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Modeller

MAY 1981 Price 70p
Vol 3 No 2

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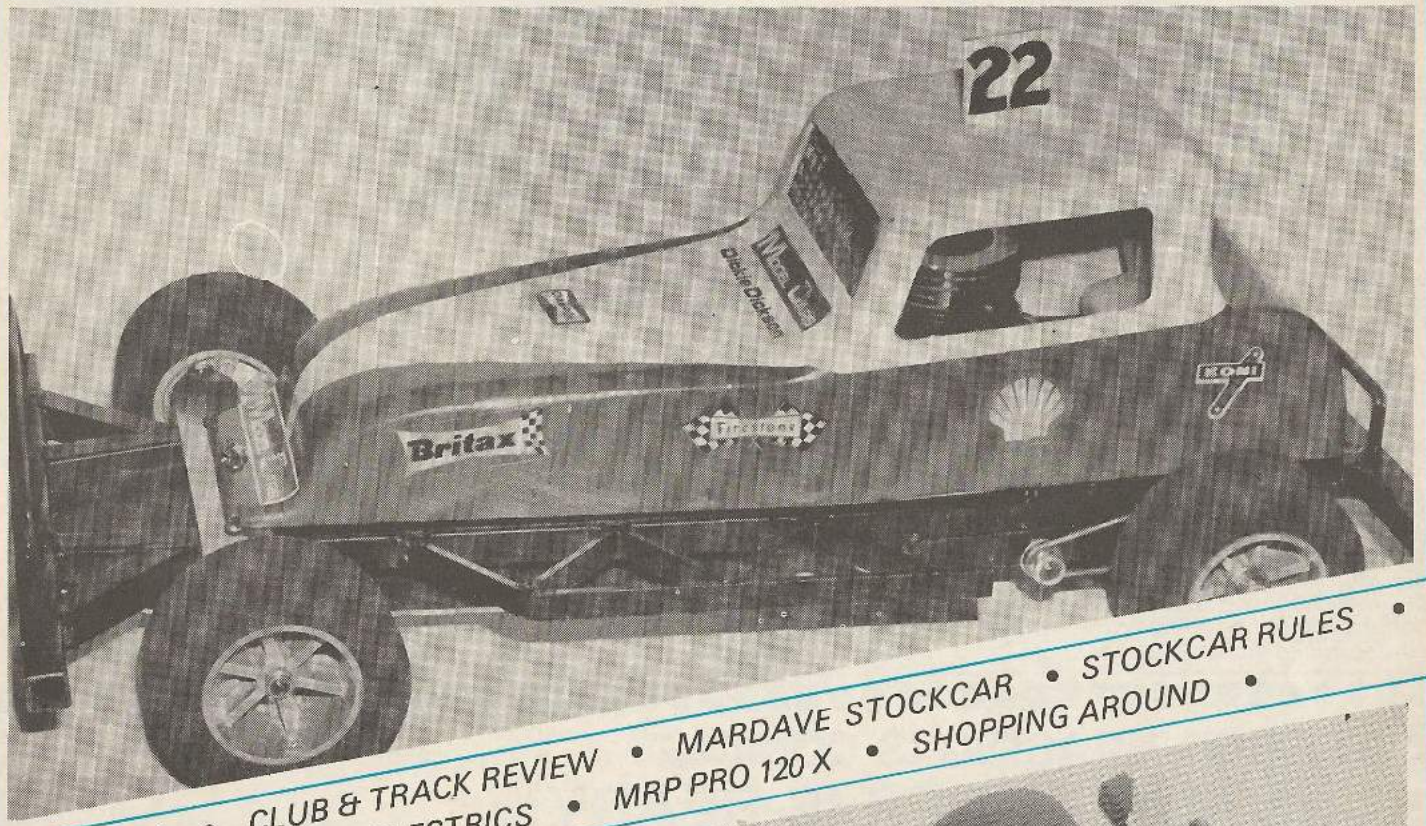


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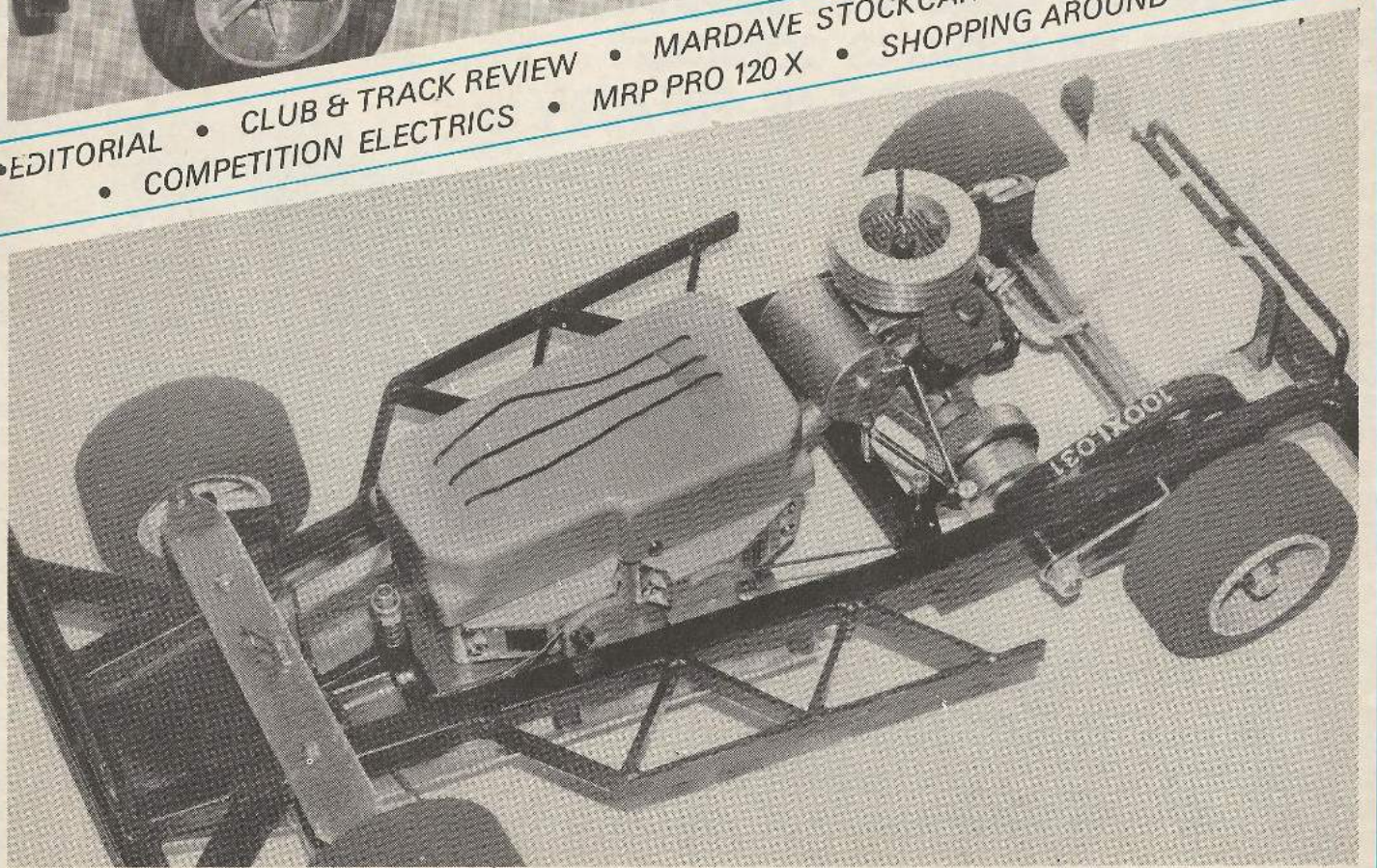
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M radio control MODEL CARS



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Editorial

Buggies and their Characteristics

WAS INTERESTED to read in my favourite newspaper (Grauniad need you ask?) extracts from some American vehicle tests on the stability of Jeeps. The Jeep CJ-5, only a limited quantity of which were imported into the UK, suffered considerable problems of roll-over in cases of single car accidents, and on test with dummies installed, was unable to make a 90° turn at speeds as low as 22 mph. The most significant difference between on road and off road vehicles, it was claimed, was the ratio of centre of gravity height to track width. Considerations of ground clearance require that this be greater in an off road vehicle than that of a typical passenger.

All of which is specially interesting in view of increasing interest in off-road r/c model cars, and the Auto Modeller's prize offers for articles. It seems that in o.d. efforts as wide a track as possible is desirable, not too short a wheelbase, and a good strong rollover bar, with of course added ground clearance. It is too

much to expect an all-purpose on and off road car to be evolved without losses of performance in one direction or another.

To whet the appetites of off-road enthusiasts an "International Friendly Off Road Competition" for 1/8th Buggies will be held sometime around July at Lons le Saunier in Eastern France, so EFRA reports. This should be good fun with the emphasis on the "friendly" part of the title and not too rigid a set of rules. Further information from Bernard Poupaert, 8 rue Adelaide Lahaye, 93170 BAGNOLET, France.

International Federation of Model Auto Racing (IFMAR)

Although the 1981 World Championships in Indianapolis has yet to take place, thoughts are already turning towards the 1983 event hopefully to take place in Japan. Committee meeting will take place on the Monday after the race to

discuss this. Other matters concern number of competitors and from whence; future constitution of IFMAR, voting etc; advertising and sponsorship at WC events; appointment of a President. There is still time for interested people to put forward any ideas of their own to their regional reps if they feel they have validity at world level.

Meanwhile, I hear that our AMPS drivers went to the US Winter Nats., qualified for places in the A Main (Final that is to us Brits) but the event was cancelled owing to rain!!! I believe the ancient Chinese army was equipped with paper umbrellas in case battle was interrupted by a sudden shower...

News from the Antipodes

Readers may remember an invitation from Dave Williams of New Zealand for a suitably qualified driver or drivers to form a team to run his New Zealand produced 1/12th electric car. Dave tells me he has happily fixed up a suitable team in reply to applicants through these columns — so look out for them in the near future. Meanwhile Dave has offered to do a regular column under a heading as above. As he says "I would be pleased to send you a brief every month to keep you abreast of what is happening here. We are close to Japan and it amazes us to see so many things you treat as novelties or things unusual that we take for granted and vice versa!"

In turn have promised Dave that our

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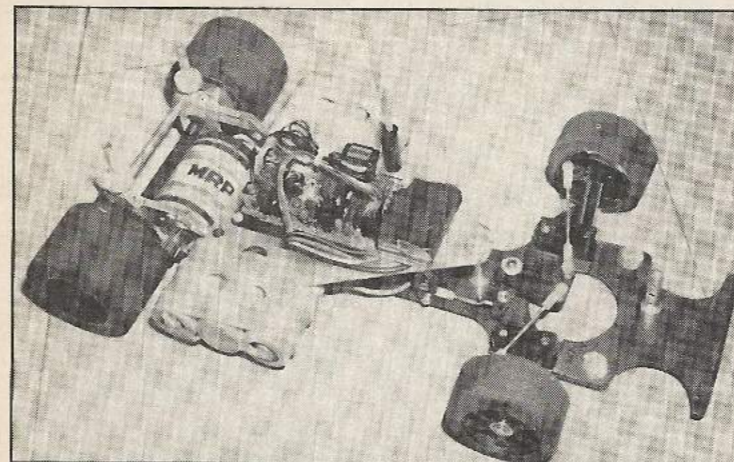
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Phil Greeno comes up with another winner — the new Gemini SL car soon to be in production. Weight is even saved by leaving lids off the electronics — or is this all decently covered in the final version?

race reports are meatier with more about the track, track conditions, sizes, widths, car speeds and times and other things of constructive use too. To start him on the right lines I have sent him a copy of the BRCA Handbook 1981 with the detailed latest rules.

Good for Nick!

As one consequence of the International 1/12th Scale Meeting at Brugg in Switzerland and the official formation of a 1/12th section to EFRA Nick Adams has been elected to head the 1/12th section. I am not sure whether he should be designated President or what. At any rate it means that we have Ted Longshaw as President of the EFRA Committee (1/8) and Nick heading 1/12th. So it would really be all our own faults if our voices are not heard at decision making times.

Those CB Frequencies

It seems that while I was away on holiday Parliament agreed in principle to allot a CB frequency in the 27Mhz band but FM at some time in the nearer future after settling some minor details. CB people don't like the FM touch and even staged at least one protest rally. Apart from their illegal frequency being a nuisance to r/c car racing (though only when very close at hand) it seems it also distorts TV sets — heaven forbid! — and because of operating in towns etc this is particularly bad, occasioning numerous complaints to the authorities. Meanwhile BRCA and MPBA (Model Power Boat Association) are in touch with the authorities keeping our cases well before them.

British Team for World Championships

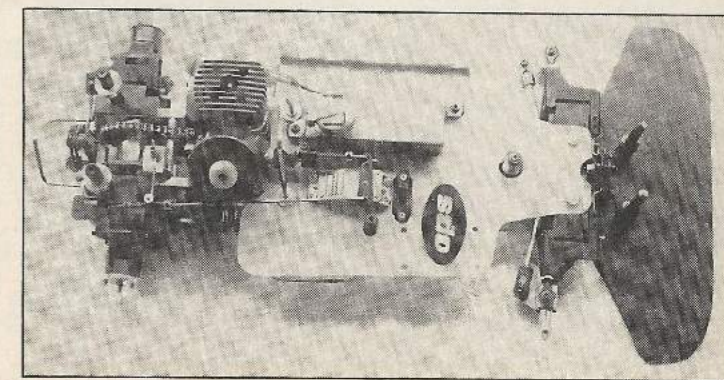
The team qualified by their successes in open meeting at home and abroad, with best eight performances to count, in order of qualification, and showing the cars they will be running are: Steve White (PB), Bob Errington (PB), Gary Culver (AMPS), Debbie Preston (Preston/Booth/Associated), Keith Plessted (PB), Dave Martin (AMPS), Paul Pagdin (PB) and finally Phil Booth who goes

in by right as current World Champion, but also qualified in third place on the list (Preston/Booth/Associated). All suspension cars!

