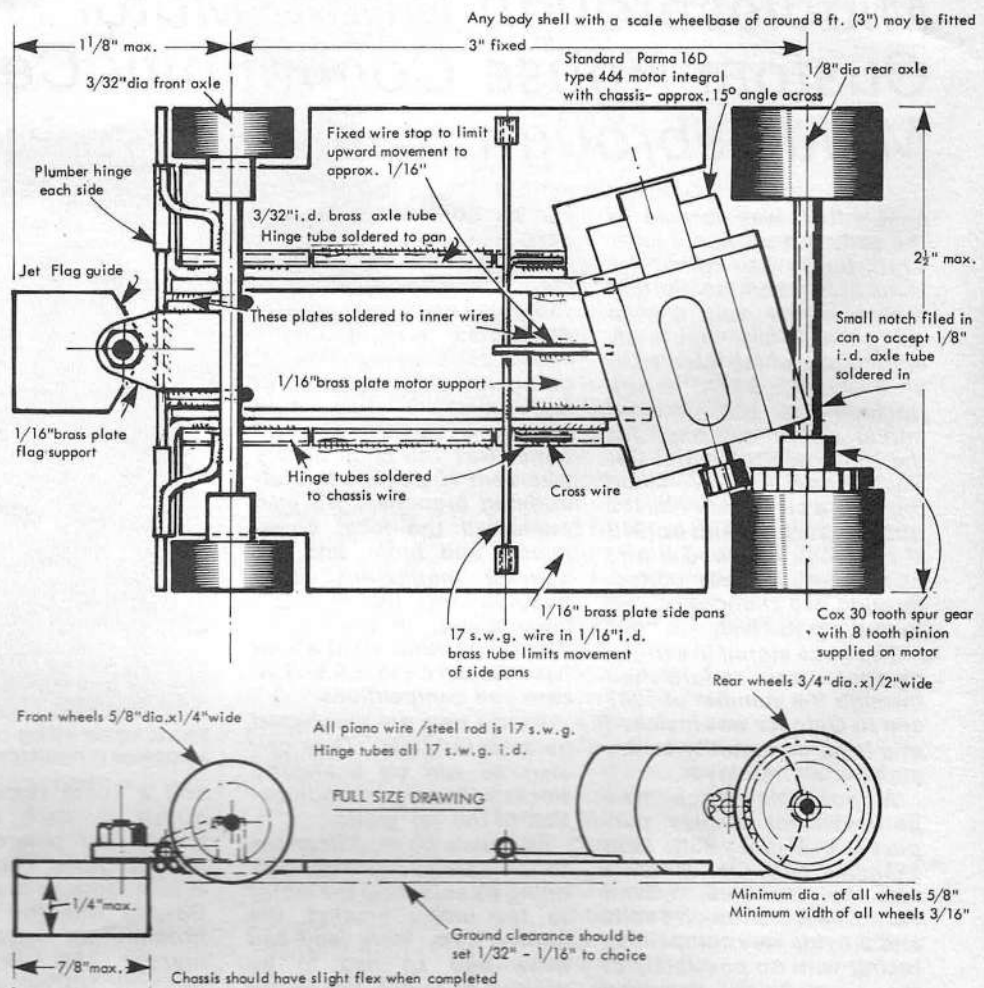
slightly to align the motor shaft and pinion with the rear axle, thus providing a good gear mesh, these few modifications provide a reliable car.

To improve motor reliability the battery charger powering the track is turned down to its lowest setting

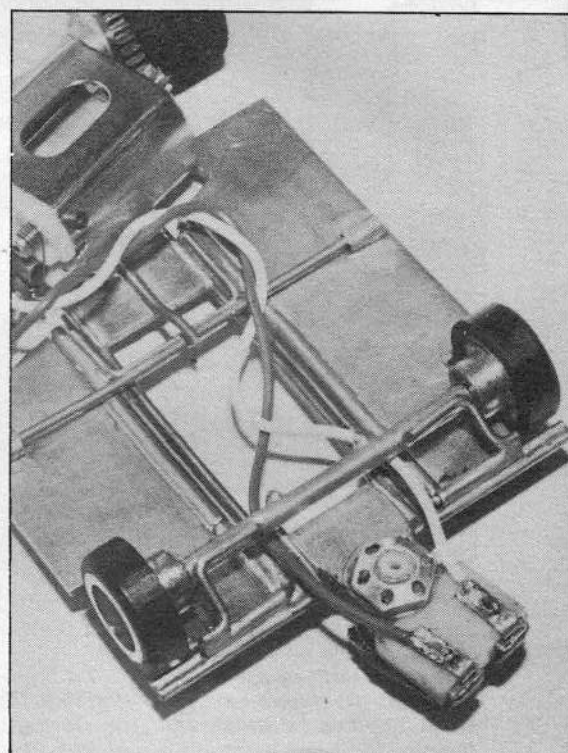
Slot Car Acceleration

Plan of chassis developed for 16D class using Parma motor. Designed by Gary Cannell

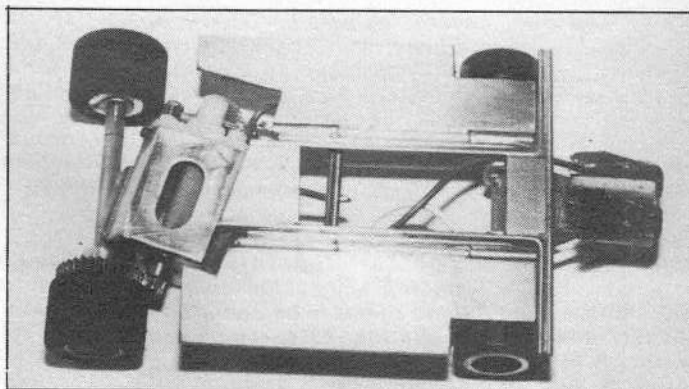
- 1: Brass plate $\frac{1}{16}$ in. thick.
- 2: Brass tubing.
Rear axle $\frac{1}{8}$ in. ID.
Front axle $\frac{3}{32}$ in. ID.
Hinge sections 17 swg ID.
- 3: All piano wire/steel rod is 17 swg.
- 4: Chassis should have slight flex when completed.
- 5: $\frac{5}{8}$ in. dia. \times $\frac{1}{4}$ in. wide front wheels.
- 6: $\frac{3}{4}$ in. dia. \times $\frac{1}{2}$ in. wide rear wheels.
- 7: Any bodyshell with scale wheel base of 8 ft. (3 in. actual) may be fitted.



Left: top view of Gary Cannell's 16D class car using the Parma motor. This design was instigated to provide a low cost 'fun' type of racing. Right: close-up of the front end showing axle and Jet flag guide. Several of these cars are being currently raced with favourable results.



Right: the underside of the 16D side pans, hinges and pick-up braids. The designer is, incidentally, the outright lap record holder at the Vauxhall club circuit as well as being the BSCRA's Publications Officer.



AROUND THE AREAS



The map shows the notional areas as used by BSCRA. The BSCRA Council for 1984 is now as follows.

Chairman	Charles Gooding	0420 87041
Secretary	Chris Frost	0425 612127
Competition Sec.	Ian Fisher	01 866 8571
Membership Sec.	Nigel Harvey	0473 214267
Treasurer	Sarah Harvey	0473 214267
Newsletter Ed.	Gary Cannell	0923 42725
Public Relations	John Goldsmith	0284 63038

Area delegates listed as per map:

1. Frank Lucas	0383 729777
2. Steve Sargent	0253 36748
3. George Kimber	0632 462620
4. Geoff Mitchell	0624 20784
5. Keith Packer	0203 84982
6. Rob Lees	01 263 5545
7. Nigel Thompson	0454 316245
8. Bill Robinson	04203 7100
9. Dave Harvey	0634 826410
10. Nigel Harvey	0473 214267

BRITISH SLOT CAR RACING ASSOCIATION

160 CHAMPIONSHIP REGULATIONS

- The B.S.C.R.A. will sanction a championship for 160 powered cars, which will be in addition to but separate from all current championships.
- The racing will be open to two driver classes;
 - Junior drivers, up to and including age 16 at 1st January 1985.
 - BSCRA Novice grade drivers.
- All competitors must register with the championship co-ordinator, enclosing a 50p registration fee. The championship co-ordinator is :-

Pete Crane
9, Cherry Vale
Hesketh Bank
Preston
Lancs. Tel. 077473 3227

The co-ordinator will deal with all matters regarding the championship, items and news will be published in SLOT CAR RACING magazine.

- Each BSCRA area will organise race meetings. Please contact the area delegate indicated on the map for details of racing in your area.
- There will be two classes of car for the championship.
 - Class 1; Parma '412' ready-to-run 1/32 scale cars. (These cars must remain STANDARD, except for the following. Weight may be added to the chassis; the rear wheels and tyres may be changed to owners choice; The gear ratio may be altered to any ratio using a Cox gear; The bodyshell may be changed for any other that is a reasonable fit.

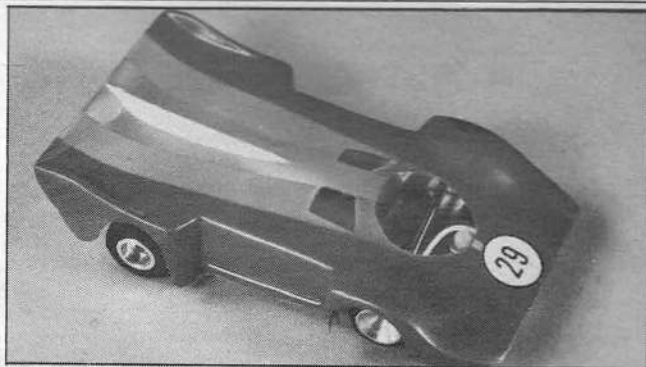
Class 2; Cars must comply with BSCRA car regulations. Cars must be powered by a STANDARD 160 motor, either the MARC 'hot' 160 OR the Parma 160, catalogue no.464. Chassis must have a wheelbase of 8ft. (3 inches) The front wheels must be fitted to a rotating axle. The use of ballraces is prohibited. Any Sports, GT, or Saloon bodyshell may be used, providing a reasonable likeness is maintained with regard to wheelbase and the prototype.

NOTE :- In ALL cases, the motor MUST remain standard. This specifically excludes balancing, epoxying, cone truing, magnet spinning, alteration of drive location, ANY alteration to the bearings or brushgear, grinding magnets.

- Competitors may enter a car in each class. Points will be scored according to the methods used in each area, and will include concours points.
- Cars will be scrutineered according to the spirit and the letter of the rules. Race controllers/scrutineers will be non-competitors, and be responsible for upholding the rules.



B. S. C. R. A.



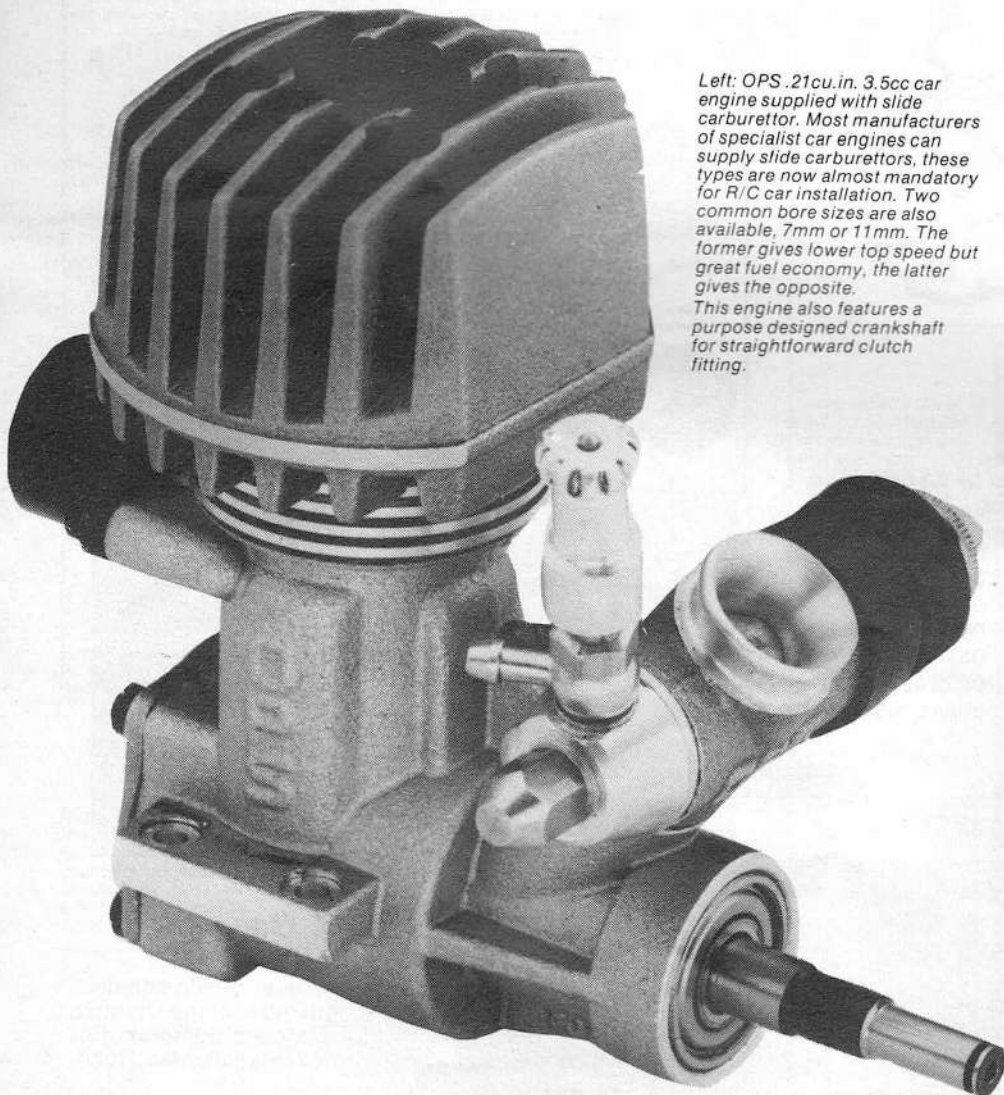
Above: the Parma 412 1/32nd ready to race car, now a BSCRA National competition class.

1984 British Slot Car 1984 BSCRA National Finals — Blackpool.

This is the premier event in the UK Slotcar racing calendar and is to be held on the 15, 16, 17th September at the Olympia Exhibition Hall in Blackpool Winter Gardens complex. For further details contact S. Sargent, 79 Manchester Road, Blackpool F3Y 8DP.

Engine Preparation

A tried and trusted method for proper engine installation – by Bill Burkinshaw



Left: OPS .21cu.in. 3.5cc car engine supplied with slide carburettor. Most manufacturers of specialist car engines can supply slide carburettors, these types are now almost mandatory for R/C car installation. Two common bore sizes are also available, 7mm or 11mm. The former gives lower top speed but great fuel economy, the latter gives the opposite. This engine also features a purpose designed crankshaft for straightforward clutch fitting.

