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Model Cars Monthly

(I.R. £1.48½)

May 1984
Volume 4 Number 4

Publisher TONY DOWDESWELL
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Art Editor NICK HOWELL
Advertisement Director M. GRAY
Editorial Director R. G. MOULTON

Cover

The Mardave 'Apache' takes pride of place on this month's front cover and is the subject of an in-depth 'Track Test' on pages 28, 29. Our thanks go to all the people at Mardave for providing us with the transparencies which has produced one of our favourites yet, hope you like it too.

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Model Cars (ISSN 0260-762X) is published monthly by Model & Allied Publications, P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts, HP2 4SS, England. Tel: Hemel Hempstead (0442) 41221. Distribution to North American hobby and craft stores, museums and bookshops by Bill Dean Books Ltd., 166-41 Powells Cove Blvd., Post Office Box 69, White-stone, N.Y. 11357, USA. Tel: 1-212-767-6632.

Advertisement Offices: P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Hert-fordshire HP2 4SS. Tel: 0442 41221.

Subscription: UK Sterling £15.00. Overseas £18.00. US\$27.00.

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Model Cars is printed in Great Britain by Leicester Printers Ltd., The Church Gate Press, P.O. Box 20, 99 Church Gate, Leicester LE1 9FR. Mono Origination by Multiform Photosetting Ltd., Cardiff, for the Proprietors and Publishers, Model & Allied Publications (a member of the Argus Press Group). Trade sales by Argus Press Sales & Distribution Ltd., 12-18 Paul Street, London EC2A 4JS.

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Editorial

It seems that comments made in the last issue of 'Model Cars' in 'Chequered Flag' under the heading of 'Invitation versus Open' ruffled few feathers. We have only had verbal comments so far so feelings were perhaps not hurt to that last straw point where pens just had to be dipped into the vitriol.

We feel that it is of great importance that there are independent voices such as 'Model Cars' in a position to question the decisions of those elected bodies who govern our sports. In principle we feel that most fair minded offices or Associations would agree with us and provided they have a right to reply we do not think they have an automatic right to be informed of anything we publish as opinion. Provided it is made clear that the comment is opinion and to whom it is attributable.

If we feel that our readers' best interests are not served by any actions from Government downwards, then we will feel bound to comment.

We stand by our comments in the April issue of 'Model Cars' and are confident that we are not alone in our views.

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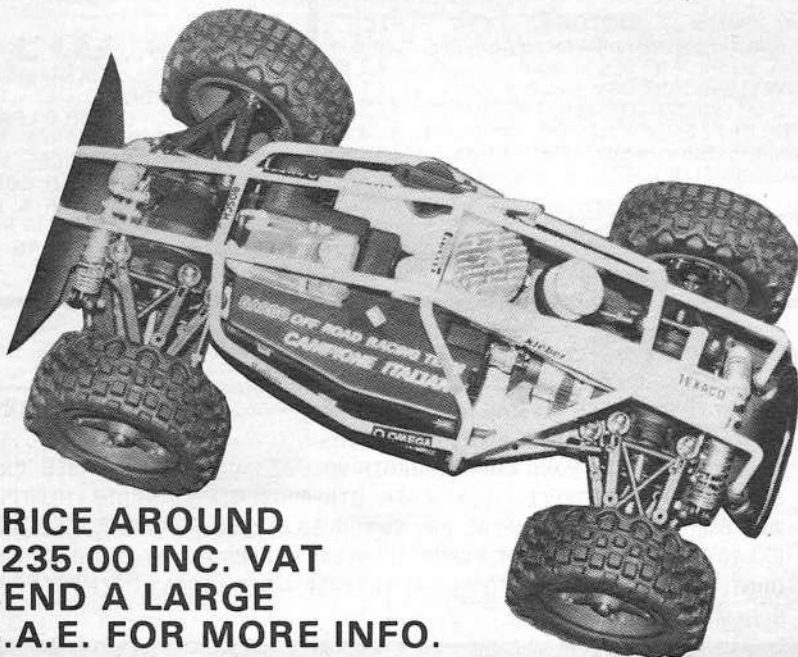


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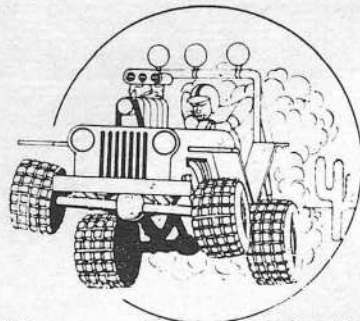
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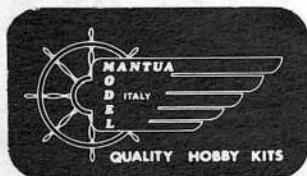
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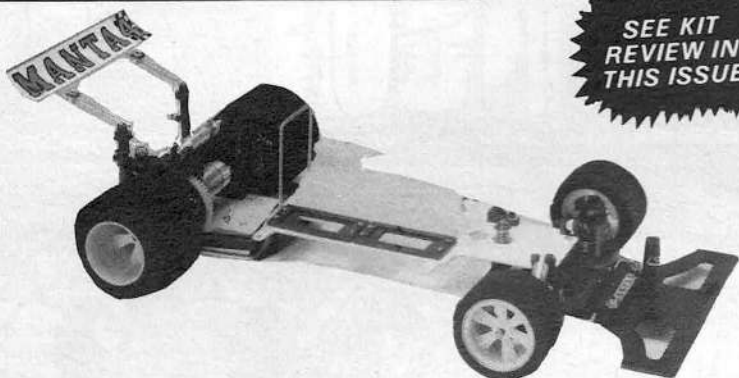
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Off Road world record?

Although no previous record existed, the Ilkeston Model Car Club have gone ahead and set the target for leaping a 1/10th scale electric buggy over a number of simulated 1/10th scale double decker buses. Club member, Ian Merrill, leaped his car over the equivalent of 12 buses, or 11ft. 10½in., a feat which was verified by independent scrutineers and captured on film, by local newspaper photographers. The details have been sent to the *Guinness Book of Records* who have accepted it although are not sure what to classify it under.

In any case the record stands as being 'official' and is open to all comers to go one better. World records abound in the aeromodelling and R/C boating field so why not model cars? However, it is a good idea to contact the *Guinness Book of Records* and see just what is needed in the way of validity and verification of your record.

Primrose Valley Hobby Holiday

Although there is little more than a month before the actual event, bookings for this Hobby Holiday in May are still being taken. The actual dates are May 5-11 and the venue is the Primrose Valley Holiday Estate on the Yorkshire Coast near Filey. The extensive range of modelling activities catering for all members of the family include R/C cars, boats and planes, model engineering, aeromodelling, wargaming, handicrafts plus lectures, film shops, exhibitions and swap shop. The surrounding countryside also offers a great attraction as does the nearby coastline.

ScotModex '84

'ScotModex 84,' the first major model and hobbies exhibition to be staged in Scotland, and to cater for enthusiasts from both Scotland and the North of England, will take place at the Royal Highland Exhibition Hall, Ingliston, Edinburgh, from September 21 to 24 this year.

'ScotModex 84,' planned to be the most comprehensive exhibition of its kind outside London, is being staged primarily because of demand from modelmakers' societies and enthusiasts, and, with a marked increase in leisure time over recent years, the pastime of modelmaking in its many disciplines, has attracted ever growing interest.

The Ingliston event will cover all major modelling fields, including model engineering, aeromodelling, model railways, marine models, military models, wargaming, plastic models and of course model racing cars.

Not only will the exhibition allow the many model trade suppliers to display

For further information or booking contact *Freepost Leisure Holidays*, 25 Stephyns Chambers, Bank Court, Hemel Hempstead, Herts. Tel: 0442 51224.

PB Nova — a star is born

PB Racing Products Ltd., have had to increase production to record levels following the introduction of the 'NOVA' 1/8th scale model racing car.

Orders taken by the Havant manufacturer in January following the 'NOVA's' introduction to the British enthusiast filled their order book. In February, the 'NOVA' was given its international debut at the Nuremberg Toy Fair and after just two days *PB's* managing director, Keith Plested was telephoning instructions to increase production to meet demand in international markets.

Club Chat

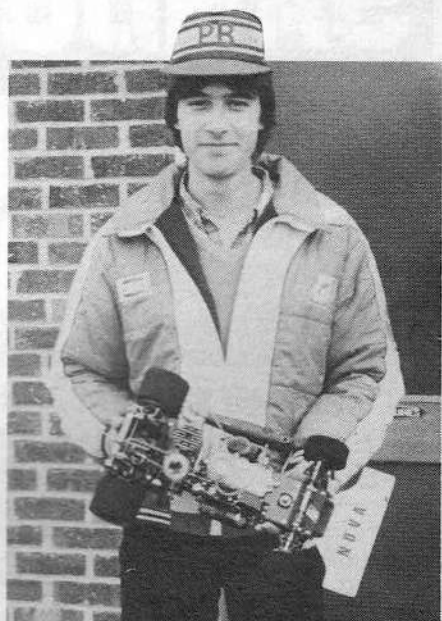
A change of secretaryship has occurred within the **Yorkshire R/C Model Car Racing Club** as Ian Briggs takes over from Jeff Lindstrom. Geoff of course, has moved onto greater things and is now the Secretary of the British Radio Car Association (BRCA). The Yorkshire club is continually on the look-out for new members and will provide all the information and help needed to get you started. Ian can be contacted at 29 Littleford Walk, Wibsey, Bradford, W. Yorks. BD6 1UU.

The Ilkeston Model Car Club are currently enjoying a 'boom' time as far as membership and racing activity is concerned. Last year's membership tally topped the 150 mark which must make them one of the largest clubs in

their products, but also practical demonstration in modelling skills and lectures and slide shows on many aspects of modelling are to be staged.

The Royal Highland Exhibition Hall will be remarkably transformed in order to cater for the event. As well as trade stands and display areas, a boat pool, radio controlled car racing circuit, and extensive railway layouts are incorporated in the overall plan. Other activities will include radio controlled and 'round the pole' flying demonstrations by scale aircraft, and an outside 5in. gauge steam railway track. With such a large range of activity planned, it is anticipated that the exhibition will appeal not only to societies and confirmed modellers but also to the general public as a family day out.

Further information for the model trade, societies and modelling enthusiasts is available from Mary White, Argus Specialists Exhibitions Ltd., on 04427 73291.



World 1/8th Champion David Lecat recently visited the Havant Factory of *PB Racing Products Ltd.*, to track test the new NOVA. His Opinion - *Fantastique!*

the UK. This number represents a great family involvement which makes the club events as social as they are competitive.

The club races indoors on carpet every Friday at the Kimberley Comprehensive school, Newgate Street, Kimberley, Notts., with classes for electric powered stockcars, circuit racers, mini-stox and buggies. Outdoors the club are continuing to race at their very popular permanent circuit located at the Mundy Arms, Marlpool, Heanor in Derbyshire. Race meetings are held on the first Sunday of every month starting on March 4. For further details contact John Ward, 47 Byron Street, Ilkeston, Derbys.

The Dumfries Model Car Club would like to attract new members to their club meetings which take place on the first and third Wednesday of every month at the Laurie Knowe Primary School, Dumfries. Events are held for 1/12th scale cars using silicone (yes silicone! they can't afford a carpet). For buggy racing the club has newly acquired an Off-Road track at the Grove Service Station, Edinburgh Road, Dumfries from 10am until 1pm every Saturday morning.

Anyone who wants more information please phone 0387 52572 or write to Jimmy Hamilton, 1 Catherinefield Industrial Estate, Heathall, Dumfries DG1 3PJ.

The St. Ives Cambridge Model Car Club was formed about two years ago to race electric R/C 1/10th and 1/12th scale cars. The club races 1/12th circuit racers every Thursday evening from 7.00 until 10.00pm at the St. Ives Youth Centre. Buggies are proving to be the most popular racing class at the moment with meetings scheduled for the club's outside track. For more information contact R. Oldfield, 6 Hill Rise, St. Ives, Cambridgeshire.

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SOUTHGATE 10 The Broadway, Southgate, London N14 6PN 01-886 4258

WOOD GREEN 104/106 High Road, Wood Green, London N22 6HE 01-888 0937

BIRMINGHAM 26 South Mall, Bham Shopping Centre, B2 4XD 021-643 8604

BLACKPOOL 19 Hounds Hill Centre, Victoria Street, FY1 4HU 0253 26461

BRIGHTON 418 Dyke Road, BN1 3FE 0273 776626

BRISTOL 17/19 Penn Street, BS1 3AW 0272 20259

CARDIFF Northgate House, Kingsway, CF1 4AD 0222 397645

CROYDON 135A North End, CRO11TN 01-688 1585

KINGSTON 30/32 Eden Street, KT11EP 01-549 5464

LEEDS 16/18 King Charles Street, LS1 6LT 0532 456611

LIVERPOOL 36/37 Dawson Way, St. John's Centre, L11LJ 051 709 0799

MANCHESTER 4/6 Brown Street, off Market St. M2 1EE 061 834 0229

NEWCASTLE 43/47 Pilgrim Street, NE1 6DE 0632 324161

NOTTINGHAM 3 Mount Street, NG1 6JW 0602 411693

ROMFORD 7/11 High Street, RM1 1JU 0708 24283

SHEFFIELD 38 Pinestone Street, S12HN 0742 77864

SOUTHAMPTON 114 East Street, SO1 1HD 0703 24843

WATFORD 70 The Parade, High Street, WD1 2AW 0923 27563

*MAIL ORDERS TO SOUTHGATE

In reply to our request for club information R. W. Forth of the **Wisbech Radio Car Club** has sent us some details of their activities. Racing takes place at the Ramnoth Read Junior School next to the Isle of Ely College Ramnoth Road, Wisbech, Cambs. The school playground is the venue for electric R/C Cars and buggies every Sunday afternoon. There is no membership fee so anyone is welcome to attend. If further details are needed then contact R. W. Forth on (0945) 584142 before 6.30pm or Geoff Chant on (0945) 64802 after 5.30pm.

A good deal awaits all those who join the **British Marc Model Car Club** as apart from enjoying the car-racing at their permanent Off-Road circuit the rest of the British Marc factory's sporting activities can be partaken of too. This includes heated swimming pool, tennis, etc. Serious racing will be commencing from March onwards on alternate Sundays although the track will be open to members all week. All classes of Off-Road activity are catered for and further details can be obtained from Bryn Jones, 14 Ninth Avenue, Grantham, Lincs. NG31 9TF.

Finally, we have an error to correct from the March issue. Our club chat section carried a piece about the **Medway Off-Road Club** and gave Jim Crabb's telephone number as a contact. Unfortunately we missed off the last number, it should be Meopham 81357 . . . Sorry.

Sandown Park

The ninth Sandown Park Model Symposium is set to be held on the weekend of May 12 and 13, at the fabulous Sandown Park Racecourse venue at Esher in Surrey. This year's

event has been enlarged to accommodate the 80 or so bookings for trade stands. The modelling displays of planes, cars and boats will be as thrilling as ever with particular emphasis being placed on the aerial skills of R/C Aerobatics World Champion Hanno Prettnr. Look for the advert in this issue for further details.

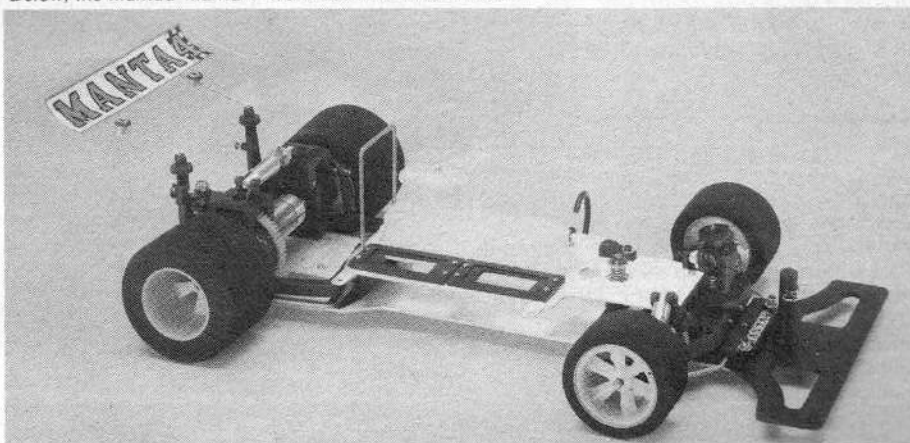
To err is human . . .

Yes we do make mistakes although hopefully not too often, still, now is the time to put them right.

Mick Wilshere has kindly pointed out a discrepancy in our December/January 'mini-servo datafile.' When our technical consultant Rex Boyer said of the *World Electronics* 'Bantam Midget servo,' "*The only flaw we found was the very sloppy fit of the output arms.*" In fact we had supplied Rex with the wrong output arms, the right sort would have fitted perfectly.

Next on the list is a minor correction

Below; the Mantua 'Manta-4' 1/8th Scale IC Circuit racer.



Readers' Letters

Dear Model Cars,

I have just read your first monthly issue of 'Model Cars'. It is very interesting and brings me up to date with the R/C car racing scene. The main reason for my writing this letter, however, is to tell you that I think the magazine needs more information on Tamiya Radio Controlled cars. As you well know Tamiya are one of the largest manufacturers of R/C cars and many people like myself enjoy reading up on their latest kits. If you could include more information about them it would make the magazine even more exciting to read.

**Oliver Jones
Hamton Park**

Thank you very much for your kind comments on our first issue of 'Model Cars Monthly' magazine.

With reference to your query on the Tamiya R/C cars we are constantly being inundated with Hints and Tips on modifications for Tamiya cars which from time to time we publish in the magazine. Also, Tamiya are continually producing new cars and these will most certainly be featured at the earliest opportunity. It is very difficult to just put more about Tamiya cars into the magazine as we have to make sure that all information we give is worthwhile.

Please keep on reading the magazine.

Dear Sir,

Could you please tell me what you think is the best motor to fit to my Tamiya 'Super Champ' I was looking for something to improve its performance and thought of fitting the Tamiya RS 540 D or Parma 'Ferrari' 1/10 Yokomo'. I don't use my 'Superchamp' for competitions, just for pleasure.

**I. C. Howarth
York**

We would suggest either the Associated stock Reedy Yokomo which is a good buy for around £10. If you want to go the whole hog, Parma, Ferrari or M.G. modified should go well!

Dear Sir,

I wonder whether you have ever received any information about the R/C car market and development in Brazil; probably not. On the other hand, however, most of the enthusiasts here do read your magazine.

1/8th IC race cars have been on scene here for a few years, with most races being organised in the Rio de

Janeiro and São Paulo states. Most common models are Associated, PB Delta and SG with engines varying between Picco and OPS.

The main reason for my writing is the fact that we have been encountering very serious air filter problems. We have tried everything from Picco to OPS, passing through original Kyosho, SG 'Standard' and SG 'Rain' with very little reward. Although we have been sealing, covering and adding sponge lids, everything our creative minds have come up with, we still could notice a fine layer of dust in the carburettor inlet. Searching through many magazines for a plausible solution, the only thing we found were photos showing the same filters we were using. Could you give us a hint?

**Peter Gogarten
São Paulo, Brazil**

There are a number of good filters available, high compressed paper types sold by OPS or foam type such as P.B. But used straight from the box they do have a deficiency, it's common practice to coat the filter element with a small quantity of light machine oil which does help to reduce the quantity of fine dust which gets through the filter. An ideal type of filter is the large in-line petrol filter sold by car accessory dealers. This can be fitted high in the top of the rollcage of the car and connected to the carburettor by a section of large bore tubing.

I must say that the very fine dust that gets through the standard filter does not seem to have a dramatic effect on the engine. The Editor's O.S. engines last for well over the season's racing without piston and cylinder replacement.

Dear Sir,

I buy your magazine every other month and I am pleased that you are bringing out a monthly, bigger magazine. I am however, annoyed that there has not been a 'Track Test' in your magazine on the 'Rusher 8' 1/8th IC car, or the 'Challenger 83' or the Sigma 'Panther/BMW'. In our local club we have five 'Challengers' (one of which I own) five Sigma 'Panther/BMWs', four 'Rusher 8s' and others including a 'Land Jump, Mardave's, a scratchbuilt 2WD and a 'Micro racer.'

Your magazine is very good but please put more 1/8th I.C. Off-Road information in it.

**Robert Bingham
Gloucester**

Unfortunately, the system that we employ for conducting 'Track Tests' on cars depends totally on the Import/Distributor sending us a kit. Although we do ask for review cars it is not always financially possible for Distributors to send us the item we request.

As far as coverage of 1/8th IC Off-Road racing is concerned it is very difficult for us to produce material out of thin air and at the same time please everyone involved in R/C car racing. However, there is one sure-fire way of creating better coverage of this particular side of the hobby and that is for you or your friends to write something and send it to us.

Dear Sir,

I was offended and disappointed at seeing the front cover of your February edition of Model Cars.

Having a 'dolly bird' holding one of the model cars does not interest me and I feel is a sexist advertisement which there is no need for in this field of sport. The small write-up on the contents page about the cover i.e. 'World Champions, PB Racing Products proudly display their latest racing model. No, not the girl — dummy! the car she's holding or haven't you noticed that?' I don't think that was necessary and offended me more, why write such drivel, there are girl readers as well who don't need such 'Soft Sell' techniques used to advertise.

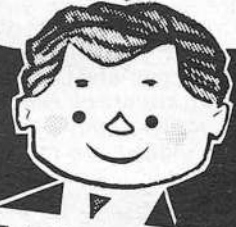
Please would you refrain from such advertising as I think it lowers the high standard of quality your magazine displays.

**Miss J. Beeck
Southsea**

Letters to the Editor are published on the understanding that views expressed are not necessarily those of the Editorial Staff or publishers of MODEL CARS magazine. All correspondence requiring a reply should be accompanied by a stamped, addressed envelope.

BEATTIES

SUPER SALE



STARTS APRIL 16th
HUNDREDS OF BARGAINS!

For the discerning model enthusiast there's only one sale. The Beatties Super Sale. Starting on April 16th and lasting for just three weeks. There are bargains galore, but be sure to come in early for the best goodies. Please see our other advertisement for the address of your nearest store. Instant Credit available - subject to Status. Typical APR 29.8 variable. Please ask or write for details. Finance provided by Welbeck Cardholder Services Ltd., 69 Clarendon Rd, Watford, Herts. Beatties licensed Credit Brokers.

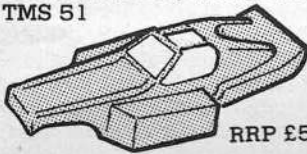
£250 INSTANT CREDIT!

Morley Models

10/12 MORLEY BOTTOMS, MORLEY, W. YORKS LS27 9DQ.
 Mail Orders: P&P 80p up to £10.00. Over £10.00 post free.

Ring Graham for details on (0532) 522693
 Three Towers Models
 Ring Ken on Halifax (0422) 44403
 Same Day Despatch where possible.
 Close 12.30 till 1pm for Lunch.
 Cash on delivery service available.

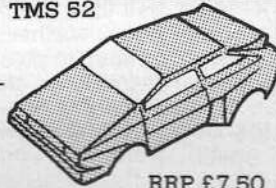
Hawk Mears Body (Rough Rider)
 TMS 51



RRP £5.95

CLEAR
 1/10th Scale
 BODIES

TMS 52

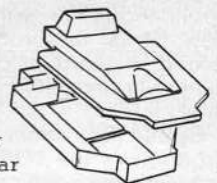


RRP £7.50

PAINTED
 FROM
 £7.95

TMS 50
 Holiday Buggy Body
 Clear RRP £5.95

MM40 Mech Box
 RRP £3.48



MM25

Rear Bumper
 Superchamp



RRP £3.30

Subaru Front Bumper
 (Kydex) RRP £2.95

MM41



RRP £3.95

MM41A Subaru Rear
 Bumper



Audi (fits all 10 scale off road cars)

ALL THE TMS RANGE OF PARTS ARE AVAILABLE FROM US.

Scorpion Bearings

6mm Large	£1.95 ea.
4mm Small	£1.90 ea.
Yellow Sticks	£16.95
Ever Ready 1.4Ah	£16.95
Tamiya Bearings	£1.49 ea.

WE STOCK MOST SPARES
 FOR ALL OFF ROAD
 BUGGIES 1/10 and I.C.
 CARS

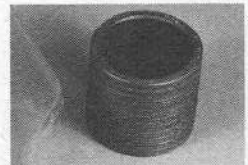
1/10th Scale Buggies

	Retail	Our Price
Hirobo 4 x 4	£98.00	£91.95
Scorpion	£79.95	£71.95
Subaru Brat	£60.00	£54.00
Frog	£79.95	£71.95
Lancia	£60.00	£54.00

1/8th Scale IC Cars

	Our Price
Serpent Cobra	£199.95
PB Nova inc. Engine	£215.95
SG Leopard 4 x 4	£225.00
Kyosho Land Jump	£189.00
Mardave Marauder	£49.00

★ NEW ★



Heatsinks for Motors
 Anodised in Red and Blue
 Ideal for Subaru Brat Ext.
 540 Size £4.50
 380 Size £3.45

TRADE ENQUIRIES WELCOME

SEND 60 PENCE IN STAMPS FOR OUR CATALOGUE

New Tamiya buggies

Hot off the *Tamiya* press come these two new examples of the fine art of Japanese kit manufacture, the *Opel 'Ascona'* and *Lancia 'Rally'*. Both kits are developments of earlier *Tamiya* products and indeed use much

the same chassis configurations as the *Audi 'Quattro'* and *Subaru 'Brat'*.

The *Opel 'Ascona'* is designed for use with the 540 size motor and six-cell Ni-Cad battery pack. A very nicely moulded polycarbonate bodyshell is included and once embellished with the comprehensive decal sheet, headlamps, driver

figure, etc. will produce a super, scale replica of this popular rally car. The chassis, suspension systems and gearbox assembly have all proven to be reliable.

The *Lancia 'Rally'* uses the innovative, spaceframe chassis design produced by *Tamiya* for the *Subaru 'Brat'* buggy. This car is designed for use with the smaller, 380

motor, although the larger 540 motor can be fitted as driver expertise progresses.

Both kits are produced as fully comprehensive component packages less radio gear and Ni-Cad battery pack.

The *Opel 'Ascona'* and *Lancia 'Rally'* are widely available from major toy and hobby shops.



Kimborough Gears

American Company, *Kimborough Products*, have been producing high quality accessories for R/C car applications for some time now, it is therefore heartening to see their products generally available here in the U.K.

By far their most popular products is the 1/12th scale servo-saver. A range of types

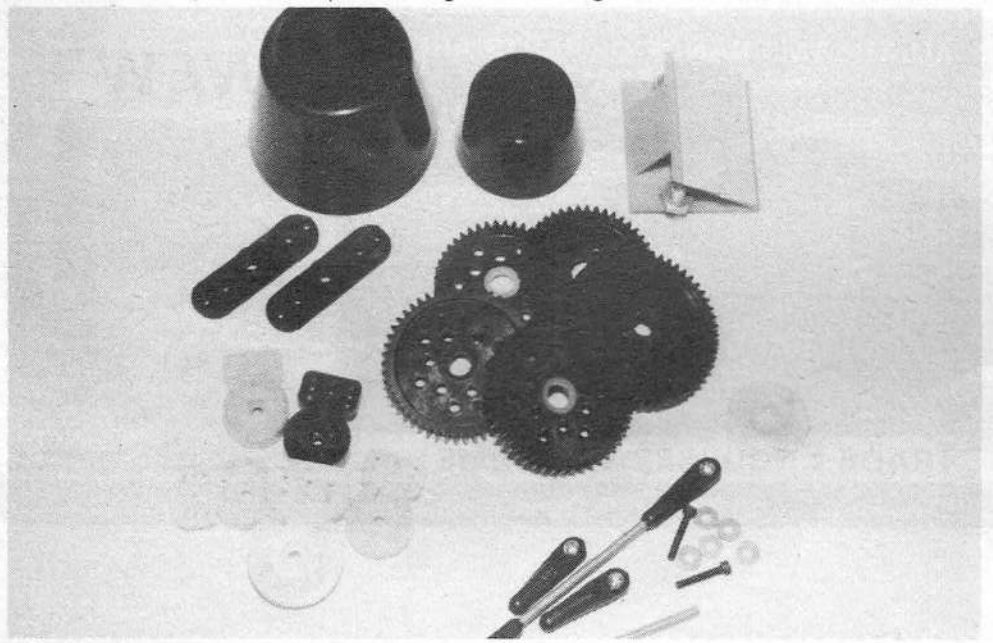
enable this item to be fitted to almost any popular make of servo. Price £2.25. For higher work load applications, 1/8th scale cars, buggies and R/C power boats, *Kimborough* can supply their larger type servo-saver to take the shocks out of Steering. Price £3.75.

Differential, gears are another *Kimborough* speciality for 1/12th racing and are lightweight precision produced gears in a range of

tooth sizes (44, 46, 48, 50 and 52). Price £2.25 each.

Finally, the Direct Steering kit for *Tamiya* buggies contains a large servo-saver, servo mount, tie rods and ball joint couplings, screws, bolts, washer and hexagon wrench to give you a positive responsive steering set-up. Price £11.75.