Preston/Booth/Associated — what's this?

Many racegoers will have already seen the prototype suspension cars raced by Phil Booth and Dave Preston during 1980, originally with De Dion type suspension and later with the more conventional 4-wheel suspension now being generally followed. This from a series of one-offs culminating in an international victory in the Belgian Grand Prix at Ghent late in the 1980 season has led to a tie-up with Gene Husting of Associated, leading American manufacturer. Dave and Debbie Preston have always been closely connected with the American concern, Debbie indeed spent some weeks in Santa Ana before the Geneva Championship in 1979, and the Associated experimental workshops have been in the picture from the early days. At the moment final consultations have been taking place in California to go ahead with the production model under the Associated marque. Enough production cars should be ready by the championships for most if not all of the domestic US and overseas

A glimpse of the latest Booth/Preston suspension car. It is interesting to compare with the PB vehicle to see where the differences are. Rear springing and location of brake are immediate items... but wait for the Associated production version.



radio control

Associated teams to run them at Indianapolis.

Meanwhile Phil Booth, Dave Preston, Debbie Preston and Walt Bailey will form the UK Team Associated. Just as a final little tit-bit Dave Preston and Phil Booth are forming a company to distribute OPS engines — the whole range not just the r/c car size. OPS will very shortly be introducing their new rear exhaust version of particular interest to r/c car drivers.

Another Winner . . .

Phil Greeno's latest 1/12th design the Gemini SL (Super Lightweight) will shortly be on the market. Making the most of the new rules the new model weighs just 2lbs all up and had its first winning outing at Exeter. Price as yet unfixed (it may be by the time this appears) and only four pre-production models in being.

Sorry to Disappoint you, but

The "Family Show" at Bingley Hall Birmingham will not after all be taking place but must be marked down as a casualty of the current economic situation. The organisers were unable to reach their target figure for standholders and reluctantly decided not to proceed. This leaves Chris Deith with his Midlands Model Engineering Exhibition the "king of Bingley Hall" . . . so what about a car circuit this year Chris?

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

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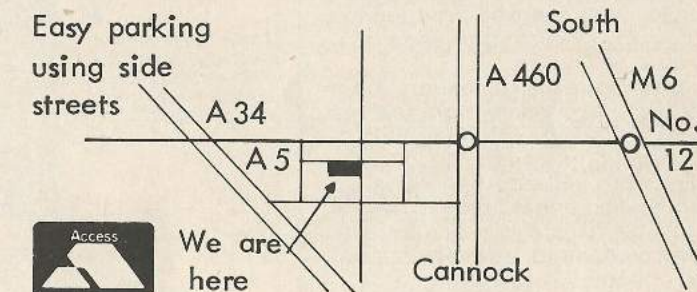
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MARDAVE WERE THE FIRST in the field with scale model r/c stockcars and over the years have maintained that position both on price and quality. For a long time building and running stock cars in 1/8th scale seemed to be the special activity of a Leicester-based group of enthusiasts, spreading out a little to embrace Coventry and then northwards to Yorkshire. But in recent years a much more formidable expansion has been taking place with a strong group in the south covering Chessington and the coastal strip of Sussex.

The reason is really quite simple. R/c stockcar racing is a much more relaxed version of i.c. racing with a fairly rigid formula covering cost and design so that drivers can come to a meeting confident that no one is going to have a car that is mechanically very different from their own, apart from any special skills an opponent may have in finishing a basically identical machine. It will all depend on the drivers' skill in handling as to who proves the winner . . . plus that little demon bit of luck that everyone needs.

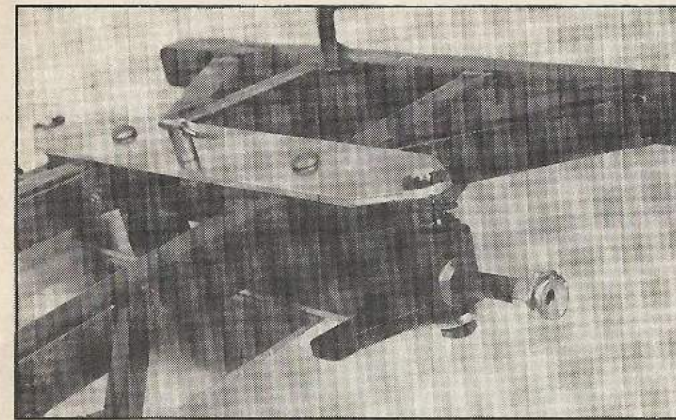
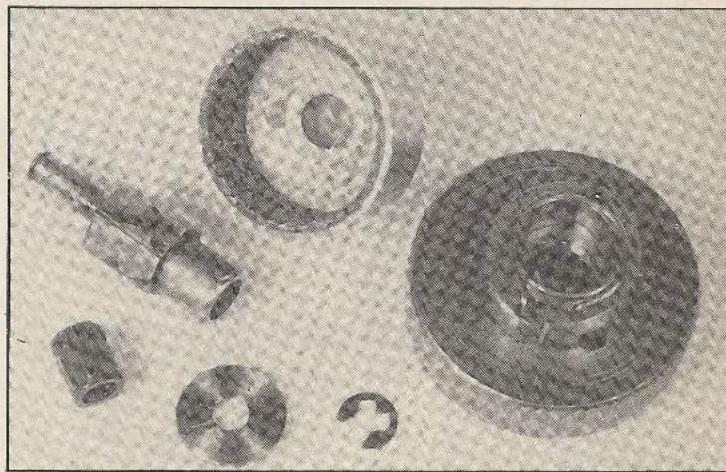
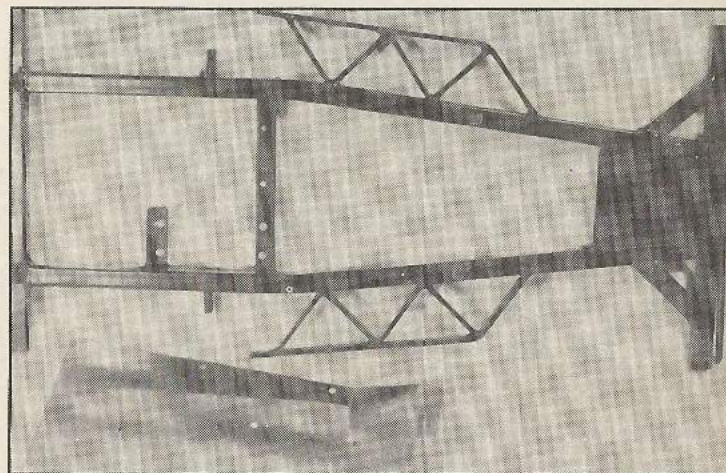
In spite of this cost/design formula it is amazing the differences in body design paint jobs and the like which tend to make a stox meeting a riot of colour. Another important factor in attracting adherents today is the far more modest investment necessary to get on level terms with the club experts, plus the thought that there is no "rat race" to keep abreast with new developments. More and more club drivers from i.c. racing circles are finding in stock car racing a welcome change from their usual activities.

"Don't kid yourself it is all that easy!" one such convert said recently, "There's a lot more to it than just going

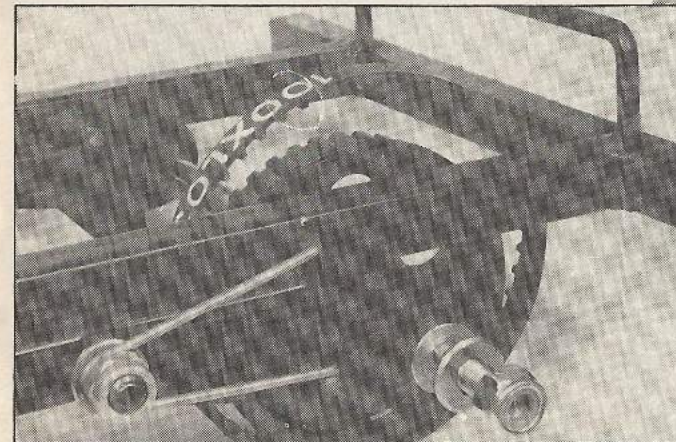
▲ Finished car, painted up in two colours — white top of course — and with racing number in place on roof and name on bonnet.

▶ The much improved welded chassis now with nerf bars and bumpers integrated and undershield.

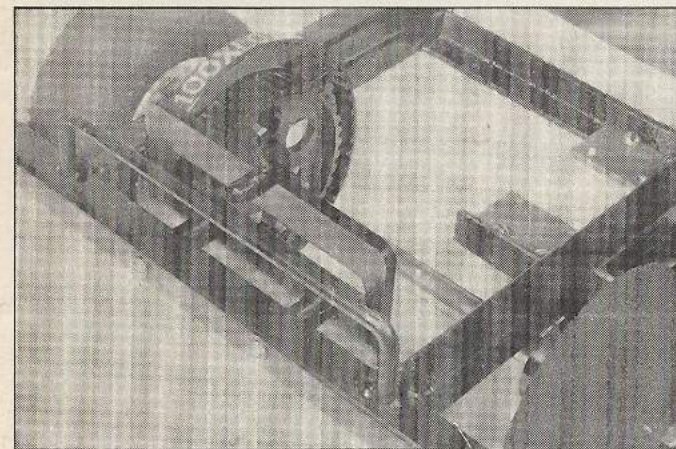
▶ As good clutch/bellhousing set up as you will find. Note needle bearings in their cage and strong metal sprung shoes. Bellhousing is already lined.



▶ Large toothed wheel secured to axle by bolt and nut through axle and flange. (used to be tapered pin).



◀ Sprung stub axles and plastic moulded steering arms — a far cry from the original design.



◀ Axle in place with belt looped in and rear springing fixed.

◀ Rear with fuel tank bracket which also provides button to locate and attach body. Engine plate in place.

round an oval track more times than the next man. In the smaller area there seem to be a lot more cars to pass and re-pass and the art is finding the right line, as well as the unfriendly nudge that puts someone else off his . . .

That's what it is all about. I include a copy of the construction rules, the affiliated clubs, and racing procedure. All racing takes place on an oval circuit in an anticlockwise direction, and offers more opportunities of racing as heats progress through after initial runs to eighth, quarter, semi and final events. You can tell the quality of the opposition by the colour of their car roofs, beginners starting with white roofs, then after some success promoting to yellow, to blue to red . . .

with all the satisfaction of a humble white roof showing his heels to a proud red top . . .

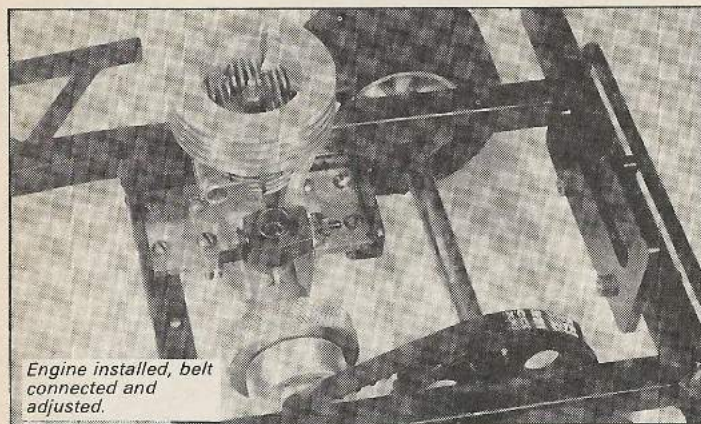
Now to work on the Mardave Mk II. This is a refinement of the original design dating from 1973 and offers a robust workmanlike job likely to stand up to a lot of running and the bumps and hazards of a keen competition. Chassis is already welded up and now has overrides and nerf bars ready welded in place. Do not try to be clever in rubbing down the welds you may only succeed in weakening the structure. It comes primer painted and can be left like that until you come to the general painting job, or you may wish to give it a squirt or two from an aerosol whilst still uncluttered.

A protective undershield is fitted next using the threaded stand-off blocks already welded in place. A couple of 3/32in holes must be drilled through the front bar to secure this shield at the forward end with ST screws. Steering crossbeams in two pieces go above and below the chassis frame, but first screw in the little body fixing post that goes into the central hole in what must be the upper beam, with the post towards the rear. A look at the bodyshell will convince you that this low location is right, since body has a small forward lip. Bolts go right through with nuts underneath, overlengths of which should be sawn off. A little Loctite at this stage is not out of place.

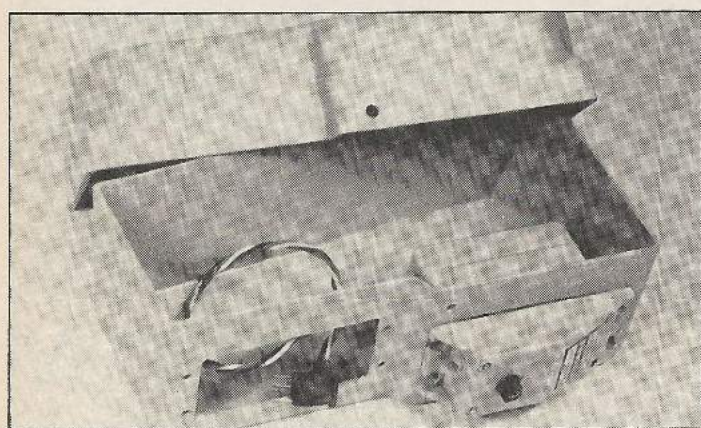
Elegant plastic steering arms/stub axles in steel complete are inserted between the steering cross beams. Little springs clip onto the mouldings and the kingposts, which contrary to the instruction text have circlips on top and go in only way to be nuted at the bottom, again with a little Loctite I would advise.