THE ABSOLUTE SIMPLICITY of 'plug-in and switch-on' just has to be the most important factor in the staggering success of electric power R/C cars over the past six years. There is no denying that for virtually all who aspire to running an I.C. (Internal Combustion) powered vehicle, actually fixing the engine into the car, starting it up and running it are major difficulties. Sadly, there are many who never successfully overcome these hurdles leaving a potential traffic jam of model cars rusting in sheds and many would-be enthusiasts turning to those other fads of the 80's such as micro-computers or BMX biking.

During the past two years much has been done by the major manufacturers to ease the task of fitting engines into cars but there are still areas of difficulty evidenced by the letters and phone calls received in 'Model Cars' offices. The following article should serve to overcome a few of the pitfalls likely to be encountered.

Selecting an Engine

Why should it be necessary to select an engine; after all, most cars are supposed to fit all available engines? True and false. Whilst it is possible to fit most engines to most cars, there are certain combinations that just won't work unless engineering facilities of a complex nature are available. E.g. a side exhaust engine in a *Delta 'Eagle'* or rear exhaust in a *Serpent 'Cobra'*. Firstly, be advised by the specialist from whom you buy your car kit as to the make and model of engine which will be best suited. The most common makes of car manufacturers frequently act as distributors for a particular make of engine and their kits tend to favour the engine they distribute.

Clutch Fitting

There are several different types and styles of clutch around, which can be grouped as follows:

(a) Off-Road car clutches, which often have spring loaded metal shoes and are 'universal', theoretically needing no modification to the engine. Such clutches usually clamp onto the flywheel retaining the propeller driver still supplied with most 'car' versions of engines. Whilst they usually work well if properly set-up and maintained, these clutches are often inferior to those supplied by the larger circuit racing car manufacturers. See Fig. 1a.

(b) Aluminium flywheel, bolt-on clutches with usually, PTFE shoes, collet fixing and generally need crankshaft shortening for fixing. See Fig. 1b.

(c) Clamp-on clutches for which all the threaded section of the engine crankshaft is removed the flywheel gripping the plain ground section of the crankshaft. See Fig. 1c.

It is first necessary to check that the thread in the clutch unit supplied fits your chosen engine. The two common sizes found are $\frac{1}{4}$ in. UNF and 6mm with straight sections of the shaft being either $\frac{1}{4}$ in. or 6mm in diameter.

With many clutches it will be necessary to press the pins, which the shoes pivot on, into the flywheel. This operation is straightforward providing a vice is available. Use of a hammer to fit the pins is not to be recommended. See Fig. 2a. Most pins are fitted from the rear of the flywheel, particularly if they are of the solid variety with scored ends to provide a tight fit. See Fig. 2a. Do not press the pins any further through the flywheel than is necessary, if you do, the ends will probably foul the inside of the clutch drum and prevent the clutch from releasing properly. When the pins are pressed in, check that they are square to the face of the flywheel if not a gentle 'tweak' with a pair of pliers will generally put things to rights.

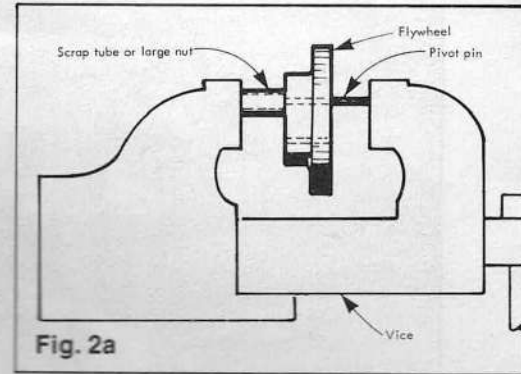
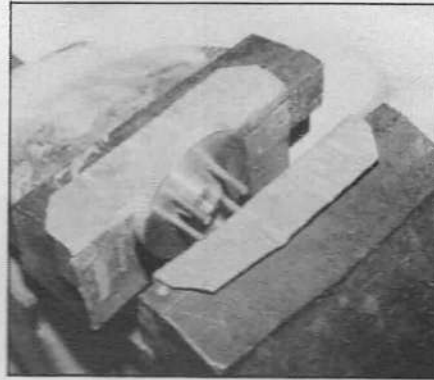
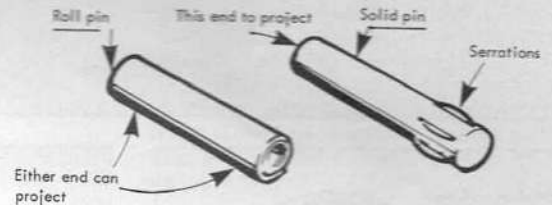
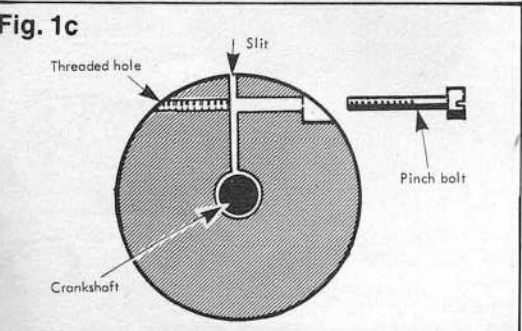
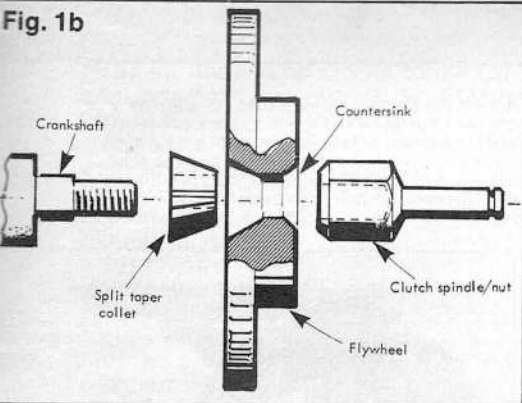
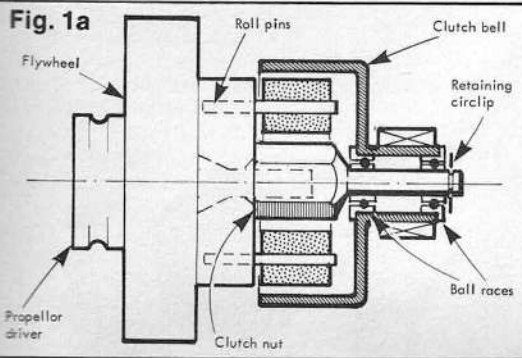


Fig. 2a

Fig. 2b



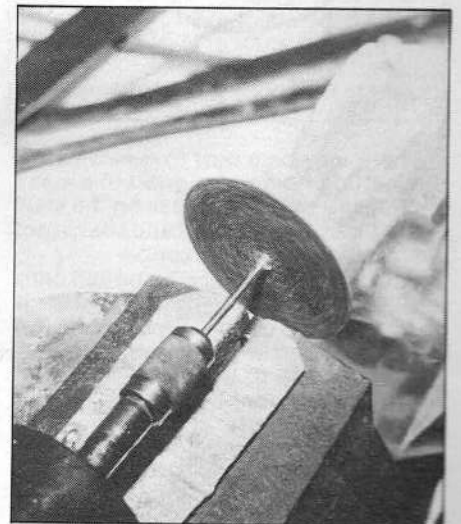
Above: when squeezing the pivot pins into the flywheel a good quality vice is recommended. School workshops or the local car service centre will probably be the best source of help for this.



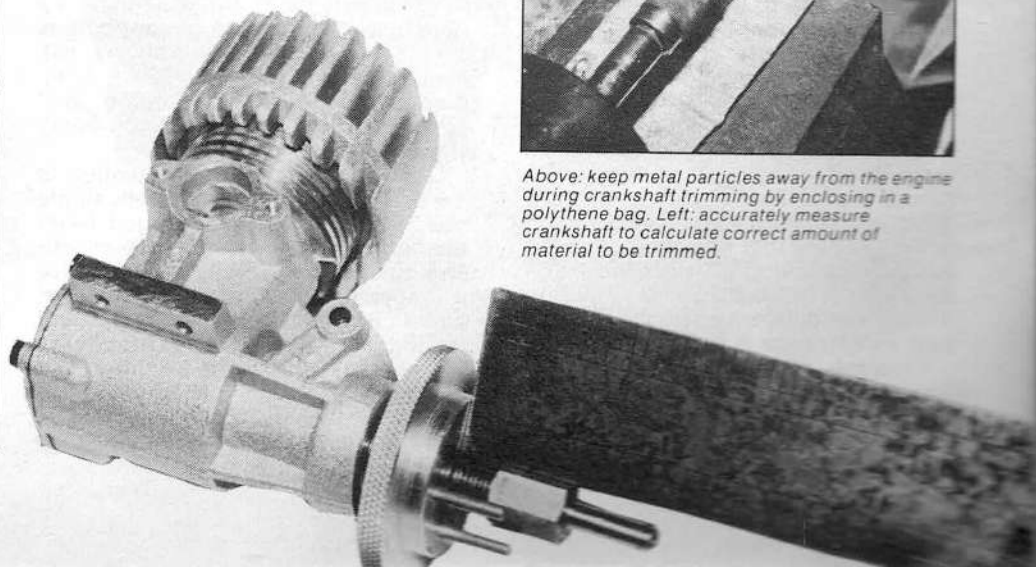
Fitting universal clutches

Even if the clutch is designed to fit any type using the propeller driver supplied with the engine, a little extra preliminary work can save future frustration. The smooth rear face of the flywheel needs to be roughened up a little for reliable drive action. I use a centre punch to make a roughened area and apply thread locking compound to the mating surfaces. You must check that the engine crankshaft thread does not bottom out in the clutch nut. It may be necessary to trim a few millimetres off the end of the crankshaft. Most crankshafts are at least surface hardened and a few, OS for example, are very hard all the way through. The best tool for trimming is a low voltage power drill with grinding disc. CAUTION! You will need to fully protect the engine from any abrasive particles. I put the engine into a polythene bag with the crankshaft just projecting from a hole in the corner.

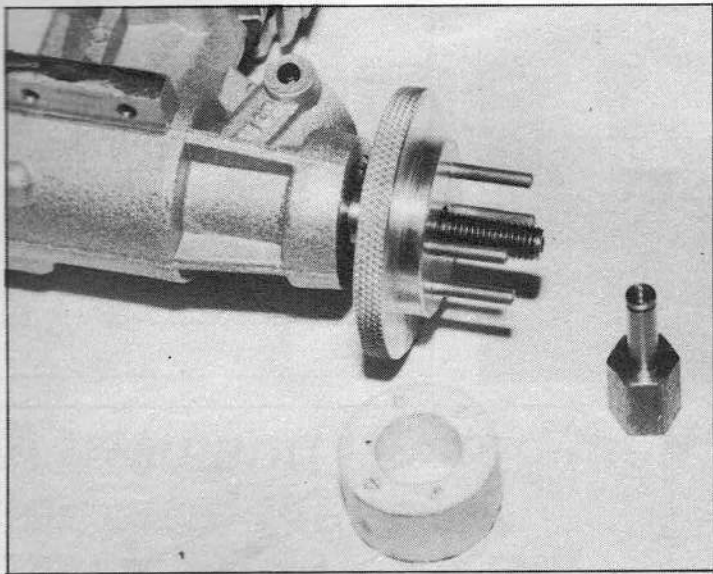
Don't under any circumstances allow any metal particles to get into the engine, this will destroy it in no time flat. Wrap the end of the crankshaft with masking tape and mark the length to be cut off. Grip the section to be discarded in the vice and slowly cut through the shaft. Don't allow the engine to fall onto the floor as the cut is completed!



Above: keep metal particles away from the engine during crankshaft trimming by enclosing in a polythene bag. Left: accurately measure crankshaft to calculate correct amount of material to be trimmed.



Prepare For Success



Left: universal clutch flywheel clutch nut and PTFE clutch shoe blank as supplied by Serpent for use with their cars. This type of unit relies on the material of the clutch shoe flexing outwards under centrifugal force.

clutches it is possible to insert extra bearings between the two basic flanged bearings. Although initially this seems expensive the result is a well-nigh bullet proof clutch.

Slip the clutch drum and bearings onto the spindle and check that neither the end of the pivot pins or the clutch shoes rub. If either do, then cure the problem before proceeding. If all is as it should be then fit the retaining device and proceed to the next stage.

Engine mounting blocks

If you are lucky enough to have universal engine mounts in your kit, or blocks made specifically for your engine, simply bolt the engine to the blocks. Use a thread locking compound here and bolt the blocks down into the car, before finally tightening up the engine mount blocks. With many engines it is a distinct help

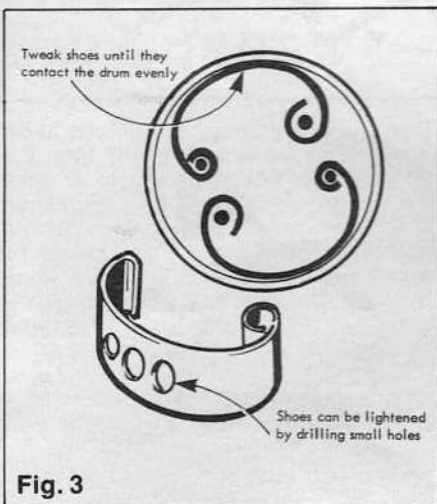


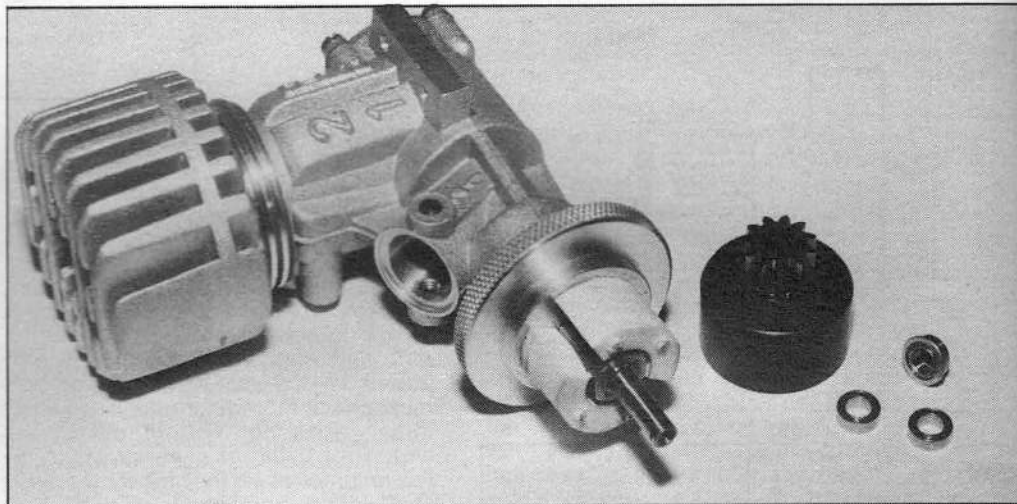
Fig. 3

There may be a burr to remove after this cutting operation, grind this away and tease away any excess on the start of the thread with a hard and sharp tool such as an engineer's scriber.

The flywheel can now be bolted onto the shaft. I have never found it necessary to use a thread locking compound and would strongly advise you **not** to use it. If the thread on the shaft is the correct length and the nut done up properly it isn't needed. Tighten the clutch nut finger tight then with soft jaws in the vice, grip the flywheel and with a correctly fitting spanner do up the clutch nut. Experience has to be the guide here; a torque wrench could be used, but how many of us have such tools to hand?

