

The Monthly Magazine
for All Model
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Car Enthusiasts

Radio

Race

Car

International

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REPORT INSIDE**



● **BOLINK'S
1/10 CIRCUIT CHALLENGER**

● **1/12 WORLD CHAMPS FROM HOLLAND**

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Radio Race Car International

C O N T E N T S

November 1988 • Issue 60 • ISSN 0268-3334

MANAGING EDITOR
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EDITOR
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Jane Stephenson

ADVERTISING CO-ORDINATOR
June Roberts

DESIGN MANAGER
Neil Blowers

ART PRODUCTION TEAM
Bob Lambert • Sharon Billington • Simon Bates • Louise Wheelwright

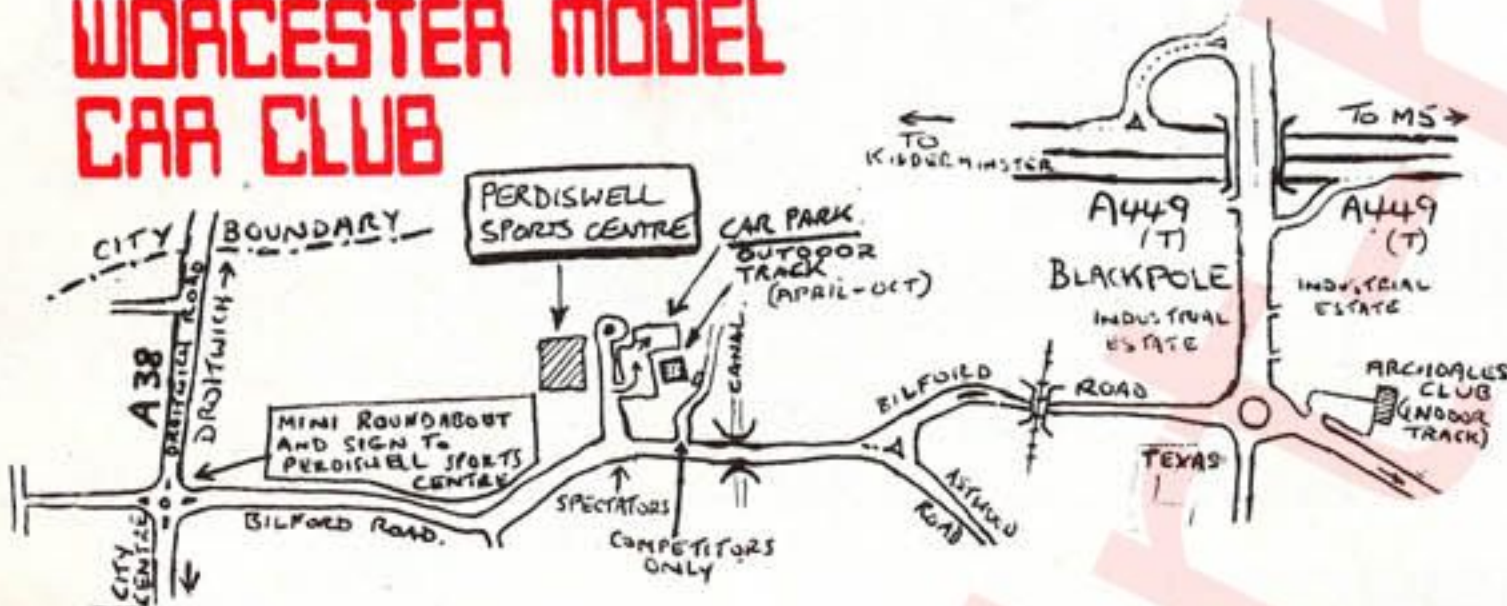
SPECIAL CONTRIBUTORS
**Mike Smith • John Varley • Chris Evans • Jim Crabb • Greg Halliday
Jim Davey • Bob Errington • Mike Billinton**

EDITORIAL

First of many things we must mention this month is next month's RRC, seems strange I know but all will become clear. Next month's RRC will be the Christmas edition and to celebrate this RRC will contain 100 pages, extra articles, extra colour, extra everything for the r/c driver. Don't miss out order your copy now!

Secondly as most of you are well aware the 4WD RRC finals are being held at Worcester this year, for all of those who need to know exactly where, here is a map

WORCESTER MODEL CAR CLUB



Thirdly we must also mention that Medway are holding the inaugural meeting of their new track on October 23. Stars such as Pete Stevens and Jamie Booth will be driving, you are also invited. Entries can be obtained by sending an SAE to Jim Crabb, 10 Blenheim Close, Meopham, Kent DA13 0PQ.

Finally watch out in the next RRC for the full details of next year's RRC off road series, it promises to be the most exciting series yet with a new format, lots of venues and an exciting new points system that will keep everyone guessing who's Champion right up to the final event.

Front Cover

Kyosho's hot new 1/8th scale Honda NSR 500. Win one of your very own in our Free to Enter Competition on page 34.

YOKOMO CONTEST WINNER

DAVID REYNOLDS FROM LEEDS. Well done your Yoko is on its way.

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All correspondence should be sent to Radio Race Car Magazine, Masefield House, Wells Road, Malvern, Worcestershire, WR14 4PA, England.

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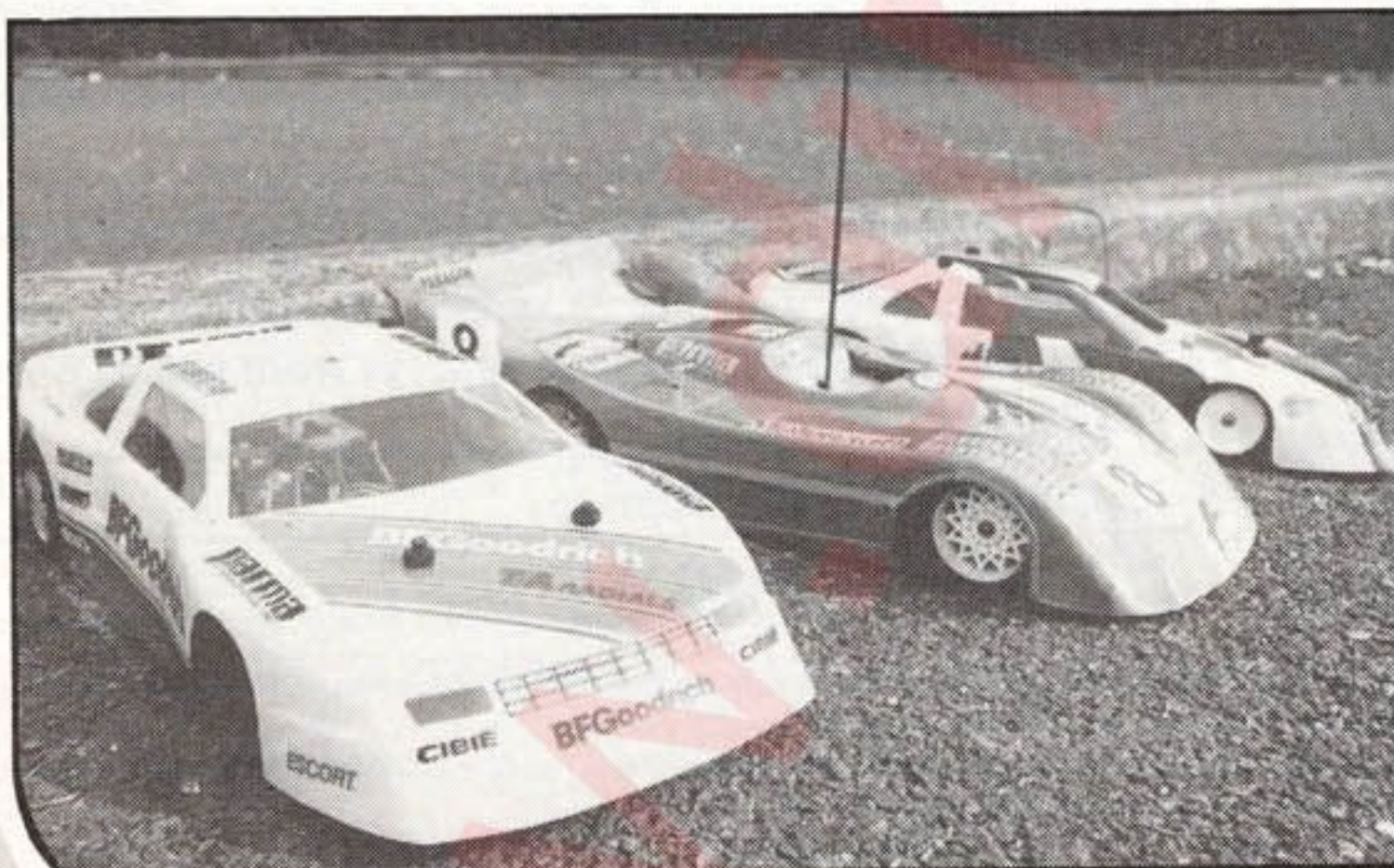
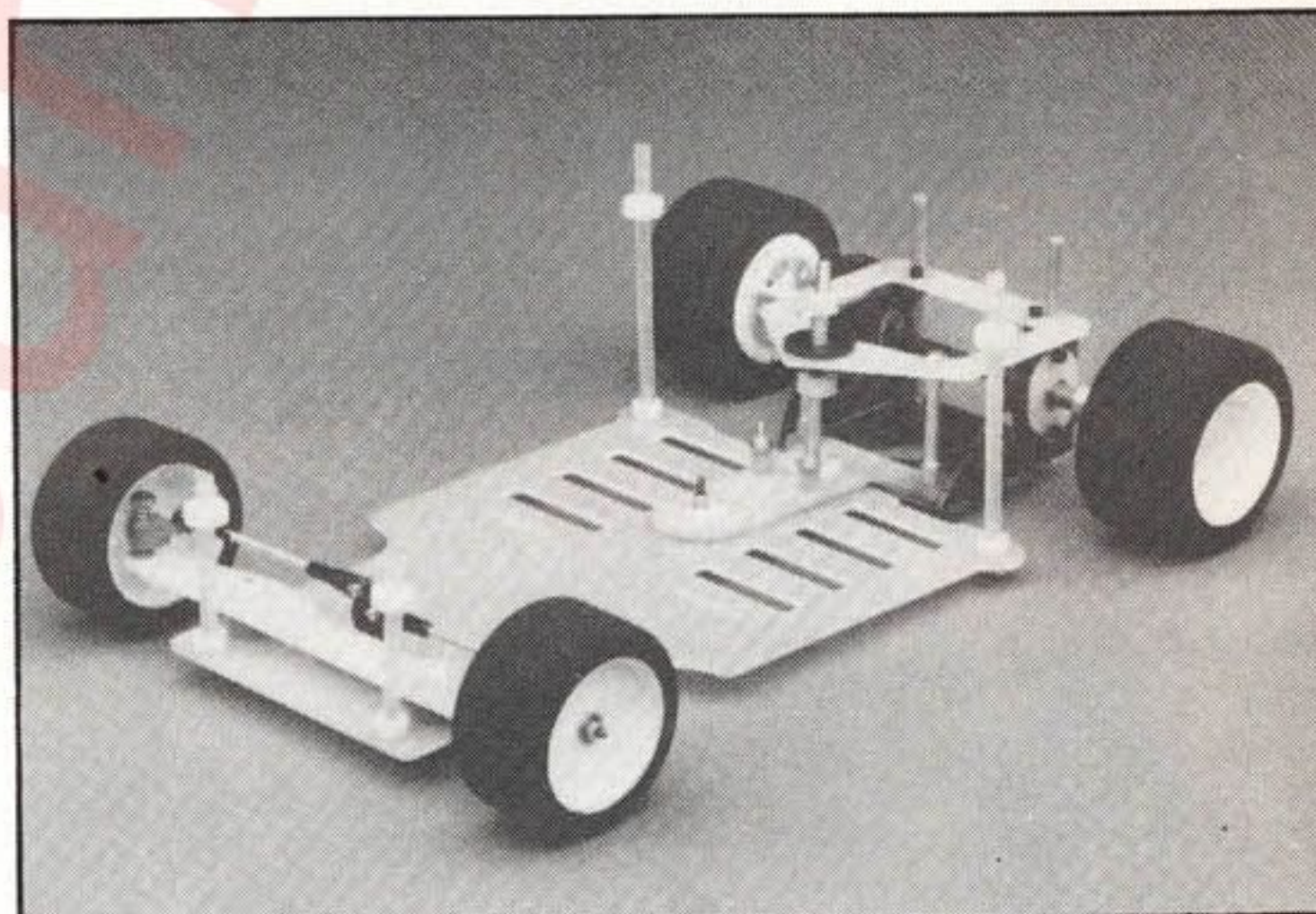
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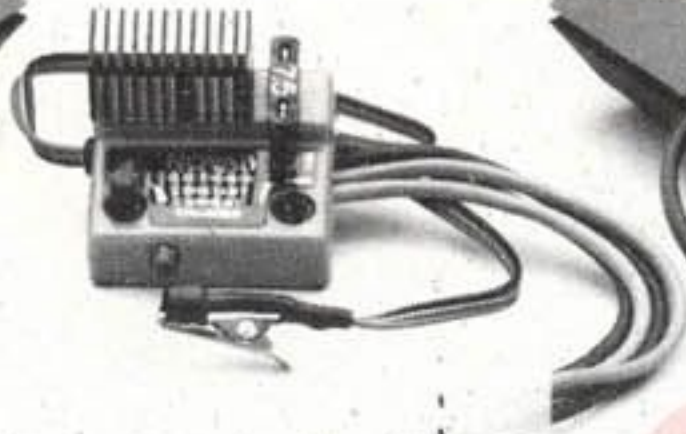
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NEW

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NEC-3 PEAK PLUS



NEW

SPEED CONTROLS

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Personally Speaking

At this time of the year thoughts tend to turn towards spring and summer, both future and past. Looking back 1988 hasn't been a bad season, it could have been a little drier at times, but there you are. There were times when enthusiasm got the better of everyone and what is supposed to be a non contact $\frac{1}{10}$ sport turned into a banger race, heat of the moment!

There were the few who must win at all costs and find some method of giving faster or getting lighter or both, at times the cheating was obvious to everyone but the scrutineers it seems! Well we all know who the drivers are and we feel sorry for them really.

After all this we can sit back and say during 1988 our sport has grown, more meetings than ever before was the story of the years calendar and it seems that more drivers than ever before turned out at each meeting, so yes we can claim with some certainty that our sport is growing.

What's In Store For Next Year Then?

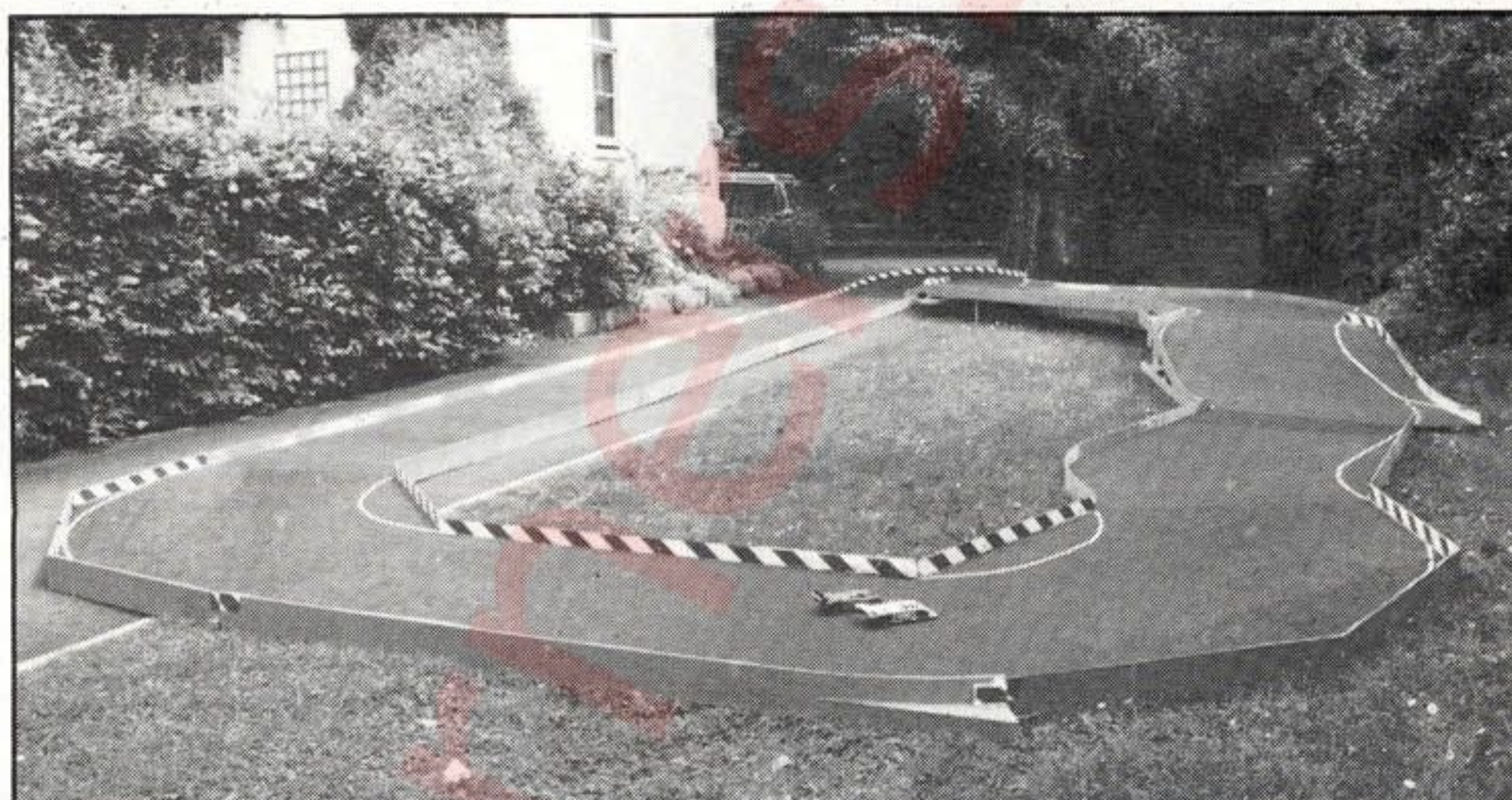
It would seem that 1989 could provide even more racing for the r/c driver, already the 1989 Radio Race Car series is in the process of conformation, but it seems that four individual regions will each run six rounds, a regional final will decide who the area champion is and then a grand final will decide who the UK Radio Race Car Champion will be. This will be for both 2 and 4WD, details will be published upon final confirmation from all participating clubs.

The biggest surprise to some people has been the sudden growth of $\frac{1}{10}$ circuit racing, maybe we should also add that this type of racing is also well suited to modern close grained tarmac areas such as new school playgrounds or the new hypermarket style of car park. These areas should be investigated and used wherever possible, remember the word circuit only applies to the type of surface it doesn't mean that the car has to be run on an existing circuit! There are many empty car parks that 120 drivers could hire quite cheaply every Sunday.

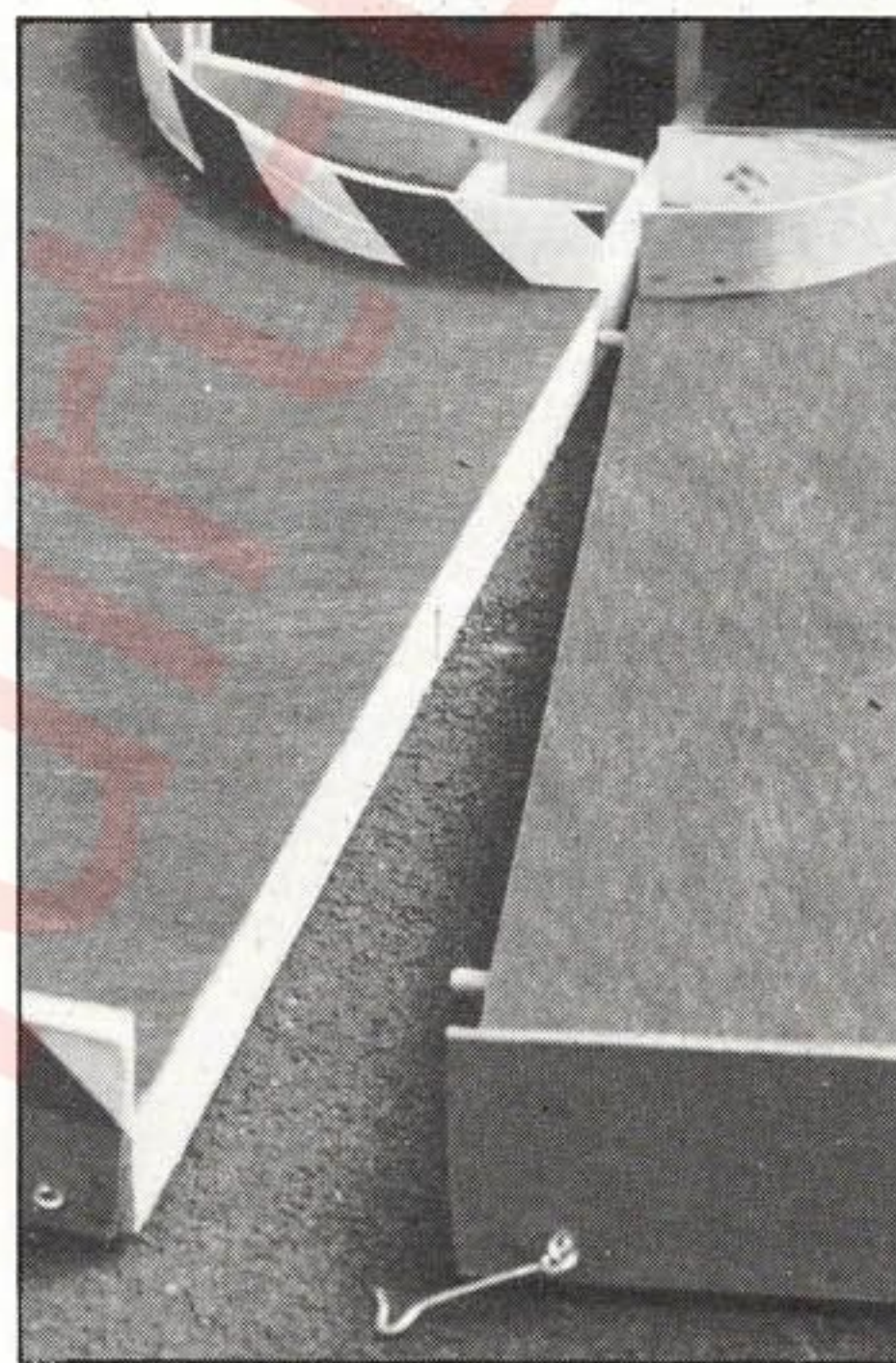
What Do You Think

Whilst on the subject of $\frac{1}{10}$ on road racing, how do you see the sport developing? What are your ideas on construction rules, the way forward, etc?

At present there seems to be two very definite schools of thought concerning the future design parameters of on road cars. One is that fully suspended four wheel drive varieties should be allowed and raced, the other is that the style of car built at present is as far as we should go, ie. two wheel drive, beam axle semi flat bed. Here in the UK our sport has been surviving four over a decade, it has been thriving for almost as long, we surely have enough ex-



perience now collectively to decide which is the best way forward, not only for the cars overall design but for the mass popularity of the new formula. Comments from all r/c drivers are welcome on this subject and any other you may feel strongly about.



End To End

Finally this month news of a Tamtech circuit with a difference from Ian Calvert. Ian kindly sent in some photographs of his own circuit, which goes together in fifteen minutes and sits in his garden. Ian also sent a letter of explanation as follows.

Tamtech cars were my introduction to

the hobby. I was attracted by their size and excellent scale bodies. The smaller size suggested the possibility of having a track in the garden.

Having joined a club (Dowty) where they are raced, they turn out to be fast — as quick as anything, but the very fastest examples in bigger scales. They give close racing, being a standard product and on a club carpet track their smaller size allows lots of space, producing fewer collisions. They are even self-righting as a rule and need little marshalling. It all adds up to the logical scale for indoor track racing.

I remained impressed and built a track for the garden. It is constructed from hardboard, braced with 2 inch x $\frac{3}{4}$ inch timber and covered with Primafelt. The hardboard walls are 2 inches high. The section ends are pegged and drilled to ensure level joins and lateral location.

Stored in the garage it occupies a space of 8 feet x 7 feet x 3 feet. Two people set it up in the garden in fifteen minutes. Lap length is 85 feet with a 32 feet straight.

Track width is 1 metre — determined by choice of 8 feet x 4 feet sheets of hardboard and allowing for curves. This turns out to be rather narrow for racing more than three or four cars without excessive colliding, even with good drivers (amongst whom I am not numbered). 1.5 metres would be ideal for bigger numbers, but would need more construction and storage space.

An open Tamtech meeting will be held at the Gloucester YMCA on Sunday October 23rd, details from Andy Duncan (0452) 421682.

RRC OFF ROAD SERIES FINAL

Should any 2WD drivers wish to check their eligibility in the RRC Finals, remember you must finish in the top 70 in either Standard or Modified. Please phone Malvern 60561 during office hours or Clive Taylor on 0793 29239 up till 8.00 in the evening.

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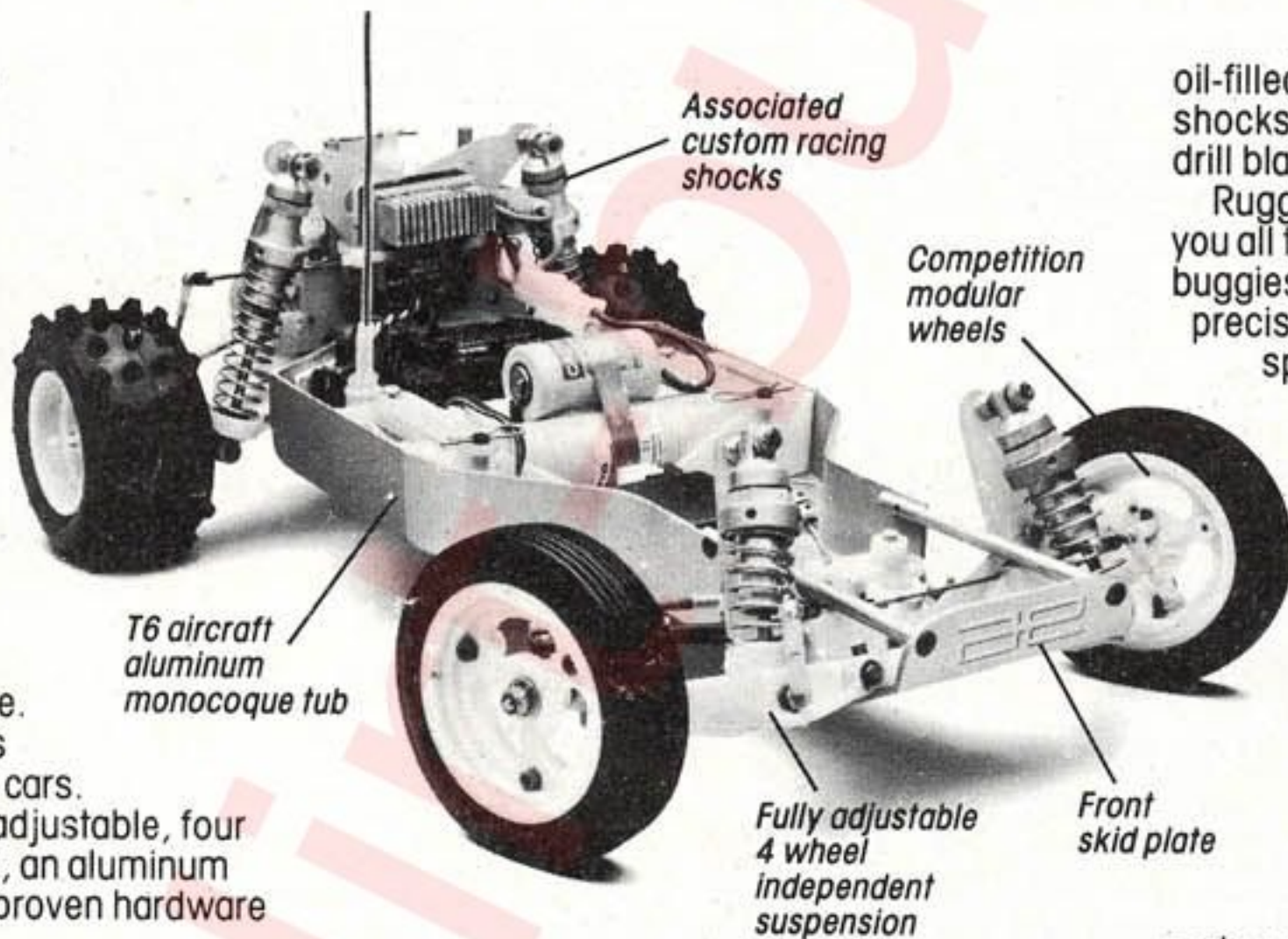
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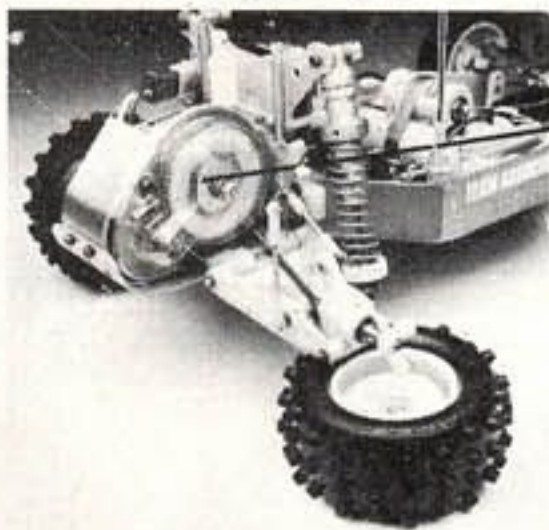
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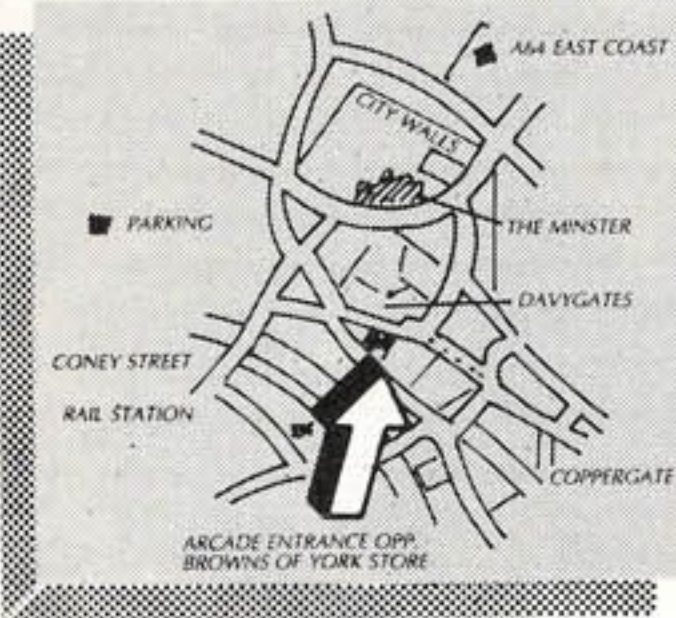
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Futaba Attack BEC	£45.00
Futaba T2LGX BFR ASP	£94.95
Futaba Magnum Sport	£70.00
Acoms Techniplus	£41.95
Acoms Techniplus BEC	£41.95
Sanwa Dash	£44.95
Sanwa Turbo	£59.95
Futaba 3EGX 2x131S	£250.00
Futaba 3EGX Combo	£170.00
Max 2x2 40MHz Dry	£125.00
JR Beat 202	£37.95
JR Beat 202 Combo	£14.95