This neat assembly can be followed by the insertion of the servosaver, already made up. Its holding bolt goes through a ready drilled hole in the undershield which is bolted in place and the servosaver dropped on to it. Sixteen gauge piano wire in two 8cm lengths are cut (not provided) with ends bent up for the last 5mm at right angles each end and are attached to steering arms and bellcrank with the plastic swing keepers (which are provided). A slight amount of toe-in can be induced by kinking the steering arm wires. Put the wheels on to judge the amount of toe-in you are getting. About 5° should do the trick.

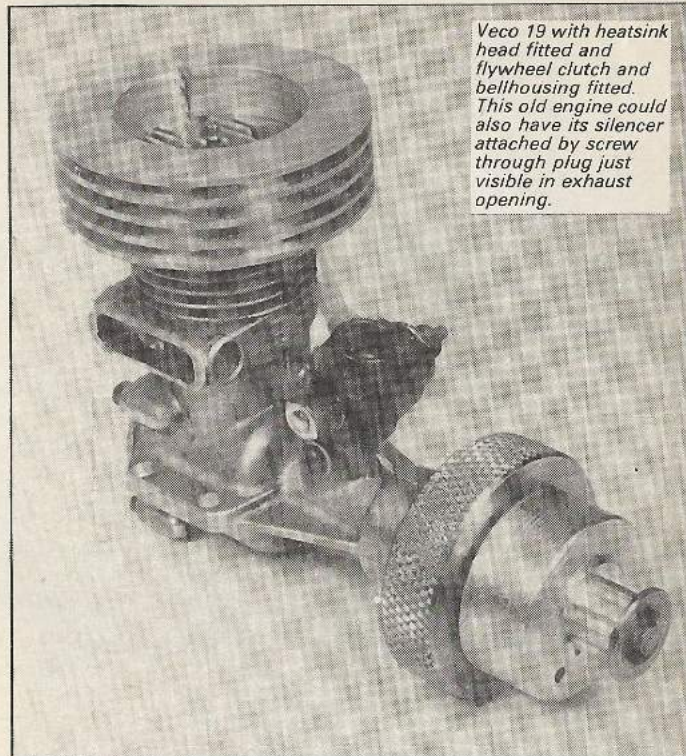
The big plastic toothed wheel is next fitted to the axle, and secured with the nut and bolt that goes right through the boss and axle. Boss should face inwards so that flat side of wheel is towards the chassis. Rear suspension left hand radius arm goes on to threaded stud with the spring going one prong in ready drilled hole in chassis and other in lower hole in radius arm. Spring goes over stud, with washer nearer to chassis and then the unit secured with the large nut provided,



Engine installed, belt connected and adjusted.



Radio crate with servo opening cut and one servo inserted.



Veco 19 with heatsink head fitted and flywheel clutch and bellhousing fitted. This old engine could also have its silencer attached by screw through plug just visible in exhaust opening.

screwing down just enough to allow a springing movement. Slip the belt over the wheel, fit right hand radius rod as for left hand and slide axle in place. Rear end should now have a working sprung suspension unit. Put on rear wheels, with washers (larger one on the inside) to each wheel and screw nylon nuts down. We now have the makings of a rolling chassis.

Engine plates should now be tried for fit and engine to be used checked to see that the ready tapped holes coincide with those on the engine lugs. My trusty old (old is the operative word) Veco 19 did not match up so rather than spoil a useful pair of plates for some other engine I made up another pair from alloy sheet and drilled holes to suit, but not threading them, attaching instead with bolts and nylon nuts. My Veco had already been cut back a few threads to fit elsewhere so was quite ready to be installed once flywheel and bellhousing had been affixed. This is really quite a remarkable set up when price of the kit is considered: needle bearings, ready assembled clutch shoes with springs to last as long as the car, lined housing, crankshaft adapter and neat secure fixture of bellhousing with a washer and circlip. Do not forget to slip the belt over the spur gear when assembling. Test for belt tension is to hold clutch drum firm and try to turn rear wheels. If too loose will jump over wheel teeth, if too tight the reluctance to move is fairly obvious. Some limited engine movement is possible by ovaling the engine plate holes.

Permitted cost of engine is now £43 being retail price as at 1st January 1981 not including price of heatsink and silencer. I have used the rather attractive and inexpensive broad finned Mardave type. It sometimes presents a trouble how to get it on and how far to push it. Easy! Slip engine in vice with soft clamps in place; place heatsink above it and with a block of wood protecting it tap it squarely into place with a hammer, easing out the slot with a broad screwdriver if need be. Drift it down about three fins — you may be able to detect a slight half way mark on the inside and there you are. By the way in cutting out your bodyshell do not leave plastic too close to heatsink, but cut it away a little as neatly as possible.

There is only just room for a small dustbin type silencer. My old Veco has a little bar through the exhaust opening which has a threaded hole to enable silencer to be secured with a bolt. Later models omit this bar and silencer must be fixed with a wrapround wire and tensioning bolts. These silencers come with exit tube in two places — it should point downwards for stockcar (straight out for racing car). If you have the other sort then you can get out of it by a short length of silicon tubing turned downwards. Some Hermatite or other sealant makes a gas tight joint.

At this stage I left the chassis alone and had a little relaxation cutting out bodyshell and radio crate. I have usually drilled round the openings clearly marked on the body with a chinagraph pencil to choice and then

cut through between the holes. But just for a change I did it the other way this time using a hot soldering iron to melt out the openings. You will also need to cut away a piece adjoining rear window to allow the spout of the fuel tank to emerge and be serviced. At the front two little nicks each side to clear the crossbeam holding down bolts enables the body to set flat and engage with the body bolt. Do not have the iron too

the garage or somewhere where the rather unpleasant smell will not provoke family dissent! Afterwards apertures are finished with a model knife and a little glasspaper wrapped round a file or similar. On balance I think the smelly way is slightly quicker, close to the finished lines, and do it in

Radio crate is something which Mardave introduced right at the beginning and with small changes here it is still today. It provides a neat way of housing the radio components, keeping them nearly 100per cent dry and absolutely clean. Moral: don't improve on a really good thing! Holes must be cut in the side of the base to receive whatever servos you are using. I use my trusty Futaba 17Ms for this scale, keeping the tiddlers for 1/12th electric use, but cut your holes to suit your needs. Crate is bolted to the undershield tight against the right hand side leaving space for the servos to operate on the left. It overlaps the end of the shield but not enough to get in the way of the silencer box. Two holes must be drilled in shield using holes

bored in crate where popped as a template.

Only a few little items remain to finish the working part of the car. Fuel tank fits on the clever little plastic plate with its slot to take the extrusion on the tank, securing with a couple of stout elastic bands. Note the little button on the back. This slots into the hole popped at back of the bodyshell. With the single bodypost at the front it is all firmly fixed. A great improvement on the original fixing which involved Velcro and spring hooks.

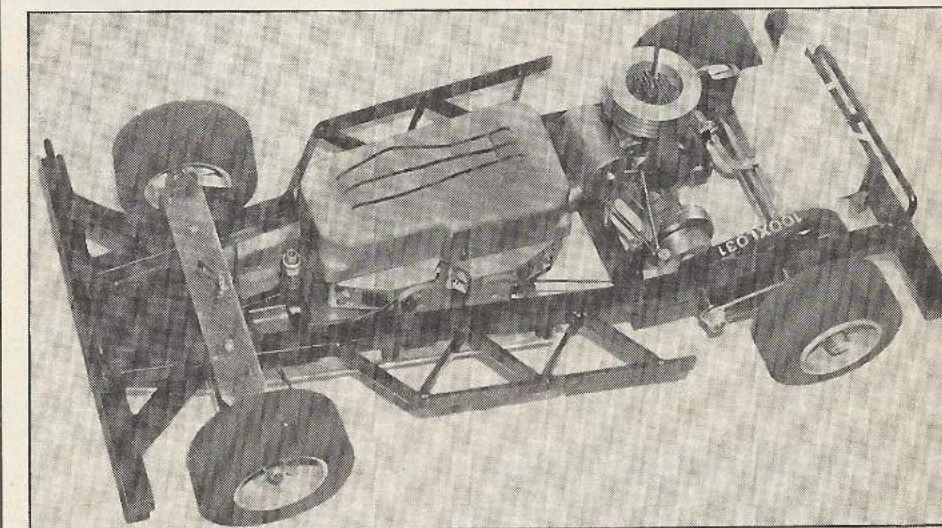
The radio crate provides room for the two servos, battery and Rx. Aerial can conveniently be threaded into the top of the crate. Cars are never so far away on a stox circuit that range is very important, and thus tucked away it provides no stand-up aerial to be caught behind someone's nerf bar or whatever.

Simple fuel tank connects up in a short length to the engine — don't forget to slip a fuel filter in the middle: surprising how much impurity can get through however clean you think it is. An air filter again is even more essential

Finished car waiting for its bodyshell. Rx aerial looped on crate top. Note fuel filter in fuel lead and sponge type air filter (Delta an old favourite of mine).

to take care of muck trying to get in the engine via the carb. Unlike aircraft flying in clean upper air cars are groundlings with mud and dirt everywhere.

I painted my greyish ABS bodyshell white all over as a start. The white rooftop and cabin sides were masked and a second colour applied — red in this case to make a red/white/blue car as I had already sprayed the wheels in blue. Your name must go on the car and your racing number as allocated by RSA — a number you can keep for your

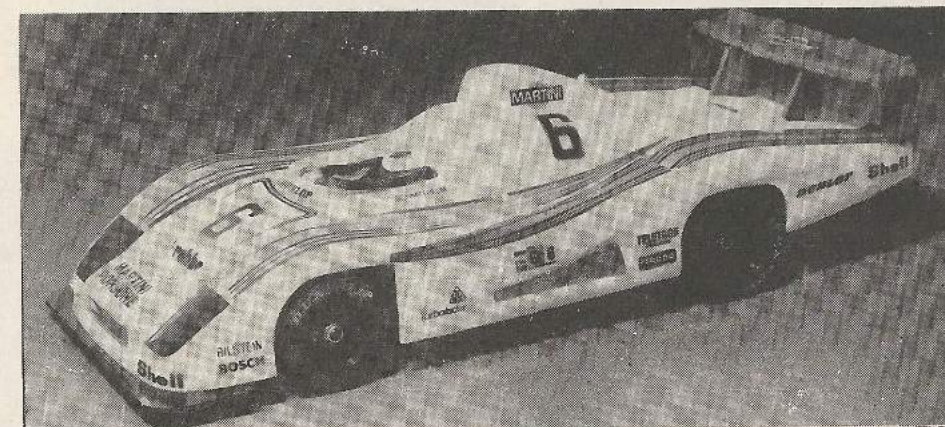


radio control

racing life. The number goes on a little panel fitted on the roof, being black numbers on a white ground, and painted on each side of the numberplate.

That really finishes this description. There remains only to suggest you read up the rules and seek out your nearest club, not forgetting to send off a modest £2.00 for RSCA membership to the treasurer and begin a relaxing form of r/c model car sport . . . I think you'll have fun.