It is unlikely that this style of clutch and flywheel fitting will allow the clutch to run out of true but if it does, try fitting it in various different positions until the best compromise is found.

Prepare the clutch shoes in accordance with the manufacturer's instructions. With all-metal shoes I advise some careful tweaking until they

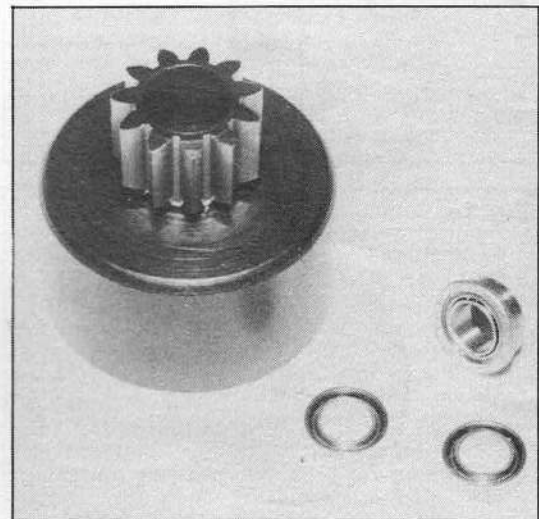


are a good fit to the inside of the clutch drum. **See Fig. 3.**

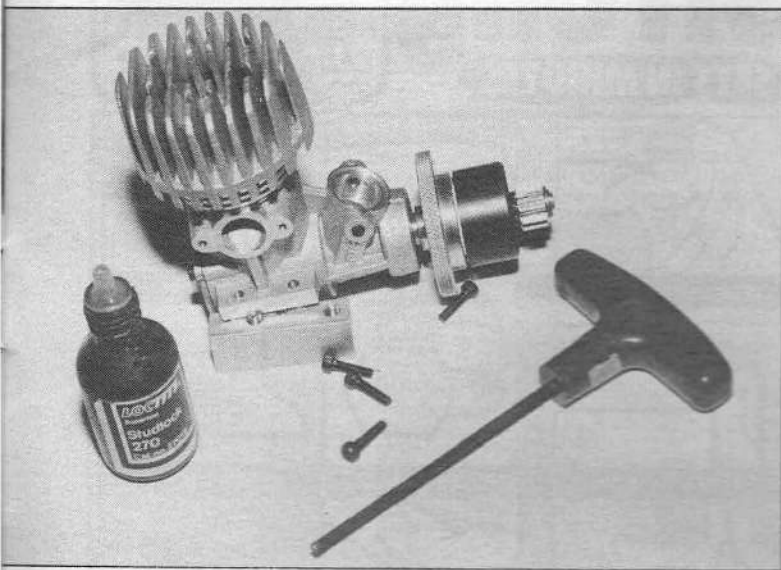
The PTFE (white plastic) style of shoes need cutting from a complete ring, instructions will be given as to the correct amount to trim away. Don't trim away too much, this will cause the clutch to engage at very high rpm and make the car difficult to drive. Remove all burrs very carefully particularly if a neoprene 'O' ring style of springing is used. Failure to remove burrs will cause a high failure rate of 'O' rings. Also de-burr the holes for the pivot pins, the shoes should pivot freely without any sign of sticking.

Now you can turn your attention to the ball-races. These are usually single row, sealed races or a caged roller bearing. The former are more expensive but if used correctly will often give a longer life than the low cost roller races. Both must be properly lubricated and assembled scrupulously clean! I soak ballraces in a good quality oil, not the aerosol penetrating type although aerosol chain lubricant is good. In many instances with ballrace

Above: the Serpent clutch shoes are 'waisted' between the four fixed points to ensure the correct amount of flex. Below: ball-races are installed into the clutch bell to support the shaft. Usually only two ball-races are fitted at either end. Greater reliability can be achieved by fitting races in between.



MODEL CARS



Left: make sure that the engine is located onto the blocks securely using thread lock to instal the bolts. Make sure everything is solid as vibration can cause expensive damage.

to remove the heat sink head before this stage and use a screwdriver handled hexagon wrench if socket cap screws are used.

For the poor unfortunate who has undrilled engine blocks, there are two alternatives.

Either drill and tap appropriate threads through the blocks, or drill a clearance hole for the chosen screw and countersink the underside for countersunk head screws. The latter is by far the easiest solution although not the favoured from an engineering standpoint.

Marking the blocks for the engine should be carried out as follows:

(a) Stick a piece of masking tape onto the top surface of the blocks;

(b) Fit the engine blocks to the car and position the engine to obtain proper meshing of the gears.

(c) Mark through the holes in the engine mounting lugs onto the masking tape with a suitable implement. A scriber or even a sharp pencil will do.

(d) Centre punch the place for drilling the holes. If you don't have a centre punch use a masonry nail.

Now either drill and countersink or find the correct size tapping drill and then cut the threads using the correct sized tap, lubricated with paraffin.

The engine can now be fitted securely to the blocks ready for final mounting.

Exhaust Systems

Virtually all manufacturers of car kits produce exhaust manifolds for the common engines to adapt them to the silencing system fitted. Other than obtaining the correct manifold and bolting it to the engine there is unlikely to be anything else to do. If you are in the unfortunate position of finding your chosen combination is not so

easily fitted. Then you will have to take your ready mounted engine down to the model shop and try out what the shopkeeper has in stock until you find something suitable. A system that has got me out of trouble more times than I like to think is the rubber tube system provided by *PB Racing* for the 'Alpha' series of cars. Failing that, a visit to a plumbing supplies shop will reveal a bewildering array of different shaped copper elbow fittings. Don't use the soft soldered capillary fittings, the exhaust temperature will melt the solder! In general, don't rely on silicone tubing to carry hot exhaust gasses either. Make sure that this is only used to seal joints, rely on the metal parts either fitting over one another or at least butting up to within 1mm of one another. Secure silicone sealing tube

with tie wraps, and always make sure that cut ends of silicone tubing do not have any nicks or splits which will surely spread.

Fitting Carburettors

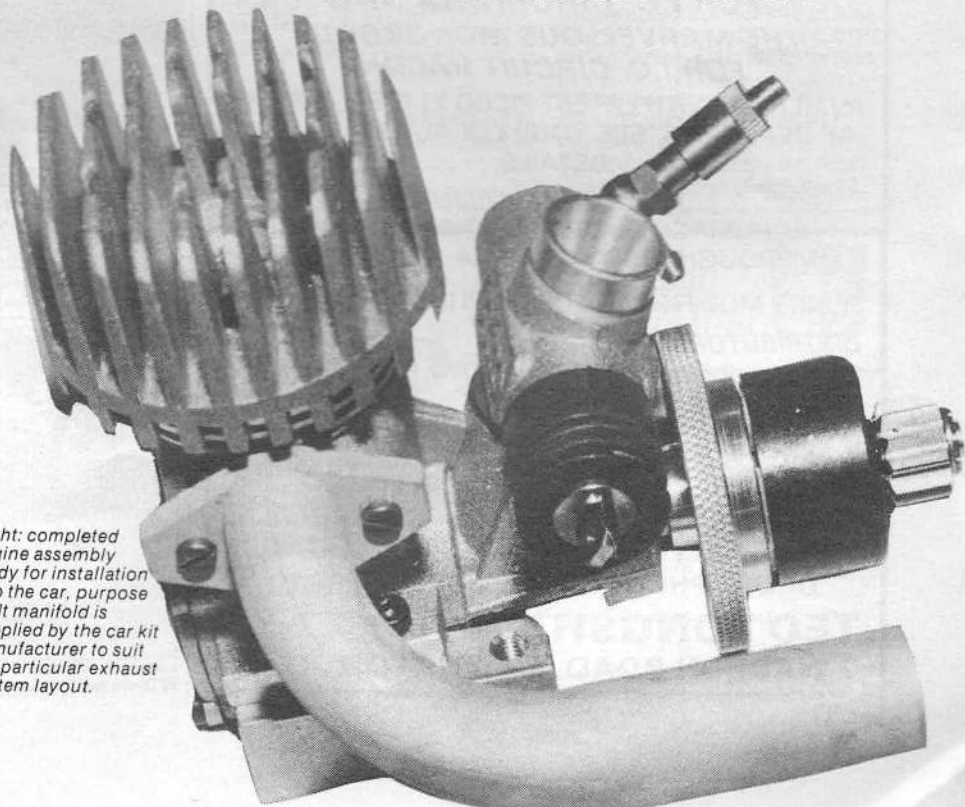
I do not recommend fixing carburettors with epoxy but do recommend sealing with silicone sealant of the bath sealant type. Check before fitting the carburettor in place that there is not a bearing lubricating passage that may be blocked by the carburettor. It may be necessary if you are fitting the carburettor in the opposite way round to normal to file a clearance notch for this.

Use thread lock on grub screws if they are used but the cotter pin style clamp does not usually need this. Once fitted smear a little silicone sealant over all the joint area including the ends of the clamping screws to prevent air leaks. Don't overtighten screws as this can distort the mounting stub of the carburettor.

Final Touches

When you finally bolt the engine into place make certain that the clutch ballraces are not pre-loaded by allowing a running clearance between clutch drum gear and the gear it meshes with. Turn both gears through several turns noting any tight spots and arrange clearance at the lightest spot. Tightly meshed gears are a sure-fire route to rapid bearing wear. Last of all fit an air filter, more engines than I care to think about have been ruined by a 'quick run round the track and I'll fit the filter later'.

We hope to take a good look at filters in a future issue of 'Model Cars'.



Right: completed engine assembly ready for installation into the car, purpose built manifold is supplied by the car kit manufacturer to suit the particular exhaust system layout.

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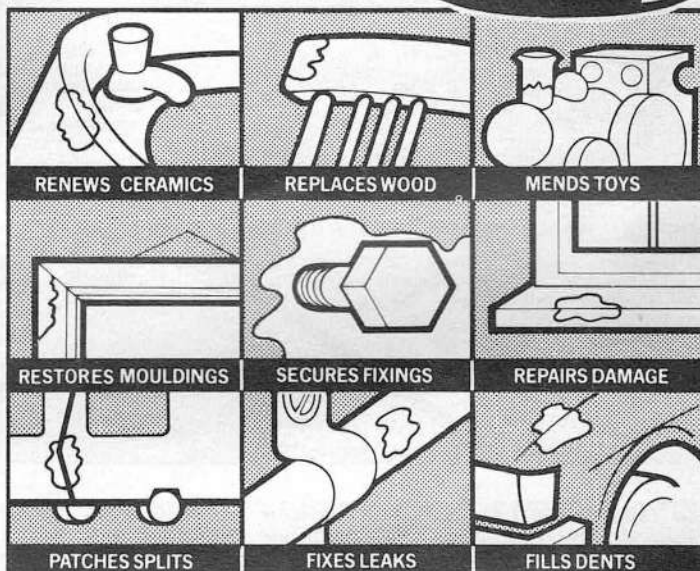
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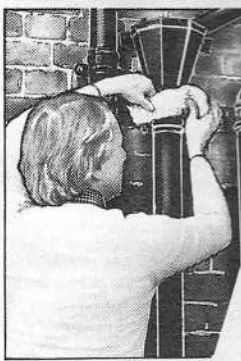
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Contest Calendar

1/10th Off-Road BRCA Championship series

August 5
LIVERPOOL Modified class at the Punch Bowl Hotel, Sefton, Merseyside. Contact Steve Newey, 15 Patricia Grove, Bootle, Merseyside.

August 19
SOUTHAMPTON. Modified class. Contact Tim Reynolds, 23 Baddesley Close, North Baddesley, Southampton. (0705) 739734.

August 26
MILTON KEYNES Modified class. Details from Dave Meadows, tel. 0908 72721.

September 9
CHEADLE Standard class meeting. Details from Kevin Blears, 90 Deans Road, Swinton, Manchester.

September 16
SCARBOROUGH: Modified class at McCain International Sports Site. Contact D. Webb, 60 Newlands Park Grove, Newlands Park, Scarborough, N. Yorkshire. YO12 6PT.

September 23
BRADFORD Modified class. Details from A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.

September 30
BASILDON. Standard class. Contact: Jim Stone, 121A Collier Row Road, Romford, Essex, RM5 2AT. (0708) 64319.

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

1/12th Electric, BRCA Championship series

September 8/9
DERBY. Standard and Modified class at Rolls Royce Sports Centre, Derby. Entry closing date 8/8/84. Contact Dave Towell (0332) 771805.

September 29/30
LEICESTER. Standard and Modified class at Loughborough Leisure Centre, Leicestershire. Contact Alan Blakeman, 11 Newark Street, Leicester LE2 5SS. Tel. (0533) 898528.

October 13/14
CLEVELAND. Standard and Modified class at Thornaby Pavilion, Thornaby, Stockton on Tees. Contact Tony Wells, 10 Fawcett Avenue, Stainton, Middlesbrough, Cleveland. Tel. (0642) 591239.

October 27/28
RUNCORN. Standard and Modified class at Brookvale Leisure Centre, Runcorn. Contact Paul Hatton, 12 Southdale, Penketh, Warrington, Cheshire WA5 2AD. Tel: (092572) 5883.

1/8th I.C. BRCA Championship

August 12
WREXHAM Two-day meeting. Formula; Sports/GT at Hoseley Circuit. Contact Jonathan Davies, 20 Windermere Road, Little Acton, Wrexham LL12 8AN. Tel. (0978) 364854.

September 2
WEST BURTON Two-day meeting. Formula; Sports/GT at West Burton Power Station Circuit, Nr. Retford, Notts. Contact Keith Davies, 37 Grove Coach Road, Retford, Notts. (0777) 703527.

September 16
YORKSHIRE Two-day meeting. Formula; Sports/GT at North Bridge Leisure Centre, Halifax. Contact Bryan Denton, 15 Highmoor Lane, Scholers, Cleckheaton, Yorks. Tel. (0274) 877177.

September 30
ALDERSHOT Two-day meeting. Formula; Sports/GT at Badshott Lea Circuit, Nr. Aldershot. Contact Jeff Stokes, 76 Sandhills, Farnborough, Hants. GU14 8ER. Tel. (0252) 46980.



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SEPTEMBER 1984

1/8th Off-Road BRCA Championship

August 5
MENDIP 1/8 Restricted.. 1/8 Unrestricted Entries SAE to Denis Jones.

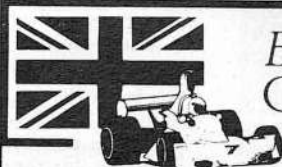
August 12
REMOTE WORLD 1/8 Restricted.. 1/8 Unrestricted Entries SAE to R. Cloke.

August 19
LILFORD PARK 1/8 Restricted.. 1/8 Unrestricted Entries SAE to S. Taylor, 30 Blackhorse Lane, Swaveset, Cambridge.

September 9
BASINGSTOKE 1/8 Restricted.. 1/8 Unrestricted contact S. Pyne.

September 16
BICESTER 1/8 Restricted.. 1/8 Unrestricted Entries SAE to Alec Hudson, Howes of Oxford, 9-10 Broad Street, Oxford. Entry fees £4.00.

