

Model radio control CARS

ISSUE No. 5

SIX ISSUES PER ANNUM

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R/C CARS

Ted Longshaw

for Service & Experience

You will always find me where the racing is: this is a shot from the trackside at last year's World Champs in U.S.A.

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radio control

MODEL CARS

Published by L-D EDITORIAL & TECHNICAL SERVICES LTD., P.O. Box 30 HEMEL HEMPSTEAD, HERTS, HP1 1NL. MAY 1978.

Editor: "Dickie"
Laidlaw-Dickson

FOLLOWING IN BIG BROTHER'S TYRE TRACKS

Readers will be interested to note in the Nationals announcement from Wombwell that the meeting is being sponsored by Hobbycard. The club, I understand will also be fielding a Hobbycard racing team during 1978. Once again anything that happens fullsize can be duplicated at 1/8th or even 1/12th! This is not even a new thing for the miniature department since sponsors have backed French clubs — notably Lyons with their magnificent Paul Ricard circuit at Lentilly, plus a number of smaller sponsorships in this country, mainly in the north, and model car kit manufacturers have always been generous in their handouts to up-and-coming drivers as well as running their own teams, or fairly loosely knit co-operatives.

To race successfully requires an immense amount of application and dedication, plus a fairly substantial amount of money, not necessarily spent on more and more car equipment, but just the mere travelling and living expenses of getting round to enough meetings to show on the charts. The modest clubman can enjoy his low priced car and have a splendid time without ever attempting to scale the heights of stardom. He is the grass roots side of the hobby, long may he continue to thrive, but if we are to maintain what is increasingly a valuable export market, and a considerable European reputation, then we must be kind to our champions of today and clever enough to spot those of tomorrow in time to arrange a helping hand.

BRCA HANDBOOK 1978

I have just had my copy of the BRCA Handbook 1978 and a very workmanlike job it is this year, properly printed with real printing thanks to Keith Plested who took the production under his wing, and a suitable "status" production worthy of the size and importance that r/c racing is

attaining/has attained. Did you see that splendid feature article in April HOT CAR magazine engendered by Paul Padgin and Nigel Heighton who persuaded the editorial staff to do something about it? RCMC also produced some of the pictures. Enquiries come in by every post.

A CHANCE TO SHINE

Ken MacDowell of Parma International Inc., (the body people and lots of other bits and pieces) 4651 West 130th Street, Cleveland Ohio 44135 USA writes: "To further my body business, I need a good artist, and or model maker. Do you know of anyone who can do either. Is it possible to make a mention of this in the next issue for me." Readers who feel they have the necessary skills please get in touch direct . . . someone may have the pleasure of creating new body shells to serve a world trade.

FAMILY FUN

When sending along her comprehensive analysis of equipment in use at the U.S. Winternationals at Orlando in February — and what a task that must have been — Roberta Moody wrote: "An interesting note! Third place trophy winners in each of the three classes, Expert, Amateur and Novice, were second generation r/c car racers. Curtis Husting, son of Gene Husting was third in Expert Class; Third in Amateur was Jeff Hawkins, son of Expert Trophy winner at the '77 Winternats, Bill Hawkins. Third in Novice Class was Diane Moody, daughter of former ROAR President, Roy Moody. This shows what a family pastime this hobby can be, and also how infectious is this particular hobby-pox."

We too can match this with family teams: the Martins, Tom and Dave; the Prestons, Dave and Debbie; the Plesteds, Keith and Mark, plus a good sprinkling of husband and wife teams, with wife usually

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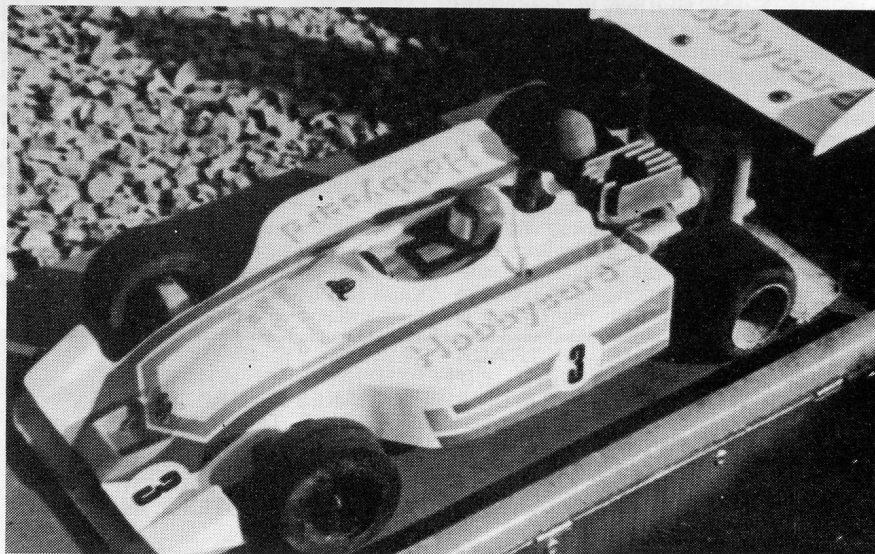
doing the pitwork. What about making a collection of such groupings internationally? There must be French, Italian, German, Dutch, Swedish father and son, daughter or girl friends . . . or even family groups embracing three, four or even more members of the family. Let us hear from you . . .

ANY OLD IRON . . .

What do you do with engine parts when they are clapped out beyond recovery? Have you any u/s brass liners from Super Tigre, K & B 21 or O.P.S.? Our engine man Fred Livesey is conducting some experiments with relining and would be glad of them. If you are feeling generous slip one or two into his eager palm when next you see him at a meeting. If you are not that generous he may be persuaded to offer you up to 50p for any in some sort of possible condition . . . He would rather have them free of course . . .

BINDERS

This will be issue No. 5 and already readers are asking what about binders to keep the copies in. We are therefore approaching one of the better known binder makers to produce them for us. They will be large enough to contain twelve copies (two years' supply) and be the usual removable type that do not damage copies or interfere with their stitching. Colour to be decided; price again not fixed, but in line with what other mags are charging for theirs. Interested readers



who might like to express intent (not an order) will help in deciding initial stock order.

JULY ISSUE

July issue will be a few days late, say about 10th., since your Editor will be far away in Canada family visiting. But please be patient it will contain amongst other goodies full reports of Nats. at Wombwell (John Parker and Pete Silcock will be carrying the brunt of this reportage) and a ringside report of the great Monaco meeting. Main building feature will be making up a Delta — a kit with a difference which may not make us all Art Carbonnells but is a first step in that direction . . .

COVER PICTURE

Running far ahead in the points race for the Euro meeting is Dave Martin, here shown after winning the Formula Final at Mendip over the Easter holiday. We have superimposed the picture on a Mendip background to try and get a second shot in somewhere.

One of the Hobbycard Racing Auto Models Team (Paul Padgin, Nigel Heighton, Steve White, Fred Reeve) cars in white and blue livery that herald the 1978 sponsorship season. The team will be making an attempt on the 24 hour endurance record currently held by a U.S. team during the summer.

CLUB & TRACK REVIEW

Northavon Model Auto Club

Secretary: N. Bathe
1 Homefield
Shortwood
Stroud Glos.
(Tel: Nailsworth 2303)

Chairman J. C. Beddis announces the formation of the above club with a present membership of twenty-one, covering stock cars, racing cars and electric. Operating on a temporary circuit at the moment. Would be members enquire of secretary for further particulars.

Gillingham R/C Car Club

Secretary: Gloria Hills (Mrs)
c/o 51 Charter Street
Gillingham
Kent ME7 1NQ

This is another new club in the process of formation which will welcome new members in the area. As yet no circuit is at their disposal but members are working on this and hope to have somewhere very shortly. Chairman is Graham Barnard. No information given on nature of car interests — i.e. racing, stock, electric, but this may depend on ultimate strength of membership. Please send SAE with enquiries.

B.R.D. Model Racing Car Club

Secretary: Keith Yates
18 Braford Road
Brownhills
Nr Walsall
West Midlands

Recently formed B.R.D. club is fortunate in having a d-i-y car park with an acre of tarmac for their use, but have plans to lay tracks for every aspect of the sport as soon as possible. Two dozen active members at present but eager to accept new blood from the Walsall area. Unlike most clubs they tend to favour Saloon and F/1 cars rather than Sports/GT. No experts claimed but pros. or tyros equally welcome. Racing every Sunday (regardless of weather) with daily practice sessions everyday except Saturday. Membership £1 per annum (Wait for this! Free fuel and starts on Sundays — that's what the chap writes!) For more info write secretary.

East Devon Radio Control Club

Secretary: Ian Davies
Exmouth Models
Exeter Road
Exmouth Devon

Formed in the winter of 1976/77 the club boasts about 65 members. Although catering mainly for aircraft there has been

a recent increase in the car section with about twenty members now having cars. So great has been the upsurge of interest that local model shop proprietor and club secretary Ian Davies of Exmouth Models has sold out of car kits completely (*A sad state we trust speedily remedied Ed*). Racing is on a local go-kart circuit at Sandy Bay, and the club also has the use of a warehouse indoor track for wet weather, both sites negotiated by Ian Davies.

New members with cars welcome. Further info either from secretary as above or from Competition Secretary: Giles Jackson, East House, 5 Sarlson Road, Exmouth, Devon.

Eastbourne & District R/C Car Club

Secretary: Robin Lavender
3 Hawkstow Gardens
Hailsham Sussex
(Tel: Hailsham 841306)

Now in process of formation with a nucleus of mainly stock car interests, would like to enlarge with people having F/1 Sports/GT and electric cars. Club headquarters happily arranged at The Boship Hotel (main A22 to Eastbourne Road) on club evenings and for the use of the hotel's rear car park as a circuit on Sunday mornings. Two other sites on nearby industrial estates also under consideration. Contact Robin for details.

Coventry R/C Model Car Club

Secretary: Bob Pulham
387 Grangemouth Road
Radford Coventry CV6 3FH
(Tel: 596733)

Originally the Coventry R/C Stock Car Club changed its title earlier in the year in order to incorporate other forms of R/C car racing. The 1978 fixture list opened on March 5th with a Stox meeting; following this meetings will be for Stox on first and third Sundays of the month; fourth Sunday will be for racing cars only. At the moment the stock cars are using two circuits — one at Radford Recreational Park and the other is the car park of the fire station at Bickenhill alongside the National Exhibition Centre on the A45 between Coventry and Birmingham. Fixture lists and direction maps from the secretary. New members very welcome.

Milton Keynes R/C Car Club

Secretary: Paul R. Burrell
28 Caithness Court
Bletchley
Milton Keynes MK3 7SS
(Tel: 0908-647707)

Further to last issue announcement Paul Burrell has now made some progress (Note addition of telephone for enquiries). At present an "unofficial" circuit is being used on a nearby factory lot built but at present untenanted. With more public support a permanent circuit could probably be laid down. Main interest at present electric. Paul is an electronics engineer so that would-be members will have a fine opportunity of milking him of ideas and explaining why things work (or not as the case may be).

Ally Pally Electric Car Club

Secretary: Jane Adams
79 Northumberland Road
North Harrow
Middx HA2 7RA
(Tel: 01-866-5945)

After an unfortunate roof fall which kept the club out of the Pally for some weeks all is restored and weekly meetings are very much the thing. It is wise for occasional visitors to check dates however by telephone. During the repair period racing took place at Hatch End and could be continued there if members — enough of them — so wished to meet hall hire. It is getting near a "waiting list" stage for membership of the club so that applications should be made promptly. Non-members can still be fitted in to race if full quota of 32 members not in attendance.

Open meetings have also been arranged. First took place against the Midland Electric Car Club at Leamington (see separate report). Another should by now have taken place at Leicester at the Granby Halls on the occasion of the Hobby and Models Fair. Battersea Park is also inviting racing over Easter (weather permitting as track is outside) whilst the Spring Bank Holiday May 28th/29th should be enlivened at Ally Pally with World Biggest Children's Party — when it is hoped racing can be staged on both days.

Club has also been active in acquiring for re-sale to members some 12 amp "foolproof" connectors at 40p per pair; and also some 1 ohm 25 watt resistors at 85p each. All this from "Ally Pally Newsletter No.2" and more also, including a "for sale" section.

Yorkshire R/C Model Racing Car Club

Secretary: Kenneth R. Hilton
52 Bainfield Liversedge
West Yorkshire WF15 7PN
(Tel: Heckmondwike 402690)

The club Newsletter is having a fine burst under its new editorial duo Pete Silcock and John Parker, who are including "good advice" articles for sale and general

hints and tips as well as report their ever active goings-on. Like so many other clubs the electric bug has bitten deep and although the first scheduled meeting took place as recently as mid January active strength already numbers some twenty cars some of which are happily piloted by lady members, may they all be Divinas! Jeff Lindstrom now off the secretarial hook tells us that he has devised his own black box that takes care of speed control, dynamic braking, a mite of reverse, and cuts out need for separate receiver battery... and all for a comparatively modest expenditure... he has promised us one to try and possibly published. A good club contingent is expected to attend Pontins Brean Sands week in the autumn with electric car racing in mind.

Firebird Model Club

PRO: John L. White
29 Barton Drive Hedge End
Southampton (Tel: Botley 3181)

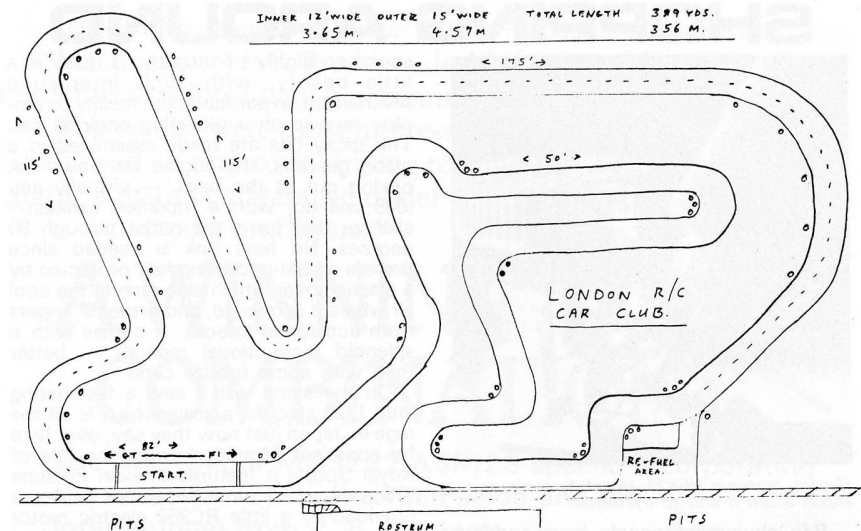
Another club with a good newsletter FLY LINES is this fire service based general modelling club, which nevertheless gets a good share of the club activity devoted to r/c cars. The car group have at last managed to get a semi-permanent circuit in the shape of part of the disused Go-Kart track track in the centre of Southampton. It is only about 145 yards long and a bit on the bumpy side in places but it is home. Current interest in r/c cars is reflected by the number of members changing over from aircraft, or running a car as well as a plane. Electrics are starting to creep into the club including some interesting scratchbuilts but just at the moment their owners do not seem competition minded. New members welcome. Interested parties should contact Secretary Ken Leal on Botley 6572, PRO White as above, or Car Representative Brian Tanner (Eastleigh 616473).

New Clubs Sought Bolton Area

Following the disbandment of the former Stockport R/C Club, Bernard Loftus, 9 Windermere Avenue, Little Lever, Bolton BL3 1DU (Farnworth 791387) would like to hear from enthusiasts keen on forming a Stock Car Club in Bolton or Stockport region. Bernard is a novice but there are doubtless some experts eager to get things moving again.

Club for Sunbury/Kingston District

Mr. E. Leadbetter, 28 Heatherlands, Sunbury-on-Thames TW16 7QU (Tel: Sunbury-on-Thames 86469 after 6 p.m.) would like to hear from people interested in forming an electric car club in his area.



Dutch Club Mention

We have had a note from the Secretary of a Dutch car club near Eindhoven asking for a mention in our club notes so here goes:

A.V.A. "De Windhappers" R/C Model-Car Club

Secretary: F.A. Reynders
Voermanstraat 5
5632 Jn Eindhoven
Holland
Tel: 040-422584

Tameside Radio Control Model Car Club

Secretary: C. Whittaker
4 Birks Avenue
Waterhead
Oldham, Lancs.

This new club is going great guns with some thirtyseven members covering one-eighth scale in Stockers, Formula and Sports/GT. Racing takes place first Thursday of the month on the Hyde Fine Fare Supermarket Car Park; then there is a weekly get together every Sunday at the Greyhound Hotel Ashton. Chairman is R. Aspinall, Dowson Road, Hyde. Either Sec. or Chairman will gladly give further information to would-be members.

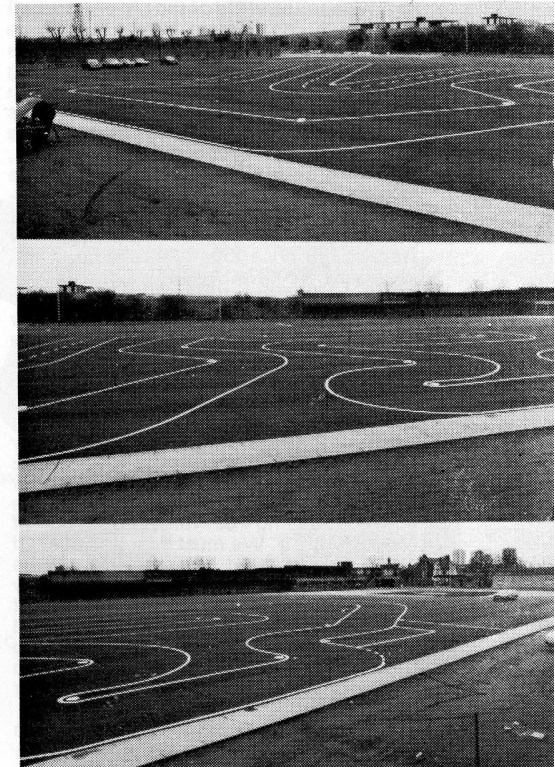
Stoke(ON) Trent R/C Car Club

Change of Secretary,
NEW Secretary: J. W. Bossoms
60 Duke Street
Biddulph
Stoke-on-Trent
Tel: 514 732

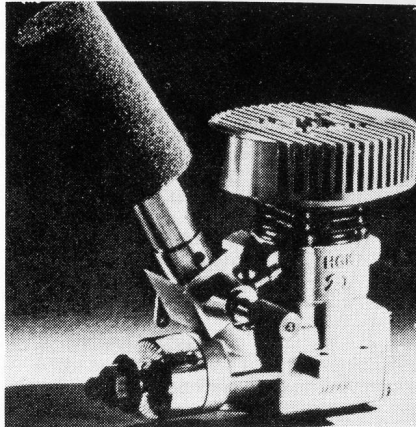
London Radio Car Club

Secretary: Bob Rosser
Flat 3, 68 Dabbs Hill LANE
Northolt, Middx.
Tel: 01-864-7313

Definitive layout of circuit now made and lined out with yellow road marking paint about half-inch high to keep cars in (knocks you off line if you touch — but no harm done!). Length 389 yards making it the longest circuit in the world! Drawing shows layout — all on the level. Photos (too big to go on one) top to bottom show circuit viewed from approximately rostrum (side) going from left to right.



SHOPPING AROUND



Elegant Japanese HGK21. Hopefully someone will import a few if only to try them.

R/c equipment people have suddenly got wise to the value of the r/c car market! First away (apart from Futaba who have known about it all along) must be MacGregor who have been studying market needs with the active help of Keith Plested for a number of months. I saw his MacGregor servo at work some months ago when I was last down at Havant, twitching away right and left as fast as he could signal. The gear has stood up excellently to a regular bashing and is now being marketed at the very reasonable under £100 price (50p under to be exact) for Type MR122ASN/2s a two channel Nicad outfit, probably the first system to be designed and developed specifically for r/c model cars. Then we have the modestly priced Digiace equipment two channel which I have now had for several weeks installed in a Tamiya Porsche which Riko provided. The how-to and operation report will be given next issue... jolly good items all! Finally, there is a quiet buzz that Stuart Ewins is producing a Skyleader outfit geared for the r/c car man with the active prodding of Roger Wilding of Modelcraft... We must wait and see. Of course any number of other sets can be happily used, notably Sanwa, the specially built Talisman from Mick Wilshere of World Engines, who I believe provided special sets for none other than Franco Sabbattini... and if they can stand up to his furious use they should survive our more modest efforts.

I have been looking at that famous Lamborghini Countach that the Red Baron

spoke so highly of recently. It really is a little beauty, with such interesting mechanism, in particular the facility to employ reverse on a glowplug engine car. The tricky bits are ready assembled in a nylon gearbox, the engine lies down flat poking out at the back — virtually any .099 will do, with a modified exhaust/silencer that turns the outlet through 90 degrees. No heat sink is needed since there is a built-in cooling fan, protected by a plastic cover which also directs the cool air where it is needed, and protects fingers from accidental knocks. It comes with a splendid instructional manual — better than with some fullsize cars!