All the above are available from *Ted Longshaw Model Cars*, 7 Warren Road, Chelsfield, Orpington, Kent and most good model shops.



Nodis Racing Developments Differential

Don Ison of *Nodis Racing Developments* has once again proved to be quick off the mark in producing 'tune-up' goodies for a variety of R/C vehicles. This time the *Tamiya 'Subaru Brat'* has come in for the *Nodis* treatment with the introduction of a differential, different gears and motor pinions. Details are as follows:

Differential. A precision made ball diff with ballraced centre gear, this gear is a cut from Tufnol and comes with two adaptors and two ball-races to fit direct into the gear case. £22.50.

Intermediate gear. Can be supplied in a ballraced version complete with shaft that will fit into the plastic caps. This gear can be supplied in various ratios i.e. 19/52 down 19/44 £9.50 each. Motor Pinions. 11 to 20 teeth £3.00 each.

These prices include VAT and postage free on orders over £10.00. Send to 28 Brunwins Close, Wickford, Essex.

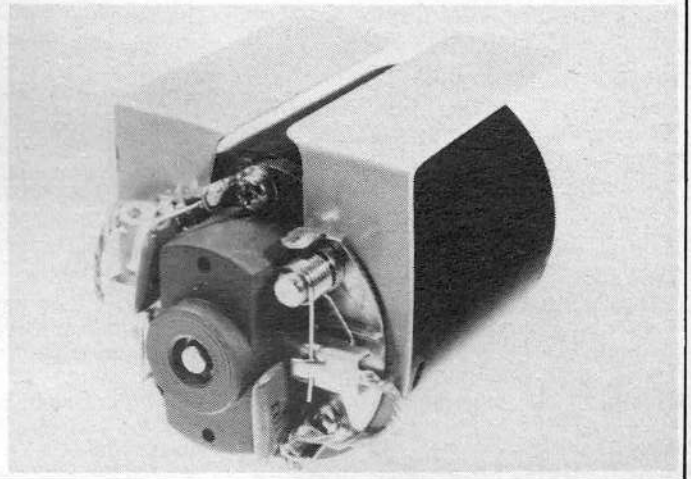
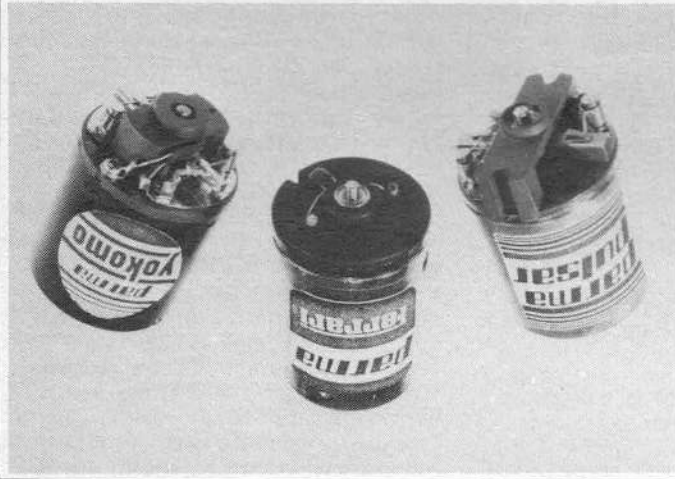
Parma Accessories

Parma International of Ohio, U.S.A. are currently producing their own range of competition class electric motors based on the highly

popular *Yokomo* motor. Three new motors are currently on offer, 'Pulsar', 'Ferrari' and 'Yokomo' and are available for either 1/12th circuit or 1/10th Off-road racing. Also on the motor

side is neat aluminium motor brush heat-sink for use with Yokomo style motors. This heat-sink will reduce the heat build-up in the brush gear thus enhancing motor efficiency.

All the above are available in the U.K. through the official importers, *Helger Racing* of 72 Lauderdale Tower, Barbican, London EC2Y 8BY. Send SAE for full price list.



Morley Models Buggy Accessories

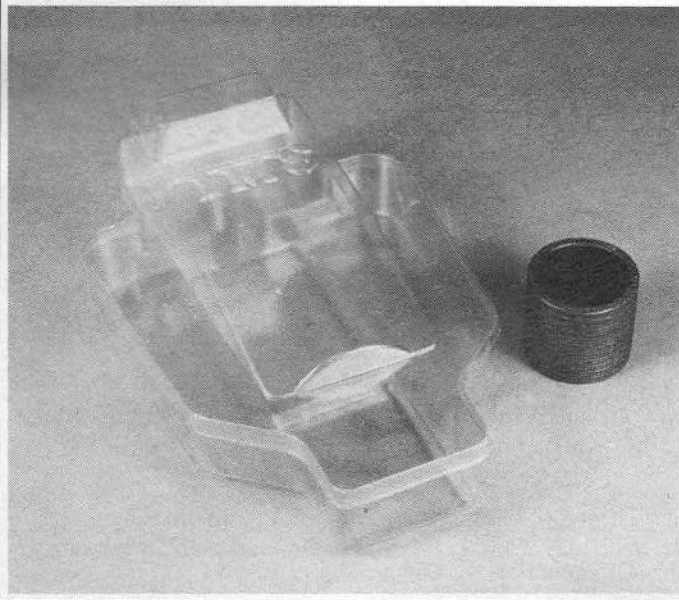
Optional tune-up parts for the ever-increasing number of 1/10th electric buggies available is rapidly becoming a growth industry in its own right. One of the largest ranges of accessories and spares is held by Yorkshire based companies *Morley Models* and *Three Towers Models*. Two of their latest items are shown here.

The new lightweight 'Mech Box' is designed to directly replace the standard *Tamiya* 'Rough Rider' kit version.

The 'Mech Box' weighs in at approximately 40 grams. Price £3.49.

Heat build up in any electric motor is undesirable as excessive heat can drastically lower the efficiency of the motor. The *Morley Models* motor heat-sink is produced in anodised aluminium to give maximum heat dissipation. Two sizes are available for either 380 or 540 size motors. Price £4.50.

Both the above are available direct from *Morley Models* 10/12 Morley Bottoms, Morley, *Three Towers Models*, 58 Haley Hill, Halifax and most good model shops.



Kyosho Buggies

Following on their success with the 'Scorpion' and 'Land Jump', buggy, *Kyosho* have now produced these latest kit introductions to uprate the 'Scorpion' and 'Land Jump' to full competition racing specifications.

The 'Tomahawk' 1/10th scale electric powered Off-Roader improves upon the 'Scorpion' by reducing the weight of the finished car, including a differential as standard and increasing the overall efficiency of the suspension, gearbox and speed control. Many of the 'Scorpion' chassis components are retained thus making a great number of

parts interchangeable between the two cars. Price £97.50.

The 'Integra' has been generally 'beefed up' to meet the rigours of 1/8th scale I.C. Off-Road Racing. A new more robust roll cage is now included and the damper mounting points have been strengthened. A geared differential for the rear gearbox is now incorporated as standard to give better handling and traction on loose surfaces. Finally, an injection-moulded R/C crate replaces the old style vacuum-formed component. Price £225.00.

Both kits are available from all *Ripmax Models* stockists.



Contest Calendar

BRCA 1/8th Off-Road Championship Series

April 22

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

May 6

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

May 13

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

May 27

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

June 10

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

July 15

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

July 22

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

August 12

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

August 26

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

September 2

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

September 16

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

September 30

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

1/8th Scale Invitation Meetings

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

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

East Midlands PB League

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

All drivers are welcome to race at these meetings but the aim of the series is to encourage lower handicap drivers. Works sponsored drivers cannot score points.

International 1/8th Scale Meetings

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

BRCA 1/8th National Championship Series

April 8

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

April 29

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

May 6/7

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

May 20

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

May 28

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

June 10

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

July 15

SOUTHAMPTON 1/8 Restricted. 1/8 Unrestricted. Entries SAE to Tim Reynolds, 23 Baddesley Close, North Baddesley, Southampton. (0705) 739734.

August 5

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

August 12

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

August 19

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

September 9

BASINGSTOKE 1/8 Restricted. 1/8 Unrestricted. Entries SAE S. Pyne.

September 16

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

September 23

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

BRCA 1/10th Off-Road Championship Series

April 23

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

May 6/7/8

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

May 20

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

May 26/27

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

June 3

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

June 10

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

June 24

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

July 7/8

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

July 22

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

August 5

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

August 19

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

August 26

MILTON KEYNES Modified class. Details as above.

September 8/9

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

September 16

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

September 23

BRADFORD Modified class. Details as above.

September 30

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

BRCA 1/12th National Championships series

April 7/8

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

May 19/20

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

June 9/10

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

June 23/24

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

July 28/29

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

September 8/9

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

September 29/30

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

October 13/14

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

October 27/28

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

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P.O. Box 43, Abingdon, Oxon OX14 2EX.

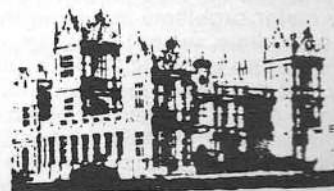
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All other enquiries: Jane Spiegel, PO Box 43, Abingdon, Oxon OX14 2EX Tel: Abingdon (0235) 21873

Admission: Adults £2.00,

Children (5-16) and OAPs £1.00, Children under 5 free.

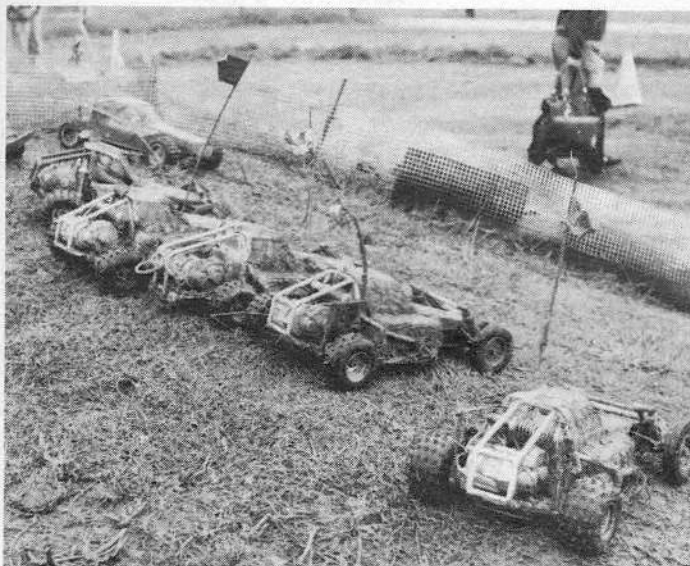
Family tickets: 2 adults and up to 4 children £6.00



Off-Road Down Under

Tony Stott details the Australian Approach to electric Off-Road racing

AS AN AVID enthusiast of electric off-road racing I found it interesting to read the October/November 1983 issue of 'Model Cars' and to note from earlier issues that UK production class 1/10th scale buggies perform better than the majority of 'Modified' or 'Open' class cars. Here in Sydney, Australia, we are all mystified by this statement, as we have found at all six local clubs, that our 'stock' class (defined by us as near box-standard, with minor



Above; the ultimate (Australian) circuit at St. Ives Showgrounds, Sydney, Australia. Left; although most off-road racing takes place in dusty conditions, there are some exceptions . . . These are the finalists in Unlimited Class at a recent inter-club meeting. Note the dominance of monoshock rear suspensions. Author's buggy almost unrecognisable third from right.

mods) is not in the same league as 'Modified' (anything goes except that stock 05 or 540 motors are required, tyres must be from a kit only, and non-standard differentials are not allowed) or 'Unlimited' (no restrictions).

In all our classes overall size is limited to 9½ in. wide and 18 in. long, and 6 cell Ni-Cads must last 8 minutes (as in 1/12th scale road racing). We have not experienced any major problems in lasting this race distance, except when air temperature exceeds 90° F on the day. (At this point, more fortunate drivers retreat to their car cabins, and continue charging their Ni-Cads in the blast from air-conditioners!) It is my own opinion that with buggies, we in Australia have the best of all worlds, as the 8 minute, 6 cell limitation forces us to search for elegant solutions, which (relatively) keeps costs down. The Americans, with their speedbombs and multiple cells seem to be powerdrunk whilst

the Japanese seem to like running for only 2 or 3 minutes. Seen from here, UK tracks seem to be either bowling greens . . . or tank testing grounds, with not much between which I guess is at least partly dictated by the realities of the English climate. Australian buggies in 'Unlimited' class lean heavily on Californian developments, with most top runners using hot up parts from *RCH*, *RacePrep*, *CRP*, *MRP*, *JG*, *Parma* and *Bolink*. We have found that *Reedy Yokomos* (reviewed in the above-mentioned 'Model Cars' issue) are simply outclassed by a locally developed motor, marketed as the *Jomac 'Off-Road Motor'*. This motor, a reworked *Yokomo 'Turbo'*, produces 35% more power than a stock 540, yet still runs for eight minutes using the standard *Tamiya* ratio of 9.33:1. (that power figures is supported by dyno tests).

We believe that 8 minute races are practical, based on two years of

experience given the following criteria:

- (1) Track layout must be free-flowing, without many successive slow corners allowing motor revs to be kept mostly in the torque band.
- (2) The buggies should not be too heavy, using similar techniques as applied to 1/12th scale, such as drilled out or lightweight components.
- (3) Differentials, if fitted, should be set up to allow a modicum of slip to give better handling and avoid excessive current draw from the hairpins.

The above factors do not appear to have detracted from any of the important elements of offroad racing, although I should add that weather is on our side, and mud is the exception rather than the rule.

Most tracks, if they contain any grass at all, have the grass mown to root level, as grass soaks up Amps nearly as well as a sponge does water. The typical track surface here in Australia is a mixture of gravel and dust and dust is the biggest problem as regards buggy reliability. Lap distances are usually 300-350 ft., minimum width of 6ft., few hard track edges (usually earth or grass mounds) and about 10 corners. Laps covered in 8 minutes range from 15 in the 'Stock' class, 19 in 'Modified' and 21 in 'Unlimited'. My own club's track, situated inside a fence enclosure within the rural setting of suburban St. Ives Showgrounds (used mostly for open air dog shows) is undoubtedly the best in the country. Consisting of dozens of alternative track layouts, four-speaker public address system and floodlighting facility, as well as underground drainage. Monthly, evening races have recently commenced and are very popular with the club's 100+ members. Fortnightly formal race meetings are

held on Sunday's and complimented by informal practice on the Saturday. Even during the week, members are often seen running their buggies. This track was also the scene of the Inaugural Australian Off-Road Championships in early 1983, although the vast distances involved, plus the less developed off-road scene in other major cities, saw only one inter-state competitor, twice National 1/12th scale road racing champion Jon Borthwick. Nevertheless, 52 entries ensured an excellent meeting. By way of comparison, the 1984 Inter-club Shield series, between the six local clubs over four rounds, has attracted 70 entries, including 6 from Newcastle, 120 miles north of Sydney. These entrants will travel over 700 miles if they run in all rounds.

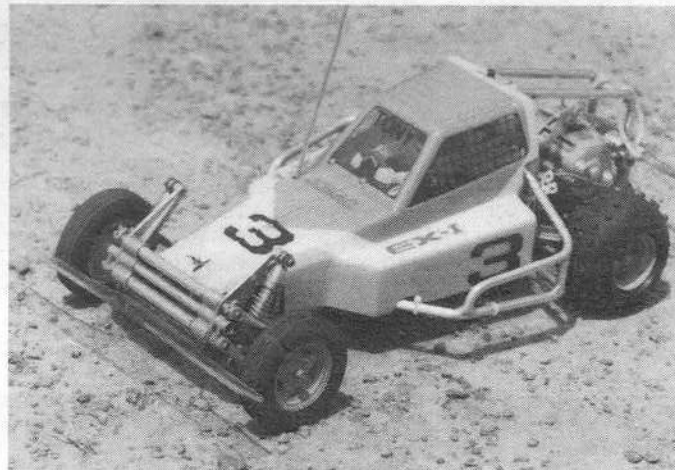
The Cars

As yet, no other brand has made any major inroads into the dominance of the *Tamiya* range of buggies, although many of the 'Modified' and 'Unlimited' class buggies use only the front stub-axles and gearboxes from the 'Rough Rider' (or similar), with all other parts as aftermarket items! The *AYK* 'Trail Blazer' has been racing in Australia for nearly two years, and while some minor placings have been gained in 'Stock' class, the lack of an available differential has caused support for the *AYK* to erode in the 'higher' classes. The *Kyosho* 'Scorpion' has been developed to a competitive level by one or two individuals, using American tune up parts made for the *Cox* version, but no major victories have yet gone to *Kyosho*.

out of the trophies at major meetings, due to driver incompetence! A brief description might be of interest to readers.

Front end

2mm Lexan bumper (home-made).
Coil springs on standard kit shocks
(*Race Prep*).



Left: overall view of author's buggy.
Below: the aggressive looking *Parma RacePrep* speed controller with micro-switch reverse and full power wedge. Voltage regulator is inside balloon with receiver.

Wide front end (+1/2in.) (*RCH*).
Heavy duty hardened pivot pins (*RCH*).
Nylon kingpin sockets (*Thorp*).
Tie-wraps stretched between front trailing arms through filed out holes no longer required to retain stock *Tamiya* ball sockets.
Teflon shock pistons and guides (*RacePrep*).
Heavy duty steering tie-rods (*CRP*).
Uprights, trailing arms and stub-axles — all modified *Tamiya* items.
Kimbrough servo saver on *KO* 'PB30H' servo.
Castor blocks (+6°) (*RCH*).
Lowering blocks (1/8in.) home-made.

Chassis:

Carbon fibre 3/4in. longer chassis (*Twinn-K*).

Voltage Regulator:

Locally made, (well — 400 miles away!) *Zillmere Electronics*, unit. My previous buggy used a Terry Platt item courtesy of 'Model Cars' plans.

Speed Controller:

Parma off-road resistor (forward and brake) fitted to *RacePrep* heatsink with micro-switch full power reverse, silver contacts on wiper and full throttle wedge.

Ni-Cad:

Sanyo sticks located by *Kydex* retention bracket and velcro fasteners (*RCH*).

Gearbox:

Standard *Tamiya* 'Superchamp' with all gears and suspension pivots shimmed to remove endplay. Ratio is *Tamiya* 70:15 (higher ratios too much for 8 minute races!)

Differential:

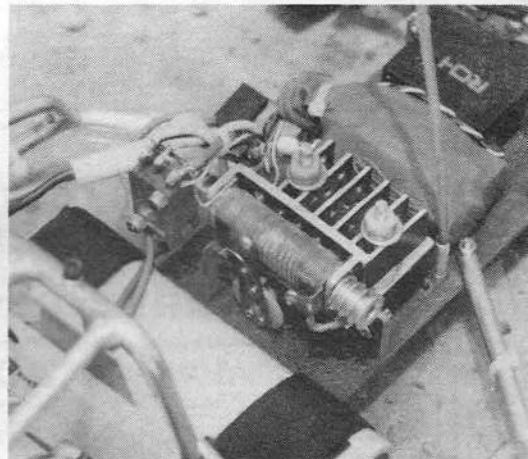
Thorp ball differential set to slip for 6ft. off the starting grid (new balls fitted every six months).

Motor:

Jomac 'Off-Road Motor' prototype (I did much of the track testing during a very interesting development programme).

Rear Suspension:

Standard 'Superchamp' with 4 spring coils removed, using *CRP* shock oil conected to an eyedropper bulb



located inside the cabin. A rear anti-rollbar runs forward from the rear bumper support bracket to *Tamiya* metal rose joints bolted to the rear A-arms. Rear axles are hardened steel *RacePrep* units with turned down alloy hubs.

Roll Cage:

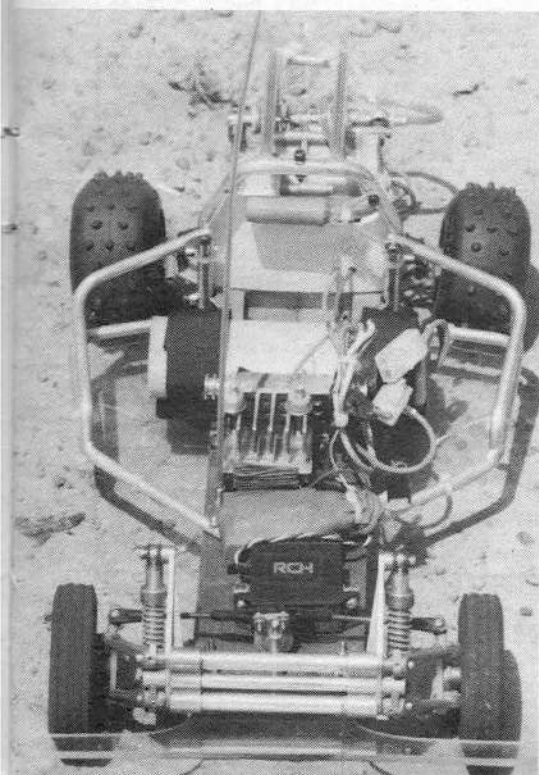
Made by *John Gudvangen Manufacturing (JG)* from aircraft aluminium, including full width nerf rails (essential to stiffen the chassis) with Perspex infill panels to keep out mud from below.

Ball races:

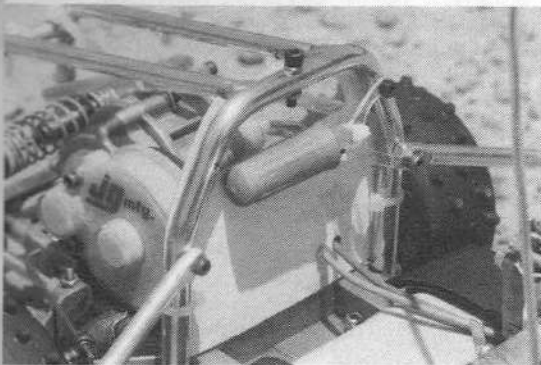
Standard *Tamiya* (12 in all) run dry after flushing out grease (Service life used in this condition — around 18 months).

Wheels/Tyres:

Front — normally 'Rough Riders', sometimes *Bolink* ribbed foam on nylon wheels. Rear — normally 'Holiday Buggy' spiked rears stretched onto 'Superchamp'



Off-Road Down Under



Above: the interior of the author's Supercharger showing rubber oil reservoir for mono-shock clasper.

wheels (Good for four competitive runs!) or *Pro-line* copies (not quite as good for ten runs.) For grass or ultra abrasive tracks, *Bolink* knobs on *Bolink* wheels.

Body:

Parma 'Chenoweth', with rear removed, and infill panel (.03in. Perspex) fitted inside rollcage hoop. Driver is Lexan Lightweight, with all excess material removed, taped inside body.

Race Weight:

4lb. 6oz. on the grid.
In spite of the formidable array of

add-on parts, as many standard parts as possible have been retained, and the rollcage was only a recent addition after the buggy had been raced every week for fourteen months with standard rollcage and rear bumper.

Readers can no doubt imagine the attention shown by the public when whole race fields are made up of buggies modified to at least this extent. Late in 1983 a match racing challenge series was held inside a shopping centre on a track made from 10 tonnes of dirt. The centre management had to arrange gaps in the race programme so that the shoppers would resume their function of spending money rather than watching the off-road action! Estimates put the total crowd attending over four days at around 4,000 people.

The Off-Road sport has struck a responsive chord here in Australia, although there is no sign of the crazy fad experienced in the late 60s with slot cars, which is probably just as well. Many families become involved too, usually when Dad sees the 'Unlimited' class cars and realises that he can buy all the hot bits or even purchase a package including

all the best options put together by some local retailers. From here on in it's Dad who becomes the off-road addict!

A steady build-up of electric off-road racing is anticipated during this year, whilst I.C. Off-Road activity is very rare indeed. No doubt in due course some international involvement is inevitable, initially perhaps from the place where it all started, Japan.

CRP P.O. Box 1485, Temple City, California 91780, USA

John Gudvangen Manufacturing, P.O. Box 6014, Whittier, California 90609, USA.

Kimbrough, available through Ted Longshaw Model Cars, 7 Warren Road, Chelsfield, Orpington, Kent.

Parma, available through Helger Racing, 72 Lauderdale Tower, Barbican, London EC2Y 8BY.

Twinn-K, P.O. Box 31228, Indianapolis, Indiana 46231, USA.

Bolink, 420 Hosea Road, Lawrenceville, Georgia 30245, USA.

MRP, Model Racing Products, 12702 DN E. 124th Street, Kirkland, WA 98033, USA.

Thorp, Thorp Manufacturing, 380 S. East End, Unit H Dept. R, Pomona, California 91766

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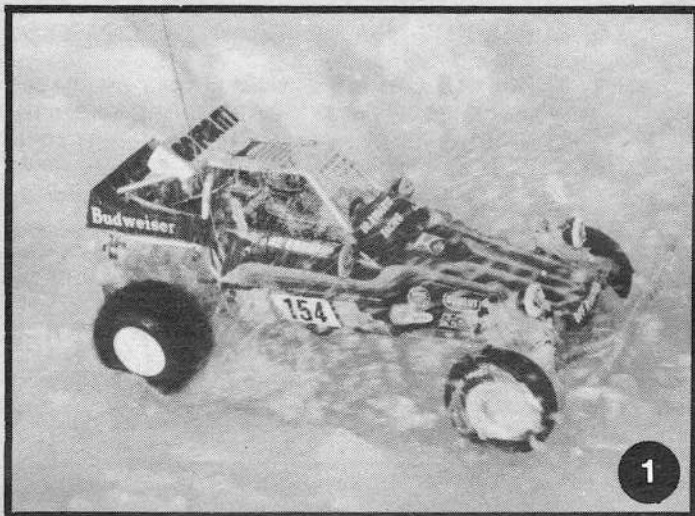


PHOTO 1: Steve Moorby of Newcastle, Staffordshire used the recent Snowy weather to capture on film this Tamiya 'Super Champ'. The photo was taken using a Zenith E 35mm Camera.
PHOTO 2: The true spirit of Off-Road racing is captured here as J.R. Gilbourne of Aspley, Nottingham shows this Tamiya 'Rough Rider' going through its paces. Camera used was Chinon CE4 + Vivitar 75-205mm zoom lens.

PHOTO 3: Bob Cooper of Colerne, Wiltshire entitles this shot 'Sand Scorcher across the bondu'. The photo was taken in Cyprus using a Pentax K 1000 Camera.

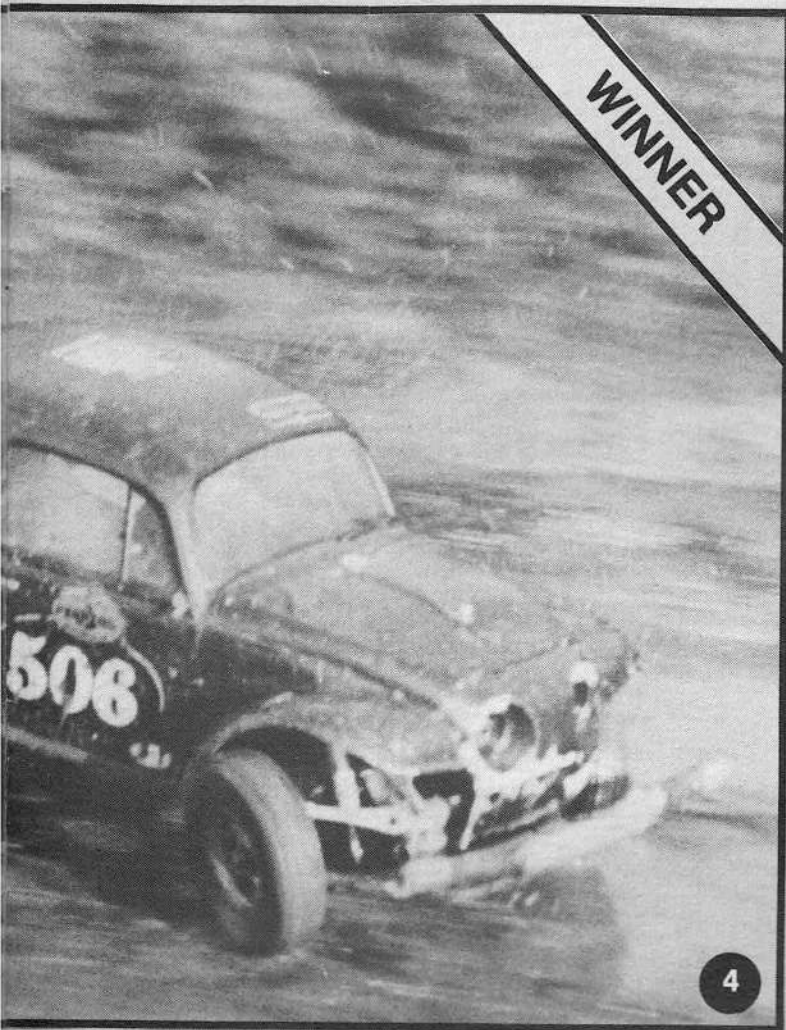


PHOTO 4: This month's winner is James Gardner of Leatherhead Surrey for this superb 'panned' shot of a Tamiya 'Sand Scorcher'. A real sense of movement has been captured using a Canon A1 camera.
 PHOTO 5: Yet another Tamiya 'Sand Scorcher' is the subject of Stephen Byers 'wet 'n' wild' shot. Camera used was a Halina Paulette.
 PHOTO 6: Rob Dixon an avid Off-Road racer has sent us this shot, of 'Beetle' buggy taken at a World's End Meeting. Rob uses a Practika LB.