September 23
BRADFORD 1/8 Restricted.. 1/8 Unrestricted Entry SAE to A. Marsden, 91 Wrenthorpe Road, Wrenthorpe, Wakefield, Yorks.



British Radio
Car Association



The National organising body for R/C Racing

The British Radio Car Association (BRCA) is affiliated to European Federation Radio Autos (EFRA) and the International Federation Model Auto Racing (IFMAR).

Family membership for 1984

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Fees

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1/8th Stocks



Stockcar racing in Focus by Mike Chilvers

THOSE OF YOU who have travelled to meetings abroad, or read reports of them, will be aware of the fact that they attract large crowds who, in most cases, pay to watch the racing. Here we seem to attract only few spectators unless the meeting forms part of a larger event such as the Brighton Festival or those at Stoneleigh or Sandown. I find myself asking the question — why? Three possible reasons spring to mind, firstly the location of our tracks, secondly the lack of publicity and thirdly a lack of public interest. Many of our ovals are situated outside urban areas, which means that people have to make a conscious effort to go to them, rather than pop down the road. This makes the publicity aspect of vital importance and one which we can do something about both as clubs and individual members. Remember to contact local papers, radio and TV stations and of course see that club fixture lists are displayed in all those places that people visit to see what is on. The possible lack of public interest despite all the publicity you may have done can in many cases be put down to the fact that there is so much full-sized motor sport in this country and that people are attracted to that, rather than the model racing.

I know many drivers who regard the racing as a participational sport and see no need for spectators and

publicity. I often wonder how they came into contact with the sport in the first place, how often was it by chance, rather than because they knew the sport existed? How many of us have said that we would have been involved much earlier if we had known of its existence. It is from the spectators that we get the drivers of tomorrow, so let's do something about it today.

Brighton Festival 1/8th Meeting — May 6th

Once again the Aquarium roof on the Brighton seafront was the venue for this meeting staged to coincide with the Brighton Festival and organised by the Sussex RAC.

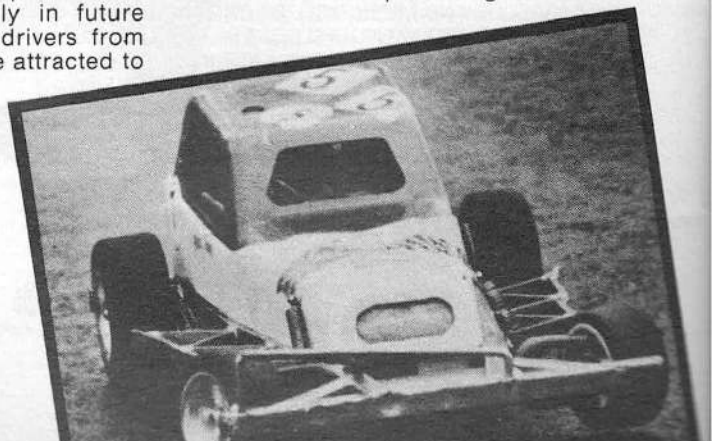
This meeting provides an excellent shop window for the hobby and the Club are to be congratulated for their efforts in showing the sport to the general public. Hopefully in future years a larger entry of drivers from other racing areas can be attracted to

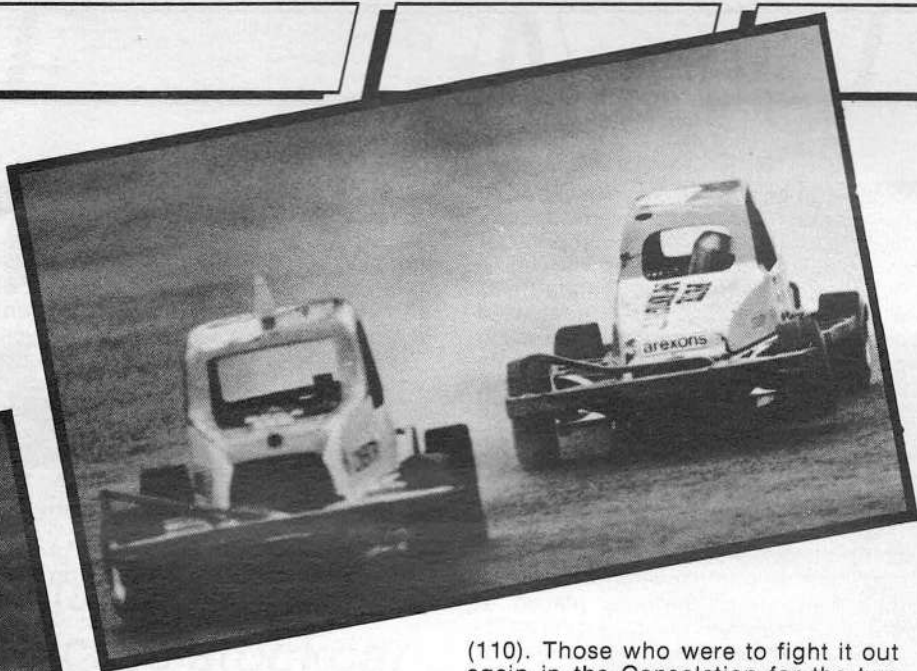
Left: Mark Joul's Enya 19X powered Mardave (modified) during a Coventry Model Stockcar Club Meeting. Photo: Tom Moore.

the resort. The weather for practice on the Saturday was sunny, but Sunday was rather overcast and windy. Fortunately there was no rain and the racing was good enough to attract a large crowd for most of the day.

The four drivers qualifying for the Final were defending Shield holder P. Micheli (112), N. Foster (111), G. Lawrence and J. Elliott (110). The six drivers to fight it out in the Consolation Final for the two extra places were B. Bourne and F. Brazier (109), N. Bunn, M. Wedge and D. Mawson (107) and F. Emson (105). The lap figures indicate just how close the racing had been in qualifying when you realise that these totals represent the drivers best three heats out of the four in which they had raced.

In the Consolation Final D. Mawson's race lasted for only 10 laps, but a real scrap for the lead was going on between F. Brazier, N. Bunn and B. Bourne, with F. Brazier emerging as the winner with 37 laps leaving N. Bunn to





All the above photos have been submitted by Tom Moore of the Coventry Model Stockcar Club for which we are extremely grateful. Tom has already won the 'Photo-Action' competition and so is not eligible for a second prize.

scrape into the Final with second place just ahead of B. Bourne both on 36 laps. F. Emson was fourth with 34, followed by M. Wedge on 30 with D. Mawson in sixth.

By comparison the Final was not such a close race, with G. Lawrence winning with 50 laps, two ahead of second place man N. Foster on 48. He in turn was two ahead of N. Bunn on 46, with J. Elliott just edging into fourth spot ahead of F. Brazier both on 39 laps, leaving P. Micheli in sixth spot after problems had resulted in only 18 laps. The highest placed white or yellow grade driver was M. Yeo in 18th place.

My thanks to Dave Heighes and the Sussex Club for sending me the race details of the meeting.

1/8th Series Championships Round 2 — Keighley — May 13th

Sunday May 13th produced blue skies and sunshine to welcome the 26 drivers who turned up to race at Keighley in the second round of the Series Championship. Kath Richardson, the Club Secretary, has asked me to thank all the drivers who attended, especially Graham Lawrence and Wendy who travelled up from Sussex and World Champion Les Calder who travelled from Woking. Apart from these two drivers, Graham incidentally being the current Series Champion, the entry also included British Champion Steve Talbot from Leicester and his travelling companion Cliff Emms.

The four drivers to qualify straight through to the Final were Steve Talbot (117), Cliff Emms (114), Graham Lawrence (111) and Phil Richardson

(110). Those who were to fight it out again in the Consolation for the two remaining places were Peter Butterworth, Les Calder, A. Griffin (107), L. Griffin (106), Mick Anderson (94)N and L. Wilkinson (92).

In the Consolation only five drivers scored any laps, L. Wilkinson not registering any, leaving a very tight race between four of the remaining five, with Mick Anderson being dropped by the others. How close the race was can be gauged by the fact that Les Calder won with 37 laps, whilst Peter Butterworth, A. Griffin and L. Griffin all recorded 36 laps, the second spot being given to Peter. Mick finished up with 29.

So to the five minute Final with Les and Peter joining the other four, and again this proved to be another very close race, with Cliff and Steve just breaking away from Phil and Graham who were just ahead of Peter and Les. At the end of the race Cliff and Steve had both recorded 52 laps, Cliff just getting the verdict by .01 sec. These two were two laps ahead of Phil on 50 laps, with Graham fourth on 49. Peter just got fifth spot from Les both recording 47 laps.

Congratulations to Cliff, as well as all the drivers and the organising Keighley Club and its hard working members.

Driver Profile — Dave Perou — RSCA No. 508

The name of Dave Perou first came to my attention when collecting material from the Haywards Heath Club for the Club in Focus feature. The Club Secretary suggested I look at a special cog drive car raced by one of their members, Dave Perou. Although Dave was present at a Brighton meeting I attended later, the weather was so atrocious that I never really got to look at the car or speak to Dave until this year's European Championship at Leicester.

Dave, a 39 year old Telephone Engineer from Crowborough in Sussex, is a married man with three children. He began racing cars about six years ago having seen a Worthing

Fiesta meeting. He joined the Haywards Heath Club with the RSCA number of 149, which he has now changed to 508. He has blended two hobbies into one; one hobby is racing his stockcar, the other making bits and pieces for it on his lathe, axle beams, exhausts, etc., all of which leaves little time for anything else.

Having become fed up with the problem of having drive belts break, Dave decided to look into ways and means of developing alternative drive methods for his car. The method Dave opted for was gear drive, and he retains the copyright to his method which he wanted to keep as simple as possible,



Above: Dave Perou poses together with his modified *Mardave* Stockcar trophy and transmitter.

as cheap as possible (because of the stock car cost rule) and above all reliable. The gear drive consists of a *PB* main sprocket on a standard *Mardave* rear axle, with clutch and intermediate sprocket all taken from a *Mardave* racing car and fitted to a modified *Mardave* stockcar radius arm.

Much of last season was spent experimenting and perfecting the system. First of all a modified *Mardave* radius arm was used, but replaced by an aluminium one when it was found to flex too much under power. However this replacement kept coming loose so it was back to the *Mardave* item but this time reinforced on either side by two pieces of thin steel plate. This now appears to be working well. There is some cog wear, but it is not excessive and only needs adjusting after every couple of meetings. Dave thought he would have had trouble with the teeth

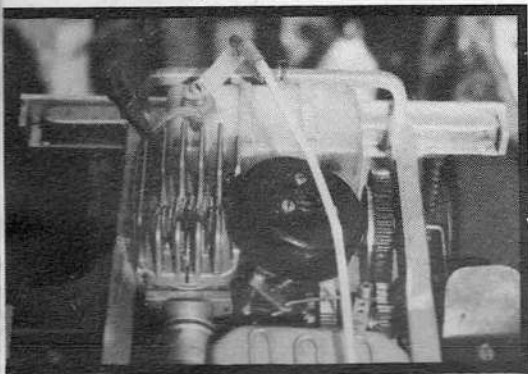
Below: Dave's number 508 Stockcar in the pits at the European Championship meeting held at Leicester.



Taking Stock

on the large rear sprocket, but has not found that to be the case. When we last had contact with each other he had raced with the final set-up for at least six meetings without having to change any gear.

The original gear drive car has been dismantled and the system is at present being set up in a modified *Puma* chassis. The car is powered a *Super Tigre*, with *Sanwa* radio gear linked to *JR 4001* servos. The finished product is an impressive sight, as anyone who has seen the car will agree, as it is extremely well finished.



Above: close up of Dave Perou's modified *Mardave* drive system which uses gears instead of the usual belt and pulley system.

Dave has been fairly successful at club level over the years, but has not contested many major meetings, his best result being an 8th place in the 1981 British Championships at Chessington.

Dave is not just a driver, but a pioneer of a system that he is trying to bring to perfection by active participation in race meetings. He has not developed a car in secret, instead bringing it onto the raceway only when all the bugs have been ironed out and it is perfect. Who knows, there may be a time when we see all stockcars feature gear drive if Dave can prove its effectiveness and commercial viability. This could spell the end for the days of broken drive belts. Here is a driver to whom I wish all the very best for the future, both for his skill and dedication in the developments he is undertaking and for practical result on the track.

Puma Prowling

Everyone concerned with stockcar racing will be familiar with the *Puma* 1/8th car made and distributed by RSCA Chairman Paul Dudley. A car that has won the European Championships for the past three years, in 1982 and 1983 in the hands of Paul himself and this year by Roy Crowson. As a result of this success and the general growth of interest in the car and sport, *Puma Racing* has expanded to include a southern representative in the form of current Series Champion Graham Lawrence.

The whole set-up has become more

organised and as a result they hope to have a much more efficient and speedy mail order service, with a complete kit available at £43 plus £2.50 p&p. The kit includes all parts for a complete car with no extras to buy and none to weld or bolt on, except of course the radio gear and engine, all of which can be purchased through *Puma Racing*. A full range of spares and accessories are available and a price list can be obtained by sending a SAE to Graham Lawrence, 32 Christie Avenue, Ringmer, East Sussex BN8 5JT.

Graham will also be taking a comprehensive stock of spares etc. to each race meeting he attends and says that mail orders can be placed at evenings or weekends by ringing 0273-813600, when you might get Graham or his secretary/stock controller/accountant/pit crew/wife — in other words better half (thought I ought to say that) Wendy.

I assume it will still be possible to obtain all the *Puma* products from Paul Dudley at Moat House Works, Kings Coughton, Warwickshire (0789-762519) as well. So watch out, the *Puma's* are about!

Mardave Mk III

Very favourable results have been recorded by those people so far using the new 'Mk III' chassis, which are around in limited numbers for evaluation. Also, good reports are coming in on the new front axle beam, which, though it may look flimsy is standing up to the strains and stresses very well and proving popular. It may be an optical illusion but to me anything moulded in white always looks weaker than the same thing moulded in black and I believe *Mardave* will be changing the colour of this article in the near future.

I must confess that due to the pressure of work (Who said Ha! Ha!?) I've not been able to make the progress in construction of my 'Mk III' as I had hoped, but expect to get it on the track soon, hopefully by the next issue.