7.2v BATTERIES

Schumacher Custom Pack	£22.50
Sanyo SC	£18.95
Custom SC	£21.95
SCR	£19.95
Custom SCR	£23.65
Saddle-Pack Custom SCR	£23.85
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Parma Matched Cells	£19.95
Tamiya Ex 1700mah	£30.00
Panasonic	£16.95

ULTIMA SPARES

OT5 Joint (pr)	£2.35
OT6 Swing Shaft (pr)	£5.00
OT18 Rear Shaft (pr)	£3.50
OT19 Drive Washer (4)	£2.10
OT24 Pinion Gear - 15T	£2.10
OT28 Diff. Gear Set	£5.90
OT29 O-Ring (10)	£1.75
OT32 5.8 Ball (10)	£2.10
OT33 Ball Nut 2.6mm (10)	£2.10
OT36 Pivot Ball 2.6mm (10)	£2.75
OT37 Cord Set	£3.10
OT39 E-ring 2.5 (10)	£1.10
OT66 Rear Tyre (pr)	£6.95
OT72 Resistor Heat Sink	£1.25
SC26 Front Tyre (pr)	£4.95
SC67 Speed Controller Set	£10.00
SC79 Speed Controller Contacts	£2.45
SC89 Tie Rod Set	£3.75
KC20 E-ring (4)	£0.75

CB72 E-ring (4)	£0.55
AB30 Front Shock Set	£9.50
AB31 Rear Shock Set	£9.50
UM1 Gear Set	£4.95
UM2 Bushing Set	£3.50
UM3 Gearbox	£1.95
UM4 Motor Plate	£1.95
UM5 Gear Shaft Set	£2.45
UM6 Shock Stay Set	£2.45
UM7 Susp. Shaft Set	£2.95
UM8 Front Shaft Set	£2.95
UM9 Rod Set	£1.95
UM10 Collar Set	£1.75
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UM12 Bulkhead Set	£3.25
UM13 Susp. Arm Set	£3.15
UM14 Servo Saver Set	£1.95
UM15 Radio Plate Set	£1.75
UM16 Body Set	£3.25
UM17 Wheel Set	£3.75
UM18 Body	£9.95
UM19 Decal	£1.95
UM20 Chassis	£6.45
UM22 Screw Set	£6.75
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1903 Bearing	£1.99
1911 Bearing	£1.99
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UM26 Special Shock Stay	£24.95
UM27 Special Chassis	£17.95
UM28 Motor Guard	£5.95
UM29 Stabiliser	£7.95

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OT2 Chain	£4.95
OT3 Wheel Set (4)	£4.95
OT4 King Pin (4)	£2.45
OT5 Joint Set (Fr or R) pr	£2.35
OT6 Swing/Drive Shaft (pr)	£5.00
OT7 Rear Plate Set	£6.65
OT8 Front Side Plate (pr)	£2.10
OT9 Shock Stay Set	£2.75
OT10 Bushing Set (10)	£2.35
OT11 Suspension Shafts (pr)	£2.75
OT12 Radio Plate	£4.65
OT13 Suspension Arm Set (pr)	£2.75
OT14 Underguard	£2.10
OT15 Front Bumper	£2.10
OT16 Fr. Knuckle Arm Set	£3.90
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OT18 Rear Shaft (pr)	£3.50
OT19 Drive Washer (4)	£2.10
OT20 Chassis	£5.90
OT21 Screw/Nut Set	£7.45
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OT23 Pinion Gear (12t)	£2.10
OT25 Body	£13.20
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OT33 Ball Nut (10)	£2.10
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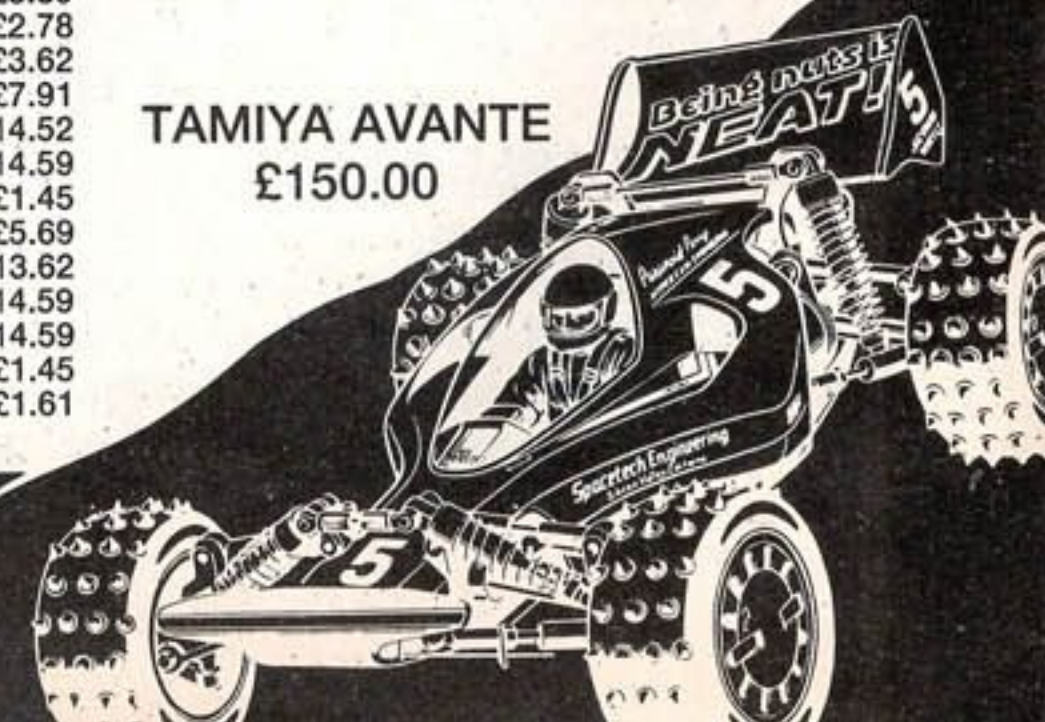
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COMPETITION

* RACING SET *



Each car transmits on a separate wave band so they can be raced together. Size approximately

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FEATURES

- 1/15th SCALE FULL FUNCTION
- FULL SPRING SUSPENSION
- SOFT PNEUMATIC TYRES
- 2 CHANNEL RADIO CONTROLLED
- 2 SPEED GEAR CHANGE

RRP £74.99
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THE SET
INC P&P

Set requires 16 x AA and 2 x PGG alkaline or rechargeable batteries.

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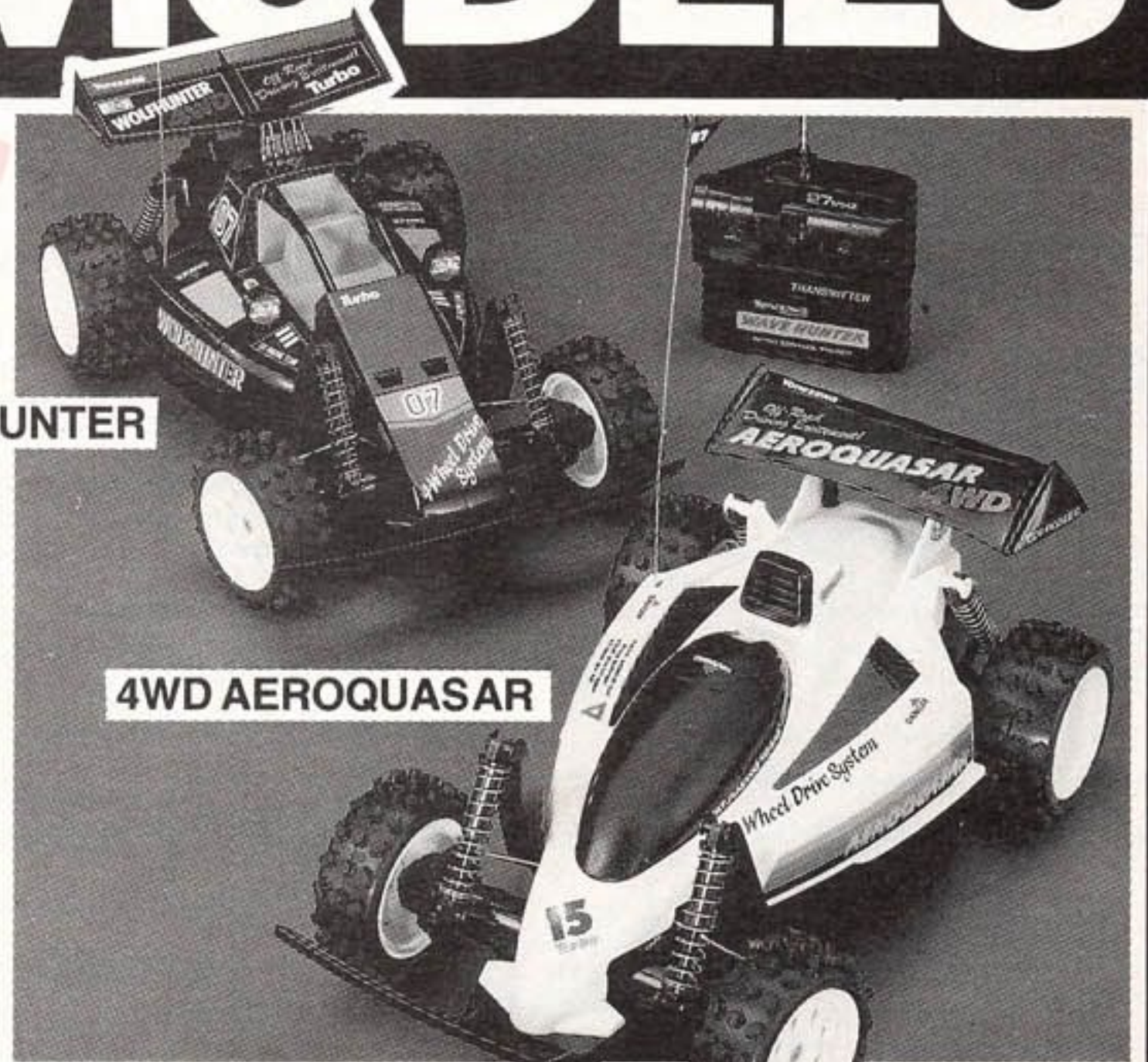
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Optima Pro	£99.00
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Ultima Turbo	£145.00
Salute	£149.00
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Ninja	£89.00
Shogun	£89.00
Thunderbird	£99.00

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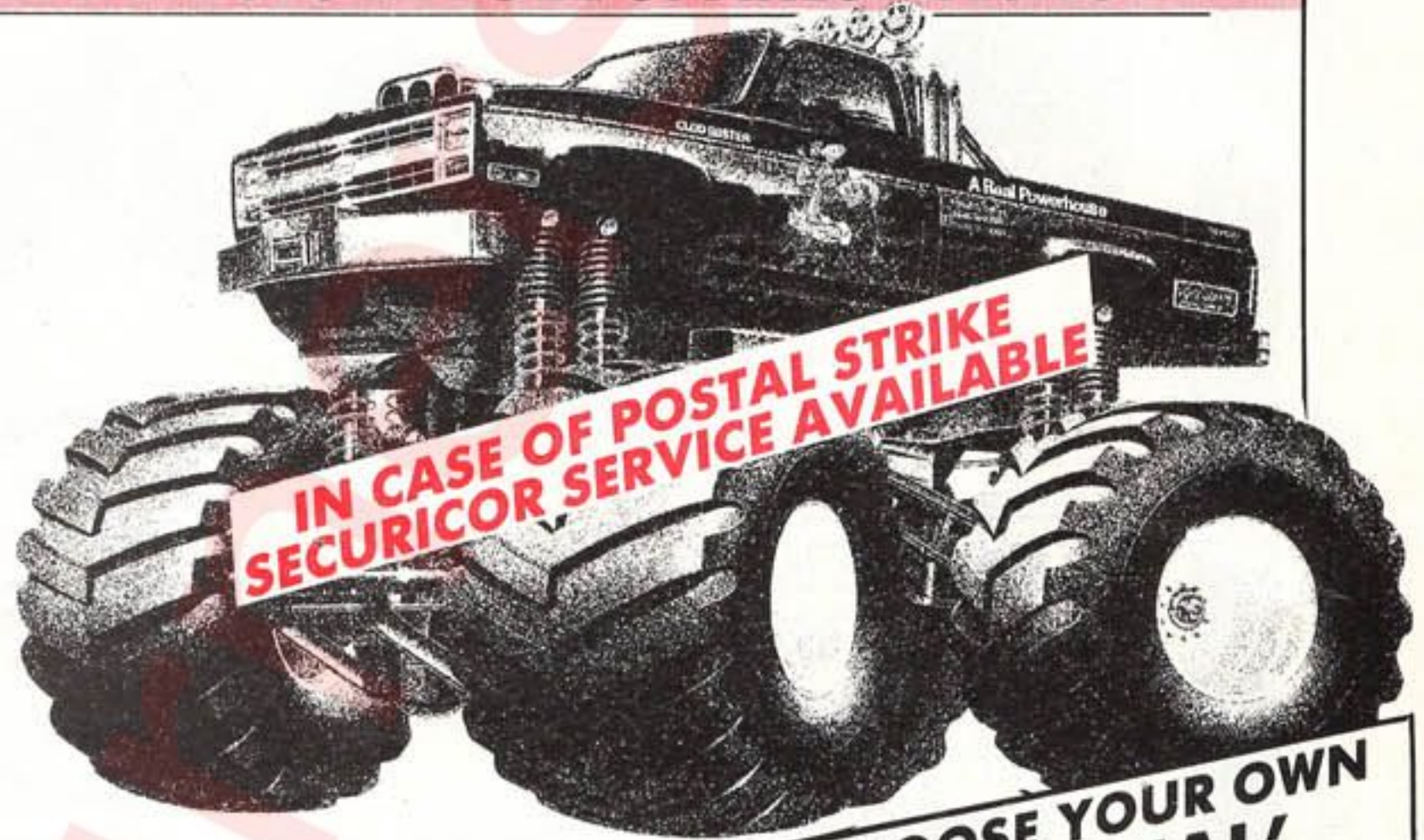
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Parma Matched SCE 7.2v	£29.00
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Laser Matched SCRs 7.2v	£31.00
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Laser Matched SCE's 7.2v	£34.00
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TOTAL	93.00
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PRICE £69.00
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Deal includes Irvine 20 Engine
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NEW "ESPRIT" motors - wet magnets - thicker can - heatsink endbell.
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A GREAT NEW IDEA FROM SRM

If you are confused by gear ratios and 32/48/64 DP we now have the answer - Gear Ratio Charts - easy to use, always to hand. Our charts are postcard size, waterproof, colour coded for each car and take the guesswork out of choosing a ratio for your motor. Each card shows three tables - for 32DP (as fitted to most buggies), for 64DP (Fine Pitch) as used by most serious racers - and for the new industry standard 48DP which offers a wider choice of ratios than 32DP combined with the smoothness associated with 64DP but without the meshing problems. Not to be confused with Modular.

Charts available to fit:
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Ultima/Optima (32DP in kit).
Associated RC10 (32DP in kit).
PB Maxima (32DP in kit).
Optima Mid 4 (.6 Module in kit)

£1.40 each

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Now available a full range of 48DP spur gears and pinions to fit all competition buggies - either as direct fitting replacements or using our extensive range of adaptors. SRM Tufnol 48DP spurs and pinions are machined on the same cutter - ensuring perfect true mesh and silent running.

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Superb Performance Excellent Reliability
Basic Kit Rolling Chassis - Long Body - Free Bumper £120
Complete Kit includes 28T Motor - Resistor Speed Controller - Fast Charge Cord - Wing - Free Bumper £142.50
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We can supply package deals to suit your individual requirements. Your choice of Radio, Nicad, Motor, Body, Speed Controller, Charger

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Full range always in stock (subject to supply)
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Battery braid for connecting cells

1/10th ON ROAD RACING

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- Ultima machined tufnol ball diff main gear £4.95
- Ultima machined tufnol 48DP ball diff gear & final pinion set £8.95

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True Tyres easily in electric drill

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usually in stock for RC10 - Optima - Ultima - CAT
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The only reliable and accurate non computer method to select - match - monitor - determine capacity - re match cells. Use with all types of cells * Single cell & 4/6/7 cell packs.
Cell Mate & Adaptor Box £199.95
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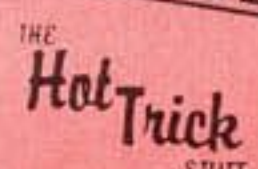
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THE RACERS SOURCE

TUNE UP ACCESSORIES

Our list is growing all the time - are you updated?!

TRACK TALK

by Chris Evans

Once again Watford played host to the final round of our National Championship series, sponsored by L & M Euro Models who were on hand to replace any broken parts and I must quell any rumours this minute that the L & M C and D Teams provide many a customer from other drivers in their heats — "Only joking lads."

Apart from Formula's One, Two and Three, we have also seen Formula Four for none BRCA members. This time Keith Helmke and his helpers went one better and produced Formula Five. This was for anyone who wanted to run the new Sanyo SCE type cell with any motor with regard to the World Championships. At present the way to go is sub 23 turn motors in the new 'wet mag' cans, but make sure you get the handling right, especially on the lower winds. With the power the cars are putting down, it is well worth getting the tractite on about an hour before you race to give plenty of time for penetration. This will become more important at smaller club venues where grip levels are usually lower, as I found to my cost using a Twister 401 (19 double) at Chesterfield with no grip after 6 minutes. With this in mind Grand Prix Model Products are already looking at some softer yet higher quality rubbers for next season. While on the subject of tyres, the last month's have seen it increasingly difficult for me to race competitively at National level as well as help people out with 'Glueing and Trueing'. Although Grand Prix Model Products will still provide all their normal services to the best of their ability, I do hope it won't inconvenience any of you that I won't be able to 'glue and true' at the racetrack and hopefully I can regain some of my lost form. Thank's once again.

On the new car front, Watford saw the National debut for the new Composite Craft 1/12 car. The car, run by Dave Towell, was a pre-production unit shipped to Phil Booth for testing, who will be distributing the car in the UK.

The chassis is similar to the Delta car, ie. graphite chassis and beam front end. The rear of the car is a twin alloy block arrangement, joined to the chassis by four pivoting linkages and damped by two oil filled dampers. Initial runs with the car look very good and a full kit review will follow.

BRCA 1/12 Section Annual General Meeting

This meeting again took place at the Rolls Royce Welfare Hall, Derby on Sunday, July 17th.

After the apologies had been given, the first item was election of officers and this has seen an input of new blood, in all but one post. Dave Towell has finally taken over from Steve Haywood to look after the handicaps. A new post of Public Relations Officer was created, especially to deal with articles for circuit chatter and this post is filled by Mark Barford.

Before the meeting, our qualifying officer Jim Spencer had drawn up a list of items which are no longer applicable to our racing, which can be removed from our rules, ie. 'the treatment of tyres with silicone is not allowed during the meeting', etc., etc. and everyone agreed to the amendments.

1/12 Electric Circuit Construction Rules

Changes proposed at 1/12 Section AGM on July 17th, 1988 requiring ratification at BRCA Annual General Meeting:

1. Delete 1.4.2.
2. Amend 1.4.1. Tyre treatments. First line to read. Indoor and Outdoor.
3. Delete 1.4.3.
4. Amend 1.8 to read. Only one wing is allowed on the car dimensions to be: Width 172 mm maximum. Chord 51 mm maximum unless car had a second wing. The second wing must be a scale within 10% in size and location. The wing may be no closer than 6.5 mm to any part of the body other than tail fins or side dams.
5. Amend 1.14 to read. All cars shall have identifying numbers to the race directors satisfaction.
6. Delete Section 4.0 through to 4.5, Production Class.
7. Section 5. Delete general specifications — outline drawings, existing 5.1 through to 7.9.
8. Section 5. General specification outline Drawings. Add 5.1 GT (Saloon) Cars.
9. Add 5.1.1. GT class bodies must be models of actual production cars, eg. Trans Am IMSA (GTD/GTV) Groups A.B.N. 1.4.
10. Add 5.1.2. Drivers are not required.
11. Add 5.2. Sports Cars.
12. Add 5.2.1. Sports/Prototype cars

modelled after actual raced examples such as IMSA. Group C/5/6 CANAM.

13. Add 5.2.2. Driver figures must be used in open cockpit cars.

14. Add 5.3. Formula Cars.

15. Add 5.3.1. Formula cars modelled after single seat open wheeled cars such as Formula 1.2.3. INDY. Car, etc.

16. Add 5.3.2. Driver figures must be used.

17. Add 5.4. All cars in above groups must conform to general and electrical specifications.

18. Section 5. Twelfth Scale Electric Car Procedure Rules. Delete 5.11.

19. Delete Section 5, Rule 5.25.

20. Amend 5.26(a) to read. Drivers must marshal 1/2 heats after their own at the race directors discretion.

21. Delete sentence in 5.35 reading. The treatment of tyres with silicone is not allowed during the meeting.

22. Delete Section 6. Handicap Finals.

23. Section 7. Amend 7.2 to read. All meetings to be indoors on carpet or outdoors on smooth tarmac as approved by the BRCA steward.

24. Section 4. Amend rule 4.8(d) to read. Commercial modified motors must be available with a retail price not exceeding £55.00.

25. Section 7. Delete rule 7.6.

26. Section 2. Amend rule 2.2 to read. Motors must be commercially available nationwide with a retail price not exceeding £13.00.

27. Section 5. Add 5.4.2. Standard class racing shall be run on Saturdays and Modified Class on Sundays.

28. Section 7, Rule 7.3.1. Add after existing paragraph. Any drivers who's handicap falls to a point where he should be relegated from Formula 1 to Formula 2 or from 2 to 3 must be given the choice either to remain in the higher formula or to be relegated. If the driver elects to be relegated all points attained in the higher formula are forfeited. Any driver who has not competed in the championships for 1 year or more automatically rejoins the formula system on his previous attained handicap less 10%.

29. Section 7, Rule 7.4 (a). Second sentence to read. Car bodies must be painted in the same colour and design.

30. Section 7, Rule 7.4 (b) amend to read. Team members must be entered on the appropriate entry form prior to the race meeting entry closing date. No amendments to team entrants will be accepted after this date.

The minutes for the rest of the meeting are then as follows followed by the names and addresses of the new officers and committee.

Election Of Officials

1.a. John Ford was not present at the meeting however he sent his apologies through Rob Roy and announced he wished to stand down as Chairman.

b. Rob Roy declared his wish to stand down as Secretary.

c. Pete Jones said he also wished to stand down as Eligibility Officer.

2. An election was held to fill the above vacancies.

a. Les Heath was proposed as Chairman and elected unopposed.

b. Dave Sellens was proposed as Secretary and as no other candidate was proposed, he was also duly elected.

c. David Gale was proposed as Eligibility Officer and also elected unopposed.

d. Jim Spencer declared his interest in standing again as Qualifying Officer and was duly re-elected.

e. Mark Barford was proposed as Public Relations Officer and was duly elected.

f. Dave Towell was proposed as Qualifying Officer — Handicaps and elected unopposed.

3. Area Representatives were asked if they wished to remain in office for the forthcoming year.

Northern Area: All representatives agreed to remain in office and were duly re-elected.

Central Area: All central area representatives other than Chris Hardisty consented to remain in office and were duly re-elected. Jason Dearden was voted to fill the vacancy.

Southern Area: All representatives other than Pete Winton elected to stay in office and this was duly confirmed. Rob Roy was elected to fill the vacancy.

Construction Rules

1. Jim Spencer produced a list of current BRCA Rules which are no longer applicable to current 1/12 Circuit Racing. All members present were given a copy of this listing. Jim Spencer proposed, seconded by Les Heath that these rules should be deleted. A vote was taken and the proposal carried. These rules are therefore deleted.

2. Chris Hardisty proposed, seconded by Julian Thompson, that the price limit of £60.00 be abolished for speed controllers. This proposal was discussed and defeated, therefore Rule 1.25 remains as before.

Frank Dakin proposed, seconded by Rob Roy, that the price limit applied to modified motors should be removed. This proposal was debated and was voted on with 26 votes for the removal of the price limit and 21 against under the 2/3 majority rule for change of construction rules the proposal was defeated.

4. Glyn Pegler proposed, seconded by Frank Dakin, that the maximum price limit for modified motors should be raised from the current £39.95 limit to £55.00. An amendment was proposed by Frank Dakin that the limit be raised to £75.00, seconded by Mark Jewitt. The amendment was voted on and was carried. Rule 4.8 (d) is therefore amended to read: Commercial Modified Motors must be available with a retail price not exceeding £55.00.

5. Rob Roy proposed, seconded by Pete Farmer, that Rule 7.6 be deleted. An amendment to this proposal was made by Bill Boldison, seconded by Vince Formosa that the cells run in the final should have been run in at least one heat. The amendment was voted on and defeated. The original proposal to delete Rule 7.6 was then voted on and carried. Rule 7.6 is therefore deleted.

6. Jim Spencer proposed, seconded by Les Heath that Rule 1.4,1.3 be deleted. This was discussed and the vote was carried.

7. Glynn Ward proposed, seconded by Les Heath that Rule 1.4,1.1 be changed to read Indoor and Outdoor. This was debated and the motion carried. Rule 1.4,1.1 should therefore now read Indoor and Outdoor.

8. Pete Farmer proposed, seconded by Mark Barford that Rule 2.5 be amended to read Standard Drive Motor Specifications:

Can Diameter 35 mm, Can Length 49 mm (excluding baring housing and shaft), Armature Stack length 22.5 mm, Windings 27 turn of 22 gauge view minimum. This was discussed and voted on and was defeated.

9. Les Heath proposed, seconded by Dave Sellens that Rule 2.2 be amended to read Motor must be commercially available nationwide, with upper limit to cost of £13.50. This was discussed and the motion was carried.

Any Other Business

1. Dave Towell proposed, seconded by Tim Dakin, that Formula 1 be allowed to run motors and speed controllers outside the restricted price limits. An amendment was proposed by Chris Hardisty, seconded by Jim Spence that the Formula System be revised. Rob Roy proposed, seconded by Dave Towell that the above proposals be left dormant until the next AGM. Rob Roy's proposal was then voted on and carried.

The committee will therefore raise the matter at the next AGM.

2. Rob Roy proposed, seconded by Keith Helmke that Standard Class Racing be run on Saturday and that Modified Class be run on Sundays. This was discussed and voted on and was carried.

3. Jim Spencer proposed, seconded by Rob Roy that drivers who's handicap falls below the level where they may remain in F1 or F2 should not drop down into the lower formula. An amendment was proposed by Rob Roy that drivers should on handicap move up through the Formula but not down Chris Hardisty proposed a further amendment that drivers should have the choice, when their handicaps falls, of remaining in the higher formula or dropping to the lower formula, the attained championship points be forfeited. Chris Hardisty's amendment was discussed and the vote carried.

4. Pete Farmer proposed, seconded by Mike Haswell that any driver that has not competed in the championship for a year or more loses 10% of the previous attained handicap. This was voted on and carried.

5. Chris Evans proposed, seconded by Pete Jones that the staggered start system

be utilised. Chris Evans proposed, seconded by Pete Jones an amendment that the computer system be purchased to allow the above staggered start system to be utilised and that it should be tried. The amendment was discussed and the vote carried.

6. Pete Farmer proposed, seconded by Glyn Pegler that Formula 1 run modified motors only. This was voted on and defeated.

7. Barry Sherring proposed, seconded by Richard Thomas that the wording of Rule 7.4 (a) be amended in relation to team bodies being identical to read Car Bodies must be in team colours. Sheila Goodyear proposed and amendment, seconded by Barry Sherring that Teams must run Car bodies which are painted in the same colour and design. This was discussed and voted and the amendment was carried. The wording of Rule 7.4 (a) should therefore be changed to read 'Car Bodies must be painted in the same colour and design.'

8. A proposal was made by Keith Helmke, seconded by Dave Towell that Team Entries should be made on the appropriate entry form and that no amendments should be allowed subsequently. This was discussed, voted on and carried.

As no other business was proposed the meeting was then terminated.

1/12 Circuit Officers (1988/89)

Chairman:

Les Heath. c/o L & M Euro Models, 61, Station Avenue, Wickford, Essex. Tel: (0268) 769505.

Secretary:

Dave Sellens. 20, Regent Close, Grays, Essex. RM16 2RD. Tel: Home (0375) 378212, Work (01) 638-3361.

Eligibility Officer:

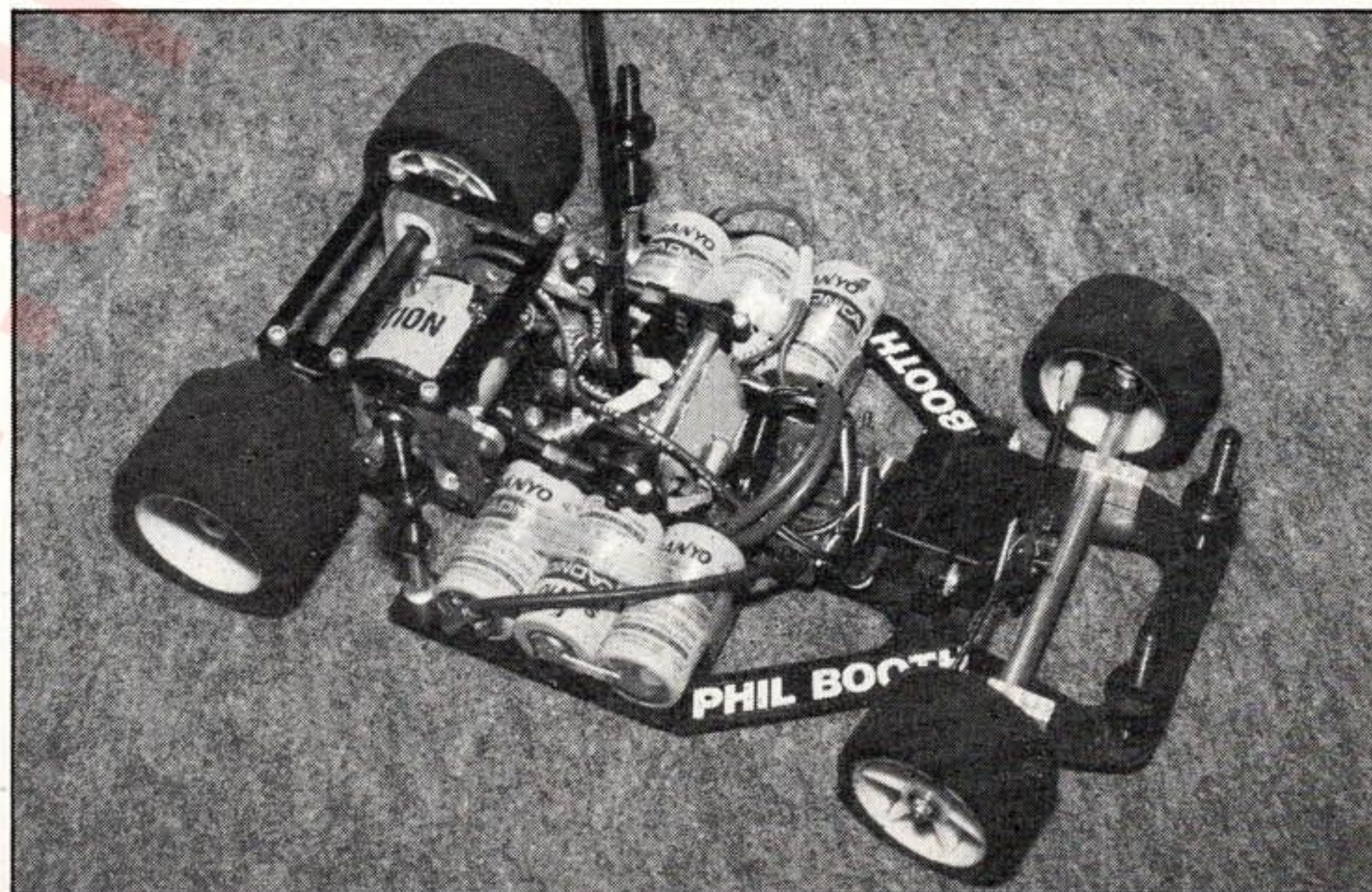
David Gale, 402, Cherry Hinton Road, Cambridge. CB4 4BA.