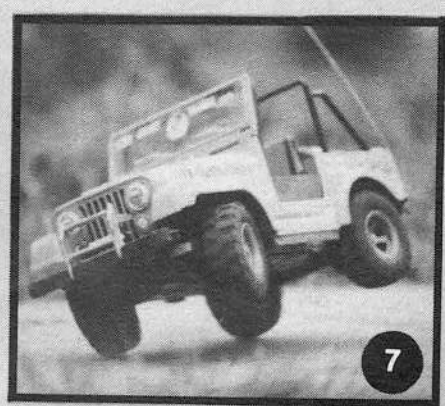
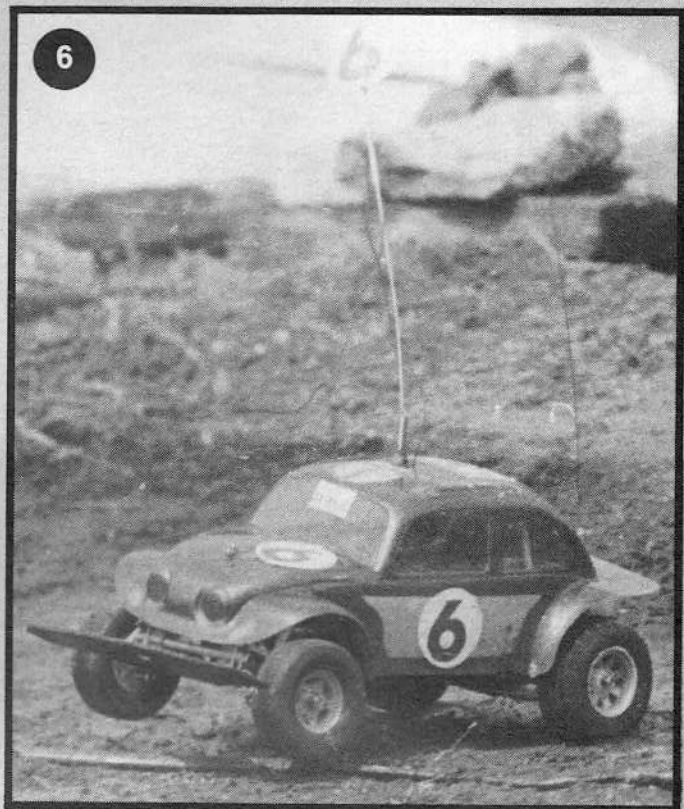
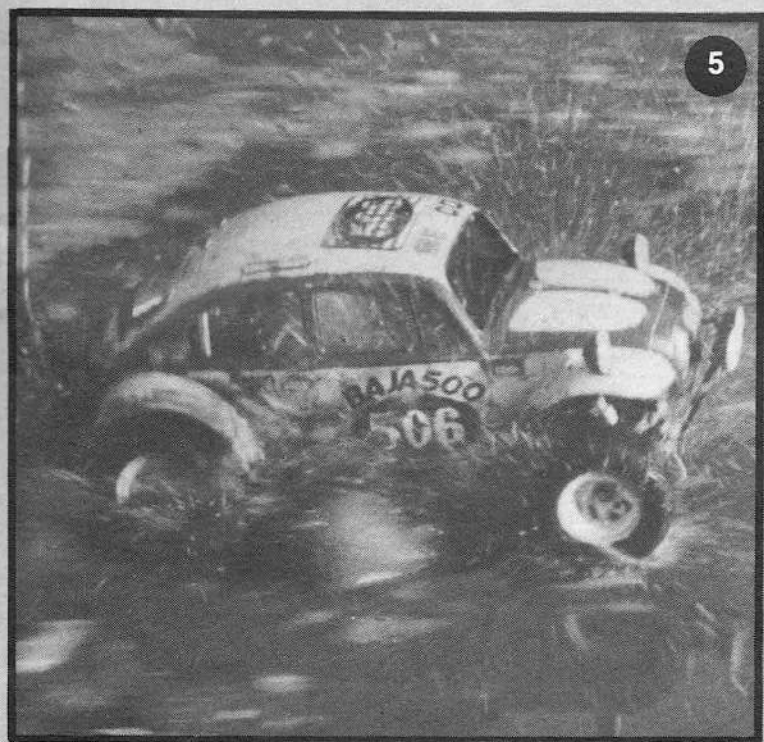


PHOTO 7: Very realistic action photo by K. Lambton of Ian Hodges' buggy. Camera used was a Pentax MG with Tamrom 80-120mm Zoom lens.

Super Tigre X21 Car Std



THIS BASE-MOUNTED 3.5cc car engine provided interesting changes to test procedures — both for the novel mounting style used, and for its possible effect on manner of performance. Also of interest was the inevitable comparison with the earlier 'X21 RE80' car engine (tested 'Model Cars' Winter 1981). Irrespective of a particular motor's standing in relation to other makes, of equal (maybe more) interest is any evidence of developmental progress by the manufacturer concerned.

In very brief terms this test showed the 'S21' to be a definite leap forward compared with the earlier 'RE80' (though not yet at the top level of OPS or Picco in sheer Tuned pipe/BHP terms) and probably as a consequence of the base-mounting, the vibration-free running at all RPM levels was exemplary — the best yet.

This 'S21' unit was provided by Tigre Engines UK and is the most recent engine produced by the Italian Super

Tigre factory for 1984 1/8 scale competition class.

Mechanical Details:

There are several significant changes compared with the earlier 'X21' unit.

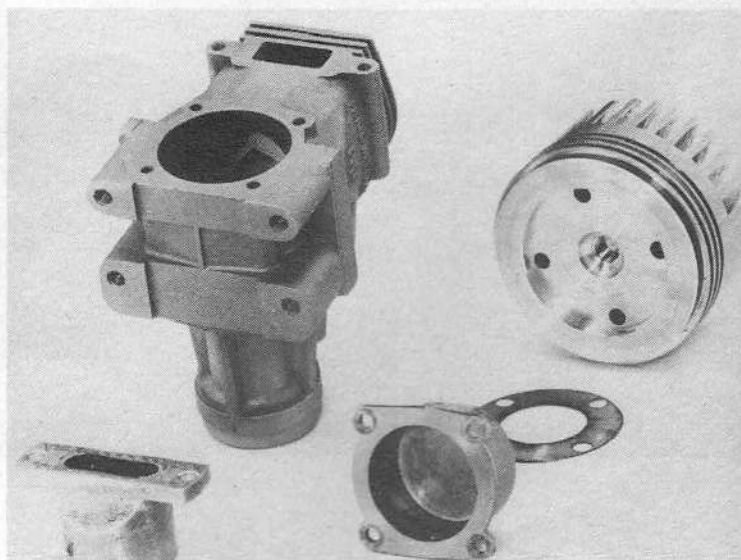
Crankcase. Externally the most striking change is the 'non-aircraft' style of base-mounting, pointing the engine specifically towards car usage.

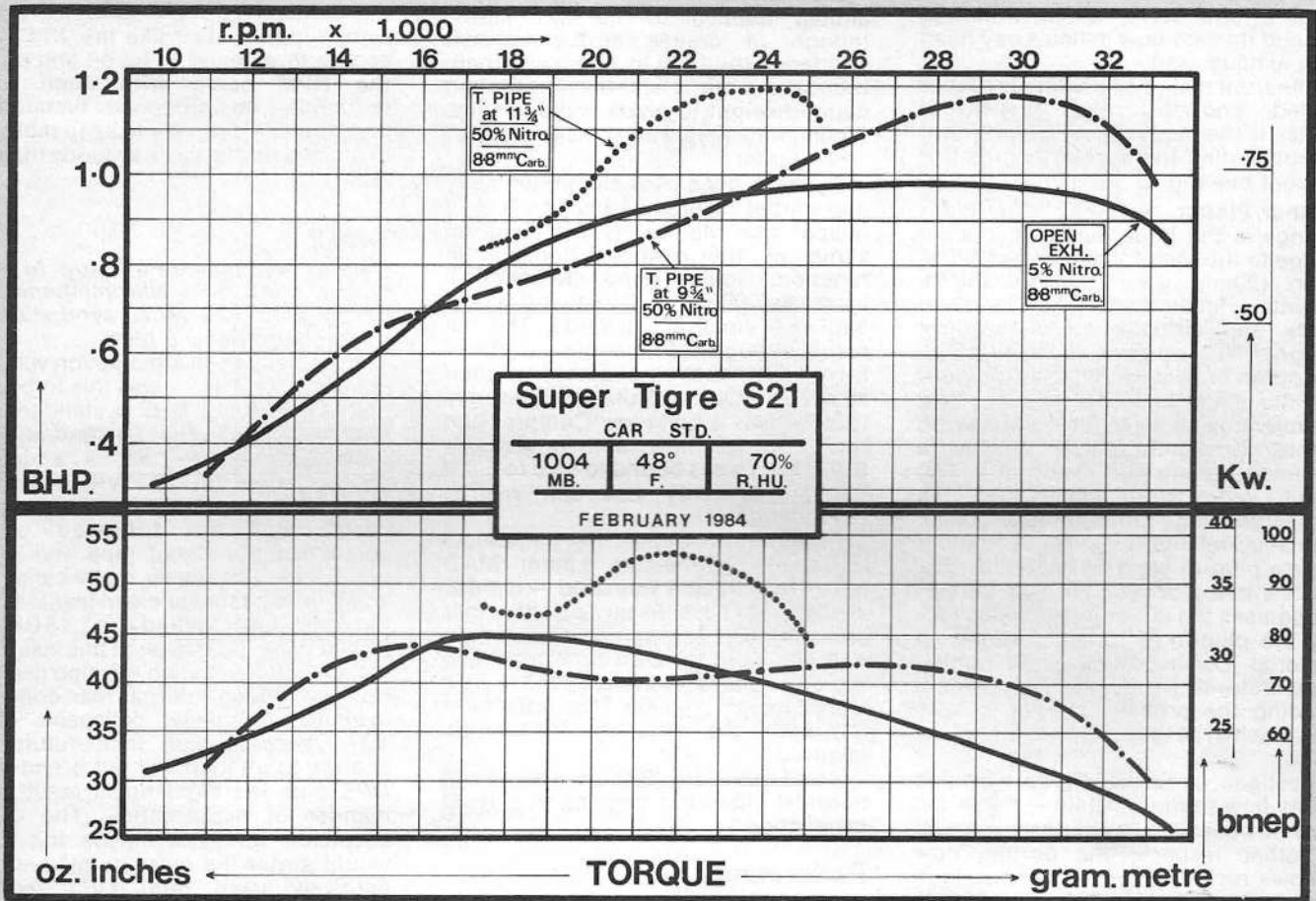
As the 'X21' crankcase itself had considerable merit, *Super Tigre* have built on that by modifying the crankcase die. The additions then, are the 2 massive below-lug 'pillars' — internally threaded at each of the 4 corners — for mounting directly to the car chassis plate. More vital additions are the 4 vertical diagonal webs above the original lugs — added in the hope of restraining the more troublesome cylinder/head vibrations. The original beam mounting lugs still remain embedded and unmachined in the side of the case — there being production advantage in their retention for possible alternative use.

Internally the boost passage is of considerable cross-sectional area — this one wide passage feeding the 2 Boost ports in the liner. This boost passage is of similar size and shaping to *Super Tigre* earlier 'modified cross-flow' style Transfer passage (ie. the type used before Schnuerle porting proper became fashionable in model engines). Added to that, large boost passages are the 2 normal side Transfer passages having moderate cross-section only and tapering gradually towards the top — to accelerate gas-flows. These two ports are angled as usual away from the exhaust port. In total then, the transfer passage thoroughway is quite large. One of the 2-stroke compromises is involved here: provision of enough cross-sectional area to prevent undesirable restriction to gas flow, whilst also aiming to generate sufficient gas-flow speed by an accelerating venturi effect. At the same time not to undesirably increase sub-piston crankcase volume which harms Primary (crankcase) compression and on which the 2-stroke here depends, to pump fuel/air up to the cylinder. The considerable variables involved are enough to ensure that uniformity of approach is a long way off yet (and a good thing too!)

The 'S21' crankcase also provides a trouble-free carburettor mounting stub

Above: the purposeful looking Super Tyre 'S21 RE' complete with ST 8.8mm twin-needle MAG carburettor. Slide barrel carburettors are available from Tigre Engines UK. Right: crankcase housing, exhaust stub, backplate and cylinder head.

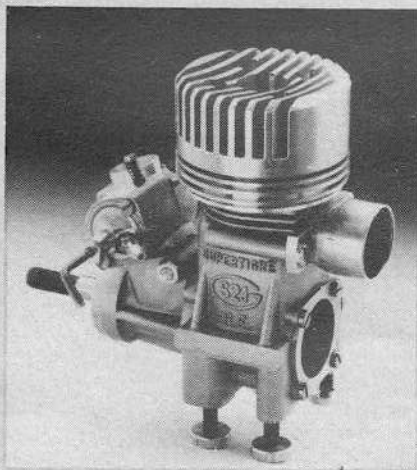




Super Tigre S21 Car Std

Dimensions & Weights:

Capacity — .212in. (3.473cc)
Bore — .6538in. (16.6mm)
Stroke — .6313in. 16mm nominal)
Stroke/Bore ratio — .966/1
Timing Periods — Exhaust — 157°
Front Induction — Opens 41° ABDC
Transfer — 126° — Closes 55° ATDC
— Boost — 126° — Total 194°



Exhaust port height — .213in.
Combustion chamber volume — .34cc
Compression ratios — Effective — 7.77/1
— Geometric — 11.2/1
Squish band clearance — .020in.
Squish band width — .14in.
Squish band angle — 2°
Crankshaft diameter — .4715in.
(12mm nominal)
Crankpin diameter — .1963in.
(5mm nominal)
Crank bore — .350in. (8.9mm)
Nose thread — .245in. x 28 TPI (1/4 UNF)
Gudgeon pin dia. — .1572in. (4mm)
Con-rod centres — 1.181in. (30mm)
Weight overall — 11 1/2 ozs (.326 Kilo)
Mounting holes — 34.5mm x 18mm
with 4 holes 4mm x .75mm
Width — 1.665in.
Length — 2.475in. (to front of bearing)
Height — 3.44in.
Frontal area — 5.2 sq.in.

Performance:

Max. BHP — 1.19 at 29,890 RPM (OPS pipe 11 3/4 in./50% Nitro)
— .98 at 28,000 RPM (Open Ex./5% Nitro)

Max. Torque — 53oz.in. at 21,950 RPM (OPS pipe 11 3/4 in./50 Nitro)
— 45oz.in. at 17,200 RPM (Open Ex./5% Nitro)

R.P.M. Standard Propellers:

8 x 6 Zinger — 15,850 (Open Ex./5% Nitro)
7 x 6 Taipan — 18,620 (Open Ex./5% Nitro)
7 x 4 Taipan — 23,710 (Open Ex./5% Nitro)
7 x 4 Zinger — 24,490 (OPS pipe 9 3/4 in./50% Nitro)

Performance Equivalents:

BHP/cu.in. — 5.61
BHP/cc — .342
Oz.in./cu.in. — 250.0
Oz.in./cc — 15.26
Gm. metre/cc — 10.94
BHP/lb. — 1.65
BHP/Kilo — 3.65
BHP/sq.in. frontal area — .228

Manufacturer:

Super Tigre SRL, Bologna, Italy.

UK Distributor:

Tigre Engines, 97 Tudor Avenue, Watford, Herts.

Engine Test No. 14

and a rear-exhaust layout. However, most of the 'X21's' exhaust-biased cooling fins are now milled away flush with exhaust port.

The front main ball bearing is rubber sealed, and the other fuel-saving device is the usual grooved crank bore — connecting the base of carburettor to front bearing.

Liner/Piston. Another significant change is the large diameter, thicker flange to the top of the chromed Brass liner. (30mm dia. x 3.5mm thick). Having cylinder head bolt clearance holes and virtually nil piston-deck height, it reduces appreciably, distortion or heat expansion problems, i.e. the usual liner flange can allow cylinder head bolts to tilt and stress the whole surrounding area, and its a common finding that piston fit at Top Dead Centre varies with bolt torque. The large flange reduces this problem. The semi-related question of whether to use plug-in head or have chamber flush with top of cylinder — as here — recognises the difficulty of dimensioning the plug-in fit to suit a variety of material combinations and running temperatures. By the neat expedient of evading the problem altogether with this flush-type combustion chamber/head.

Vestiges of *Super Tigres* modified cross-flow porting remain — these can now be called the Boost ports — whilst in other respects the porting now follows recent advanced Schnuerle 5-port layout, i.e. 1 Exhaust, 2 side Transfers, 2 Boost. All Boost/Transfers now open simultaneously at 126° (more simply than the 'X21's' 126° Boost/122° Transfers/106° Perry style

Crankshaft in Nickel-chrome steel is almost identical to the 'X21' crank, though of course stroke is now shortened (by 1mm to 16mm nominal). Induction bore is still 8.9mm. Slotted counterweight to crank webs is used. Timing now opens and closes some 5° — 7° earlier.

Cylinder-head is of aluminium alloy and partial heat-sink style. As it is of deeper non plug-in style it takes on some of the cylinder cooling fin function. Squish band clearance is increased .003in. to .020in. and is now angled a small 2° upwards. The net result though of changes to Bore/Stroke/Combustion chamber volume/squish details, is a 1/2 unit increase only to what was a quite low Compression ratio, so its now still only 7.7/1 Effective. This is bound to lead to good engine reliability but can restrict potential power.

Carburettor. Super Tigre's almost universal twin-needle 8.8mm MAG barrel throttle unit was used — it plugs straight into case. As an aside its rather strange to be using this same carburettor in tests on both the 3.5cc racing engine and the 20cc S.T. Large scale aircraft engine! This reflects in the main the differing RPM levels involved.

At 11 1/2ozs the 'S21' is one of the heaviest Open car engines in current production.

Performance

Only, brief running-in proved necessary, with RPM's holding steady at a very early stage. ABC piston/liners are renowned for quick break-in, and possibly the S21's 'minimal distortion'

and in these open exhaust terms, only the earlier *Picco S/E* and OS '21VR' were superior. Just like the 'X21', this engine threatened to go on and on up the RPM scale with each load reduction, so prudence dictated a 'hold' at 33,430, solely to keep motor in one piece for the more arduous trials to follow.

Test 2

OPS Tuned pipe (9 3/4" plug to end rubber can); 50% Nitromethane 5% Castor with 10% ML70 synthetic oil; 8.8mm carb. Rossi 8 plug.

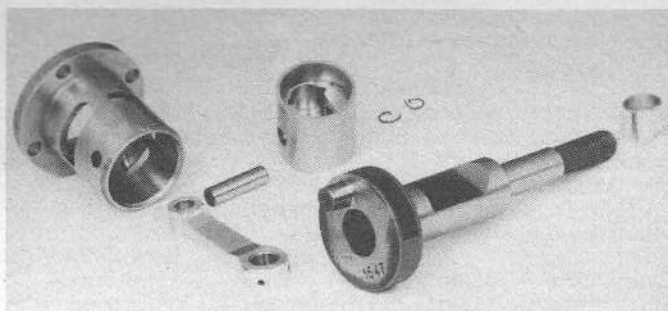
A naturally keen anticipation was felt following Test 1 . . . was this to be the first to exceed 1.5 BHP in standard ex-factory layout? The straight answer proved to be — no, a situation reminiscent of the OS 21VR, the fierce-some Open exhaust performance of which was not followed by a commensurate tuned pipe and Nitro uplift. The 'S21' never really came 'on song' in that familiar clean fashion and the best figure reached was 1.18 BHP at 29,890 RPM. Suspicion at this less than usual uplift fell first on the pipe itself — had the hidden internal rear cone for example thermally collapsed after many tests at high temperature? A change to an identical but brand-new OPS pipe led to identical result and manner of performance. The other suspicion was that maybe the 'S21' would prefer the more normally competitively used (and OPS recommended) length of 11 3/4in. from plug to end of can? A set of figures was therefore arrived at using this longer length and led to the abbreviated curve shown on graph; i.e. a very slight increase to 1.19 BHP — but shifted as usual to a lower resonant RPM point of 24,560, and with the normal marked torque fall-off past that point.

It must be remarked that, other than the indecisive exhaust note on pipe (also reminiscent of the OS '21VR'), the motor was otherwise totally happy — no plugs burning out; no signs of heat distress, pipe well sealed and aligned carburettor setting optimised at all points, and barely any change whether pipe was under or over-cooled. Much of this points to possible under-compression (as noted on *Cipolla 3.5*), though here the 'S21' is not so far off the norms for compression ratio and squish band clearance.

Test 3

Equipment as Test 2.

Not a power test this time, but a simple mechanical test in line with a pet theory of this tester that rigidity (or lack of it) has a large effect on manner and/or scale of performance. As photo shows, a cylinder head restraint was applied so that minimal motion was possible, where under normal circumstances the cylinder head can oscillate severely at certain RPM points.



Right: 'S2' internal components. Note the 'minimal distortion' flange on the liner.

Transfers). Exhaust remains though at a rather low 157° for tuned-pipe use. Bore size tapers to a 0.0015in. smaller size at TDC.

Piston is in high-silicone, and is finely milled from solid. The larger bore now used makes the 'S21' an 'over-square' unit as opposed to the X21's 'under-square' dimensions; i.e. *Super Tigre* now revert to standard bigger bore than stroke.

Connecting-rod is machined from solid high-duty aluminium alloy. Tapering (in side view) reduces stress-focussing at both big and little ends. The rod is phosphor-bronze bushed at big-end only.

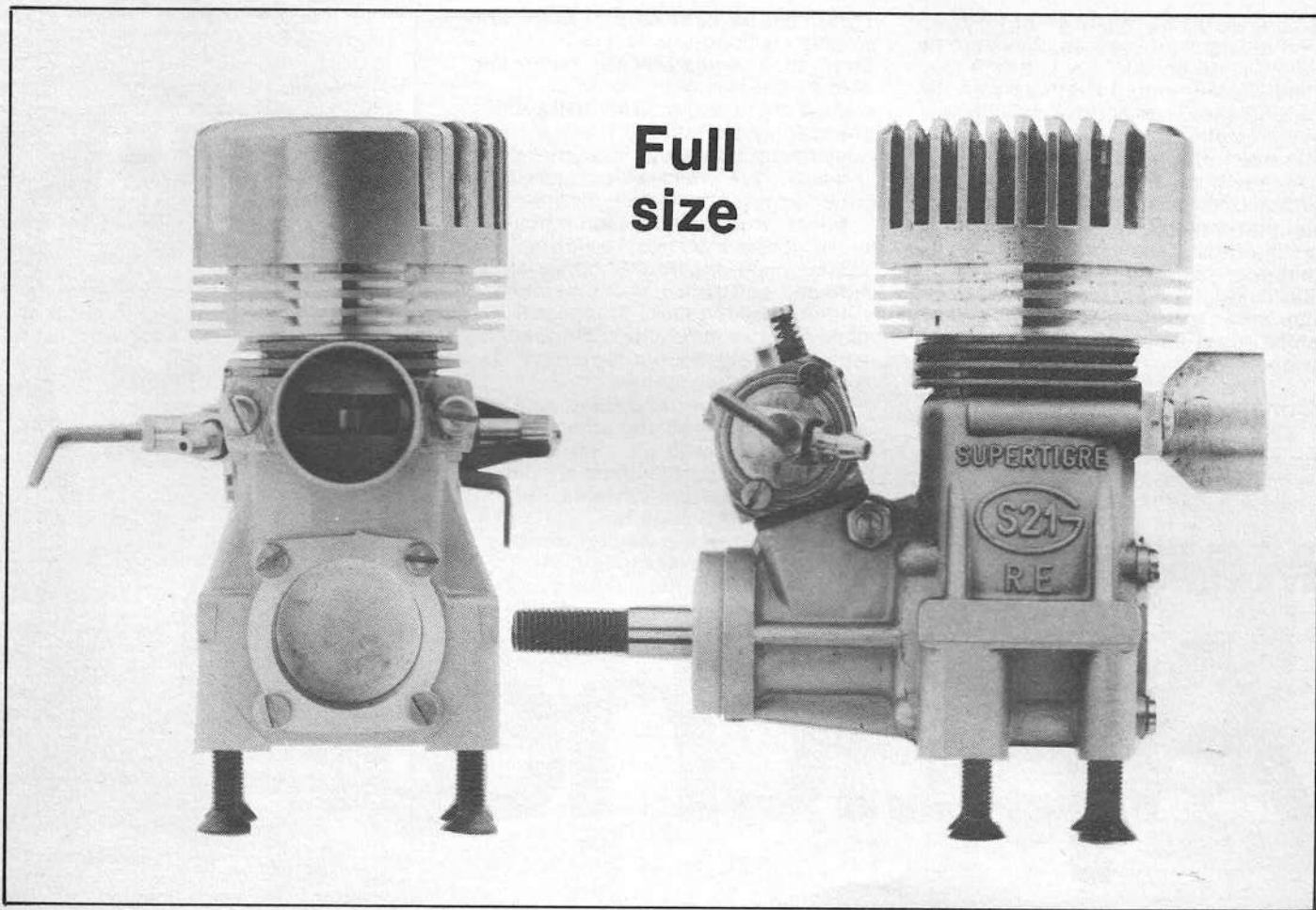
liner flange enhances this yet further.

Provisional standard propeller RPM's in Open Exhaust format were a matter of some excitement — beating by a fair margin virtually all other engines tested so far.

Test 1

Open Exhaust; 5% Nitromethane and 15% Castor oil; 8.8mm carburettor. Plug - Rossi 8.

The Torque figures equally reflected the fine RPM levels on standard propellers — at maximum, the 45oz. in was a 28% increase over the 'X21'. The resultant final .98 BHP at 28,000 RPM placed the 'S21' right among the leader



The restraint was designed to prevent movements in any direction other than the slight upward heat expansion direction — photo makes this clear. It was felt that the base-mount 'S21' would be an ideal choice for this test — because the vertical over-hang was greater than with the normal beam-mounting. The actual engine mount itself is a light-alloy milled U-channel section serving to bring crankshaft centre-line of the base-mount unit into alignment with the Dynamometer pivot axis.

As it turned out, the engine could not have been a worse choice for this particular test, because its 'unre-

strained' performance proved so rigid and stable, that when the 2 final restraint bolts were tightened there was zero change to engine note, RPM, Torque. This ON/OFF procedure was repeated at 4 widely different RPM points — all with identical result — No change.

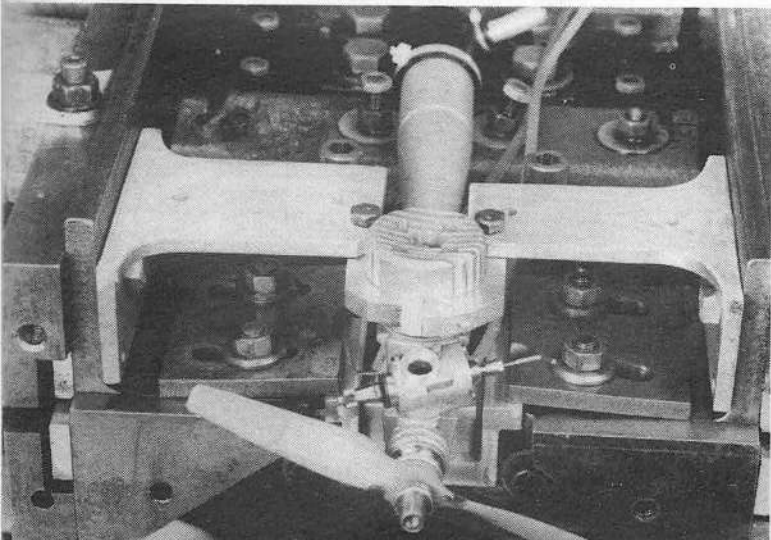
So, that looked like a waste of time and the destruction of a pet theory. The principle though will be pursued in a future engine test — because its undeniable that some engines can, at certain RPM points, suffer severe oscillations around a horizontal axis passing through both lugs and crankweb.

Summary

Another intriguing test, leaving some questions unanswered. The 'S21' nevertheless performed exceedingly well in Open exhaust format — though below potential on pipe.

It would be unreasonable however to expect any Manufacturer to do *more* than significantly improve the previous product; and improvement there certainly was here. Change was almost inevitable in view of the various detail modifications undertaken — sufficient in fact to make the 'S21' a very different engine from the earlier, 'X21'. Also in fairness to *Super Tigre* (and any other manufacturer involved), with each test there remains the continually uncertain question of pipe style and related parameters. After all, the *OPS* pipe has been used as a 'bench-mark' — but, it may not be the ideal for each specific engine. However, no Tuned pipe (in current car style) was provided for this 'S21' and, neither was it for that OS '21VR'.

Equally though, it has become apparent during the tests on many different engines — on a variety of Tuned pipes, that *large* power differences are unlikely to accrue from use of an alternative pipe on a particular engine whilst that engine's other parameters remain unchanged.