Another development in connection with the 'Mk III' is a rear axle with splines which fits into slots in the wheel

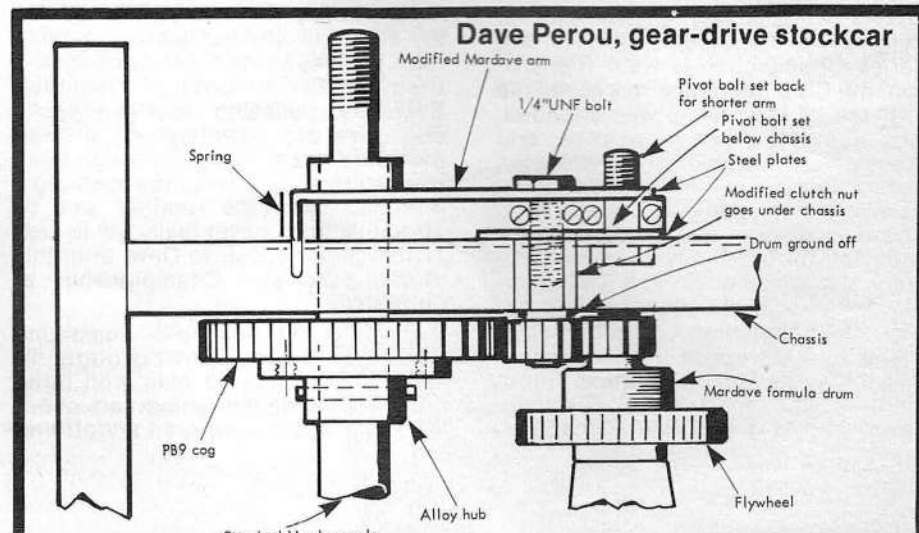
hubs to facilitate positive drive. One of the problems at present is that of ensuring wheels are on tight in order to get the traction on to the surface, which often results in the overtightening of the wheel nuts and consequent distortion of the wheels themselves. This new axle should cure that as the wheels are pushed onto the splines and can not slip, the wheel nut being used only to retain the wheel on the axle. Note that this axle can only be used with the wider 'Mk III' chassis. For those who are worried about old wheels fitting this new axle it does look as though it will be possible to groove the old wheels to fit. More on this subject later.

Belts and Drums

Two items that I have had the chance to test are the wider belts and clutch drums produced by both *Kingsway Kar Komponents* and *Mardave*.

The complete *Kingsway* unit at £8.10 features a very wide belt which has proved itself in testing all last year. I found that this worked well, however in my car, because of the way I have things fitted, it was a very tight fit, which made it very difficult to get the perfect alignment from rear pulley to clutch drum that is required. Having spoken to others who have the unit fitted they are full of praise for it. You can get either the complete unit, or *Kingsway* will sell you the individual items. Contact *Kingsway Kar Komponents*, Leicester LE3 2PP.

Mardave's unit is a replacement clutch bell which has had the shoulder milled away to enable a 20% wider than standard belt to be fitted. This of course slotted straight on to the existing *Mardave* unit with no trouble, and the belt did not foul any part of the car. I've used this set-up for several meetings with no belt trouble, apart from stripping the teeth on one when the engine worked loose in its mounting. These products are available through most model shops £1.80 for the drum, £1.50 the belt, or of course direct from *Mardave*.



1/12th Stocks

Chris Loughran details the electric stockcar racing scene



AFTER A MONTH break the National Championship series got underway with the meeting at Pendle on May 20th.

Sixty drivers arrived at the top of that hill to compete in Round 2 of the Nationals, including two mini-buses full of Leicester drivers determined to get their revenge for the Pendle Club domination at their home event. Amongst those competing were Joe Brown, the Championship runner-up two years ago, and Tony Whitehorn the 1/12th Chairman, plus of course the regulars.

Practice passed without any problems, unless you can call too much grip a problem. This aspect caused several drivers to run with their

scrappy heat and got caught in the trouble, then the chances were that your score would be well down. Paul Culverwell had his motor move about half-an-inch after being fenced quite hard and had to pull off and Kelvin Hawkes had to miss his first heat as his radio gear refused to work. This meant that he could not afford another bad run all day as the best three heats from four count for finals qualification. John Cutts was also going well having put in a 55 to equal the best so far.

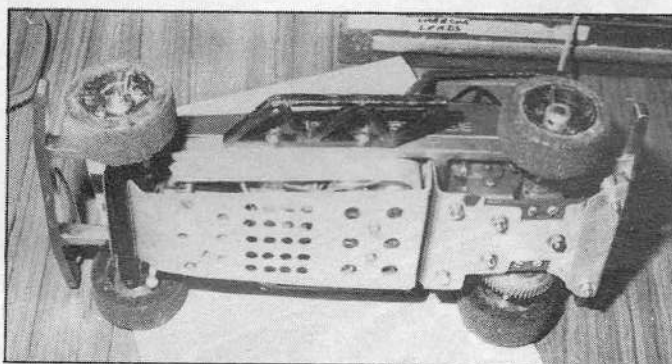
Most drivers were confident of improving things in the next round, and it was Kelvin who got things off to a good start with a 57, even though he was chased home by Shaun Riley with a 56. Joe Brown was also keeping in

touch with the leaders setting a 56 in his heat, still using the same car he raced two years ago! Other drivers doing well were Gregg Lloyd (56) Martin Higham (56) Chris Loughran (56) and Ian Johnson who beat Dave Clarke into second place with a 58-lapper, Dave again stopping during the race to do repairs to his car.

In Round 3 things really started to move, with both Martin Higham and Adam Longrigg doing 60s, and Shirley Clarke and Tim Fielden setting 59s. Gregg Lloyd and Dave Clarke both recorded 58s and Kelvin once again recorded a 57.

Back to the racing after lunch for Round 4 in which John Cutts set his best time with a 58. Ian Thompson set a 57 which had the Leicester drivers cheering and then everyone sat and watched Adam Longrigg set the FTD at 62 laps only for it to be equalled a couple of heats later by Dave Clarke.

In Round 5 Kelvin again had troubles but managed 55 laps to the point of his retirement, with Tim Fielden, Martin Higham and Dave Clarke all recording 61 laps with John Cutts recording 60.



Top: 1/12th scale electric stockcars line up for the race start. These particular cars are owned by the members of the Wantirna Radio Electric Car Klub of Australia - Photo: C. Smith. Left: Grahame Hawkes' very expensive titanium chassis stockcar. Titanium is not only very light but is also incredibly strong.

rate switches on to reduce the steering.

As the heats got underway it became clear that scores of 55+ were going to be needed to qualify for the Final. Dave and Shirley Clarke drove together in heat 1, each ending up with 53 laps. However Dave did have to stop to sort out a problem with his car during the race which clearly cost him time. Martin Higham set the first 55 laps in heat 2, but had there been less bumping and banging between cars he would have done even better. In fact that was what really decided the rest of the day's heats, if you raced in a

Pos.	Name	Car/Type	Gear Ratio	Cells	F. Tyres	R. Tyres	Speed Control
1.	D. Clarke	M'fied Mardave Standard	13:53	Enduro 1200 Sanyo	Standard Mardave Standard	Med./Soft 'D' Prowler	Parma Parma
2.	T. Fielden	Standard Mardave M'fied	12:52	Sanyo	Mardave Med./Soft	001 Prowler 003	LECTRICAR
3.	A. Longrigg	Lectricar M'fied	13:54	Yuasa	Standard Mardave	Med.'D'	Parma
4.	M. Higham	Mardave M'fied	13:52	Selected Sanyo	R'Tyres Med./Soft	R'Tyres Dead Med./Soft	LECTRICAR Mardave
5.	K. Hawkes	Lectricar Standard	13:52	Sanyo	Hard-in Soft-out	Lectricar Standard	Parma
6.	J. Cutts	Mardave M'fied	10:48	Mardave Std. Pack	Mardave Standard	Lectricar Standard Med./Soft	Parma
7.	J. Brown	Mardave M'fied	13:53	Enduro 1200	Standard Mardave	'B'	Parma
8.	S. Clarke	Mardave					

CONCOURS: Dave Willis; F.T.D. D. Clarke (68 in Final).

Taking Stock

So interest immediately centred on who had qualified. As usual it had been very close especially for the Consolation Final, which saw Shaun Riley, Gregg Lloyd, Joe Brown, Mike Stead, Tim Walker, Pete Storer, Ian Johnson and Bob Harrod fighting it out for the remaining place in the Main Final.

From the start of the Consolation, Joe and Shaun went into an early lead, but after 5 laps Shaun's steering linkage broke and although it was quickly repaired he was well out of it by the time he rejoined. Ian and Pete were having a rare old dice for second places, but then Tim tangled with them which allowed Joe to pull out a two-lap lead. Which was just as well he did as his car went flat with about 30 seconds of the race to go, nevertheless, he still managed to hang on and reach the Final.

Final

In the Final Joe joined the other seven drivers who had managed to qualify directly. They were:

Adam Longrigg (240);
Martin Higham (235);
Shirley Clarke (235);
Dave Clarke (233);
Tim Fielden (228);
Kelvin Hawkes (226);
John Cutts (224).

At the start it was Tim, Shirley, Adam and Martin all fighting for the lead. Dave had got caught in the usual first bend pile up and then Shirley's car was sent into the fence quickly followed by Martin's which ended up in the inner track. All this allowed Dave to catch the leading bunch with Joe chasing hard after him. Unfortunately Joe then tangled with Kelvin and Martin once again leaving Dave a clear track to pull out a lead which he kept to the end. For a second time Joe once again ran flat towards the end, but managed to hold on to seventh place over Shirley, who never really caught up after her first pile-up. It had proved to be a very fast Final with Dave Clarke setting an amazing 68 laps. The full results are on the chart.

Syd Hawkes would like me to pass on his thanks to *Lancashire Car Exchange* of Burnley for donating a very nice set of trophies and to Mr. Maloney the Director for presenting them.

1/12th top ten

The top ten points scorers in the National Championship series are as follows:

Name	Club	Points
T. Fielden	Pendle	104.0
A. Longrigg	Pendle	103.5
M. Higham	Loughboro'	99.0

D. Clarke	Loughboro'	98.5
J. Cutts	Leics	93.0
K. Hawkes	Pendle	93.0
S. Riley	Pendle	91.5
I. Johnson	Loughboro'	91.0
R. Harrod	Coventry	81.5
P. Culverwell	Leics	80.0

Prowler Tyres

If you have been trying the 'Prowler' tyres from *Motile Developments* on your 1/12th car you may be interested to note that they have just brought out a 'Prowler 004' tyre especially for the *Mardave* cars. they are $\frac{3}{4}$ in. wide as opposed to the $\frac{7}{8}$ on the *Lectricar* and are a hard yellow compound which should be ideal for the front end.

Super-light stockers

Firstly let me make it clear that there are two types of lightweight car. The first type are standard cars that have been made lighter, mainly *Lectricar* chassis as I know of several drivers of *Mardaves* who actually add weight. The second type are those where the standard main rails have been bolted onto a separate, flexible, under-chassis to which the wheels, motor etc. have been fixed.

As for the lightened cars, as I have said this applies almost exclusively to

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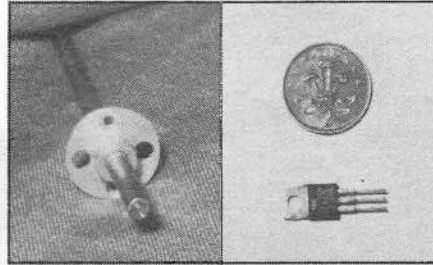
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Lectricar models as the all up weight is around 3lb compared to the *Mardave's* 2½lb. I've built cars at varying weights and found that the optimum weight is about 2lb 10oz; anything less than this tends to make the front end a little too light, causing it to lift and reducing the handling. The easiest way to lose some weight is to get rid of your receiver battery pack, although I do not recommend running your receiver direct from the drive Ni-Cads. There are several good voltage regulator devices on the market, or you can purchase a 7805 type 'chip' from any decent electrical components shop for under £1 and as it is a single silicone device they are both robust and reliable. That little modification will save you about 3-4oz as well as giving more room inside the car for servicing etc. Then if you replace your standard servos with the mini or micro types you will save another ounce on each one. However unless you have a couple of these kicking around doing nothing I would not bother too much as they cost around £25 each. Finally, if you drill holes in excess pieces of metal, such as the motor mount, side rails etc., you should end up with a total weight saving of around 7oz. Be careful when drilling holes, don't get carried away so that you weaken the chassis, remember

that your car will not only go faster, but will hit things faster, so make sure that the chassis can still stand up to the knocks it will get.



Above left: drilled out rear axle gear carrier for weight reduction. Don't remove too much material otherwise it will become too weak. Above right: 7805 voltage regulator wired-in to replace receiver battery pack. Left pin - positive to Ni-Cad pack. Centre pin - negative to Ni-Cad pack and negative to receiver. Right pin - positive to receiver (via switch).

Now to the second type of car, which will apply to both *Lectricar* and *Mardave* 'specials.' I'm not going into the design details of these cars as that is a matter of personal choice, but as I have built a few I will try to give you a few hints.

The choice of material for the bottom chassis is up to you, but basically there are three types commonly used:

1. Fibre-glass: This is cheap, easy to

work, but can fracture or split quite easily especially near to holes, cut outs etc.

2. Lexan: Slightly more expensive, but is stronger and gives more flex than fibre glass. It can also be either hot or cold bent to allow pieces to be 'added on' for taking speed control mounts etc.

3. Carbon fibre: This is the most expensive of the lot and not too available in small pieces. However it is extremely strong, and can give as much flex as Lexan with the addition of a couple of carefully placed saw cuts. It can also be hot formed, and is very resistant to cracking, even along cut outs.

Whichever you choose think about how you are going to build it before you start drilling holes and cutting bits out. The best idea is to cut out a full sized piece of paper and lay everything on it to make sure it will all fit together before you start. It will only take an hour or so, but could save you a lot of time and money in the long run.

I hope that has given you something to think about, and that perhaps you will decide to build or at least 'modify' your car. But remember whatever you decide to do make sure it is reliable. If it won't last a race it does not matter how fast it is it won't win!

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Cobra

Bill Burkinshaw tries his hand at some Snake Charming

DON'T EVER BE misled by appearances! If you follow this mistaken route you are likely to pass many good things by. The *Serpent* 'Cobra' looks simple and like so many examples of good engineering, the apparent simplicity belies a host of carefully thought out, well engineered, quality features on this new, Dutch manufactured, four wheel drive, 1/8th scale Off-Road racer from the *Berton* Engineering concern. Designers Peter Bervoets and Ronnie Ton have thought long and hard about this car and incorporated many of the mechanical features well proven in their Euro-champs winning circuit racers, taking particular account of the more rugged demands of off-road racing.

In Brief

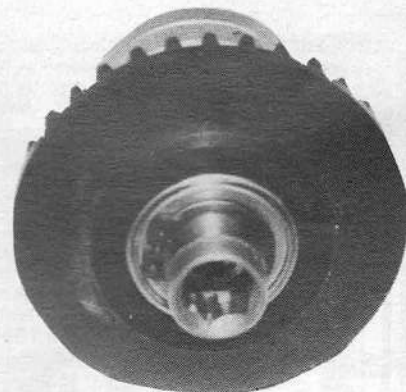
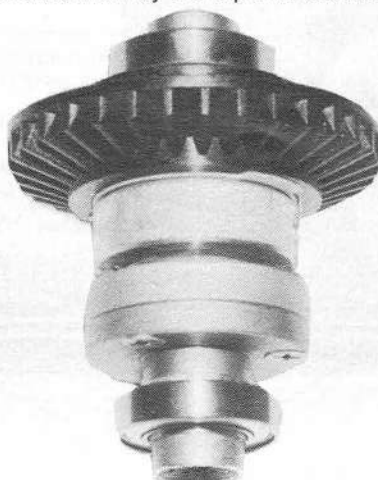
In standard form the car is fully independently sprung on double wishbone suspension with hefty inter-linked oil filled coil over shock suspension struts. Drive is carried fore and aft from the longitudinally mounted engine by a shaft system.