On the same visit I saw a fascinating little 1/20 electric, a scale which is all the rage in Japan just now they say, over here for appraisal. Marketed under the title of Royal Sports it features a lexan Porsche 928 body, which must be painted. Power is provided by a little RC260 electric motor and a single power source only is required for both motor and Rx. Detail finish is excellent with delightful little spun alloy wheels. Three forward and three reverse speeds from the usual printed circuit speed control that goes on top of the servo. Battery pack, Rx and servo are extras needed, and probable price about £30 if imported.

Another Japanese goodie that I am sure would be welcome is the HGK21 glow motor, the successor to the Type 20, a few of which have been seen over here, and even mentioned by Peter Chinn. Like many racing motorbike engines and lawnmowers it omits the brass element of the ABC, going straight from aluminium to chrome, and appears to have parallel cylinder liner, with a piston that can be pushed right through when handled. Price would be about the same as K & B21 (if you can get one! They do say the famine is nearly over with a recent generous shipment — don't rush, most of them were already bespoke) and one or two who have tried them in a car are enthusiastic and believe it could be a worthwhile rival.

On the tool side I bought some ASBO drills at the recent M.E. Exhibition and have just received the smaller sizes which were in great demand. These are claimed to go through anything and be kind to clumsy drillers (me for example) by not snapping off if run at an angle. They do go through practically everything, and should be valuable in drilling extra holes in things like steel steering blocks that usually make hard work.

Keith Plested, Managing Director of P. B. Products, Havant, says: "MacGregor & P. B. Products decided to combine their talents in order to develop a new two channel system for car racing.

The results were most impressive as it allowed an improved driving technique giving a distinct advantage under racing conditions."



A WINNING COMBINATION

The MacGregor MR 1222 ASN/2S special incorporating the new MR 12T high torque servo and the International from P. B. Products.



Designed for the improved sensitivity and power necessary for controlling high performance models.

Available in all good model shops now.

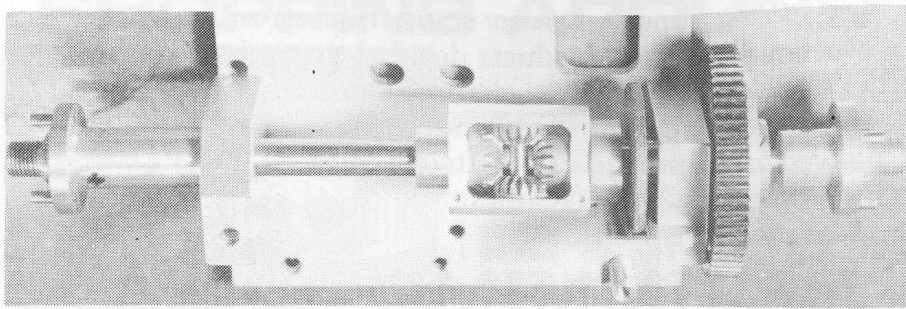


MacGregor Radio Control

Canal Estate, Langley, Slough, Berkshire SL3 6EQ
Telephone: Slough 42251

STOP PRESS! To All Retailers: MacGregor are now distributors for P.B. Products

Join SMAE—the modellers safeguard Tel. 0272 48869



PHIL BOOTH STARTS THE STORY

SOMETHING DIFFERENTIAL

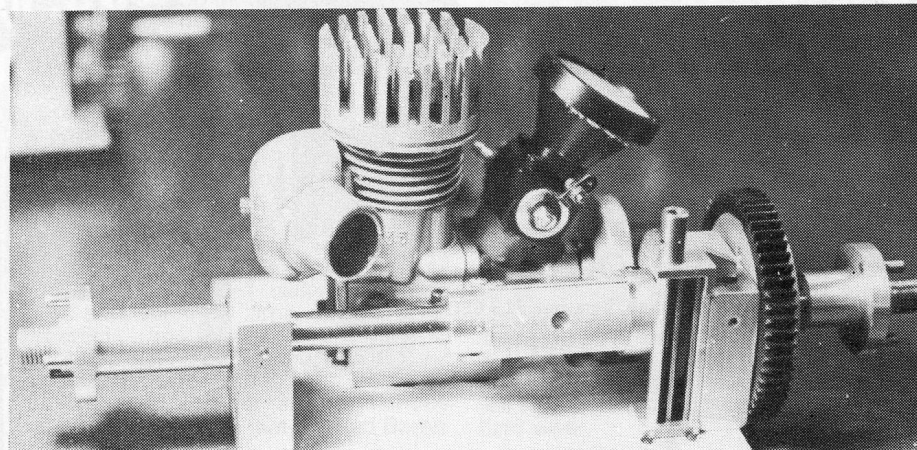
The P.B. International car has been available for nearly a year now, and in that time has been very successful in bringing performance and reliability to novices and experts alike. But as with all racing cars constant development is needed to keep them competitive.

At the World Championships in California the British team were taking more than a passing interest in the other team's cars, looking for any item that could be of use to them. One particular item that caught my eye was John Thorp's automatic car equipped with a differential which to my mind should have been of little practical use on a high traction surface with wide sweeping turns, but as England has some very tight circuits, and rather a lot of damp days, I thought it might have something to offer and would certainly be worth a try in one of our cars.

Unfortunately fitting the Thorp differential was not a straight-forward con-

version, involving a lot of work and a change of rear wheels to the H.R.E. type. Dave Preston drove this car at Tibshelf in a direct comparison with my standard car. The results were not very encouraging with apparently no noticeable advantage on either dry or damp parts of the track surface although we both thought the differential equipped car was possibly a little easier to drive.

Whilst I admit I was more than a little disappointed that the differential was not going to make me a World Champion overnight, the thought of chasing Dave Martin's exhaust smoke around the circuits for another year made me persevere for a little longer, to make myself thoroughly familiar with its characteristics and try its behaviour on all types of surfaces, and enter some of the Winter series competitions to test its durability. Which brings me to the point of this article. It was at these meetings that many people,

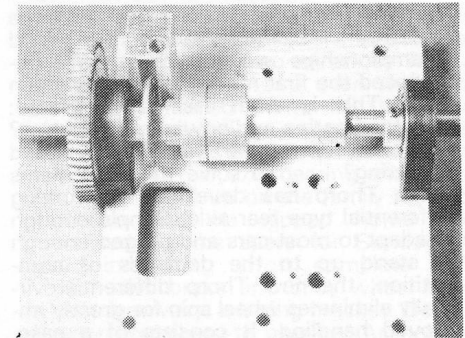
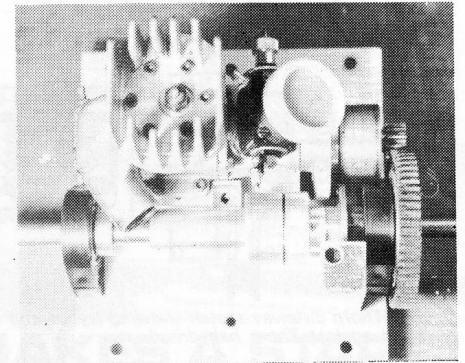


racers and spectators alike, showed great interest in the unit, as most questions were on, usually, the one subject "What are its advantages if any"? Good question and not very easy to answer. I presume from the above question that most readers want to know what the results of the testing were, more than a long technical essay on how the thing works.

Suffice to say the differential allows the rear wheels to rotate at different speeds when negotiating corners, which should ease the load on the steering and make the car turn faster with less understeer. The biggest advantage to my mind after driving the car for many hours, is it is easier to drive, requiring less effort on the part of the driver to achieve good cornering lines and accurate positioning of the car. In fact any excess enthusiasm with the throttle stick only produces wheel-spin on the lighter loaded wheel, without affecting the directional stability of the car.

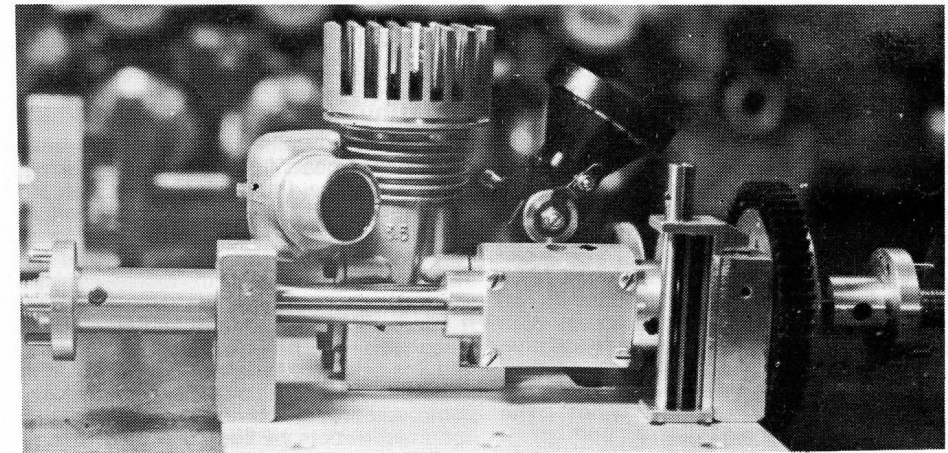
Unfortunately some difficulty has been experienced in achieving an acceptable braking performance with the single rear disc, which appears to favour locking one rear wheel when braking heavily into tight turns, against the lighter loaded wheel. On top of this one has to consider two other factors against its use. One is the added complication of two half-shafts (which bend easily) and four bevel gears, which add a wear and reliability factor to an otherwise trouble-free part of the car. The second point, a penalty which most people would not even consider important at all, is the unit adds approx. 8 ozs to an already heavy car.

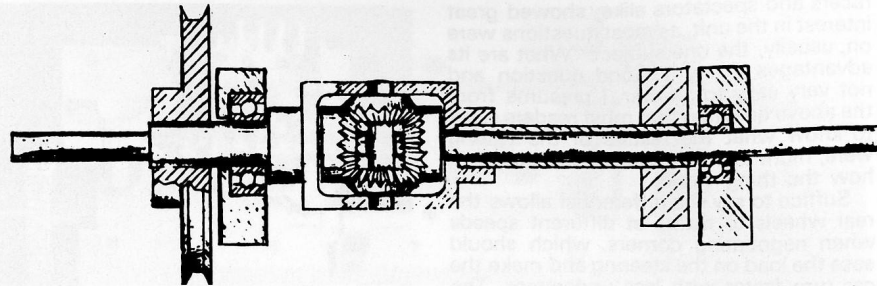
Keith Plested, who is always very eager to try any ideas which might benefit his products, has already designed and manu-



*Heading: Thorp differential gear in place. Note special wheel mounting.
Left: Engine now in place. Tight fit. Gear box shows its narrow side.
Below: Another shot — slight cut away on engine mount is visible and oiling hole in gearbox.
Above: Two shots of the still "top secret" PB diff using spur gears hence rather smaller size.*

(continued overleaf)





Original Thorp cutaway sketch showing layout and operation of his differential, now adapted for normal drive (as against Thorp belt drive).

WHAT A DIFFERENTIAL DOES

John Thorp who runs the Pomona Raceway in California where the World Championships were held in 1977 introduced the first model car differential in 1973. This is what his handout said: "Losing traction and power in tight turns? Excessive tyre wear from high speed cornering? . . . To solve these problems Team Thorp has developed a working differential type rear axle. Simple enough to adapt to most cars and rugged enough to stand up to the demands of competition, the new Thorp differential virtually eliminates wheel spin for greatly improved handling. It consists of a case, holding four bevel gears, two of which are fixed to half axles, and two idlers which mesh between the axle gears attached to the case. The case is driven by the gear, through the axle tubes, with the force passing through the idlers to the axle gears. These idlers rotate to compensate any difference in the rotational speed of the axles."

GERMAN NEWS FLASH

First Euro Grand Prix of the season took place in Germany in mid-March — winner of GT being Hans-Peter Muller of Switzerland. My "man on the spot" reports: ". . . it was impossible to have a look at his car or to take a photograph. The car was "top secret" and no information was given by the driver or designer. Nobody was allowed to have a look at the car and those who tried got some trouble . . . All I can give you is my own impression. I have never seen a car with such an engine! The car had such an enormous acceleration that there must be more than a tuned pipe exhaust. The handling of the car seemed to be difficult, it was very fast on the straights but slow in the bends. The engine was coming violent, perhaps a

The *Dictionary of Technology* adds very little to this succinct description other than to say that the differential permits a rear axle to turn corners with one wheel rolling faster than the other, which is achieved by the faster turning wheel being balanced via the idlers by the slower wheel which lags by a like amount. In more advanced forms the amount of slip can be adjusted to a predetermined amount. In the model this is due to some degree by the nature of the oil used to lubricate the differential case. A fairly light engine oil for example at Mendip was just right, a thicker oil could alter the relative slip.

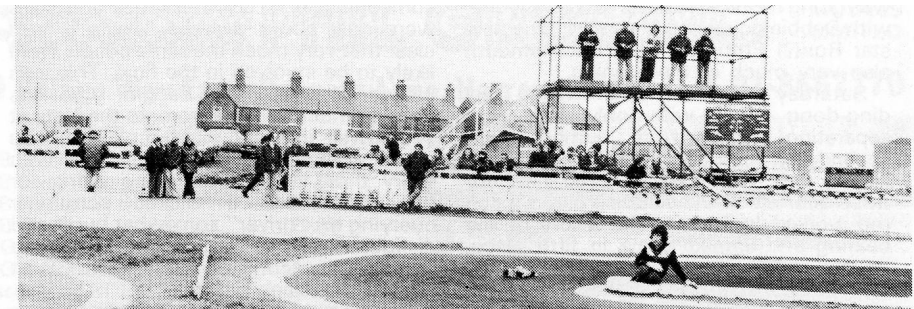
Two cars using the Thorp set up at Mendip driven by Phil Booth and Ted Longshaw also had even more of the "Thorp package" by using H.R.E. wheels which are standard to Thorp cars. These are rather more flexible than the solid PB wheels being spoked and had a degree of give which helped to spare the mechanism and improve roadholding.

turbo-engine? That's my speculation . . . I have heard Mr. Muller will not drive with this engine until Monaco."

Continued from Page 11

factured an excellent compact differential using spur gears in an aluminium casing, which fits the International car with no modifications at all and even uses standard wheels, but he would only manufacture it on a production basis if he felt the results in terms of increased performance were worth the costs involved.

To sum up, the tests so far have proved inconclusive against a standard car with drivers of comparable skill, and even John Thorp himself (with a few exceptions) has not prevented the almost total domination of most events by the solid axle cars.



WOMBWELL MAKES A START

The newly enlarged Wombwell Circuit, soon to be scene of British Nats., had its first public airing on weekend of 8/9th April. Members had been so busy finishing things off that it really was a first go for everybody since only the occasional ten minute run had until then been possible or even encouraged. Wonders had certainly been worked with a massive welded-up rostrum approached by a wide stairway, with everything rockfirm. Roof and back have yet to be added but it is coming along nicely. Track surface itself combines the wide straight that is part of the original go kart course and the narrower wiggly bits added for the r/c car circuit. It is still fairly bumpy but nothing that a week of two of fine weather and a good roller will not cure. Refreshment hut is right by the track with adequate camping and caravan grass right on the spot. So far no covered pit area, but area that there is is all hard surfaced. Alas, toilets are a football pitch length away as part of the pavilion changing rooms — but real running water laid on!

As might be expected the demon of radio interference reared its head very speedily with considerable grief to good timers and relief to others when heats had to be re-run. Villian was tracked down to the metal crowd barriers rubbing together and on their prompt removal all was well except for the inevitable odd bod with a Tx in a caravan and so on. With tighter control and a firm policy of holding Txs in the pound this was cured but led to some distress with people missing heats by delay in release of equipment. These are admin problems which have happily had a pre-Nats airing and can be readily cured. It was certainly a testing time for officials as the Saturday entry of something under fifty was well eclipsed for Sports/GT with twelve full heats running a total of 72 active cars (reduced by natural wastage

later but still formidable).

PB internationals as usual were well to the front in both numbers and achievement. It was quite an effort to find a scratch built car — and even these inevitably contained some PB bits and pieces. One all "all my own work" effort was John Parker's from Bradford who had cast his own rear axle bearing and frame and machined it up on the family Myford. It broke and he nipped home and machined up the spare for Sunday. A good interesting effort complete with "own" disc brake and alloy wheel hubs which deserves a winning bracket. Debbie Preston was there to give her Associated RC200 a first airing. It went exceedingly well as results show, with Debbie as happy and imperturbable a driver as ever.

Once again a good sprinkling of new faces and some new names on the result sheets, including some very promising youngsters, and at least one family unit, with mum getting blamed for bad workmanship on junior's tyres! The Hobbycard team were in evidence in full force with a pale blue and white livery on the cars.

The circuit is a tricky one to baffle the man who wants to set up for a specific performance, since the bends needs a very different gearing from the long fast straight. During Saturday first heats were running at about nine plus laps in five minutes, then ten plus, with a sprinkling of elevens. A good eleven became almost the norm, with a twelves getting better and better. It was not until Sunday with the Sports/GT cars that a thirteen lap figure was clocked up by the FTD expert Phil Booth, with Phil Greeno and Dave Martin hot on his heels.

The differential brigade Phil Booth, Phil Greeno, Ted Longshaw and Fred Livesey were hard at it to prove their products. But in the end it is surely driving which makes the eventual difference since Dave Martin

was going round at least as fast as anyone, with Debbie going nearly as well, plus new star Ron(?) Errington from Bournemouth also very much in the running.

Saturday's Formula Final was a real ding-dong affair with only four laps separating winner from number four, second and third on the same lap. Dave Martin was well ahead of the field for three-quarters of the distance until his con rod worked loose with the failure of the bearing and limped home in fifth place, letting Errington into fourth slot at 62 laps. Ted Longshaw was sixth with servo problems which had dogged him all day. His new super fast reworked job being current greedy and demanding constant Deac replacements. He also had a wheel hub break which was almost the last straw. It was good to see Phil Greeno winning as he has had a lot of bad luck. Perhaps his adoption of a fibreglass (exact nature unknown but certainly contained some woven fabric) chassis, rather wider than usual contributed in some part. Diffs. on one, two and six.

In addition to usual Semi-final to determine last two places in the final, Wombwell are running two handicap finals for 0-15% and 20% Plus drivers. This has certainly had the effect of bringing out new people in both events, including Pierre Angelin, France, who is settling down to some good times. Lemin, Booker, Steve White, Hutton are all names that will be seen again in the near future.

Sunday with its maximum entry gave the track an airing the other way round with a very awkward near hairpin at the end of the straight — unkind to K & Bs as

someone said — but breakages and spills were only about average. Again it was clear that very much the same people were likely to be involved in the final. This was indeed so, with Paul Padgin, who has done so much to help promote the Nats at Wombwell, in a well merited place. It was a bad weekend for Ted Longshaw, with every thing mechanical going wrong for him, and even a wicked scrutineer querying his "driver" somewhat burnt and disfigured as it was! (Still Ted had had a first and a second at the French GP at Toulon the week before!)

Racing once again would seem to have been between the top three with winner at 69 laps Phil Booth showing an improvement as expected on the Formula figures. It was not Dave Martin's meeting either, since this final his clutch went and he was very much a lame duck. New man Errington again figured but did not keep it up to the end.

Verdict on the meeting: A promising beginning — well done.