Qualifying Officer (Handicaps):

David Towell, 73, Moorside Crescent, Sinfin, Derby. DE2 9PH. Tel: (0332) 771805.

Qualifying Officer:

Jim Spencer, 1, Balmoral Avenue,



Crewe, Cheshire. CW2 6PL. Tel: (0270) 69051.

Public Relations Officer:

Mark Barford, 17, Knightscliffe Way, Duston, Northampton. NN5 6DF. Tel: (0604) 55232.

Northern Area Reps

Mark Jewitt, 12, Mapperly Drive, S.W. Denton, Newcastle upon Tyne. NE15 7RJ.

Pete Riley, 12, Stanhope Close, Newton Hall, Durham. Tel: (0385) 45695.

Pete Goodyear, 40, Twickenham Crescent, Halfway, Sheffield. S19 5HS. Tel: (0742) 483112.

Central Area Reps

Chris Evans, 18, Adams Road, Finchfield, Wolverhampton, West Midlands. WV3 8EH. Tel: (0902) 762586.

Jason Dearden, 3, Woodlands Way, Moira, Burton-on-Trent, Staffs. DE12 6HE. Tel: (0530) 413487.

Nigel Plitz, 4, New Brighton Cottages, Langley Road, Langley, Macclesfield. Cheshire, SK11 0DN. Tel: (02605) 2156.

Southern Area Reps

Keith Helmke, 10, Yew Street, Houghton Regis, Dunstable, Beds. LU5 5PA. Tel: (0582) 864420.

Glyn Pegler, 230, New Road, Booker, High Wycombe, Bucks. HP12 4RG. Tel: (0494) 444238.

Rob Roy, 56, Redland Drive, Kingsthorpe, Northampton. Tel: (0604) 864478.

Ian Spashett, Claerwen. Bexhill Road, Pevensey, E. Sussex. BN24 5JT.

Talking to our new secretary, Dave Sellens, a couple of days after his election, he has been quick to put forward some ideas for increasing 1/2 participation. The first thing we need to do is draw up a venue list of all places throughout the country where a driver may participate in 1/2 electric racing so I ask all club secretaries, however small the club to either contact myself or Dave.

Secondly, proof of BRCA membership at all BRCA meetings will be required or you will race in Formula Four. People will be allowed to join or renew their membership but no excuses will be accepted.

A final idea which might need some careful consideration is for some kind of fund raising events in an attempt to help some more drivers attend the next Worlds in 1990. This is due to be held by FEMCA, the Far East section with venues possibly being Tokyo, Singapore and Hong Kong.

Final Championship Positions

Modified

Formula One	Formula Two
1. Phil Davies	1. Terry Evans
2. David Gale	2. Bill Boldison
3. Pete Winton	3. Vince Formosa
4. Pete Riley	4. Paul Ash
5. Glyn Pegler	5. Graham Racestrick
6. Mark Barford	6. Mick Farrell
7. Pete Farmer	7. Alex Thomason
8. Tim Dakin	8. Phil Dearnley
9. Keith Helmke	9. Jason Deardon
10. Rob Roy	10. Pete Margetts

Formula Three

1. Doug Heath
2. Dave Millor
3. Adrian Brunt
4. Les Heath
5. Glyn Ward

Standard

Formula One	Formula Two
1. Pete Farmer	1. Ian Spashett
2. Tim Dakin	2. Pete Goodyear
3. Phil Davies	3. Jason Deardon
4. Glyn Pegler	4. John Jones
5. David Gale	5. Graham Oxford
6. Mark Barford	6. Richard Pickering
7. Pete Riley	7. Kevin Creaser
8. Rob Roy	8. Roger Elliot
9. John Reid	9. Phil Dearnley
10. Matt Ford	10. Alex Thomason

Formula Three

1. Syd Evans
2. Barry Wood
3. Glyn Ward
4. Adrian Brunt
5. Les Heath

Formula 1, A Final Results — Modified

Pos	Names	Laps	Time
1	Dave Gale	39	12.33
2	Pete Winton	38	9.01
3	Pete Riley	38	10.70
4	John Reid	38	16.99
5	Jim Spencer	37	5.63
6	Tim Biggs	37	14.65
7	Keith Helmke	36	1.13
8	Pat Hodge	36	6.45

Formula 2, A Final Results — Modified

Pos	Names	Laps	Time
1	Mick Farrell	37	8.94
2	Jason Deardon	36	4.16
3	Vince Formosa	36	12.26
4	Bob Brailey	35	3.40
5	Pete Margetts	35	6.10
6	Ian Spashett	35	14.45
7	Paul Ash	34	1.26
8	Chris House	33	7.93

Formula 3, A Final Results — Modified

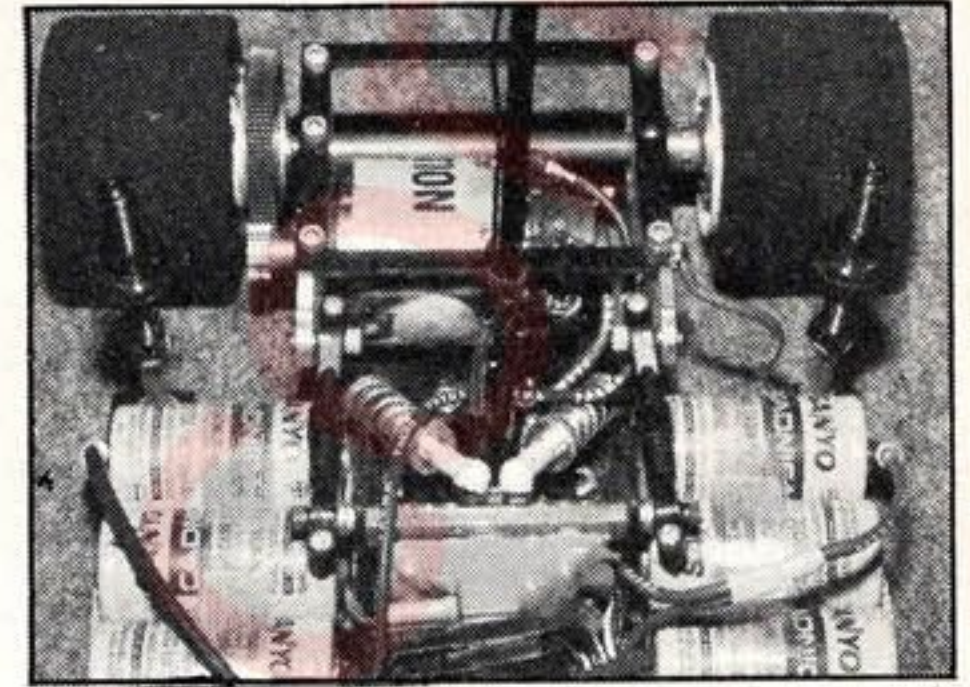
Pos	Names	Laps	Time
1	Lee Hewitt	35	7.96
2	Ryan Georgakis	34	11.21
3	Dave Sellens	33	8.09
4	Brian Stephenson	33	10.93
5	Ellis Stafford	32	5.63
6	Adrian Brunt	32	10.03
7	Nathan Ralls	31	5.96
8	Brennan Ralls	13	25.00

Team Results, Watford — Modified

Pos	Team	Points
1	SRM Assc A	441
2	Schumacher	438
3	Ashby A	437
4	Intronics Corally	430
5	L & M Euro B	427
6	L & M Euro D	426
7	Racestore Arrow	426
8	L & M Euro A	423
9	Viper B	419
10	Tractite	417
11	L & M Euro C	259

Formula 1, A Final Results — Standard

Pos	Names	Laps	Time
1	Pete Farmer	38	4.29
2	Pete Riley	38	11.41
3	Tim Dakin	38	11.71
4	Jim Spencer	37	8.94
5	Keith Helmke	36	0.01
6	John Reid	36	1.75
7	Tim Biggs	36	1.90
8	Mick Farrell	36	6.83



Formula 2, A Final Results — Standard

Pos	Names	Laps	Time
1	John Jones	36	5.36
2	Kevin Creaser	36	9.91
3	Jason Deardon	35	2.91
4	Pete Goodyear	35	7.71
5	Mike Haswell	35	9.44
6	Rich Pickering	34	1.85
7	Ian Spashett	25	3.20
8	David Spashett	7	25.00

Formula 3, A Final Results — Standard

Pos	Names	Laps	Time
1	Lee Hewitt	36	8.73
2	Richard Sellens	34	6.43
3	Mark Thomas	33	0.65
4	Dave Sellens	33	2.86
5	Stephen Rowley	33	12.76
6	Syd Evans	33	13.03
7	Barry Wood	32	0.24
8	Robert Bell	32	2.80

Team Results, Watford — Standard

Pos	Team	Points
1	Brampton Radio Mod	441
2	Schumacher	439
3	L & M Euro Z	437
4	Intronics Corally	436
5	Ashby B	433
6	Ashby A	432
7	Tractite	429
8	Racestore Arrow	426
9	L & M Euro C	423
10	L & M Euro B	419
11	Viper B	405

Provisional Calender 88/89 Season

- September**
24th/25th – Gateshead International
- October**
8th/9th – Derby National
- November**
12th/13th – Northampton National
- December**
4th – Every Ready Grand Prix
- January**
Model Engineers
21st/22nd or 28th/29th – Eastborne Nats
- February**
18th/19th or 25th/26th – Macclesfield Nats
- March**
Washington National
- April**
Wickford National
European Championships
- May**
27th/28th – Chesterfield National
- June**
24th/25th – Watford
- July**
No applications at present

The RCP Border Counties League Finals 1988

With the increasing popularity of 1/10th scale off-road racing, combined with a severe limitation of places in the recognised national events for participation by average club racers, model car racing clubs in the 'Border Counties' region decided to form the 'BORDER COUNTIES LEAGUE' to provide club racers with an opportunity of competing against other drivers in a competition run to national standard but at a regional level.

Hence, following inspired foresight by Bob Morgan of the Wrexham Off-Road Buggy Club, 1988 saw the creation of the 'Border Counties League' comprising the following radio control model car racing clubs:

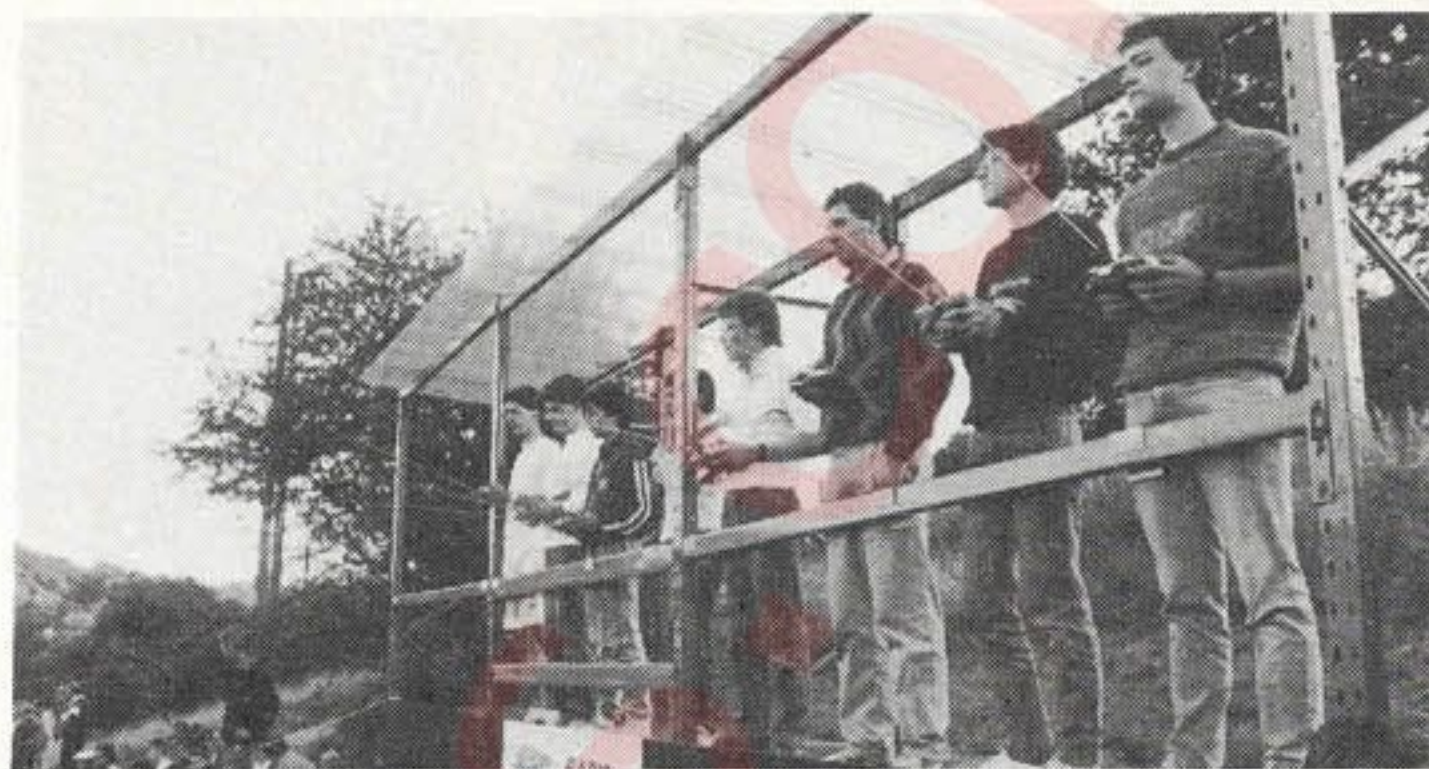
1. Bentley Model Car Club, Crewe, Cheshire
2. Bridgnorth Buggy Club, Shropshire
3. Oswestry Buggy Club, Shropshire
4. Shrewsbury South Radio Control Car Club, Shropshire
5. Stoke Buggy Club, Staffordshire
6. Telford Model Car Club, Shropshire
7. Wrexham Off-Road Buggy Club, Clwyd

The league members decided that the event would be run in accordance with B R C A 'Modified Rules', and divided into both 2WD and 4WD categories.

Each participating club was required to host a round of the championship, and the final was held at the Bridgnorth Buggy Club on Sunday 18th September.

The championship rules required drivers seeking championship honours to have raced in 3 previous rounds of the championship and including the final round at Bridgnorth. Points were awarded according to drivers best achievements in four rounds of the championship.

'Finals Day' at Bridgnorth was a great success with 80 drivers turning out to compete for a championship place, and at the conclusion of the days racing, Peter Hex of RCP - The sponsors of the league presented trophies and prizes to the following top driver, all of whom have shown their skill and ability consistently throughout the season:-



The 1988 winners taking a bow on the rostrum at Bridgnorth.

Border Counties League 2WD Championship 1988.

Final Placings for the 1988 season were as follows:

- 1st=: Richard Heys, Crewe.
Prize - RCP 'XS' Speed Controller.
1st=: Craig Hughes, Telford.
Prize - Laser SCR Nicad.
2nd: Ian Pendlebury, Wrexham.
Prize - RCP Tool Cabinet with tools.
3rd: Nick Morgan, Wrexham.
Prize - Portable Gas Soldering Iron.

Border Counties League 4WD Championship 1988

- 1st : Richard Hughes, Telford.
Prize - RCP 'XS' Speed Controller.
2nd : Chris Eades, Shrewsbury.
Prize - Laser SCR Nicad.
3rd : David Fletcher, Wrexham.
Prize - RCP Tool Cabinet with tools.

The Bridgnorth Round of the 1988 Championship was a separate trophy winning event in its own right and the final placings affected the overall positions.

The Bridgnorth Results were as follows:

2WD Championship

A Final.

- 1st : Richard Heys, Crewe.
2nd : Craig Hughes, Telford.
3rd : Ian Pendlebury, Wrexham.

B Final

- 1st : Jim Streets, Bridgnorth.
2nd : Paul Wright, Shrewsbury.
3rd : Alexandra Stevens,

4WD Championship

A Final

- 1st : Duncan Lewis, Shrewsbury.
2nd : Richard Hughes, Telford.
3rd : Chris Eades, Shrewsbury.

B Final

- 1st : Mark Prince, Crewe.
2nd : Simon Hardy, Shrewsbury.
3rd : Simon Morgan, Wrexham.

C Final

- 1st : Craig Sparke, Crewe.
2nd : Andrew Hobbs, Crewe.
3rd : Mark Alexander, Wrexham.

FTD (Fastest Time Of Day) TROPHIES

2WD Championship: Nick Morgan 15-17.17

4WD Championship: Colin Steele 17-14.87



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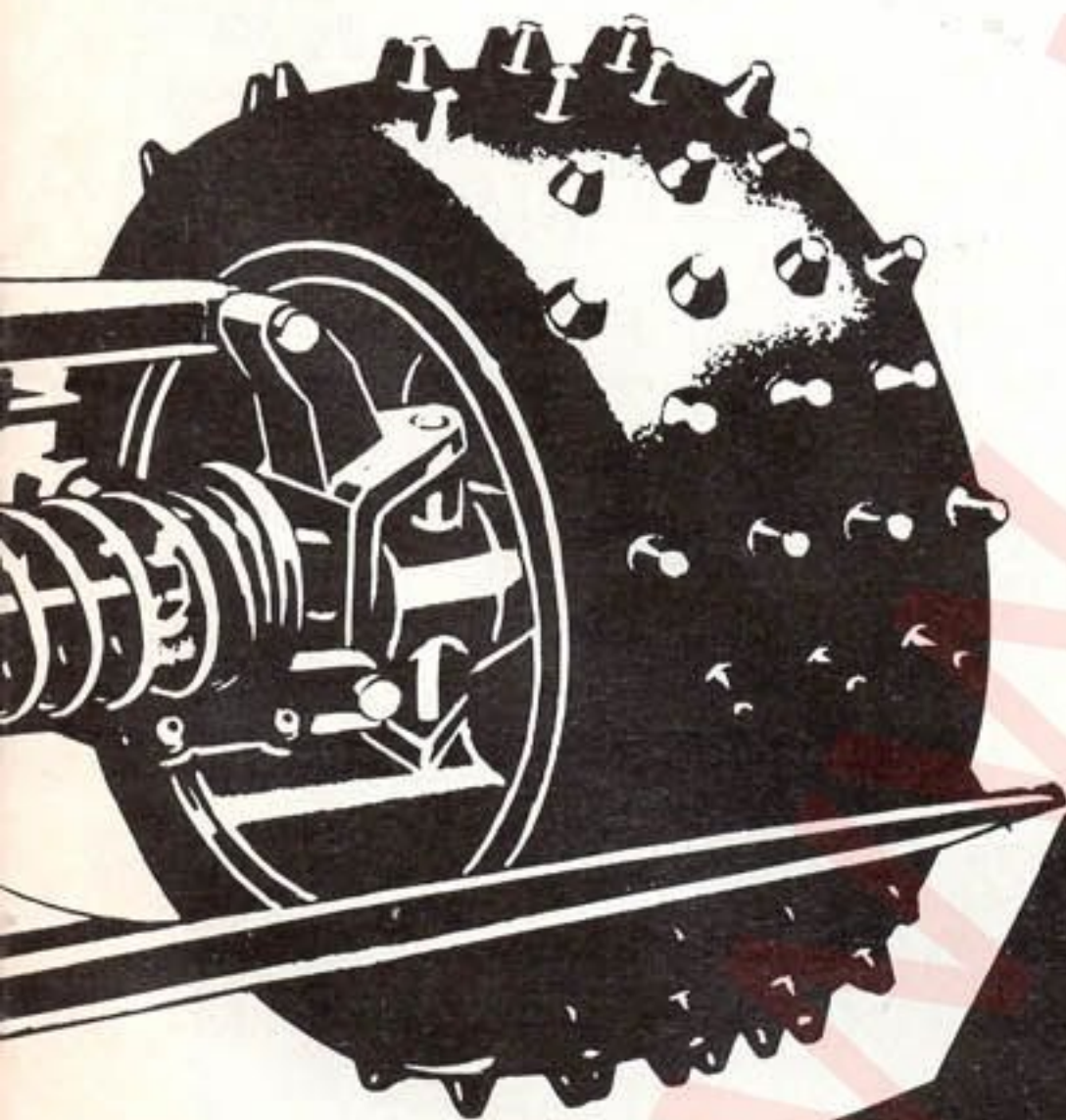
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ALTRINCHAM 92/94 Stamford New Rd, Graftons Shopping Precinct, WA14 1DG. 061 928 4228
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AYLESBURY 13/15 High Street, HP20 1SH. 0296 85752
AYR 21/25 Newmarket Street, KA7 1LL. 0292 282945
BANBURY 28 Bridge Street, Cherwell Centre, OX16 8PN. 0295 53131
BASINGSTOKE 8 New Market Square, RG21 1JA. 0256 59958
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BLACKPOOL 19 Hounds Hill Centre, Victoria Street, FY1 4HU. 0253 26461
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BRIGHTON 4/8 Dyke Road, BN1 3FE. 0273 776626
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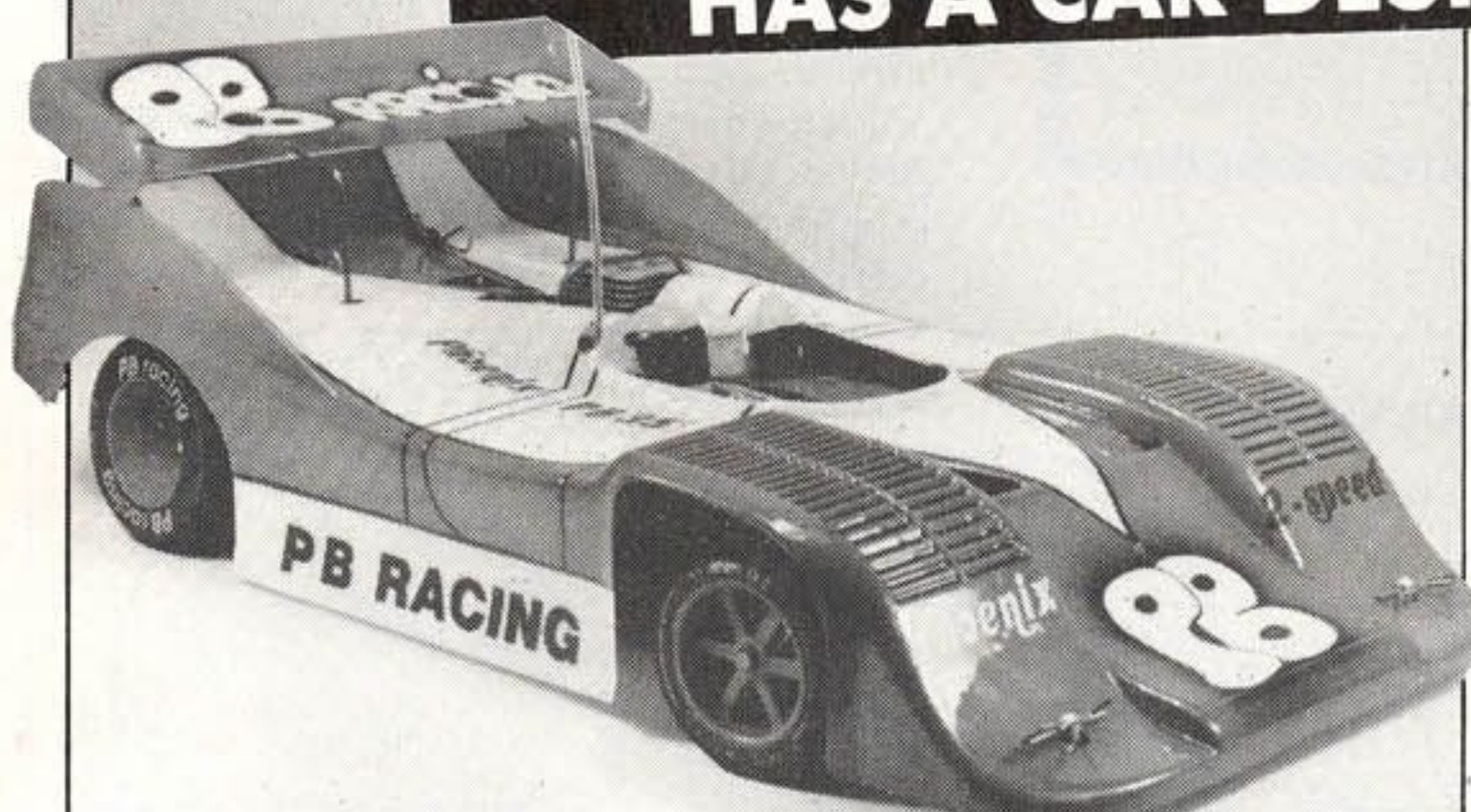
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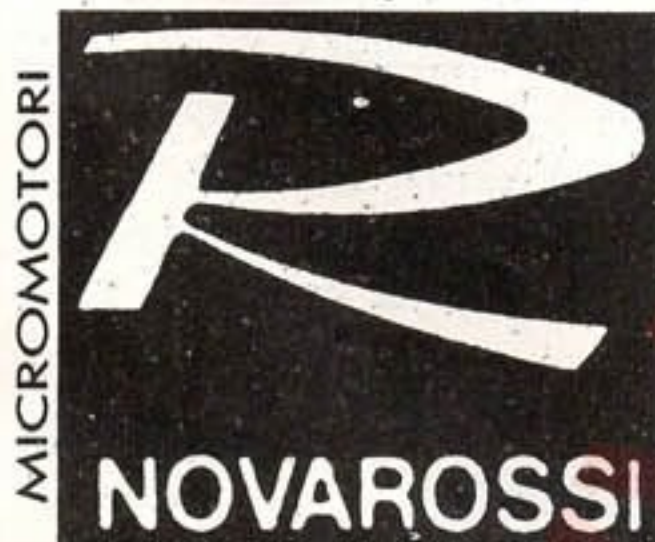
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So You Think You Can Solder

By John Murray

too much heat and the solder suddenly melts and falls on the floor!

Fortunately, we don't have these problems with 60/40 as it is called. There is only a couple of degrees between melt and solid which prevents dry, crystalline joint formation. That's why it's good for electronics. There are also many other percentage mixes and many with other metals like silver or indium but they are too numerous to mention and beyond the scope of this article — so, how does solder stick to copper?

Well, it forms an 'amalgam', another technical word. Quite simply put, the tin tries to absorb other metals provided the solder and the copper are clean and you provide enough thermal energy, then the solder will amalgamate with the surface of the copper. At this junction, you will create a third metal which will be a mixture of tin, lead and copper. As copper doesn't melt

How does solder stick to copper?

A question not too often asked — no, the flux isn't a good glue although in many cases it has to be.