Left: the author's 'cylinder-head' restraining equipment almost enveloping the 3.5cc size 'S21' engine. This rigidity test will be carried out on other engine types in future issues.

Track Test

AT LONG LAST, a British product that meets the Japanese challenge in R/C Car Kit production, is now a reality in our model shops and on the race-tracks. The 'Apache' 1/10th scale electric Buggy from *Mardave* has been produced to offer the best of many worlds for buggy racing enthusiasts. Ease of construction for the first-time buyer, solid reliability on the track, race winning potential and above all value for money. Basically, the 'Apache' bridges the gap between High Street department store 'run-a-longs' and R/C cars proper.

Construction

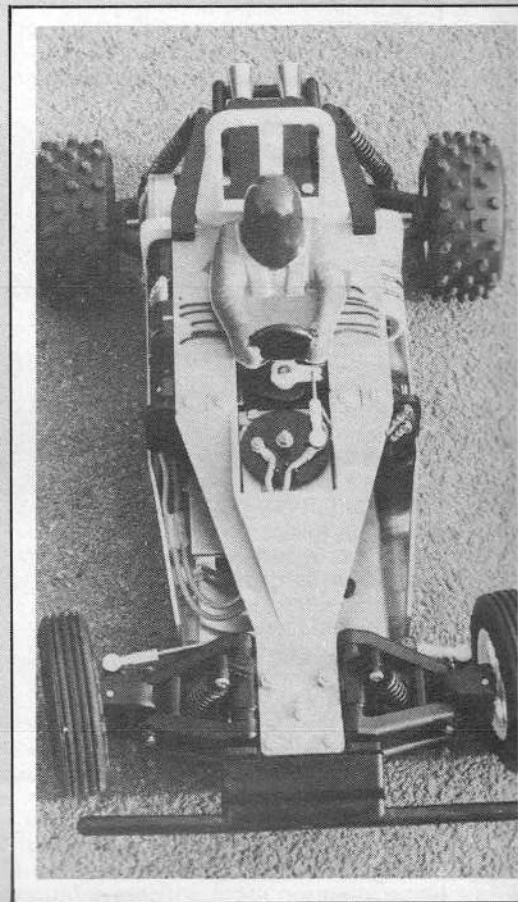
The 'Apache' has been designed for ease of assembly with the minimum number of tools. The chassis is partially assembled and

comprises of a pre-formed alloy plate to give maximum rigidity and strength. The gearbox and motor are also in-situ and requires no immediate attention. The instruction sheet suggests that the front suspension be tackled first and with the aid of the informative 'exploded view' diagram was soon underway.

Injection-moulded, nylon parts make up the front suspension system, with double wishbones either side and coil-spring shock absorbers. All the moulded parts fit together nicely and require only little attention with a modellers knife to remove excess moulding material.

The servo-saver and track-rods, should be installed and adjusted next in accordance with the instructions. The track-rod connections should be set so that the front wheels point inwards (toe-in) slightly.

At the rear of the car, universal joint drive-shafts take the power transmitted from the gearbox to the



Above: the completed 'Apache' chassis goes together to form a very robust and rigid structure. Note: some thread-lock should be applied to the speed controller disc nut to stop it vibrating loose.

MARDAVE

Apache

Introduce yourself to the thrills of Off-Road racing with this budget priced, 1/10th scale electric buggy.



rear wheels. This construction step merits particular care and attention to ensure trouble-free operation. A suitable thread-locking compound is recommended to stop the lock-nuts from vibrating loose and should be available from most hardware shops.

Single wishbones provide the rear suspension with, again coil spring shocks providing the suspension springing.

As soon as you have fitted the wheels and tyres together and installed them onto the car you will have a basic rolling chassis.

Radio Installation

In keeping with overall design philosophy the installation of radio

everything in place and also help to stiffen up the chassis.

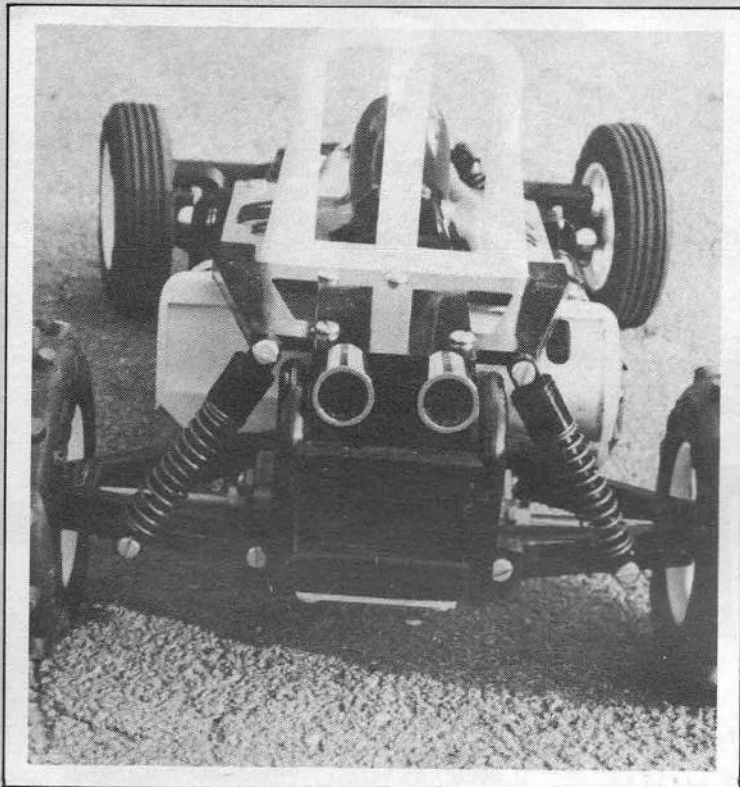
Body Beautiful

The 'Apache' kit features a very tough injection-moulded 'Baja' style bodyshell as standard. As far as the kit is concerned this is probably the single most expensive item in production terms to be included. No work is required to prepare the body

also the coil springs are set very soft, and the chassis does tend to 'bottom out' after a jump. In contrast the front suspension I found to be perfectly capable of handling any rough stuff.

The 'Apache' is quite a stable car at speed but does tend to suffer from understeer (not enough steering). Apart from this the 'Apache' is real enjoyment to drive whether racing for fun or in competition with other drivers.

Below: the rear suspension layout and gearbox all manufactured from tough, injection moulded nylon parts.



gear has also been made extremely simple. No nuts and bolts are required only double-sided servo tape to stick the servo's and receiver into place.

The steering servo and speed controller should be assembled together as can be seen from the appropriate photograph. The speed controller itself is of the printed circuit board type and will provide reliable operation.

Mardave can supply a six-cell Ni-Cad pack and resistor quick charger in the 'Apache' kit, although at a higher cost; for first-time buyers this is a good idea as the Ni-Cad pack has to be produced in a particular configuration to fit into the chassis area.

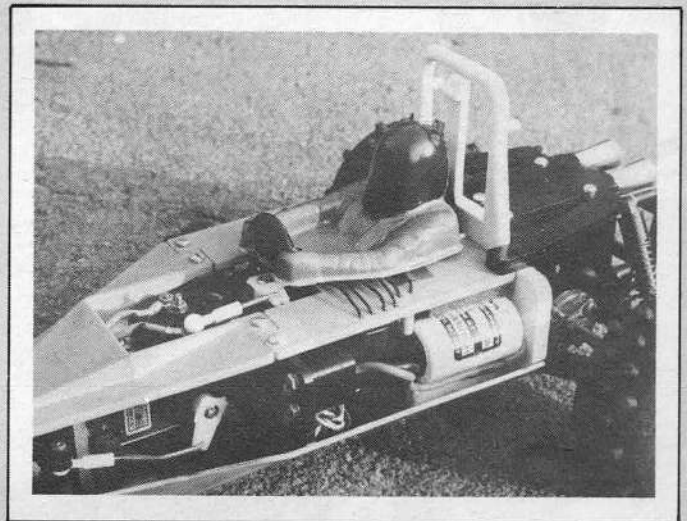
The two top decking pieces hold

for fitting to the chassis, except to decorate it with the self-adhesive stickers provided.

Out on the Track

Before actually setting the wheels in motion I squirted some '3-in-1' oil into the gearbox to provide some lubrication to the gears. That settled, I plugged in, switched on and punched the throttle. The result was quite exciting — it's always great to see your handiwork perform as it should. The 540 size motor puts quite a lot of power through the rear wheels, so much so that spins are easily resulted on loose or wet surfaces.

Unfortunately the position of the motor greatly obstructs the rear suspension movement on one side,



Above: the two top decking pieces, protects and retains all the radio gear.

Right: the rear suspension and drive universal joints should be carefully assembled and checked over periodically to ensure trouble-free operation.



The proof of the pudding is whether or not the 'Apache' will appeal to all levels of enthusiasm. With this car I think Mardave have done just that. The 'Apache' looks and acts the part and has been seen in the hands of novices and experts alike.

Manufacturer/Distributor: Mardave R/C Racing, 7 Heanor Street, Leicester.

Price: Standard kit £48.00
Ni-Cad Pack: £12.50
Charger: £4.95



Motor Torque

ALTHOUGH THE MAJORITY of this feature is concerned with maintaining and preparing electric motors for use with R/C cars it would seem wise to spend a little time explaining just how an electric motor works.

For R/C car applications although different motors are used they all follow the same principles of operation and have main components as shown in Fig. 1.

- These are (a) Permanent magnet
- (b) Electromagnet/armature.
- (c) Commutator and brush assembly.

The **permanent magnet**, fitted to the inside of the motor case, is usually manufactured from a ceramic material 'loaded' with magnetic material. The actual constituents of this ceramic 'mix' influences both the power of the magnet and the price! As a simple 'rule of thumb' the more powerful the permanent magnet the more powerful the motor. Some magnets have some

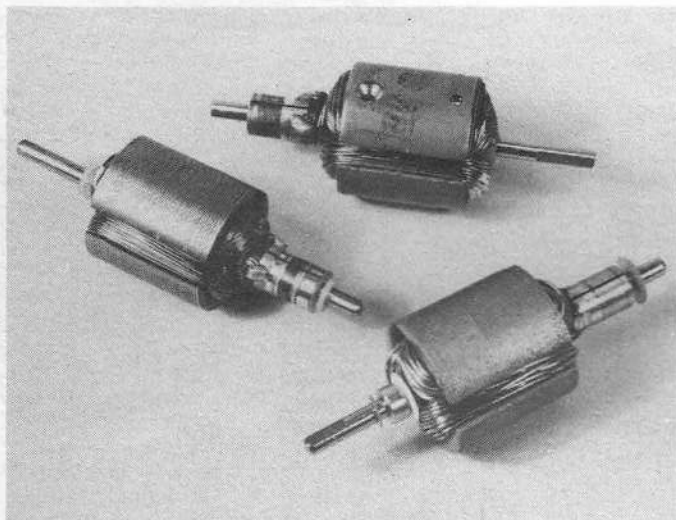
Want to get the best from your electric motor? Learn how with our fact-filled guide.

pretty exotic ingredients and this partially accounts for their exotic prices!

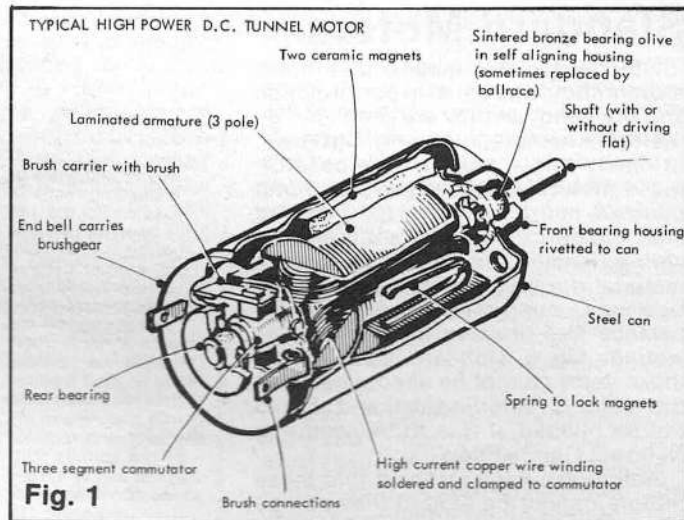
The **armature** consists of a coil (or coils) of wire, wound round a soft iron former or core. When an electric current flows through any piece of wire it creates a magnetic field. The more current (the lower the resistance of the winding) the stronger this field becomes. We have a number of loops or windings on our armature (a) to restrict the current to sensible proportions (it's

no good having a super powerful field if its going to flatten our batteries in 30 secs!) and (b) together with the shape of the soft iron core, to get the optimum 'shape' of magnetic field. Soft iron is used as this does not form a permanent magnet and as we will see later it is important for our electromagnet to be able to change its pattern rapidly.

When current flows through a loop of wire it produces a North and South pole (Fig. 2a) if you reverse the current flow (swap the battery leads) these poles reverse (Fig. 2b). If you suspend this loop between the poles of a permanent magnet without a battery connected ... nothing will happen because the wire is made of copper and is not affected by the magnetic field of the permanent magnet. But ... now connect the battery into the wire loop and our electromagnet forms its North and South poles and the loop will now rotate between the poles of the permanent magnet (Fig. 3b). *Like poles repel, Unlike poles attract.* If we could



Above: armatures taken from three electric motors of the type used in R/C car applications. Note the three coils or poles and commutator. The centre armature has been drilled into to remove material for perfect balancing.



now reverse the current flow the loop of wire will again change its position, rotating so that the new North pole is facing the South pole of the p.m.

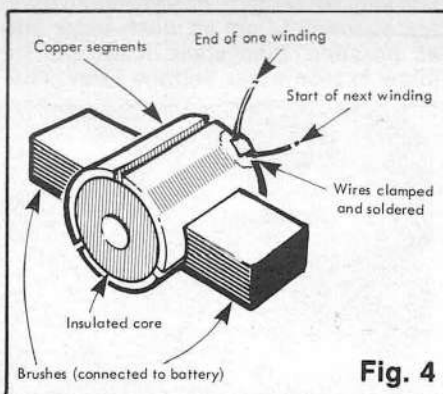
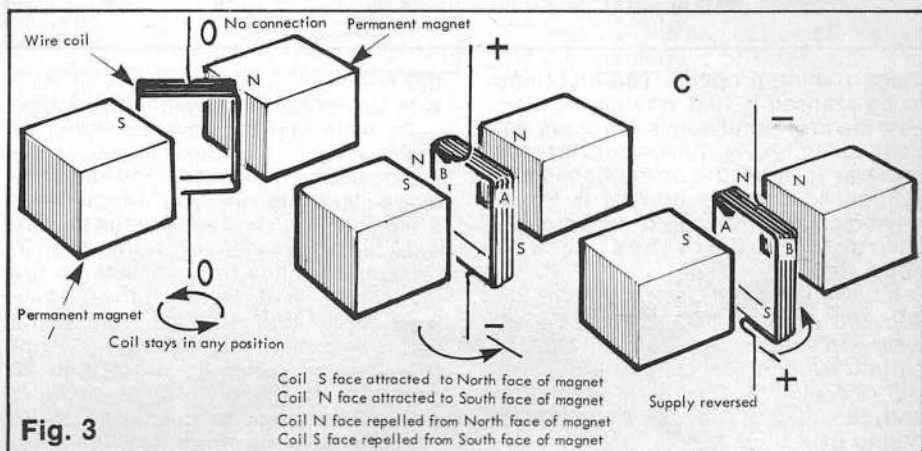
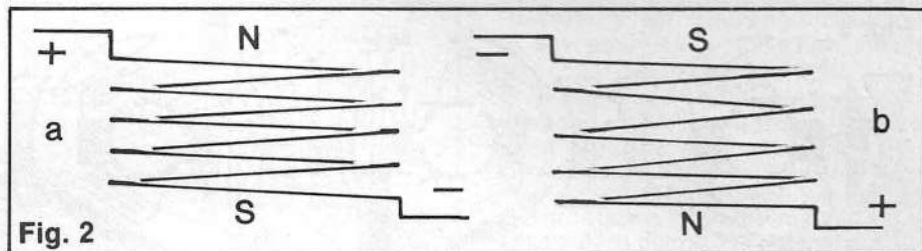
We now have two problems, (1) how to reverse the current flow so that the armature will rotate continuously and (2) how to ensure in which direction the armature will rotate.

Current reversal is performed by the **commutator** which in our motor is drum shaped and mounted directly onto the armature spindle. Both commutator and armature revolve together.

However, before moving onto the finer details of commutation we must establish that our motor features an armature fitted with *three* wire coils. These three wire coils are all connected to the commutator in series. When energised with electrical current they will become electromagnetic and produce North and South poles. Of course with three coils we have three *poles* and this is very important to give smooth and reliable motor operation.

Back to the commutator. The conducting face of this is divided into copper segments with gaps in between. The number of segments involved is governed by the number of coils on the armature (in this case three). Electrical current is passed through the commutator and onto the armature via two 'brushes' either side of the motor case (**Fig. 4**). These 'brushes' rub on the side of the commutator and are of sufficient width to bridge the gaps between the copper segments and will do so alternately as the commutator rotates.

Now we come to the reason why. When a brush bridges a commutator gap it bypasses the corresponding armature coil whilst energising the other two, these then become north and south poles (according to the current flow) and magnetism induces



rotation (**Fig. 5**). As the commutator (and armature) revolves the other brush bridges a gap and the same situation as above is produced. However, because the brush is connected to the *opposite* terminal of

the power supply, the current flow is reversed, which in turn changes the polarity of the other two coils so that rotation continues (**Fig. 6**).

Remember, all this happens at very high speeds and depending on the quality of the motor components can vary between 10,000 to 30,000 rotations per minute.

Motor Maintenance

Here in the UK two classes of racing for electric powered R/C cars are run, 'Standard and Modified'. These terms describe the motor being used, although both types are virtually the same regarding operation and components. Whether a motor is modified or standard greatly affects the price of the complete unit. 'Standard' types can sell for under £10.00 whilst the 'Modified' variety can cost anything up to £35.00.

Electric Motors

Standard Motors

'Standard class' means that these motors should be equal in performance and efficiency as they are produced by the same manufacturer, e.g., Igorashi. In reality this is not the case because these motors are mass produced and there are many things that can vary and alter the performance of a motor. The spring tension on the brushes, the material the brushes are made of, the bearings, magnetic strength, the balance and the way the armature is wound. On a standard class motor these items cannot be altered because the motor is factory sealed and should not be opened, if it is to be used in a National Competition.

Although I have just said that these motors cannot be altered they can be run in properly and looked after to keep

Right: two types of endbell currently in use on our electric motors. Left: the ubiquitous Mabuchi 540 endbell features phosphour-bronze brushes soldered onto leaf springs on the inside of the endbell. Right: the Yokomo style endbell features brushes which slide into channels in the endbell being retained by coil springs. This method allows access to the commutator for cleaning etc.

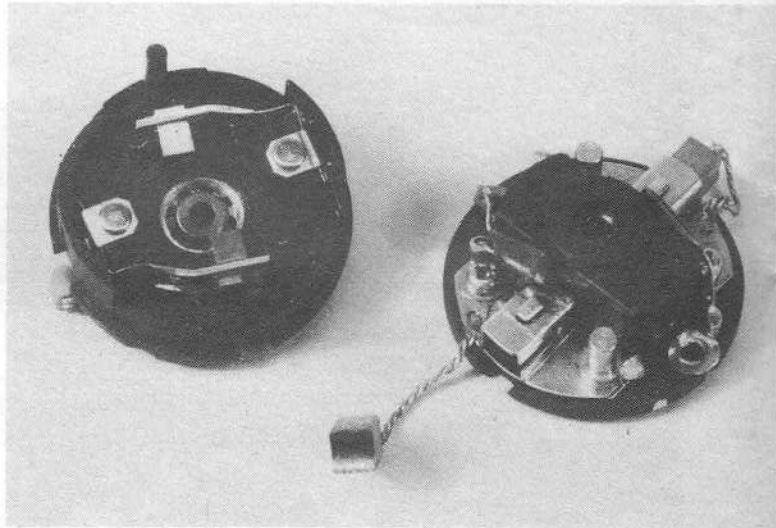
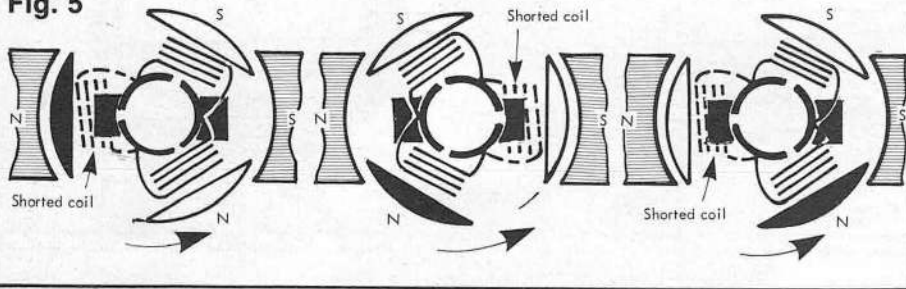


Fig. 5



them running properly. The first thing to be realised is that when a motor is new the brush and commutator are not bedded in, it is important for the brushes to have the correct shape or section so that the current is transmitted smoothly and efficiently through the brushes to the commutator.

If the motor is put straight into the car and run under load, the brushes will wear into shape and deposit a lot of carbon around the commutator. This will not allow a good flow of current and can also distort the commutator due to heat build up.

The most common way of running-in a motor is to run the motor off load for approximately two hours at reduced voltage, this is done in 5-10 minute sessions or until the motor becomes warm and then allowed to cool down before running again. The first six runs should be set at 2.4 volts, then three runs of 4.8 volts and finally three runs at 7.2 volts, remembering to keep the motor cool and the bearings well oiled. The reason I use these voltages is that you can charge an old six-cell Ni-Cad pack and use this as the power source by tapping of the first two cells for the first voltage, the other four for the second and the full pack for the final runs. The motor can now be fitted into the car and raced.

There is now a different method of running-in motors which is far quicker, and requires only 15 seconds to accomplish fully. This involves running

the motor on a charged pack of cells with the motor immersed under water.

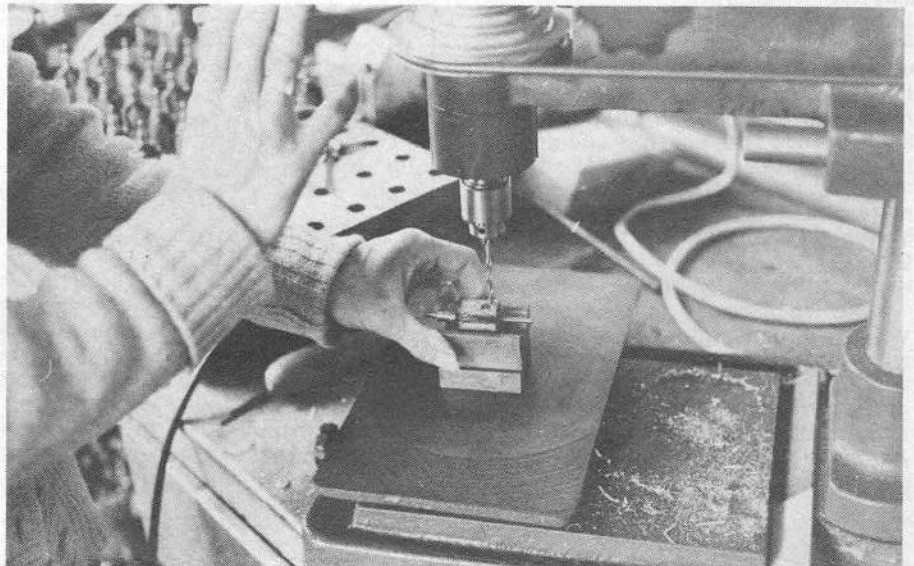
To 'water dip' the new motor first oil the bearings and then immerse the motor under water keeping the motor leads clear and dry, you then remove the motor and connect it to the battery pack and immediately re-immerses it, moving it slightly to keep water in the can. The motor will slow down fractionally and you will notice the water becoming slightly dirty. **Do not leave in the water for more than 20 seconds maximum.** 15 seconds is normally enough to run the motor in fully. Remove the motor from the water and shake it whilst it is still running for a few seconds to get as much water out as possible, then stand it on end to allow excess water to drain away. You

can then re-oil the bearings and fit to your car. With luck you will now have a good motor.

Standard motors although they cannot be opened can still be maintained and cared for. It does not hurt to drop a little oil on the bearings just before you go out to race. The best lubricant I have found is a light oil such as WD40 or M.G. Products' 'Motor Lube'. After the motor has been used for a few meetings it should also be cleaned. This can be done in a variety of ways. One method is to spray an electrical contact cleaner through the motor fixing holes whilst the motor is running, **do not use cleaner that contains lubricant as this can get on the commutator and brushes**, then allow the fluid and dirt to flow out of these holes. The motor bearings should then be oiled and re-used.

Another method I have just started to used is to drop a few drops of M.G. Products' 'Mr. Cool', commutator fluid into the can at the start of the meeting as this seems to keep the motor clean and makes for less general cleaning.

With the new Yokomo standard motors coming on to the market it is far easier to keep these clean and running properly, however, it is unwise to 'water-dip' these motors as the brushes



are very soft and will wear too quickly, it is better to run them in with the low voltage method. Because the brush gear on a *Yokomo* is exposed and thus easier to work on. The brushes can be removed and the slider cleaned and kept free of dirt. The commutator can be cleaned by using cotton buds or lint-free cloth dipped in 'Mr. Cool' or an electrical contact cleaner, remember to make sure no fluff is left on the commutator. Lastly use a thin knife blade and clean any loose dirt from between the copper segments taking care not to damage the edges.

One common problem that has been encountered with the standard class *Yokomo* motors is a noticeable loss of power when put under load. It was found that in some cases the brushes were not moving freely in their slides thus causing inefficient contact with the commutator. This was rectified by removing the brushes and rubbing them very lightly on fine 'wet-or-dry' emery paper to allow them to slide and make proper contact with the commutator. **Do not remove too much material.** The other advantage with *Yokomo* motors is that the brushes can be replaced. However, I have not yet seen actual *Yokomo* brushes for sale although *Ripmax* are selling spares for the *Kyosho* 'Le-Mans' motors and these are the same type. The first thing to remember if you are going to strip the motor is that it is an expensive item so take care of it.

If you use a *Yokomo* in a buggy always fit a rubber boot to stop dirt reaching the commutator and brush gear.

Modified motors

Why is a modified motor quicker than a standard motor? Mainly because it has been manufactured to closer tolerances than its standard class equivalent. Nevertheless, another way of increasing the power output is to increase the current used by the motor and the simplest way of doing this is to reduce the number of wire turns on the armature. This has the effect of lowering the resistance of the wire coils and increasing the current passed

through the winding which in turn increases the power of the electro magnetic field produced and thus causes the motor to turn faster. However, the major producers of modified motors do not just remove wire from the armature but instead completely rewind the armature with a different number of turns or use another gauge of wire. Using this method, motors can be produced to meet very fine specifications such as different race durations and gearing ratios.

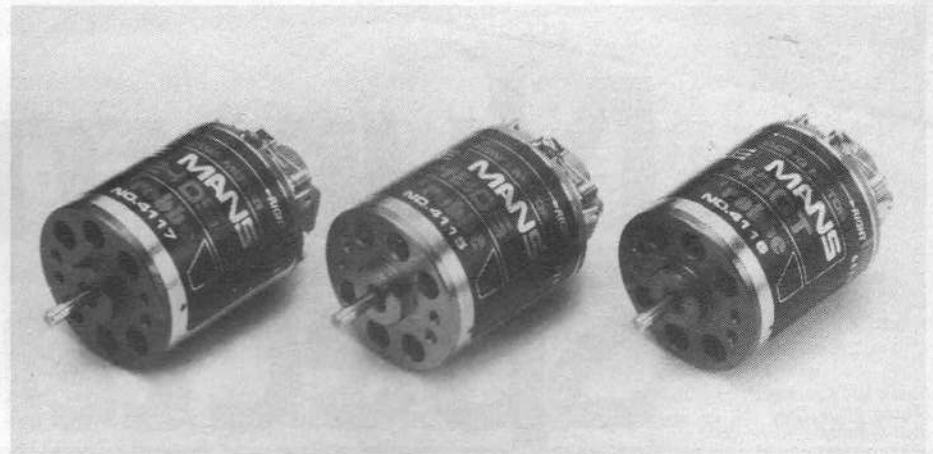
Another limiting factor on motor efficiency is whether or not the armature is in balance or not. If the armature stack is unbalanced vibration will be caused and subsequently lessen the power output. Various methods of armature balancing are carried out and generally involve either the addition or removal of material from strategic points of the armature core.

The commutator should also be perfectly cylindrical or 'comm trued' to allow full brush contact. Adding ball-races into the motor can for the armature spindles will also aid overall efficiency.