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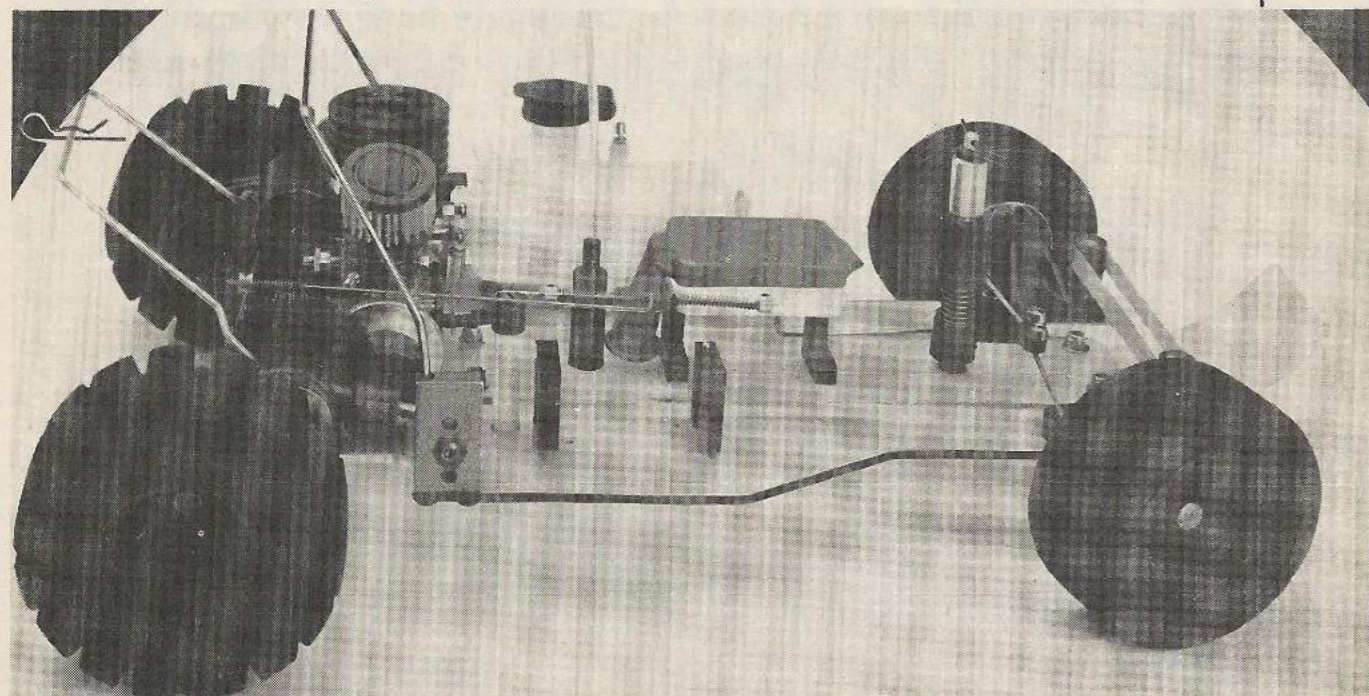
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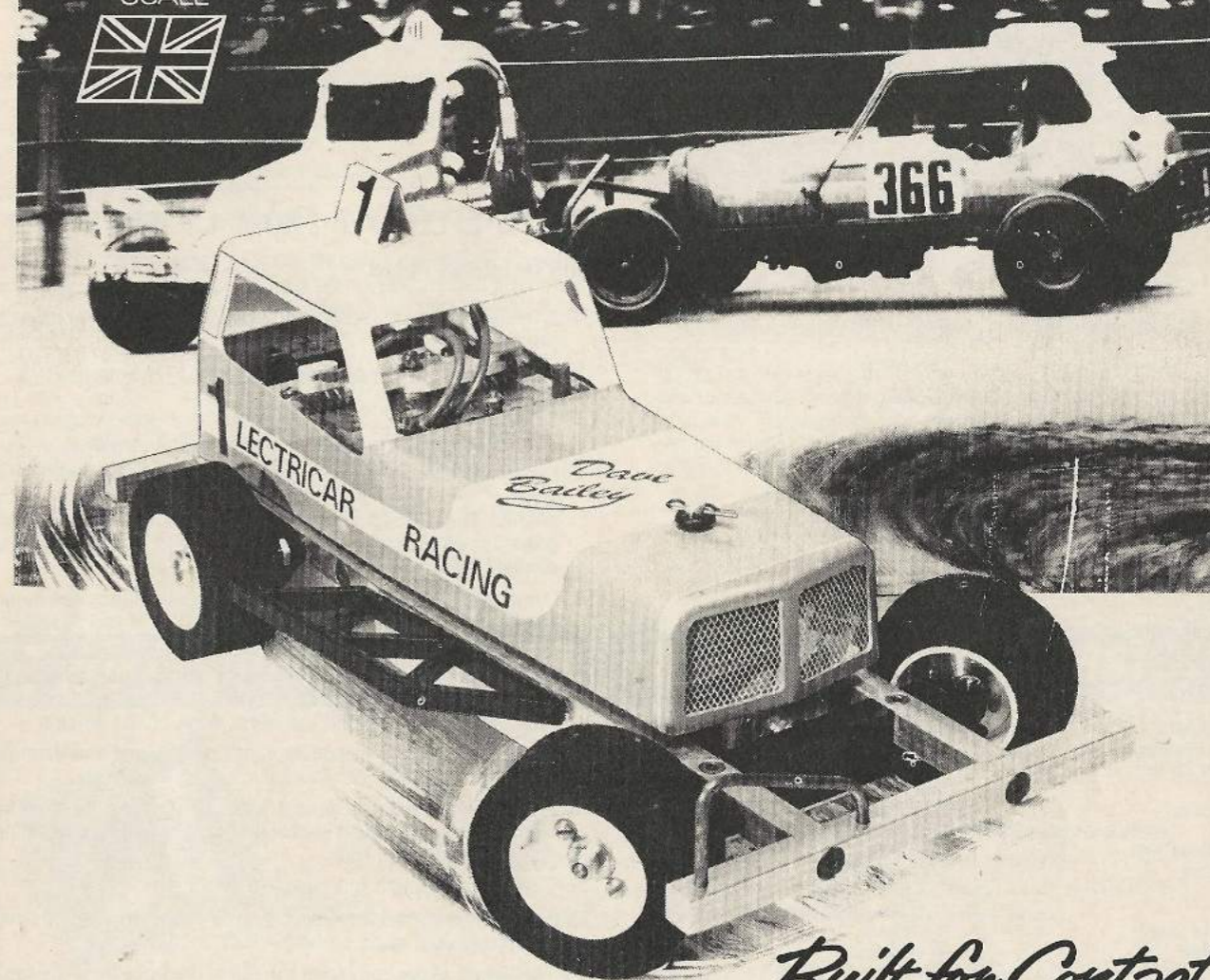
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RULES EFFECTIVE FROM 1.1.1981.

CONSTRUCTION RULES

- Models are to be 1/8 scale, and a reasonable representation of a full size car.
- Overall length to be between 16 $\frac{3}{4}$ " and 17 $\frac{3}{4}$ " or scale.
- Overall width to be a maximum of 9".
- Wheelbase to be between 11 $\frac{1}{2}$ " and 12 $\frac{1}{2}$ " or scale.
- Front and rear bumpers must be fitted, with a contact surface of $\frac{1}{2}$ " to $\frac{3}{4}$ ", and shall not project beyond the outer edges of the wheels. The distance between the bumper centreline and the ground must be 1 $\frac{3}{4}$ " to 2 $\frac{1}{4}$ ". All bumpers and nerf bars must be plugged, and have no sharp edges.
- Overriders must be fitted to front and rear bumpers. The height from the top of the bumper must be: FRONT 1" to 1 $\frac{3}{4}$ ". REAR 1" maximum.
- Nerf bars may be fitted, but must be on the same level as the bumpers, and have a maximum contact surface of $\frac{1}{2}$ ", and they must not project beyond the outer edge of the wheels.
- Tyres must have a maximum width of 1 $\frac{1}{4}$ ", and the diameter should be between 2 $\frac{3}{4}$ " and 3 $\frac{1}{4}$ ".
- The maximum engine size is 3.5cc or 0.214cu ins. If more than one engine is used, then the total capacity must not exceed this limit. Also see cost rule.
- There is no limit to the size of the fuel tank.
- The engine must be silenced to the satisfaction of the race organisers, and must be below 80db at 10 metres.
- The height of the body from the top of the body from the top of the chassis must be 4" to 5" or scale.
- The driver's name must be on the outside of the car.
- The driver's number must be on a 1" high fin on the roof of the car, and facing sideways. The numbers are to be BLACK on a WHITE background.
- Roofs must be painted down to the waistline of the body with the drivers classification colour. All new members should have a WHITE roof.
- Exterior roll bars are not permitted for racing.
- Aerofoils may be fitted with the following restrictions. Maximum area to be 10sq in. Maximum width to be 5". Maximum depth to be 2". Maximum height above chassis to be 5" or scale.

NOTE
SCALE IS DEFINED AS A PARTICULAR FORMULA ONE BRISCA STOCK CAR.

COST RULES

- The inclusive cost of the engine and carburettor must not exceed £43 at retail prices on the 1st January 1981. The only modifications permitted are those which may be carried out using hand tools. (i.e. filing out of exhaust ports).
- The cost of the car, complete and ready to run, including body, but excluding engine, carburettor and radio equipment must not exceed £40 at retail prices on 1st January 1981.

THE PRICES INCLUDE V.A.T.

- In the case of scratch built cars, the entrant must be prepared to produce a replica of the car, if so requested for under £40.
- In the case of modified kit cars, alternative parts may be fitted, and the cost of the original part may be deducted from the total, which may not exceed £40. The entrant must be prepared to produce replica modified parts, if so requested, unless they are available as currently made items.

RADIO STOCK CAR ASSOCIATION. RACING RECOMMENDATIONS AND REGULATIONS

DRIVER & CAR: No driver shall be eligible to compete in any R.S.C.A. meeting unless his car conforms to the present R.S.C.A. specifications, and he is in possession of a current R.S.C.A. Membership Card.

Cars may be scrutineered and the above documents checked at any time during any meeting.

RACE DIRECTION: All races will be run in an anti clockwise direction.

STARTING PROCEDURE: Drivers will take up their starting positions in their grades in all races. These grading positions will be indicated on the running surface and/or the safety fence to the satisfaction of the Starter and Lap Scorers.

CLUTCH STARTS: All Heats, Consolations and Semi-Finals will be a clutch start. Drivers will be allowed assistance to hold their cars if they so wish.

ROLLING STARTS: All Finals will be a rolling start, drivers will drive a preliminary lap in their proper places at a speed set by the front car. Providing all cars are in correct position, when the first car reaches

his grading line, the race will start. A driver in front of his correct position may be penalised.

METHOD OF STARTING: All drivers will have an audible warning at 2 mins, 1 minute, at 15 secs a warning either by P/A or Horn will be given. The start signal will follow, and this also will be by HORN/HOOTER.

RACE DURATION: All Heats, Consolations, and Semi Finals will be 4 minutes duration.

RACE FINISH: The Finish signal will also be by HORN/HOOTER. **STOPPAGES:** Cars stopping during a race can be returned to the circuit providing no other cars are obstructed in doing so.

No repairs to cars may be carried out on the racing surface, or the centre area.

NOTE: The only exception to "Starting Positions" will be the "World Championships" where cars will start according to laps scored previously in the Semi Finals i.e. the driver having the highest number of laps will start in pole position, with the choice of inside or outside lane.

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Pendle	Sept 13	Leicester	October 25

1/12th CHAMPIONSHIPS

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COMPETITION ELECTRICS

Modified Class Motors

MODIFIED CLASS RACING for 1/12th cars in this country differs only from the standard class in that the drive motors may be modified. There are two standard motors allowed: the IGARASHI 05 and the MABUCHI RS 540, both with specific requirements for the armature windings etc. These, then, may be used as the basics for modifying within limits as stated in the rules ("motors allowed are any legal standard motors with these modifications allows: rewind, epoxy, balance, trued commutator, motor brushes, cooling holes and ball bearings. The standard cam, magnets, armature and end bell must be used"). There is also one other motor allowed in this country, for modified class racing only, the SAGAMI/CAM/AYK GZ1200 motor.

Price Limits

It is of interest to note that a price list of \$50 is imposed in the USA, although no such limit exists here or, as far as I am aware, in any European country.

A price limit of around £30 would favour tuners in this country, although it may also inhibit the import of some of the many models from the USA where sophisticated modifying of the IGARASHI motor is very advanced. However, limited modifications to the MABUCHI only occur at the Japanese source and, as a result, remain quite cheap.

One may wonder why modified motors are expensive and why they are so advanced from the standard motors. The answer is purely the amount of human time required to carry out certain operations such as balancing, which cannot be done completely automatically. Also, you may not have realised that the motors are not solely used in model cars, and many thousands are used in industrial applications where the cost is very critical and the efficiency is not such an important criteria. Therefore, the

standard motor remains as a compromise between cost and effectiveness to do its job to a certain degree of acceptance.

Application in Cars

Turning now to the application in cars, there are many ways of increasing the performance of a motor. However, since the cars carry a limited battery supply and the races are of a set length of eight minutes, it is essential that the efficiency is not reduced. Of course, the latter point concerning eight-minute races refers to the National Competitions.

It is recognised that many clubs run shorter races and therefore some motors are tuned to give more power, albeit at the expense of running time. These type of motors are often referred to as "six-minute-winds", (or whatever), by the manufacturers, meaning that, all things being equal, they will not perform satisfactorily in races of longer duration.

A third variation is available with motors made for four-cell cars (instead of the normal six-cell type used in this country). If you try running these motors on six cells, you again get excellent performance, but for a shorter running time. Moreover, the possibility of overheating the motor must decrease its useful life.

Specifics of Tuning

In looking at specific details of tuning I will refer mainly to the popular IGARASHI motor, although most comments apply equally to all motors. The first step in basic tuning is to bre a blue-printed motor.

The blue-printed motor

The blue-printed motor is no more than a standard motor which has been carefully assembled and checked to within the design requirements. This requires neat winding of the armature (rather than throwing on the wire), and thus ensuring not only an equal

magnetic performance from each pole, but also ensuring an armature which starts off with an excellent balance therefore requiring very little in the way of balance drillings which in turn decrease performance.

It is not unusual to find one-turn discrepancies on standard motors coupled with drillings on the heavy poles to offset the extra weight of wire. The blue-printed armature may still require fine-balancing which can be checked statistically and dynamically and drillings carried out to ensure not only centrifugal balance, but also torsional balance which prevents the armature trying to skew in its bearings.

Before balancing, the windings are coated in either special high-temperature varnish or epoxy-coated during winding. This not only ensures that the windings cannot move and go out of balance, but also stops the rubbing of loose windings which eventually result in a short circuit.

To keep the cost down, the only other modification carried out is to true the commutator, thus ensuring that the brushes stay in contact and minimise sparking and power loss. This sparking is often taken as an out-of-balance armature on a basic motor, but careful running in will minimise it as long as a low voltage of about two volts is used to prevent burning the armature.

The blue-printed motor so far described is available from several manufacturers and will ensure the motor runs as well as one of the best selected standard motors.

End bell modification

Turning now to a situation unlimited by time, effort and cost of tuning, let us look at the end bell which carries the brushes. The simplest modification is to check and set the spring tension and squareness of the brushes so that each runs true and with the minimum friction, at the same time ensuring adequate low resistance contact.

Three legal modified motors: The Mabuchi RS 540 SD; The Igarashi MRP553; The Sagami GZ 1200



In itself, this is a very difficult operation which can be made easier by fitting a specialised assembly such as that used on the SAGAMI motor, where the brushes are pushed down onto the armature by coil springs. This assembly is available for the IGARASHI motor but is hard to obtain in this country.

The brush springs also carry the motor current and offer a small resistance to the current which can become significant under stall conditions, even resulting in overheating and distortion of the brush spring. Flexible copper braid can be soldered from the connector to the brush itself thus decreasing the resistance to the spring assembly. The same braid is used down the centre of coil-spring type brush assemblies.