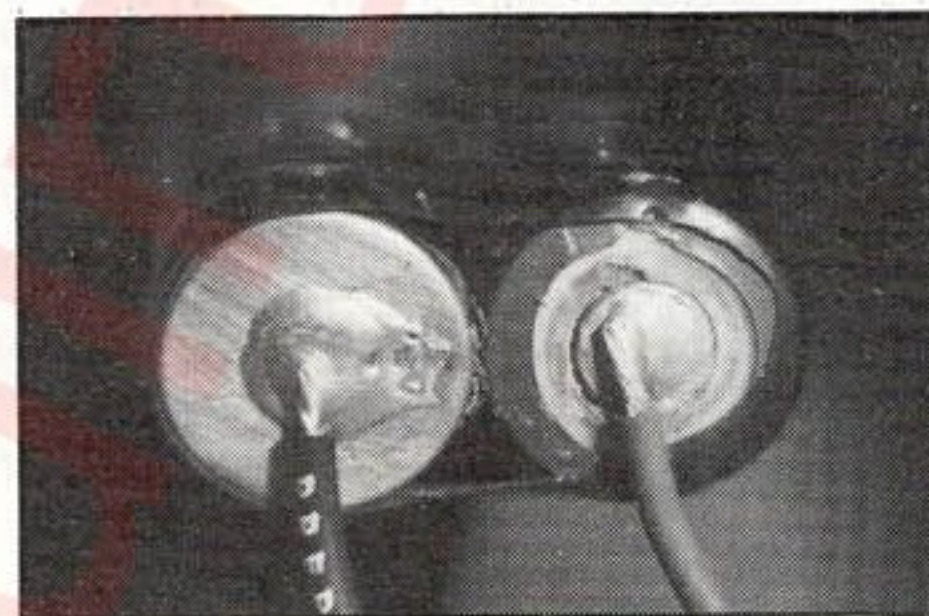
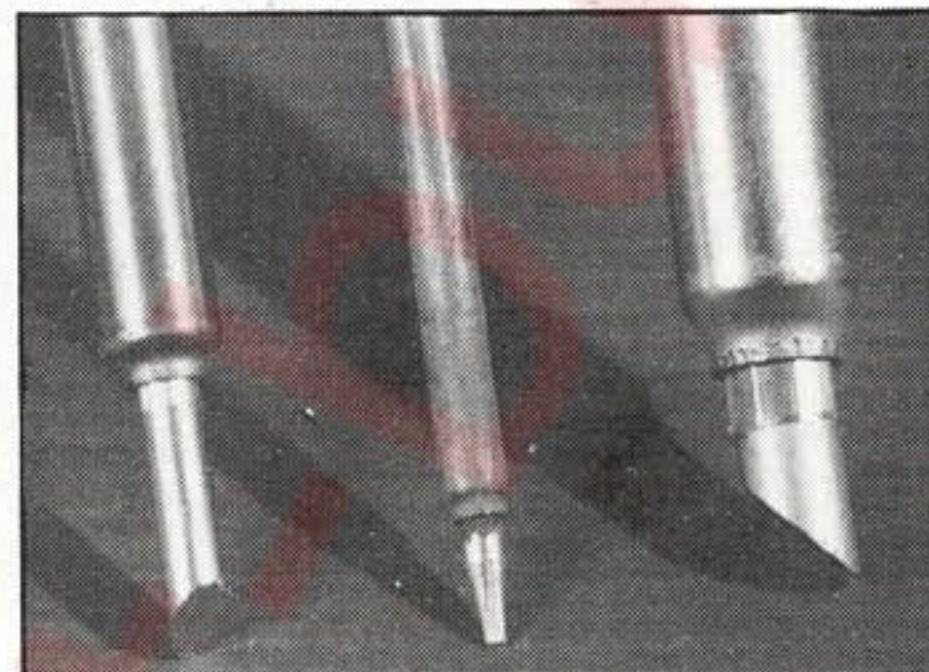
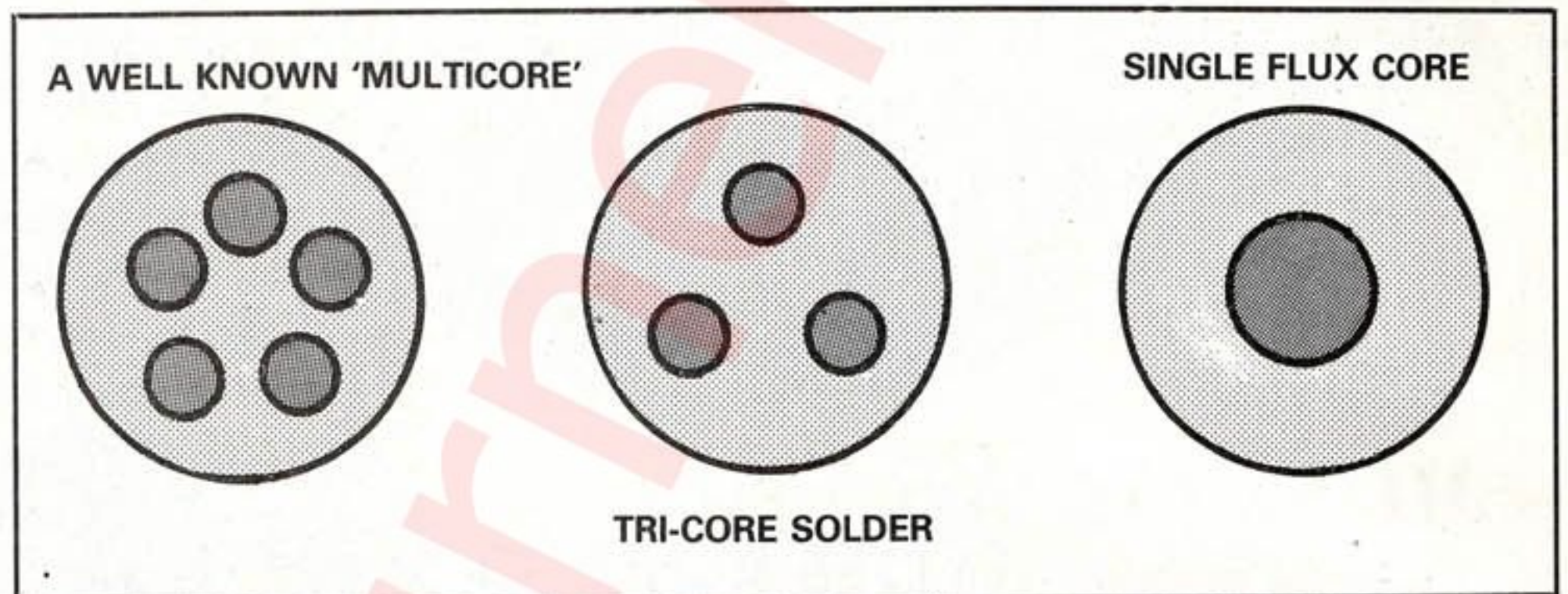
So what is this black magic art called soldering all about? Many people learn it by trial and error, some people are taught it — by trial and error. It is a subject much easier learnt if you know what's going on.

Solder is a mixture of tin and lead, not to get too technical but by using different quantities of both, we can create different solders that are most suitable for different applications. For example, the two pips of solder on the end of light bulbs need to be soft to mate to the socket pins properly, that's 20% tin and 80% lead. The solder used in the old fashioned plumbing to join lead pipes is 40% tin and 60% lead. The solder we use primarily during hand soldering in the Electronics industry is harder, it uses 60% tin and 40% lead. There is also another reason for this balance — here we go with a nice technical word 'eutectic'. At 63% tin and 37% lead, the solder is called 'eutectic', that means that it melts and freezes at the same temperature (183°C). The plumbers solder is solid at 183°C but doesn't melt until it reaches 230°C. Confused? You won't be when you read on.

In between is what is called the 'plastic range', ie. from 183°C to 230°, the plumbers solder is plastic, that is, it's mobile and whilst it is in this state the plumber can add more solder and by wiping the joint build it up until there is sufficient solder there. This is how those large round areas on old fashioned pipe joints are created. **WARNING!** Don't try it unless you are an expert —

Above right, element and tips, choose which is better for good reproduction.

Right, perfectly soldered Ni-Cads.

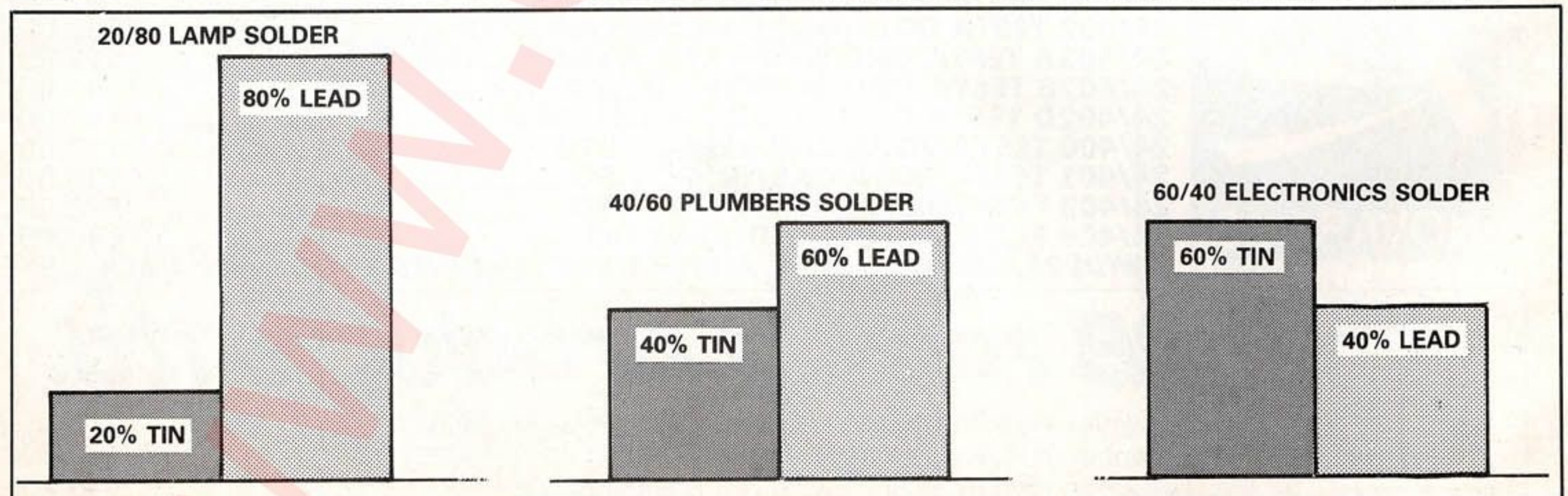


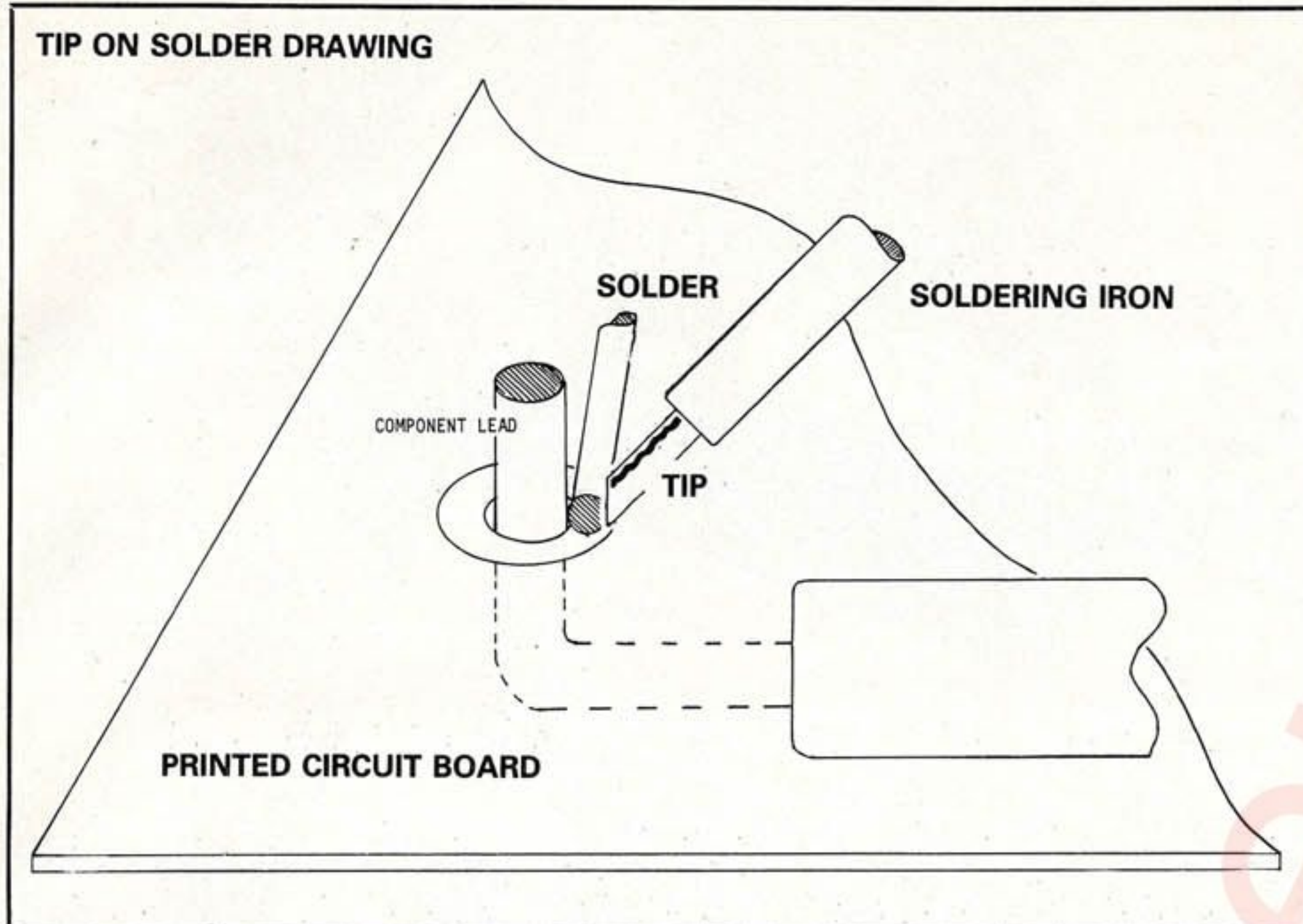
until it gets to 1,100°C, it stays there so the solder sticks to it or is absorbed by it. Get it?

However to enable you to become good at soldering, we have to amplify a couple of points, ie. 'heat' and 'clean'. Unfortunately as you heat copper is oxidised very rapidly and this oxidation would prevent good soldering — or any soldering. That's why your 60/40 solder wire contains a core of flux running right through the middle like the name in a bar of rock.

The heat is provided, of course, by the soldering iron. One of the most common reasons for failures in soldering is too small an iron trying to heat too large a joint so it is important to have a powerful enough iron with a suitable width of tip — not too long — the shorter the better.

As a good guide, except for the smallest electronic work such as the tiny boards found in servos never use an iron of less than 25 watts and for medium sized joints, power cable to speed controllers and motors, a 40 watt iron is essential and for successful soldering to Ni-cads you will





need at least a hi-efficiency 50 watt iron. Remember — the joint should be properly made in 1.5 to 2 seconds. If it takes longer you don't have a powerful enough iron or your tip is too small.

Now, provided you have thoroughly cleaned the parts you are going to solder together, as you apply the hot iron onto the solder the flux will melt out, cover the metals to be soldered and the 'acid' action in the flux keeps the metals clean while you heat them up with the iron. It also stops the



A perfect solder joint.

solder from oxidising.

As the tip is placed on to the solder, heat

is drawn from the tip to melt the flux and then the solder is melted. The molten solder transfers more heat from the tip to heat the parts to be soldered — once they are hot enough the solder amalgamates with the metals — you can see this happening quite clearly — when there is sufficient solder on the joint, remove the soldering iron allowing the joint to cool.

In order to create this amalgam between the copper and the solder, the temperature of the copper has to be brought up to well above the melting temperature of the solder. This will happen provided the soldering iron is powerful enough and the tip is big enough. If it takes longer than 1.5 to 2 seconds to create this solder joint and all the surfaces are clean, the chances are your soldering iron is too small and the heat (thermal energy) is being taken away faster than you can put it in.

However, if all is well, then you will see the solder flow onto and into the joint. At this stage just add a little more solder, not too much, to form a nice fillet.

If you practice this a few times at first, you will very soon start perfecting this art and continue to produce very reliable soldered joints to the envy of all your friends — unless they've read this article of course!

Some metals that you have to solder to are not as easy as copper, such as stainless steel or nickle. These metals have a much harder and faster forming oxide and so require a different type of flux. If you read last months article entitled 'So You Think You Can Solder' you will be able to solder to anything solderable.



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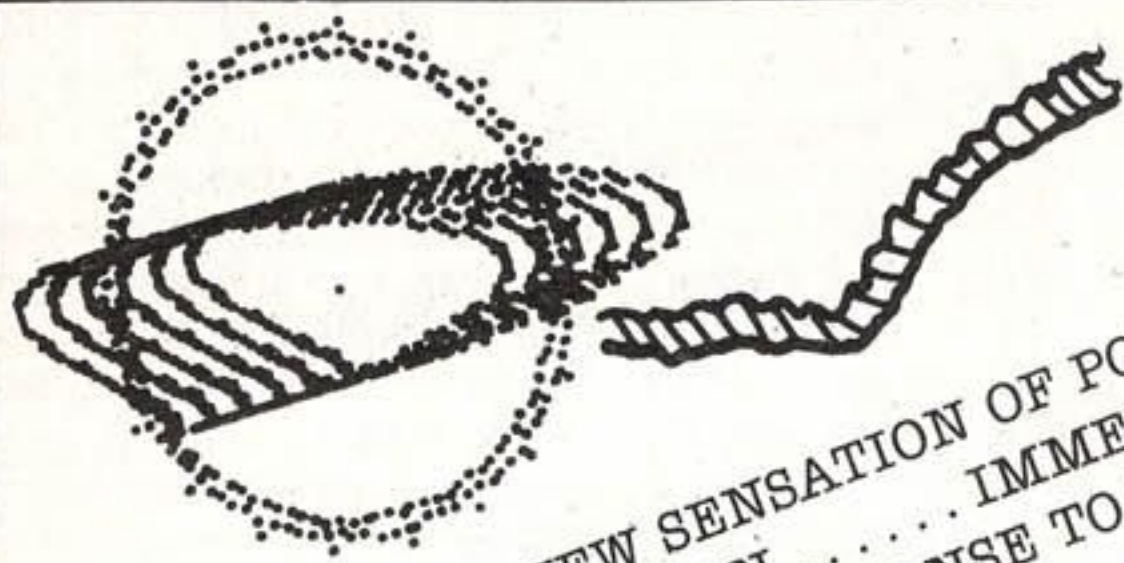
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- WS-668 Front Wheel - Tamiya/RC10
- WS-669 Front Wheel - Blackfoot
- WS-670 Rear Wheel - Blackfoot

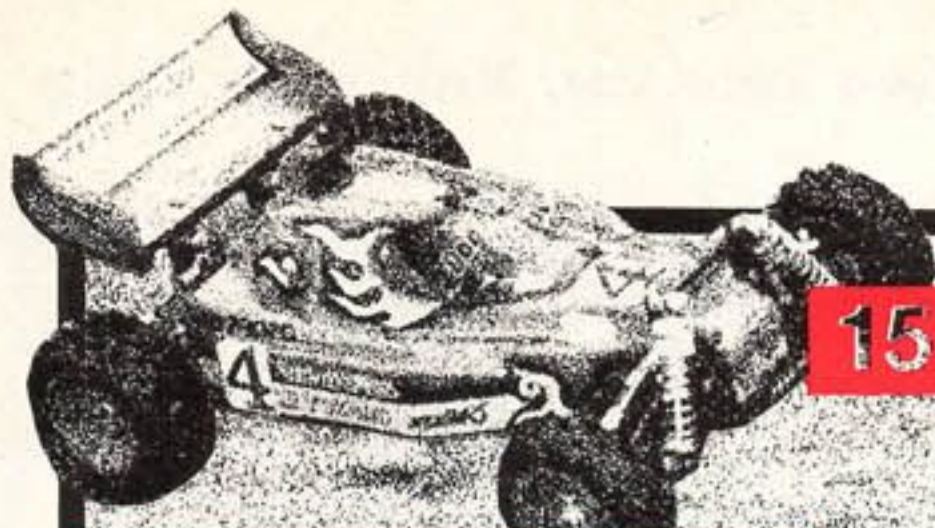
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6207 Front Sus. Mounts £1.25
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6216 Front Steering Blocks £1.25
6219 Stub Axles replaced by 5508 £3.95
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6224 Shock Bottom Pivot £1.55
6226 Inner Arm Shafts £1.55
6227 Outer Arm Shafts £1.55
6230 Front Shock Strut £2.80
6240 Rebuild Kit Screws/clips/pins £7.50
6242 Std Front Wheel Nuts £0.65

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6256 Linkage Wires & collars £0.95
6270 Steering Balls, pack of 2 £1.55
6271 Steering Balls, pack of 12 £6.15
6274 Nylon Ball Cups pack of 14 £3.15
6280 Chassis Screws pack of 16 £1.25
6281 Chassis Screws pack of 6 lg £0.65
6284 Alloy Wheel Screws, pack of 12 £2.50
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6291 4-40 * 1/4 CS Socket screws pk of 6 ... £1.25
6292 4-40 * 3/8 CS Socket screws pk of 6 ... £1.25
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6330 Body Posts £1.25
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6334 Nicad Holder Set £3.75
6336 Servo Mounts, 2 prs £1.25

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6351 Rear Anti-Roll Bar Kit £4.35
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6360 Rear Suspension Mounts £1.25
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6447 R. Shocks only 1.02 stroke pr £16.95
6448 F. Shocks only 0.71 stroke pr £16.95
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6452/3/4/5 Shock bodies, all sizes ea £3.75
6458/9/60/61 Shock shafts, all sizes ea £1.85
6463 End Cap £1.85
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6467 Rebuild Kit Pack of seals for 2 shocks . £1.25
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6471 Bottom Mountings 2 balls & cups £1.85
6474 Spring Clamps & cups set of 4 £1.85
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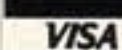
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A520 Thrust Race 1/8" x 5/16" £2.99
A532 Ball Race 8 x 12 FL, 2 £5.99
A533 Ball Race 8 x 16 x 5 NF seal/shield, 4 . £5.99
A541 One Way Clutch 6 x 10 x 12, 2 £5.50
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G305 Servo Tape (Roll) £1.50
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ZC112 Chassis Plate - black £28.36
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ZC656 Kevlar Rear Belt £2.78
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ZC723 Rear Shock Absorber (long) £14.59
ZC725 Rear Shock spring Set £1.45
ZC730 Shock Maintenance Kit £1.61
ZC731 O Rings for Shocks £1.61
ZC732 Shock Setting Spacer £1.61
ZC740 Shock Oil (Super-Soft) £1.23
ZC741 Shock Oil (medium) £1.23
ZC742 Shock Oil (Hard) £1.23
ZC743 Shock Oil (Soft) £1.23
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ZC805 Rear Wheel £2.95
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TF5M Front Pin Spike - narrow & med hard . £5.95
TF8S Front Pin Spike - Kit Soft £5.95
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TF9S Front Square Block - Soft £5.95
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ZCC315 Sockethead Screw (M3 x 15) £0.72
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ZCN35 Nuts Set (15 pieces) £0.72
ZCM3S 3mm Screw Set (25 pieces) £0.72
ZCM2S 2mm Screw Set (36 screws 12 nuts) £0.72
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ZC303 Bearings for Bulkhead (10 x 15) £4.86
ZC642 Centre Clutch Bearing - 2 £3.73
ZC645 Centre Shaft Bearing - 2 £4.54

PRICES ARE CURRENT JULY '88, BUT COULD BE SUBJECT TO CHANGES WITHOUT NOTIFICATION
POST AND PACKING — SPARES £0.80; KITS £5.50



MARKET PLACE

The handheld programmer is only used to calibrate the speed controller to the transmitter and to allow the features to be selected. Once this is done, the handheld programmer is disconnected from the speed controller and stored for future use.

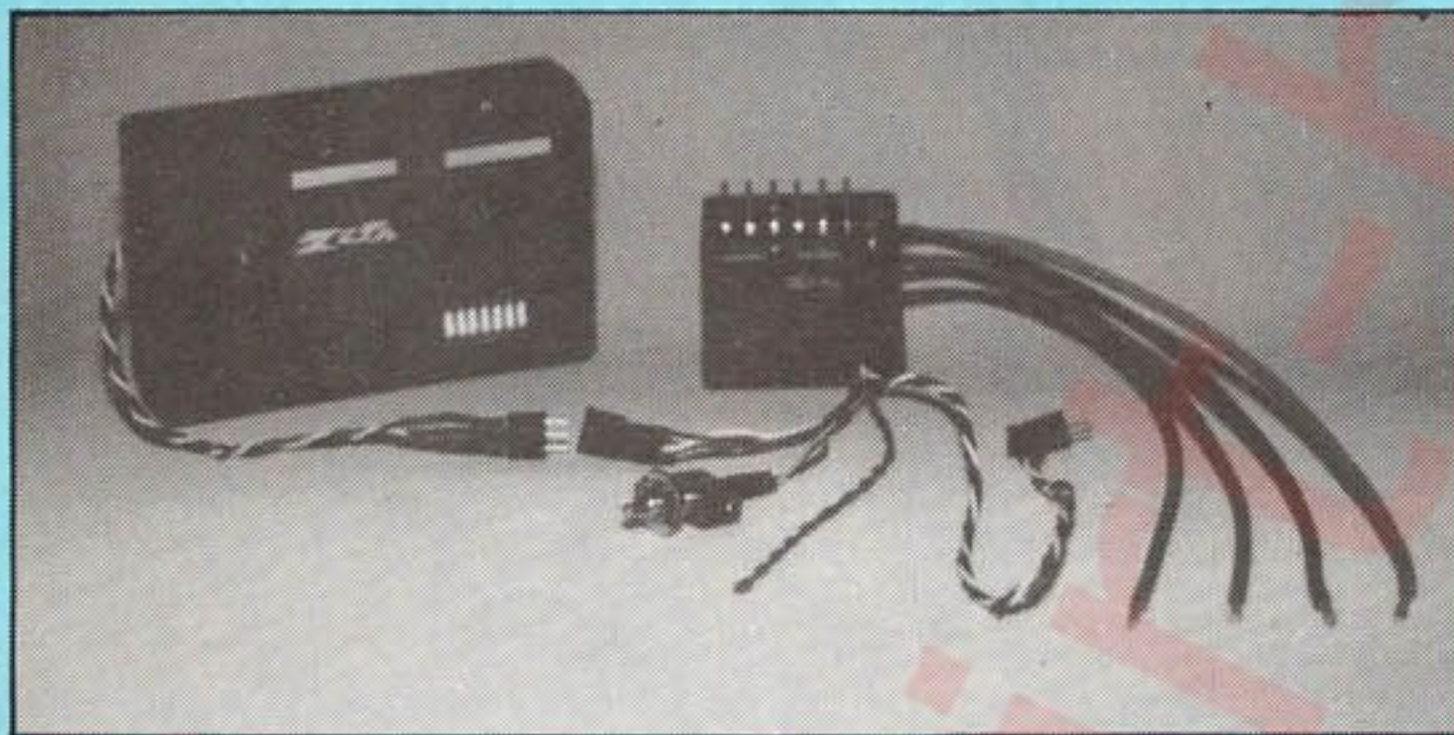
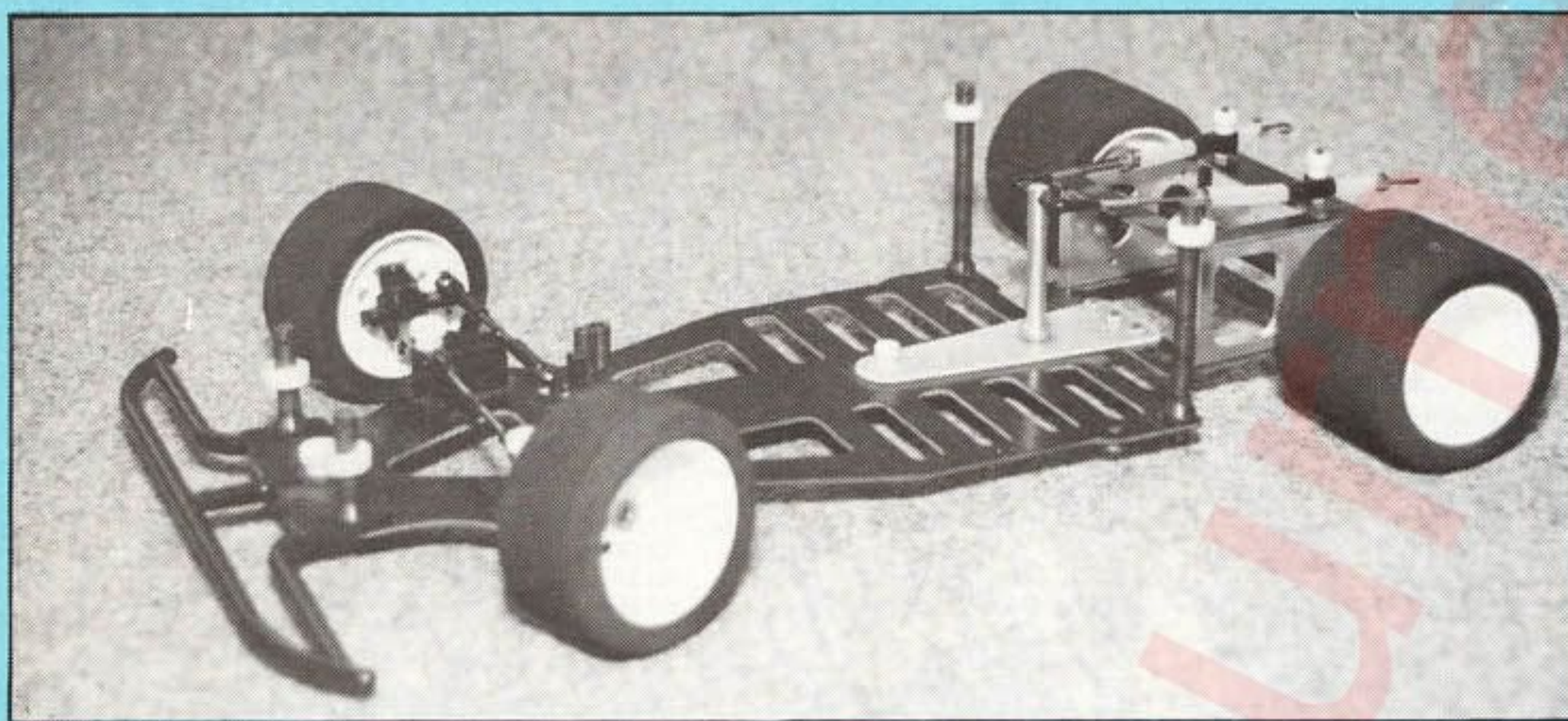
The handheld programmer is connected to the speed controller via a 3-wire connector. As soon as the handheld programmer is plugged in, the speed controller will shut down all speed controller functions. The microcomputer then looks for information coming in from the handheld programmer.

The adjustments are made by simply setting the seven (7) switches on the handheld programmer to the desired position and pressing the SEND push button. When the desired adjustments have been made, the handheld programmer is disconnected. The microcomputer in the Micro Zeta will then resume operation in the speed controller mode after about a two second delay. All programmed parameters are permanently stored in memory. Any single parameter can be changed without affecting any other parameter.

The following parameters can be programmed by the user:

1. Trigger response.
2. Acceleration rate.
3. Variable brake amplitude.
4. Trigger full speed, set position.
5. Trigger start of speed set position.
6. Trigger variable brake set position.
7. Trigger 100% brake set position.
8. Trigger end of brake set position.

All items available from Ilkeston Models, see advertisement in this issue. Trade enquiries to DP Model Product, also in this issue.



Ilkeston Models

Several different and very interesting items from Ilkeston models this month. First, as the current boom in 1/10 circuit car sales continues, Ilkeston have a new car with a new name to most of us, enter the Lazerlight. Looking every inch a potential winner the Lazerlite comes fully equipped with a unique damping system, aluminium alloy motor pod, full width bumper and extra wide wheels and tyres.

Another useful idea from Ilkeston is this checkmate, a neat home battery checker and matcher. Complete with heat sink and a liquid crystal display the strongly cased Checkmate must be worth considering by any serious racer.

Finally from Ilkeston, the Micro Zeta; what is a Micro Zeta you may ask? Well read on.

The Micro Zeta is a user programmable, all electronic speed control. It achieves programmability by incorporating a microcomputer into its design. By incorporating a microcomputer, PDI allows the user to

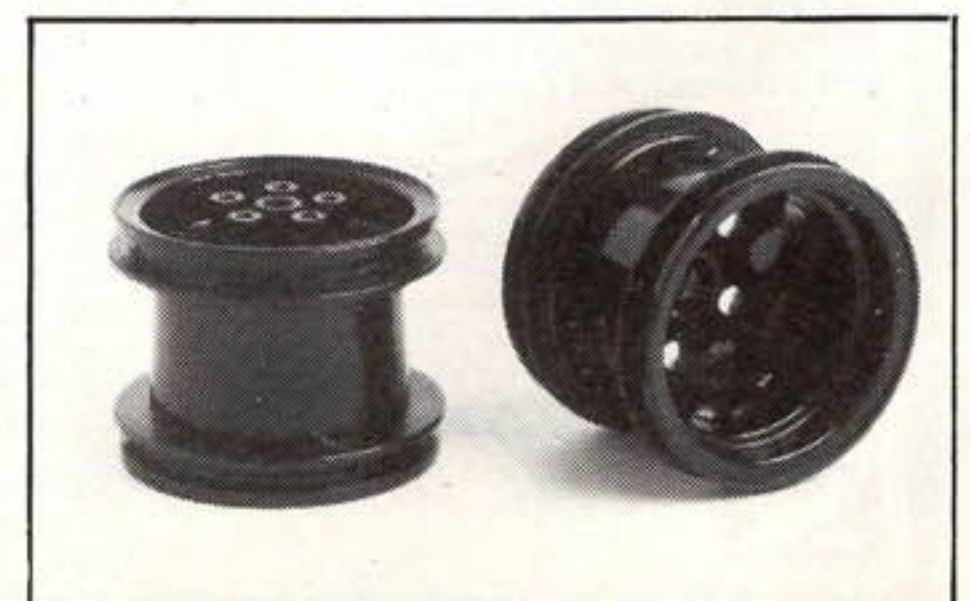
make many more adjustments than with a speed controller that does not have a microcomputer. The Micro Zeta is two separate units; the speed control unit which is installed into the model car, boat or airplane and the handheld programmer.