FORMULA

Semi-Final

- 1 T. Longshaw
- 2 Debbie Preston
- 3 P. Angelin
- 4 G. Culver
- 5 K. Weldon
- 6 K. Wright

20% Handicap Final

- T. Booker
- S. Mellors
- G. Culver
- K. Kayne
- D. Bloomfield
- R. Lemin

0-15% Handicap Final

- P. Hutton
- P. Angelin
- J. Darrington
- P. Woodford
- F. J. Livesey
- C. White

Formula Final

- 1 P. Greeno
- 2 P. Booth
- 3 Debbie Preston
- 4 R. Errington
- 5 D. Martin
- 6 T. Longshaw

66 laps

64

64

62

56

54

Sports/GT Final

- P. Booth
- P. Greeno
- Debbie Preston
- P. Padgin
- D. Martin
- R. Errington

69 laps

67

64

55

47

36

Sports/GT 20% + Handicap Final

- 1 K. Payne
- 2 G. Culver
- 3 J. Everett
- 4 S. White
- 5 R. Lemin
- 6 T. Booker

Sports/GT 0-15% Handicap

- P. Clough
- A. McFadyean
- J. Turnbull
- P. Angelin
- J. Bossons
- P. Hutton

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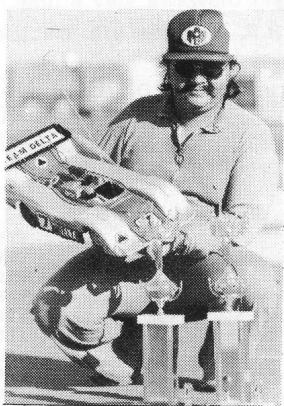
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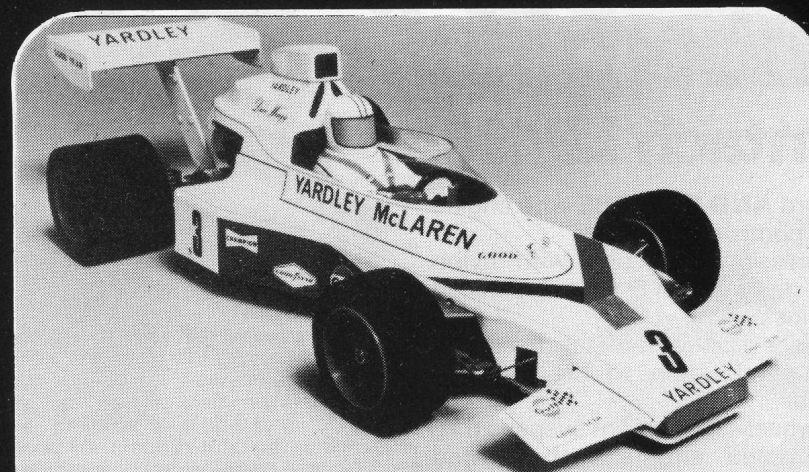
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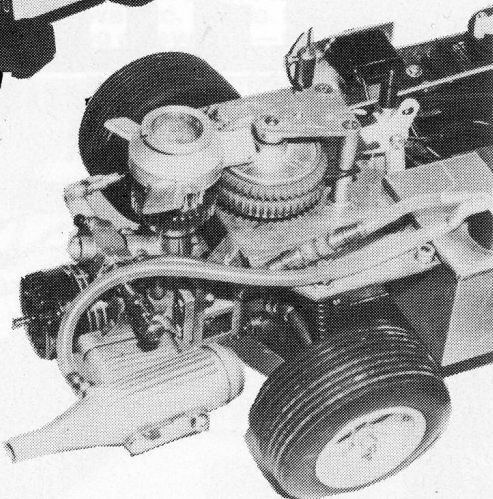
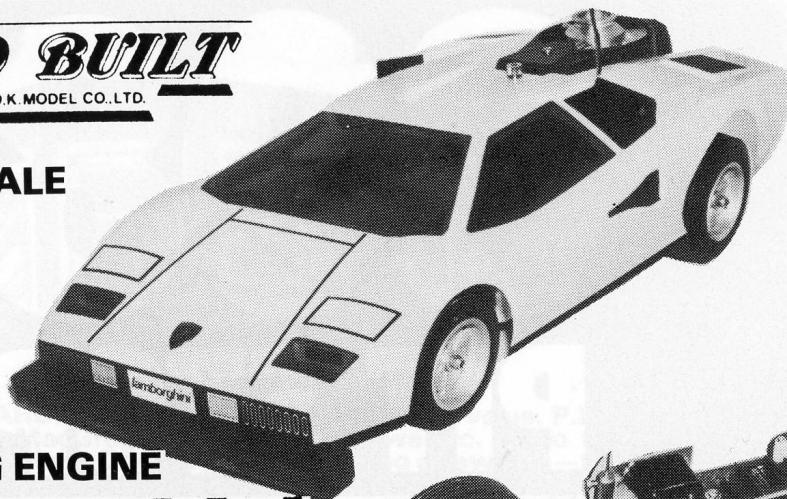
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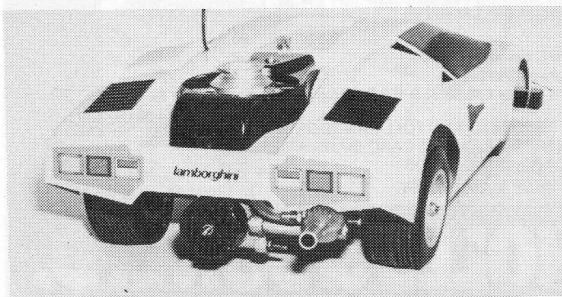
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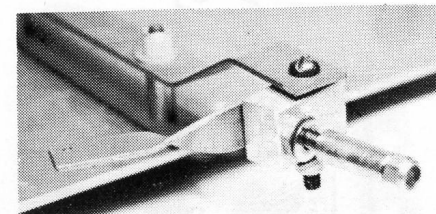
AXLE BLOCKS & STUB AXLES

In writing of steering geometry quite a lot was said about the desirable arrangement of stub axles and steering blocks and this feature goes a little further on the practical side by showing what some of the kit manufacturers have done to achieve their ends. These ends must be strictly divided between the wholly desirable and the limitations enforced by a production cost limitation.

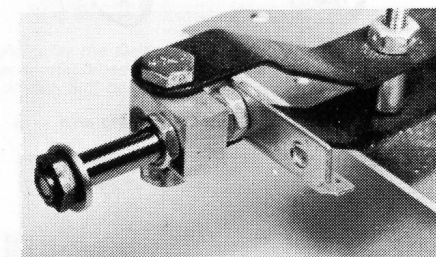
The minimum need is for an axle on which the wheel can be placed and a suitable socket into which the axle can be placed. This socket must have a lever attached to it to enable the wheel to be steered. That's all! Regard must be given as to the location of these parts relative to one another. Is the axis of the kingpin to go through the axle line, or is the wheel to trail? If so how much? Can the amount of caster be readily altered? What is the ideal amount?

Obviously low and medium priced kits will have to solve the problem in the cheapest possible way. Perhaps producer prefers to economise here so that some detail such as ballbearing rear axle can be included and get inside the budget. Let us consider the simplest possible setup. This must undoubtedly be the GB kits put out by GB Models of Weston-super-Mare which incorporate a certain number of PB parts as well as their own specialities. Here, the axle is in the form of a bolt, sleeved for smooth running, which goes through a rectangular block. Kingpin goes through another hole drilled vertically in front of the axle line. The axle bolt also goes through the steering arm to hold it against the block. This steering arm is a flat strip of metal, twisted at rightangles (like a cheese straw) to bring its flat surface parallel with the ground for easy attachment of track rod. With its single bolt holding it can be displaced quite easily unless secured very tightly to the block and locked in place with Loctite or similar. Another small hole drilled and tapped in the block to enable an additional locking screw to be fixed might be advisable.

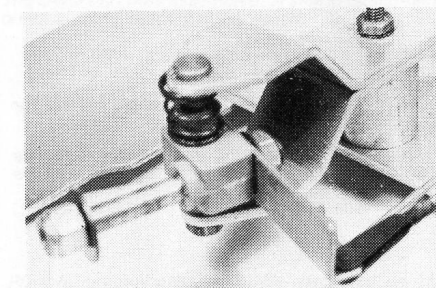
More common, and followed by several makers in even their de luxe kits, is a similar arrangement but using an L-section strip with alternative location holes drilled to take different track rod and steering arm locations. This is more robust, less liable to bending, though not so easily adjusted for



"Cheese straw twist" of the GB design — simplest of all methods.

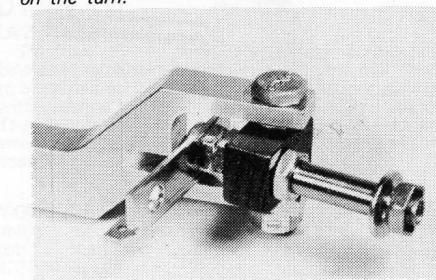


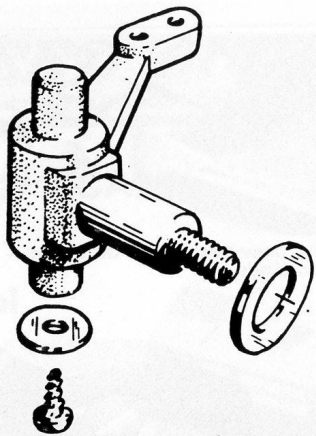
Straight through bolt with L-section steering arm is Associated answer.



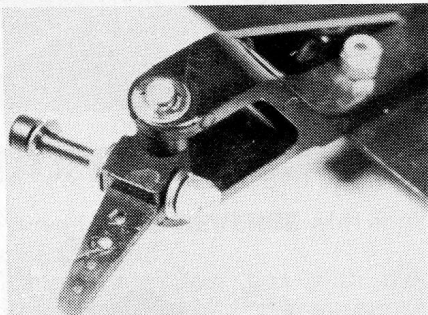
A similar method used by Mardave, but with a plastic block and a sprung kingpin.

Associated refinement using machined steering cross-beam-note slot to take edge of L-section arm on the turn.



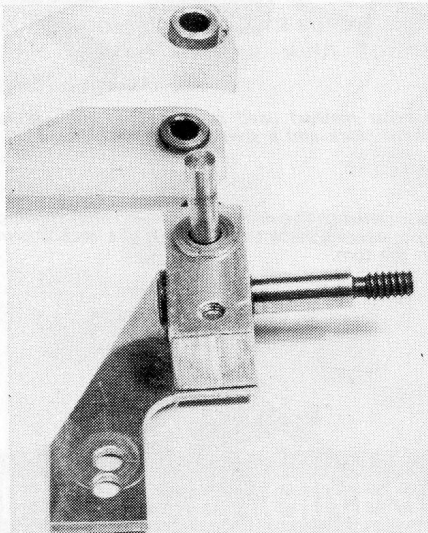


SG combine steering block and steering arm — a neat solution.



Ultimate simplicity by Minicars — single casting for kingpin, steering arm, stub axle.

Advancement: PB's steering arm bolts firmly to axle block; kingpin runs in bearings, stub axle purpose made.



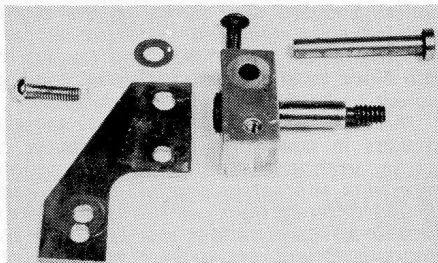
Akerman effect. It can be employed with simple strip type cross-beam or with the more elegant machined alloy or moulded nylon beams. Such beams, incidentally, are usually angled on the underside to provide a degree of caster angle. At least one firm is offering a choice of angles from 5-15 deg. However, a change can simply be made by inserting wedges securely to produce required angle.

Mardave follow this block plus angle method with a couple of useful improvements. Their block is a plastic moulding and the kingpin is sprung to give a reasonable amount of movement to the front end, a useful addition to a low-priced kit where chassis is necessarily in one piece and more rigid than might otherwise be ideal.

Following the idea of a plastic moulding for the axle block, comes the next idea, namely, to mould the steering arm integrally with the block, and to incorporate a suitable sleeve through which kingpin can run. This is followed by all the 1/12th scale electric cars, possibly feeling that only moderate strength is required here anyway. The Italian SG goes a step further and provides wheels with double ball-bearings. These are unshielded and may be troublesome to keep clean as well as costly when changing tyres if a whole stock of such wheels must be carried. If content with low priced bearings some surplus firms such as Whistons of New Mills Stockport should usually be able to oblige.

It is interesting to find that Keith Plested pioneered an "engineering" solution in Britain (at the same time Bill Campbell of Delta was doing much the same thing in U.S.A.). Answer is a stout flat steering arm plate which bolts *under* the rectangular steering block. The block is reversible for left and right hand use; one additional tapped hole is made to enable it to lock in place with a screw, and kingpin holds it firm. This is the pattern that appeared on the first Expert series kits.

The simple parts making up the PB original "Experts" style unit.

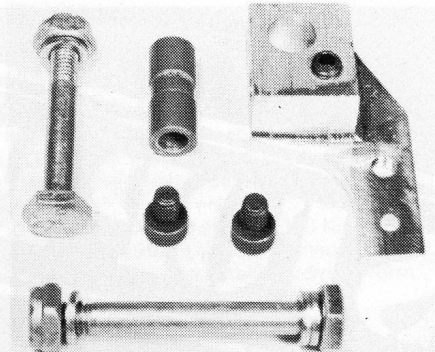


Final evolution, as seen on PB Internationals is the wholly machined steering block, where block and steering arm are formed from a single piece of metal. It involves a number of separate operations but the end product is well worth the effort. Here an added refinement appears. Instead of ball racing the wheels, PB have ballraced the stub axle with two *shielded* ballraces to keep out the dirt. Wheel is locked in place on the axle via a rollpin and axle goes round.

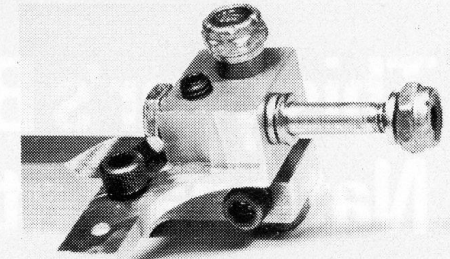
The American Delta kit also employs a one piece block/steering arm, which would seem to predate the PB. It follows very closely the pattern of the PB Expert part but is made in one piece. It looks very much as though machining operations have been simplified. Perhaps it has been possible to make use of some already commercially available extrusion and work from there. Delta up to date (I have not seen their very latest offering) use a plain bolt axle in the usual way without attempting to fit races here. They go (as with SG) in the wheel hubs and are shielded. Other differences that will be noted are positions of kingpins. PB have split their kingpin in two with one piece coming down and the other going up to permit axle to go through line of kingpin. Delta is a simple trailing axle with single piece kingpin.

The ultimate simplicity award must go to Minicars' Challenger. Here a single casting provides kingpin, which rotates in the cross beam, steering arm and stub axle. Two separate moulds are required in manufacture for left and right hand and its production must be expensive bearing in mind the possible quite limited number required. I do not have any information on its strength in use since very few kits have been seen in England. The fact that Minicars' man Per Gustafsson is current European champion for Sports GT should be some guarantee of its practical value. (Though he did win on a mainly Associated car!)

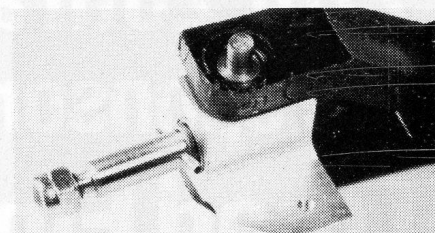
There are probably other excellent



Parts for the Delta unit. Here axle block & steering arm machined from a single block. Wheel has double ball bearings.



The Delta unit duly assembled. A single attachment only to cross beam will be noted.



PB International answer. Single machined unit for steering arm and axle block. Two piece kingpin enabling straight through stub axle, running in double ball bearings — wheel pinned.

variations of the theme on kits I have not yet seen: I hope readers will be quick to point them out.

PUT YOUR FOOT IN IT!

LAZY SPRAYERS

Tip from an old comic. If you are spraying a bodyshell or other object with small parts that need to be protected from the paint smear them carefully with vaseline (apply with a brush or a small stick). Then when paint is thoroughly dry it will peel off smeared parts which can then be wiped clean of the vaseline . . .

YOUR TIP — Tell us any easy way of doing a hard thing . . . or a new way of tackling an old job . . . then we can run a regular GADGET CORNER.

Here's a tip from Paul Padgin. He claims that much of the trouble-free life of his current engine can be attributed to it. It is the finest and cheapest air filter he has yet tried — none other than a Dr. Scholl's Toe Cap! I bought one myself in town for the modest sum of 18p for the standard size which is just right to go over the air intake of the carb. Of course it is a delicate shade of flesh pink but a very nice quality of foam material — and it will soon lose its pristine freshness. Fixing it on is a matter of choice. Paul has made up a neat nylon ring with a grub screw to hold it firmly in place. Less diligent people can fix it firmly enough with a wire loop twisted round. Try it . . .

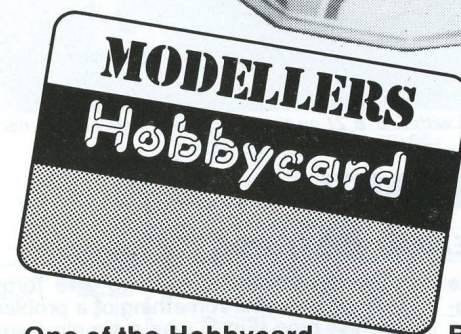
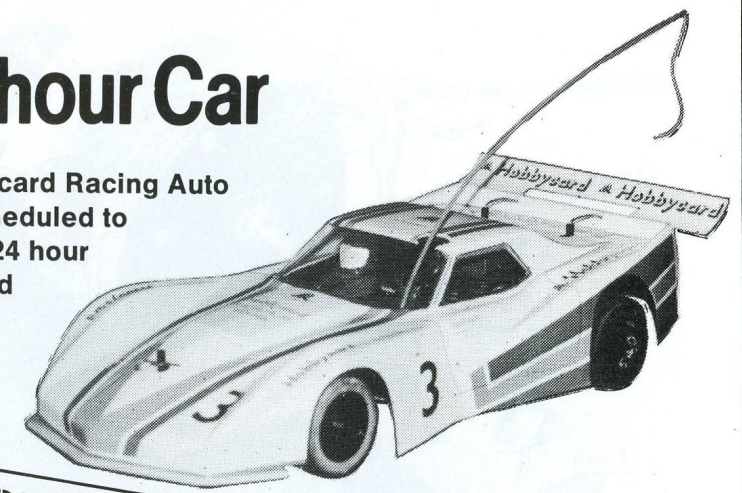
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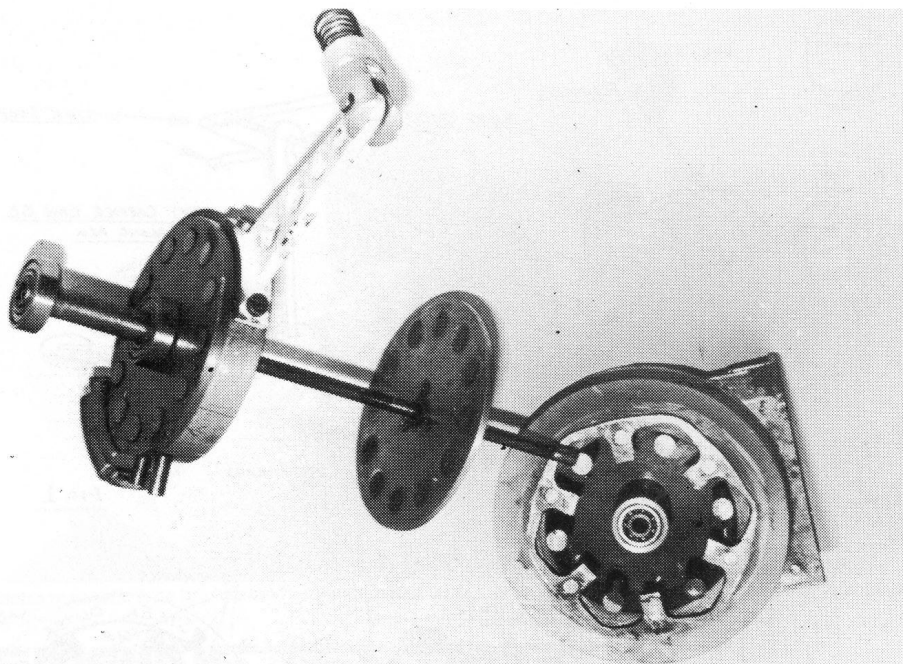
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tester for automatic transmission — they use a simple disc brake and on occasions in the past I have seen full size racing car discs glowing bright red. I'm quite sure they must absorb well over 1 BHP for long periods on short circuits.

This dynamometer needs much further investigation. I suggest a flywheel of 1 oz weight with a disc brake weighing 1 oz, — a brake caliper mounted on ballraces and fitted with a torque arm.

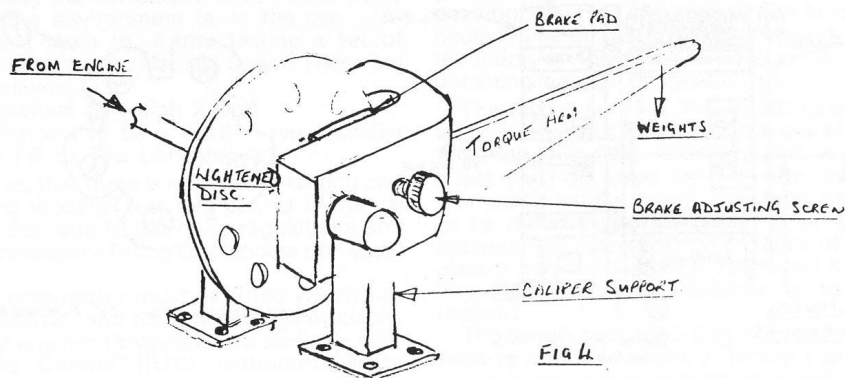
The basic problem with model car engine testing is the need to be able to obtain readings in the range of 4,000 to 40,000 RPM both under load and free.