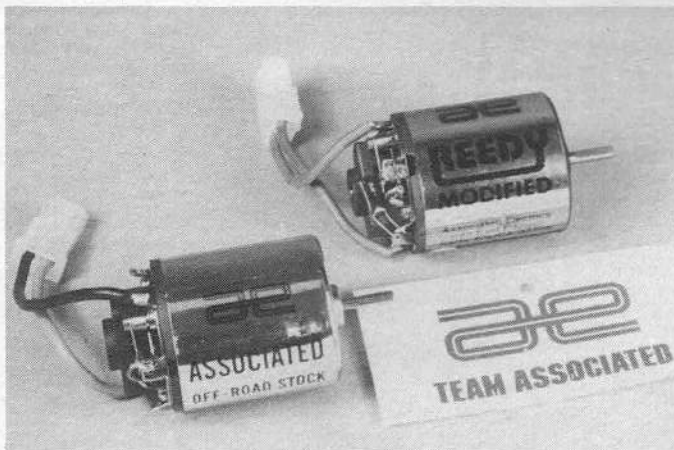
As far as maintaining and preparing modified motors goes the same principles as set out for standard motors applies. Having said that, most modified motors will already have some running-in time on the clock. However, when removing the endbell of any modified motor a few simple guidelines should be observed.

When removing the endbell of an Igorashi or Mabuchi motor the first thing to do is mark across the join between can and endbell. This is so that upon reassembly you can get the motor rotating the right way and set to its standard timing. Do not just pull the endbell off the motor.

To remove the end bell and armature remove the screws or tape fixing it to



Across left: material being removed from a motor armature for balancing. Above right: *Kyosho* of Japan produce these three *Yokomo* style, 'Le-Mans' motors. Competitive in both price and performance. Right: Mike Reedy of *Associated, USA* produces a wide range of re-worked motors for both Standard and Modified class racing.



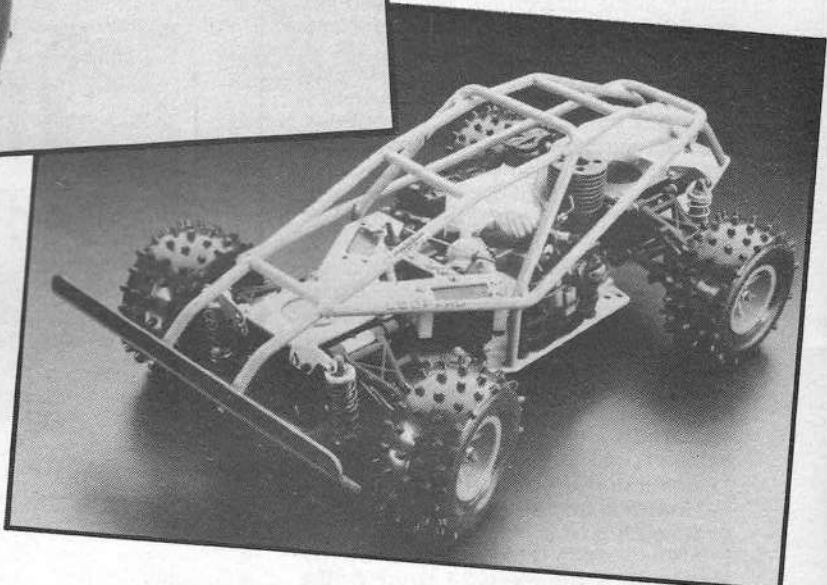
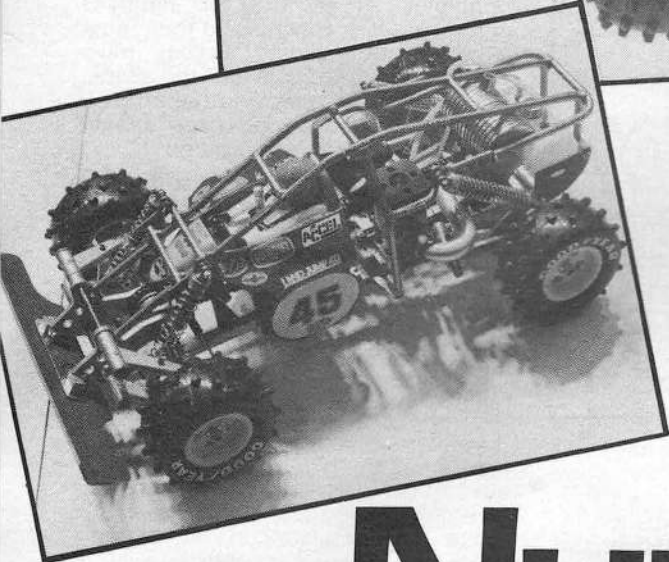
the can. When this is done, grip the armature shaft where it comes out of the end bell and place the other end of the armature on a bench then push the can clear; this will remove the end bell and armature as one unit (Fig. 7).

Take note of the spacing washers so that you can replace them in the right order. Now hold the brushes away from the commutator and remove the end bell. You can now clean the armature, bearings and the can. If you find that the motor is losing power and the commutator appears to be pitted and grooved *M.G. Products* offer a very good motor rebuild service that is not that expensive and can increase the life of the motor.

Nuremberg Toy & Hobby Fair

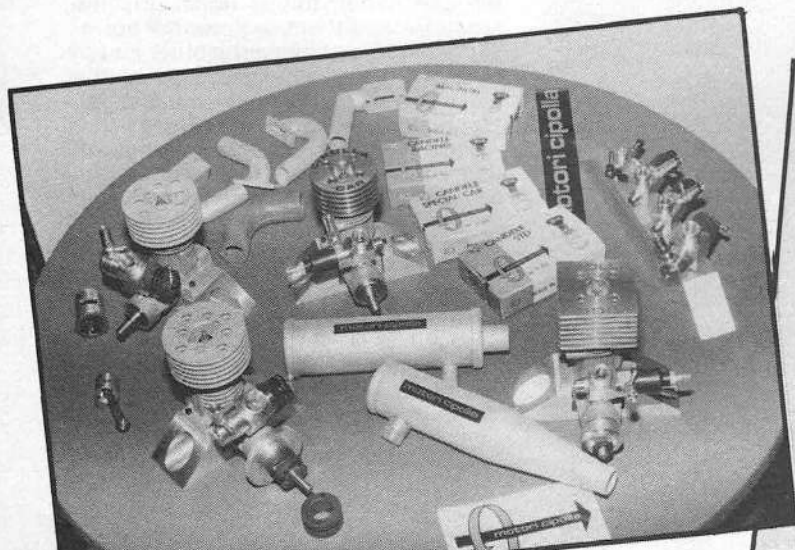


Left: long awaited and well worth waiting for, the Serpent 'Cobra' four wheel drive 1/8 scale off-road racer. Very rugged design with well known Serpent quality. Below left: latest version of the Kyosho 'Land Jump' - christened the 'Integra'. Below: SG 'Leopard' has already been seen around for several months.

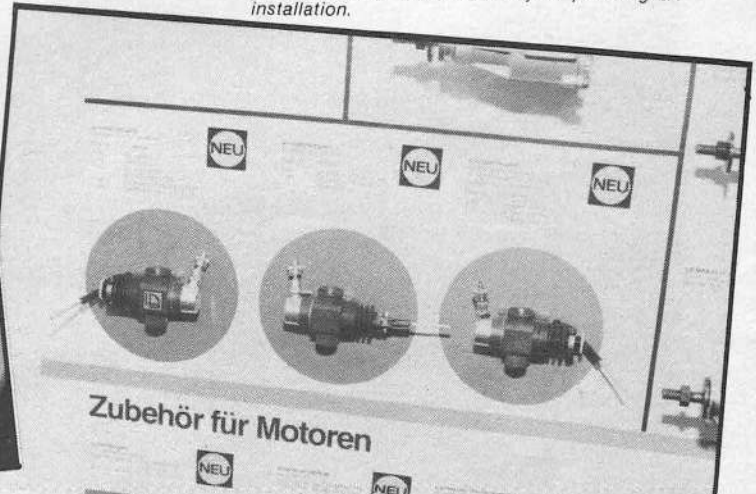


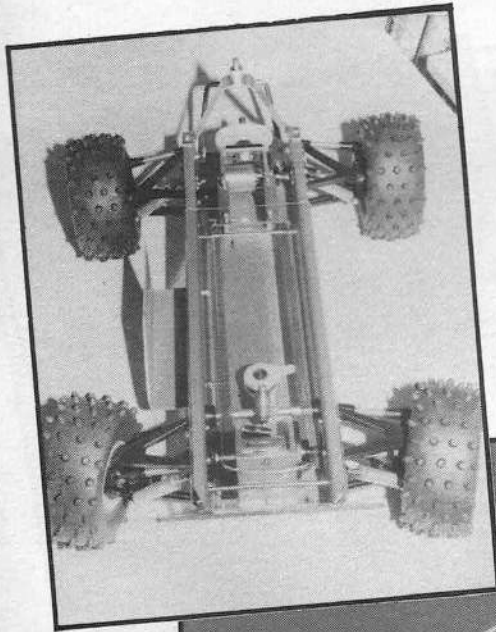
Nuremberg Spectacular

Below left: Cippola brothers from Italy displayed their full range of car motors, tuned pipes and manifolds.

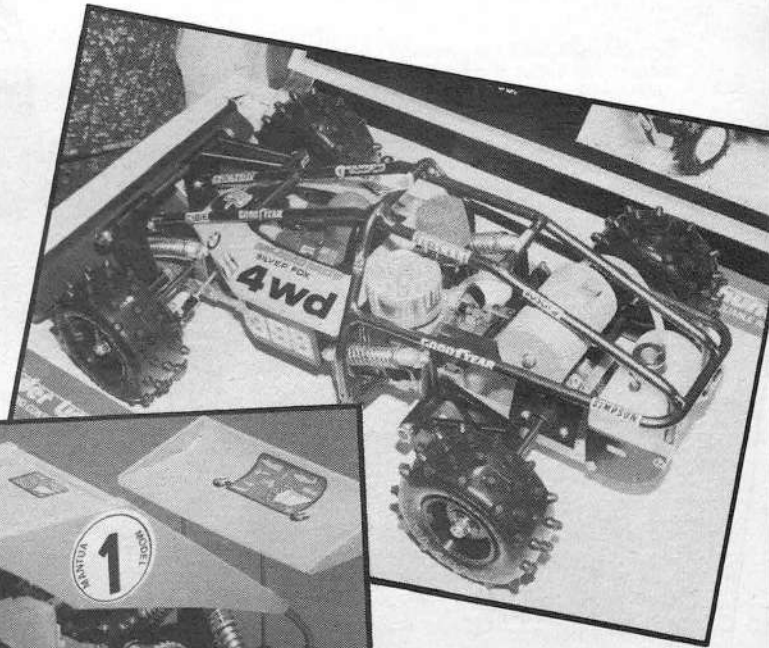


Below: three new slide carburetors suitable for 1/8 scale cars produced by HB. Differing jet positions allow more flexibility in planning an installation.





Left: latest version of the Micro Racing four wheel drive off road car - features toothed belt drive front to rear. Right: Thunder Tiger have moved into the four wheel drive arena with this new car reminiscent of their Kyosho rival.



Left: Manutia have chosen the name 'Devil' for their four wheel drive buggy. Solid looking piece of machinery from this reputable Italian manufacturer.

The title 'Toy Fair' seems totally inappropriate when referring to the Nuremberg show, its sheer size and overwhelming content almost defies description. Suffice it to say that practically every conceivable toy, hobby and leisure product is on display in greater or lesser degrees.

By design, the R/C modelling orientated trade stands are grouped close together making the task of reportage a far simpler task than it might otherwise have been.

Undoubtedly this year's show was dominated by 4 wheel drive off-road

cars, no less than 10 examples were on show with six of these being new products.

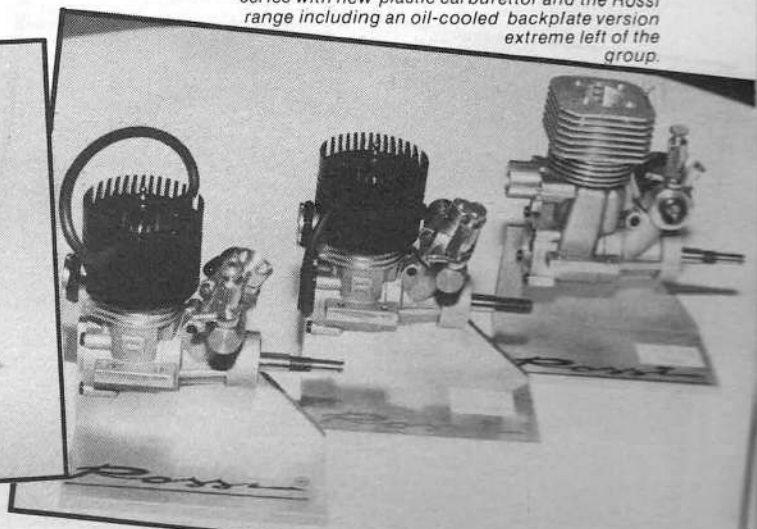
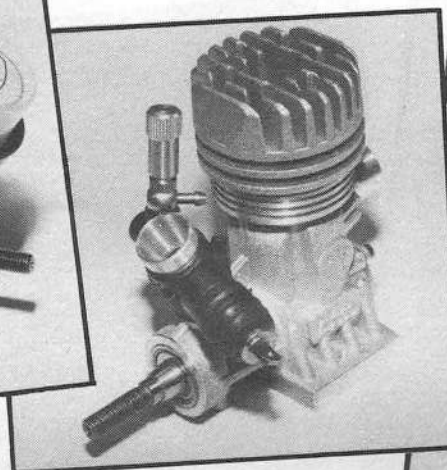
Continuous development in the engine field also threw up some interesting 3.5cc racing motors mainly from Italian concerns.

As might have been expected, electric off-road cars stole their fair share of the limelight giving the major Japanese manufacturers the chance to show their flair and ingenuity.

However, if we were asked to pick out a 'best of the Show', there would

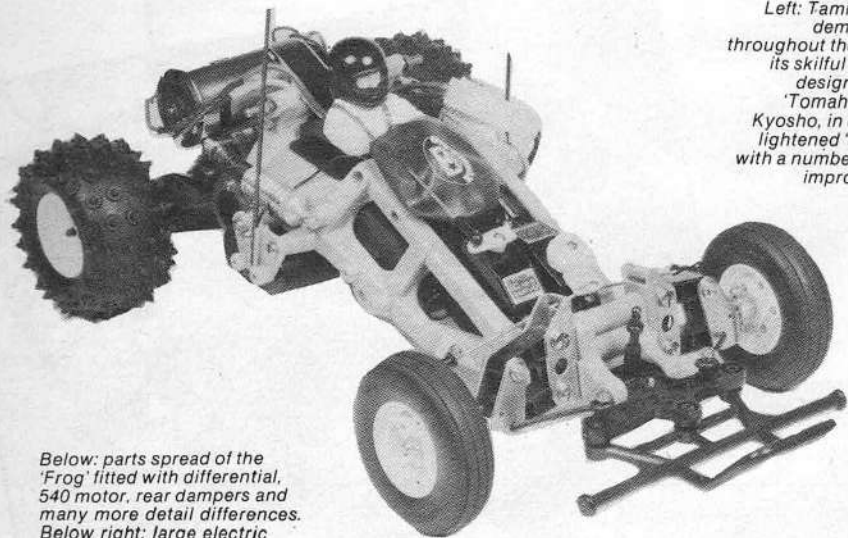
be few that could disagree with our choice of the PB 'Nova'. This latest all-British product from the Havant-based PB Racing Products really looked the part, being the closest that 1/8th scale racing cars have yet come to their full-size counterparts with its mid-engine layout and monocoque chassis. Although PB's Keith Plested was sharing a stand with his Swiss distributor in a corner of Hall P, their inconspicuous position drew a steady crowd of visitors and purchasers.

Congratulations Keith, truly a star.



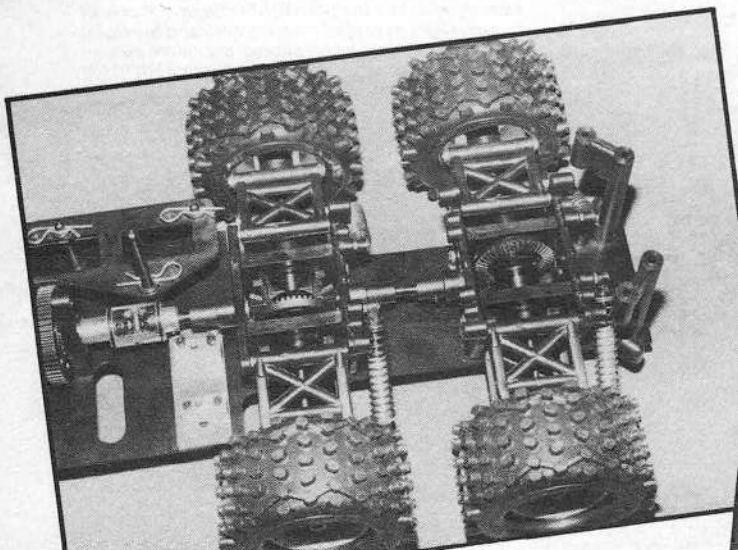
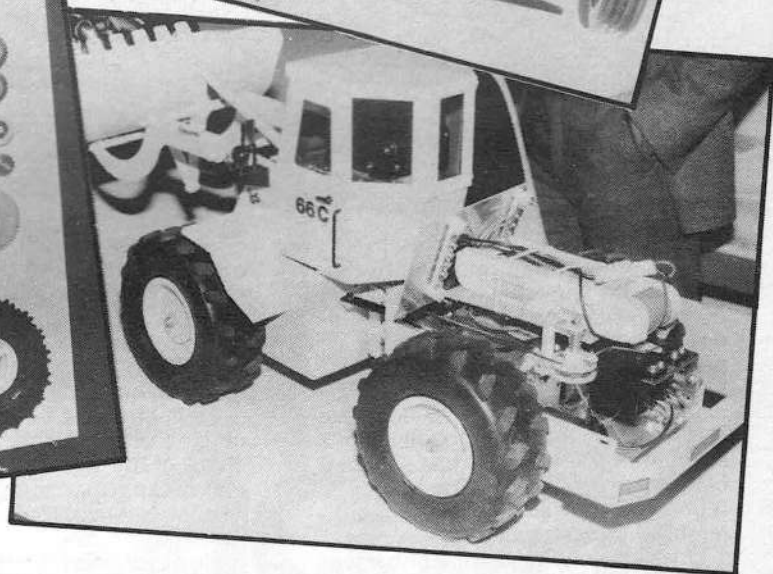
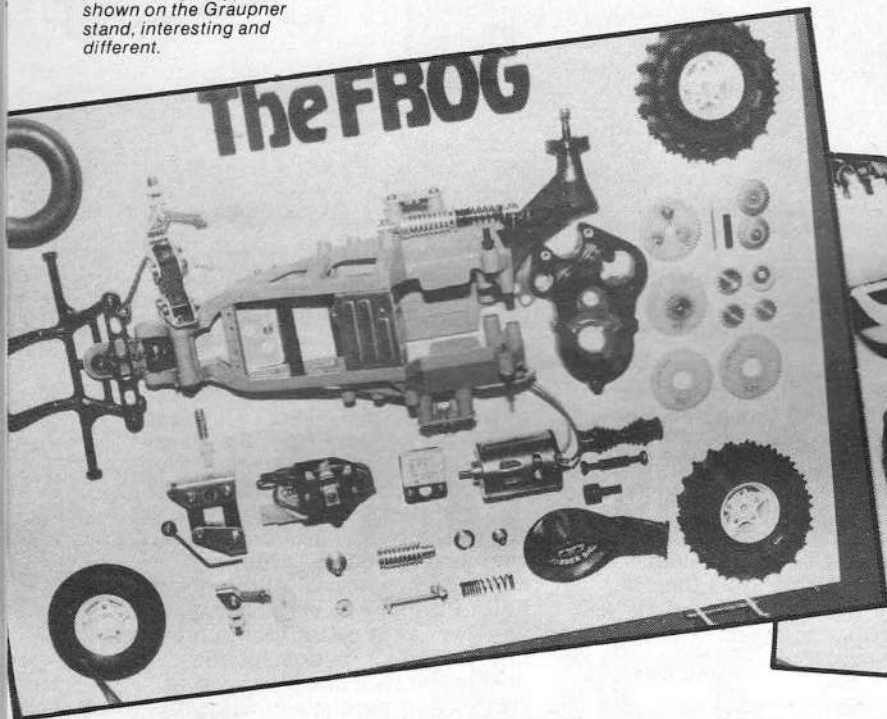
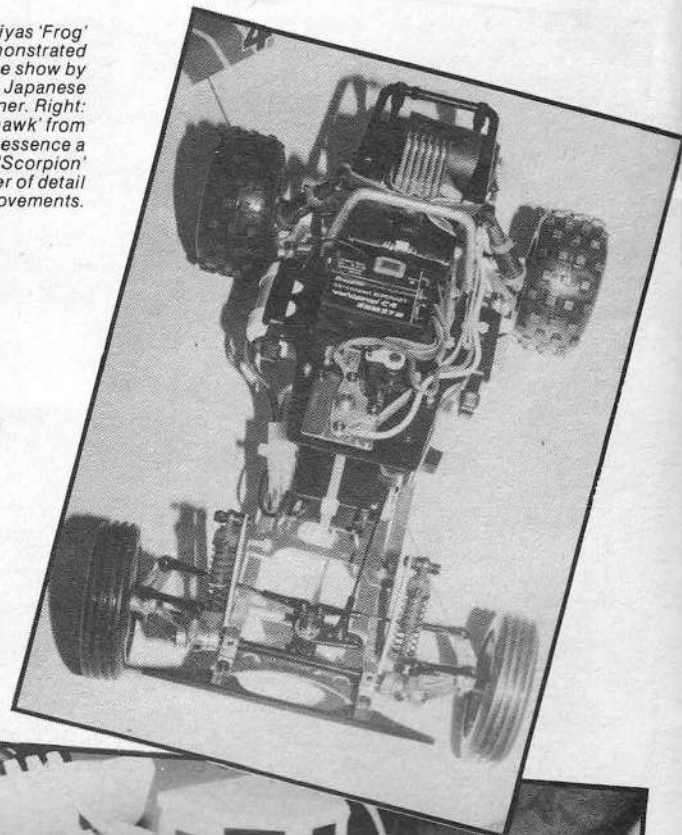
New motors! Left to right: OPS21 'Buggy'; Picco '84 series with new plastic carburettor and the Rossi range including an oil-cooled backplate version extreme left of the group.

Nuremberg Toy & Hobby Fair



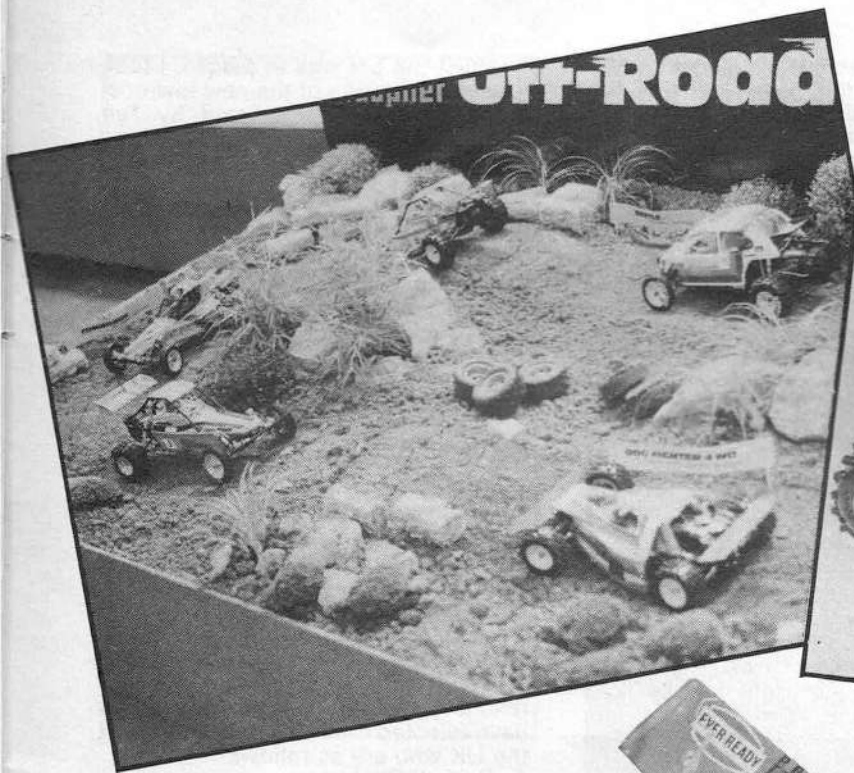
Left: Tamiyas 'Frog' demonstrated throughout the show by its skilful Japanese designer. Right: 'Tomahawk' from Kyosho, in essence a lightened 'Scorpion' with a number of detail improvements.

Below: parts spread of the 'Frog' fitted with differential, 540 motor, rear dampers and many more detail differences. Below right: large electric power dumper type vehicle shown on the Graupner stand, interesting and different.

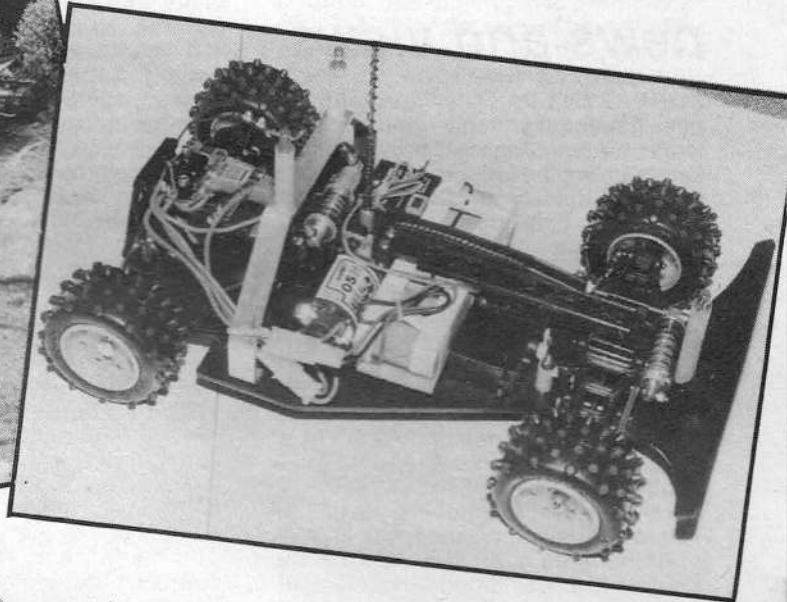


Below: count the differentials! Six wheel drive fun from Yankee, another 'different' R/C vehicle.





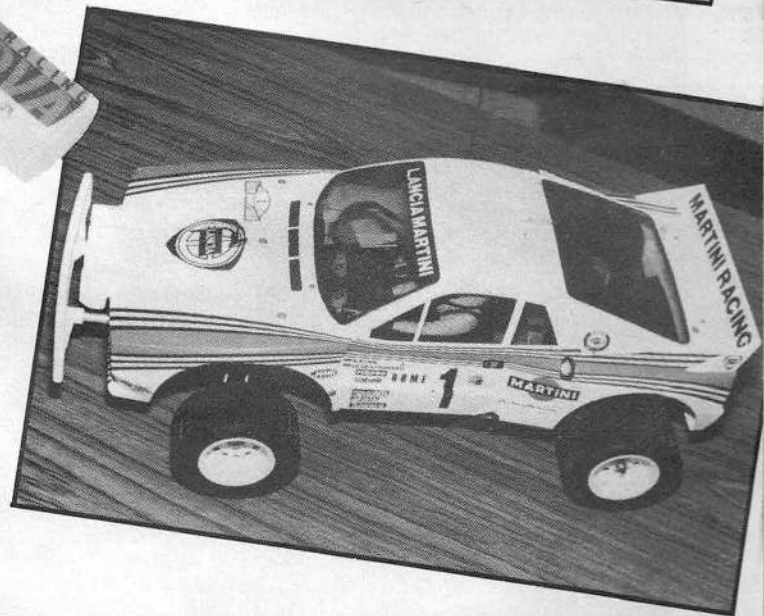
Left and below: Yokomo have produced their own four wheel drive 1/10 electric buggy. Chain drive to the front wheels from centrally mounted motor.