CRP

All new item from CRP is this charger, discharger, motor test unit. All these facilities are housed inside this neat, tough metal case. Amperage charge rate is fully adjustable allowing all types of battery to be charged from one unit.

Also from CRP are these front and rear wheels to suit the Blackfoot, Monster Beetle crusher cars, the CRP wheels are dyeable to suit your individual colour scheme, another great feature.

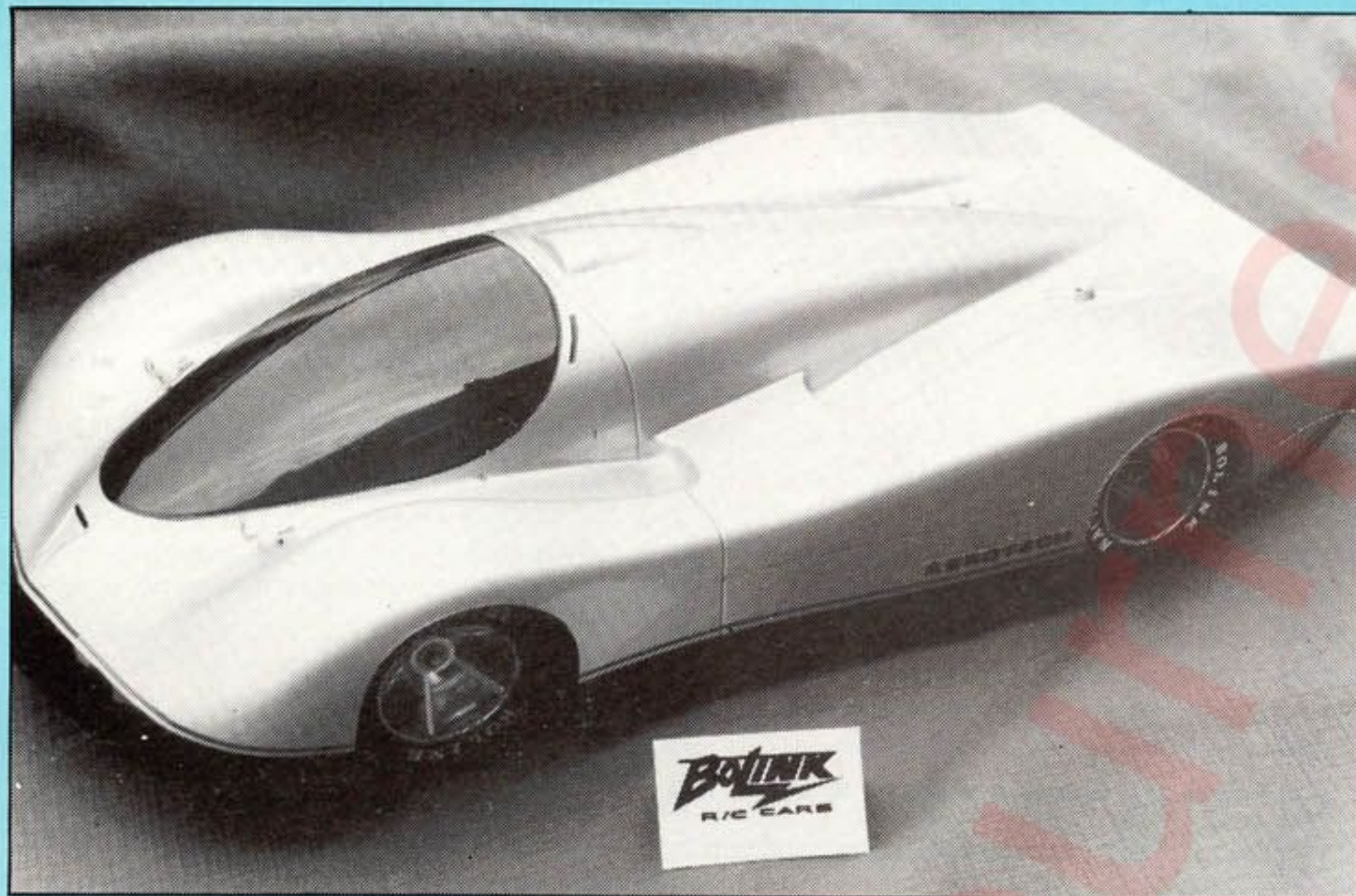
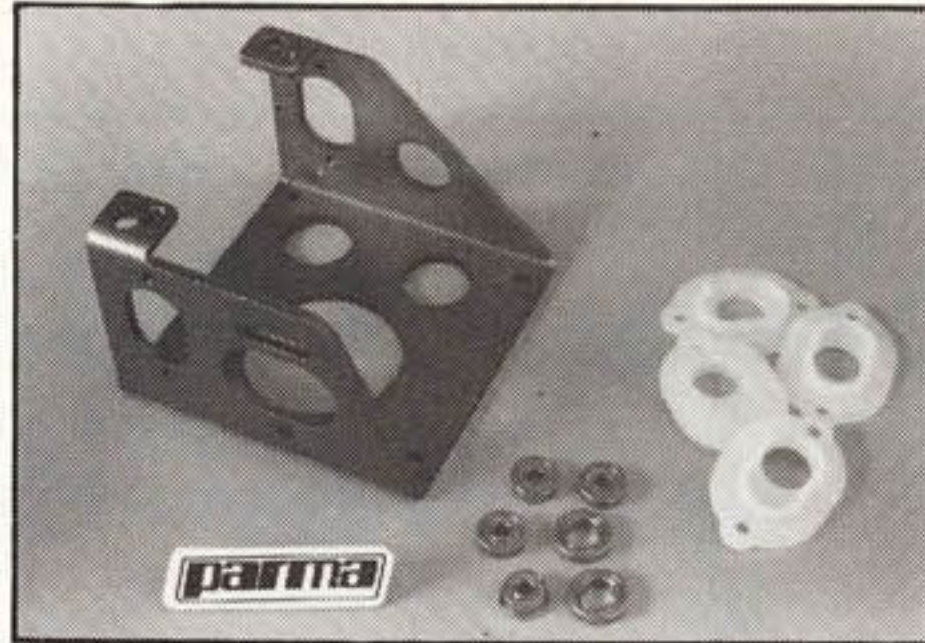
Both items available from your nearest CRP dealer.



Parma

Two items this month from Parma, first a rear pod, a direct replacement for the Pro Panther 10 for any scratch builder. The pod is anodized blue and features adjustable ride heights using rear ride height cams. Also shown is the new bearing pack, four front and two rear.

New 14 gauge silicone wire is perfect for all r/c car use, giving minimal resistance and being super flexible into the bargain. Available in twelve foot rolls, colours yellow, green, blue. From your nearest Parma stockist.



Bolink

Available from Bolink for 1/10 circuit cars is this amazing new body shell. It is a scale shell based on the Oldsmobile Aerotech, a four cylinder turbocharged monster drives to several closed circuit course records in the USA earlier this year.

Available from your nearest Bolink dealer.

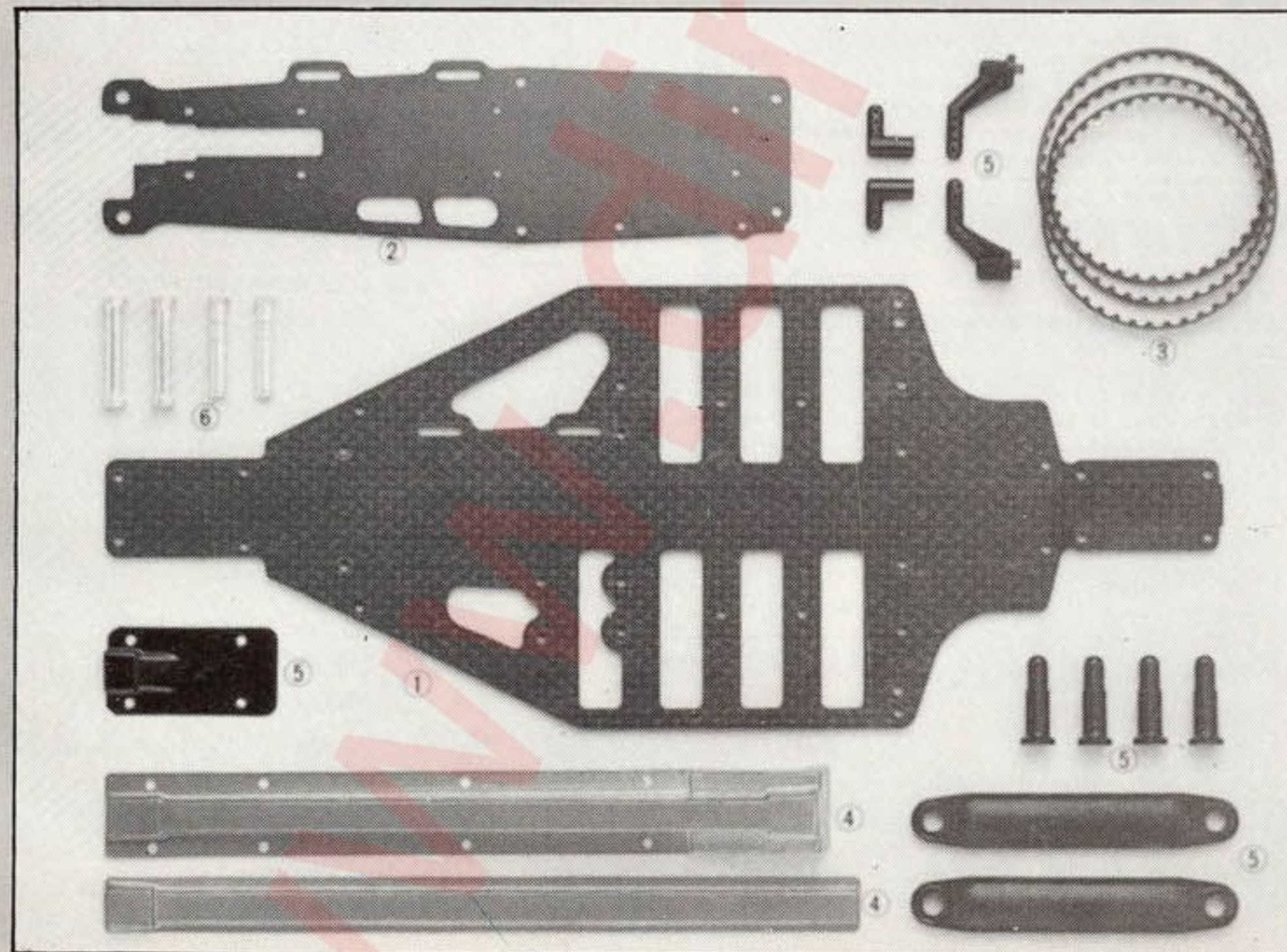
Kyosho Mid Four

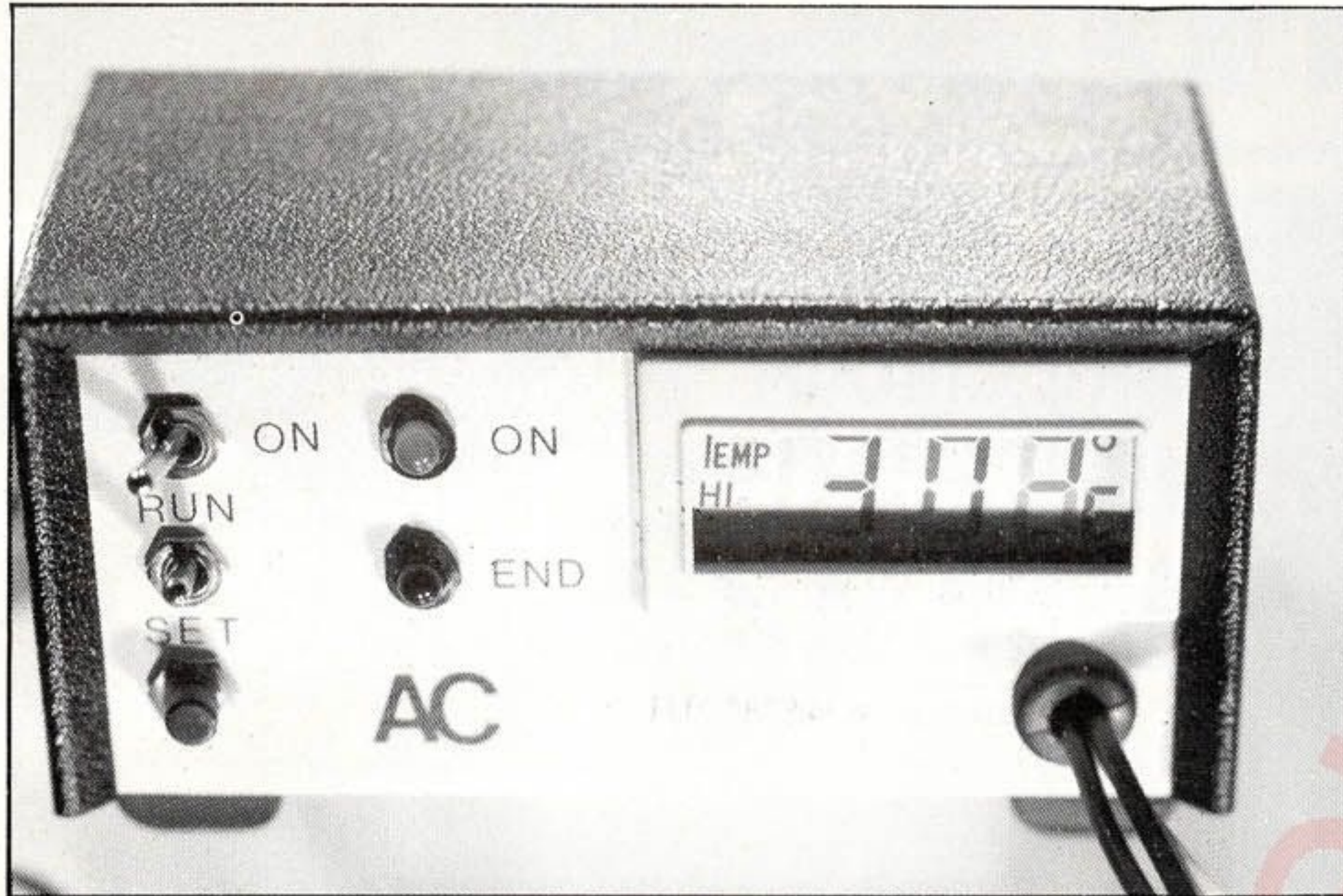
New items for the Kyosho Mid four include two all new tyres, having both new tread patterns and a new width, these tyres really do give increased traction in all conditions. New wheels are also available to suit, wheels are finished in yellow or smart silver.

Biggest news from Kyosho is the release

of a long wheel base conversion for the Mid Four, the conversion really is a superb set of equipment having GRP carbon fibre laminated saddle pack chassis, new belt and cover, battery clamps and posts. Look out for the full review of the LWB Mid Four coming soon in Radio Race Car.

All items available from your nearest approved Kyosho dealer.





AC Electronics

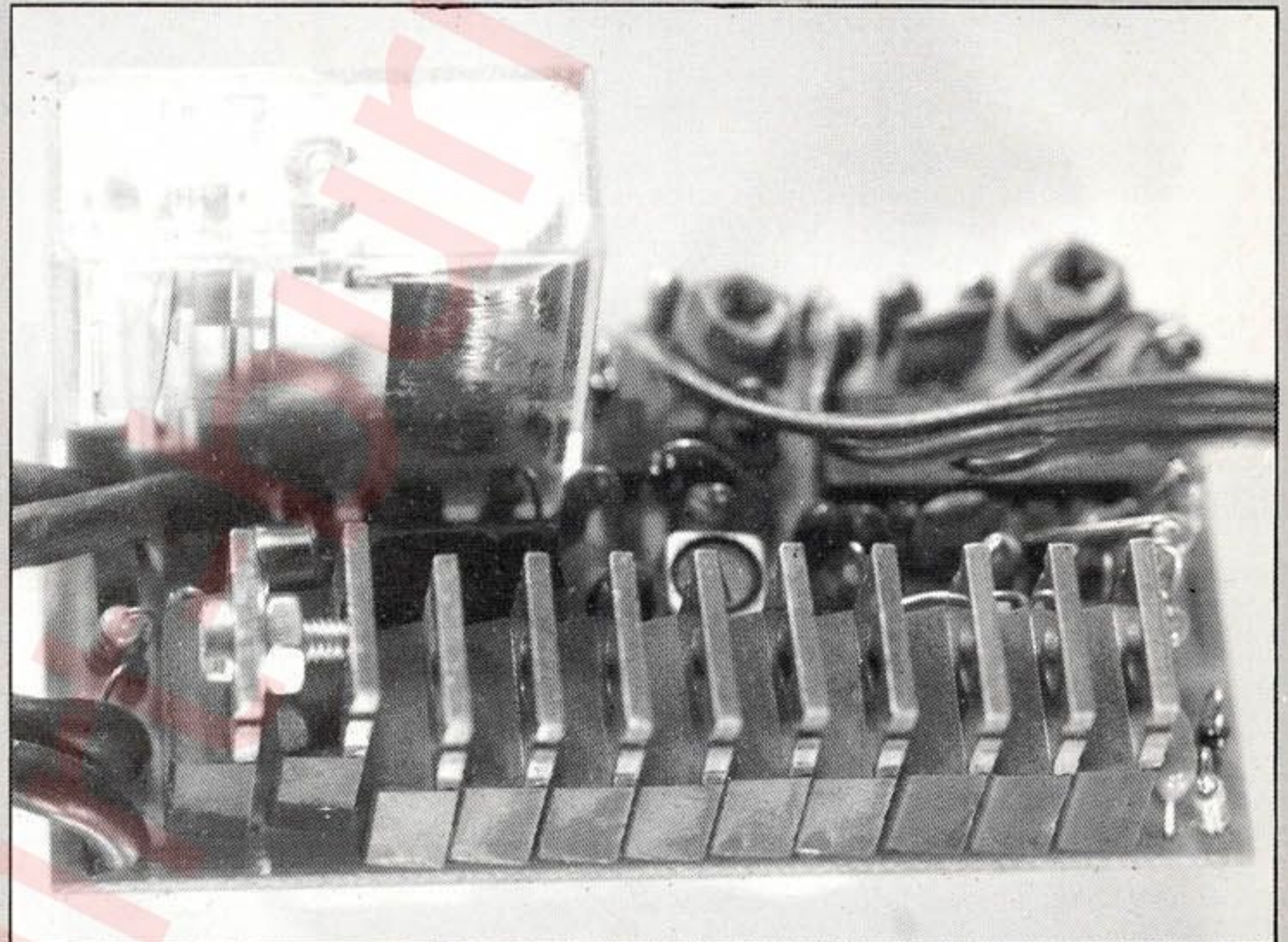
A new company offering a new product, that's AC Electronics. The product is an all new thermal charger with variable cut off temperature facility and an LCD, which shows temperature rise.

The AC charger is without doubt a well made and neatly constructed addition to anyones racing equipment, however its main advantage is that it offers a full blown racing charger to the beginner at under £30.00, a rare commodity indeed. Often we have seen newcomers turn up to a race meeting and have all the kit except a quality charger, either because money has been spent before this item of equipment has been purchased or no thought has been given to it. You must be able to efficiently put power into your ni-cads before you can get it out, the AC charger does this very well indeed.

A full and dare we say it, fool proof set of instructions come with the AC charger with all the important sections in bold. A trouble shooting section is also included.

All in all one of the best value for money chargers we have seen.

Available from AC Electronics, 44 Ayletts, Basildon, Essex. SS14 1UL, price £29.00.



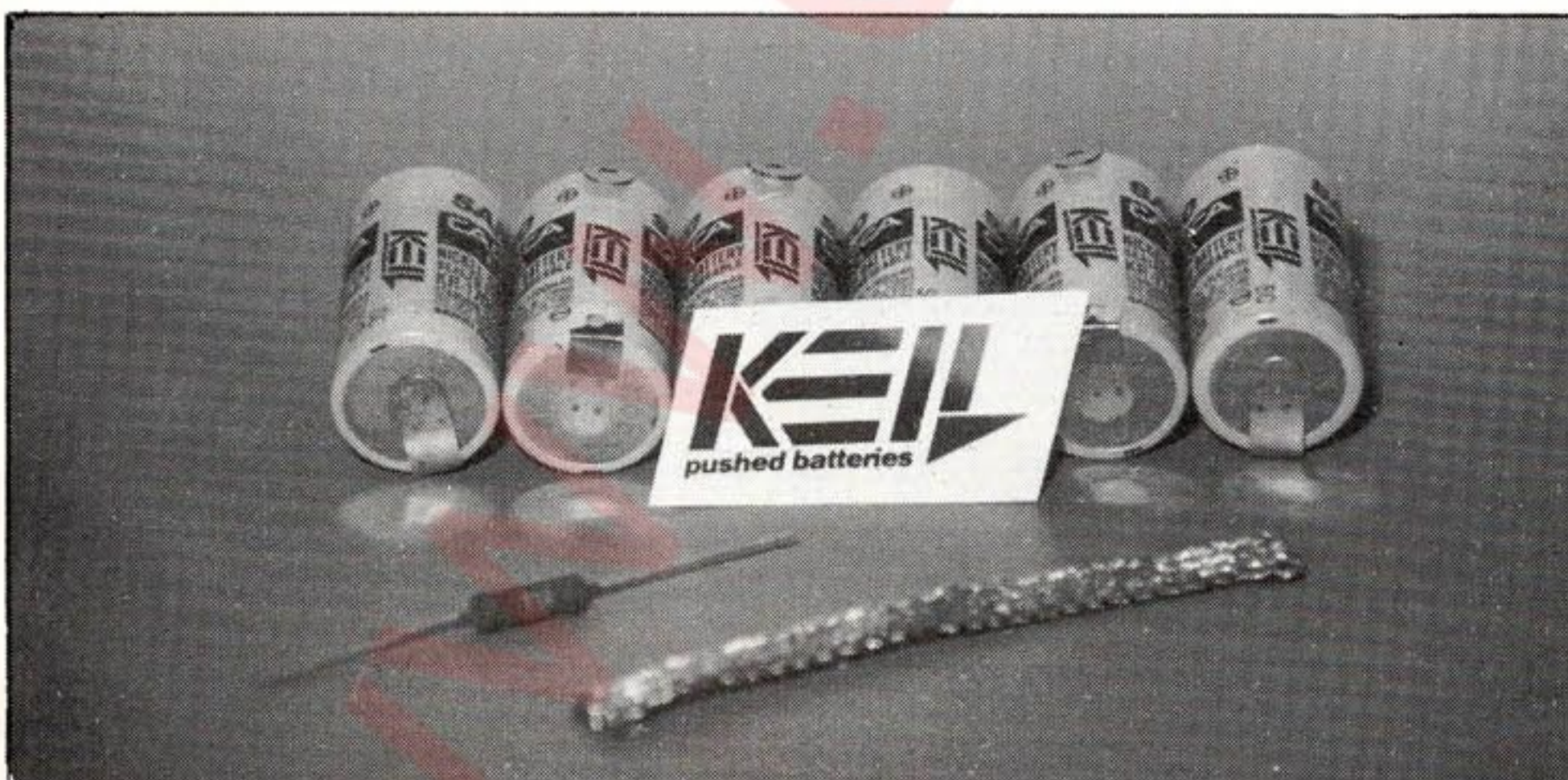
Systems, Devices and Networks (Nosram)

Eleven FET's and a relay, pure unadulterated muscle. Nosrams eleven fet speed controller sits there looking so mean and nasty that you start to think you should be chucking lumps of raw meat at it.

Nosrams latest speed controller combines all the advantages of their splendid range to date plus a few more. At this point we could quote figures but not many of us, me included would understand them, what we can say in drivers language is that it is very fast off the line, it gives great response and feel right through the speed range, it gives a superb top end performance from any motor and draws next to no current to do its job and if you get into trouble the eleven fet monster has a full power reverse to get you out just as quickly.

You may think that an eleven fet speed controller is large, Nosrams is a little larger than most, but you can still fit it into a Yokomo Dogfighter, not one of the roomiest cars in the world.

Our opinion having used this speed controller is much the same as our earlier feelings on Nosram products, you can't buy better. Great piece of equipment for any serious racer.



Malvern Models

At last available in the UK, Keil cells. Developed by Chistian Kiel himself to give extra punch and extra duration, these cells really do work. Contained in each pack is a discharge resistor and braid if you intend to purchase the saddle pack version.

Available from Malvern Models, see advert in this issue.

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ULTIMA SPARES

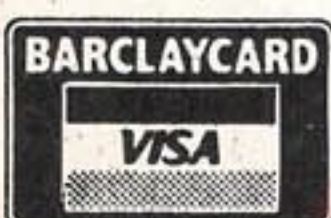
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MODELS



A.B.C. CARRERA CAR

1/12

Radio Race Car looks at this new 1/12 contender from ABC Hobby.



sky Car Services are a new name to the world of r/c racing, however in the short time that they have been with us some great products have been available from the guys from Dublin, Hirobo, MY Motors, sensibly priced, well produced twelfth scale cars and now a no nonsense, top of the range twelfth car from ABC, the Carrera 4WS.

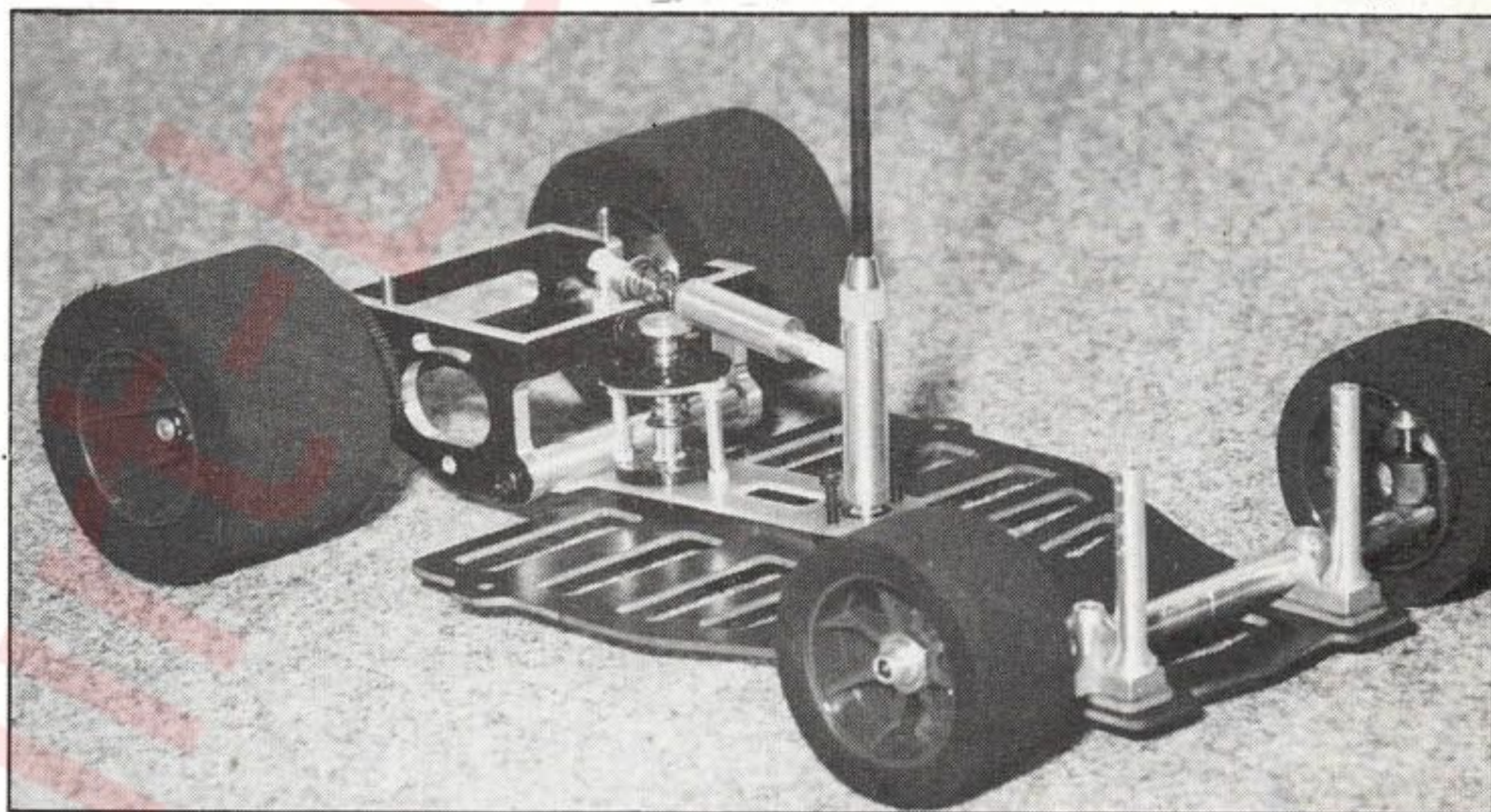
One thing that is obvious from the second you open the box is the superb quality of all the parts, aluminium is the main ingredient for items such as suspension blocks, motor pod, axle, etc., the chassis being manufactured in carbon fibre.