The brushes themselves are a mix of mainly copper and carbon, but different brushes can be obtained to give lower resistance to both current and friction. Sliding brushes, as on the SAGAMI are readily replaced when worn whereas the IGARASHI cannot have new brushes fitted.

The lead-out wires from the ends of the brush springs should be low resistance and many favour the multistrand flexible silicon-coated wire, not only because of its current rating, but also because it is less easily twisted where such twisting could break off the tag, especially on the IGARASHI motor.

The end bell holds not only the brush assembly, but also the bearing for the end of the armature. This bearing is not so important as the loaded bearing in the metal can and therefore can remain a plain oilite type, as on the MABUCHI RS 540 SD BLACK MOTOR, commonly known as the RED END BELL for obvious reasons. Nevertheless, it is essential that this bearing is fitted exactly in the centre and that it is allowed to seat squarely to the shaft. Most tuners replace this bearing with a ball race at the same time as replacing the main bearing in the can.

Ball races offer a gain in performance only as long as they are kept clean and some tuners deliberately remove the shields so that they can easily be flushed out. The Oilite bearings are made for long life and so reducing their length can also reduce the friction at the cost of a shorter bearing life. These bearings can be oiled with a light oil or universal spray, such as WD40.

The end bell is normally held onto the metal can by strong bent tags, but these will break off quite easily after a few bends. To hold the end bell on, therefore, two small screws are secured into drilled and tapped holes through the can into the plastic end. It is also easier and cheaper to use adhesive tape, but this is messy and can come unstuck when the motor is hot. However, badly fitted end bells can rock against the metal causing side loads on the bearing as well as unseating the brushes, so make sure the end bell is a good, secure fit. The SAGAMI again scores here since it is designed to be screwed into place and cannot rock under any conditions.

Timing

One big advantage of the screwed plastic end bell is that it can be rotated to any position, thus giving infinite timing variations. The MABUCHI and latest SAGAMI motors have special positions already designed in, thus allowing you to assemble in re-timed mode, but they do not offer variable timing.

The RED END BELL MABUCHI comes ready assembled with advanced timing for counter-clockwise running, which is the normal direction used in virtually every model car. If you inspect the edge of the Mabuchi end bell the timing registrations are easily seen. The centre

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radio control

COMPETITION ELECTRICS (cont'd)

registration gives equal performance in either direction, whilst assembling in one of the other two notches gives the required optimum advance for either direction. The actual advance is only about 5° and represents a useful gain in revs without loss of torque, yet, for maximum efficiency, the nominal setting is the best.

It is worth mentioning here that the performance of a tuned motor in a model car is a compromise between acceleration, torque, high-speed power and efficiency at all speeds with minimum current drain under heavy loads. Performance under braking and running in reverse is normally a lesser consideration.

The timing can especially affect the above parameters and one must take into account the track conditions and whether acceleration can be traded for top speed. The permutations of armature winds, timing, gear ratios etc., for a given race duration on a certain track size are so great it is possible that the optimum motor adjustments are never found by any racer.

Certainly, as far as timing the motor,

most tuners settle for a safe small advance or none at all and rely more on the armature windings.

At meetings, you may hear motors being advanced by twisting the backplate, which results in a dramatic increase in revs, but the racer soon finds out this is accompanied by a complete loss of torque, braking and running time. It is not true, unfortunately, that retarding the timing

will result in increased torque, but it will make the motor generally very docile.

In the next article on motors, I will discuss the other aspects of the motors. As a postscript, it is interesting to recall that the first European Championship for modified cars took place in Switzerland in February. You may be interested to note in the adjacent table, what motors the top eight finalists (out of 104 entries) were using.

RACE RESULTS — EUROPEAN CHAMPIONSHIP FOR MODIFIED CARS

Position	Name	Motor	Ratio
1st	Neal Francis	Modified Mabuchi — fully reworked	11:48
2nd	Dave Tonge	Igarashi Parma Vette 5-speed	11:48
3rd	Bill Maisey	Igarashi 33-turn, reworked Astro	12:46
4th	Jorgen Andersson	Igarashi 32-turn, 22 gauge reworked	12:45
5th	Phil Greeno	Igarashi MRP 553, 29-turn, orange dot	11:46
6th	George Lond	Igarashi MRP 553, double-wind, blue/green	11:4
7th	John Chamberlain	Igarashi MRP 553, 29-turn, orange dot	11:48
8th	Grahame Davies	Igarashi MRP 553, double-wind, blue/green	11:4

RACE DURATION: Eight minutes plus last lap.
WEIGHT LIMIT: 1lb 15ozs.
TRACK SURFACE: Clean industrial carpet.

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Parma Porsche . . . £9.50
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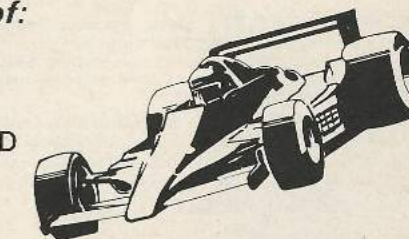
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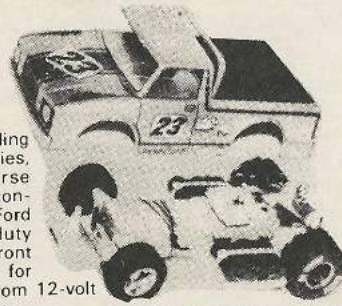
★ 1/12th Scale All Terrain Vehicle ★

Designed for off-road fun in grass, AND CONVERTS EASILY TO A PERFORMANCE RACING CAR!

Gear 10 Tooth pinion: 58 Tooth moulded gear.
Rear Tyres: 2 1/2" x 1 1/2" wide.
Wheel Base: 7 1/2"
Width: 6 1/4"

This is a COMPLETE kit, including Igarashi 05 motor, 6 nicad batteries, a proportional forward/reverse heavy-duty mechanical speed controller, a painted polycarbonate Ford Courier Truck body, heavy-duty knobby tyres. Brass bushed front wheels, assembled charge cord for 15 minute fast charge (works from 12-volt source). Kit does not include radio.

★ WE CARRY SPARES FOR CONVERSION TO RACING CAR ★ Retail: £61.78 inc. VAT



ELECTRONIC SPEED CONTROLLERS - (All prices include VAT)

SMOOTH-TRONIC - electronic speed controller with voltage regulator and dynamic braking - established as a competition winner! £29.95

CLASSIC - the basic electronic speed-controller for electric boats and aircraft £22.50

ELECTRO-THROTTLE - super high-efficiency electronic speed-controller with 'Full Power' Relay, for boats and aircraft. £29.95

ELECTRONAUT - electronic speed-controller especially designed for heavier marine applications; with reverse, HD relay. £35.00

ELECTRONAUT TWIN - a superb heavy-duty electronic speed-controller with twin power output stages and twin heavy-duty external relays. Copper plate heatsink for soldering water-cooling tube in non-ventilated high power applications; for 12-Volt, 2 x 15 Amp (30 Amp total) £49.95

N.B. The ELECTRONAUT speed-controllers give proportional forward and proportional reverse with diode braking at centre stick. Special voltages and configurations can be made to order - ask us for details.

QUICKIES: Silicon Rubber - fast-curing, clear. 20 gram tube 75p; 85 gram tube £1.75.

RACING NUMBERS - our new "super visible" numbers (1 1/8" figures). Single number, roll of 100 £2.50; Complete set (0-9, 1,000 figures total) £25.00. Get a set for your Club!

BODIES - We have over 25 1/12th scale body designs, 2-colour painted £6.98 - £7.98; Clear £4.50.

All bodies are durable polycarbonate.

MOTORS ★ Mabuchi RS54, 30 Turn (Stock/Standard of Class) £4.69 inc. VAT
★ Igarashi 05, 35 Turn (Stock/Standard Class) £5.50 inc. VAT
★ Igarashi 05, 32 Turn (Modified Class) £6.50 inc. VAT

These I.G. motors are now made to close tolerance balance with lacquered windings.



SPARTAN SPECTRON - kit including:
6-cell Battery Pack; RS54 Racing Motor;
Clear polycarbonate body.
Kit price: £52.00 inc. VAT.

STANDARD SPECTRON - Complete kit including:
6-cell Battery Pack; RS54 racing motor.
Polycarbonate body painted in two colours; SMOOTH-TRONIC
electronic speed-controller; Differential rear axle assembly.
Kit price: £88.00 inc. VAT

BALL-RACED SPECTRON - Complete kit including:
6-cell battery pack; RS54 racing motor; Polycarbonate body painted in
two colours; SMOOTH-TRONIC electronic speed-controller;
Differential and ball-bearing rear axle assembly.
Kit price: £97.00 inc. VAT.

Send a large, SAE envelope for a very complete list of spares for 1/12 scale racing. Trade enquiries welcome. Mail order customers - add 75p for spares orders and £1.50 for kit orders to cover postage and packing. All ex-stock items despatched within two days. For any queries or orders contact:

From: I & D ELECTRONIC CO., 24 The Square, Vicarage Farm Road, PETERBOROUGH, CAMBS. Telephone: (0733)-49955
(24-hour answering service now available)

RANGE ROVERS LAND ROVERS

The very latest in
Electric Car Bodies
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DBC (Stockport)

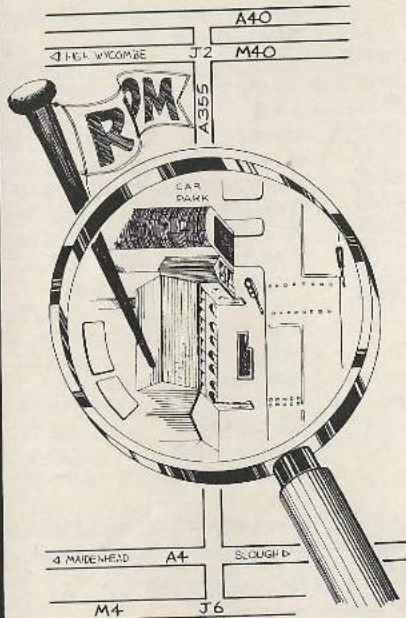
280 Wellington Road South, Stockport
Telephone: 061-480 5478

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71 Pilling Lane, Chorley, Lancs.
Telephone: Chorley 71511

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- ★ NO HASSLE PARKING
- ★ 1/12th ELECTRICS & 1/8th OFF-LOADERS A SPECIALITY

CLOVE HOUSE, BROADWAY (A355), FARNHAM COMMON, BUCKS.
Tel: 02814 6221. OPEN 10.00-6.00 (5.00 SAT.) CLOSED WED.
ACCESS, BARCLAYCARD, RAPID MAIL ORDER.
Mail order is normally post free over £10 except for heavy or difficult to pack items. If in doubt telephone or remit extra. Surplus will be refunded. Cheques etc. payable to Maidenhead Models.



RipMax



GRAUPNER ELECTRIC FRONT-WHEEL DRIVE

Pre-assembled and equipped with clear Lexan body for painting in your own personal style. Exclusive chassis design, cast alloy front-wheel block, front axle differential, built-in steering damper, IGA-RASHII 033 hi-torque motor with proportional speed controller. Model length approx. 16" (1/12 scale) PORSCHE 917/30 £54.25 or RENAULT MIRAGE £54.25.



GRAUPNER ELECTRIC

Conventional rear-wheel drive with choice of gear ratios. Complete with Lexan body-shell, motor, speed controller, motor brake. Ready to run as soon as radio and drive battery have been installed. Proportional steering and infinitely variable speed control. Rheostat-type motor brake enhances the handling and road-holding in turns, and is adjustable to achieve maximum effectiveness. Choose from the following:

almost-ready-to-go kits:

Porsche Carrera £46.50
Ferrari £46.50
B.M.W. 3.5 CSL £49.95
Corvette £49.95
B.M.W. M1 £45.75
Mercedes 450 SLC £47.75
Porsche Turbo £45.75
Also available Mercedes Jeep £64.95 and Datsun Buggy £64.95.

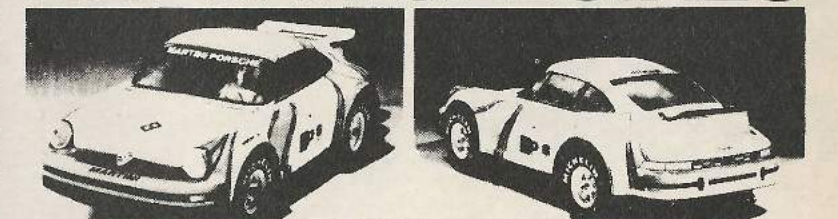


KYOSHO ELECTRIC

The 1/10 scale ELECTRIC BUGGY (above) has genuine sprung suspension and special tyres to run on rough ground, jump ramps, etc. - a tough, rugged 'fun' model. (Price £41.75). The other three models are 1/12 scale (200mm wheelbase) supplied with alternative gear ratios. All models have built-in mechanical speed controller and are so complete they are ready to run as soon as radio is installed.

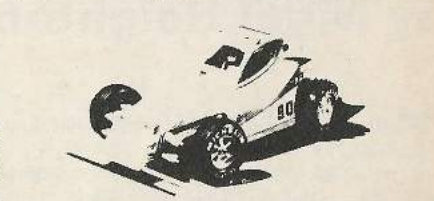
LAMBORGHINI COUNTACH £39.75

RIC CAR SPECIALS



OFF-ROAD I/C BUGGIES

Special tyres and fully engineered suspension for optimum traction and steering control at all times. ALL METAL construction throughout (except tyres, body-shell, toothed drive belt) OF EXCEPTIONALLY HIGH QUALITY. Assembly is a simple bolt-together job. Model length 22" approx. - takes .19-.21 engines. Tune-up options also available.