Bevel gears turn the drive through 90° thence via *Serpent's* well proven adjustable ball differential through solid drive shafts to the wheels. A twin disc brake is fitted to the rigid centre shaft, on a square section carrier that also supports the centre main gear.

A centre differential is available as an optional extra.

Glass-filled nylon bulkheads support front and rear differentials and suspension components which are then effectively sealed as the 'meat in the sandwich' by the top and bottom

full length aluminium alloy chassis plates. The overall assembly of the car is particularly well done, for, although at first glance at a completed car maintenance looks all but impossible, it is a matter of only 5 minutes' work with a screwdriver to remove the lower chassis plate complete with engine



First stage in construction is assembly of the two differentials. Do use thread lock on the adjusting ring clamp screws - we guarantee you will lose it unless you do!

and exhaust system and reveal the full drive and R/C system. This particular boxing in of the drive train gives valuable protection to the differentials, bearings and bevel gears and protects the R/C equipment as well.

Assembling the Serpent Cobra

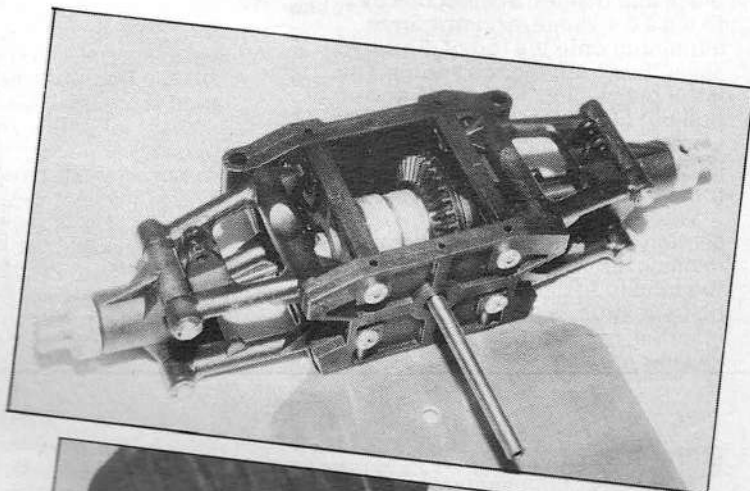
Introductions are good, although some slight confusion over terminology may arise as Dutch translations into English falters occasionally. However I found no difficulty in assembly of the car, the fine 'exploded' view drawings being particularly useful. Differential assembly starts the whole thing off and here I must stress the importance of really thoroughly tightening up the socket cap screws which lock the adjusting rings. A good rule of thumb for adjustment of these differentials is to tighten them up a little bit more than you think you ought to! Ball races are in general a particularly good fit in the moulded housings throughout and I would recommend that the sharp edges of the housings are chamfered very slightly with a sharp scalpel before assembly. It is possible for the bearings to cut small pieces of plastic off the corners of the housings as they are pressed in. These can be trapped underneath unless this precaution is taken. The aluminium spindles for all the wishbones are very tight in the bulkheads and whilst I accept that as the car is run, they will bed down, I chose to ream the holes with a 5mm hand reamer on assembly.

No provision for controlling end-float on the rear drive shafts is mentioned but experience with running the car leads me to advise the addition of flexible pads in the hexagonal drive cups. I cut four 'bobbles' off a set of spiked off-road tyres and used the resulting mini rubber cones to pad out the cups until the end float was set at 0.5mm. (Thanks for the tip Alan.) There is a set of plastic pads for setting the front drive shaft end float, be warned, they are tricky to trim and will require patience. I was impressed with the fit of the hexagon ball and socket drive shaft joints, no discernible play was present, evidence of very good manufacturing tolerance control.

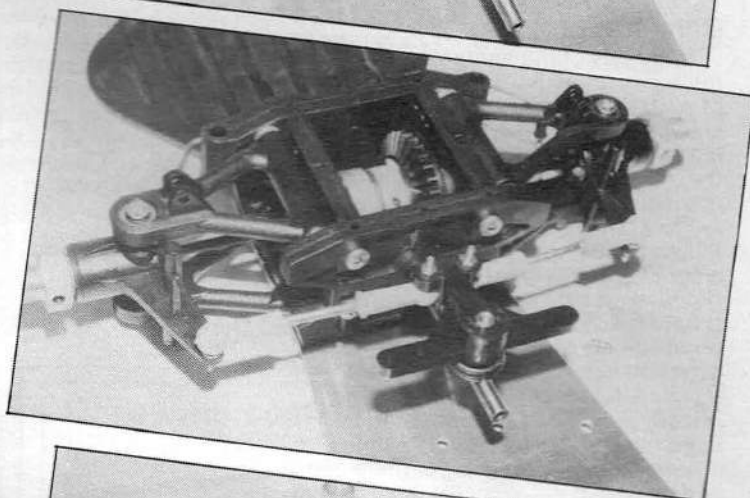
Minor Mods

One of the plus points of having to wait in the queue for a 'Track Test' kit is that one is able to see one or two examples of the car performing and assess likely problems. To be fair, the 'Cobra' was seen to be remarkably trouble free with the exception of two areas on the front end. The servo saver and the brass inserts which the universal ball pivots screw into for steering and suspension movements. On the former I noted that the spring had a tendency to lift from the correct

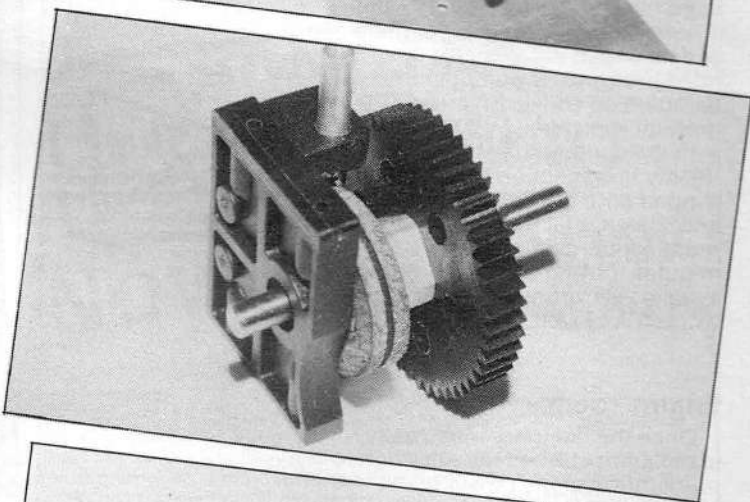
Right: very substantial plastic mouldings are used for this car, fixed together with 'meaty' self-tapping screws. Check the wishbones for a smooth, free fit on the spindles.



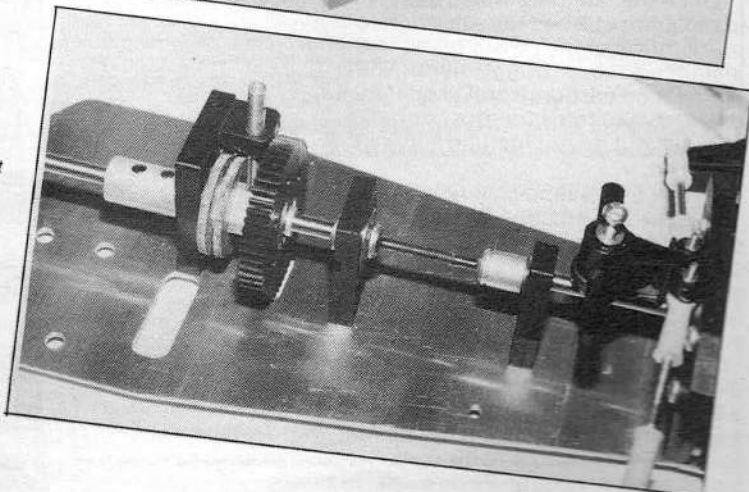
Right: the servo saver is mounted on the underside of the top chassis plate, check that the ends of the springs have clearance.



Right: dual fibre discs are used on the brake which operates on the centre drive shaft. Plastic drive gear is of massive construction.



Right: the short centre hexagon ball drive shaft floats to allow a small amount of chassis flex without locking up the whole drive system.



Track Test

place and insured against this by fixing a 6 x 25mm strip of 1.5mm aluminium onto the top of the servo saver thus trapping the spring. The latter brass joints have been known to pull out of the plastic mouldings so were pinned in place with short lengths of 1.5mm wire. I also took the time to fit ball races to the servo saver.

When it comes to fitting the flexible section of the longitudinal drive shaft in place don't panic! I know it appears too long to fit and the instructions give no indication as to how it should be inserted, but, quite simply flex the chassis until it pops into place.

Dampers

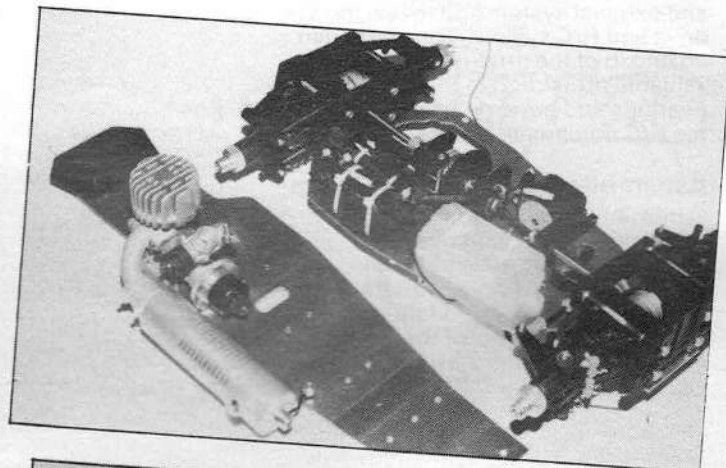
Assembly of the dampers proved quite time consuming; there are a lot of parts and the diagram is on the small side. However, take your time, lay out all the parts first and examine the diagram carefully and you should manage it. I did, and I was building my car to a deadline for this 'Track Test'. Filling the dampers with oil takes time also. The two pairs of dampers are both linked together with silicone tube. This system seems to be a good compromise over more complex constant volume dampers and works by allowing the oil displaced by the piston rod to be accommodated by expansion of the relatively flexible silicone tube. I filled the dampers one at a time then connected a length of oil filled tube and by pumping the dampers up and down air was gradually expelled into the tube. Then with the damper fully compressed, a freshly filled section of tube was slipped onto the connecting nipple and sealed until the next damper was ready for connection. With a few minutes too-ing and fro-ing the system was virtually bled of all air and worked very well.

Engine room

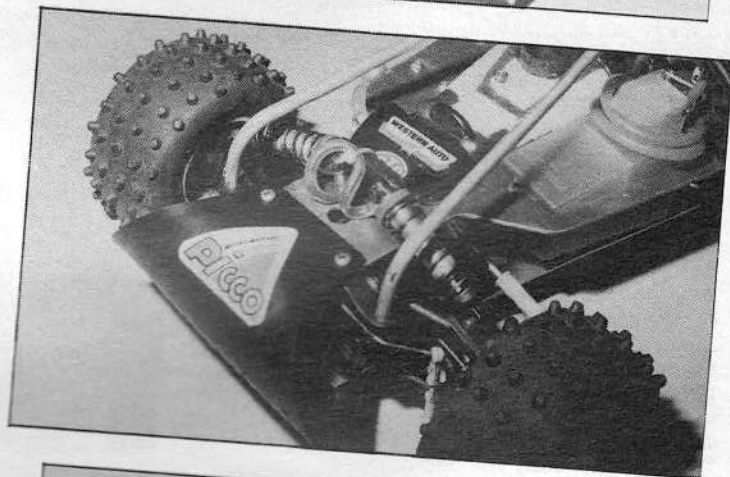
Once the dampers were ready for installation I turned my attention to preparation of the power plant, in this instance a Picco 'Buggy' motor with 7mm Picco carburettor. *Serpent* make exhaust manifolds for most popular engines but do not include a manifold in the kit.

A mini pipe silencer is included plus the necessary silicone tube to seal the manifold at the silencer. At this stage quite a lot still remains to be done for although the top chassis plate looks ready to bolt on it will be apparent as soon as you try that it won't! This is intentional, for rather than cut out an all-encompassing hole in the plate and weaken it needlessly, *Serpent* cut an approximate hole leaving the builder to shape the rest to suit his own installation precisely. Several trial fits

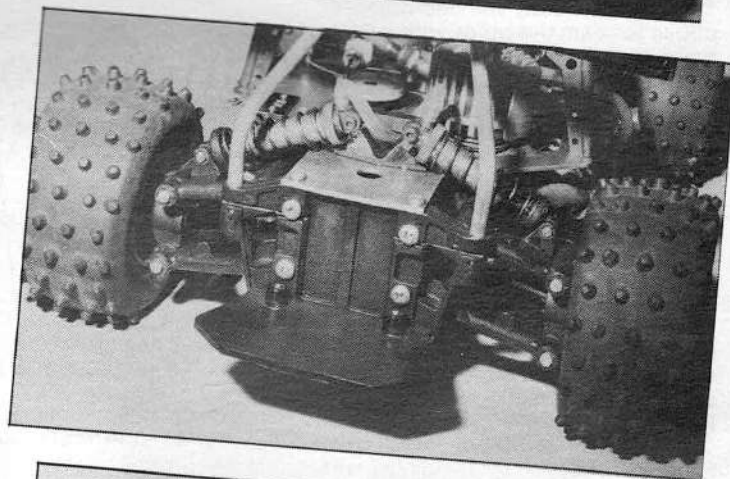
Right: servicing is really easy, 16 self-tapping screws are slipped out to remove the engine and silencer and reveal the whole works.



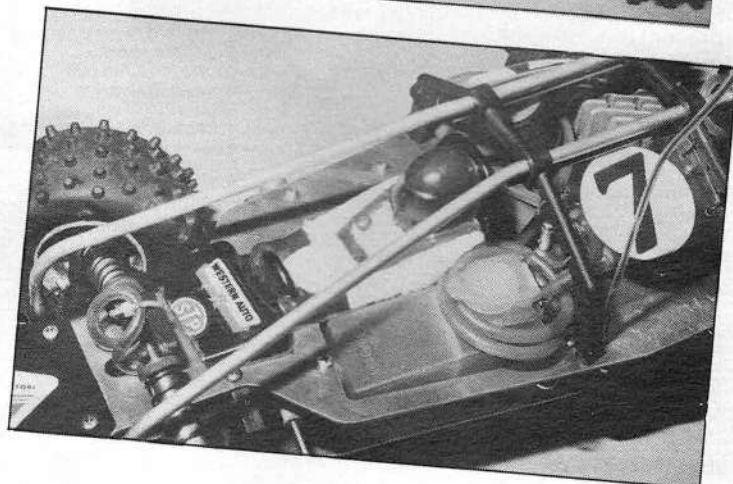
Right: silicone tubing is used as an interconnection between the dampers - slight give in the tube compensates for changing volume.



Right: rear dampers also interconnected, note also small moulded plastic rear bumper.