Assembly

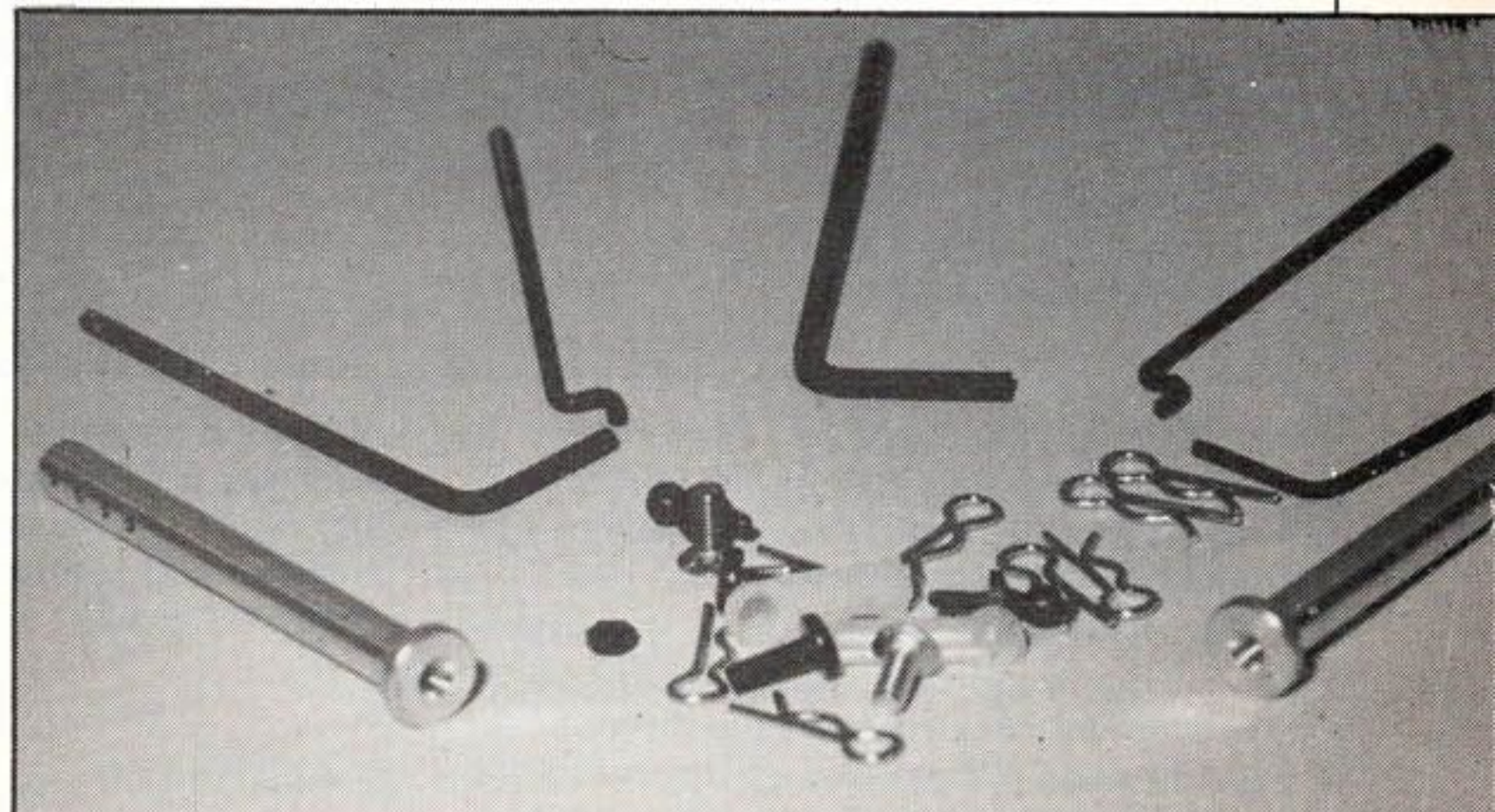
The Carrera is a delight to assemble, no filing, scraping or adjusting of the basic kit parts was found to be necessary, everything fitted securely into place with watch like precision. Work begins on the front suspension blocks, these are held in place using aluminium flatscrews which lie perfectly flat with the chassis underside,

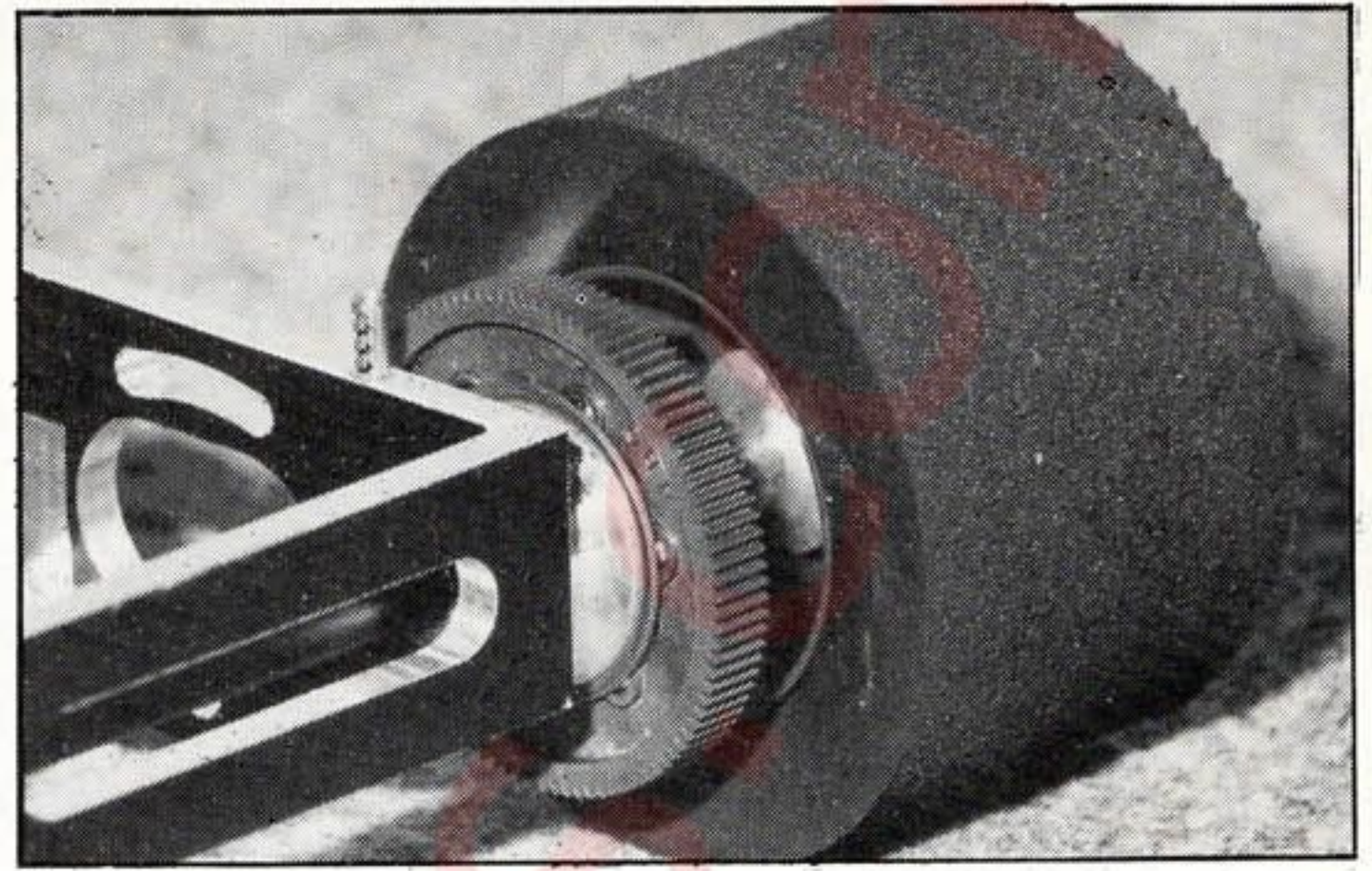
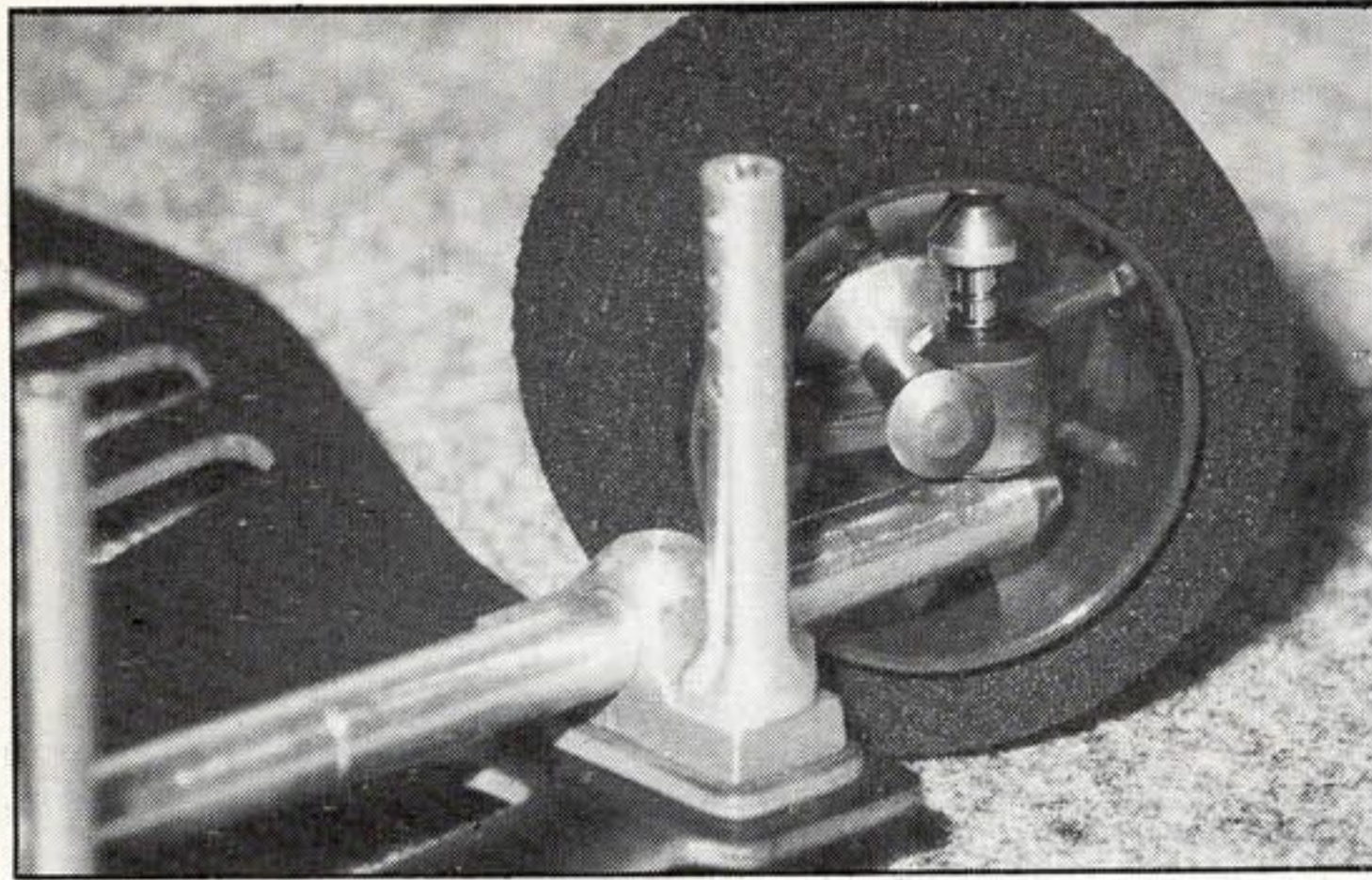
thanks to the extensive chamfering that has been carried out. Once these are fitted, the front body mounts and axle are fixed in place, the axle is held secure using a grubscrew which locates on a flat on the

axle. Springs, kingpins and ballraces are then fitted bringing the front end assembly to a close. A twin ball socket arrangement is used in conjunction with a swing shaft and twin torsion balance screws to give the



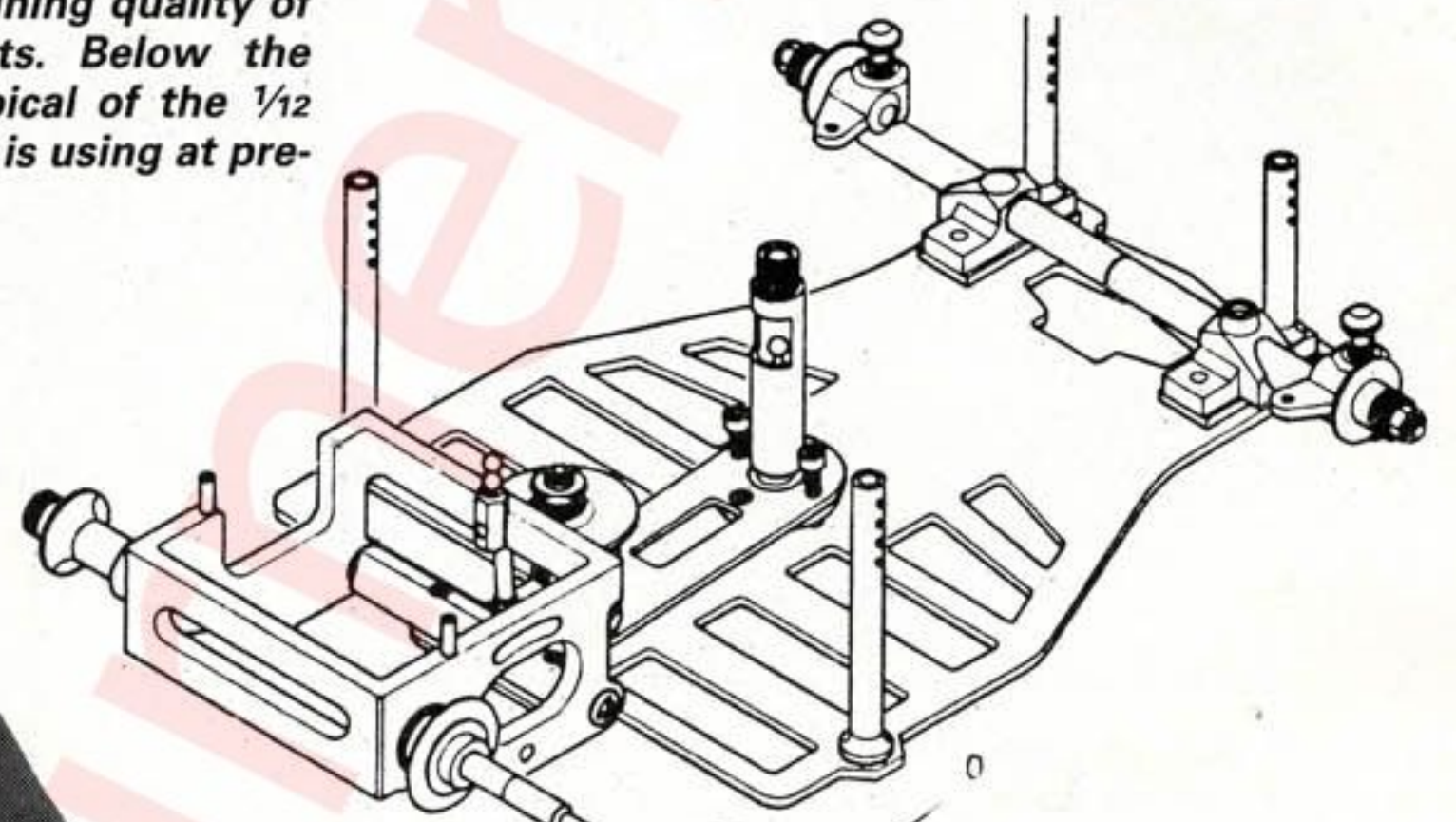
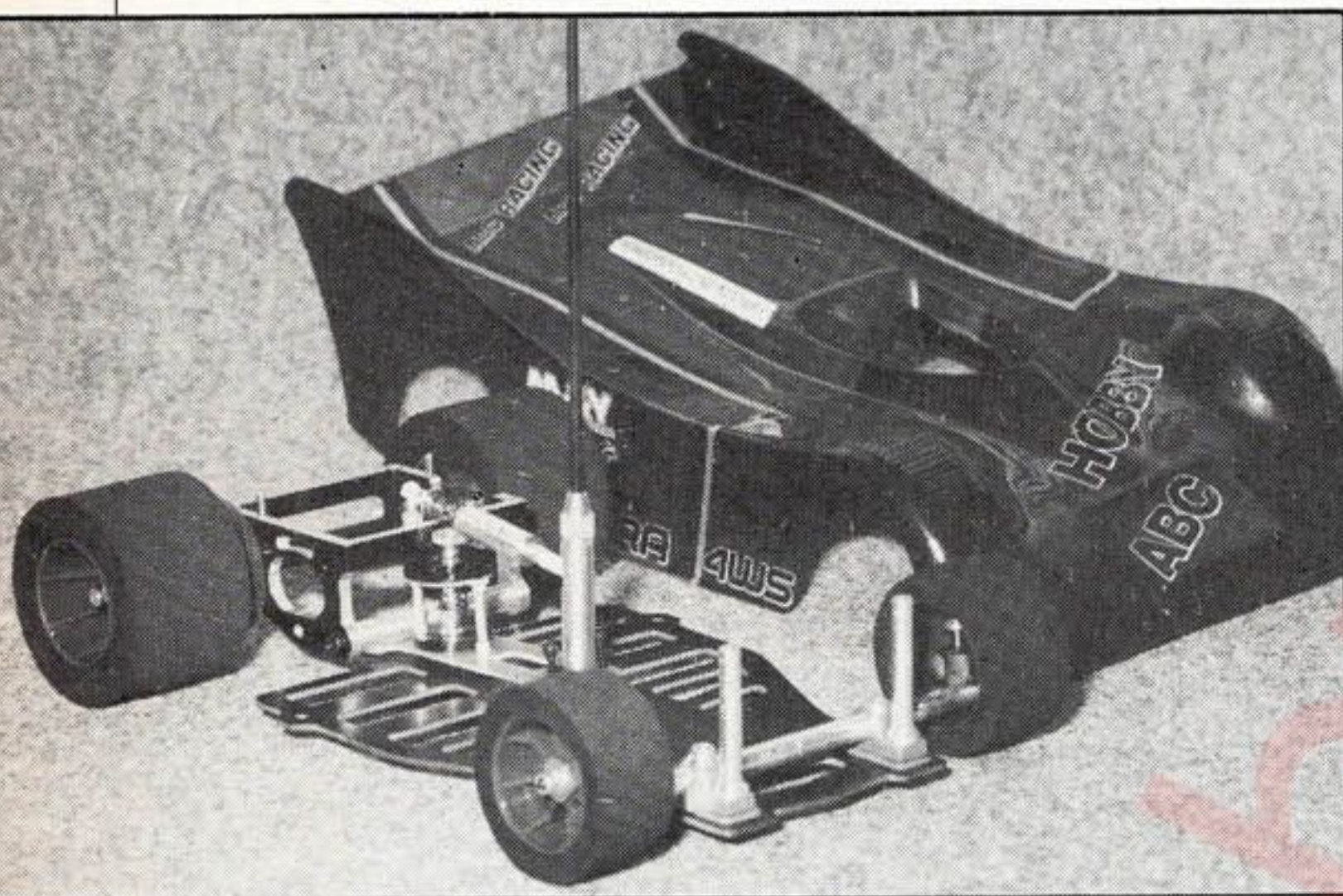
Above, the finished rolling chassis minus radio gear showing well the quality of the ABC product. Below, all the tools and accessories you need, right down to pinion 64 DP and fibreglass tape for holding batteries in place.



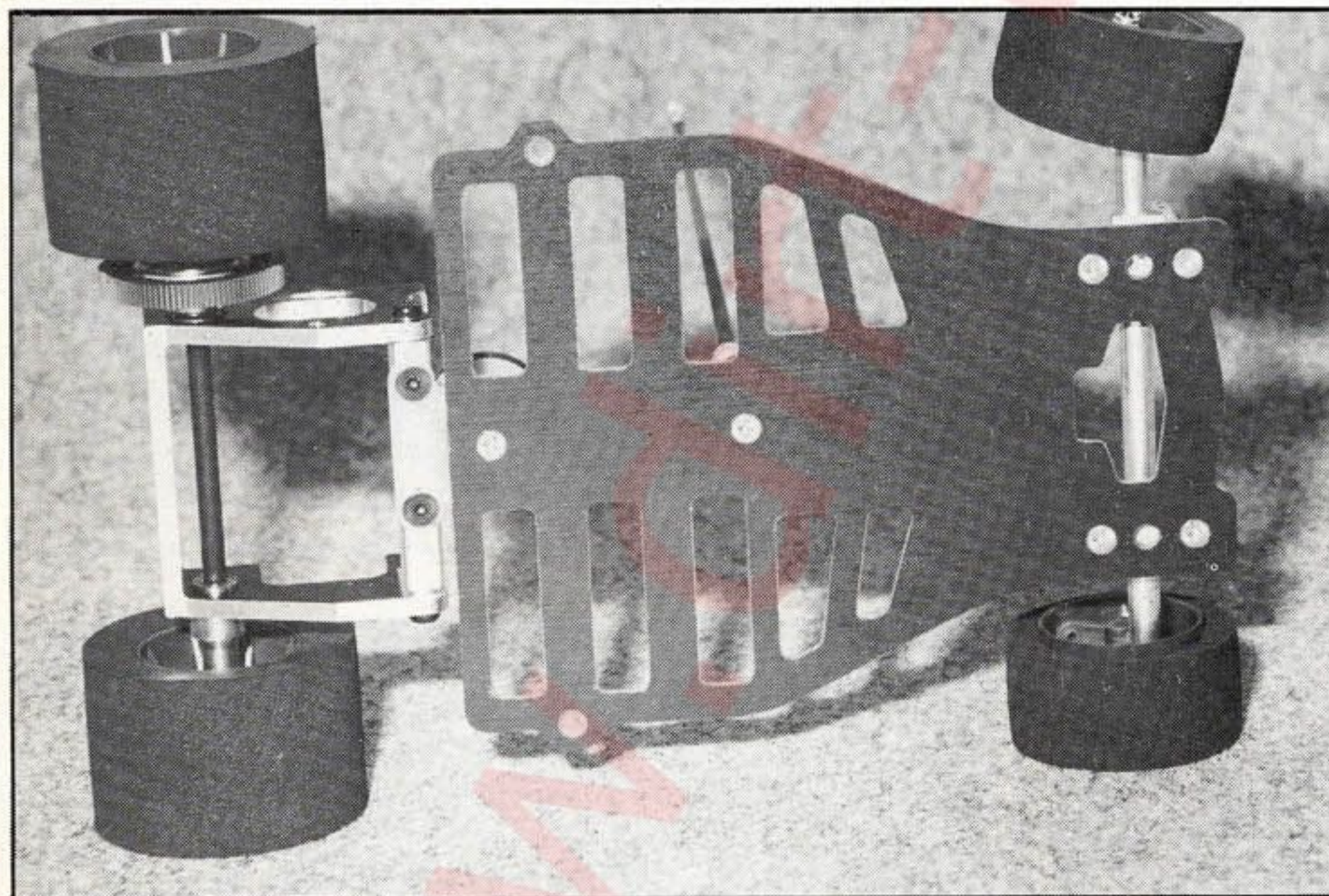


car adjustable ride characteristics and allow you to adjust the car to suit both track conditions and your own style perfectly. The motor mount is a work of art in itself fashioned from aluminium and beautifully finished, it really looks attractive against

Above, fine attention to detail shows up clearly on items such as kingpins and machining quality of all aluminium parts. Below the Carrera shell is typical of the 1/12 shell that everyone is using at present.



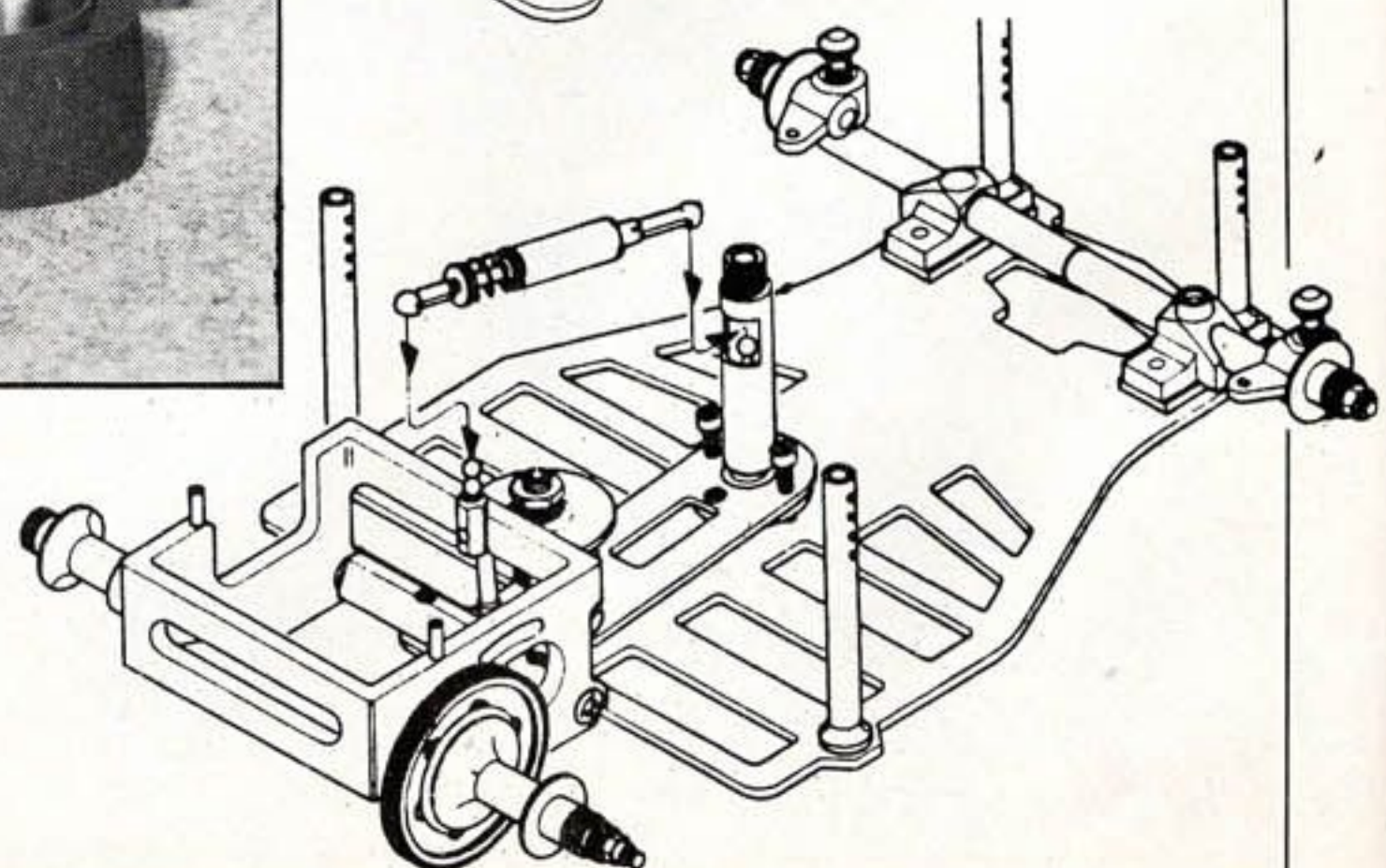
Ball diff assembly is simple, one nice touch is the thrust washer used instead of spacing collars. Below a damper plate accounts for a lot of in-built stability.

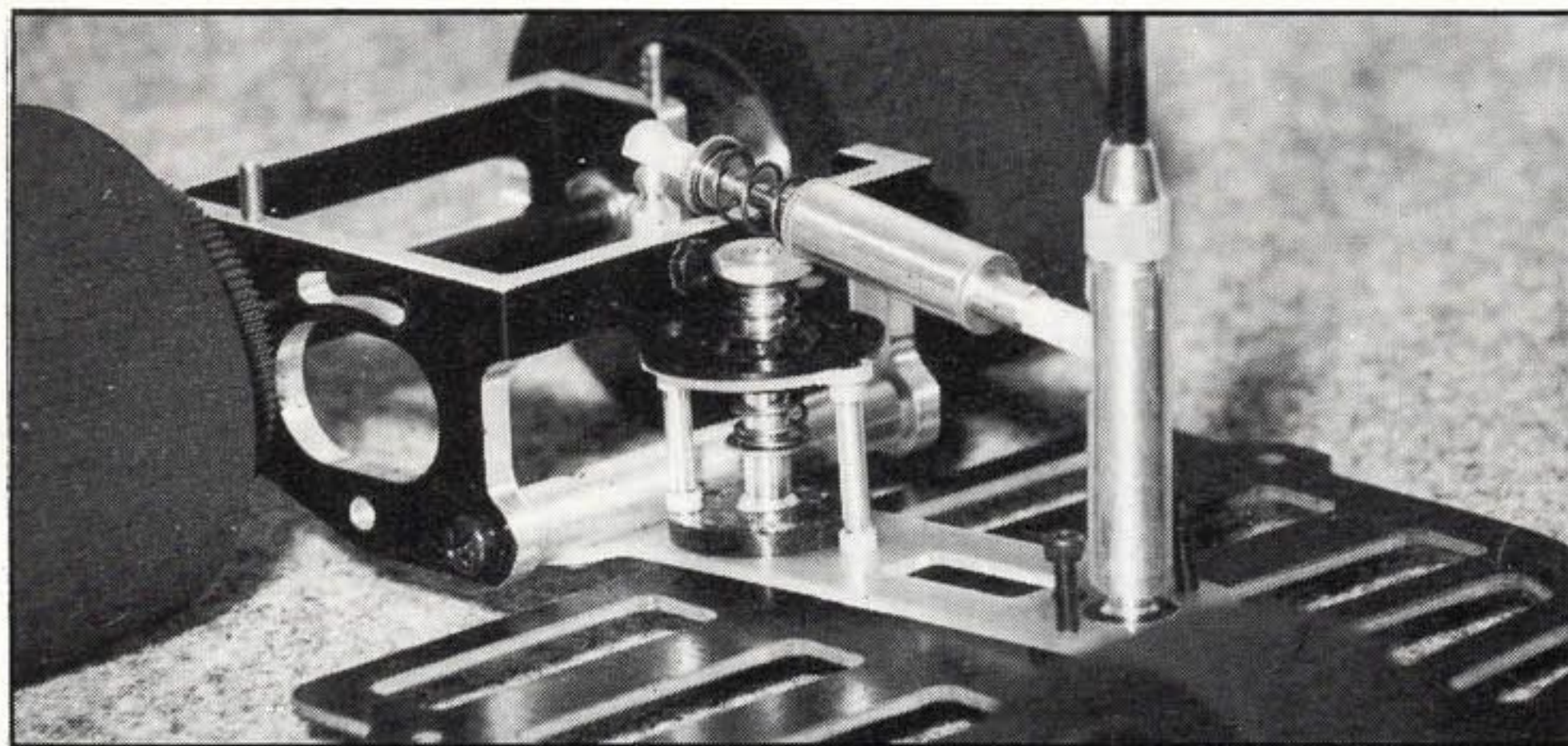


the black carbon chassis. The mount is attached to the swing shaft by two round-head screws and then secured firmly by the damper to the centre post.

The differential action of the Carrera is one of the smoothest we have ever seen, this is no doubt due to the two thrust bearings situated either end of the graphite axle. Differential is ball type and again is

Above, a graphite chassis provides no unwanted flexing. Right, even a well-made and non-leak damper is provided in the kit.





very, very smooth. Assembly of the differential is straightforward providing the clear, precise instructions are followed.

Radio gear is easily installed, if a little fiddly, but perseverance is the key.

Conclusion

With the onset of winter and wet, muddy, freezing circuits to look forward to, twelfth racing would seem one very good way of keeping your thumbs supple. If you should decide to take up the twelfth challenge or are thinking of changing your car for another, take our advice before you make up your mind, take a look at ABC's Carrera, you will like what you see.

Available from Sky Car Services, see advertisement in this issue.