(top) PORSCHE TURBO I/C BUGGY £99.50
(above) TEXAS WILD BAJA £99.50



EXCITINGLY DIFFERENT KYOSHO I/C CARS

They are ALL NEW - and they're REALLY OUTSTANDING! Fast, exciting to drive, and DEFINED for circuit racing! Equally enjoyable running for fun. You can get an idea of how they perform from the photos right. Yes, there's even a 10 engine GO KART in the range! Check out the Track Test of this exciting model in this issue.

DATSUN CIRCUIT £112.50 PEANUTS RACER (09) £49.50
DATSUN FAIRLADY (09) £49.50 BAJA WEST CIRCUIT 10 £79.95
FIAT 131 Circuit 10 £79.95 R/C GO KART £59.95

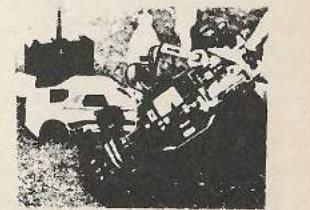


Pic below shows Graupner Sidewinder F1 race car.



GRAUPNER FORMULA ONE OR SPORTS I/C CARS

Graupner design and engineering qualities are unrivalled! Their R/C cars have been thoroughly tested and optimized through a long period of testing, resulting in the SIDEWINDER (£99.95) and EXPERT (£122.50) - both for 20-25 engines. Pre-assembled components for quick and easy building. Maintenance-free rear axle gearbox. Aircooled disc brake. Steel centrifugal clutch, front and rear slicks, etc., etc. Special electronics box for shock-and-dust-proof mounting of Rx and servos. The MINIS come practically fully assembled with BUILT-IN R/C GLOW ENGINE, with silencer, gearbox, automatic clutch, drum brake, etc. - and patented WHEEL STARTING device. MINI COOPER £68.60 and FIAT SILHOUETTE X 1-9 £68.60.



SEE THEM ALL AT YOUR MODEL SHOP

Model Racing Products PRO 120X

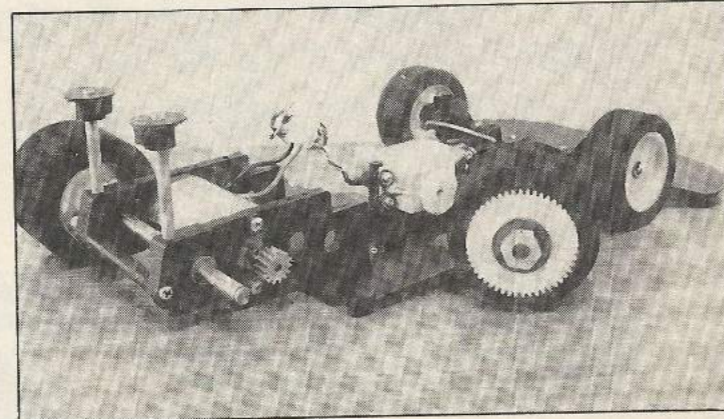
by Nigel Heighton

The completed car wheels siliconed ready for its test runs.



THE PRO 120X IS RACED with some success in the USA. The factory — situated high up on the western side of America — produces a line-up of kits from a basic GP12 rolling chassis, an unassembled complete kit, an assembled complete kit, ditto with radio installed and transmitter, and, out to the top of the line, model, the PRO 120X. The basic parts are common to all models in the range. The kit comes complete with batteries, speed controller, re-wound motor and differential, but excluding the charging cord and body. Body choice is very comprehensive including TOJ, BMW, TR7 and Lotus Esprite in both ready painted or clear lexan finishes and these are already available on the UK market. MRP's latest bodies are the Busch Hogan and the Frisbee — both GTs.

Shows rear assembly and gear arrangements — note circlip wheel fixing.



In order to reduce the building time I selected a ready painted body and was impressed with the quality of finish. It is worth the extra money just to save covering yourself in spray paint... and also it does not chip off the body as some paints have been known to do.

The kit consists of a black injection moulded chassis with a pre-formed angled platform at the front to take the axle units. These are made up by using metal kingpins moulded into the end of the lower arm, on to which the stub axle unit is fitted before fixing the top support from the kingpins back to the lower arm. Two self-tapping screws hold each side in place. Also moulded into the chassis is a central strengthening rib, the servo saver mounting and the steering servo fixing points.

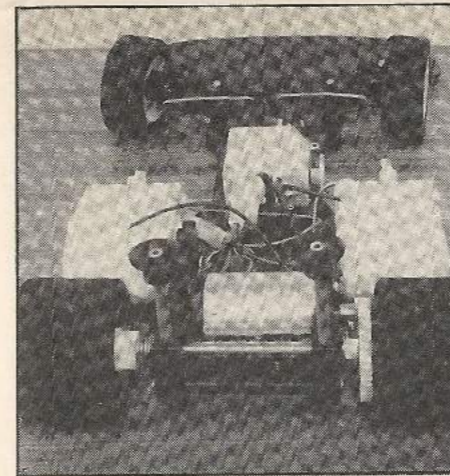
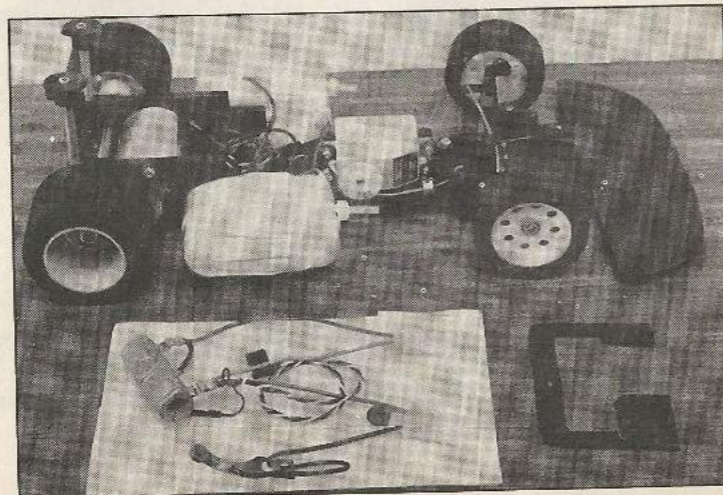
Rolling chassis. Small Futaba 16M servo in place to handle steering.



On checking the mounting points I found that the Futaba 17M servos I normally use were too large, but as luck would have it, I also own one 16M which fitted exactly. This prompted me to re-think my whole servo situation, and after comparing the new miniatures with the 16 and 17s, I invested in a pair of them (I now know how the 1/16th scale cars manage to get everything under their bodies) MRP even include a plate for use in conjunction with the mini-servos so the standard steering mountings can still be used.

The rear bearing blocks are also moulded and retained by self-tapping screws to the chassis. A tie bar at the rear keeps the blocks rigid and in line. The body support tubes, which have friction fit moulded body rests slid on them, fit into a pair of pre-formed holes in the bearing blocks. The standard bearings are plain, but ballraces are an option and were used. The rear axle can be either solid or differential. To revert to a solid axle set up the diff. adapter block grub screw is released and

Nicads added. Ceramic resistor speed controller parts laid out in front. All plugs and sockets provided.



Rear view prior to installation of speed controller.

Car with Frisbee bodyshell in place. Distinctive if not very beautiful.



the diff unit slides off the axle. An alternative gear is fitted and a replacement rear wheel (using the MRP square drive flange as per their 1/8th scale cars). The diff adapter block is made of aluminium on to which a ballraced gear is fitted with a large washer each side. Next a bored out wheel is fitted and then another ball race with washers and a large nut to clamp the lot together. Tightening the nut up until the engine on maximum output cannot slip the ball races, gives the maximum free diff available. More pressure makes the diff stiffer, thus a variety of settings are possible.

The front wheels, which can be fitted with ballraces or phosphor bronze bearings, are held in place by circlips. The servo saver spring action relies on the elasticity of the central pivot arm within the track rod linkage connection plate. By cutting away a portion of the arm it can be adjusted to provide a weaker spring action for weaker servos.

The speed controller is a ceramic wire wound resistor which is fixed to the rear block by a bracket, using pre-drilled pick up holes. A separate tray is attached to the front of the bearing blocks and this stretches forward as far as the steering servo's rear mounting post, which doubles as the third mounting point for the tray. The speed control servo fits into one of the pre-cut holes — the mini servo fits exactly — and the receiver into the other.

The wiring instructions are very comprehensive with, instead of a wiring diagram, pictorial step-by-step instructions for the benefit of builders who might not understand diagrams. The kit included all the wire, heat shrink tubing, sleeving and even a diode to enable separate servo/receiver batteries to be omitted. The six cells are soon wired up, providing all the connections are properly tinned prior to soldering up. Once again simple clear instructions are given on how to solder and make correct joints for the novice user. The cells fit three each side on the chassis outboard of the rear bearing blocks, and are held in place with cable ties. The car is now ready to accept the TOJ BMW body in preparation for a test drive. I also sprayed the Frisbee and Busch Hogan bodies with disastrous effects on my shoes. I enjoy working out the colour schemes and painting my own bodies when I have time to spare... unfortunately there seems to be less and less of this so the ready painted option appeals more and more.

After a short test run at home in the limited space available a visit to the local circuit on

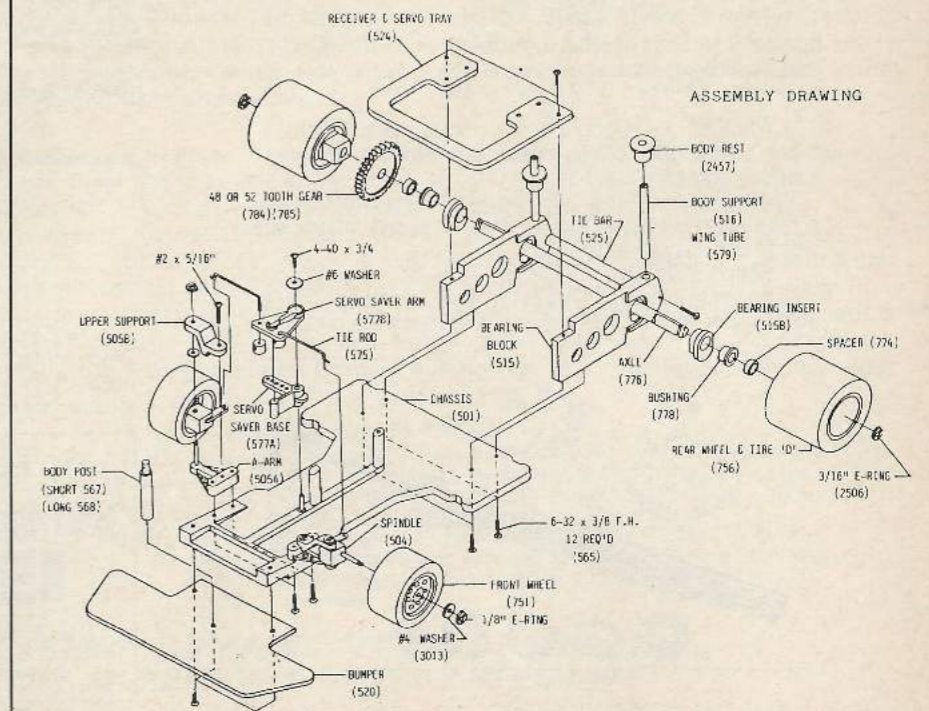
the next club night followed. As the lap counter was u/s practice heats of eight minutes were arranged. Most drivers were using their time for experiment so that no clear winners or losers appeared. For the first heat the trim on the steering was adjusted and car, bog standard, was brought to the line and as the flag dropped was away. After a couple of laps I could not believe the grip the car had, it just stuck to the track, perhaps just a fraction too quick on the steering after a 270° left hand corner as I fed on the right for 60° righthander as I was closer to the inside edge than I wanted. Otherwise the car handled on the rest of the track just as I would have set it up myself. With mounting confidence I really indulged in throwing it about harder than in normal racing just to see how far it could be pushed. Eventually the "plastic plates" on the corners were hit but the car sustained no damage.

By the end of the evening the grip was failing, however, this turned out to be the

silicon ribber starting to wear off the outer edges of the front wheels. A softer compound tyre may solve this problem as the standard tyres provided are harder than most competitors use in the UK for indoor racing. Further inspection also showed that a large washer was required on the servo saver screw to retain the two halves, but, all in all, a very satisfactory shakedown. A few days later a MRP custom wound ballraced motor (Type 553) was tried in a "back to back" test with the kit motor. It was just like the day I fitted a tuned pipe to my 1/8 scale car for the first time, with bags of get up and go. However, it has yet to be raced.

As mentioned earlier MRP bodies and now motors are readily available in the UK and some of the main model car stockists are carrying the car, so keep your eyes open and you should see one in the flesh (metal?) or if you want something a little different buy one of your own — you won't be disappointed.

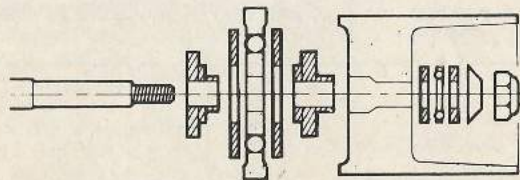
Assembly Drawing





An insider's look at a Factory RC12E. Full weight sover treatment, super Reedy rewind power and our slick, new VariLoc differential. (Body 1/12 Ferrari 312P)

SPEED SECRETS OF THE TEAM...

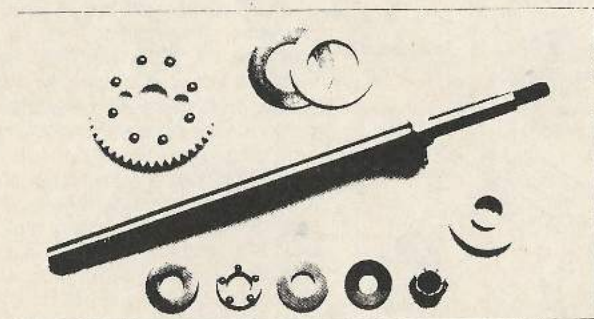


Our VariLoc differential delivers total performance. Fits all RC12E's with no modifications and allows precise fine-tuning for maximum traction.