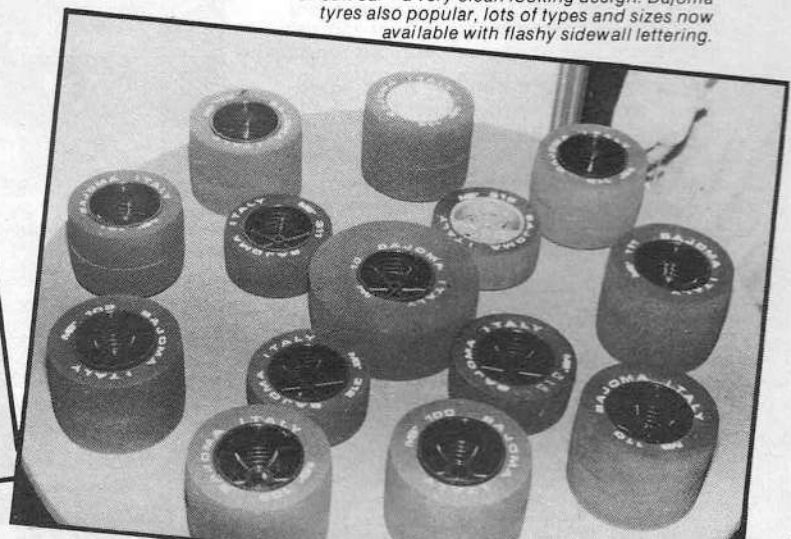
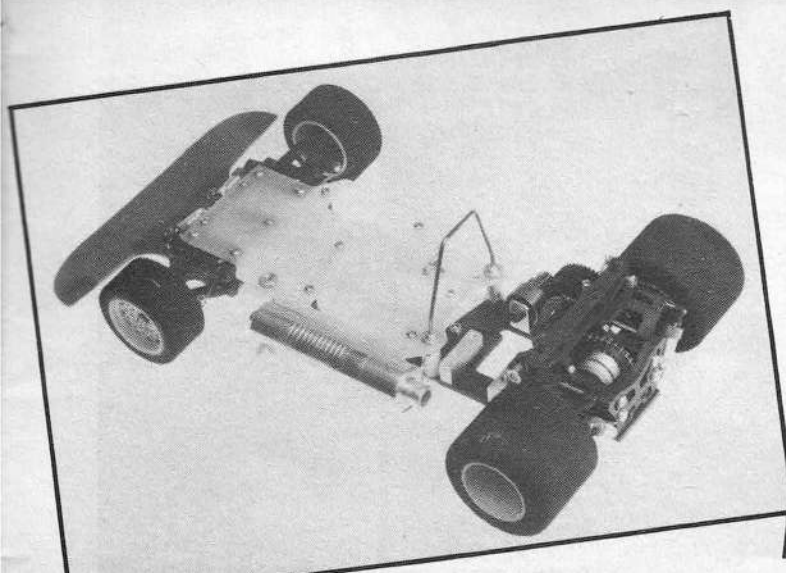
Below: star of the show, PB Racings new 'Nova' outshone the rest. We should be seeing a lot of this car during 1984 and onwards.



Right: latest development on the 'Bral' theme from Tamiya the 'Lancia Rally'. Similar style chassis, new bodyshell.



Below left: latest version of Serpent's 'Quattro' 1/8 circuit car - a very clean looking design. Bajoma tyres also popular, lots of types and sizes now available with flashy sidewall lettering.



Off-Road racing news and views

DURING THE PAST few weeks I have been spending some time in the workshop uprating my Tamiya 'Subaru Brat'. During the indoor off-road racing that took place at the 1984 Model Engineer Exhibition, the general performance of the 'Brat' really impressed me although the single area that did look as though it could do with some modification was the front suspension. When the 'Brat' was crossing an area of particularly rough surface (plastic 'dots') the front end bounced very noticeably. The obvious answer was to fit dampers to the front suspension and I therefore sized up a couple of units that I had to hand.

Tamiya's own dampers obviously had to be considered and with a little bit of thought the mounting shown in the photograph was fitted. By removing the inner pivot screws that fix the black plastic suspension arms to the aluminium mounting channels, I found that I could fit a GRP strip underneath

front end. I stripped down the units and filed small flats on the sides of the pistons, refilled them and then refitted. Once this small modification was made, the damping was just about right (see Fig. 1.)

Even after all this effort I was still not entirely happy with the results, the whole suspension seemed too stiff and a further look at the whole front-end led me to reason that the combination of the damper mounting positions and the original 'Brat' springing system resulted in side loads stiffening the pivots. A more satisfactory answer ought to lie in a totally different springing method. As it happened, I had a pair of Kyosho coil over damper units sitting in a box and these fitted straight onto my already modified front suspension and damper mounts.

Before fitting these however, it was necessary to remove the original 'Brat' springing. Once these were on, the suspension was transformed, the wishbones moved freely and the damping was just right for the light 'Brat' front end. On the track the improvement is most noticeable on bumpy corners, the car used to understeer on rough ground, not now, the turning ability has been improved and the general bounciness has gone.

Whilst the car was in pieces, I took the time to fit one of the new low-cost differentials being marketed by Ted Longshaw Model Cars. This is a very simple task as the unit is a direct replacement for the standard centre gear. Fitting a '540' motor is also easily possible if you are prepared to do a little filing of the motor side mount plates. I understand that Don Ison of Nodis Racing Developments is soon to come out with a new differential for the 'Brat' along with gears, ball-races and replacement side plates to fit a 540 motor and a range of gear ratios.

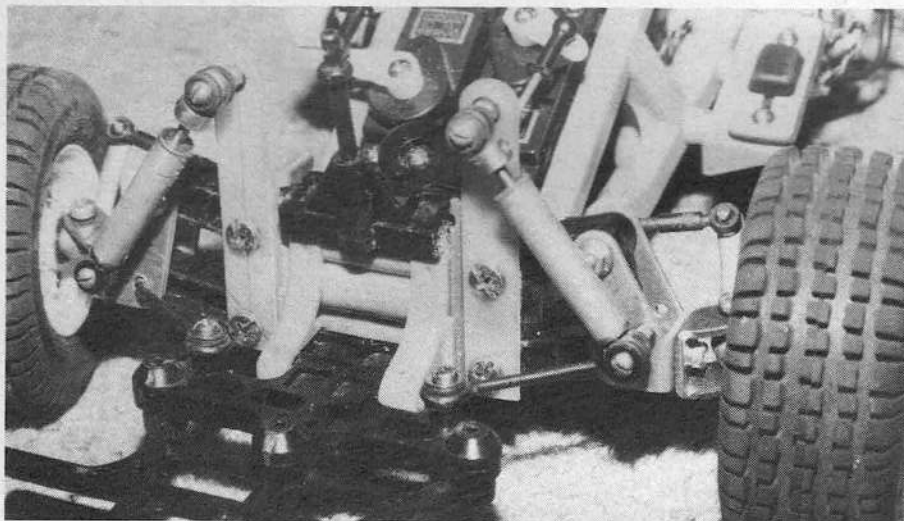
European 1/8th Scale Off-Road Champs

This year, the EFRA (European Federation Radio Autos) 1/8th scale off-road champion will be decided in Sweden. The chosen venue is Skanor-Falsterbo on July 21st/22nd. This year the allocation of drivers to the UK has been increased by one to a total of seven places. Using the championship results from the 1983 season the BRCA have selected the 7 drivers to represent the UK who are as follows:

1. Russell Buckner
2. Gary Marsden
3. Steve Marr
4. Bill Burkinshaw
5. Barry Whately
6. June Hawkes
7. Richard Stitson

The above team represents the best of both 2 and 4 wheel drive competitors who were members of the BRCA during the 1983 season and who are able to go to the Swedish venue. It is unlikely that any of these drivers will in fact be driving 2 wheel drive cars this year, most of those that did last year already have plans to change over this coming season. The advantage of knowing what to expect this year will hopefully bring a change of fortune to the British lads — for the better it is to be hoped!

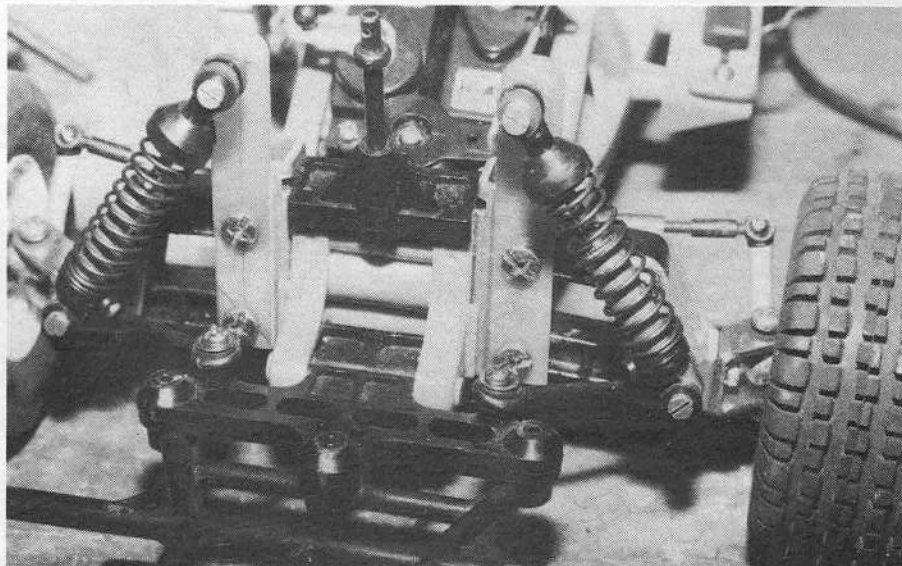
On the weekend following the Euro Champs there is to be an EFRA G.P. for 1/8th off-road at Oslo in Norway. This meeting is an Open International event

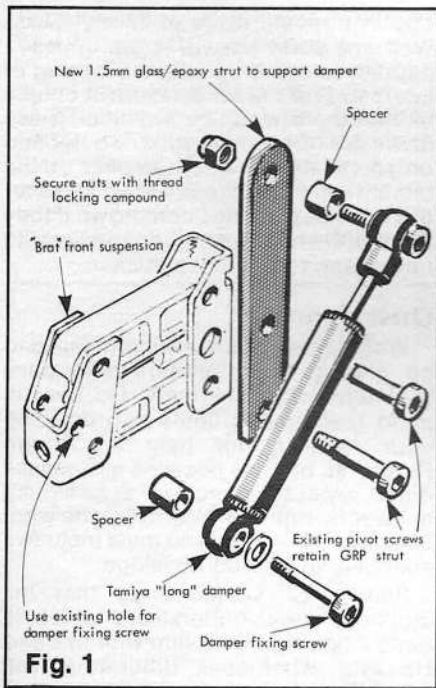


Above: the Tamiya Subaru 'Brat' front-end fitted with standard Tamiya front dampers. Right: once again the 'Brat' front suspension but this time fitted with the adjustable Kyosho front coil-over shockers.

these screws and still get the suspension to work properly. This strip extends up from the channel and provides a mounting point for the dampers. You will need to use a thread locking compound on the nuts which lock the pivot spindles. Spacers will be needed both top and bottom to keep the dampers from fouling the suspension.

As fitted to the 'Superchamp' the dampers were far too stiff for the 'Brat' and even with the thinnest oil I had available, were still overdamping the





Mike's activities have been confined to the West Coast racing scene but with the encouragement of Bob Rule he is starting to look at the wider view in the USA. Some readers will probably have heard of ORRCA (No, not the killer whale!) the acronym stands for Off-Road Racing Car Association. This is a specifically Californian association and is not, as we understand it, truly representative of the whole US interest. Mike wants to see the sport better drawn together preferably under the

to be a very keen control line aircraft flyer, combat was a particular favourite of mine. This particular activity was very hard on propellers until I discovered that boiling the propeller in plain water for a couple of hours before using it seemed to toughen the propeller considerably. Apparently, please correct me someone if you know better, the nylon mouldings undergo a process of stress relief or normalising and also absorb a small amount of water during the boiling



which of course means that *any* British driver may enter, so if you fancy combining a Scandinavian holiday with your favourite modelling activity, then drop a line to the organisers at Oslo Modelbil Klubb, PO Box 30, Holmlia, Oslo 12, Norway and they will send you an entry form. To enter the event you will need BRCA membership and an International competition licence.

Tamiya 'Frog'

During our annual visit to the Nuremberg Toy and Hobby Fair I obviously called in at the *Tamiya* stand to take a look at the products that will be released later on this year. The 'Frog' is the one single product that interested me the most as this is the company's newest racing buggy. At last *Tamiya* have recognised the worth of the differential and have incorporated their own bevel gear type into this new 540 motor powered version of the 'Brat' style buggy. Those dummy rear dampers as fitted to the 'Brat' are now proper oil filled units and a Lexan body is to be supplied as standard equipment. Of course there are other detail changes as well but the above mentioned are the major ones and those that are the most readily apparent.

The World scene

During the round of the stands at the Nuremberg fair I took time to chat to Bob Rule and Mike Tobey on the *Bolink* stand, Mike, who manufactures his own range of tuned-up parts for the popular 1/10 electric off-road cars was sharing the stand with Bob and is involved with the organisation of electric off-road in the States. So far

banner of the American national association, Radio Operated Auto Racing (ROAR), with rules that are nationally acceptable. Now where have we heard that call from before? With people like Mike Tobey and Bob Rule involved we will certainly find the hoped for world organisation for off-road racing a workable proposition. Mike was most interested to see a copy of the BRCA rules, particularly with reference to preparing an international set of regulations. This type of activity takes a long time and no rapid progress should be expected for at least 12 months. Do remember the Open International planned to take place during the 'Model Craft and Country Show' on May 27th. If you want to enter, send for forms to Race Entry, Model Cars, P.O. Box 35, Wolsey House Wolsey Road, Hemel Hempstead, Herts. HP2 4SS.

Plastic parts breakages

A very high percentage of the parts in many buggies are made from plastics, nylon, ABS, styrenes of various types and the polycarbonates. These plastics are carefully chosen by the manufacturer for the particular part that they are to be used for and under most normal circumstances do their job well. Occasionally they break and frequently the reason for the breakage is not obvious. It is not always the worst crash that does the damage, sometimes an apparently minor bang can do the most harm. Many years ago I used



process. Whatever the technical reasons the system does seem to work for nylon propellers so there could be some positive benefit in trying the idea for nylon moulded buggy parts.

Many plastics become more brittle when the temperature goes down, those parts that have seemed adequate during the summer months suffer from inexplicable breakages during the colder winter climes. The boiling process seems to help this situation as well.

Readers' hints and tips

The mono-shock suspension fitted to the 'Superchamp' rear end has proved a definite improvement on the

Rough Riders

original Tamiya set-up, the idea seems to work well on other 2 wheel drive cars as well, my own PB 'Alpha' has been modified to this system with a fair degree of success. Reader, Gary Cookson has also been at work and developed his own version for his 'SandScorcher'. He writes . . .

"My modification employs a standard Tamiya long damper fitted to the rear suspension in the mono-shock mode, an ideal mod. for the budget minded racer. The pins from the rear of the gearbox must be removed and a new rear arm shaft made as shown in Fig. 2. Two such arms are needed with a flat filed on the shaft to correspond with the grub screws used to retain the spindles, i.e. there are Right and Left hand versions. Once the new arms are fitted the dampers are fixed to them with collets and rubber grommets to allow the damper to float as necessary. You can of course remove the torsion bar springs and replace them with a coil over type spring to further improve the handling.

I have also strengthened and improved the front suspension on my car quite simply by replacing the soft steel pivot spindles for the front wishbones by substituting a hardened steel one piece cross spindle. Two spindles

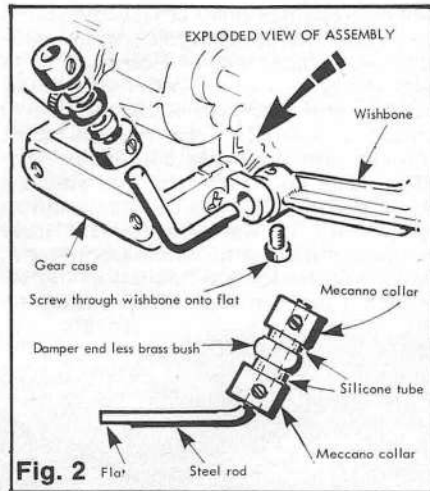


Fig. 2

are needed; and they must be epoxy glued into the suspension mounts to stop them turning. You will need to cut M4 threads on each end of the spindles before fitting and before hardening. Standard Tamiya locknuts can be used to retain the suspension arms which need to be brass or bronze bushed for best results (just the task to put your new 'Unimat 1' lathe to! — Ed.).

Reader M. Taylor was disappointed to find no Tamiya (or other) hints and

tips in a recent issue of 'Model Cars'. Well, the short answer is that unless I happen to come up with something of interest, or a reader sends us a choice morsel there won't be any tips! These items are not at all regular, we depend on you to a large extent to pass on the benefit of your experiences to other drivers. Keep the tips coming in, if they are worthwhile, we will do our best to find space to publicise them.

Query corner

Within reason I am always pleased to be able to help readers who have problems with their cars. Do bear in mind that time is limited so do keep your requests for help to 'Rough Riders' as brief as possible and please don't expect to receive a book-like answer by return of post. If you do want a reply to a question you must include a stamped addressed envelope.

Reader C. Eastall finds that his 'Super Champ' understeers which is quite a common problem with this car. He asks whether a differential will help? This particular point was covered in a comprehensive manner in a past 'Rough Riders', December/January 1983 to be exact, and the short answer is 'Yes'. His second query concerns the

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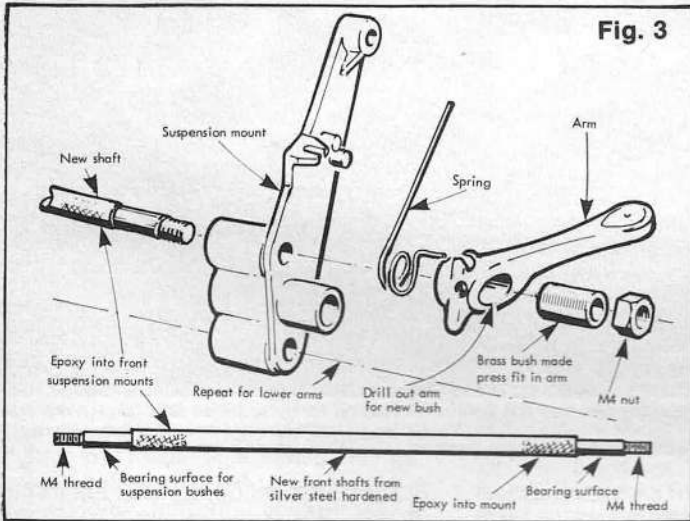
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battery topping up system which forms part of the R/C installation on the 'Super Champ'. As I think I mentioned in the review of the car, my own kit was a preview model with Japanese instructions and as I understood it, the idea was not to eliminate the battery altogether but use a very small receiver pack and continually top this up from the main drive battery. This is probably

because the *Acoms* R/C recommended for the *Tamiya* cars can run from an optional mini battery. The current consumption of the R/C system is very small and will make no discernible difference to the running time of the car. It does mean that it will not be necessary to purchase a separate charger for the receiver battery as this will be continually charged all the time

that the main drive battery is plugged into the speed controller and the car is switched on. Finally Mr. Eastall wants to know if he can race his 'Super Champ' in the BRCA '380' class if he fits a 380 motor? Once again 'Yes'. The specification for all three classes is the same, the only difference between the three classes, Standard, Modified and 380 is the motor specification.



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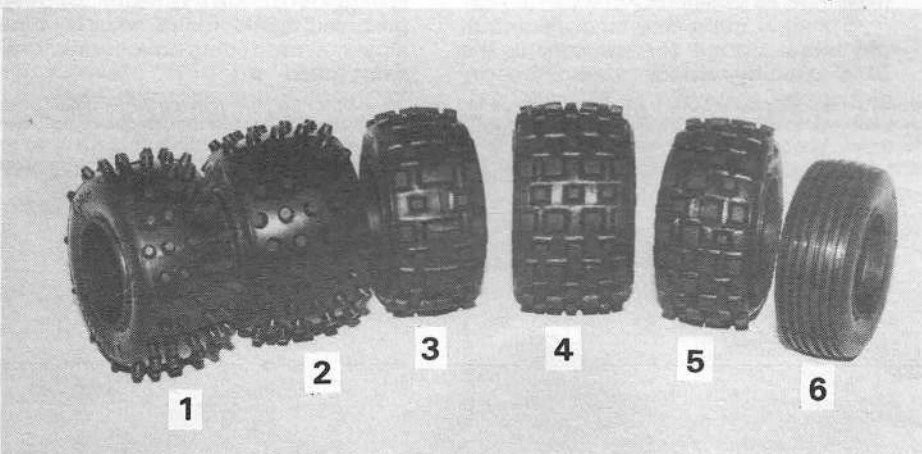
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O.T.R. 'ENDURO' TYRES (1/8 I.C.)



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CHAMPIONSHIP
(FIRST OVERALL)
B.R.C.A. (OFF ROAD)
BRITISH NATIONAL
CHAMPIONSHIP
1st, 2nd and 3rd

Congratulations to Derek Brader (Serpent Cobra) for winning the 1st National Off-Road meeting of 1984 at Wombwell on MRC tyres.



- | | |
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In view, 1/8th scale IC racing developments

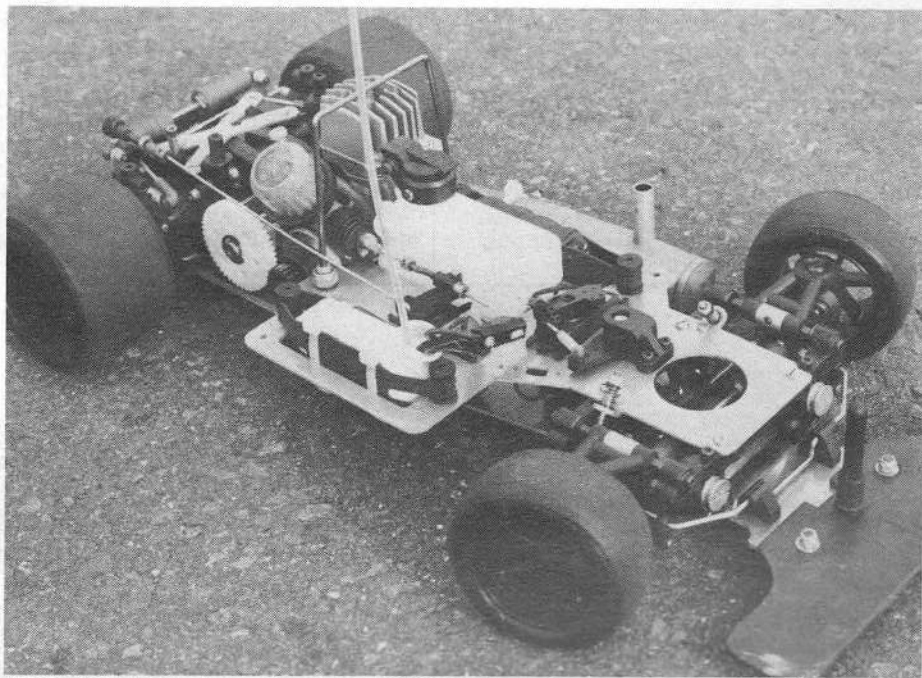
Team . . . who?

News of the top 'works' teams filters through almost daily, names like *PB*, *SG*, *Serpent*, *Associated*, etc., are constantly mentioned around the race tracks and amongst the higher ranked drivers. With all this name-dropping going on it is not always realised that there is life after Team.....(fill in space according to preference). Other teams do exist, often sponsored by a kindly model shop proprietor or local company and usually consists of two or more local club members. Sponsorship usually runs to providing a few bodyshells to be decked out in team livery with the patron's name figuring prominently. Discount at the local model shop is another side benefit.

Of course, taking results away from the mighty 'works' team is not to be expected, or even contemplated but competition can be just as fierce between the lower handicap drivers at National Championship and Invitation meetings.

The basis for all this is to highlight a few of the smaller teams each month as the season progresses. Taking that further I would like to receive any information from teams around the country with preferably a photo of the drivers with the team cars as well. Our first feature starts off with two teams from the South of England.

JTS Racing are sponsored by *Hatchpaines Construction Ltd.*, of Blandford Heights Industrial Estate, Blandford, Dorset. The team consists of two drivers, Terry Wareham from the Southampton Club and Les Strange



Above: Bob Errington's recently prepared SG Columbia sporting newly acquired MRC slick tyres. Bob reckons these tyres to be a significant step forward toward the ultimate tyre design, but at present require the high ambient temperatures to achieve maximum results (which is why they go down a storm in Australia).

from Bournemouth. This year they will be running SG 'Columbia's' as the team cars with *Hatchpaines'* decals on the bodyshells. Team colours will be black and gold as **JTS** is nearly the same as **JPS**!

Terry is a television engineer and lives in Jiverne Minster, Blandford whilst Les is a motor mechanic and hails from Twyford near Winchester. Both drivers are looking forward to the new season and will be competing in as many National and invitation meetings as possible.

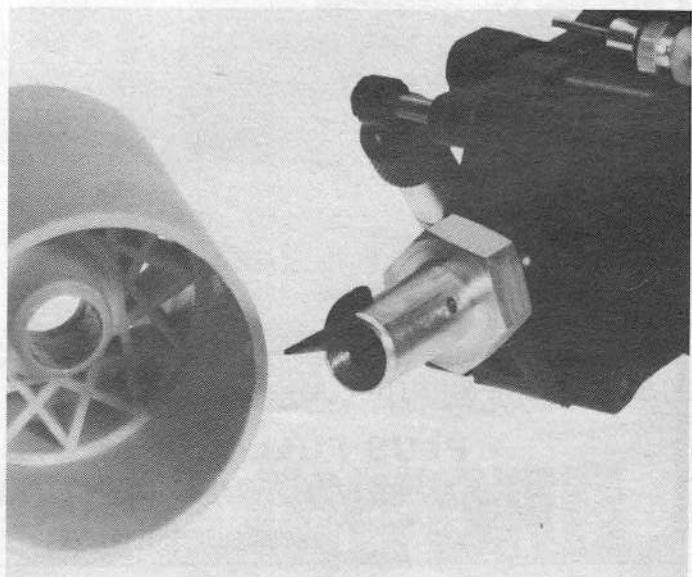
A familiar sight 'down south' and at meetings around the country is the **EMC Racing Team** sponsored by

Eastleigh Model Centre. The team lineup for 1984 includes the *EMC Shop* proprietor, Dave Farndale (now *that's* handy) Malc Bartlett, and Mike Watts, all from the Southampton club.

Together, they form a formidable trio with over a hundred trophies each to their credit and as individuals regularly qualify high in the rankings at open meetings.

All three are currently driving SG 'Columbias' using *OPS* motors. Their team colours will be startling Red and White with bodyshells expertly prepared by Malcolm who is a past master at producing concours-winning paint jobs.

Below left: the latest Picco slide carburettor now features a moulded plastic body plus all the usual handy features. Below right: the updated Serpent rear wheel fixing, now incorporating a quick change system, very similar to the SG and PB versions. A new rear wheel hub has also been specially moulded to complement the new fixing.



The team are confident that this year will be a good racing season for them, so watch out you 30-40% handicap drivers — you have been warned!

Serpent 'Quattro' Update

In keeping with most R/C car manufacturers' policy of continuous development, *Serpent* of Holland have produced two new developments to improve their popular 'Quattro' car.

Quick change rear wheels are almost certain to be *de rigueur* for all finalists this year, as the ability to change tyres, quickly during finals can be a definite bonus. The *Serpent* System follows much the same system as pioneered by SG and duplicated by PB. However, as can be seen by the accompanying photograph the *Serpent* set-up looks to have some advantage. A proper moulded lever is incorporated into the axle shaft and locks the wheel firmly in place. A new wheel hub has been designed to go with the system.

The 'Quattro' chassis can now be improved by incorporating the 'Hydraulic controlled Flex System'. This allows the chassis to flex under impact by virtue of a single damper mounted crossways at the back of the shaker plate. Longitudinal stiffness is not affected but lateral flex will eliminate chassis 'tweak' after a heavy knock.

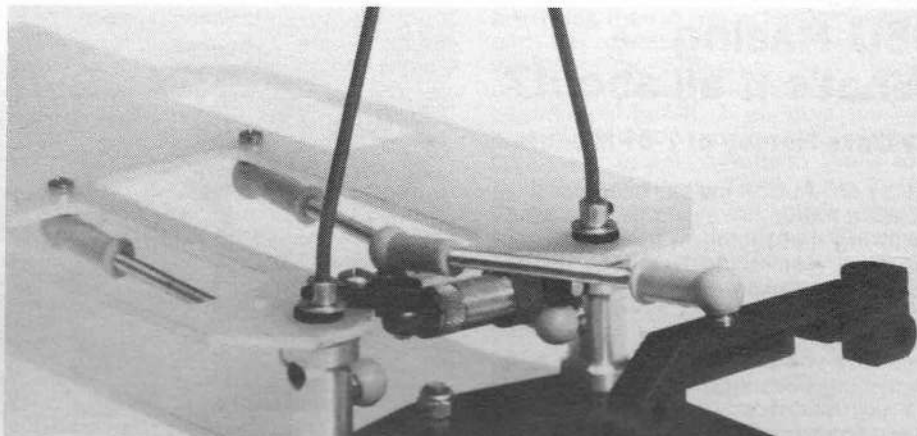
Elite Models of 145 Newgate Lane, Mansfield, Notts., are the UK *Serpent* importers and further details can be obtained from them.

Team Talk

UK OPS distributor, Phil Booth is to be fielding a team of three drivers this year to compete in the BRCA National Championship. **Team OPS** will consist of Phil, Paul Cook and Tom Wilson, all three drivers will be using SG 'Columbias' (surprise, surprise) and of course the latest in OPS horsepower. The line-up is fairly strong with bags of experience from Phil who is a past World Champion and BRCA Nationals winner. Paul Cook is an up-and-coming star (so I've been told) and drove an *Associated* last year, whilst Tom Wilson raced a *Serpent* 'Quattro' last season with a reasonable amount of success. Good Luck to you all.