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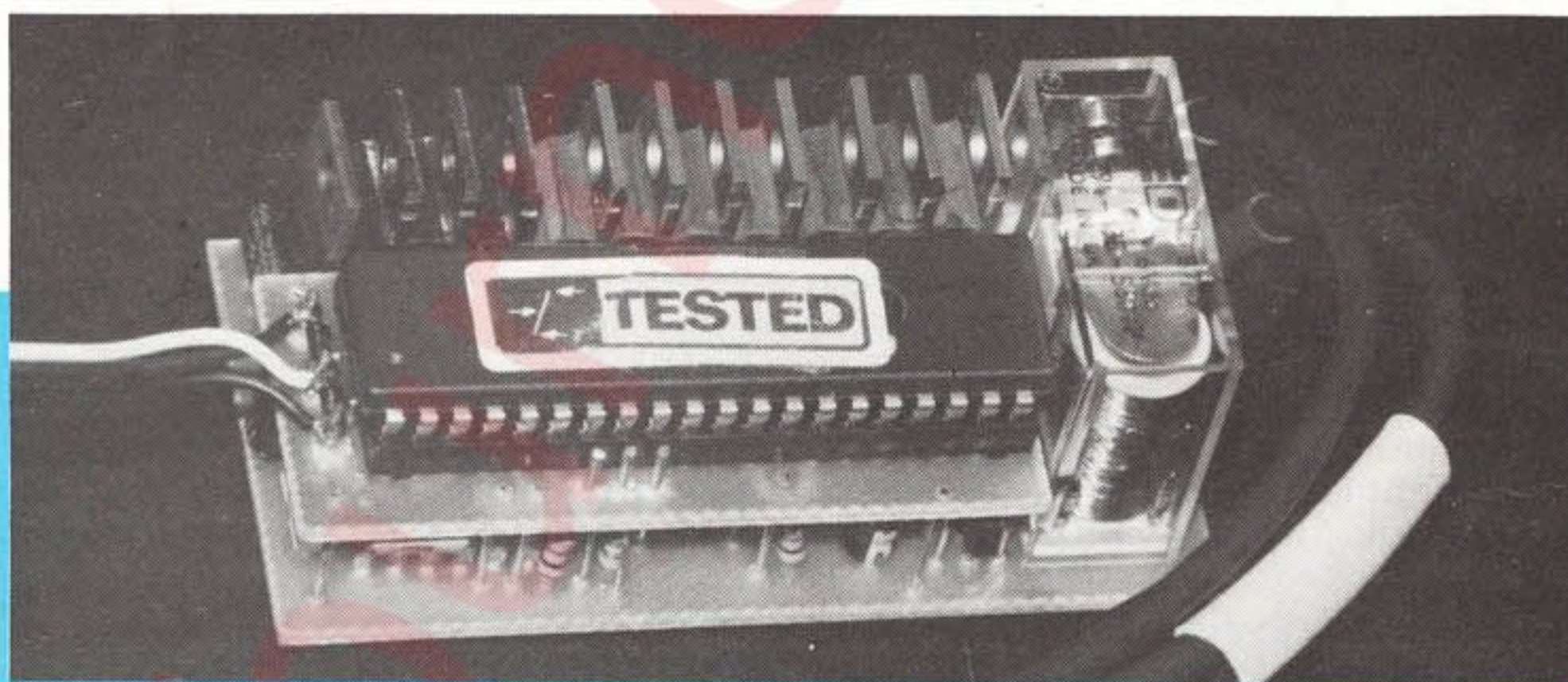
Radio Race Car International

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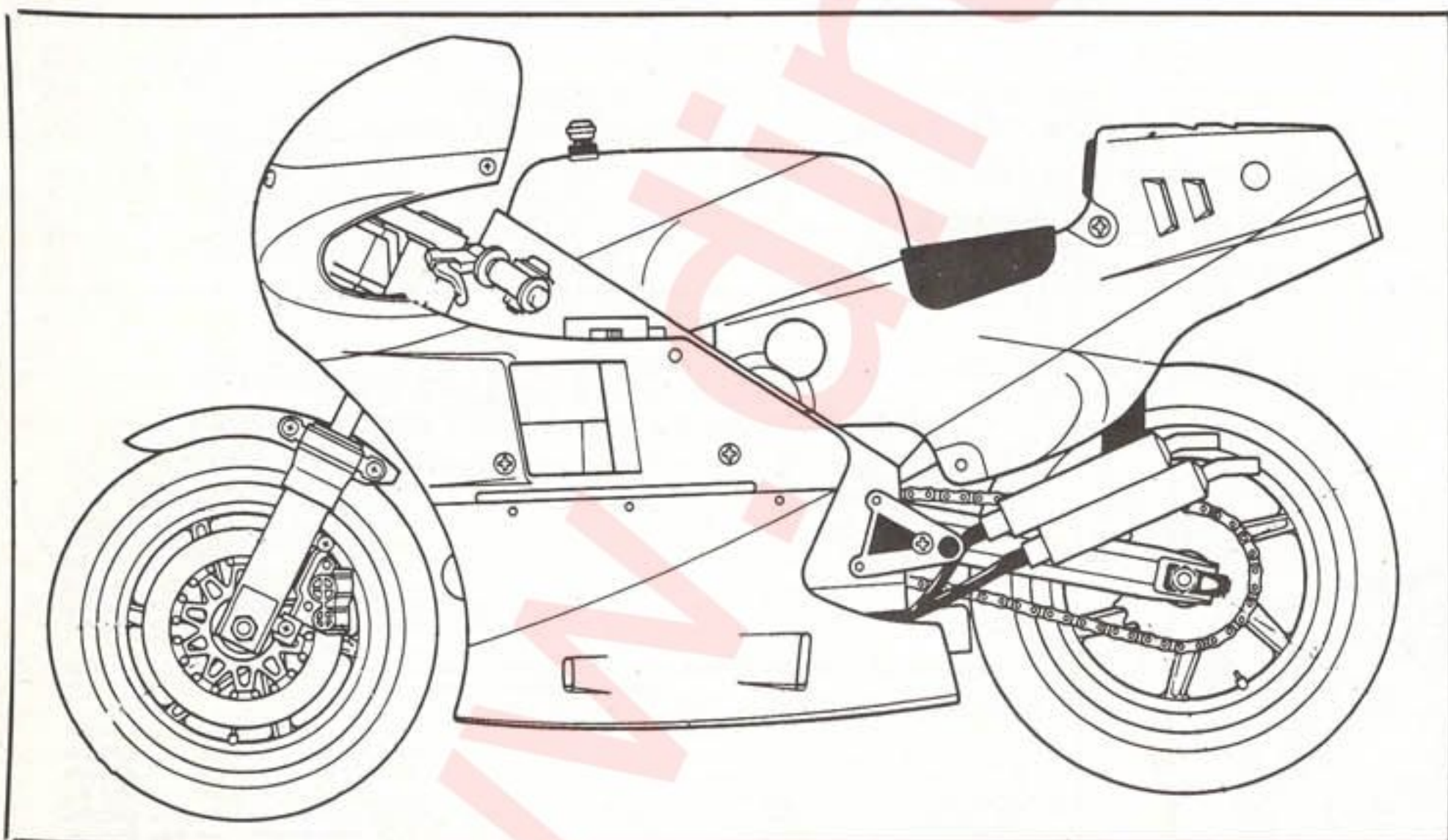
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POWER CURVE

by Mike Billinton

Mike Billinton reviews the Super Tigre S21.

This latest 'Buggy' car engine from S. Tigre continues in their tradition of steady, undramatic development resulting in continual increases in reliability even though at higher power levels.

Factory power figures for this S21 engine are .9 HP at 22,000 rpm (equipment unknown) and for their Rear exhaust Open class car engine — the G350 — 1.45 at 27,000 rpm (again equipment unknown).

As can be seen, the S21 Buggy engine itself can reach near to its Open class counterpart when fitted with Tuned pipe and a large bore carburettor plus use of 50% Nitromethane. In this particular case starting from a fairly low Open exhaust figure, the power output almost doubled with those three 'power-improvers'.

As an indication of that steady development, it is instructive to note that the 1984 S21 rear exhaust base-mount engine gave a power figure of 1.2 using the 'full-house' equipment.

Mechanical Detail

Crankcase is as usual a solid one-piece aluminium die-casting which proved robust and trouble-free throughout testing.

The carb spigot mounting boss is asymmetrically set over to one side (as viewed from front) which allows fuel/air to enter crankshaft bore tangentially. This S. Tigre feature presumably aids efficiency though few competitor engines use the idea.

Crankshaft is a one-piece construction in hardened steel with partial crescent cut-aways of crank web for balancing purposes. Crank timing at 200° is quite generous and has assisted the engine's ability to run up to high rpm when tuned pipe was used at short length.

Liner/Piston. S. Tigre have continued with their sound idea of a thick flange at top of liner to prevent variable distortions occurring when cylinder head bolts are tightened down. In their design the piston reaches to top of the liner. In any event there was a resultant very even wear pattern around bore surface at TDC area and

low friction at all times once running-in was completed. The Brass liner has the usual chrome plating and uses Schnuerle porting — 1 exhaust, 2 transfers and 2 boost ports, though the latter are fed by one single large transfer passage. Exhaust timing at 163° allows good tuned pipe response in view of the reasonable blow-down period of 17° ahead of the transfer timing of 128°.

Piston is cast in high silicon percentage aluminum alloy — subsequently milled out to give a weight of 4.7 gms. Normal wire circlips secure the gudgeon pin in place.

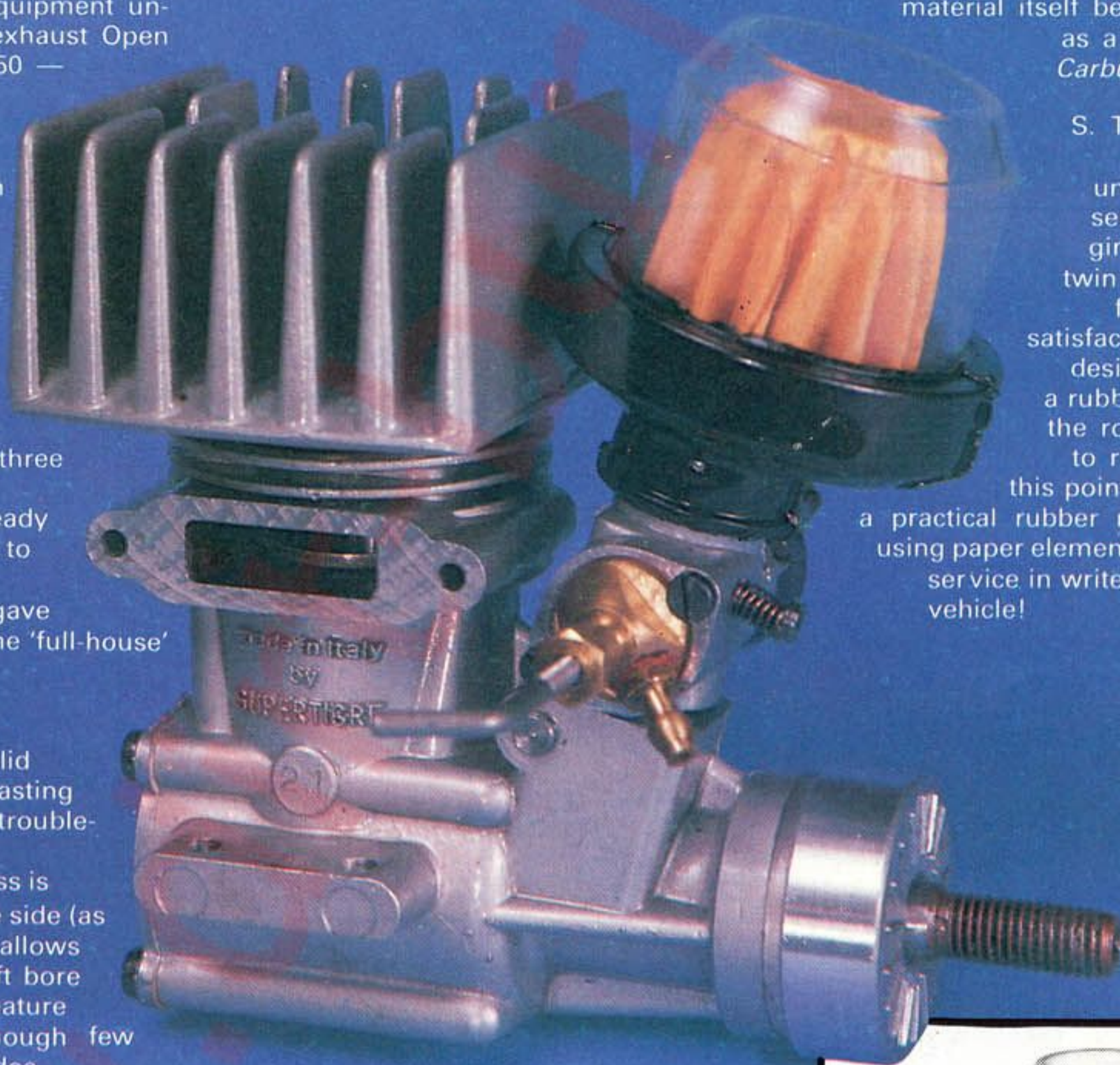
Cylinder head is in 2 parts constructed of aluminium alloy. The combustion chamber having a small squish angle of 3° sits on top of liner, ie. does not insert into top of liner as with many other engines. Clamping this part to top of liner is a finely cast large finned cylinder heat 'heat-sink' weighing some 2 oz (58 g). Compression ratios seem to be creeping down — probably under the twin influences of better tuned pipe responses (giving denser cylinder filling) and need for overall engine and glow-plug reliability. At 6.17/1 effective compression ration the S21 is fixed at a quite low figure as standard and could quite likely generate more power though at lower reliability by use of lower squish clearance than the .021 inch as set up out of the box.

Connecting rod is the normal S. Tigre 'machined from solid aluminium alloy' part, having phosphor bronze bushing at big-end only and where there are two lubrication holes. The little end of the two-stroke con-rod is a less stressful area and so, as in this S21, can often dispense with any bushing — with the aluminium alloy material itself being quite adequate as a bearing surface.

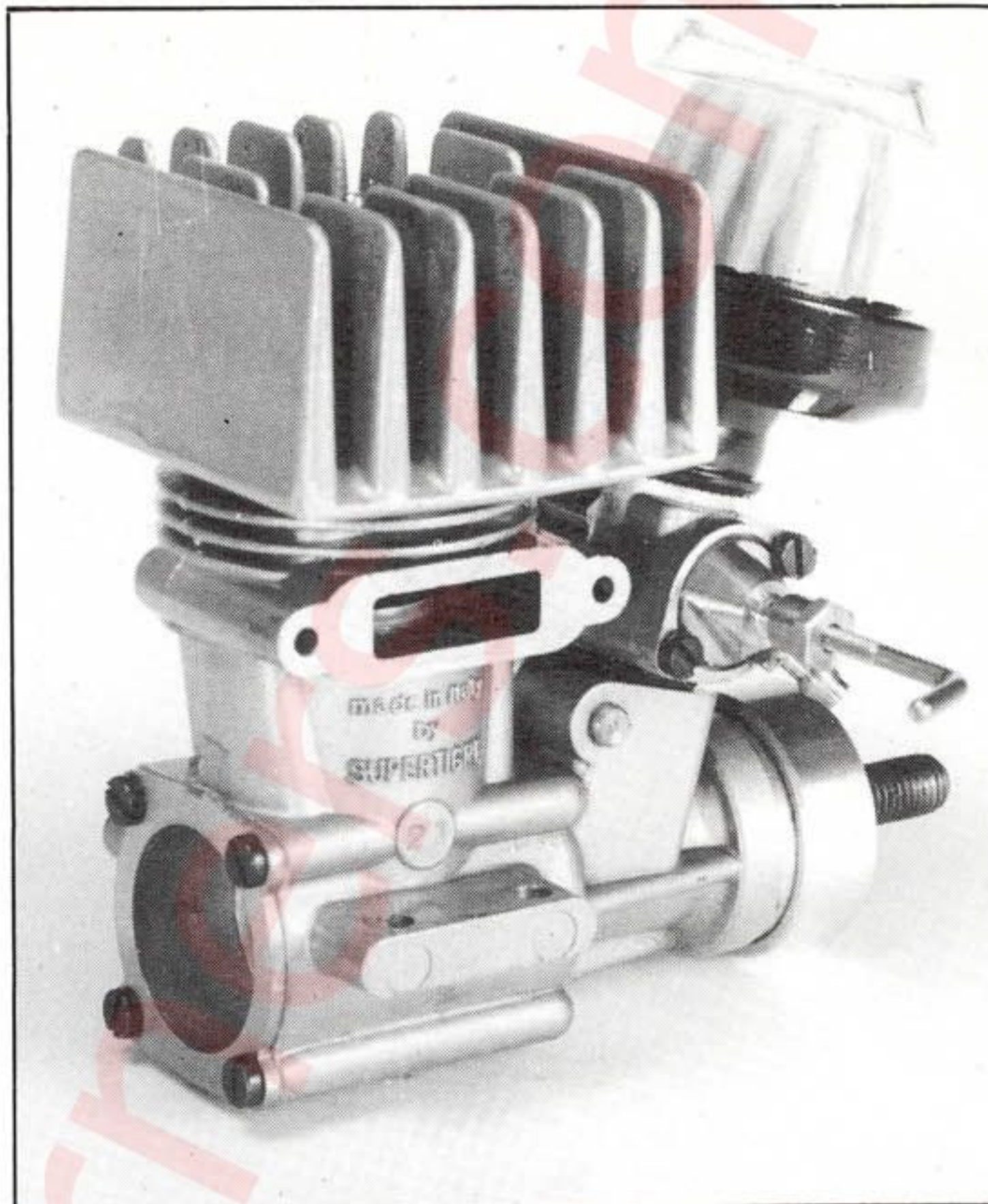
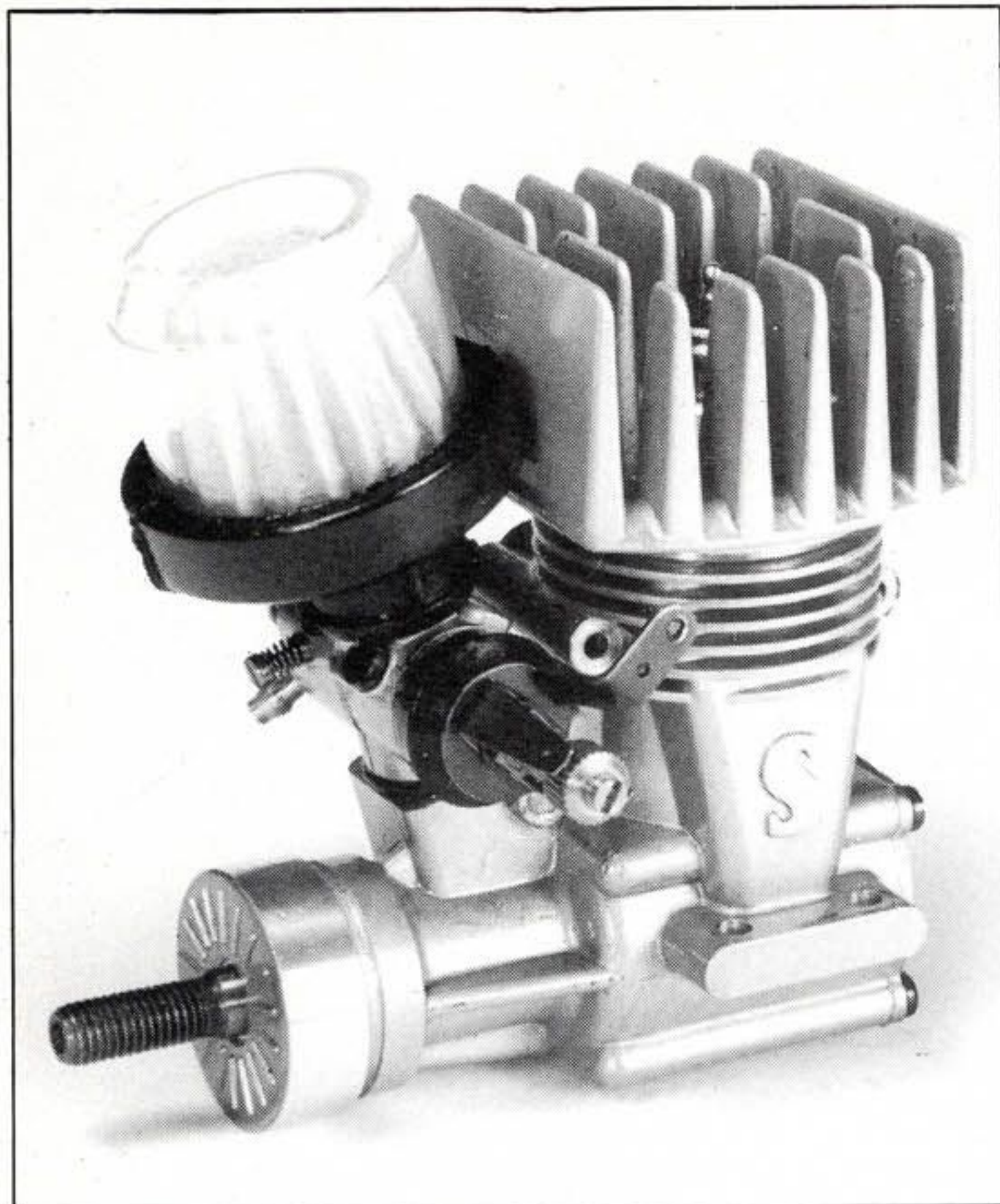
Carburettor is a 7.4 mm bore version of

S. Tigre's well known 'Mag' twin-needle unit, which now sees service in all their engines up to their 60 cc

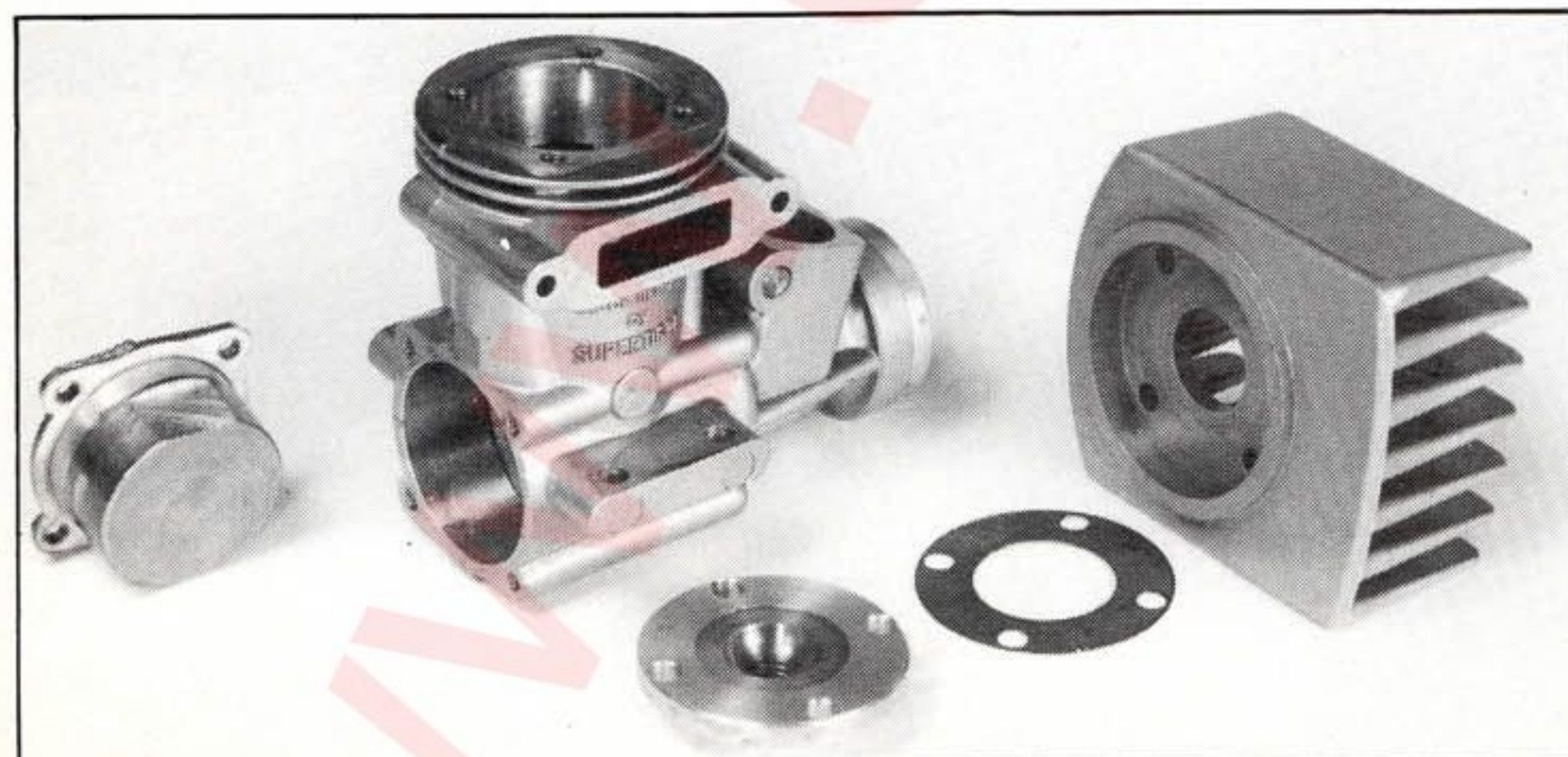
twin in-line engine — a fact indicating their satisfaction with the basic design. In this Car unit a rubber seal surrounds the rotating steel barrel to reduce fuel leaks at this point. Also featured is a practical rubber mounted Air filter using paper element — which has seen service in writer's Shell Marathon vehicle!



Above and right, Super Tigre's latest 1/8 'Buggy' engine, the S21, evidence that Super Tigre still produce engines with quality of construction and value for money.



Below, the S21 crankcase is strong and trouble-free. Bottom, large heat-sink head aids steadiness of performance. S21 crankcase is sound and strong. Above, the rubber mounted Air filter is a vital piece of equipment — particularly so for the 'Off-road' vehicle.



Power Tests

Test 1 — Open exhaust/5% Nitromethane/12% Castor oil/ST 7.4 mm carburettor/ST Long reach plug.

The flat wide Torque band given by the S21 is characteristic of current 3.5 cc racing engine performance, though the resultant flat top to the HP curve was a little unusual. HP cut-off was quite abrupt past 27,000 rpm and obviated need to explore higher rpm in this open exhaust mode.

Test 2 — OPS tuned pipe (set at 300 mm from glowplug to end of rubber can)/50% Nitromethane/5% Castor with 11% ML70 synthetic oil/OPS 9 mm carburettor/OPS 250 glowplug.

Using the three 'power enforcers' (pipe/fuel/carburettor) enabled the S21 to generate substantially more power and using what could be considered an average tuned length of 300 mm, kept maximum resonance/maximum power point down to a useable 26,000 rpm and where the highest Torque point of this test — at 48 oz inch — was reached.

Test 3 — Same equipment as Test 2, but pipe now set at 260 mm tuned length.

This use of a shorter 'tuned' length as expected raised best resonance rpm near to 30,000 and at which point the S21 still operated soundly and smoothly. Going further up the rpm scale almost to 34,000 rpm saw Torque swiftly declining as is normal once correct resonance rpm is exceeded. In this mode the engine produced its highest HP of this test — 1.38 HP at 29,575 rpm.

Summary

At end of the tests, the S21 was still in very good shape, having been persuaded to produce power figures which, strictly, are not usually extracted from the normal 'Buggy' car engine.

Dimensions And Weights

Capacity — .2115 cu in (3.465 cc)
 Bore — .6535 in (16.6 mm)
 Stroke — .6305 in (16.0 mm)
 Stroke/Bore ratio — .965/1
 Timing Periods:
 Exhaust — 163°
 Transfer — 128°
 Boost — 128°
 Front induction:
 Opens — 34° ABDC
 Closes — 54° ABDC
 Total — 200°
 Exhaust port height — .216 in (5.5 mm)
 Combustion chamber volume — .44 cc
 Compression ratios:
 Effective — 6.17/1
 Geometric — 8.875/1
 Cylinder head squish — .021 in
 Squish band angle — 3°
 Squish band width — .131 in (3.35 mm)
 Crankshaft diameter — .472 in (12 mm)
 Crankpin diameter — .197 in (5.01 mm)

Crank bore — .332 in (8.45 mm)
 Crank nose thread — .247 in x 28 tpi (1/4 UNF)
 Carburettor bore — 7.37 mm (OPS carb 9.1 mm)
 Gudgeon pin diameter — .157 in (4 mm)
 Connecting rod centres — 30 mm
 Mounting holes — 15 mm x 38 mm with 3.5 mm holes
 Width between bearers — 1.13 in (28.7 mm)
 Overall height — 3.34 in (84.75 mm)
 Overall width — 1.76 in (44.8 mm)
 Overall length — 2.76 in (70.2 mm)
 Frontal area — 4.9 sq in
 Overall weight — 10.5 oz (288 g)
 Piston weight — .16 oz (4.7 g)
 Crankshaft weight — 1.27 oz (36 g)

Max Torque

48 oz in @ 25,800 rpm (OPS pipe/50% Nitro)
 35 oz in @ 15,000 rpm (open exhaust/5% Nitro)

RPM on Standard propellers

	Open ex	Pipe 300 mm	Pipe 260 mm
7 x 6 Taipan	16,926	17,832	
7 x 4 Taipan	20,524	23,682	20,819

Performance Equivalents

BHP/cu in — 6.62
 BHP/cc — .398
 Oz in/cu in — 227
 Oz in/cc — 13.8
 G metre/cc — 9.8
 BHP/lb — 2.1
 BHP/kilo — 4.8
 BHP/sq in frontal area — .28

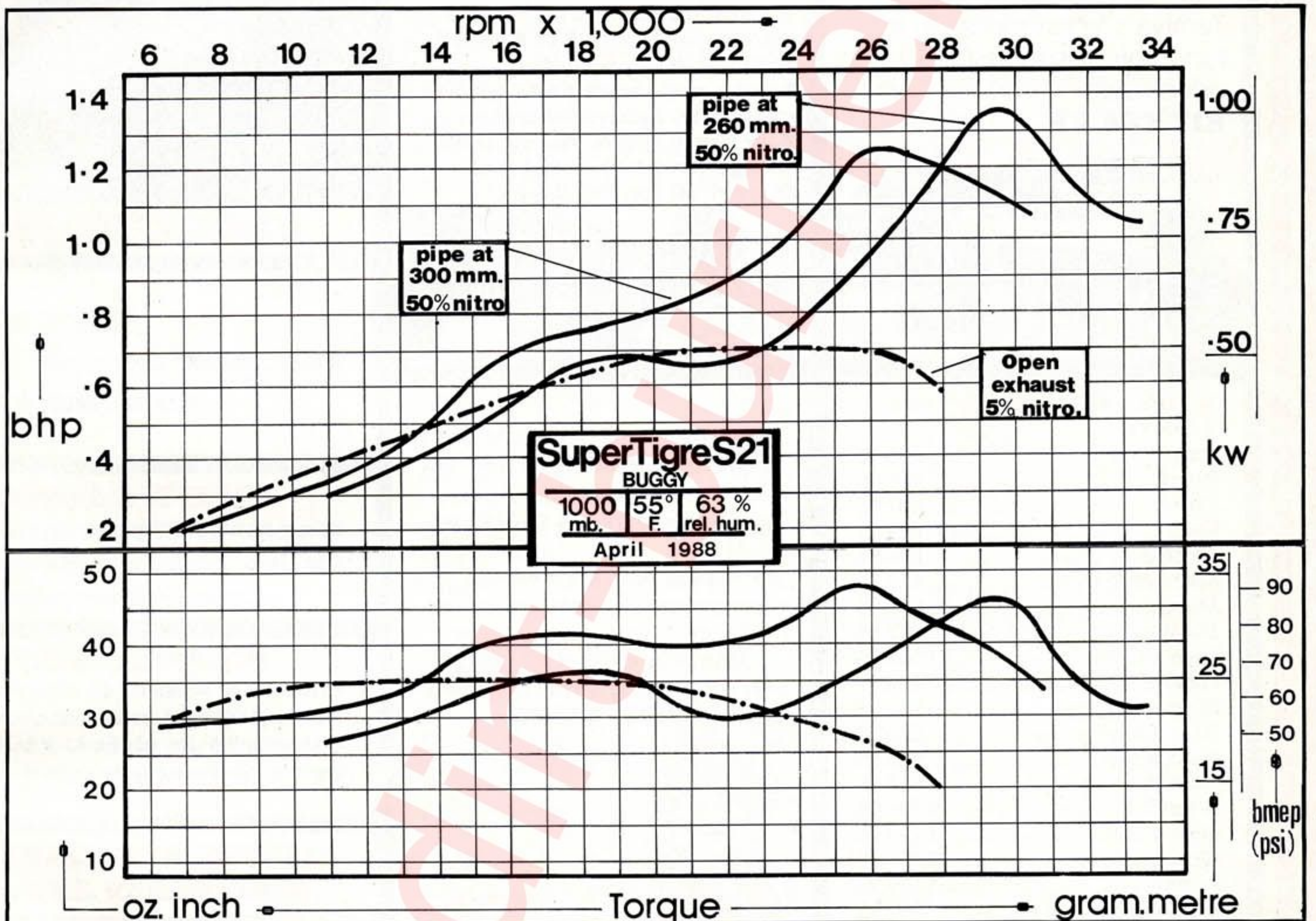
Manufacturer

Super Tigre SRL,
 Bologna,
 Italy.