Here the electro magnet part is shown un-assembled. Study of this picture in conjunction with the sketches should help to make its operation clearer. Figures will always have to be regarded as comparative rather than accurate to a high degree since different types of measurement can provide varying results.

Add a little simplicity! Back to a friction type brake following some fullsize practice.

Then to obtain accurate measurements and reach a conclusion!

I hope the less technical reader will bear with me as regards Figs. 2 & 3.



1/12 AT LEAMINGTON

NICK ADAMS REPORTS

A most interesting phenomenon occurred at Leamington, analogous to the "Tortoise and the Hare."

It soon became apparent that the JEROBEES from the ALLY PALLY CLUB were much faster in acceleration and top speed than the MARDAVES, but due to the very slippery surface, and their under-steering nature, the JEROBEES spent a lot of time sliding "off-line". However the MARDAVES appeared almost boring the way they just went round and round at a steady speed. As a result the "TOR-TOISE" beat the "HARE".

Continuing this observation further, I would go so far as to say that the JEROBEES are the equivalent to FORMULA 1 cars requiring fast circuits such as ALLY PALLY, whilst the MARDAVES are like FORMULA 3 suited to smaller 'CLUB' circuits. This poses the question — should there be two formulas?

The event started with the JEROBEES dominating, but within a few heats a serious problem arose as the concrete surface became polished by the tyres resulting in increased under-steer and traction problems. However, the MARDAVES continued to circulate with monotony, apparently hardly worried by the lack of grip.

The method of scoring by totalling laps from all 5 heats, different from the ALLY PALLY system, unfortunately resulted in some loss of 'heart' as the track became

more and more 'polished' causing dropped laps but excellent displays of controlled power slides.

As to the results, well it was a fairly close contest with 9 entrants achieving a 20 lap heat (including 4 ALLY PALLY cars), although no-one broke this barrier.

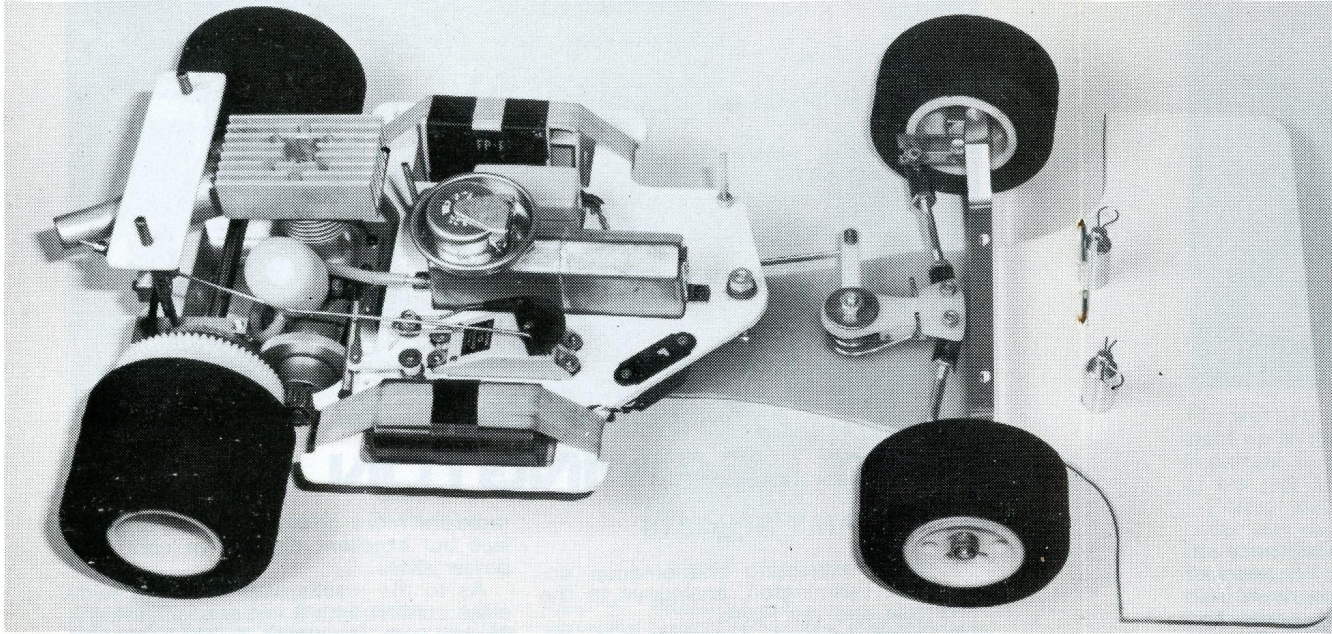
DAVE ANDREWS was the well deserved winner of the meeting, since his car was scratch built with own 'switched' speed control and differential. The latter mod was well suited to the smooth polished track since the rear wheels never had to 'slip' on corners and helped tremendously in reducing the rear wheels from breaking away. However, Dave said that the car did not perform well on a bumpy surface since the differential prevented power being applied to the track.

Second place was taken by ALAN BLACKMAN who lapped consistently with his fairly standard MARDAVE, whilst third placed was DAVE FEVEN, best of the JEROBEES, who treated everyone to fine car control under very difficult circumstances.

No other notable incidents took place, but the ALLY PALLY club look forward to competing on a large circuit — perhaps the HOBBY FAIR on March 25th will enforce my theory concerning the performance of the JEROBEES.

1st 99 laps	Dave Andrews	scratch built
2nd 98 laps	Alan Blackman	Mardave
3rd 97 laps	Dave Feven	Jerobee (Ally Pally)
4th 97 laps	Les Pipe	Mardave
5th 94 laps	Dave Mottram	Mardave
6th 91 laps	Nick Adams	Jerobee (Ally Pally)

NEW ASSOCIATED RC 200 KIT



NEW FEATURES

Aluminium Front End
 New Servo Saver
 Ball Joint Tie Rod
 Fibreglass Chassis
 Disc Brake
 8mm Rear Axle
 New Rear Pod Plate
 New Gear Material
 Plus Fuel Tank

PROTOTYPE RC200 CARS WERE USED BY WORLD CHAMPION, BUTCH KROELLS, AS WELL AS THE FIRST 7 PLACE FINISHERS AT THE WORLD CHAMPIONSHIPS.

1977 EUROPEAN CHAMPIONSHIPS

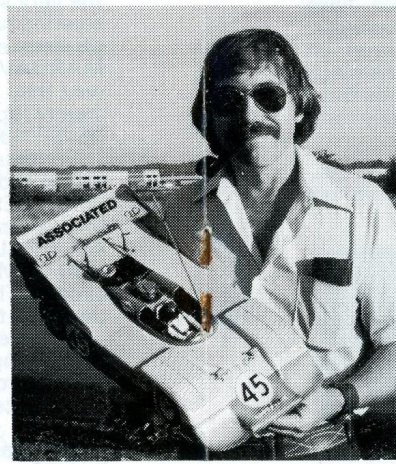


PER GUSTAFSSON — SWEDEN
 SPORTS CHAMPION



UDO FRANKE SWITZERLAND
 FORMULA CHAMPION

1977 USA ROAR NATIONALS

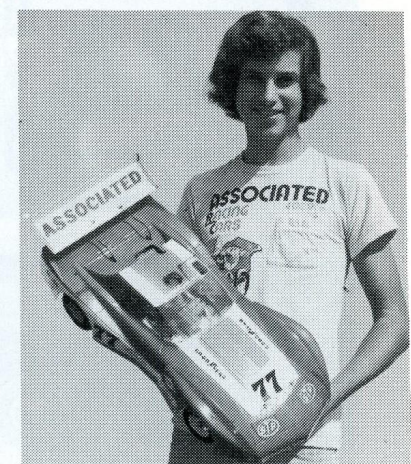


ROGER CURTIS
 SPORTS CHAMPION



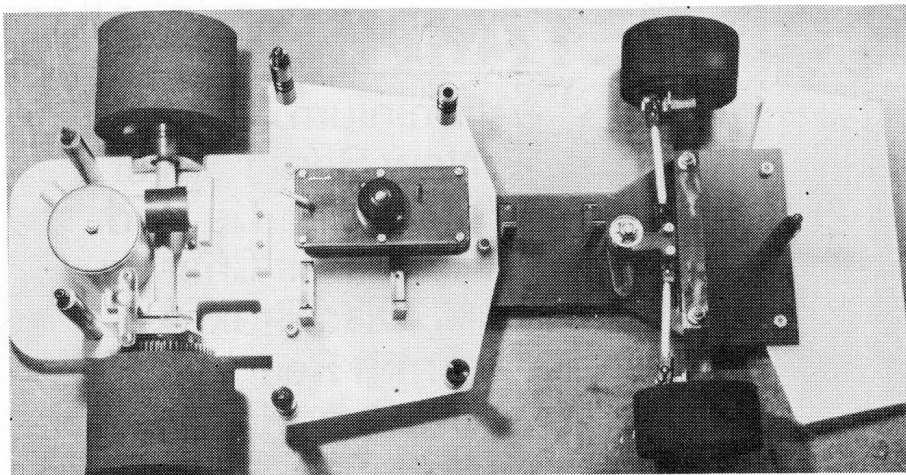
BILL JIANAS
 G.T. CHAMPION

SO. CALIF SERIES

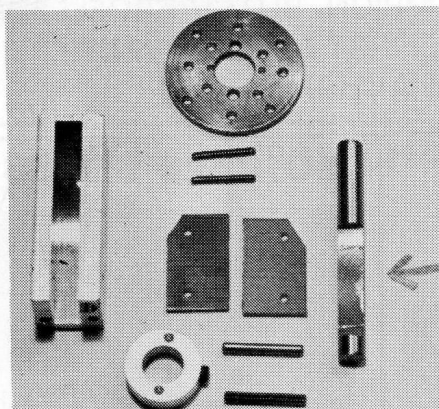


CURTIS HUSTING
 WINS FINAL 2 SO CALIF
 SERIES RACES & 1977
 ENDURO RACE

ASSOCIATED 1928 East Edinger, Santa Ana, CA. 92705, USA



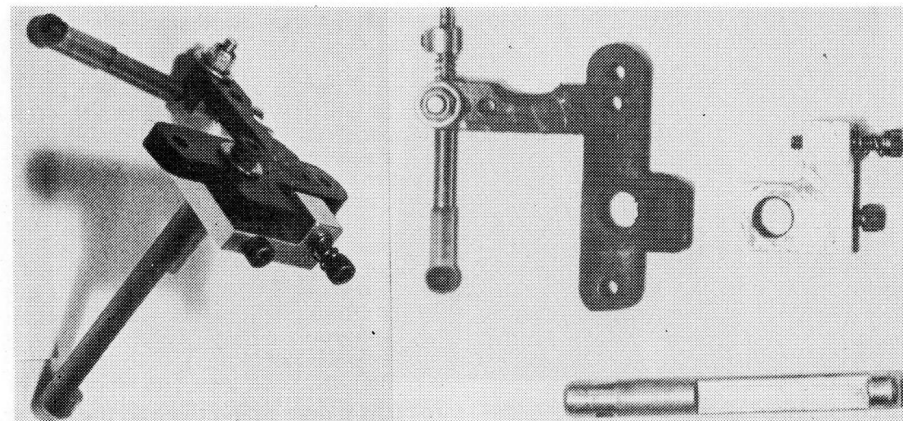
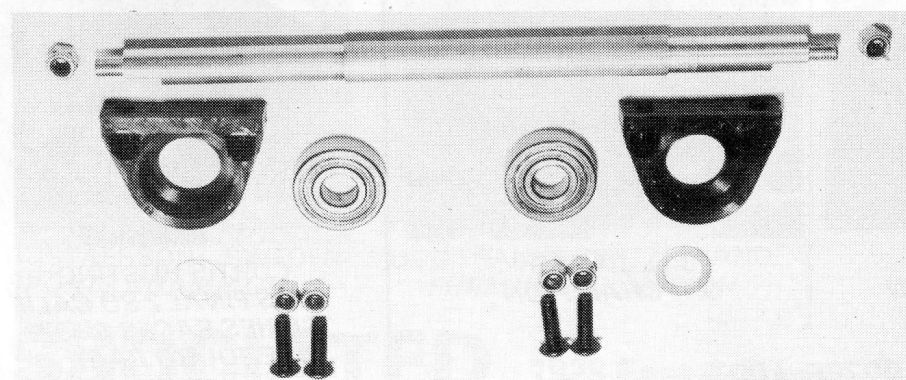
PHIL BOOTH BUILDS THE PB INTERNATIONAL



Build a P.B. International Car from a kit! now that's a novel idea! In 1½ years of racing International cars I have never built a kit car. Having heard both praise and criticism of the kit I was about to find out for myself.

Reading through the very comprehensive instructions I assembled the rear axle first. The axle blocks themselves have been strengthened at the weakest point to prevent the breakages that occurred on the early cars. The tight fit of the bearings on the axle gave me a few problems but I cured this by rubbing down the axle with

The completed PB International above. Left: Disc brake parts. Below: Rear axle, ball bearings and axle blocks.



Disc brake during assembly.

fine wet or dry paper until the bearings slid right up to the axle shoulder. This is very important to achieve the correct spacing of the rear axle.

Fitting the roll pins to the disc brake collar was easy enough but having done this the collar would not slide on the axle. The reason for this being, the wall thickness between the roll pin hole and the inside diameter of the collar is very thin and when the roll pins are pressed or tapped in they spread the aluminium collar slightly closing up the inside diameter. A few minutes work with a file soon put this right.

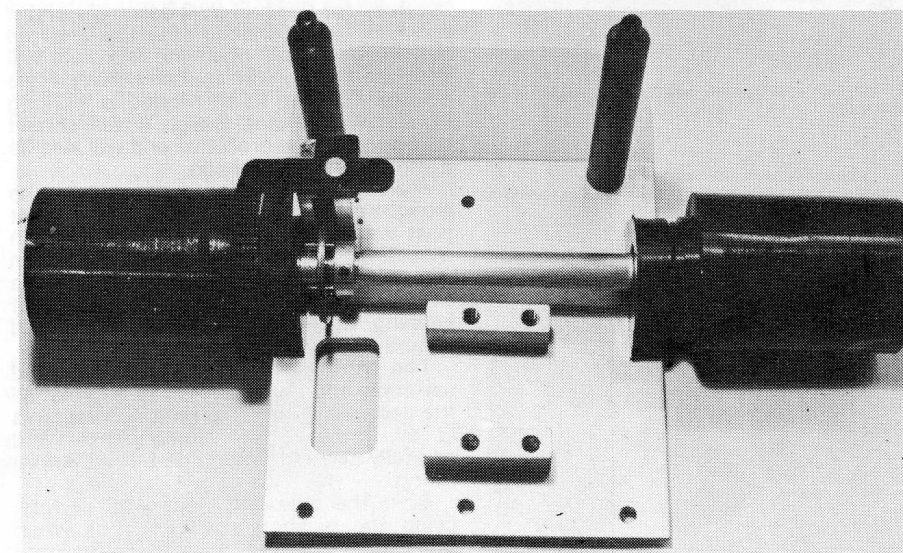
Before sliding the disc on to the axle I

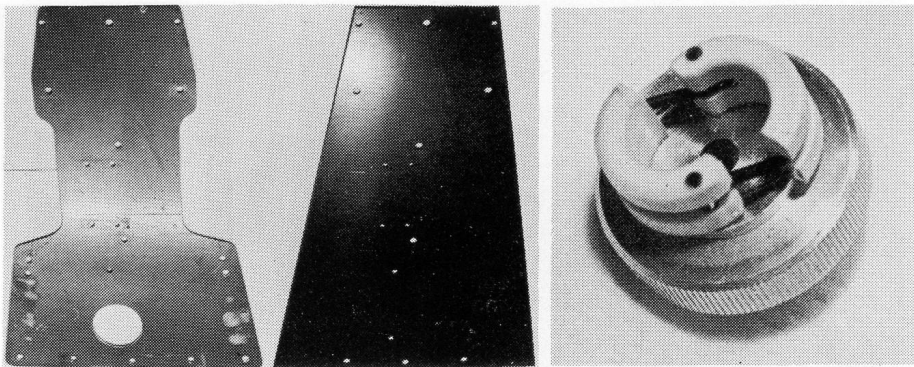
drilled a few holes in it because I feel this helps to clean the disc of any oil and grit when the brakes are applied. I have also seen slots filed in the discs for the same purpose.

Two washers are provided to adjust the side float on the rear axle, but I could find no mention of these in the instructions.

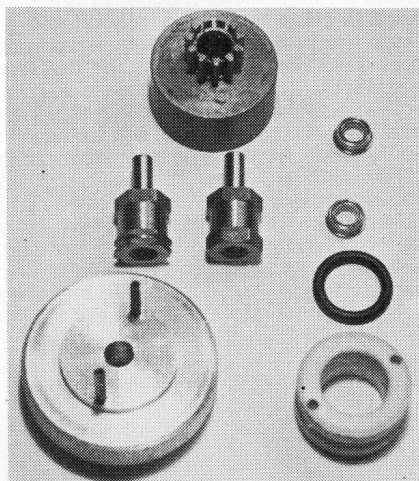
For such a simple assembly the disc brake works very well provided it is assembled with a little care. Filing a radius on the operating cam provides a more progressive brake action, so a little bit of extra care on this is worthwhile; also make sure the brake pads slide easily on the 1/16 in.

Rear axle fitted on power pod; wheel hubs on; rear bumper plate fixed and disc brake installed.



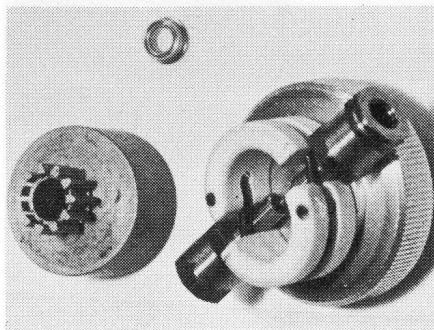


Broad & waisted chassis plate choice. On right: Clutch assembled with O-ring.



The various parts for clutch, flywheel and bellhousing.

Using the crankshaft adaptors to fit on the O-ring to clutch shoes.



roll pins before fitting them to the caliper. Another point missing from the instructions is the necessity to file a flat on the operating cam for the brake arm grub screw to locate onto.

Before fitting the silencer to the rear chassis plate I knocked out the end caps and re-fitted them with silicone sealing compound, which helps to stop leaks. On this particular car the brake arm fouled the silencer and needed about 1/16 in. cutting off before it would clear.

Using the narrow chassis recommended in the instructions all the holes lined up perfectly and the assembly began to look like a car. The radio plate presented no problems but I think the stiffener plates might be better if they were wider, to enable them to be formed into a L-section to make them more rigid.

The instructions should be followed carefully for the fuel tank assembly and if the tank is not drained after use and the ball valve wedged open the top plate will warp and gaps will appear between the screws. I believe Keith Plested is working on a new fuel tank design which should cure some of the problems and will also be a more adaptable shape.

Making up the servo saver is quite straightforward but I did find the pivot post was a rather tight fit in the nylon moulding, which made the operation rather stiff. Despite its strange appearance the push nut is a very secure way of keeping the tension of the spring and should never come loose.

The front axle is quite a complicated assembly and I was pleased to find that all the parts went together with no problems at all, provided the components were carefully cleaned up and de-burred before fitting.

Even the axle end float was perfect, using the washers provided, but when fitting the track rod ball joints to the rod I

thought the mouldings were a little loose on the threads, but this is a minor criticism.

The P.B. International clutch is unique in the use of a neoprene "O" ring to control the shoes and with a little experiment on the weight of the clutch shoes a very smooth action is possible. I have not heard of any problems resulting from the use of the "O" ring.

The rest of the car is just a matter of fitting the bumpers and rear wing mounts, but I personally use an alloy front body mounting as an added safety factor having broken the plastic ones more than once.

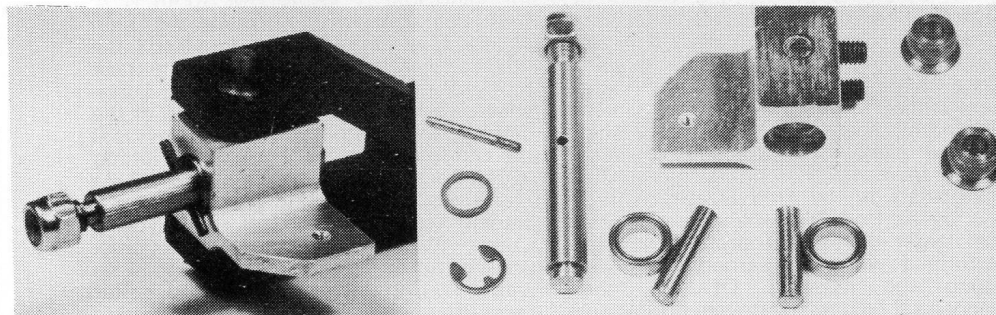
In conclusion, I found the basic kit easy to assemble and very complete, and provided a little care is taken in the preparation of the components prior to fitting no trouble should be experienced. The finish of some of the parts leaves something to be desired when compared with some of its European and American competitors, but taking into consideration its price, which is cheaper than most of its rivals, the car itself has proved its race worthiness and durability beyond doubt.