Right: don't forget to fit a driver, necessary if you wish to race to BRCA rules. Coil of tubing helps prevent syphoning from the tank on engine over-run.



and filing sessions produced a plate that fitted but it was very obvious that access to the carburettor adjustments would be difficult. An additional notch was filed for idle mixture adjustment access but I finally had to resort to making an especially long and thin screwdriver for the tick-over screw. Whilst working on the 'engine room' I decided to modify the Picco needle and jet assembly into a simple 'Banjo' fitting and use a remote needle which would be easier to get at.

The 4-pin clutch is very simple but does need careful trimming for correct operation. There are no springs, the PTFE material flexes to allow the shoes to spring out into contact with the drum. It must be thinned between the two pins so that there is sufficient flex otherwise excessive clutch slip will result.

R/C installation

Once the top chassis plate is fitted round the engine, a hole must be cut for the throttle servo and holes for the steering servo mounting brackets. Dimensions are provided for fitting these items and all the necessary over-riders, links, brake adjuster, etc.,

including a pair of heavy duty moulded servo discs to suit JR/Sanwa servos. Receiver and battery pack are suspended between moulded plastic posts on rubber bands. Space is tight here, think out the routing for leads, etc., carefully before settling on an arrangement. A particularly good fuel tank is included. With the exception of that supplied with the 'Presto' this is the only tank in an Off-Road kit I have come across that didn't leak!

Finally, the roll cage was assembled and fitted into place and the 'Cobra' was ready to roll.

Snake in the grass

I can quite honestly say that this car was a delight from the the first turn of the wheels. It is very stable and predictable and positively enjoys being driven fast. Within reason the faster one pushes the car the easier it becomes to drive, probably because of the 4% higher drive ratio on the front wheels. Four wheel drive cars do take a little getting used to but the overall secret seems to be 'keep the power on'. Chopping the throttle promotes a nice little bonus of oversteer which definitely helps things if a corner

suddenly seems too tight! I found it unnecessary to resort to any modification to suspension spring rates, tyre balance or ride height to make the car very drivable. The car is light and acceleration from a standing start is good. In three heats at the most recent race meeting my 'Cobra' was first into the first bend each time.

I have now run the car for several hours on the track and the various little findings that I have made are included in the foregoing account of assembly. The main mistake I made in first assembling the car was in trimming the clutch shoes and I had to eventually fit a replacement. For improved reliability and low wear rate I would strongly recommend end-float control pads for all the drive shafts and also a more secure fitting of the brass bushes in the steering uprights. Over to you *Serpent*. In conclusion this car is to my mind one of the best kits I have ever assembled and competitive in top class Off-Road racing as well.

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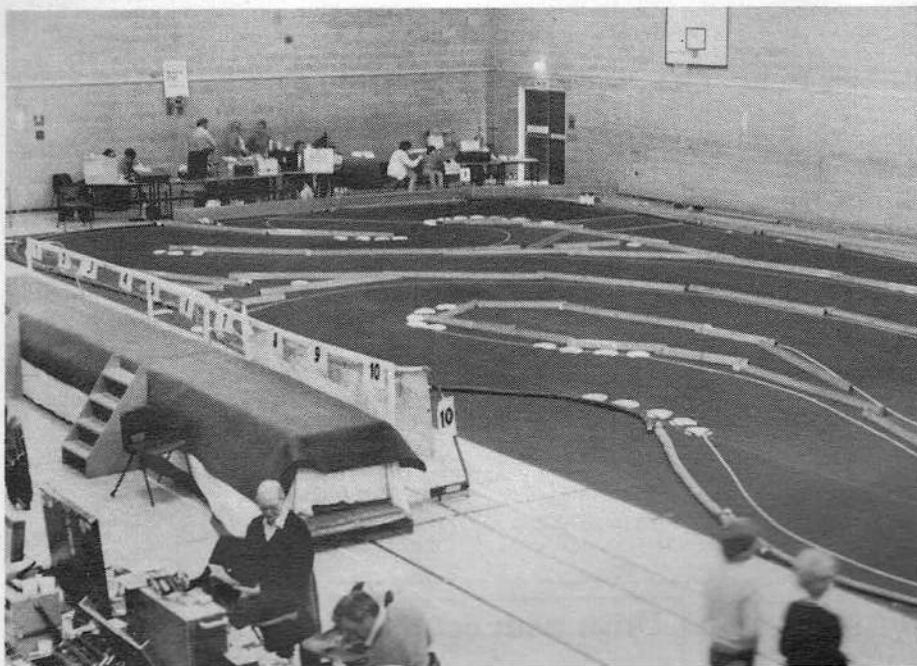
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Racing Round-up

Chesterfield, BRCA 1/12th National Meeting. May 19-20. Report by Pete Winton



Above: the Chesterfield circuit, a combination of CARS and another club's carpet gave an interesting course. Much has been said concerning the actual lane width (below 6ft. or otherwise) and really this is now so much history. However race organisers should take note, the BRCA minimum width rule is only a guideline - commonsense should prevail.

Team Talk

In the **Demon** camp all the team cars had reverted to a solid front axle mounted as per the kit. Experiments with the swinging axle and independent suspension front-end have been dropped. With the power available using modified motors all cars look nervous in the handling department. The *Demon* cars of Nick, Jane and Grahame Davies more so than Pete Jones and David Gale. On standard motors it was a different story, the cars of Pete and David whistling round for David to take FTD and Pete 10th fastest. Pete was using a *Demon/Yokomo* standard and many other competitors were also very pleased with this motor, not least A-Finalist Jimmy Davis, Andy Benson and the winner, Glyn Peglar. *Demon* also supplied cells to many of the final winners right down the scale, and over 50% of the A-Finalists were using

Demon speed controllers. A good weekend for Nick Adams and *Demon Products*.

Team Associated were persevering with the new independent front-end, Jimmy and Wayne after having a real disaster at the Luton club the previous Thursday enjoyed an excellent weekend by the simple expedient of dialling in 2° of negative camber and stiffening up the anti-roll bar on the front. Apart from this the cars were unchanged. The 05 motors used by Nigel Hale and Mickey Booth just didn't seem to be fast enough, but only Nigel made lower than the A-Final. Jimmy Davis quickly resorted to *Yokomo (Demon) Power* and looked much quicker, missing FTD on Sunday by 0.2 seconds! The *Associated* modified motors used on Saturday were very fast indeed, the new white dot triple turn being very economical and punchy out of corners.

Expectations in the **Parma** team were obviously high following Phil Olsen's win in Germany. Phil had a new car to set up, but Chris Arnold and Tim Dakin used the existing 'Panther' chassis in 'Euro' configuration. This Chris Arnold design is soon to be released as a kit,



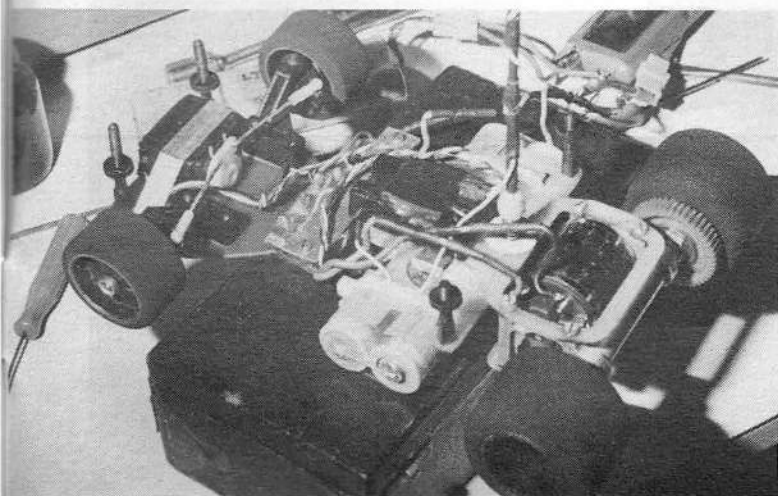
Above: Glyn Peglar in ebullient mood after clinching his first National A-Final win in Standard class. With or without a modified motor?



Above: David Gale collects his FTD trophy in the Standard Class event. He subsequently ended up fourth in the A-Final.

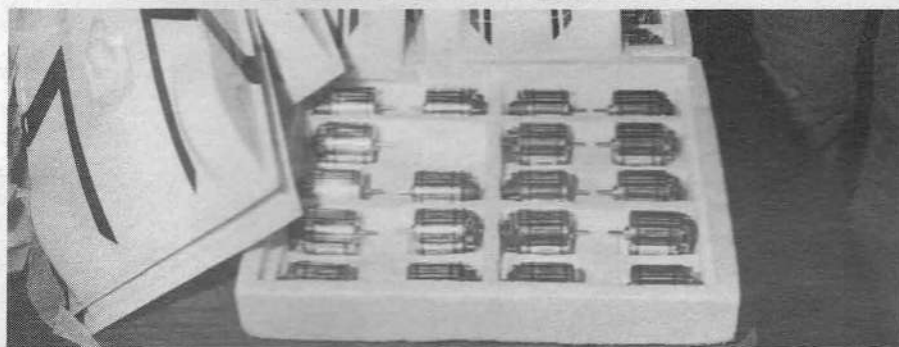
but the current chassis' are hand-made by Chris for the team. Gerry Goldberg had brought traysful of *Parma* 'Renault' *Yokomo* motors and got rid of most of them when their performance and economy became clear on Sunday. George Land, veteran of many Nationals, was on hand to manage the team, and his effect was noticeable. There was a new cohesion about the pit and this resulted in *Parma* winning their first team prize on Sunday.

Down in the **Schumacher** pit you got the feeling that Chesterfield was just another venue for more problems to occur. But their determination to restore their previous lead over the opposition saw experiments with new parts on the car and the use of some CS selected cells. These were obtained from Christian Sterr during their stay in Germany for the Eurochamps and there were favourable comments on their performance. The new components in the car made the handling far more twitchy than is usual and their standard 05 motors were not as quick as the *Yokomo*'s. All this combined to make Sunday a first B-Final for Andy Dobson since I didn't know when.



Left: Glyn Peglar's Schumacher 'Clubmans' car which stormed to victory. The 'Clubmans' design shown here used Association front suspension blocks. This configuration is now outdated with the emergence of a total 'Schumacher' front end.

Above: Andy Benson's Alpha Track Parts 'Omega' which proved advantageous in the high grip of Sunday's Standard Class event. Andy ended up fifth in the A-Final.



Above: the essential Parma Yokomo motor, standard issue for Sunday's class of racing. Trayfuls of these motors arrived just in time for Helger Racing to reap the benefit of their performance. Left: Team Parma looked pleased after winning the Standard Class team prize (believe me, that is a pleased expression on Phil Olson's face). Tim Dakin was the only team driver to make the A-Final on both days.



RESULTS

Modified Class

A-Final	B-Final	C-Final
1. J. Davis	1. P. Olsen	1. J. Robson
2. M. Booth	2. D. Gale	2. P. Riley
3. L. Pipe	3. T. Biggs	3. G. Davies
4. G. Peglar	4. W. Davis	4. T. Dutton
5. A. Dobson	5. A. Benson	5. F. Smart
6. B. Jones	6. P. Angus	6. A. Wilkinson
7. P. Davies	7. N. Hale	7. N. Adams
8. T. Dakin	8. J. Spencer	8. M. Jones
9. R. Giles	9. S. Haywood	9. D. Towell
10. C. Arnold	10. P. Jones	10. C. Evans

Standard Class

A-Final	B-Final	C-Final
1. G. Peglar	1. A. Dobson	1. N. Adams
2. J. Davis	2. P. Davies	2. F. Hatfield
3. L. Pipe	3. J. Adams	3. T. Dutton
4. D. Gale	4. C. Arnold	4. C. Evans
5. A. Benson	5. J. Spencer	5. N. Hale
6. F. Smart	6. J. Robson	6. P. Angus
7. P. Jones	7. W. Davis	7. G. Davies
8. P. Olson	8. A. Blakeman	8. M. Baker
9. T. Dakin	9. T. Biggs	9. D. Towell
10. M. Booth	10. P. Farmer	10. R. Giles

Standard Class — Technical Chart

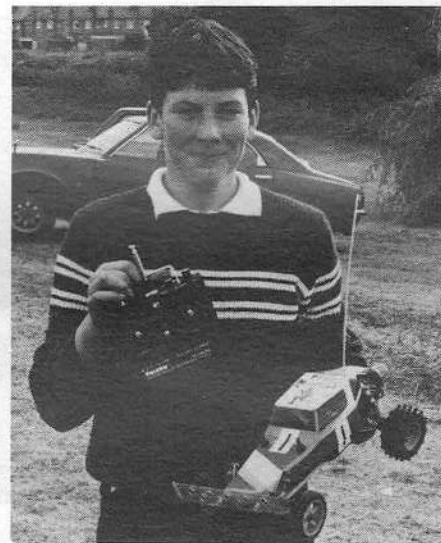
	Chassis	Motor	Ni-Cads	Speed Cont.	Servo	Body	Tx Rx	Tyres Front	Rear	Rear Size	Gear Ratio	Ultimate Ratio	Tyre Treatment
Glyn Peglar	Schumacher Clubmans	Demon Yokomo	Sanyo NJ	Laser Compact	Futaba FP132	Alpha Toj	2M	07	07	51mm	13:46	45.28	T/Tite
Jimmy Davis	Associated	Demon	Assoc.	Demon	Novak	Assoc. Toj	Multiplex	Assoc.	Assoc.	53mm	13:44	49.20	T/Tite
Les Pipe	Schumacher C	Trinity 05	CS	Demon 2D	Bantam Midget	Alpha Schkee	2M	Ufra	07	50mm	13:44	46.41	T/Tite
David Gale	Demon	Reedy 05	Demon	Demon 2D	Futaba FP132	Alpha C100	JR FM	07	07	48mm	12:46	39.34	T/Tite
Andy Benson	Alpha Omega	Demon Yokomo	Demon Sanyo NJ	Laser Compact	Futaba FP132	Alpha Schkee	2M	07	07	50mm	14:46	47.81	T/Tite
Fraser Smart	Associated 12is	Reedy 05	Assoc.	Laser Compact	Novak	Assoc. Jaguar	JR FM	Assoc.	Assoc.	54mm	12:46	44.26	T/Tite
Pete Jones	Demon	Demon	Demon	Laser Compact	Novak	Alpha Toj	McGregor	07	07	50mm	14:46	47.81	T/Tite
Phil Olson	Parma Panther Euro	Parma Renault Yokomo	Parma Sanyo	Laser Turbo	Futaba FD30M	Parma March	2M	Parma Med.	Parma Med.	53mm	13:46	47.06	T/Tite
Tim Dakin	Parma Panther Euro	Renault Parma Yokomo	Parma Sanyo OB	Parma Resistor 0.852	Novak	Parma March	Futaba	Med.	Med.	51mm	14:48	46.73	T/Tite
Mickey Booth	Association Suspension	Reedy 05 Yokomo	Assoc. Sanyo	Demon 2ccS	Novak	Assoc. Toj	Multiplex	Assoc. S/Soft	Assoc. Green	50mm	14:46	47.81	T/Tite

Racing Round-up

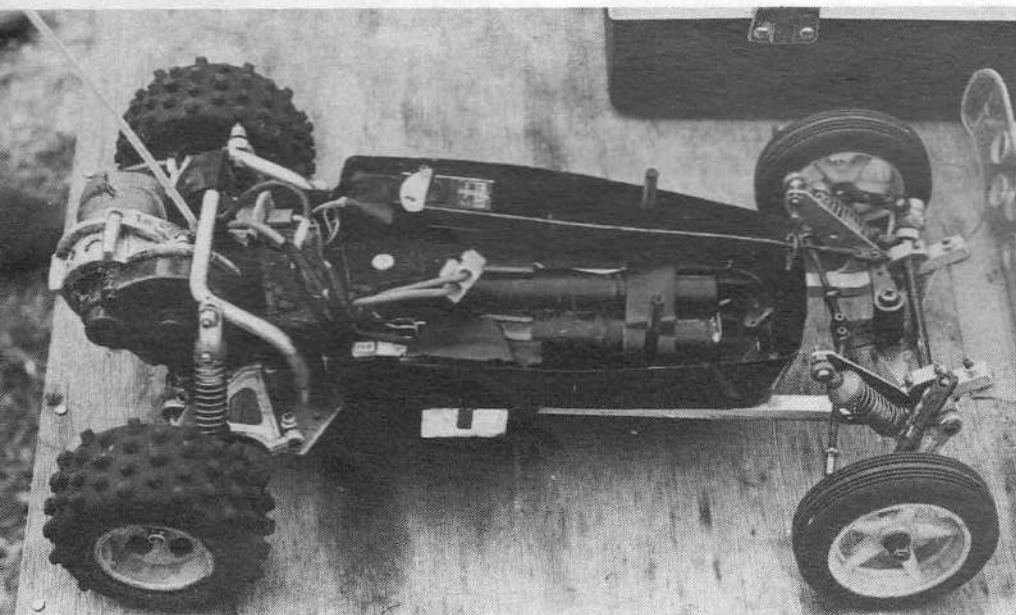
Chingford BRCA 1/10th Off-Road National Meeting. July 1 Standard Class



Above: the A-Finalists line-up after their hard fought race. Left to right: Lawrence Harris, Steve Haynes (winner), Jamie Booth, Phil Olson, Darren Harris, Steve Newey, Kevin Blears, Peter Stevens and mechanic.