A full winter's testing and a spectacular debut in the Western Regionals. The Team's top-secret differential was a winner right from the start.

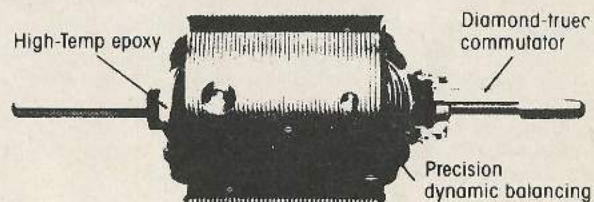
Our VariLoc is the proven racing differential for 1:12 scale electrics, featuring adjustable limited slip action, light weight and easy maintenance.

Simply installed on any RC12E, the VariLoc puts all of your power to the ground, all of the time. And the increased efficiency of the VariLoc increases your run time significantly.



The power for the Team comes from the Reedy Modified 05... already twice the National champion.

More than just rewinds, the hand-built Reedy's are individually blueprinted to racing tolerances to provide Modified class drivers with canned dynamite. Each Reedy is also dyno-tuned, then bench run to perfectly seat the brushes and eliminate the need for "break-in."



The heart of the dual ball-bearing Reedy, the competition-proven rewind.

High performance products like the VariLoc diff and Reedy motors can give your RC12E the competitive edge you need. That's why they are standard equipment on the Team's factory race cars.

TEAM ASSOCIATED

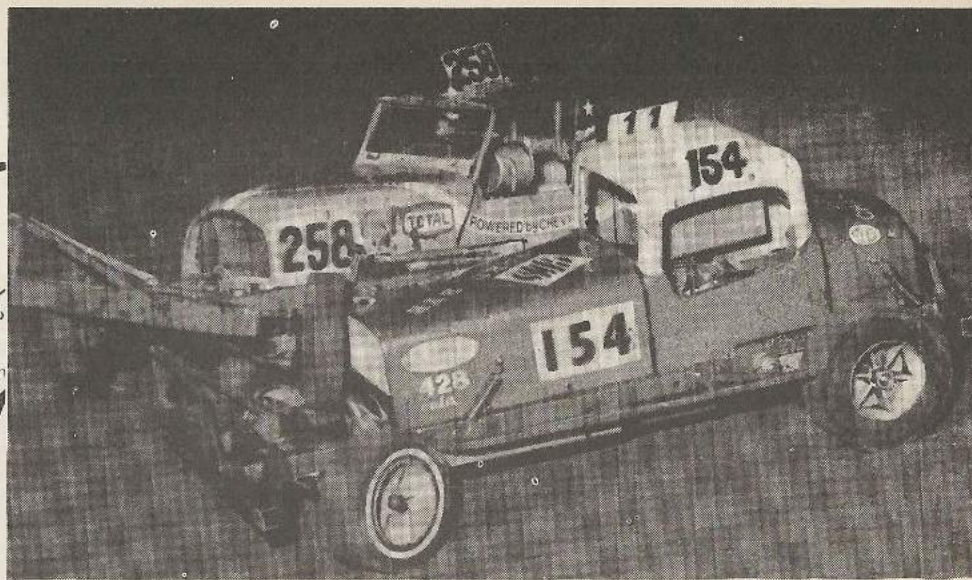
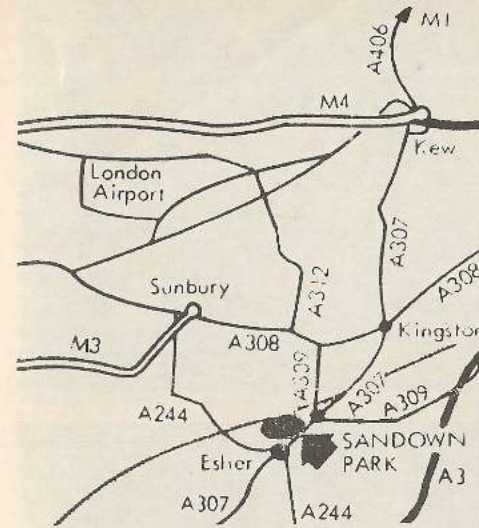
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6th YEAR

THE WORLD FAMOUS SANDOWN PARK MODEL SYMPOSIUM AND EXHIBITION ESHER, SURREY

6th YEAR

SATURDAY 9th & SUNDAY 10th MAY — 10 a.m. — 7 p.m.

REFRESHMENTS — BARS — CUP FINAL TV — AMPLE PARKING

The Largest Trade Exhibition and Display of Working Models in Europe if the World. No other Exhibition has so many Manufacturers-Distributors & Importers to the Model Trade under one roof. Continuous displays by the Trade of their products-Radio Controlled Cars, Boats, Aircraft & Helicopters. Two Large Car Tracks for Club Contests Formula One and Stocks — 1/12th. Scale Electrics, Slot Car Racing-Demonstrations by the Trade of all that is New in the Car World. Aircraft Display Teams, Control-Line demonstrations, Large Model Railway Hall with over 18 layouts. All this takes place within the grounds of Sandown Park and most can be seen from under cover.

TRADE HALL 31,000 sq ft. Exhibitors to date: World Engines, Skyways Models, Ripmax, Henry J. Nicholls, Dave Nieman, Miniature Tool Co., Edmond Model Products, Fleet Controls, Pat French Models, Morris & Ingram, Bowmans of Ipswich, Slough Radio Models, Skyleader, Howard Models, Live Steam Services, Fareham Engineering, Slaters Plasticard, Air Art Products, Gagemaster Controls, Stratos Models, Micro-Mold/Sussex Model Centre, Morley Helicopters, Kaycee Distributors, Viking Models, Thamesdown Models, P.M.C. Engines, Wings, D.P.R. Models, Jim Davis Models, Watford Model Centre, Ramsey Engineering, Sprengbrook Engineering, Barry Voisey Plans, Aero Nautical Models, M.F.A., Cotswold Controls, Duplex Craft, W.M.C., Micron Radio Controls, Buckle Vintage Plans, Chris Foss, M.A.P., Irvine Engines, Flair Products, Galaxy Products, MacGregor Industries, Vulcan Electronics, Mike Sharman Models, Clive Hall Models, Harden Associates, Tommy Harris Models, 'Puffers', Model Avionics, Precedent Balsa, Stewart Aviation, Bowman Trophies. Hall now full.

ADMISSION

Adults £2.00. Children 5 to 16 years old & O.A.P.s. £1.00.
Under 5 Free Party Rates and Family Tickets (2 Adults + 4
paying children £5.00) in advance only S.A.E. From: G.
Hazlewood, 46, Wrens Avenue, ASHFORD, Middlesex.
Telephone: Ashford 43022.

HOW TO GET THERE

BY CAR: Sandown is off the A307 (Old A3) London to Portsmouth Road, and is easily reached from the M3, via the A308 & A309. From the M1 via the North Circular Road A406 to Kew Bridge, then A307 via Kingston to Esher.
BY BUS: Green Line 715, Red Buses — 215, 218 & 219.
BY RAIL: Surbiton. Esher (Sat). Regular trains from Waterloo, Guildford and Portsmouth. Bus to Sandown.

**MAKE A DATE TO BRING THE FAMILY TO SEE THE BIGGEST
WORKING MODEL EXHIBITION & DISPLAY IN EUROPE**

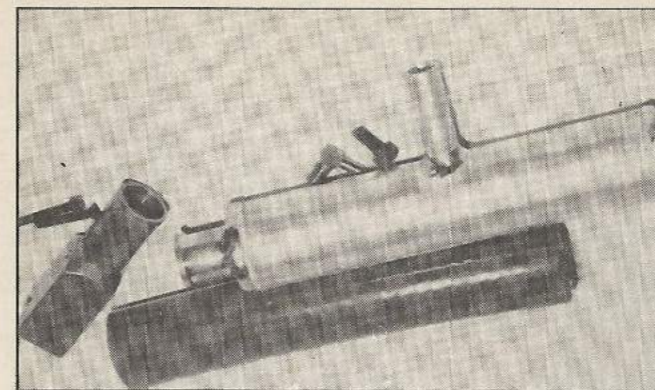
range. As kit or assembled car it makes up into a replica of the car used by Team Associated to win the ROAR Nationals including a Reedy modified motor and lots of other useful gimmicks, gear puller, Sanyo 6-cell battery pack and a stock motor for standard races.

Delta have also been producing goodies to enliven their Super J car. I have their latest pipe silencer and slide carburettor and can only plead pressure of business for not installing them in my car and trying them out. Delta are producing a very useful little newsletter under the title of Deltagram reporting their activities and providing some useful advice to users of their quality products.

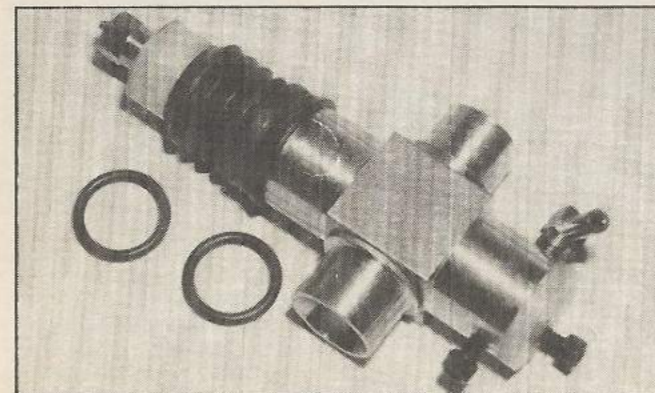
Everybody seems to be winning something somewhere. I was delighted to hear that Twinn-K's AJ's tyres carried winners of the Scandinavian 1/12th Champs to victory with Oslo's club hosting the meeting in Norway on a tricky carpeted circuit. First three cars were Mirage XII four and five drove Minicar Challengers (Bo-Link) and number six drove a Holt Special. AJs also do a Tyre Cleaner and Traction lotion — it may be the magic answer to those circuits which ban silicone treated tyres. There's a wonderful knobby tyre as a replacement for Tamiya "off-road" cars from AJs. These are Tamiya approved. Other AJ products for both 1/12 and 1/8 cars are moulded fronts in soft for indoor use and firm for outdoor (1/12) and firm only for 1/8th fronts.

PB Racing Products are distributing a fine range of Lexan paints, colours include the primaries plus black, white, green, orange and purple as well as silver. Some interesting metallic finishes are possible by backing colours with silver in place of the usual white. Tin size is a windfall — it comes in 125ml tins, 2½ times the more usual size. Thinners, which are essential for spraying are in equally giant size containers at 500ml. Out of the tin it is thick enough to brush on, which makes detail work on little men etc a pleasure.

A good supply of new Parma bodies have their appearance. I like their BMW Schnitzer and for Baja fiends there is the 1/12th Chenoweth the 1980 winner, or try the flattish Desert Dune.



◀ Delta tuned pipe silencer with manifold fitting for K & B complete with cable ties for attaching to radio plate on Super J.



◀ Delta slide carb with rubber boot to help keep out any dirt entering through slide.



◀ A couple of Twinn-K AJs tyres. The Tamiya-approved off-road example should be specially popular.



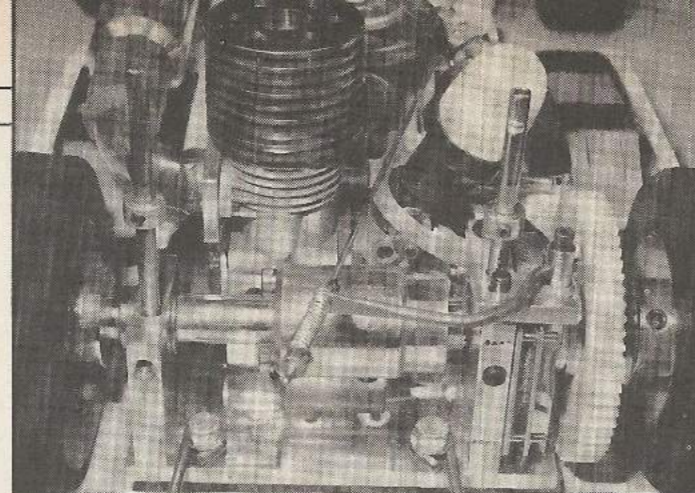
▶ Parma 1/8 Schnitzer BMW320 leading German GT racer with diecut window masks.



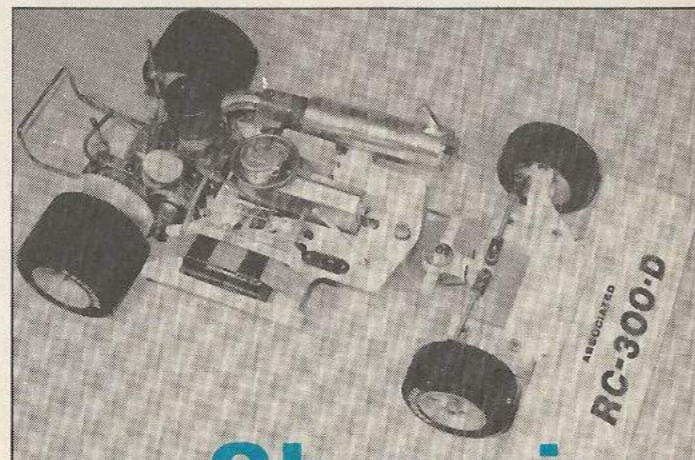
▶ Parma 1/12 Chenoweth body, winner this year's Baja event — ideal for the off road brigade.



▶ Lexan paint in good sized tins (small 50ml tin shown alongside for comparison) imported and distributed by PB Racing. Thinners in 500ml size!