I have never used the narrow chassis in competition, preferring instead to use the wide chassis suitably cut down and waisted to provide the necessary flexibility and I mount the receiver and Deac mounting posts directly to the chassis plate.

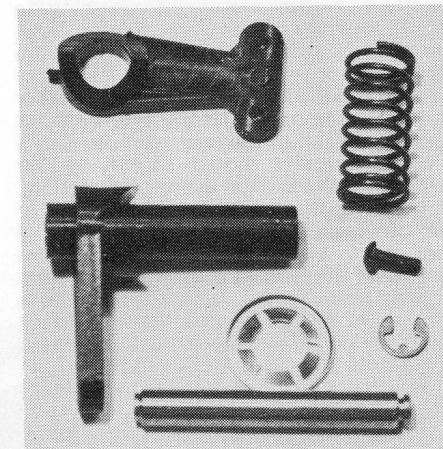
Another worthwhile modification is the independent brake adjuster, which is simple to make and provides brake adjustment at the turn of a screw. The nylon operating arm is free to rotate on the brake cam shaft and when the brakes are applied the arm comes into contact with the adjuster screw and operates the brake. The adjuster screw assembly is locked to the brake cam by a grub screw in the normal way.

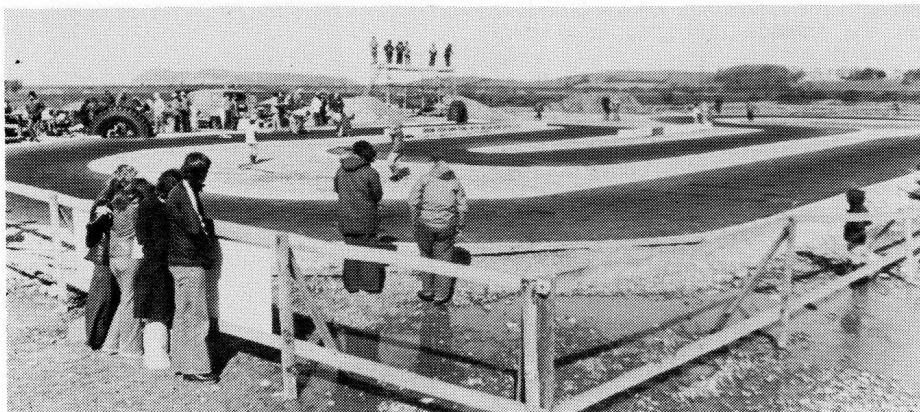
The failsafe-servo-saver-cum-Akerman unit. A real blessing.

Parts for the stub axle steering arm kingpin assembly; the unit assembled.



Parts for the fuel tank. Build with meticulous care!





MENDIP EASTER MEETING

Very nearly everybody who was anybody turned up to race at what was the first big meeting of the season as well as the first major event for the Mendip circuit, who must have regarded their earlier meetings as more in the nature of warming-up events. In spite of gale force winds which made the climb to the drivers' rostrum something of an adventure, the three day fixture got steadily better as both weather and times improved. Nearly fifty entrants contested each of the two main days with a very impressive though slightly smaller turnout for the Saloon event on Saturday. all but two, there may have been one or two others but I did not see them, of the cars were either PB Internationals in standard trim, or had substantial PB parts in their make-up . . . which represents a very nearly 90% coverage. Other exciting discovery was the sudden burst of interest in differentials (Phil Booth provides an introduction to the subject elsewhere) which came in four varieties. First, and most numerous were the Thorp diffs, which have been on the U.S. market for several years and available also over here. Then there was the Keith Plested experimental design which uses spur gears in place of the bevel gears used by Thorp. Next comes the very special Phil Greeno differential made up by Amps, which features extra ballraces and oil seals. Finally, there was the own design product being tried out by Fred Livesey with 45 deg. bevels from Muffetts which looked a little larger than the Thorp. All varieties performed well and earned their keep during the meeting. Of the many mechanical failures most were attributable

to engine failures, gears shearing, or clutch bellhousing working loose.

Whilst the usual experts were well to the fore it was encouraging to find a number of exciting newcomers showing great promise. In particular John Beddis, a local man, who made five out of six finals, winning Open Saloon and Handicap Formula, with second in Handicap Sports/GT, and was awarded the RaydioTyres Trophy presented by Ray Parker for the best performance by a West Country driver . . . he would have deserved it for "most meritorious of the meeting open class" had the award been so framed. Gary Culver, a young Dorset man still in his first racing year also put up some noteworthy performances, being third in Handicap Formula and second in the Open Sports/GT. This latter drive was of special interest, since Phil Booth won with the track record of 95 laps in the half hour race, with young Culver only 15 laps behind on 80. Much of this difference was due to mechanical troubles, his actual driving and line closely following that of leader Phil Booth.

The last event of the meeting the Open Sports/GT undoubtedly provided the finest driving, with men on form, the track nicely dry, and all going hard. Ted Longshaw, who had second fastest time of the day led for something over half way until the clutch bellhousing came loose, letting in Phil Booth who was never headed. Dave Martin was plagued with gear trouble and limping round at the end, with young Culver making the most of his opportunities. Mark Plested went well while he was going, and probably showed better form than ever before.

Sunday's Open Formula Final fell to Dave Martin, who made it into the final only via the semi. His tactics were as usual to sit behind the leaders until a mistake let him through, then make up a good lead and ease off. This left him only Phil Booth to keep ahead of in the concluding laps. Earlier the battle had been more hectic with the very fast Greeno car much in evidence, and Ted Longshaw also showing the sort of form that confidence in a good car can give. John Beddis again was by no means out-classed amongst the giants.

The saloon events proved a pleasant opener with another up and coming driver taking the Handicap Final in the shape of Ray Lemin from Oxford. The Open Saloon Race was a dingdong affair with John Beddis well out ahead of the field, but the next two places hotly fought out by Paul Padgin of Bradford and Jim Harrop from Oxford, Paul getting the verdict with 66 laps, just one ahead of 3rd man Jim. Phil Booth was well behind at 54. This was first occasion that the Hobbycard Team have performed in public, with Paul Padgin in a place and Nigel Heighton in the Handicap Final but not actually starting.

Phil Booth captured FTD on all three days, progressing from 16 laps in 5:13.4 in the Saloon to 17 laps in 5:05 for Formula and getting even better to put up 18 laps in 5:11.3 for Sports/GT.

Saloon

Final	
1 John Beddis	75
2 Paul Padgin	66
3 Jim Harrop	65
4 Phil Booth	54
5 Ray Lemin	2
6 Keith Plested	—

Handicap Final

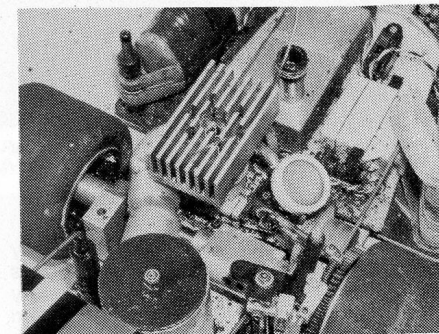
1 Ray Lemin
2 John Russell
3 Fred Livesey
4 Martin Sims
5 John Beddis
6 Nigel Heighton

Formula

Final		Handicap Final	
1 Dave Martin	90	1 John Beddis	
2 Phil Booth	84	2 Terry Gane	
3 Phil Greeno	74	3 Gary Culver	
4 Ted Longshaw	71	4 John Everitt	
5 John Beddis	69	5 Fred Martin	
6 Mark Plested	5	6 Colin Englefield	

Sports/GT

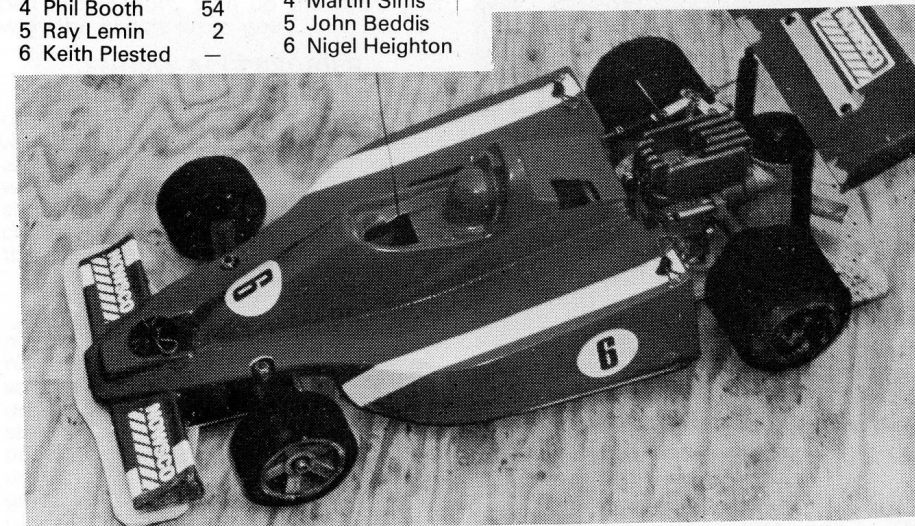
Final		Handicap Final	
1 Phil Booth	95	1 John Everitt	
2 Gary Culver	80	2 John Beddis	
3 Dave Martin	77	3 T. Gane	
4 Ted Longshaw	60	4 Fred Martin	
5 Mark Plested	27	5 Martin Sims	
6 Phil Greeno	15	6 Ray Lemin	

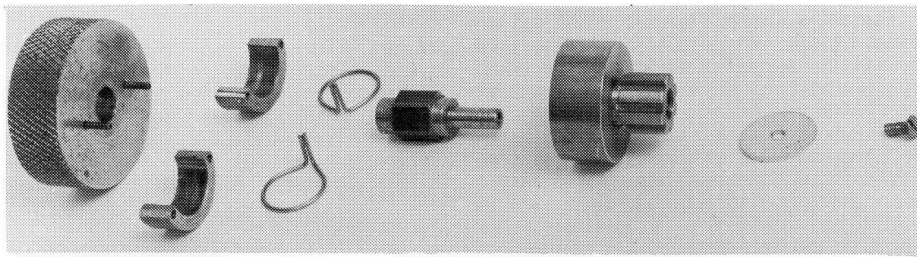


Heading: The circuit from the car park side looking across to the high rostrum which is to be boarded in and roofed.

Above: Scratch-built differential by Fred Livesey proved successful and strong.

Below: Smart bodyshell (Shadow) by David Beatty now in the PB range of Lexan shells.





Parts of clutch and bellhousing laid out.

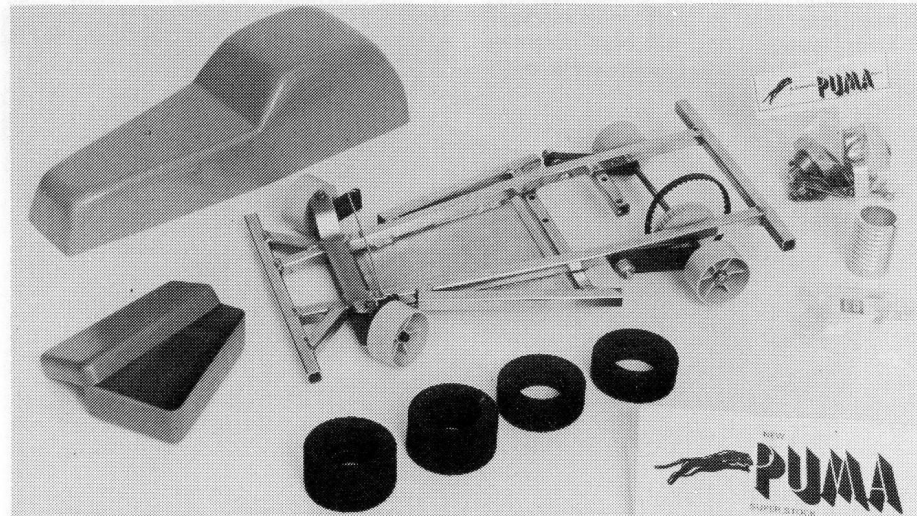
BUILDING THE PUMA STOCK CAR

By Paul Dudley, Secretary Studley
Model Racing Association

THE KIT

Chassis and running gear come ready assembled. Very little additional work is required on the chassis itself as it is already plated and front bumper has been strengthened. Two body styles are available, standard and coupe; they are self coloured and available in six different colours. Material is glass fibre which makes for robustness.

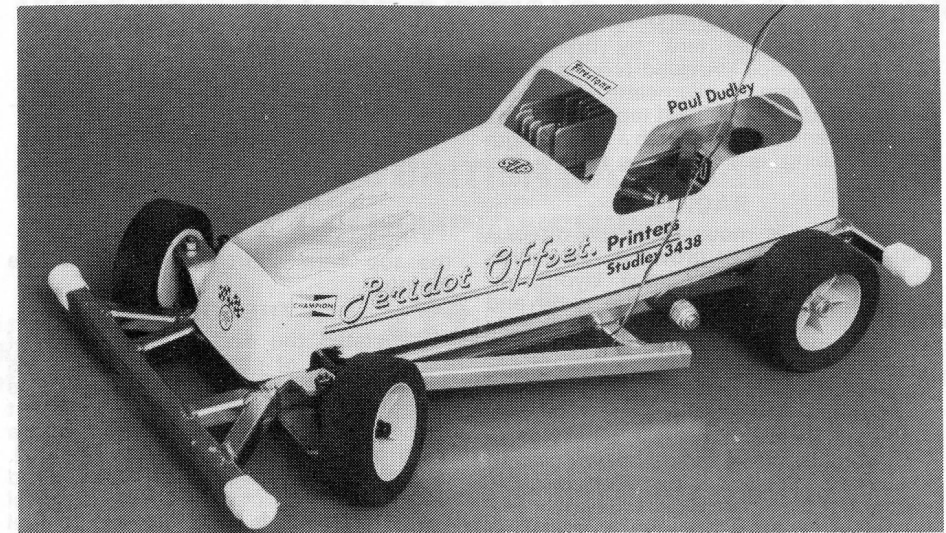
The Puma kit as it comes out of the box.



CLUTCH & ENGINE INSTALLATION

Car illustrated has a Super Tigre installed, but any engine can be fitted including H.B., Veco, Enya, Webra, O.S., Fuji. First step is to assemble clutch and flywheel to the engine. This is fairly simple but care must be taken to get the clutch shoes the right way round — pivot point must be on the leading edge of the shoe. The all steel (note no clutch lining) needle bearing bell housing is slipped on the shaft and fixed in place with the washer and screw provided.

Engine is then mounted on the slotted mounting plates. If care is taken at this stage it is possible to mount the engine with sufficient space between the end of the engine shaft and the chassis to enable the drive belt to be changed without removing the engine once installed. With the plates now on the engine, place in the car with the steel spacers between the mounting plates and the chassis. Before the engine is bolted down it is strongly advised that some form of bedding down



Paul Dudley's stock car painted up in sponsor's livery (Paul is a printer!)

material is placed between the mounting plates and chassis. This can take the form of liquid silicone or Isopon body filler. While it is in a semi-soft state the mounting plate and bolts are just fingertight, only being tightened up properly when hard. This ensures a perfect vibration-free mounting.

DRIVE BELT

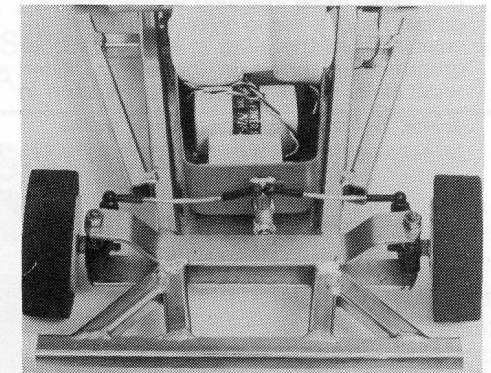
The drive belt can now be placed on to the clutch drive gear and the rear nylon drive gear, leaving about 1/4 in. play in the belt. It will be noted that there is already a flange on the nylon drive gear to stop the belt slipping off. Line up the drive gear with the clutch drum gear.

ENGINE ACCESSORIES

A heat sink should be attached to the cylinder head. Super Tigre engine comes with one already, others do not. These are quite inexpensive and can be secured with a single tightening screw. A suitable silencer exhaust must also be fitted to comply with noise regulations of not more than 80dB at 8 metres.

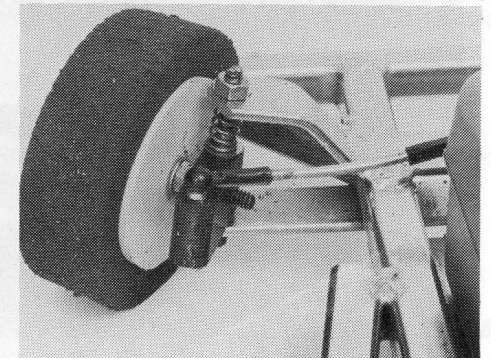
TYRES

Tyres are fitted to hubs in the usual manner with Evo-stik or similar adhesive, not neglecting to rough up the rims with sandpaper to secure good adhesion. It is a useful tip on performance on the oval stock car circuit to achieve controlled understeer, which can be obtained by using extremely hard front tyres, or by getting the inside front wheel to lift when cornering.



Front end, showing steering and failsafe. Note ball joints.

Steering block and kingpin springing. Note welded on crossbeam.



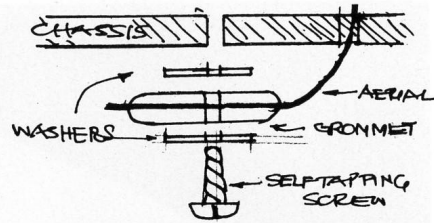
FUEL TANK

Mount the fuel tank by fitting the aluminium straps provided around it and securing them underneath the rear bumper with the small self tapping screws. Connect tank to engine with a short length of fuel tubing, not forgetting to fit a fuel filter.

RADIO

Radio box is mounted on the chassis plate with 4BA bolts provided. Installation shown is a typical Futaba layout, incorporating Micro Mold servo saver and balljoints. Other equipment is equally satisfactory: only "must" is the servo saver. Servos are generally installed using double-sided servo tape. Deac should be fixed to chassis through radio plate box with strap supplied, that is in same way as tank fixed. Receiver should be well packed in foam. S slot is cut in box lid to take the switch harness. Throttle linkage again is a matter of personal preference; it can be either a direct system or via a bellcrank incorporating a hand throttle. This leaves only aerial to be attached to the chassis. I recommend a piano wire whip, well insulated from the chassis, using a rubber grommet as shown in the sketch. Then wind aerial round the whip and secure at

Engine, fuel tank, rear springing, and belting.



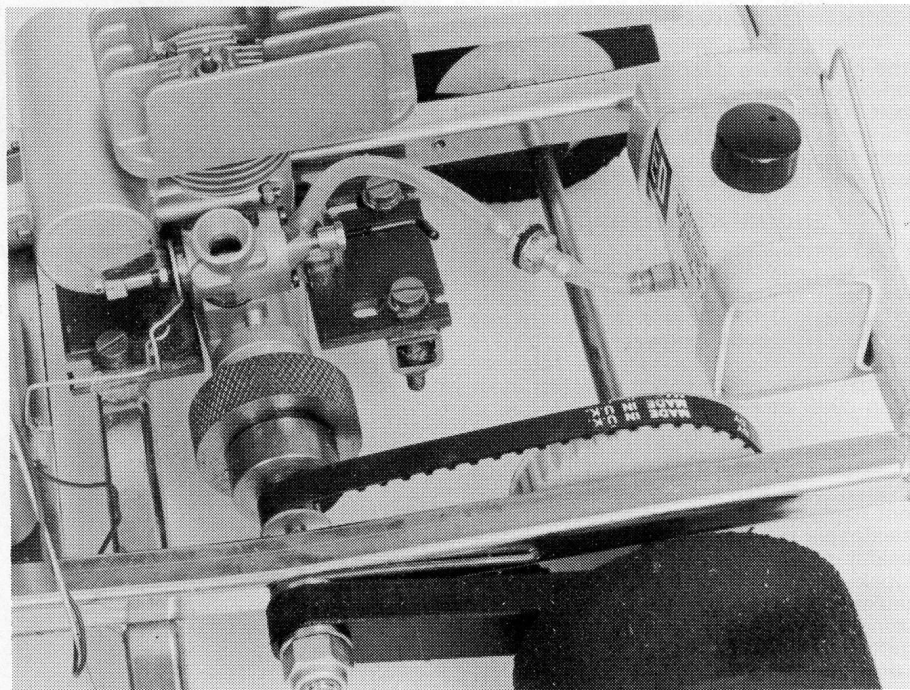
the top with short length of silicone tubing.