Above: Steve Haynes, minutes after winning the A-Final. Steve's drive was an exhibition of strong nerves as he held off competition from Kevin Blears, Lawrence Harris and Jamie Booth. He led from start to finish and made very few mistakes.



Above: Steve Haynes hybrid Kyosho/Tamiya buggy which led the A-Final from start to finish. Steve's car features a modified Tamiya gearbox linked to a Scorpion chassis, universal joints form the link between Tamiya and Kyosho drive shafts.



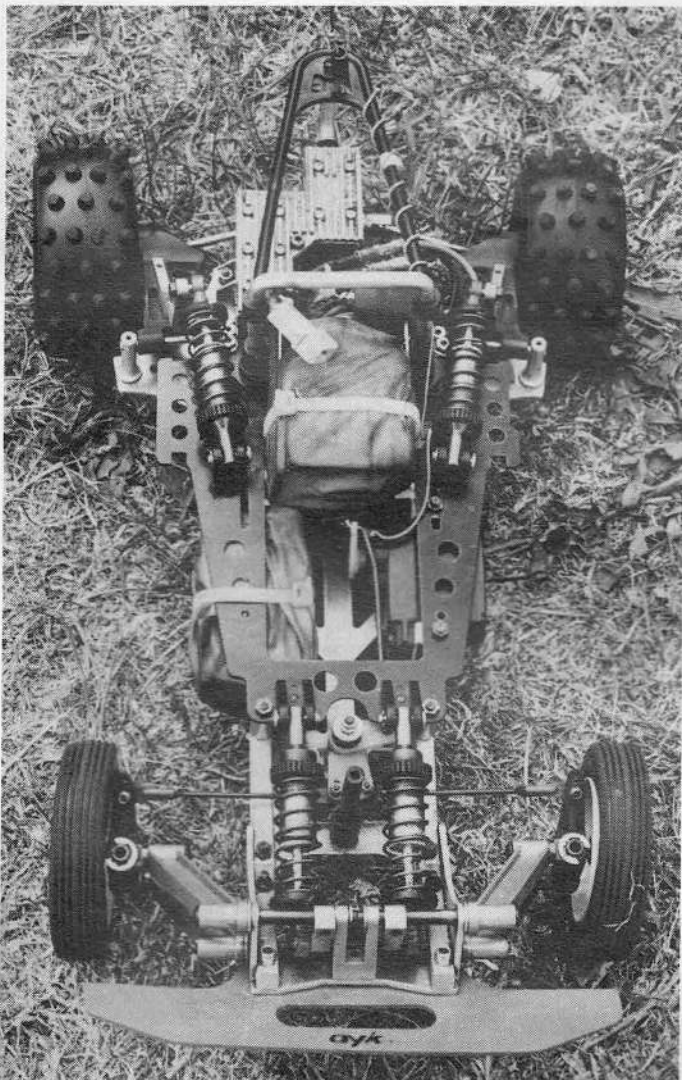
Above right: George Land (RD) and Richard Delves set out the winners' trophies. All competitors agreed that the meeting was excellently run and highly enjoyable for that reason. Right: the AYK 'GZ 480B' buggy motor was made legal for BRCA racing at this event and performed well. These motors are included in the new 'Sidewinder' kits which are now available through SRM Racing.



Above: as practice and heats progressed, the circuit developed different characteristics, this favoured the conventional style cars, (independent suspension/soft springing) and in particular the 4WD Hirobo cars. Two of these made the final, driven by Pete Stevens and Phil Olson. The rest of the cars were 'Scorpions' or 'Tomahawks' of some description or another.



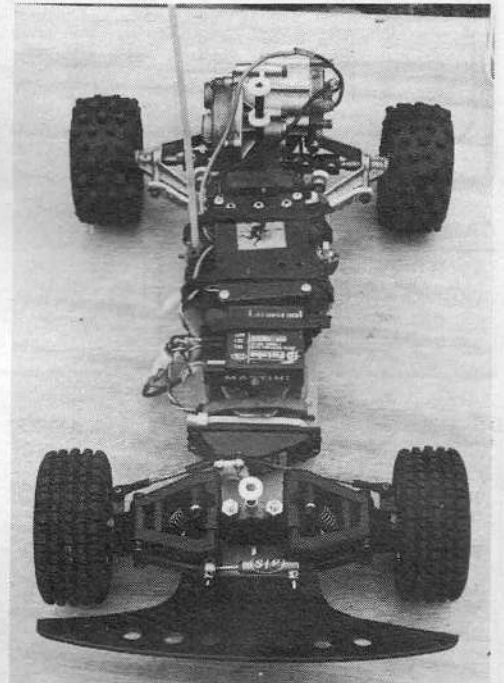
MODEL CARS



Above: the AYK 'sidewinder' made an impressive appearance from SRM Racing. Initial impressions are that the 'Sidewinder' has great potential. Indeed many of the top drivers are already quick to try it out for themselves.



Above: the Chingford circuit proved fast to drive as well as interesting and enjoyable. Lap times were between 10-13 laps in five minutes and very few cars had trouble lasting the distance.



Right: another example of the hybrid buggy now appearing at National meetings due to the BRCA 'Open' rules. This car belongs to Chingford Club President Gary Timbs and features Tamiya gearbox and chassis with Mardave 'Apache' front end with mono-shock damping.

RESULTS

A-Final

1. S. Haynes	13-18.2
2. L. Harris	13-21.3
3. J. Booth	12-0.3
4. P. Stevens	12-9.5
5. S. Newey	12-15.2
6. P. Olsen	12-6.5
7. K. Biears	12-23.8
8. D. Harris	6

B-Final

1. I. Litley	13-9.7
2. J. Bicknell	12-10.6
3. C. Olsen	12-15.1
4. R. Schumacher	12-19.2
5. G. Timbs	12-23.0
6. D. McLarney	11-6.7
7. G. Pegler	11-7.8
8. D. Kendall	3

Works Team

MG Model Products	37-13.8
Hopkinson's Models	37-42.3
Parma	34-44.0

Pit Stop Models	33-23.4
AYK SRM Racing	33-34.2
Touch Tronics	33-72.1

Club Teams

Chingford Car Club	36-39.6
Ahern Team	32-48.9
Basildon Buggy Club	31-64.9

FTD

Lawrence Harris	13-10.9
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Intermediate A-Final

1. R. Lamsdale	11-5.6
2. I. Skinner	11-7.2
3. D. White	11-15.1
4. J. Stone	11-16.5

5. B. Walpole	11-23.7
6. M. Allen	10-7.9
7. T. Price	10-13.8
8. I. McLarney	6

Intermediate B-Final

1. P. Gort	11-6.9
2. T. Lawless	11-26.8
3. S. Marton	10-6.3
4. S. Gillingooter	10-7.4
5. S. Girdwood	10-13.3
6. M. Andrews	9-3.5
7. C. Milthorpe	7
8. S. MacFarlane	6

Novice Final

1. S. Turner	11-6.0
2. K. Dent	10-2.7
3. S. Meadows	10-14.5
4. J. Brown	9-5.6
5. P. Monahan	9-7.8
6. S. Johnson	9
7. L. Martin	9
8. L. Eckelt	2

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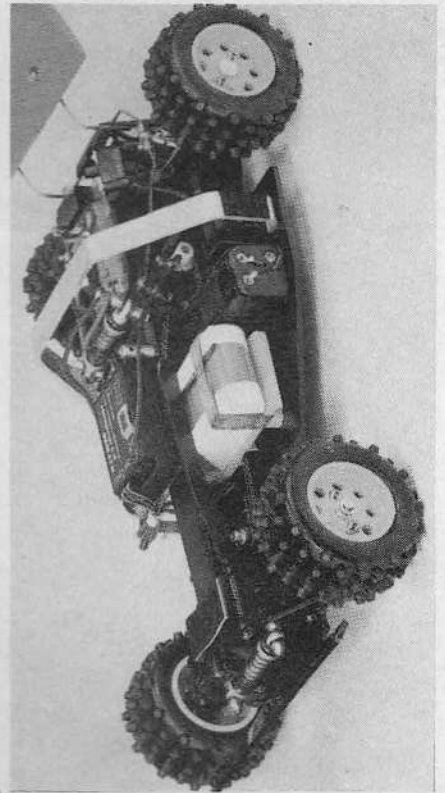
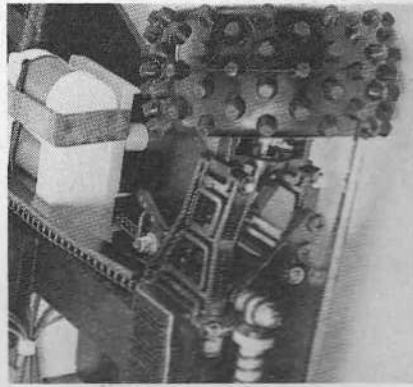
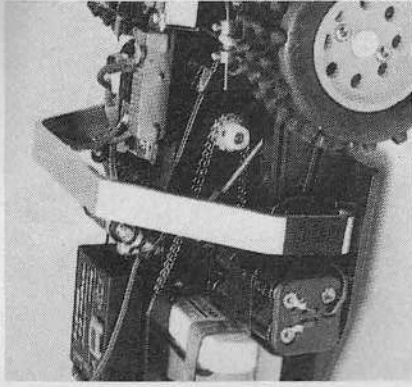
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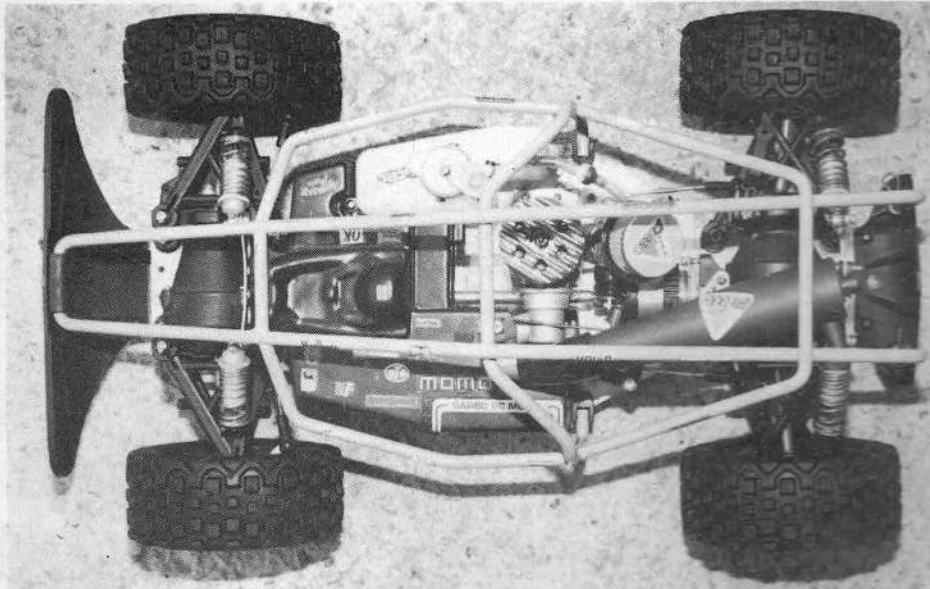


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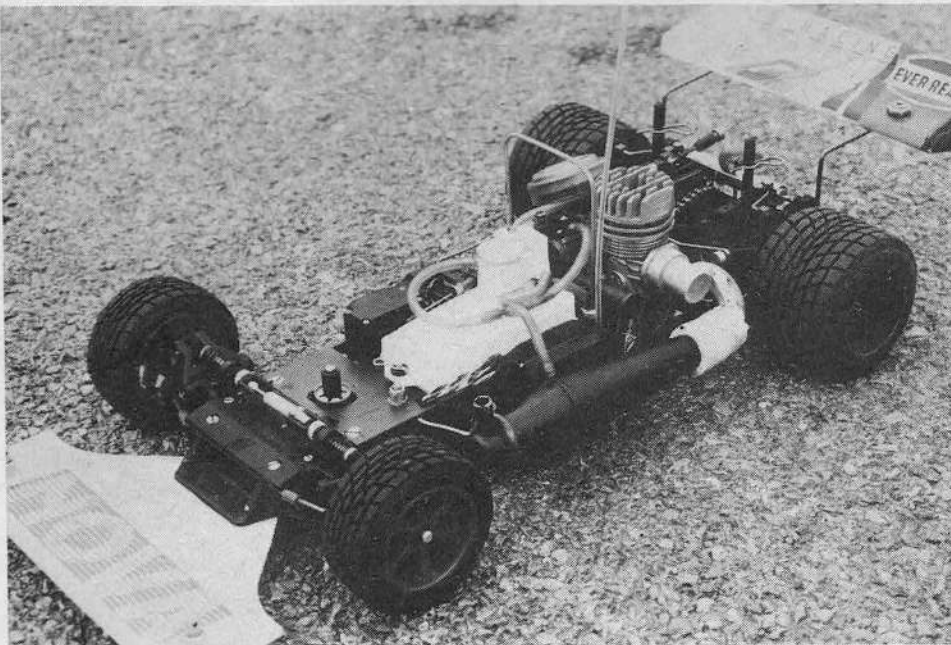
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