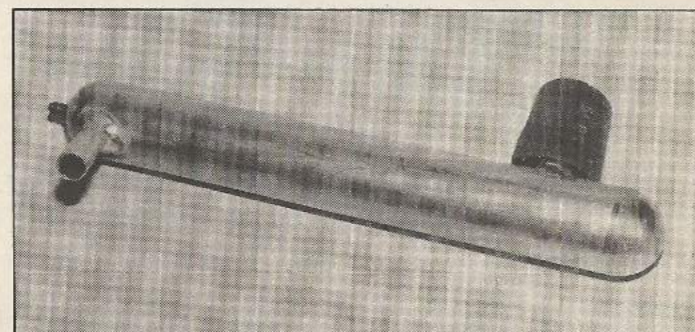
▶ Associated RC300-D rear end showing the new Associated own make differential.



▶ The latest Associated RC-300D with split front axle cross beam, pipe silencer, differential and other minor refinements.



▶ RC12/E in Team Associated pack — the equipment which won the latest Nationals in USA.



▶ Typical tuned pipe silencer with nipple for pressure tank.

FIRST TO CLEAR UP an error in our March issue on the Omega — PB's latest step-up conversion kit. Of course you do not need to acquire a power pod when stepping up from the Colt or PB 10! This was a pure aberration on my part since I was looking at my black anodised lightweight pod at the time. I did correct it at proof stage but it still slipped through. Sorry everybody.

With the outdoor 1/8th season in full swing we can start with a few goodies from Associated across the water. Associated have now produced their very own differential which has been promised for some time — and indeed encouraged several manufacturers to make diffs to fit their range. However, there is no doubt that a product made in the same works specifically for the job has the edge. Gene Husting comments "it makes the car much easier to drive on most tracks. It is being used to break records all round the world." Since so many US circuits are already excellent tractionwise it must indeed be a good 'un.

I also have a shot of the latest RC-300D car with the split steering beam, new radio plate layout, side mounted pipe silencer and of course the new diff all in the kit. There is news too that the Associated suspension car will be ready to make its debut at the World Championships. It is no longer a secret that Dave Preston, Phil Booth and Gene Husting have been working together to get the Booth/Preston suspension design into production — the English section of the Team Associated have just been over to Santa Ana for final pre-production conferences. It will, if it turns out as expected, be on the general lines of a four wheel suspension car — not the original De Dion type — but be considerably simplified with fewer assembly parts to make the way easier for the builder, and keep price within limits.

Nor do Associated neglect the 1/12th scale man. On offer is a new Timer Switch that automatically times up to 15 minutes used with Associated's 4- or 6-cell charging cord that comes with their kits. The RC/12E kit has now had a Team Nats Car version added to the



▶ Associated Timer switch for use with their charge cord. A simple timing device less sophisticated than some on offer, intended for the less dedicated user.

Shopping Around . . .

Club & Track

Review

Boston Radio Car Club
Secretary: Ron Wylie
c/o 4 Freeman Street
GRIMSBY

South Humberside DN32 7AA
Ron Wylie reports that their local league championship will be augmented by a fifth member this season. There will now be five clubs competing; Boston, Lilford, Newbridge, Scunthorpe and the new arrival West Burton. PB Racing Products have kindly donated the two main trophies and it has been decided to call the championship the "East Midlands PB Championship". As running two classes per day last season got a bit hectic it will be operated as a single class per day with the recommended running of at least 25 minutes of heats per person per day. Each club will hold two meetings — one for Formula and one for Sports/GT class. Fastest 25 drivers in the heats count points for their clubs. All East Midlands Champs meetings take place on Sundays, and members are urged to take part.

I notice from the club calendar that some ten meetings are ringed as "grass track meetings" which looks rather as though the club is going all out for an added "off road" programme. Members still cordially invited to join this progressive club... a word to Ron Wylie.

Solent Electric Car Club (Portsmouth)

Secretary: Mrs Joyce Vast
125a High Street
GOSPORT

Hants PO12 1DU
Joyce Vast reports her election as new secretary of the Solent Club, intending enquirers please note. Club member Mick Langridge is the secretary of the newly formed Southern League electric section. Solent ECC say rather sadly that their membership last season brought them no glory but an awful lot of useful experience. They intend getting their fingers out and try harder this year. Good luck!

Cambridge Racing Electric Car Club (CAMRECC)

Secretary: Ian Wilson
206 High Street
Newmarket (Tel: Newmarket 68965)

PRO Mick Flack gives news of CAMRECC now in its second year of operation. Membership stands at thirty (new members welcome) with meetings on Thursday evenings at the Manor School, Arbury Road, Cambridge. Membership fee is £4.50 a year plus race entry of 30p for members and 50p for visitors. There is an active junior section, and this aspect is strongly encouraged to produce the winners of the future. A newsletter is produced, a club championship under way, and plans are afoot to arrange inter-club meetings with a view to establishing an East Anglian championship.

Yorkshire R.C.M.C.R.C.

Jeff's usual lively Newsletter is full of information. That great Badge design competition: The winning design was so like the old one that members voted whether to change it. They didn't. What more can be said! For the 1/12th electric side members luxuriate at the Richard Dunne Centre (scene of the 1979 electric nats) subject to a few rules, like not starting too early so the staff can wash the floor! Ominous instruction: Please take your litter home.

Useful note: How to get to the club track Littlemoor Circuit (even members have been asking the way!). From Bradford take the A647 to Halifax. Climb all the way up the hill until the road dips and climbs again. Pass the Old Dolphin on your right and carry on up past the Queensbury signpost. Take your next left down Park Lane and the park entrance is 100 yards on your left.

Mendip Model Motor Racing Circuit

Work goes on apace getting the track ready for the British Grand Prix meeting to be held in June. The new clubhouse and drivers' rostrum should have been started by now, plus track

resurfacing and erection of safety fencing. Also in hand is digging of the septic tank waste container and other essential items. All said and done Mendip looks like being our No.1 circuit in the very near future complete with E.F.R.A. certificate! Heartcry: Why not be different? and pay your subs!

Southampton Radio Control MCC

PRO John White has sent me a xerox of their proposed circuit and work may even have started on the job by the time this appears. It is conveniently situated and really is a prime site. Secretary Dave Farndale however is maintaining a low profile about it all with carefully crossed fingers. Be sure we shall be reporting any significant progress. Meanwhile, in a lighter vein, the annual beer and skittles match between Bournemouth and Southampton has taken place at the Rose and Crown Skittle Alley in Bournemouth. Bournemouth won on the trot for the second year, with wives and supporters all taking part. Southampton tend to blame their lack of success on the venison sausages provided... a likely story.

1/12th scale Southern League

We gave details last month of the formation of the 1/12th scale Southern League. Now the fully approved rules and guidelines have come to hand and introduce for the first time to British electric racing the system of having motors issued from a common stock pool so that no one can claim or obtain any advantage from having a better (i.e. different) motor than any other driver. Each motor will be provided with a common connector to facilitate installation. This scheme has been mooted before but the League is the first real chance of trying it out on a substantial scale.

North East R.C. Car Club

There is no doubt that Bill Gordon works hard as a PRO for the North East R.C. Car Club. Here we are again with a resume of the season's efforts and a picture of the smiling prizewinners to prove it. The club races in the Lambton Adventure Park — a pity their montage picture of the track would not reproduce — every Sunday during the outdoor season, plus a Wednesday evening practice facility. Electric racing takes place at Blaydon Comprehensive School on Tuesday evenings. Members also travel extensively raiding some of the southern circuits, often carrying off a share of the loot in national

competitions. New members are welcome, club fees stand at £8.00 full member, £2.00 associate or Junior member (16yrs and under) plus an entrance fee of £1.50 on joining. There is even some club discount for members from Bill's model shop in nearby Dunston.

Houghton Park Racing Club

Secretary: Keith Helmke
12 Leaside
Houghton Park
Houghton Regis, Dunstable,
Beds (Tel: Luton 864420)

This friendly electric r/c car club meets on Wednesdays, 8.00-11.30pm at Slapton Village Hall, Slapton, Bucks, using a wood floor and white tape circuit marking. A novelty is the installation of a 14ft bridge to go over and under. Another unusual arrangement is that racing costs £1.00 an evening but club membership is free. Entry to the twice yearly Championships costs £2.00 with a chance of some nice trophies for the winners. Any electric car is welcome 1/12th, 1/10th, Tamita sidecars, you name it, so long as motor is Standard RS540. Current membership stands at 10: club would like to build up to 18 — so go to it. Inter club connections would be welcome. Slapton is only a mile or too from here so I may well take up their kind invitation to come up and see them sometime. In fact, I almost must, reading their PS "Excellent mag!"

Redbridge Racers Electric Car Club

Secretary: Paul Hobbs
24 Kimberley Road
Romford
Essex, RM7 9JP
(Tel: Romford 20490)

Note appointment of new Secretary/Treasurer in the shape of Paul Hobbs. He tells me club now up to complement with 32 members and a waiting list has opened... preference given to members who do not attend regularly! — Club make-up includes one third of members under eighteen (or so they told the treasurer on paying their subs!)

Northampton Area Club Formation

Nick Barnett of 19 High Street, Weedon, Northampton, NN7 4QD (Tel: (after 6pm) 0327 40555) races 1/12th scale electric stockcars and is a member of the RSA. He would like to form a club for the Northampton area and invites interested people to contact him as above. He has one great asset to start with: he is able to find a hall where racing could take place. This would presumably be another all electric stock car club, at any rate for a start.



North East Radio Model Car Club annual line-up for prizegiving. Back row (all r. to l.) David Eales, Pete Watson, Jim Brown. Centre: Ray Watson, Alan Clark, Colin Phillipson, Dave Coates, Margaret Clark, Kevin Thornton, Jim Clark. Front: Brian Coombs, Pauline Wharrier, Mike Loftus, Jonathon Clark, Cary Bourn, Les Bailey.

Harrogate Model Car Club

The club would like a mention of their forthcoming programme in case it is missed elsewhere: Two Day Autocross for 1/12th and 1/10th "off road" at Harewood. Sponsored by Tamiya Plastic Co. 11th and 12th July. Later in the year 1/12th scale meeting at Pateley Bridge. For details and entry forms send SAE to S. R. Hidden, 245A Woodfield Road, Harrogate, N. Yorks.

Leicester R.C.M.C.C.

Last minute note of the club's Newbridge GT Challenge event. Date Sunday 10th May (10.00am) at Newbridge for Sports/GT. Four ten minute heats, best three to count towards total. Trophies down to 6th place. Entry fee £2. Entries to Mick Barrat (Sec) 57 Sports Road, Leicester (Tel: 0533 872807). Give two frequencies — solid colours only.

PRO Paul Landels also enclosed massive Spring Newsletter of the club. Of general interest to potential drivers there are track improvements programmes, including slabs for steps and banking, re-laying of pit area and general painting. Newbridge will also by now have been the scene of the first 8/20 meeting to Bill Burkinshaw's RCM & E formula on April 5th.

NORTH OF THE BORDER

Secretary/Correspondent:
Peter Walker
84 Forrest Walk
Uphall, West Lothian
EH52 5PW
(Tel: Broxburn (0506) 853703)

Have had quite a large response already from people

wondering where a "local" club can be found. Unfortunately I cannot always help them, as I don't know myself, so please let me know if you have a club running, or perhaps being organised, so that I can pass on interested persons to the source.

Stonehaven's "Northern Championships" went off very well with Dave Clarke the winner. Dave was 2nd in the Scottish Nationals, so is evidently making a name for himself in Scotland.

Edinburgh Club hosted a 1,000 lap marathon at Portobello Town Hall in February. The full quota of eight teams took part, six to a team, and although the pits were rather cramped a most enjoyable (and most exhausting) 4-hours continuous racing was accomplished. Two teams broke away from the rest early on, drawing further away as time went on. A similar mid field battle took place between 3rd, 4th and 5th teams. No team was disgraced, even the backmarker making a creditable contribution. Results: 1. Kirkcaldy (F.M.C.C.) 1000 laps; (2) Edinburgh Team Heron 962; (3) Autoparts Cupar 888; (4) Bo'ness (F.V.E.R.C.C.) 848; (5) Stonehaven 844; (6) Edinburgh Team Newlife 815; (7) Galaxy Forfar 766; (8) Devon Valley Demons, Alloa 752 laps. Dave Clarke raced for the Kirkcaldy team, and Scottish Nats. Champ John Robertson raced for Edinburgh Heron team. Edinburgh's track layout is very impressive with the flyover bridge I mentioned before (brushes provided to help out those who occasionally got stuck under the bridge!). Cars covered

around 350 miles during the marathon.

The second Scottish Grand Prix, organised by the Devon Valley club takes place on March 1st (all over by now) results in the next report. Bo'ness club now boasts computer scoring, though still under full development. Devon Valley enjoy computer services via an interested member.

Here are confirmed details: Devon Valley race at Alloa Town Hall every Tuesday evening, starting around 7.00pm. Forth Valley race at Bo'ness Recreation

Centre every Monday evening, starting 7.30, and on Sunday mornings starting around 9.30am. Edinburgh race at Portobello Town Hall on Tuesday evenings from 7.00pm. Whilst I know of many other clubs I lack exact details. Please let me have details of your clubs.

Stop Press!! Just found out details of a new club, recently started: Almond Valley E.C.R. Club, who race at Viewfield House, Harthill on Thursday evenings from 7.00-11.00pm. All visitors welcome.

BADGE OF THE MONTH



RADIO STOCK CAR ASSOCIATION

Badge of the Month. Nothing fancy here but a badge that will be increasingly seen as the

growing interest in Stox continues to expand providing low cost racing and a lot of fun without worrying too much about who the winners are...