THE BODY

As stated the body — in choice of colours — is of glass fibre. This makes cutting out of the windows a little more difficult. The best method is to mark out shape required and then go round with a small drill until centre can be removed. Clean up rough edges with a half-round file and decorate to choice, using Humbrol enamel as there is then no need to fuel proof it.

FINAL REMARKS

Although the most expensive stock car kit on the market, there are a number of exclusive refinements and excellent overall performance to make it well worth the extra cost.



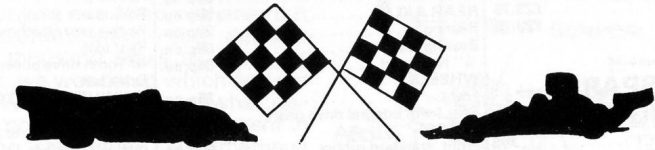
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Adult 30p
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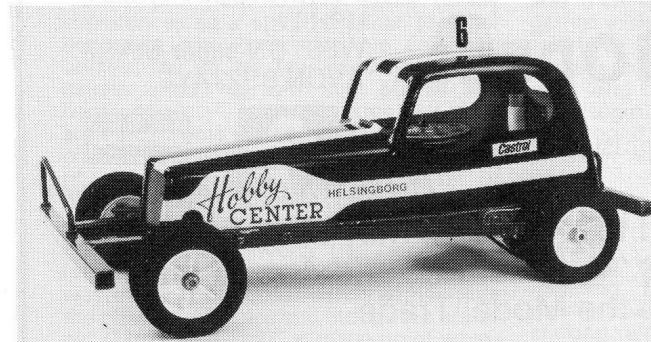
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MARDAVE'S STOCK CAR



Still the leader for value and performance. R/C Stock car racing is the cheapest way to go R/C car racing. Radio Stock Car Association rules prohibit expensive mods to cars and engines so you don't need to be a millionaire to win.

Our congratulations to Roger Bye (a long time customer) from Chessington R/C Car Club, on winning the R.S.C.A's opening meeting at Leicester recently. Almost all leading drivers in Britain and Europe drive Mardave based cars.

**To join the Radio Stock Car Association, send £1 to:
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McLaren M23 Kit	£23.75
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MARDAVE SPARES — Mk 4 RACING CAR

Rear axle bracket	70p
Brake unit	33p
SERVO SAVER	
Steering bellcrank complete	66p
FRONT SUSPENSION	
Complete	£2.50
King pins	10p ea.
Coil springs	10p ea.
Axle with nylon block	20p ea.
Steering arms, LH or RH	20p ea.
FLYWHEEL/CLUTCH UNIT	
Complete	£3.75
Clutch shoe	25p ea.
Tubular pins	03p ea.

13t hardened steel gear	70p ea.
Bush for gear	25p ea.
Cork lining	06p ea.
Clutch drum complete with gear and cork lining	£1.60
Clutch springs	08p ea.
REAR AXLE	
Bearing	55p ea.
Bearing lock nut	20p ea.
¼" Nyloc nut	09p ea.
06p ea.	
WHEELS	
Front	35p ea.
Rear (with integral drive gear)	70p ea.
TYRES	
Front, standard rubber	60p ea.
Front, hard rubber	70p ea.
Rear, standard rubber	£1.05 ea.
RADIO CRATE	£1.30 ea.
FUEL TANK	60p ea.
Driver figure	26p ea.
ACCESSORIES	
Engine silencer	£2.35
Engine heat sink (for extra cooling)	£1.25
Transfers (Giant size sheet, 84 sponsors decals + 35 numbers)	£1.25
Starter sheet (4" dia. hard rubber, for electric starter)	£1.35
Air filter for Perry Carb	80p

STOCK CAR SPARES

Silencer	£2.35
FRONT SUSPENSION Complete	£2.50
REAR SUSPENSION	
Radius arm	38p ea.
Radius arm spring	15p ea.
Radius arm attachment nut	12p ea.
Rear axle	40p ea.
40 Tooth drive pulley with tube pin	70p ea.
Drive belt	55p ea.
FLYWHEEL/CLUTCH UNIT	
Complete	£3.75
Clutch drum with 8t pulley, cork lining and retaining washer	80p

SPECIAL: lightweight flywheels for Mardave standard clutches, essential for the serious contender **£2.40**. P.B. Style silencers complete with manifold, at only **£6.95** (highly recommended).

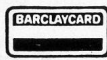
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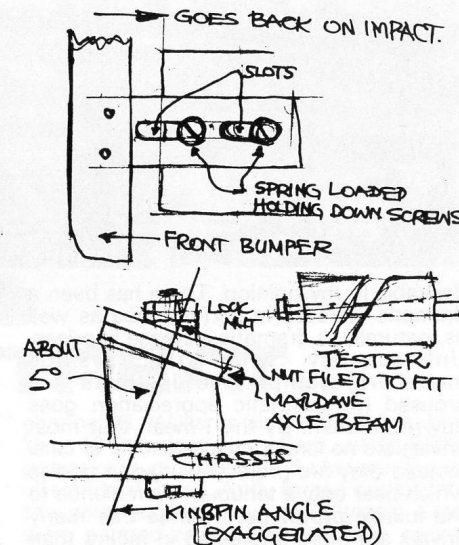
LETTERS...

A FUEL AND HIS MONEY ...?

Dear Sir,
Having worked out the cost of fuel for fifteen cars in a 300-lap race, members of the Auto Model Club de Geneve recently decided to look into the possibility of making up their own fuel. On consulting the catalogue of one of the major chemical companies, however, we were surprised to find listed not just one Nitromethane, but lots of Nitromethanes, the dearest costing one thousand times as much as the cheapest; we wondered which one we should use. We were also somewhat disconcerted to come across the statement in a model shop catalogue: "Nitromethane as normally sold contains 65% methanal". Does this mean that fuel sold as 40. Nitromethane really contains only 14%? Advice from a chemistry-minded reader would be much appreciated.

Rex Watson

(A man who knows about these things has now been approached and when he is not brewing strange mixtures for his own & friends' use has promised to reveal some of the secrets. Ed.)



BEGINNER TO BEGINNERS

Dear Editor,

I am prompted to offer some of my experiences as a strict beginner to other beginners who have Mardave cars and bodies. My so far few excursions have usually ended up with split bodies and bent chassis — even the tyres at Lilford are hard! Some of the "bits" I put on my chassis to relieve some of the pain may be of interest to other beginners, a bit of writing plus a diagram or two should explain what I'm getting at.

(1) This extra converts the front "bib" into a shock absorber and in extremes (as was often in my case) bends rather than the chassis. All holes and fittings etc are as per Mardave. A "bib" is made up of whatever material desired and an extension about 4in. long and 1 ½in. wide made out of dural or aluminium. The extension has two slots cut into it, a fairly close fit on the retaining screws, this is held down by springs and screws (see dwg). The whole lot when bolted up is reasonably tight (adjustment made on the screws). But on impact slides back and saves the chassis.
(2) This extra can be done quickly with the minimum of tools and follows on from

an article in Issue 2 on steering geometry. Again this applies to Mardave owners. To achieve better straight line running file the top of the axle beam spacers off at an angle. This gives caster in a more positive way than the existing set up. A retaining nut needs to be filed up to suit the spacer and then the whole lot screwed up together with a locknut to tighten it all up and keep it safe. A tip to make sure the angle is the same on both is to slide them on a long mounting screw with the filed faces together. They should contact all the way round — any gap means they are different angles. (See dwg).

Yours sincerely,
J. P. Dobson

Calverton, Notts.

(3) Final tip! The adhesive to use for mending Mardave bodies and similar plastic bodies is TERRAIN — made for sticking rainwater pipe and soil pipes etc. Made by Reed — It's good stuff!

OPEN LETTER TO DRIVERS & MANUFACTURERS

Gentlemen (and Ladies too perhaps),
When r/c cars came on the scene several years ago they allowed me to combine my interest in motor racing with my modelling and satisfy a longstanding dream to drive a Ferrari. Since then we have seen a lot of changes, not all of them



desirable in my opinion. There has been a dramatic increase in performance as well as, naturally, a dramatic increase in prices. Unfortunately when the average modellers' competitive instincts are aroused his aesthetic appreciation goes down the drain. By this I mean that most drivers are no longer racing models of cars. Instead they are projectiles clad in bodies which bear only a tenuous resemblance to the fullsize prototype. I realise that many drivers are more interested in racing than scale modelling but this does not excuse manufacturers who market such products. As I understand the current rules cars must be within 10 % of scale in all dimensions. It is obvious then that most Formula bodies are wide enough to be illegal, as are many sports cars. Because these rules are not enforced we are now getting bodies like the one on page 41 of issue No. 4 (*This is 1/12th scale & not as yet ever in competition Ed.*) No doubt it goes like a rocket, what the hell is it. Woolworth's produce better plastic toys than this and that's a sad indictment of our hobby. Let's stop building psychedelic roller skates and get back to modelling racing cars.

Rex Ashwell

Blenheim, New Zealand.

Things to come! Site of the World Championship Circuit for 1979 in Geneva. Length about 330 yards. Level car park area.

K & B FAN

Dear Editor,

As a beginner I must disagree with the statement that the K & B 21 is not a beginner's engine. Of course it means certain death (for the model!) if you use full bore, but after all what is the throttle for? I at least have the comforting knowledge that if I do not win a race (happens often!) it is not due to lack of available power just a lack of skill on my part.

May I make the following suggestions:

- (1) Monthly magazine please.
- (2) As much information as you can cram in about new developments, engine tuning and new products. If you must include race results (not of a great deal of interest to everybody) then could we have all possible information on the finer details of race winners' cars and driving techniques.

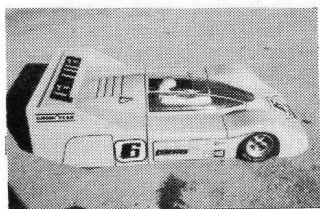
Finally, is there some sort of a binder in the pipeline to keep the issues in good condition?

Yours sincerely,

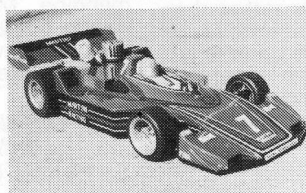
John Lee

Harrogate

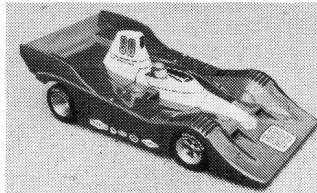
CLEAR LEXAN BODIES FOR 1/12 AND 1/8 SCALES



1/12 SCHKEE CAN-AM



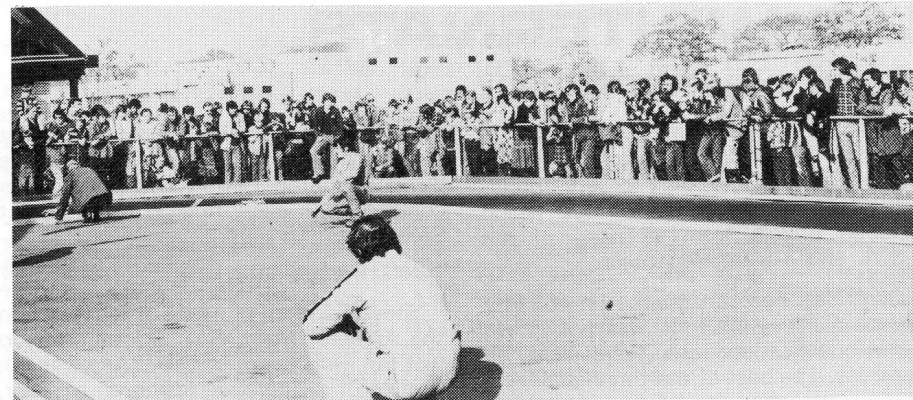
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1/12 LOLA CAN-AM

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DUTCH TREAT...

A PARTY of three members from the Studley M.R.A. also attended the recent Dutch World Championships and have expressed surprise that our report of this event failed to mention the presence of other British competitors than the BSCA visitors. They saw the meeting from a rather different viewpoint, so their story makes an interesting contrast.

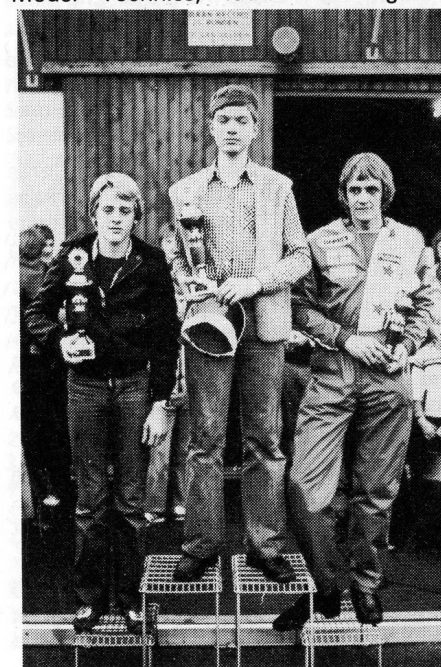
Club secretary Paul Dudley drove a Puma with Enya 19 BB engine, G300E Model Technics, radio MacGregor 3

channel; B. Williams also with Puma, but Veco 19 Standard, Perry Carb., using G500 power plus, radio Futaba 6 channel. Tyres all standard Puma. Andy Briggs completed the party as the very able pitman. Cars were painted red, white and blue to indicate the British presence.

In their view the succession of finals, far from being a waste of time, provided an excellent build-up to the event of the day — the ultimate final. Apart from one occasion they saw no evidence of radio interference to the Leicester cars; they had none themselves, other than loose drycells in one Tx, and after conversion to nicads this was eradicated. In common with most of the Dutch drivers their Futaba gave no trouble.

They were very impressed with the high standard of driving by the Dutch hosts, particularly that of the eventual winner Ernst Aalders. Ernst drove superbly and consistently throughout, notably in the final and semi-final. Dave Wragg certainly won the latter event, but only after Ernst had caught him up three times, each time after he had been accidentally spun out by slower cars. In the final there was no-one to touch him. His entire 35 laps were perfect. Dave Wragg challenged in the early stages, but at about one-third distance he faded out. A more worthy winner than Ernst can hardly be imagined.

This was the first overseas competition outing by the Studley boys and they are very appreciative of the warm welcome they received from their hosts to make the trip a most pleasurable experience.



Above: The circuit and the crowd. Left: The victors' podium. In centre No. 1 Ernst Aalders (Rosmalen); Left: No. 2 Rutger Schut (Utrecht); Right 3rd Dave Wragg (GB).

U.S. WINTERNATS...

REPORT BY ROBERTA MOODY

The 1978 Winternats was held in Orlando, Florida at Howard Johnson's Florida Center Hotel on February 10, 11, and 12. There were ninety entries, which included drivers from all parts of the U.S.A. and 3 from Venezuela.

On Friday, February 10, the 1st of 3 ten-minute qualification runs was held. Two more qualification runs were held on Saturday. The best of the three qualifying heats was used to determine driver placings. The top four drivers in each class were automatically eligible for the Main. Drivers who placed fifth to thirteenth in qualifications ran in a Semi-Main; the first 5 drivers in the Semi-Main moved on to the Main.

Novice Main Steve DeVito, Mike Reedy, Diane Moody, and Lynn Loomis had advanced to the Novice Main on the strength of their qualification runs. These four drivers took the first four places in the Main. They ran a clean race with only a few tangles — most of which involved Diane Moody, Steve DeVito, and Matt Davenport.

Lynn Loomis led off, but DeVito soon took the lead and a halfway through DeVito was 1st, Reedy 2nd, and Diane Moody 3rd with Lynn Loomis 4th. They finished the 30-minute race in this same order. Tom Dobbins of Louisiana finished 5th, Vince Arias 6th, Matt Davenport 7th, Michel Olasz of Venezuela 8th, & Pat Laurie 9th.

Amateur Main Rod Galloway had been the fastest qualifier in the Amateur class, but his car was turned over and hit from the back. This action jammed his brakes, so he was out of the race after 47 laps.

Tom McGarry, who had come up to the Main after finishing 1st in the Semi-Main, was the winner and Lou Przybyla finished in 2nd place. About 3 laps from the end of the race, Lou P. drove his car over to the side to let Tom pass . . . all the while not realizing that he and Tom were so close that this action could make the difference between 1st and 2nd place. Last year at

the '77 Winternats Lou had finished 1st and Tom 3rd. These two drivers came down from the Detroit area, and often compete with each other in the Midwest Series.

Jeff Hawkins from Orlando finished 3rd.

Steve Sanders of Texas finished 4th in the Amateur Main. Roy Eick of Orlando was 5th. Rick Keller of Milwaukee was 6th in spite of rolling over, losing an air filter, and tangling with other cars several times during the race. John Hunt of Texas was 7th; he lost a wing about halfway thru and later lost one side of the car's body, finishing with the left side of the car open. Dale Jones' car blew an engine after only 6.2 laps.

Expert Main Arturo Carbonell won the Expert Main at the Winternats — again. Art's muffler was nearly falling off during the last 5 laps, so he slowed down, but still he put in one more lap than in the '77 Winternats — this time 107.9 laps in 30 minutes — 9 1/2 laps more than 2nd place finisher, Rick Davis.

Curtis Hustling from California came up through the Semi-Main to take 3rd place in the Expert class, finishing only a little over a lap behind Rick Davis after 30 minutes.

Bill Jianas was only .4 lap behind Curtis Hustling to take 4th place. Perhaps problems with a loose body and antenna early in the race kept Jianas from bringing home a trophy.

For a time in the race, Jianas and Roger Curtis were trading places for 2nd and 3rd. But 13 minutes into the race Jack Jacobs and Roger crashed into each other and the front end of Roger's car was broken, so he was out after 38.9 laps.

Bill Hawkins, who had taken a 3rd place trophy in Expert class in the '77 Winternats, was out of the '78 Winternats after 19 laps with clutch trouble.

Doug McNeely completed 90 laps in 30 Minutes to take 5th in Expert class, Jack Jacobs was 6th, and Mike Rowland finished 7th.