Jim Davis Models have now taken over the distribution rights to the *Associated* 'RC500' and will be fielding a two-man team this year. Wayne Davis and Phil Stone will be making their bid for top honours using K&B engines prepared by Rich Lee and the latest in *Associated* rubber compounds.

Finally, some sort of tentative agreement between the four European manufacturers is in the offing to limit the amount of team sponsorship to reasonable levels. Nothing is definite at present but a meeting was held at the Nuremberg Toy and Hobby Fair. Apparently the



Above: at present, *Serpent* are offering the 'Hydraulic Controlled Flex System' as an optional extra to the Standard kit. This system allows for chassis flex during a heavy shunt, thus eliminating chassis tweak.

American manufacturers are in favour of the idea as well, so an EFRA or even IFMAR decision could be passed next year. Meanwhile this year only the 'agreement amongst gentlemen' exists, long may it last.

Across the Sea from Ireland

John Campbell, Honorary Secretary of the **Northern Ireland Radio Car League** has sent us a letter concerning their racing activities which hopefully will be of interest to 'mainland' drivers.

"The Northern Ireland Radio Car League is an amalgamation of the two main model car clubs in Northern Ireland, The Portadown M.C.C. and Ballymena M.C.C. operating under the Constitution and regulations of BRCA. The Ballymena Club has just this year built the only purpose built racing circuit this side of the Irish Sea. A superb circuit 240m long and 4m wide with a lovely banked bend at the end of 70m straight and needless to say it cost the usual 'arm and a leg' but all the hard work has been worthwhile. We have been granted an Invitation race within the BRCA Calendar for 28/29th July and a lot of the members that have never been to a race on the Mainland are eagerly looking forward to seeing

the 'top' British drivers 'go'. So if you don't get a personal invitation to Ballymena consider yourself invited and come on over to the biggest thing that has ever happened in the field of 1/8th I.C. in Ulster. You can be sure of a real 'Irish' welcome as the hosts will be doing everything in their power to ensure that you and your family will enjoy your stay, and what's more Ballymena is only a short run from Larne Harbour (20 miles) and about the same from Belfast.

Needless to say N.I. RCL will not be happy until they get an Official BRCA points meeting in this part of the UK but these things take time and we are willing to walk before we run.

There will be a lot of people doing a lot of hard work over here to make sure this race will be as big success so we would appreciate your support very much indeed and look forward to seeing you in July."

The date of the above meeting is the weekend just before the European Championships at Brugg in Switzerland and probably our gallant lads (British Team) will be leaving Britain on the weekend of the 7th/28th. Which means 'whilst the cat is away the mice will play'; so how about a decent weekend's racing across the Irish Sea.

Below: the *Serpent* 'pistol-grip' fuel filler will re-fill a tank in a split second. With this item, plus the quick-change wheels, the *Serpent* team are able to attain low pit-stop times comparable with Brabham's full-size pit crew.



Slot Car Acceleration

16D Racing — What's it all about?

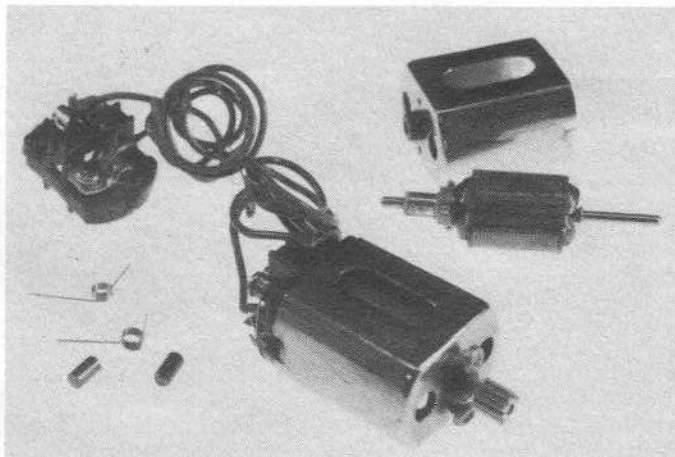
by Dave Harvey of 1-01 Models

FIRST OF ALL let me say how nice it is to see a nationally available magazine featuring slot racing in its pages. For too long slot racing has been in the doldrums. Response to the March edition of *Model Cars* has been very rewarding and I hope that this response will provoke continuing and increasing coverage.

This month's feature includes several photos of a '16D' slotcar chassis produced by *One-O-One Models*. Basically this is an attempt, by us, to bridge the gap between the home racer using say *Scalextric* (often the layman's sole knowledge of slot racing) and the club racer using comparatively, absurdly quick machinery. The car itself whilst being just about the ultimate home racer car, will also run round most club tracks quite well. It's not a lap record breaker but will enable the owner, for relatively low cost, to put himself on the first rungs of the slot racing ladder. Several clubs run a '16D' class for novices and for a fun class for those involved at a higher level. In fact '16D' powered cars in varying formats have been the saviour of some clubs. The higher costs and complexity of the faster cars can put newcomers off for good. '16D's are very good introduction to slot racing 'proper'.

But what exactly is a '16D'?

'16D' is just the mark given to a particular type of small, DC electric motor. There are various types under this guise the most notable being the *Mabuchi* 'FT 16D' sold some years ago under various titles by *Riko* and *Revell*. In recent years however the most available types have been the *Parma* '16D' and the *MRCC* '222' and '222H' versions. The 'H' suffix denotes a hotter wound armature (that means faster).

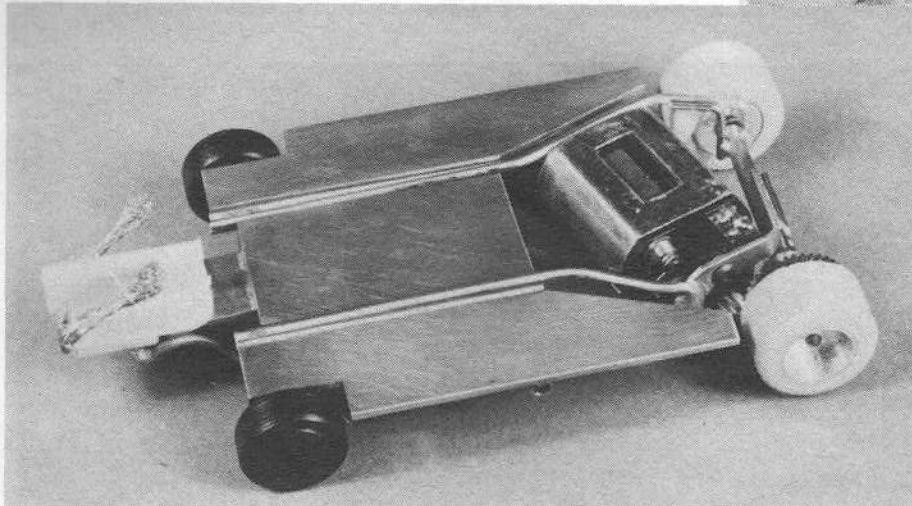


Left: the Parma version of the '16D' motor, the endbell on this motor features spring loaded, sliding brushes. Right: *Zakspeed Capri*, *Datsun* and *Skoda* exiting the final corner before the straight.

All these motors are in essence the same as they are all manufactured by a firm called *Johnson*. The *Parma Johnson* '16D' and the *MRRC* '222H' are identical apart from the serrations on the shaft of the *MRRC* version to hold the nylon pinion gear on. The

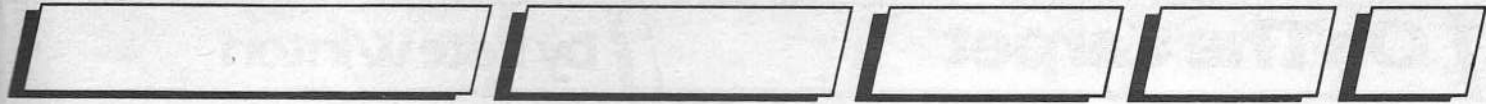


Above: the *One-O-One* ready to run '16D' car, low-cost, enjoyable racing for experts and novices alike. The main chassis components are pre-soldered together and all pianowire spars are pre-formed. Below: the *One-O-One* chassis underside displays the rudimentary 'Flexi-Iso' style of chassis design.



Parma version comes with a brass *Cox* pinion. The standard *MRRC* version is the same but has a milder armature wind. *Johnson* however, are no longer producing those motors; *Parma* already having introduced a substitute '16D' motor which they now feature in all their 1/32nd ready to run cars and 'Womp Womps'. This motor though completely different to look at is still a '16D', is physically the same size and has a very similar performance though my findings so far are that they are not as reliable as they might be. The other major difference is that drive is taken from the can end and not the endbell end. As far as the *MRRC* motors are concerned I understand that once present stocks are sold that will be that. This applies also to the *Johnson* 'III' or '13VO' motor.

So there we have it, the name '16D'



merely describes a particular motor and hence a class or style of racing using it. Objectives in the main are to provide a simple, low cost, fun type of racing for those that adopt it and to put the newcomer to the hobby on the first rungs of the slot racing ladder.

Clubbing together

by Dick Smith

NETLEY ABBEY is a small village on the east bank of Southampton Water with a greater affinity to sailing and power boats than slot cars, but nestling behind Pete's Grandmother's house in Station Road is 'The Shed', the home of the **Netley Model Car Racing Club**.

This elegant corrugated iron structure, decorated externally in a tasteful combination of black and rust and internally in a style once described as 'like a Fairy Grotto', houses the club's compact 92ft. circuit.

The club was originally formed by a group of school friends at the beginning of the slot racing boom in 1963, it flourished quite happily running on *Scalextric* track without worrying about the ECRA and National Championships and survived periods when the whole of the club night, rather than just the end of it, was spent down the pub.

In 1980 the latest version of the old *Scalextric* circuit became very bumpy and warped and so it was decided to build a new chipboard track to ECRA standards. The original intention was to paint the track with 'Sandtex' and run without 'Goop'. However, an introduction to the modern 'state of the art' during a spectating trip to a Hayden Open Meeting in Aldershot, demonstrated that such a surface and the cars which would run on it, would be outdated. Most of the members, however had no interest in going to meetings held on Sundays, having family or other commitments at weekends and so did not see any point in buying the most expensive 'open' sports car.

It was decided to run all races for one class only and initially the 'F32' class

was chosen. These cars gave very good service for a couple of years providing a lot of fun, close racing and spectacular crashes! With the demise of 'F32' most members have now acquired 'Group 12' cars and are finding that the lap times of the two classes are fairly equal.

The club now runs three parallel championships for the one class which will be explained later on, but there is a strong emphasis on keeping a good record of each race night and 'beating your personal best' for a typical three minute race.

Most race nights are run to a standard formula of 4 x 3 minute races per person one on each lane with the fastest single race counting for overall placings. If the race programme is finished by 10.00 p.m. finals are sometimes held, but this is rare as the desire to 'get down the pub' usually takes precedence. In this respect the 10.30 p.m. local closing time is a bit of a bind!

As it soon became clear that the most widely experienced member an ex-ECRA National Champion wasn't going to be beaten very often, a Handicap Championship was introduced. With one class racing, producing a fair handicap for each person is fairly easy. The top ten race performances are averaged out and the difference between this average and the target race performance of 30 laps in 3 minutes is calculated. This is then added to a driver's best race total each evening and points awarded. In all championships 1 point is awarded for last place increasing upwards in single point steps, so the more people you beat the more points you get. The handicaps are revised monthly and only take about 15 minutes to work out. The two Handicap Champions that this system has so far produced have been members who have shown the greatest improvement during the year, which is how it should be.

For a bit of variety the club runs a match racing handicap format once a month. Heats are drawn by lots and a rounded off version of the handicap added to the lap recorders at the beginning of the race. The winner of each heat goes into the 'A' final, second into a 'B' final and so on. If the numbers

are right then a 'repechage' system can be operated in the finals, the winner of the 'D' final to the 'C' final, etc. As the heats and finals are run on a segmented basis, 3 minutes on an outer lane and 3 minutes on an inner lane, this system tends to be a bit academic at times. There have been occasions when a very close finish, which is the aim of the format, has only been realised when the sums have been done. Lap recorders which could be switched from lane to lane could cure this problem coupled with a good commentary from race control.

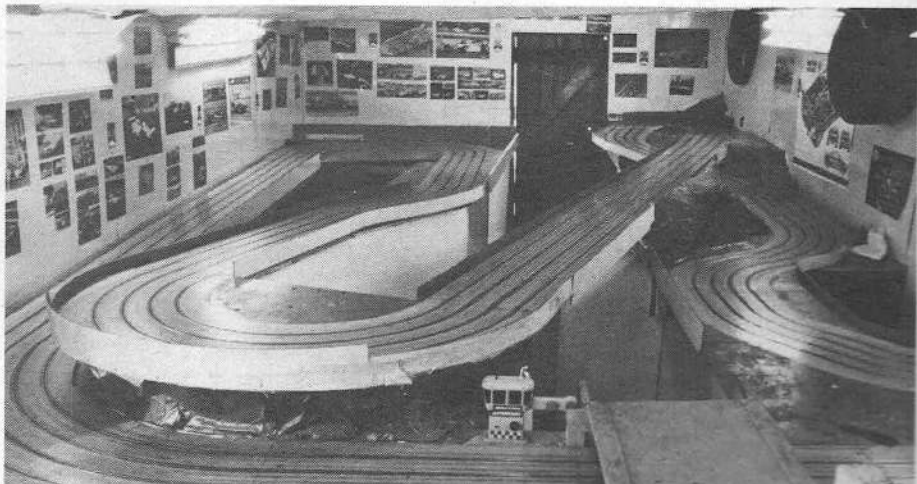
As with most clubs there is no strict application of the car construction rules, but as the lane centres are only 3in. anybody creeping over the width limit is quickly moaned at by the rest. Saloon, sports and G.T. bodies are run together without anybody worrying too much.

Although there is basically no interest amongst members in regularly attending weekend meetings, the club has played host to two Area 7 qualifying rounds held during the summer due to a lack of covered space, and members have enjoyed occasional evening visits to the nearest neighbouring clubs, HADCAR in Poole and Hayden in Aldershot.

This informal and enjoyable contact with other clubs has only been possible because of the existence of ECRA and now BSCRA. Any such national governing body provides a point of reference through which a club can learn about the existence and location of other clubs. A set of national standards will enable a first time visitor from another club to be able to drive round the circuit within minutes of walking through the door, without having to revise cars and controllers, etc. Contact with other clubs have enabled Netley's members to buy new ready-to-run cars and some very useful secondhand cars, which is well worth the modest affiliation fee.

Like all slot car clubs new faces are always welcome, so if you live in the Solent area and would like to come along one Monday evening give Ted French Jnr. a ring on Southampton 463474 (evenings) or 452266 (daytime).

Below: drivers' eye view of the Netley MCRC circuit situated in the clubhouse at Netley village near Southampton.



Details of the 1/12th scale electric Racing Scene

New motor pod from Schumacher for Clubman's or 'C' car

Cecil Schumacher seems determined to send 'C-Car' owners to the funny farm. Every time you look around the team pit there is yet another chassis development which eventually finds its way onto the market. Each item improves the car in one way or another but seems to leave the owner with another adjustable feature to go mad over. The latest release is a new rear motor axle pod system featuring adjustable ride height. The components are the same as before, two aluminium pieces (the motor mount and end plate) and a rear axle tube. The motor and side pieces replace the standard items and the GRP spacers, but give an overall drop in height of 1mm. This drop in total pod height



requires a new lower spring on the damper post. The difference is that instead of a single hole at the rear of the pod side pieces there is now a large oval slot. Into each slot fits a plastic locator with a hole in it, the axle slides through this hole and is retained with a circlip.

Three locators are supplied, each to be used in different combinations giving different axle heights. The total axle movement is 6mm. The ride height can be changed without completely dismantling the rear pod, unlike the old system. One only needs to remove the

circlips, then removal of the tube and locators can take place. For good handling the rear of the car should be close to the ground, but raising the rear ride height can help to cure understeer by giving more weight transfer to the front wheels as the car turns in. Getting more from your tyres is also a bonus as the ride height can be raised in accordance with tyre wear.

A last word of caution. The old screws which retain the rear pod may just be too long and go tight before securely clamping the fibreglass to the motor mount and end plate. Some poor soul at Watford had already snapped the head off one screw in finding this snag, so I was lucky to be shown the problem before assembly. Reducing screw length by 3mm on all eight rear pod fastenings has subsequently cured the problem.

This system of ride height adjustment will not be sold with the kits, only as an accessory. If you want one form an orderly queue outside the local model shop or send £10.00 + P&P Schumacher, 'Rudge,' Church Brampton, Northampton, Northants.

World and European Championship preview

At a BRCA committee meeting on January the 1/12th selectors decided to send 17 UK 'megastars' to Europe and Scandinavia, where they will compete on behalf of their country for the top honours in our sport.

Eurochamps May 4/6 — Ulm, Germany

The selectors have decided to send:

Nigel Hale	Fraser Smart
Micky Booth	Grahame Davies
Jimmy Davis	Nick Adams
Andy Dobson	Stuart Chippendale
Tony Wells	Jane Adams
Les Pipe	Bill Jones
Wayne Davis	Chris Arnold
Fred Hatfield	Rowland Leonard
Phil Olsen	

No other UK country has ever won this event; Neil Francis donned the crown in 1981, Jimmy Davis in '82 and Micky Booth is the current holder of the 1983 title, UK drivers dominate the finals and shrug off the best that Europe can

throw at them. You will only get long odds on the winner being outside the Schumacher or Associated teams but A finals are unpredictable affairs. Some justice would be done if Andy Dobson were to win. Mechanical failures in the '82 semis and a jump start penalty last year after finishing first on the road made this a bogey event for him. Third time lucky maybe? The might of Associated will back the brothers Davis, Nigel Hale and current Eurochamp Micky Booth. It is unlikely that they will fail to qualify due to poor equipment! Of the remainder any one could make the 'A' final if the conditions are right, we have ten reserves to call on if there are any spare places.

World Champs August 9/18 Denmark

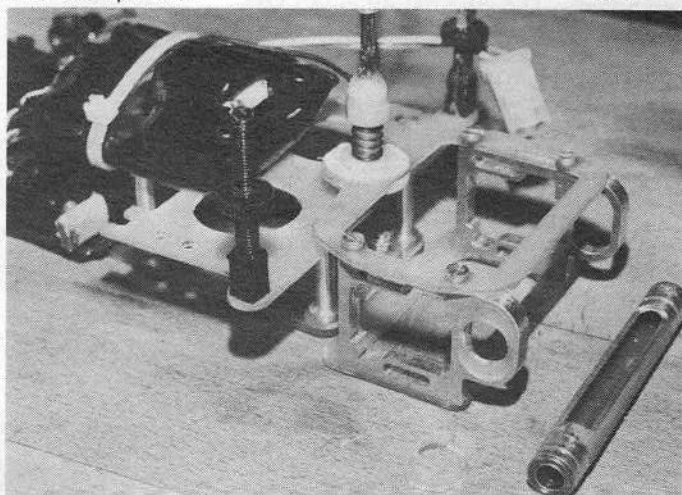
The UK representatives will be the first eight shown on the Euroteam list. Any forecast of a winner from these eight must be the same as the Euro's. Messrs Davis, Davis, Hale, Booth and Dobson all have the necessary talent, plus a great deal more European experience than their biggest rivals, the Americans. I spoke to Nick Adams on our prospects against the assembled might of 40 Americans, the majority of which will be Associated sponsored in varying degrees. He was confident that we would do well, pointing out that the Yanks are not used to small circuits, indeed US circuits are so large that many US drivers don't fit reverse, and are thus unused to using reverse to get away from trouble. Despite the small number (eight) in our team Nick feels we stand a real chance of winning.

Due to a mental aberration on the part of the committee the reserve place for the World's has not been earmarked for the Eurochamp. If he is not one of the selected eight. There is therefore a possibility that the Euro Champion may not be able to compete in the World's.

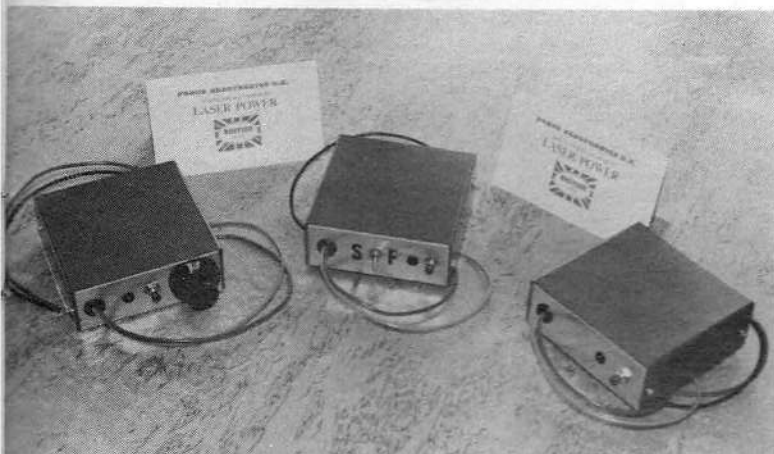
On behalf of Model Cars may I wish all the contestants the very best of luck. The results of their exploits can be followed in this magazine.

Stafford Carpet League

I was unable to get to the first of the Stafford Carpet League meetings, but I



Right: the latest development from Cecil Schumacher is the adjustable ride-height modification. See text for details.



Left: a trio of chargers from Force Electronics. Left to right: variable rate pulse charger, dual rate charger and auto charger.

understand that a good time was had by all. Interest centred on the enterprising idea of issuing motors to competitors by a raffle system. Apparently they bought a large quantity of standard *Parma* motors, numbered them, and issued one to each person signing on. My sources reported little fuss over the quality of motors issued (perhaps they got good ones!) but noted with interest that with some equality of motive power there was a marked decline in the differential between drivers. Jimmy Davis won but there was only $\frac{1}{3}$ to $\frac{1}{2}$ lap between the top drivers instead of the wider margins seen recently. Dates for future league meetings have been published, we will try and get some reports for future publication. The motor roulette system will be watched with keen eyes in some quarters, and may yet produce the close racing required to tempt more people to anticipate, if it catches on...?

Ni-Cad charges from Force Electronics

Force Electronics UK are the name behind the increasingly familiar 'Laser Turbo' speed controller. Now they have turned their attention to another very important area of control, the correct charging of Ni-Cads. Theories on charging techniques abound, but one fact is sure, if cells are undercharged you will not get the best duration; similar results come from overcharging, with the added problem of damage to cells. At the extreme, cells vent and are then useless for serious eight minute racing. So it is important to monitor charge carefully and switch off at the right time. On a hectic club night this is not always possible, so all the chargers from *Force* feature a preset cut off to prevent overcharging. Once charged, the cell voltage drops slowly and some people give a small boost charge just before racing. Once 'fast' charging is complete all charges in this range feature a 300mA (0.3A) slow charge to keep cells topped up. Since this can also put some charge into the cells, do not leave them connected to the charger for more than one hour.

'Auto Charger'

Featuring a 1 Ohm 50 watt resistor; Charge current of between three and five amps is possible. Operation is simplicity itself. Connect six cell pack and push start button. When charge is complete the unit switches to slow charge (300mA). Easy! On test I averaged 20-25 minute to charge some *Demon Sanyo's* from flat (6.6V) to the cut off of 9.6v. If your cells will accept more charge then this can be achieved by holding the start button in for a further 30 seconds or so. Price £20.00.

'Dual rate charger'

Featuring a $\frac{1}{2}$ Ohm resistance, this model allows two charge rates. Operation is identical to the 'Auto Charger' with the exception that the charge rate must be selected. On test the fast rate charged a set of *Demon Sanyo's* from 7.4v to full charge in 16 mins. Price £20.00.

'Variable Rate Pulse Charger'

This is a sophisticated charge method made simple. Unlike the previous models described, this unit is all solid state circuitry. The main feature is the pulse charger, this pulses high current into the cells and by varying the time delay between pulses the net effect is either low charge rate (long delay between pulses) or high charge rate (short delay between pulses). The instructions are quite clear and plainly state the pitfalls. After a few experiments I found that setting 7 on the dial gave a 15½ minute charge time whereas a setting of 4 would take 25 minutes to fully charge from 6.6v. At the high end a 10 on the dial allowed a nine minute charge with no excess heat generated. Ideal for the forgetful racer! The cut-off worked every time and the unit was fault free in the two weeks I used it. Price £25.00.

These units are British made (I'm all for that) and very well constructed. All components are attached to the steel box in such a way that they should remain in place despite the abuse we 1/12th racers can dish out. Wires are protected by grommets and tied to

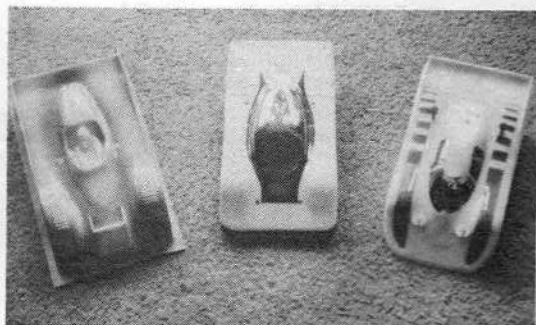
prevent them pulling out. The blue painted top contrasts nicely with the plain metal base and all that was lacking was a nice sticker to advertise the supplier. The variable rate device has now changed hands at the going rate (excuse the pun) and now occupies the Winton pit. If you are looking for a foolproof device for club use, the 'Dual Rate Chargers' offers the most versatility. Competitively priced and with the advantage of a full service back-up these chargers deserve to find favour with those of you eager to throw away their rats' nest of wires and home-grown cell popping devices. Available from model shops or direct from *Force Electronics*, Bracken Lea, Pine Chase, Cressex, High Wycombe, Bucks. (Don't forget P&P).

Lightweight bodies

For many years now, the body used in 1/12th racing has been the preserve of the Americans. *Parma*, *MRP* and *Associated* have all produced a fine range of polycarbonate 'bubble pack tops,' the quality and consistency of which have made the UK efforts at market penetration about as effective as a 'Letricar' in an Open final. But things are about to change; for one enterprising UK manufacturer has seen that the body can influence our old enemy, weight.

The average body is around 20oz without whip aerial, or about 6½ per cent of the legal minimum (31oz). The new lightweight body from *Alpha Track Parts* of Leicester is just under 1½oz a saving of 1.5 per cent without lifting a drill or cutting a single chassis component.

Modern carpet cars are normally 1 or 2oz over the legal minimum, but now-



Above: lightweight bodies from Alpha Track Parts, BMW Toj, Porsche 956 and Ford C100.

adays people seem to ignore this, perhaps due to the amount of grip available. But any overweight must still be seen as excess mass which must be accelerated, braked cornered etc. The use of *Yokomo* motors and larger servo's in pursuit of speed and agility have further exacerbated the problem. A *Reedy* modified *Yokomo* is up to 1oz heavier than the '05' equivalent, on average ½oz. So, by using a lightweight body we can restore the all up weight to its original low level and in theory increase speed and duration.

By the simple expedient of using thinner polycarbonate sheet for the body moulding, we can reduce the total weight of the shell. The Americans see no need for this apparently, since they do not offer lightweight bodyshells (if they do then they are just another product that money cannot buy). *ATP* offer their entire range of shells in lightweight versions at no extra cost, and kindly supplied three for review. The 'Ford C100,' 'BMW TOJ' and 'Porsche 956' represent the major world sportcar participants of the mid and late seventies in their modern guise. These three shells in 1/12th scale are also the most popular currently in use. The 'C100' and '956' were sprayed and trimmed to suit my chassis prior to a weight check. The 'C100' was 2oz, the '956' less than 1½oz. A quick check on the 'clamped' edge of the sheet shows why, the 'C100' uses 0.025in. thick material the '956' is only 0.020in. So for a 5 thou drop in shell thickness we save over ½oz, equivalent to the motor change mentioned before.

All three shells were nicely moulded. They are not as accurate as we have come to expect from the American products. The offside wheel arches on the 'C100' were 2mm further back along the body than the rearside ones, necessitating retrimming on fitment to the chassis. The '956' was much better in this respect. This trait was not annoying merely noticeable. The side pieces on the lightweight '956' felt very thin, but the rest of the impact absorbing areas were thicker than I had envisaged. My micrometer had insufficient throat to check all over the front body area, but those parts measured were little different from my other '956' shell, a standard item. Some club crash testing (we call it the A-final) will reveal more about the life expectancy of this lightweight body than any measurement and further reports will

follow. The entire range of *Alpha Track Parts* Bodyshells are already popular with many of the top drivers, and the introduction of the lightweight versions is just another way of keeping your weight down and buying British, at very competitive prices.

Available from good model shops or direct from: *Alpha Track Parts*, 11 Newark Street, Leicester LE1 5SS.

£5.00 each clear or £7.00 painted. Specify lightweight or standard.