NAME	STATE	CHASSIS	ENGINE	CARB.	FRONT TIRE	REAR TIRE	BODY	PLUG	FUEL	RADIO
1X ART CARBONELL	FLA.	DELTA	ART'S	PERRY	DELTA	DELTA	PORSCHE	YES	40%	DELTA
2X RICK DAVIS	MICH	ASSOC.	KB 3.5	DELTA	ASSOC.	ASSOC.	PORSCHE	FOX	K+B	FUTABA
3X CURTIS HUSTLING	CALIF.	ASSOC.	K+B	PERRY	ASSOC.	ASSOC.	30KL	FOX	K+B	FUTABA
4X BILL JIANAS	CALIF.	ASSOC.	K+B	---	---	---	ELFIN	---	K+B	---
5X DOUG MCNEELY	FLA.	DELTA	---	---	---	---	---	---	---	---
6X JACK JACOBS	MICH.	ASSOC.	KB.21	JACOBS	ASSOC.	ASSOC.	ASSOC.	FOX	KB100	ROYAL
7X MIKE ROWLAND	CALIF.	ASSOC.	K+B	PERRY	ASSOC.	ASSOC.	ELFIN	K+B	K+B	FUTABA
8X ROGER CURTIS	CALIF.	ASSOC.	KB.21	PERRY	ASSOC.	ASSOC.	ELFIN	---	KB1000	FUTABA
9X BILL HAWKINS	FLA.	DELTA	3.5	SLIDE	DELTA	DELTA	30KL	FOX	KBOL POWER	FUTABA
10X ROY MOODY	ILL.	SCRATCH	KB 3.5	---	---	---	ALPINE	---	NITROTIME 20%	KRAFT
11X KEVIN CAMPBELL	IOWA	DELTA ST	KB 3.5	DELTA	DELTA	DELTA	30KL	K+B	DELTA	DELTA
12X GEORGIA CAMPBELL	IOWA	DELTA ST	KB 3.5	DELTA	DELTA	DELTA	30KL	KB	DELTA	DELTA
13X RAY HEANER	FLA.	---	---	---	---	---	---	---	---	---
14X EARL MEISTER	MD.	SCRATCH	K+B	DELTA	ASSOC.	ASSOC.	MRP	FOX	WESTSIDE	FUTABA
15X DAVE BLOOM	ILL.	MARKER	KB 3.5	PERRY	PARMA	PARMA	PARMA	FOX	HOBBIES	FUTABA
16X BILL CAMPBELL	MD.	DELTA STL	OPS	DELTA	DELTA	DELTA	30KL	K+B	1004X 40%	DELTA
17X PETE FUSCO	N.Y.	SCRATCH	KB.21	PERRY	DELTA	DELTA	ALFA	K+B	12%	FUTABA
18X GENE HUSTLING	CALIF.	ASSOC.	K+B	PERRY	ASSOC.	ASSOC.	30KL	FOX	K+B	FUTABA
19X GARY GERVAIS	CONN.	DELTA	KB.21	DELTA	ASSOC.	DELTA	KL30	FOX	MISSILE MIST	FUTABA
20X BOB YELLE	IND.	THORP	KB.21	DELTA	DELTA	DELTA	RENAULT	KB	OWN	FUTABA
21X JOE SULLIVAN	TEXAS	RENT-A-RACER	---	---	---	---	---	---	---	---
22X BILL STEELE	CALIF.	ASSOC.	KB.21	---	MOLD.	---	ELFIN	---	1000	FUTABA
23X REPETE FUSCO	N.Y.	SCRATCH	KB.21	PERRY	DELTA	DELTA	ALFA	K+B	12%	JUMAC
24X DAVID MOORE	FLA.	ASSOC.	KB 3.5	PERRY	---	---	RENAULT	---	---	FUTABA
25X TOM WISUABER	ILL.	MARKER	K+B	PERRY	PARMA	PARMA	PARMA 936	FOX	NITRO-TIME	KRAFT
1A TOM MCGARRY	MICH.	ASSOC.	K+B	DELTA	ASSOC.	ASSOC.	30KL	---	K+B	FUTABA
2A LOUIS PRZYBYLA	MICH.	DELTA	KB.21	DELTA	DELTA	DELTA	PORSCHE	FOX	KB 100	FUTABA
3A JEFF HAWKINS	FLA.	DELTA	3.5	SLIDE	DELTA	DELTA	30KL	FOX	KBOL POWER	FUTABA
4A STEVE SANDERS	TEXAS	DELTA	K+B	DELTA	DELTA	DELTA	PORSCHE	K+B	DELTA	DELTA
5A ROY EICK	FLA.	DELTA	K+B	DELTA	DELTA	DELTA	PARMA	FOX	REF MAX	FUTABA
6A RICHARD KELLER	WISC.	MARKER	KB.21	DELTA	ASSOC.	---	PORSCHE	K+B	---	FUTABA
7A JOHN HUNT	TEXAS	M.R.P.	K+B	PERRY	---	---	ALFA	K+B	MISSILE MIST	FUTABA
8A ROD GALLOWAY	ILL.	DELTA	VECOY	DELTA	DELTA	DELTA	MATRA	FOX	25%	FUTABA
9A DALE JONES	TEXAS	DELTA	O.P.S.	DELTA	DELTA	DELTA	917-10	K+B	DELTA	FUTABA
10A FRED HANSTINE	FLA.	TITAN	KB 3.5	PERRY	ASSOC.	ASSOC.	V.D.S.	FOX	---	FUTABA
11A EDUARDO CABRERA	VEN.	DELTA	KB 3.5	DELTA	▲ 321	▲ 340	30KL	K+B	COOL POWER	FUTABA
12A WILLIAM PETTY	LA.	MARKER	K+B	▲ 80	DELTA	PARMA	PORSCHE	---	MAGNUM 15	FUTABA
13A WARREN JAMISON	FLA.	DELTA	K+B	DELTA	DELTA	DELTA	ELFIN	DELTA	40	FUTABA
14A SANDY LEFF	FLA.	DELTA	S.T.	DELTA	DELTA	DELTA	PORSCHE	K+B	COOL POWER	FUTABA
15A TIM O'SULLIVAN	FLA.	DELTA	KB.21	DELTA	DELTA	DELTA	PORSCHE	FOX	COOL POWER	FUTABA
11N STEVE DEVITO	FLA.	---	K+B	---	DELTA	---	PORSCHE	---	40%	FUTABA
2N MIKE REEDY	CALIF.	ASSOC.	K+B	PERRY	ASSOC.	ASSOC.	ELFIN	FOX	K+B	FUTABA
3N DIANE MOODY	ILL.	SCRATCH	K+B 3.5	---	---	---	PORSCHE	---	NITROTIME	FUTABA
4N LYNN LOOMIS	FLA.	---	K+B	PERRY	DELTA	DELTA	---	FOX	KBOL POWER	FUTABA
5N THOMAS DOBBINS	LA.	MARKER	K+B	▲ 80	---	---	30KL	---	MAX 15-50	---
6N VINCE ARIAS	FLA.	DELTA	VECOY	DELTA	DELTA	DELTA	30KL	K+B	25%	FUTABA
7N MATT DAVENPORT	FLA.	SCRATCH	VECOY	MAX 21	DELTA	H.R.E.	CAN-AM	FOX	20% SHIPER	FUTABA
8N MICHEL OLASZ	VEN.	DELTA	3.5	DELTA	DELTA	DELTA	ASSOC.	K+B	40% POWER	FUTABA
9N PAT LAURIE	FLA.	THORP	K+B	THORP	THORP	THORP	SHADOW	K+B	40%	FUTABA
10N ALAN CHERVITZ	FLA.	DELTA	VECOY	DELTA	DELTA	DELTA	PORSCHE 936	KB	COOL FUEL	FUTABA

STOCK CAR NOTES

COMPILED BY PETER "CRASHER" CRAWLEY

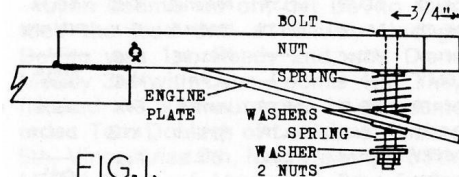
MODIFICATION OF THE REAR SUSPENSION OF A MK1 KE'JON STOCK CAR

This modification is quite simple to do, all that is required is, a few light springs, $\frac{1}{8}$ — $\frac{3}{16}$ inches internal diameter. 2 4BA x 2-2½ inch long bolts. 6 nuts of the same thread. 6 washers inner dia. 4BA. outer dia. $\frac{3}{8}$ ins. To carry out the modification, remove the old springs, nuts and bolts. Drill a hole through the chassis on both sides of the car, see Fig. 1. This hole should be the same size as the new bolts, this hole should be drilled all the way through the chassis and also through the engine support plate. The engine support plate should now be drilled to $\frac{1}{4}$ inch dia.

Place the new bolts through the chassis and place a nut on each bolt and tighten, using a little 'locktite.' Now place a spring onto each bolt, then a washer. The bolts should now be located through the engine support plate, again another washer is located on each bolt.

Another spring this time a little lighter than the first ones used is placed on the bolt, another washer is located on the bolt, finally using 2 nuts lock one nut against another on to the bolts.

Again for a clearer idea of the modification see Fig.1.



The Test . . . this is very simple, lift the rear of the car about 1 inch from the ground, and drop, the cars rear should bounce but the wheels should not leave the ground on rebound.

If this rebound does take place then the lighter spring must be changed for a stronger one.

Should the main spring become squashed then this must also be changed for a stronger one. From now on it is a case of trial and error until the correct thing happens as was mentioned in the test . . .

After this modification has been done one should find a great deal of better handling than before.

Remember to remove the under rider

and place this in the correct position 1 inch above the rear bumper bar.

Also remember that on a Ke'Jon the rear bumper is too high and so will require an additional piece added below the existing bumper bar.

R.S.C.A. Rule No. 5 Bumpers . . . Ground clearance $1\frac{3}{4}$ — $2\frac{1}{4}$ measured from centre line of bumpers . . .



Sussex Champions: L to r: Terry Crawford (3rd) Dave Woods (1st) Roger Bye (2nd).

SUSSEX OPEN CHAMPIONSHIP

This was a R.S.C.A. approved meeting, held at Haywards Heath in Sussex, on 27th November 1977.

This meeting was a week late due to lack of support but, on the day there was a good turnout of 16 drivers.

The meeting was run by the Haywards Heath R/C Stock Car Club. As the race was a week late the meeting had to be organised on the day, resulting in a few problems.

During the heats some very fast driving was seen, this fast driving was shown by some drivers from the Chessington Club.

This was a very good meeting, with some very fast laps being recorded, on a very damp track. At the end of all the heats, the fastest 5 drivers were placed in the final, the next fastest 6 were placed in a semi-final. The winning driver of the semi-final then had to battle it out with the other 5 drivers in the final.

The final was a real hairy race, but due to some confusion one driver failed to be on the track for the start, so after about 10 laps and a lot of moaning, the final was stopped, and restarted with yet more trouble to come, for at the end of the race one of the lap scorers had vanished. Once again the moans started, but due to the very good sportsmanship of the other drivers the winner was declared.

Prizes for this meeting was a trophy for the winner plus cash, the other 5 drivers received cash.

Results as follows:—
1st Dave Woods (Sussex Champion)
2nd Roger Bye
3rd Terry Crawford
4th Dennis Mansell
5th Max Woodhead
6th Pete Arnaud

As Haywards Heath found out from this meeting you need a set of digital lap counters to save the moans and also the trouble of finding lap scorers you can trust, and will not vanish before the end of a race.

Haywards Heath have now got themselves a race control at last which has lap counters and a P.A. system.

This should now reduce the moans at future race meetings. . . The 78 Sussex Open Championships will be held on 29th October 1978.

R.S.C.A. REVISED GRADING SYSTEM (EFFECTIVE 1978)

1. Affiliated clubs, e.g. Coventry, Keighley, etc; to retain their own grading system, which will be honoured at all R.S.C.A. meetings.

2. R.S.C.A. members not belonging to a club, will be awarded points according to

their placings *in consolations & finals only*, the actual number of points to be decided upon shortly.

3. Every 2 months, the points for each driver will be totalled, and roof colours allotted as follows . . .

TOP 20% RED
NEXT 40% BLUE
BOTTOM 40% YELLOW

Points are accumulated throughout the season

Drivers not gaining points will be white tops, and the 1978 season will start with drivers having end of '77 season roof colours.

4. Once a yellow roof is reached, a driver may not go to white again, even in subsequent seasons.. (as at present.) If gold top is reached, a driver may not go below blue.

5. It is impossible to assess the affectiveness of this system, except by trial, and alterations may need to be made during 1978. It is hoped that this system will create more blue and yellow tops.

6. Steve Talbot will be keeping a points total, and putting this system into operation during this season.

RADIO STOCK CAR ASSN. CALENDAR

All races below are open to R.S.C.A. members only . . .
For all meetings. Practice sessions start 12 noon — 2 p.m.

Start time 2 p.m. onwards

Drivers should book in before 12 noon on the day.

Date	Venue	Event	Start Time
May 7	Newbridge	Park West Trophy	2.00 p.m.
May 21	Mencap	S.Champs Round 2	2.00 p.m.
June 4	Coventry	S.Champs Round 3	2.00 p.m.
June 18	Keighley	Open	2.00 p.m.
July 2	Coventry	Open	2.00 p.m.
July 16	Chessington	S.Champs Round 4	2.00 p.m.
August 6	Mencap	Open	2.00 p.m.
August 20	Keighley	S.Champs Round 5	2.00 p.m.
September 10	B. Bowles	Seabrook Trophy	2.00 p.m.
September 17	Mencap	Open	2.00 p.m.
October 1	Mencap	World Champs.	1.00 p.m.
October 22	Newbridge	S.Champs Round 6	1.00 p.m.
October 29	Chessington	Open	1.00 p.m.
November 12	Mencap	Open	1.00 p.m.
December 27	Newbridge	Xmas open	Noon

Mencap, Newbridge & Batchelor Bowles are Leicester area circuits.

Park West & Seabrook trophies will be handicap meetings.

The "Mencap" circuit is 2 miles out of Leicester, on the A47 (Hinckley Road).

50 yards past Western Park entrance. (R/hand side out of Leicester).



FAIR COMMENT

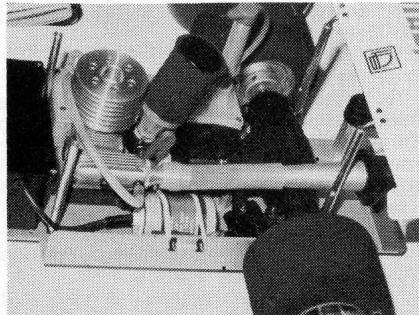
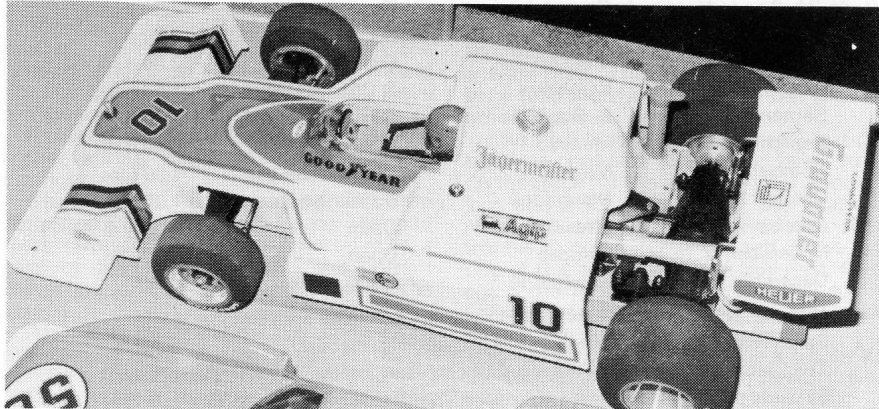
MORE DETAILS
OF ITEMS SEEN
AT THE
TOYFAIR

Spate of car interest manifested at Nuremberg Toy Fair has not passed unnoticed by radio equipment manufacturers and already we have two British firms taking a more active part in the shape of MacGregor and Skyleader, with Japanese Digiace already providing car-orientated sets. There is no doubt that more and more r/c car goodies of all kinds will be coming along shortly. Meanwhile, here are some of my own personal likes and dislikes seen and discussed . . . Views are mine and may or may not be yours.

Graupner

Entry of this German model giant is I believe the most far-reaching event of the Fair. Glow plug cars are the work of Helmut Bernhardt Fein Mechanik, the firm responsible for the European made Veco and their own range of HB glow plug engines. Founder Helmut died tragically piloting his own aircraft just before the 1977 Fair, and the firm was restructured with Engineer Fuchs in charge of development and construction. Result of his efforts is a quite different slant from what might have been expected from say PB or one of the American manufacturers. Power unit is placed slightly aft of amidships on the chassis and has a long and

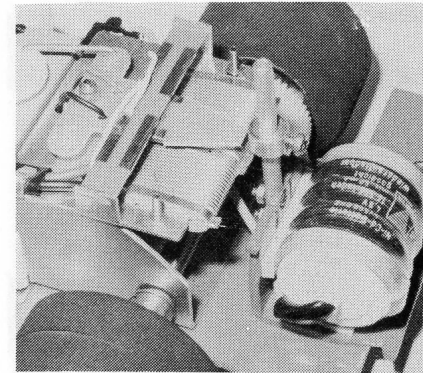
Attractively finished bodyshell from Graupner. Large open area would make it unacceptable under rules, as might extended bumper. But would it be raced?



More on the Graupner car. Large head heatsink, extended exhaust with pressurised tank. High filler tube and quicklift top. Good air filter. Enclosed r/c gear (mainly).

rather complicated looking silencer system — though it should be very quiet. In line location makes it necessary to transfer power through 90 deg. and this is done simply enough via 45 deg. bevel gears. Many people will get the feel that this is more like a "real" car, and it was the custom with the old cable racing cars which still went at speeds up to 150 mph and more (with up to 10cc engines of course). I look forward to trying out a Graupner. It goes right away from the quest for speed and provides a simple, workable, neat and tidy set-up that may not win a lot of races against the fast boys but will sell in considerable numbers and give immense satisfaction to a large number of modellers who do not aspire to racing heights.

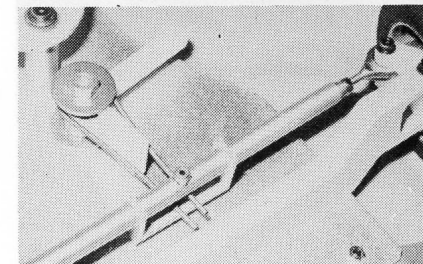
What will appeal to the racing fraternity is the wealth of useful accessories, in particular the fine range of bodies — avail-



Graupner again. A close-up shot of the Kyosho electric 1/12th car. Straightforward rheostat type wiper. Rear located Deacs.

able both in clear and ready painted bodies, including Porsche 917-10, Lola 5000, BMW, Porsche 936 and Ford Capri. The list leans strongly towards Sports/GT rather than Formula, but more can be expected. Other useful accessories include heat sink of big head style for HB engines, a nice filter, and some fine tyres and wheels. Whether the starter offered will be competitive against existing makes remains to be seen.

On the 1/12th electric side Graupner again have wisely opted to market a product from an established manufacturer, in this case the well-known Japanese company Kyosho, who have a long model car background. Chassis is one piece combining front and rear bumpers. There are no fancy gimmicks, two servos are required, one for steering, one for speed control. Power for the usual electric motor is provided by Varta Nicad batteries of button type placed rearward. Speed control is typical — but neat — straightforward rheostat type wiper rather than printed circuit heat plate. Body is Lexan Porsche Carrera RSR Turbo. Projection of front bumper may require trimming a little



to meet rules, but should be an active racing machine as well as a patio plaything.

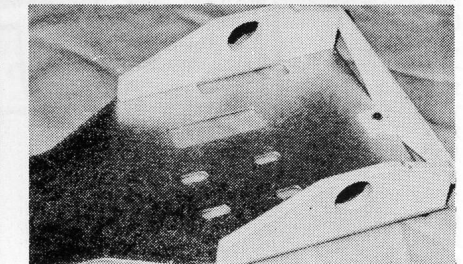
MCV (Modell Car Vertrieb)

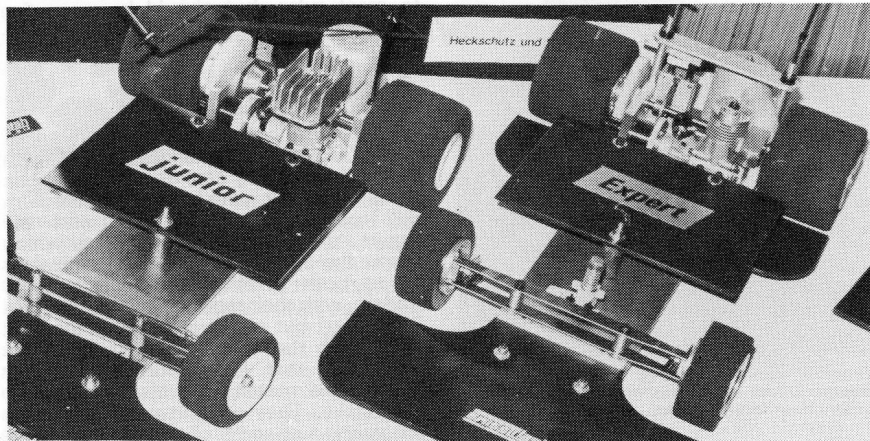
This young company from Buerstadt in West Germany are marketing their own range of i.c. racing cars under the generic name of Corsair, with basic car, a medium skill more advanced version, and the expert "professional" car, a range which seems the current pattern. Design owes a lot to both British and American field leaders, with their radio plate, steering (like PB expert) but also a number of touches very much their own such as the splendidly rigid rear end mount for driving wheels and motor, plus a well designed disc brake. They are fortunate in having the support of some of the leading racing "aces" of the German clubs, and should go far and fast. They also carry American Associated, Thorp and MRP cars, Italian Mantua, French Micro Racing and Puma Stock cars plus a number of other items, engines, tyres and the like. More on the Corsair in the near future.

Swiss Flash

Exciting to me was the range of Swiss Flash cars — a company known to me by repute only as having the best disc brake in the world! This may or may not be true they certainly have some smart cars, which enjoy an excellent "middle of the road" reputation in homeland Switzerland. Company is Steinmann of Wallisellen, and their director on the stand was particularly proud of their "project" a six-wheeled Tyrrell. What a pity Tyrrell are back to four wheels this year. Like so many of this year's cars they favour an epoxy chassis plate fortified with a really solid power pod at the rear. Again, they follow the growing style of supporting the

MCV approach to safe steering and track rod; on right MCV rear end with axle supports and stiffener.



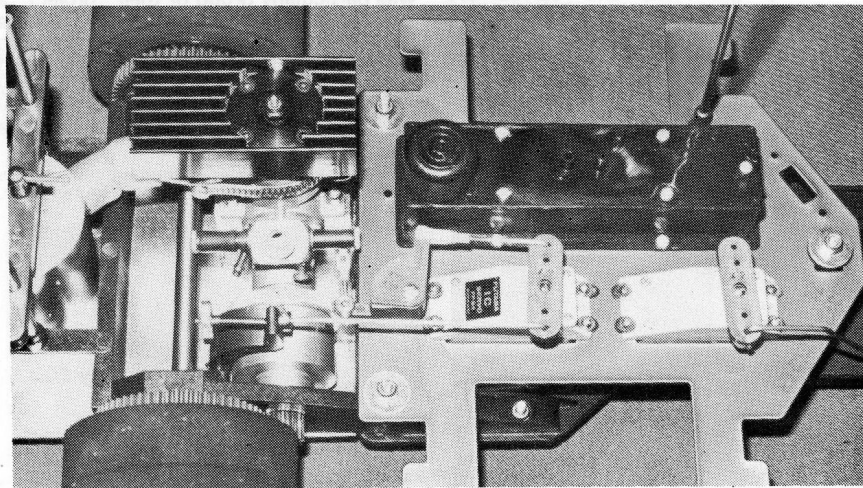


Workmanlike, though "ordinary" Junior and Expert kits from Swiss Flash. Note that excellent disc brake on the Expert. Crankshaft is supported at the clutch hanger.

spur gear rather than leave it dangling with risk of distorting the crankshaft. A very nice silencer (76dBA) scientifically designed to avoid performance loss, main parts of which appeared to be spun to provide two cuplike halves which joined together with inlet and outlet top and bottom. Cars will warrant further reports.

Minicars' Challenger

Anything from the Per Gustafsson stable deserves inspection. Not only is the latest Challenger Expert 300 an efficient machine but care has been taken in pre-



sentation, for example in the moulded front end steering assembly of black nylon, and matching black front bumper. Design features include doubled ballraced clutch with outer bearing located in adjustable mount. This offers very quick change of gear ratio (options 1:5, 1:15.45, 1:6, 1:6.67). Power pod is of 5mm aluminium alloy, with front chassis plate of 3mm epoxy. This is a style now becoming fairly general. Large diameter (12mm) aircraft alloy rear axle running in double ball-bearings also reflects the current tendency for robustness here without the greater weight of steel. Disc brake as standard

Minicars new Challenger. Another with crankshaft support. In line location of servos makes a neat radio plate.

mounted on right axle block. Radio plate, fuel tank, silencer (dustbin type) exhaust manifold included. This kit will be on the market in June, meanwhile the very similar but less advanced 200 Mk II kit is readily available.

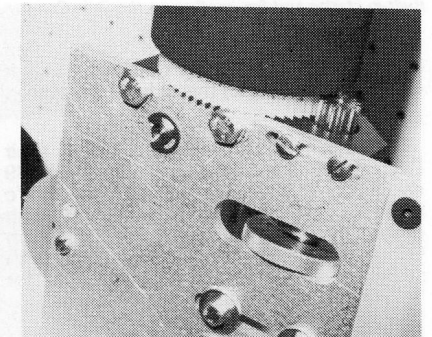
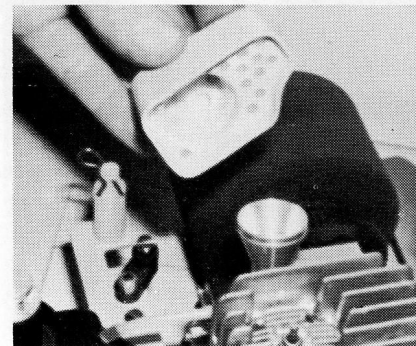
SG

The experts were all very impressed with the latest offering from Ecurie Sabatini which promises to be providing the usual energetic competition on European circuits. Once again we find reliance placed on a more robust rear axle, this time of Ergal 65 10mm diameter. Nylon steering assembly is designed to provide 8deg. of positive caster and with adjustment of Ackermann angle possible. Front axle line is now directly through the kingpins. Level of radio plate has been raised and a new design of centrally placed fuel tank with improved filler cap. However, the inventive Franco is unlikely to stay content with this set-up and on the track last minute mods will give contestants the usual surprises. With an even better Super Tigre on the stocks some real fireworks can be expected, quite apart from what the cash customers provide. Model Rectifier UK Ltd. are handling in U.K. now.

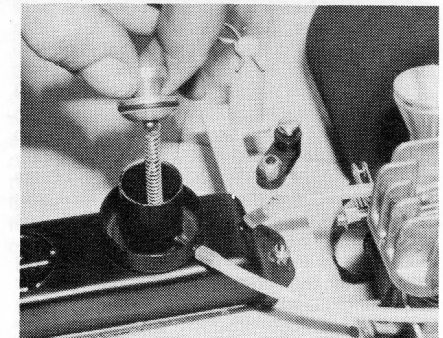
FH3 Sprinter

Schnappinger Bros. of Senden, West Germany also offered a massive car for 2.5 to 12 cc (yes, twelve) noting that 6.5 cc was its best size. This too was based on a U-channel chassis layout (not unlike a giant PB Racing double!) Again inline engine and perhaps an even longer exhaust system than Graupner with a fine big silencer cylinder at the very end. A beautifully made car to delight the model engineer. They also had a standoff scale

Quite a new style air filter also to be seen on S Futura.



Clever slot adjustment for quick change of gear ratios on Minicars Challenger. Done "at a stroke."



Sprung filler cap for ressurised fuel tank on SG Futura.

Bugatti that appealed to me (type unstated).

Bo-Link

It was specially nice to meet Mr. Bo-Link himself in the shape of Bob Rule who first tried out an electric motor on an i.c. type 1/12th scale car and was delighted with the possibilities. It also delighted a lot of other American manufacturers who found uses for no longer in demand exslot car bits and pieces. So we find the speed control is Parma slot car wiper rheostat. Nothing to date however has improved on the original Jerobee plastic chassis used on the smaller i.c. cars so there it still is. This is another triumph for the unspectacular — there is not much that needs to be improved in the car, so poor Bob is sitting on his all own-design car but selling all he can make of existing model! A lovely state of affairs. However, Bo-Link is not behind in offering other goodies in the shape of bodies and a splendid range of wheels and tyres. Nor should we forget that Bo-Link also do a complete range for

Built-in starter and fan cooling on the little Cox car

1/12th scale i.c. powered cars — an aspect of r/c car racing that has not yet come to the front on this side of the water.

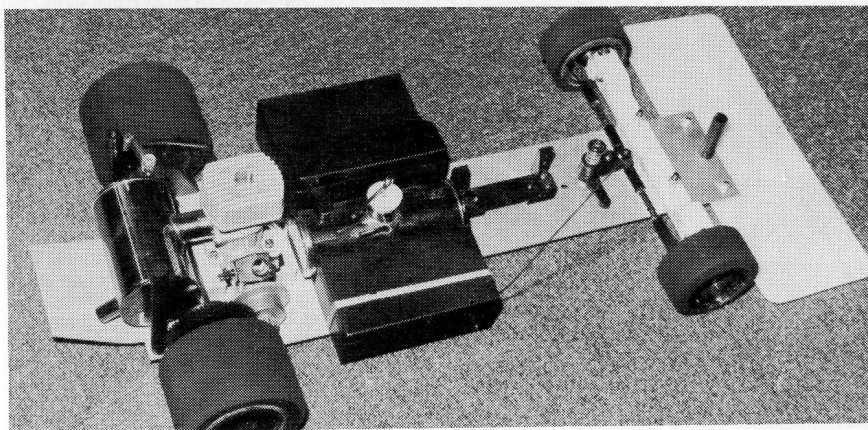
Cox

Cox have in fact been marketing their Dune Buggy for a long time with their .049 engine. This is still a good fun car with r/c installed and can operate on roughish ground. There is also a simple RTR car on GT racing lines — though not fitted with silencer. In fact I see no silencers at all for 1/12th i.c. and not many heatsinks!

Mantua

Popular on the continent and beautifully boxed for display is Mantua Model's range. Two basic cars are offered, a simple unpretentious beginner's car, and the more detailed competition model which is based on OPS as the power unit. Chassis comprises two pieces of Eral, power pod and front chassis. Steering assembly is in nylon and kit offers two different angles to the cross piece and third choice is available as a spare (5, 10, 15deg.). Radio boxes are provided and round cylindrical tank sits centrally. Large cylindrical silencer lies cross wise between rear body mounts. Axle blocks are of nylon, and interesting novelty is the provision of clear plastic wheels. Excellent spares back-up including a range of motor mount blocks already drilled for OPS21, KB21 or ST, plus an un-drilled blank for any other motor. Of their Lexan bodies they claim to have made certain windtunnel tested modifications to exact scale to improve performance.

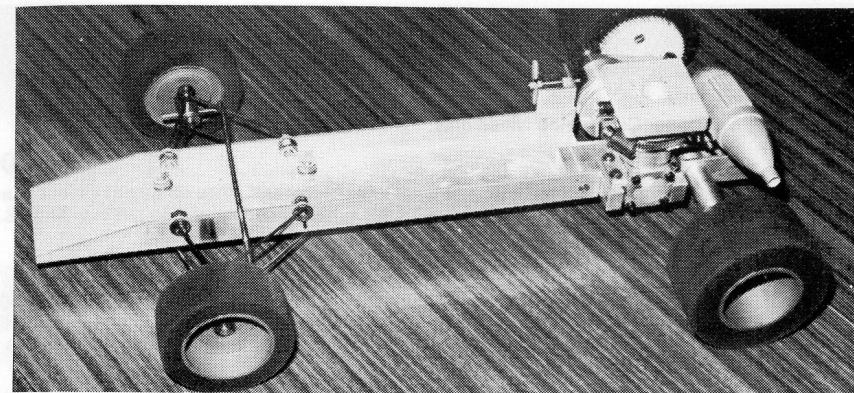
One of our favourites: the Mantua, regarded as the big rival to the Italian SG. Well designed with raced-tried components and excellent spares build-up.



Associated

Associated were shown on MCV's stand and undoubtedly their latest RC200 will be a major force in the seasons to come. This will be dealt with in detail when stocks are available over here. Meanwhile, let us say that major "policy" change must be the use of a glassfibre front chassis part which is now held to be the ideal for flexibility whilst strong enough for all ordinary misuses. Other changes are decently evolutionary and for that reason less remarkable because they do not shout about it. Perhaps we should regard Associated somewhat like Volkswagen in fullsize world — literally thousands of changes during the long life of the Beetle — but it still looked very much the same.

What I should like to see coming on the market not later than the autumn is the



Interesting Micart sprung front wheels on U-section chassis. Should be able to stand some hard wear! But would the sprung steering be man enough?

Associated electric 1/12. This looks good enough to challenge the existing class leaders and would be very welcome at a decently competitive price.

Record

Martinelli of Spreitenbach, Switzerland offered a very attractive, if strictly orthodox car, with the novelty that a twenty minute quick change could convert it into 1/8th scale electric. This involves fitting alternative pod but leaving everything else at the front in place: or standard pod could be used but change-over takes a little longer. This is the first time we have seen this option offered commercially though 1/8th electric already written up in our columns!

Micart

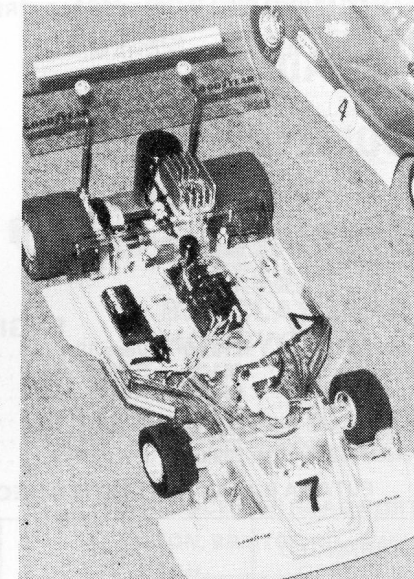
MFB (Modell-Fahrzeug-Bau) can claim to have offered the most varied mixture of cars and certainly the nearest thing to an indestructible chassis! This featured a full length chassis in massive U-section cut out to receive engine etc. A similar style was employed with another of their designs using the U-section only for the rear. Engines were located in line with bevel drive and also in one case worm drive (ratio 7.5:1) which we had not seen

WHAT HAVE WE MISSED?

I can't possibly have seen everything of interest to r/c car people at the Fair. If any maker has been overlooked please let me hear from him. Eagle-eyed visitors who saw something I missed please tell me.

on a car for years, though almost immediately reminded of it by a 1969 Catalogue that Delta (USA) sent along to demonstrate their long establishment. This strength aspect becomes clearer when it is appreciated that many German cars are designed to run with 5-7.5 c.c. and they list their 3.5 cc powered car as "the little Micart (international normal)" Cars are fully sprung all round, with universal coupling to rear axles.

Martinelli's Record appealed very much as it was possible to change from electric to i.c. in a few minutes by swapping power pods. Picture shows car through clear bodyshell.



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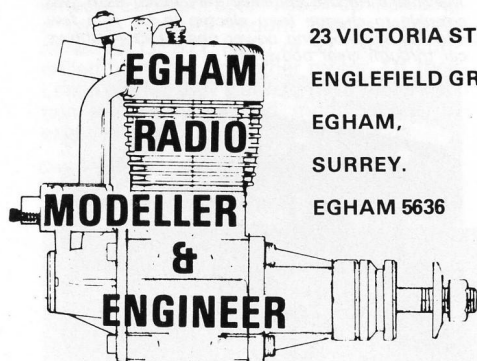
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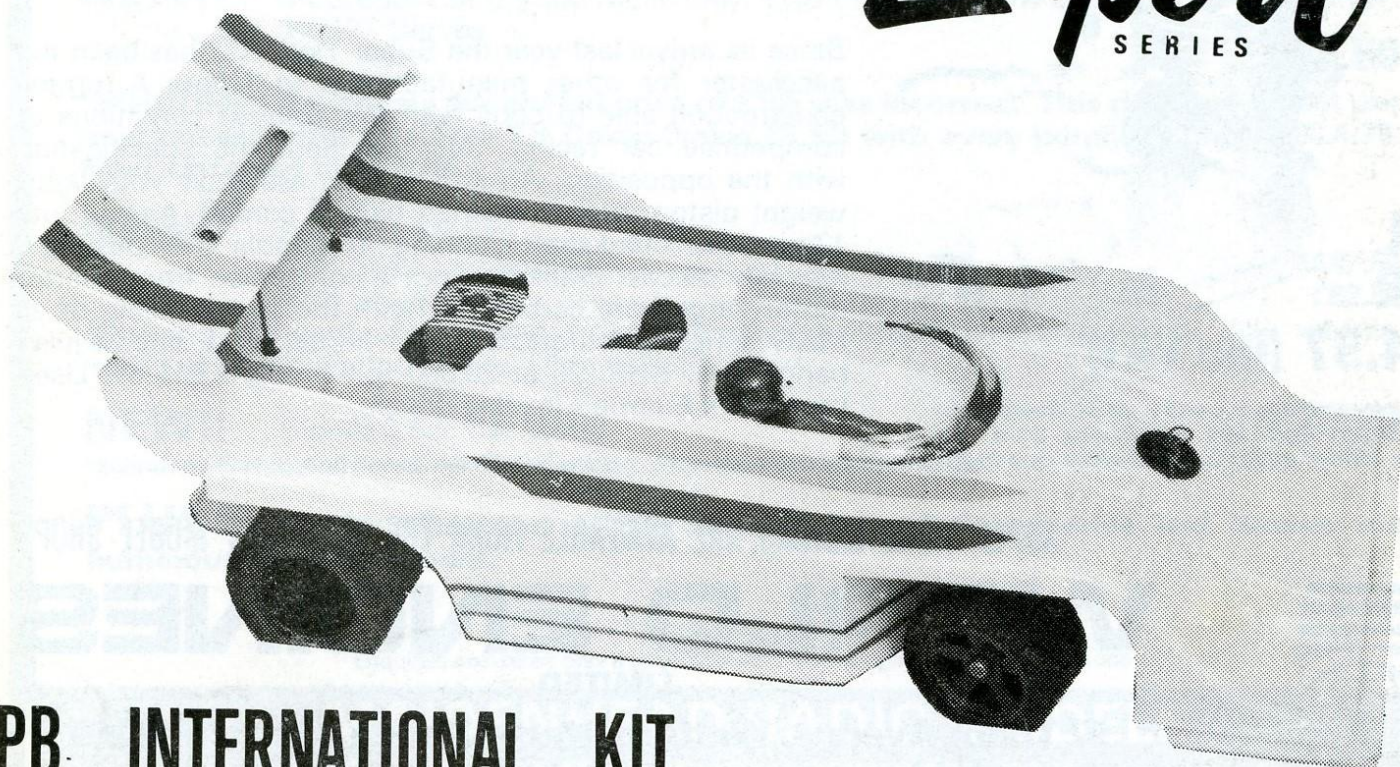
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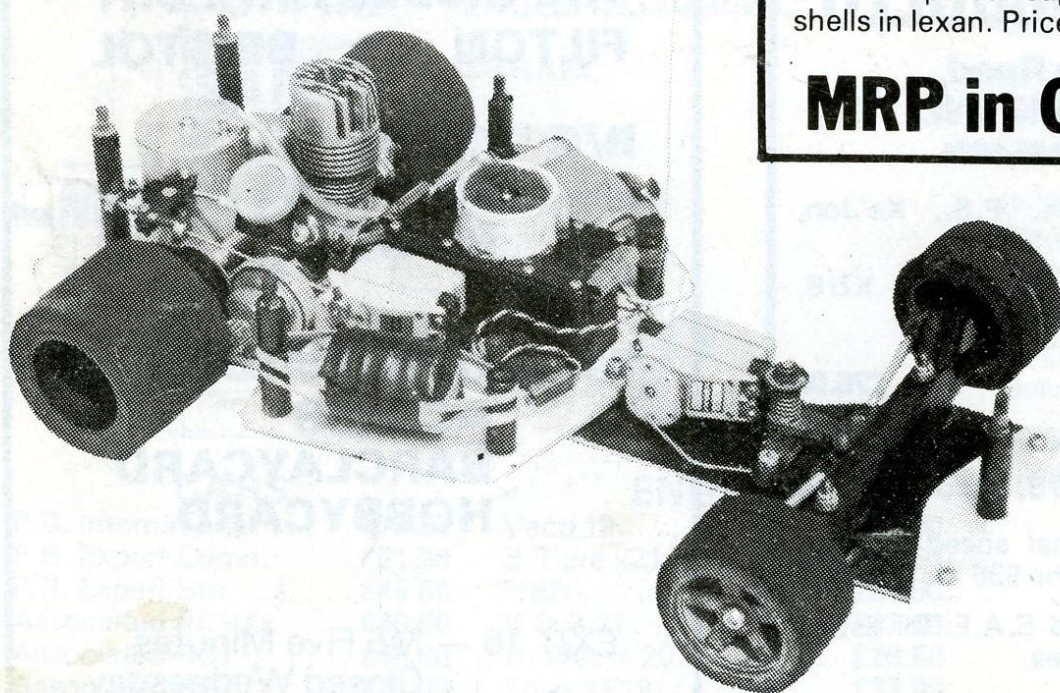
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First prize? Yes, Ted Longshaw has offered to donate an Associated RC100 Kit to the lucky man who can name the FINALISTS. Keith Plested of PB Products is giving a PB7 International Kit & Phil Green Models a Veco 19 engine . . . so start studying form right now.

Here are the heats: —

Heat 1		Heat 2		Heat 3	
Thorp	USA	Curtis	USA	Carbonnell	USA
Booth	GB	Greeno	GB	Preston	GB
Veronesi	Italy	Mares	Italy	Stanzani	Italy
Ton	Holland	Meyer	Holland	Sukkel	Holland
Carpinelli	Italy	Gabbiani	Monaco	Cozzi	Italy
Zahnd	Switzerland	Fiocchi	Switzerland	Franke	Switzerland
Nguyen	Monaco	Pretorius	S. Africa	Verplancke	France
Gunther	Germany	Tassaud	Belgium	Gustafsson	Sweden

Heat 4		Heat 5		Heat 6	
Kroell	USA	Jianas	USA	Husting	USA
Plested K.	GB	Martin	GB	Longshaw	GB
Sabattini	Italy	Gherzi	Italy	Bellia	Switzerland
Cromberge	Holland	Bervoets	Holland	Marzocchi	Italy
Molinari	Monaco	Muller, J-P	Switzerland	LeMaitre	France
Ruchat	Switzerland	Coosemans	Belgium	Bester	S. Africa
Noel	Luxembourg	Naser	Germany	Olssen	Sweden
Knettenbrech	Germany	Bevacqua	Monaco	Will, K-H	Germany

On Saturday, 27th May, four rounds will be run, with all times recorded. Top sixteen drivers' times will qualify for two eight-man semi finals to be run on Sunday morning. Top eight again for the FINAL. Before this there will be sundry sub finals for drivers 41/48 on times, 33/40, 25/32 and 17/24.

Fill in form below with your choice of eight finalists, add your name and address and post to L-D Editorial and Technical Services Ltd., PO Box 30, Hemel Hempstead, Herts. HP1 1NL (Mark envelope Radio Control MODEL CARS Monaco Comp.). Entries must be postmarked prior to May 27th. Decision of the Judges is final.

Name _____	My Forecast in order of result is:	
Address _____	1 _____	2 _____
_____	3 _____	4 _____
_____	5 _____	6 _____
Club (if any) _____	7 _____	8 _____