Parma Yokomo

I can now update the review on the *Parma Yokomo* 'Turbo Renault' standard motor with a progress report. After two months running at club meetings the motor has been in use for almost six hours. After four or five heats the performance improved for two reasons. Firstly, the motor seemed to bed in very well, and secondly I managed to work out the correct gear ratios for the motor. On 50mm diameter tyres I found 13.46 to give a good balance of speed and acceleration for six minutes' racing. As the tyres wore down, I ended up on 14:46. You can imagine the confusion of some fellow racers using *Igarashi* '05's' when they ask what ratio I've fitted!

The replaceable commutator brushes are between 30 per cent and 50 per cent worn, but there is no perceptible wear on the commutator itself. This may be due to regular cleaning of the comm which is easily possible now that the brushes are removable or the regular use of 'Mr. Cool.' Both the front and rear (oilite) phospher bronze bearings are as new which is a definite improvement on the '05,' the front bearing of which wears very quickly. The performance is up to the average '05' but it is such a smooth motor that the car feels easier to drive. It is important to keep the motor spinning since low

punch is not the *Yokomo*'s best feature, but this lack of kick keeps the back end of the car in line as power is applied out of a corner. Using 'Mr. Cool' ups the performance to that of a good '05.' A word of caution here; the use of 'Mr. Cool' commutator fluid tends to wash oil out of the rear oilite bearing. It is important therefore to oil this bearing lightly after each application of 'Mr. Cool.'

I recommend the *Yokomo* standard motor for its longevity, smoothness and consistency. Don't forget it is legal for BRCA standard class from May 15, '84.

Club directory

News filters up from the deep south, of a club catering for 1/12th racers on Prima-felt carpet (15m x 8m) called **Eastbourne Electric Car Club**. Racing is held on Sunday mornings and Wednesday evenings. For more details contact Ian on 0323 763688 or 03212 4635.

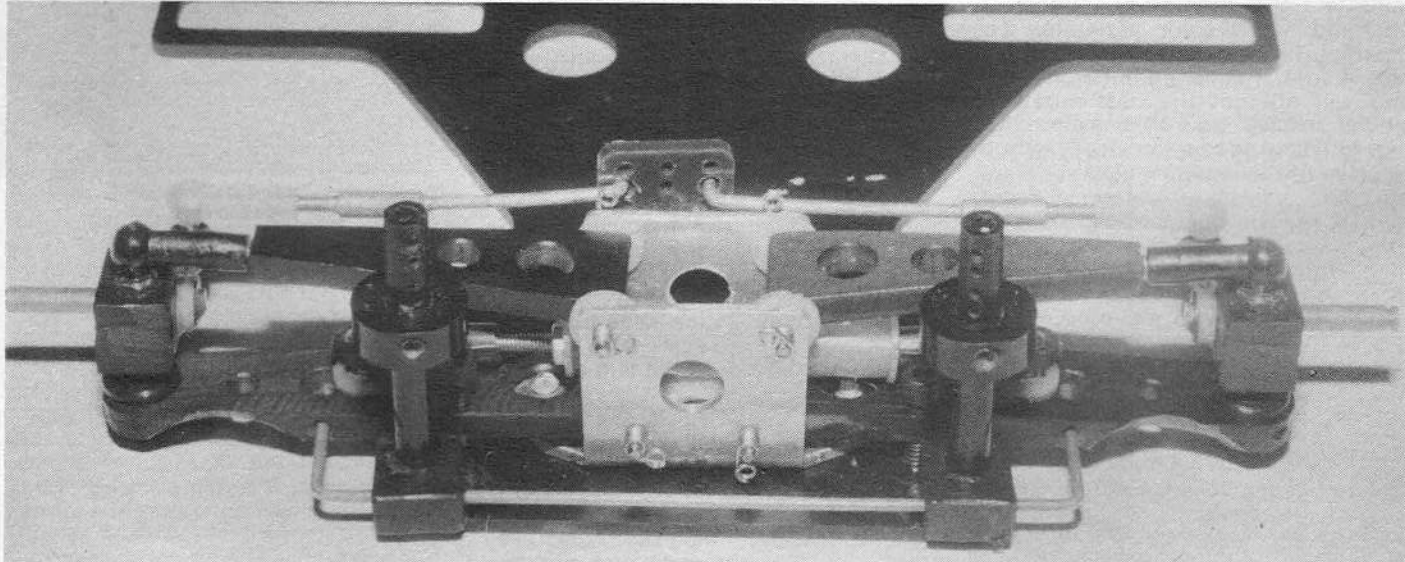
Backlash

The AYK agency has changed hands and all the products of this company can now be obtained through *SRM Racing* of Fareham in Hants. They will be supplying new kits and spares for the 'Cyclone' 1/12th suspension car, 'GZ' motors, chargers tyre grinders and 'Super Trail' Buggy. The latest 'Side-winder' off road 1/10th car should be in the UK by the time you read this and will no doubt be tested in a future issue *SRM* can be contacted courtesy of BT's finest by dialling 0329 233945.

Privates on parade

I have a reader. I state this, confident in the knowledge that no-one can refute this allegation. I spoke to him, so I know! We'll leave aside the adulation heaped upon me for February's time-

Below: the *Parma* prototype version of *Chris Arnolds'* independent suspension front-end for the 'Panther' chassis. This system features a friction damper mounted between the upper and lower wishbones with anti-rollbar and suspension down stops.





Team Supercharge or formerly the 'Video Nasties.' Bill Jones (left) of Supercharge Models, travels all over the country for ordinary club racing whilst Glyn Peglar (centre) provide technical back-up on speed controllers and chargers. Pete Jones, 'the incredible rubber man' of Tru-Tyres supplies the necessary grip.

less prose, and concentrate on his comments. He mentioned that the sponsorship article didn't cover the private teams, a number of which will be contesting the Nationals in 1984. My reader, with an eye to the main chance, gives details of one such team.

Supercharge will contest all rounds and their players will be Bill Jones (Mr. Supercharge Models), Pete Jones (Mr. True Tyres) and Glyn Peglar (Mr. Force Electronics). This trio are a happy band and you can expect to see Bill on video

effects, Glyn on electronic synthesiser and Pete on rubber band! They are all National 'A-final' qualifiers in the past, so let's hope they will repeat those results and get in amongst the big boys.

Chris Arnold, Parma Team driver in 1984, has been seen with yet another development 'Panther' chassis. Chris has a fertile mind and displays skill in turning his ideas into reality. He has designed and built an independent suspension system for the front end of

the Parma chassis. It appears that many of the ideas developed in the UK are finding their way into production kits, and it is satisfying for customers to know that Parma have a good communication and production system which quickly translates developments into standard specifications. Of course, as Cecil Schumacher has discovered, a good way of selling more products is to keep development going apace and supply customers with the updated parts. Cecil has found favour with this system as his updates do actually improve. Parma look to be doing the same to improve the 'Panther.'

This particular suspension system features upper arms, pivoted near the centre line, operating inboard springs. A lower radius link keeps the wheel in check, camber wise, and can be adjusted to alter the camber angle. By raising the front of the upper arms, castor angle can be changed and the spring rate is also adjustable. No dampers are fitted. This is a neat installation, but seems to be a bit high on centre of gravity. You know, at the rate all this suspension stuff is going to develop we will all need double firsts in physics and dynamics to set them up!

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The Stockcar racing world in focus

AT THE TIME OF WRITING the stockcar season is still in the throes of its annual hibernation, AGMs are a thing of the past as is the excitement generated by the RSCA's stand at the Model Engineer Exhibition. At the time of publication the new season is only just beginning, with drivers awaiting the first RSCA Series Round at Nottingham on March 25th, subsequently I have the chance to turn my attention from the racing to the Clubs themselves.

Many of the clubs send me copies of their newsletters which keep me in touch with the everyday problems they face. All stockcar enthusiasts are in the sport for the racing itself, but I wonder how many realise the amount of work that goes on to ensure we have a track to race on, a meeting organised and trophies to compete for?

The track is an obvious necessity in order for a meeting to take place, but many club members seem to forget the effort that goes into finding a race venue, let alone the construction of the boards, their painting and transportation. It is clear to me from club newsletters that too many members just accept the fact that these things happen, doing nothing to help with the track maintenance, not even bothering to arrive early enough to help bolt it together, or staying after the meeting to help pack it away!

Meeting organisation is something that has to be carefully planned and co-ordinated in order to make sure that all involved are aware that a race is taking place. It requires contact with members, fellow organisers (via the RSCA) and owners of venues, if club members arrive at a venue only to find the gates locked the first to be criticised are 'the organisers'. Assuming the venue is arranged and the track has arrived, there is still the task of organising the racing itself, PA systems to fix, lap counting equipment to check and all the other odds and ends to see to that are required to ensure a good afternoon's racing. When you read in club newsletters that drivers even try to get out of race marshalling it makes you wonder whether these people give any thought to the 'club' itself.

In most club situations the sport is a very friendly one, but I do get the impression that 'Never has so much been done for so many by so few'. There is usually a very small hard working committee, many of whom have put aside their own racing plans to organise for others; it is a pity when they say they have had enough and pack up, sometimes the sport as a

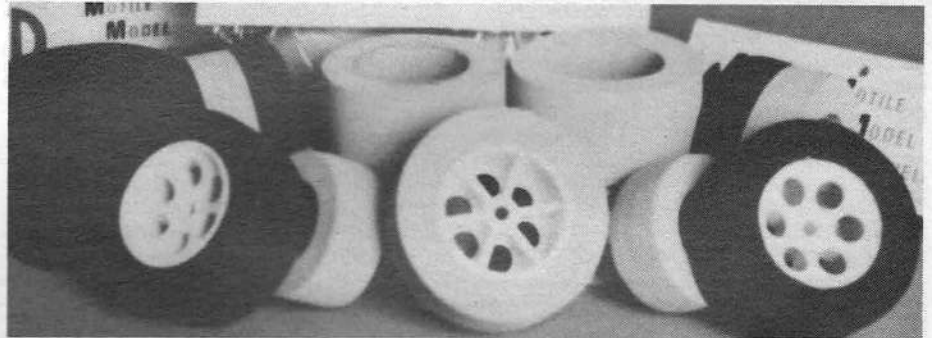
whole, because they came to race, but found themselves organising, when with a bit of help from all members the task could be made much easier, and all could enjoy the reason for being there — the thrill of racing.

It may be a bit late for New Year resolutions, but how about one for the new stock car year 'I promise to do my share for my club'.

Sponsorship

At most meetings trophies are there to be raced for, at club level this usually means three or four trophies to cover the first three places and possibly one for the Best Novice. Looking at some of the clubs' financial statements it is clear that these trophies form one of the major items of expenditure, hitting

Below: the colourful range of Motile Model developments range of stockcar tyres.



hard into the resources of the cost conscious club. Sponsorship, in the way of cash money, donated by an outside concern is generally seen to be the best method of producing the necessary funds, although finding the necessary sponsor can be difficult. One club I know of claimed to have sent out 70 'begging letters' without receiving a single reply.

When talking about the sum of money involved, £10-£15 can purchase some very nice trophies which are quite adequate for club meetings, though more expensive ones may be required for the more major events. It really should not be beyond the club membership to persuade people to sponsor a meeting for the club, especially if they make an arrangement with the local radio newspaper or possibly TV to give some coverage. It has been my experience that local radio is only too willing to announce meetings in a 'What's on' spot and give the results in the Monday evenings 'Sports Roundup' at no cost apart from a phone call. This together with a report in the local paper can give a local firm quite good publicity for modest outlay, not to mention that it saves the club, expenditure on trophies. The meetings are of course called by the sponsor's name, so that reports carry headlines such as 'The... Trophy was won by Fred Bloggs, etc.' It can also prove beneficial for sponsors to leave it up to the club to get the trophies rather than buy them themselves, as it

enables the racers to purchase a bulk supply from a local dealer prior to the start of the season. This usually results in a good discount being offered, which means better trophies for the same money. Sponsors should of course be invited to present the trophies at their own meeting, and hopefully the club has a budding 'Lord Lichfield' to take suitable photos of the presentation which can be forwarded to the kind beneficiary at a later date.

In closing on this subject I would also like to stress the importance of the Novice Trophy at meetings. Talking to drivers there are many who have a Novice Trophy on their sideboard, and it is the one they always remember winning. For some it is the only trophy they have ever won, for others it was

the first of many, whatever the case they will never forget when, where or how they won it.

Bringing Colour to the Tyre (d)

A brief mention was made in the last issue of *Motile Model Development's* range of stock car tyres. Since then the range has been increased for 1/8th scale users by the introduction of coloured rubber. It is claimed that the colouring alters the consistency of the compound, hence creating an additional grade. This will make tyre selection easier, just check the colour. However it will now be easy to see what the rivals are using without have to make discrete enquiries. In many ways this is a bold gamble on the part of the company as it will enable all to see who is using their tyres and on which compound they are running. I understand that in the new range there is a multi-compound tyre, which is of course, multi-coloured.

It will be interesting to see how these new tyres will work under race conditions, but one thing is certain, they'll certainly brighten up the scene. For more details contact *Motile Model Development*, 41 Manor Street, Nelson, Lancs.

Body Talk

Several people enquired at the 'Model Engineer Exhibition' about the availability of different body shells for

stock cars and the methods used to fret out the windows. It is not always realised that a number of different shells are made by both *Puma* and *Mardave* and that model shops may not stock the complete range. *Puma* make their 1/8th bodies from fibreglass whilst the *Mardave* are manufactured from grey ABS. Both of which sell for under £3.00. *Mardave* also make a wide range of 1/12th bodies in white ABS.

Once the body style has been decided the next task is to cut out the windows. First the outline should be drawn on the body with a soft pencil, remembering to leave reasonable support pillars for the roof. Depending upon the body selected it may be necessary to cut a hole for the fuel tank filler pipe, into the shell and this should be a consideration when choosing your body. As a rule I cut out the front and rear windows first, as this allows me to place the body on the car and see through it to gauge the side window design that will give the best access to the engine, etc.

The actual cutting out can be done in a number of ways. Some people drill a series of small holes around the outlines drawn onto the body, some have been known to use a hot soldering iron to do the job, though this can prove messy, smelly and dangerous.

Below: American dirt oval racers complete with their USA style stockcars.



Two methods I have used that seem to work well involve either a modeller's drill fitted with circular cutting disc, or a broken junior hacksaw blade fitted into a handle. Both work well on the *Mardave* bodies, but the fibreglass *Puma* variety can be difficult to cut by hand. Paul Dudley the *Puma* distributor has been experimenting recently with a modeller's mini drill fitted with an abrasive cutting wheel, this seemed to be working well judging by the dust it was making! Final smoothing can be done with emery paper wrapped around a block for the straight edges, or around a dowel for the curves. 1/12th bodies can usually be cut by a sharp modeller's knife (watch your fingers) though they may

need to be finished off as mentioned earlier.

When it comes to the actual painting of the bodyshell the colour scheme is entirely up to the individual, though RSCA rules state that the roof should be painted to the waist line with the drivers grade colour — white for all new or novice drivers and that the driver's name and RSCA number should be on the car. Left-overs in car touch up spray cans provide cheap cover, but will need some form of fuel proofing, whilst *Humbrol* enamel paints provide a varied range, and are fuel resistant. Intricacy of design is left to the individual's artistic skills, though the simpler the paint job the easier it is to touch it up when necessary, be it by spray or brush. There is a lot to be said for a paint job that is both simple, and individual enough for your car to be recognised without confusing it with other cars on the oval.

Whatever your intended design, take note of advice given by those who do the lap scoring, remember that they need to be able to see the frequency number clearly and that the amount of numbers and names on some cars can make this difficult. We often forget that frequency numbers will be given to us at meetings, and they have to be added to what is already there.

Club in Focus. Nottingham Stock Car Club

During 1979 half a dozen Nottingham lads were racing their stock cars with the Leicester Club although they wished that they had a track in their own home town. An approach was made to the *Miners' Welfare Committee* to use a site at Basford Hall where another model car club had previously raced sports and formula type cars, luckily they were instantly welcomed. So with heads full of ideas the lads set about designing their track. 8ft. lengths of 1 1/4 in. timber bolted, screwed and pinned together were used, together with a strip of conveyor belting around the bottom

inner edge for protection. The inner track being identified by a length of rope nailed into the tarmac. As Christmas '79 approached a demonstration was put on to recruit members, and as they say, the Club was born.

After a time the inner rope was replaced as it was getting wrapped around the axles, its place being taken by some 1 1/2 x 1 in. timber chamfered on one edge and secured to the tarmac, this in turn was replaced as it had the tendency to launch cars into the air. The next phase involved 1 in. half-round steel bars fastened to the tarmac on the straights, and alloy studs on the bends to cut down corner cutting. In order to prevent cars cutting across the infield a wooden barrier was placed along its full length.

A healthy sign of the developing nature of the Club can be seen from the fact that for the 1984 season a new steel outer barrier has been constructed, with an inner steel barrier shaped like an egg timer (to provide laybys for drivers to pull into), plus a covered driver's rostrum. For the next year there is the possibility of providing a covered pits enclosure.

Club membership is around the 30 mark, though not all have raced during the past season. It appears that some want instant success and give up when they don't get it, whilst others do not visit the Club to find out what is the best buy, and end up mis-spending their money and as a result lose interest. As has been said on many occasions the message to new members is always: discover what is being raced by Club members before going out and spending your hard-earned cash.

One of the Club's founder members, and still the man to beat is Peter Butlin who holds both the 4 and 5 minute lap records with 46 and 56 laps respectively, he is also the top points scorer at the Club, with Club Treasurer (and new RSCA Treasurer) Jim Wheeler not far behind.

The Nottingham RCSCC was host to the first round of the 1984 Series Championship on March 25th, and have two major trophy meetings during this coming season, though they find it difficult to attract sponsors, so would be pleased to hear from anyone willing to help.

The Club can be found at 'Basford Hall Miners' Welfare', reached by leaving the M1 at Junction 26 travelling along the A610 to the roundabout by 'Babbington Colliery' then following the A611 signposted to Hucknall, turning right at the Headstocks Pub. Basford Hall is then on the right, and the track is located at the far end of the drive, behind the Hall. For those travelling through Nottingham itself then the A610 should be followed to the aforementioned junction with the A611.

Club Secretary Norman Wheeler would be pleased to hear from anyone

Taking Stock

interested in joining them for some lively stockcar action at 15 Devonshire Drive, Eastwood, Nottingham NG16 3BE (Phone Langley Mill 714121).

Tracks

More good news keeps coming in of clubs who are acquiring permanent venues for their club oval. This is doubly pleasing because it shows that these clubs are flourishing and that the sport is being accepted in their areas, it also means that the members have a location that they can use at other times apart from actual race days. This is a real bonus in attracting new drivers who feel that they need to master the racing skills on their own, prior to being involved in an actual meeting. As so many have found out in the past the confines of a stock car oval can come as quite a shock if one has progressed straight from the wide open spaces of a deserted playground or car park.

I hope the Sussex Auto Club in Brighton will have reached agreement on its location by the time this issue is in print, and I congratulate the Nottingham Club, the subject of this month's Club in Focus, on making their venue a permanent one. May both club's membership continue the good work required in maintaining their newly acquired facilities.

Driver Profile No. 12 — Dave Wragg RSCA No. 203

If anyone was asked to name the top ten drivers of 1/8th scale stock-cars I'm sure the name Dave Wragg would be amongst those on most people's lists.

Dave lives in Leicester Forest East with his wife Maureen and their two sons, Paul and Dean. He is a member of the Leicester Club and an industrial sewing machine mechanic by occupation. He began his racing career back in 1973 (when the sport was first introduced by *Mardave*) after acquiring the third stock-car kit off the assembly line.

Since then he has won the old RSCA World Championship twice, as well as the Worthing Fiesta and numerous other meetings.

After ten years at the top of the sport one might have thought that Dave would be content to sit back on his laurels, take a less active role, or to pack up altogether, but Dave states that his ambition is to win the modern day World Championship because the competition is much fiercer than it was when he won it. At that time it was restricted to RSCA drivers only. Dave's car is based on the *Mardave* 'Mk I' chassis slightly modified and containing a 'tweaked' Veco '19' engine,

with *J.R. MacGregor* radio gear keeping Dave in control. He tells me that for 1984 he is changing engines to an *Irvine* '20 ABC' in an attempt to try to catch and beat his main rival, Bob Clayfield.

Over the years Dave has been very involved with the Leicester Club, as indeed are his family, with Maureen 'resident' lap scorer and son Dean achieving 'super star' driver status. He was very much involved with the discussions that saw the Club move to their permanent site at the *Everards Brewery* 'Tiger Raceway', as well as the practical work that the move entailed. A quiet pipe-smoker off the track, Dave is a force to be reckoned with once the race is underway and he has given notice to all — son Dean perhaps as the spur, that he intends to be around at the top this year and beyond and that he wants that World Title again. Will 1984 be the year?

Stop Press

Have just heard from *Mardave* that they are in the process of preparing a Mk. III 1/8th stock car. More details in a later issue.



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Racing Round-up

Ally Pally/Parma International 1/12th National Championship Meeting

Report by Pete Winton

Watford Leisure Centre is becoming used to being invaded by scores of people struggling with large bestickered boxes into the main hall, but it is a year since the last full National, and somehow the look of amazement on the faces of the staff was as wide as ever. From before 8 o'clock on Saturday, racers from all over the country began to assemble for a day's racing with Standard motors. There were 110 entrants, over 50 of whom had entered as teams. There were of course, the big four; *Associated*, *Demon*, *Parma*, and *Schumacher*. The most likely to give the works drivers a run for their money was *Supercharge*. Next up was *Red Baron Models* whose drivers are all in the top 20 on a good day.

Standard Class Qualifying

Round 1 got underway on time. The circuit looked very twisting, but once actually driving the course one soon found it to flow well. It was in fact quite kind on cells and many people completed eight minutes easily. The field was headed by *Red Baron* driver Andy Benson (25-8:9). Jimmy Davis (25-16:0) and Fred Hatfield (25-19:5). There followed five drivers with 24 lappers and the rest of the field after that. Down at the bottom were those with problems including Phil Olsen (10-11:7) and Alan Blakeman (3-12:8). Five laps covered the top 50, a gap which was soon to close after round two. Drivers were getting used to the circuit and started gearing up to get that extra speed. With speed however, must come agility. Some cars were so agile that they performed rolls and loops! It didn't seem to affect me, but many people felt that there was too much grip in the corners, perhaps due to the concentration of tyre additives. Andy Benson and Jimmy Davis increased their best scores by a lap, but now Jimmy (26-10:1) headed Andy (26-11:6). Andy Dobson moved into third (26-DNF) with Fred down to fourth (25-3:5). Now less than four laps separated first and fiftieth.

Round three was Last Chance Coral. Andy Dobson responded in style 26-1:8 was sufficient to take FTD followed by Andy Benson (26-9:4) and Jimmy (26-10:1). Les Pipe, Wayne Davis and Fred Hatfield all achieved 26 laps. To qualify for a top 50 place you had to be less than three laps away from the pace. Life is very close at the top, but in the

middle order it is sardine quality. 22 people had a score of 23 laps and they were spread across three finals.

The B Final had Glyn Peglar on pole but it was Bill Jones who got the best start and he led off followed by Rowland Leonard, Jim Spencer, Tony Wells, Steve Haywood and Tim Dakin. Bill made a couple of errors which dropped him back to third, Tony collided with Jim letting Steve through. At three minutes Rowland led with a cushion over Steve who was under pressure from Tim, Bill and Graham Davies. Tim got past Steve for second, and Bill Jones put Tim under pressure, but failed to take third place. Rowland crossed the line, comfortably ahead of Tim Dakin, Steve Haywood and Bill Jones.

Andy Dobson took full advantage of his pole position and shot off into the lead of the 'A' final. Uncharacteristically, he then made three mistakes in quick succession turning in too tight and hitting hoses thus letting Jimmy Davis into the lead. Phil Davies took up station in third and Andy Benson passed Fraser Smart with a brilliant manoeuvre coming onto the main straight to take fourth, in turn Fred Hatfield challenged for and took fourth place from Andy B. By the four minute mark it was all over bar the scrutineering.

Modified Class Qualifying

Sunday was Modified day. Jimmy carried on where he left off taking FTD in 27-8:5 and was followed by the likes of Andy Dobson, Andy Benson, Fraser Smart, Fred Hatfield, Nigel Hales and Les Pipe. Phil Olsen dramatically improved on Saturday, making the A final despite having his first round FTD disqualified for running an underweight car Peter Jones drove a stormer to join him, along with John Robson. Motors, as to be expected, were everything, *Associated* had some very fast examples being used by Jimmy and Nigel, but most other teams were using *M.G.s*. Mike Goddard was seen hurrying here and there, gleaning

information as to who was running what, and dispensing advice on timing settings and 'ultimate' gear ratios.

The C final was led around the first lap by Stuart Chippendale pursued by Alan Blakeman, Steve Haywood, F. Singleton, Dave Spencer and Bill Jones. Alan dropped back after a dice with Steve, but Bill pulled through to third with some neat passing, and stormed after the second place man. Bill's final reward was second Stuart having too large a lead to be challenged. Steve was third, Dave Towell fourth and Alan fifth.

Paul Hobbs was on pole position for the B final and subsequently shot off into the lead. Unfortunately, David Gale got tipped over the hose in a mid-field mêlée and collided with Paul who, as a result, was demoted to second, a placing he held to the end. The beneficiary was Tim Biggs who led until the finish with a procession led by David Gale in third, Tony Wells fourth and Pete Angus fifth behind Paul.

There is always an air of anticipation about an A final which more often than not is unfulfilled. This one was different. For the first three minutes there was a fabulous dice between poleman Jimmy Davis and Andy Dobson. They traded places often sometimes two or three times a lap. The precision was amazing as they fought to gain an advantage. Andy eventually opened up a gap and Les Pipe also swallowed Jimmy up to take position behind his team-mate. At the seven minute mark Jimmy repassed Les, and then Andy's car slowed after tangling with a backmarker. By the eight minute mark Jimmy, still going strong, passed Andy for the lead. When the car finally slowed to a crawl Les passed to take second from Andy by 0.8 seconds. Quite a race and a fitting end to a superbly organised weekend. My only complaint was the standard of marshalling. This was positively awful in all heats. I was lap counting and at one point had to draw a marshall's attention to a car stranded near the start line by using the PA!! Next stop: Washington, Tyne & Wear.

Saturday: Standard

A Final

1. J. Davis
2. A. Dobson
3. P. Davies
4. F. Hatfield
5. A. Benson
6. L. Pipe
7. N. Hale
8. F. Smart
9. D. Gale
10. W. Davis

B Final

1. R. Leonard
2. T. Biggs
3. S. Haywood
4. W. Jones
5. P. Jones
6. G. Davies
7. T. Wells
8. G. Peglar
9. J. Spencer
10. A. Fraser

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2. JDM/Associated
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4. Parma
5. ATP Bodies
6. Demon
7. GEC Stychfields
8. Demon
9. Oxo
10. Samfreight
11. Pitstop A
12. Fun Bunch
13. Aeronautical Models
14. Dragons

Sunday: Modified

A Final

1. J. Davis
2. L. Pipe
3. A. Dobson
4. N. Hale
5. F. Hatfield

6. P. Jones
7. P. Olsen
8. F. Smart
9. A. Benson
10. J. Robson

B Final

1. T. Biggs
2. P. Hobbs
3. D. Gale
4. P. Angus
5. T. Wells
6. G. Davies
7. J. Spencer
8. I. Dolman
9. P. Davies
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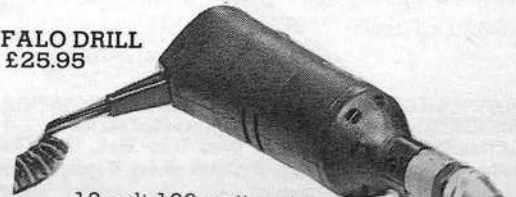


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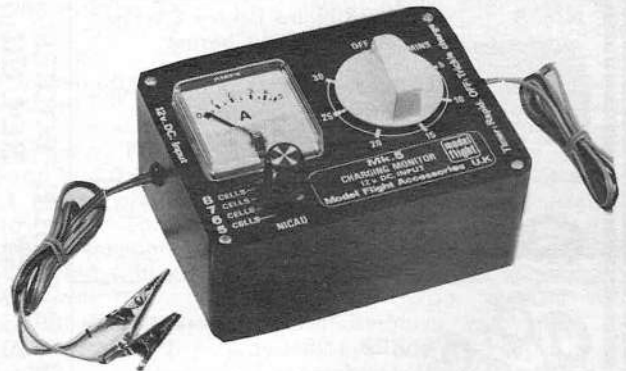
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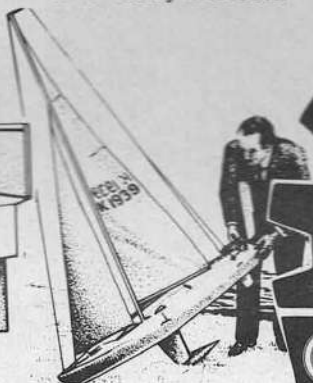
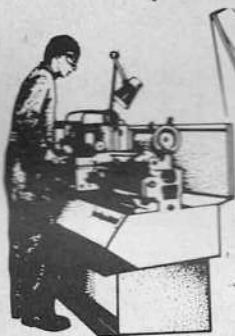
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