Performance

Max BHP

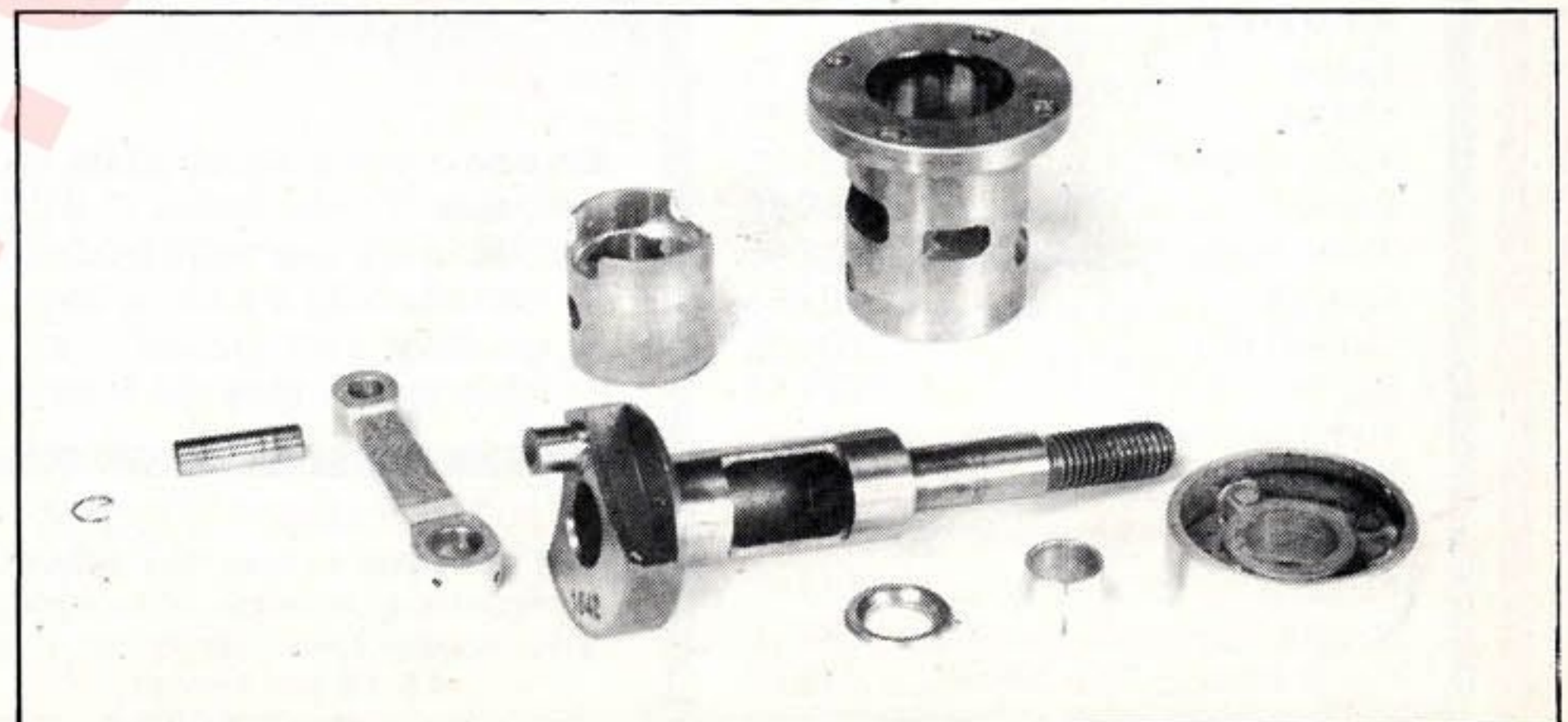
1.38 @ 29,575 rpm (OPS pipe/50% Nitro/9 mm carb)
 .70 @ 24,000 rpm (open exhaust/5% Nitro/7.4 mm carb)



Solid upper flange of liner brass liner is noteworthy.

However, as these are frequently designed and constructed on virtually similar lines to their 'full-house' 1/8 open class racing counterparts, so then there is probably no harm and maybe some value in extending them somewhat — at least towards the end of a normal test regime.

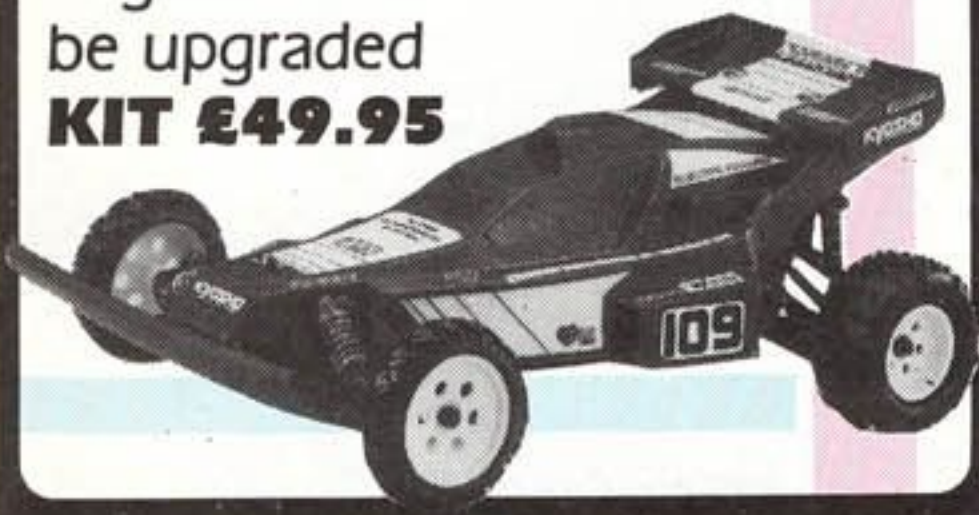
Judged by dynamometer test at least, the S. Tigre soundness and quality of construction is still evident and continues to offer good value for money.



BAGNALLS

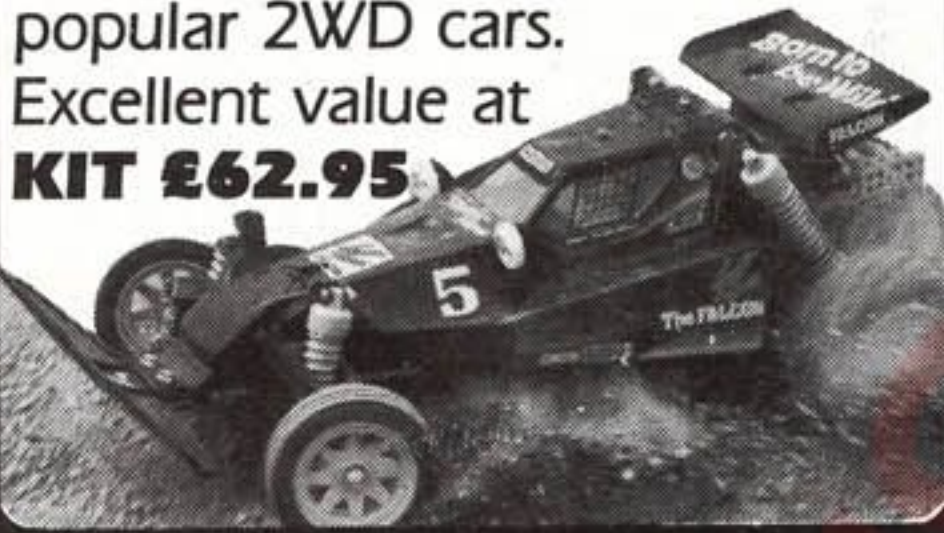
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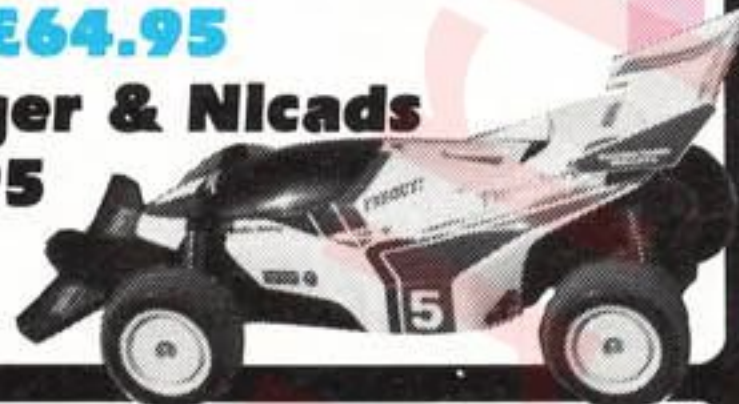
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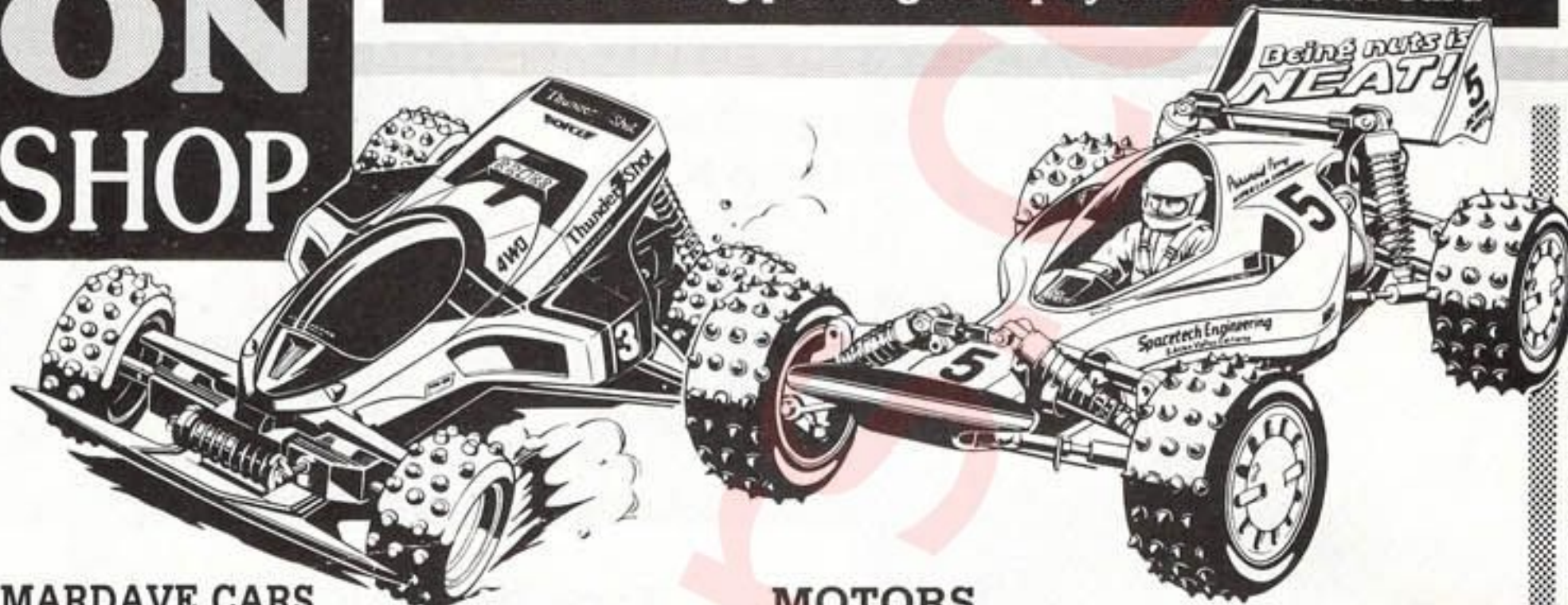
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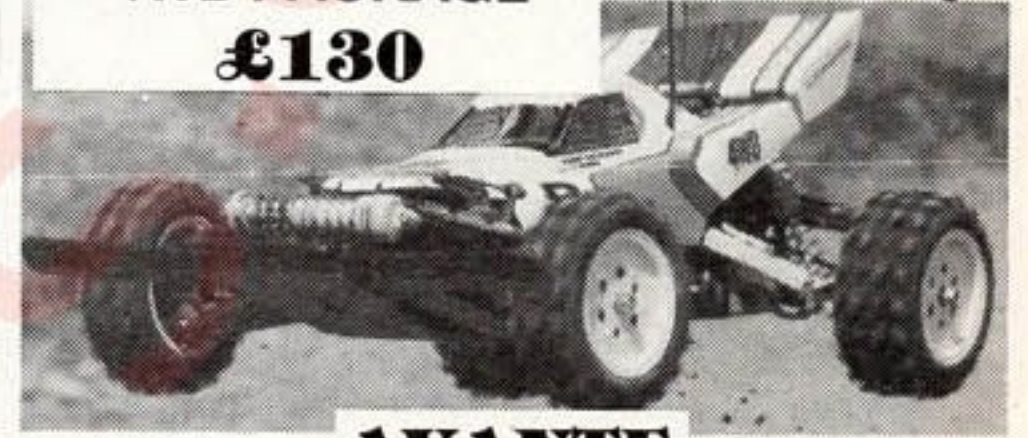
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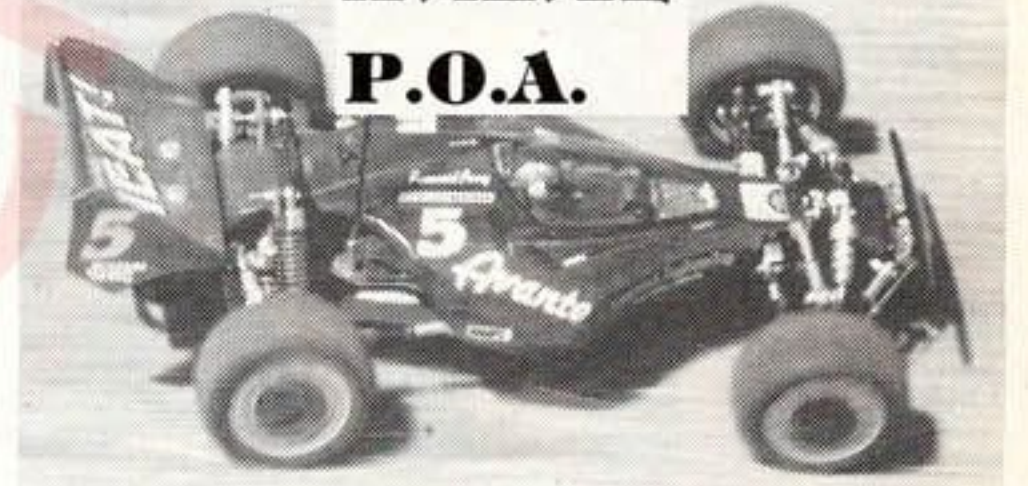
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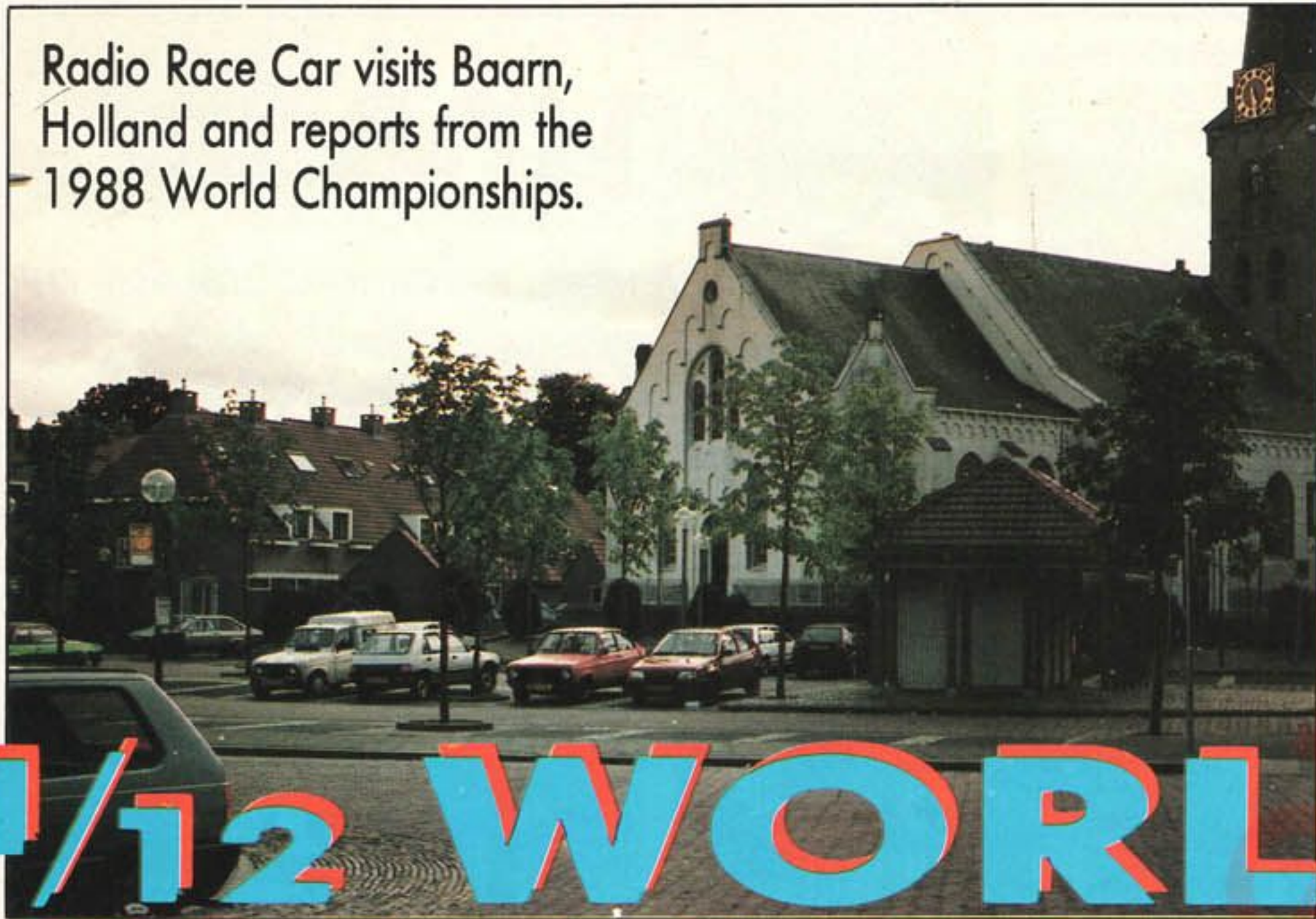
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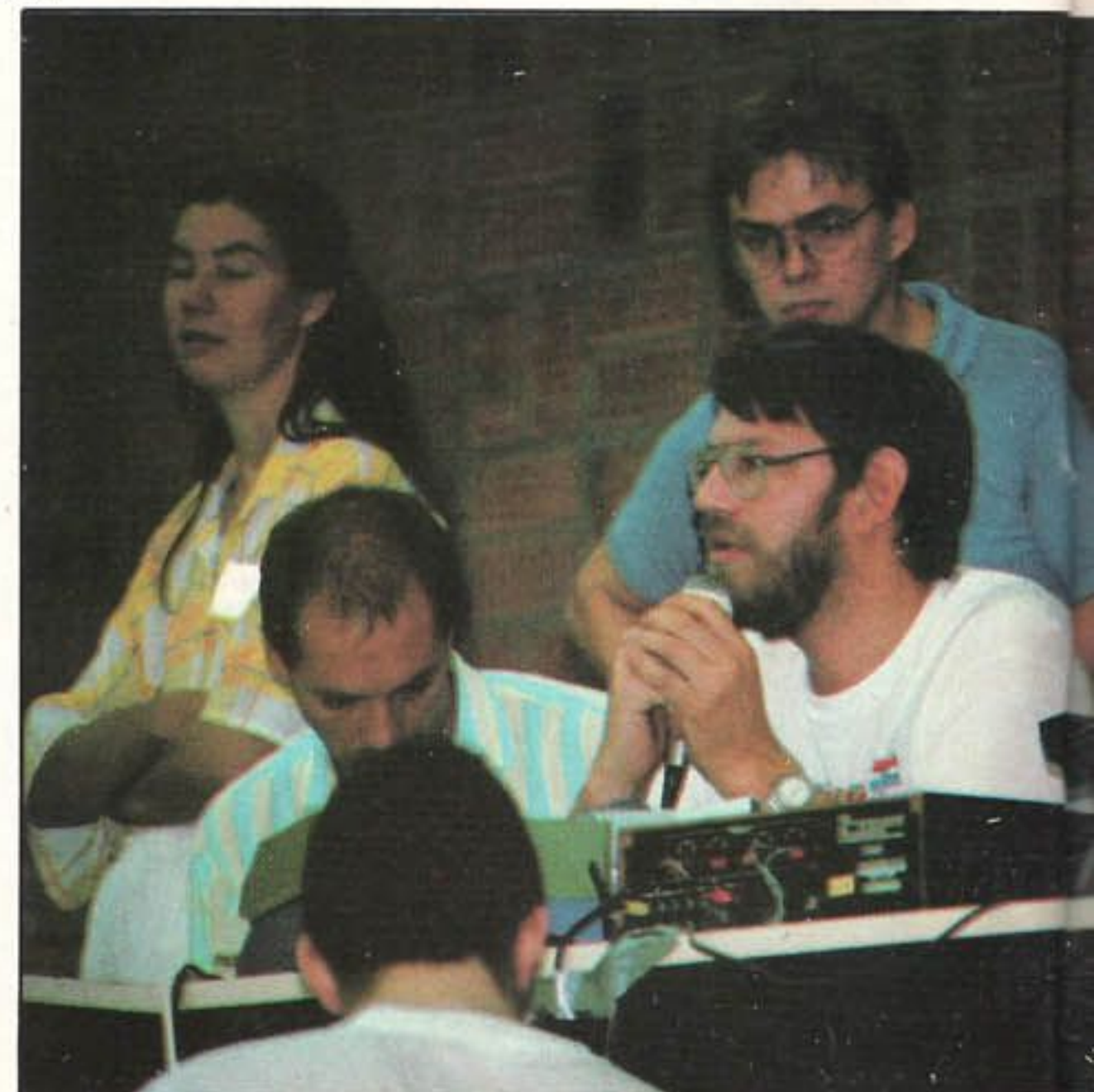
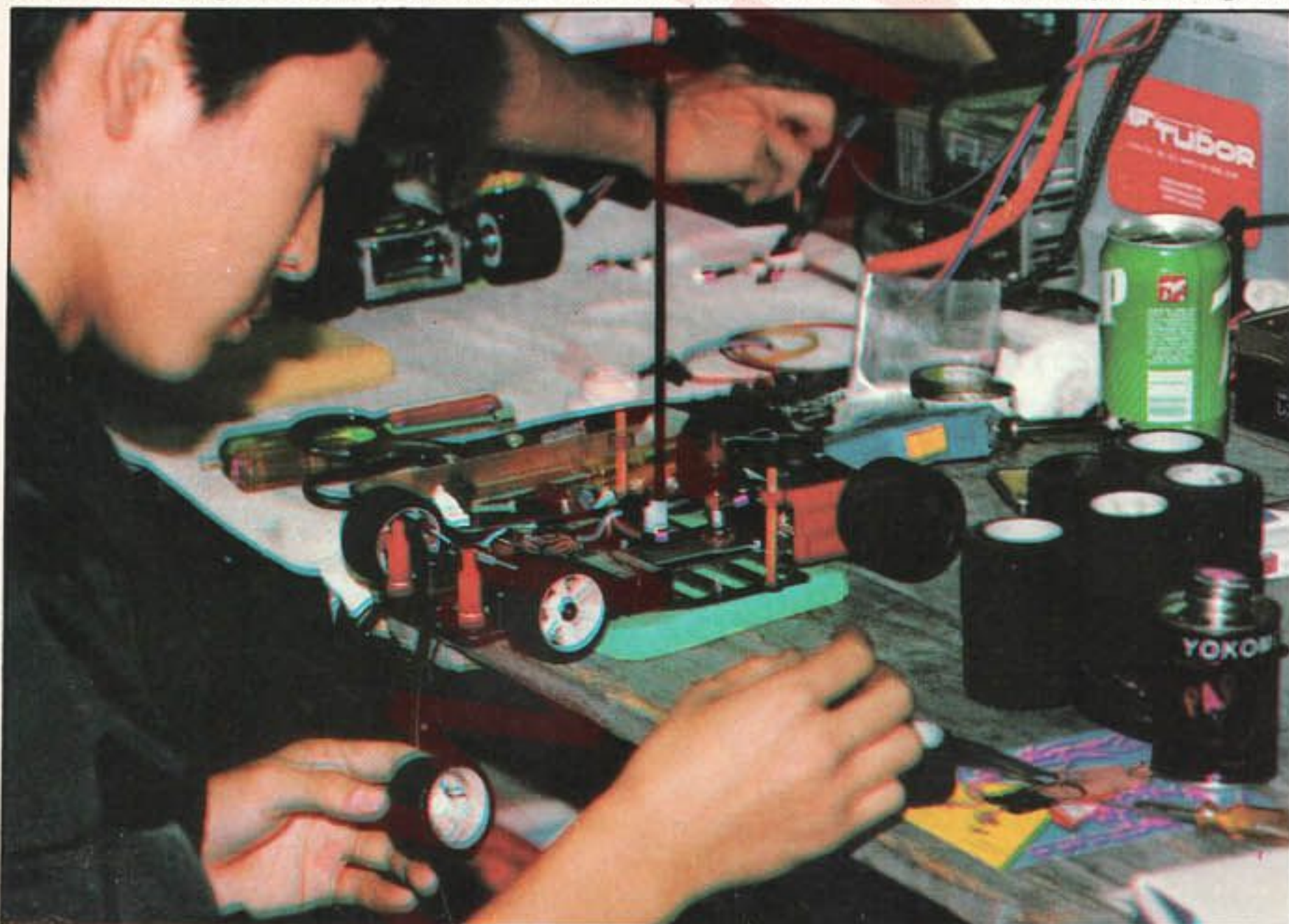
Radio Race Car visits Baarn, Holland and reports from the 1988 World Championships.



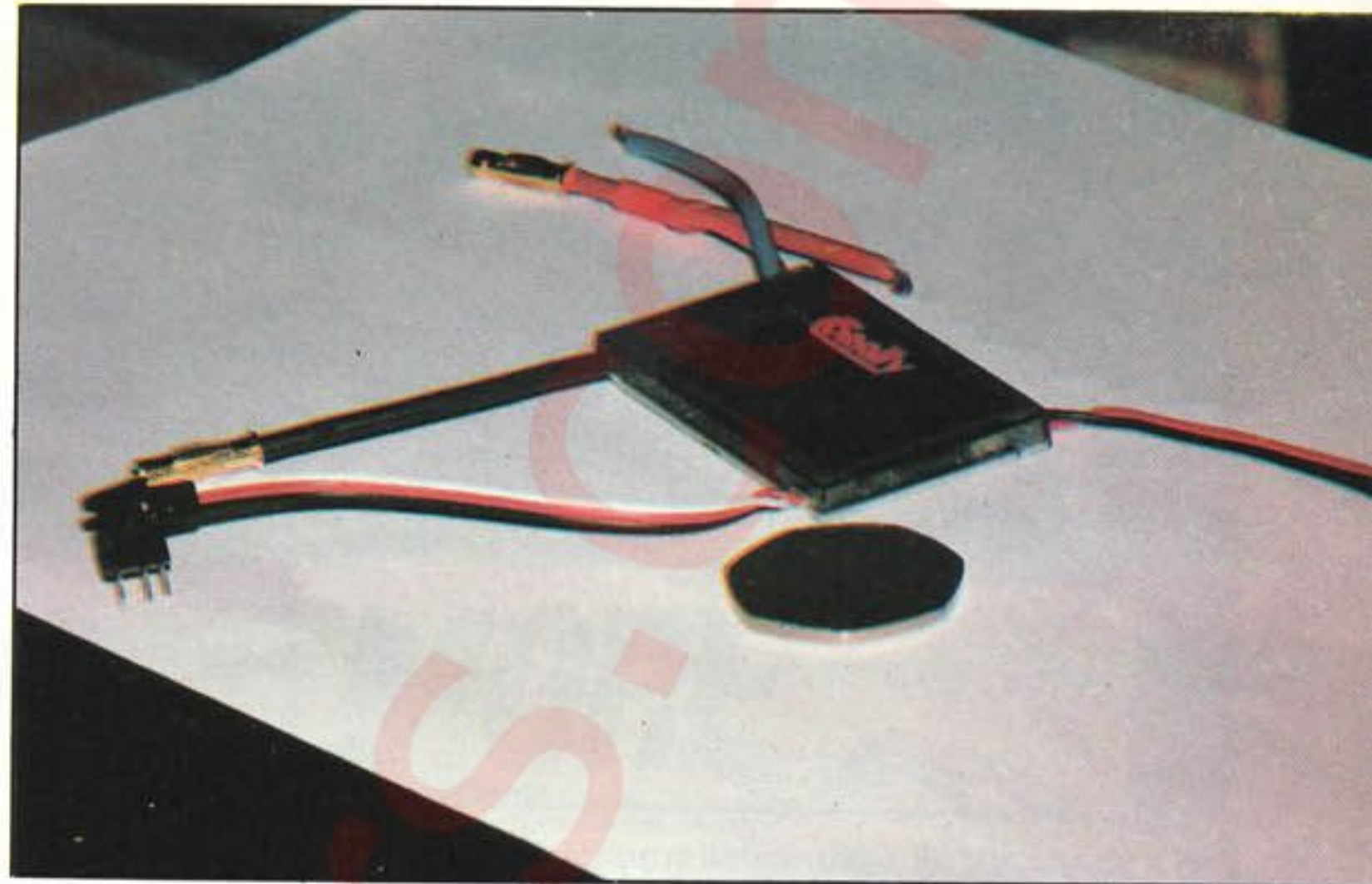
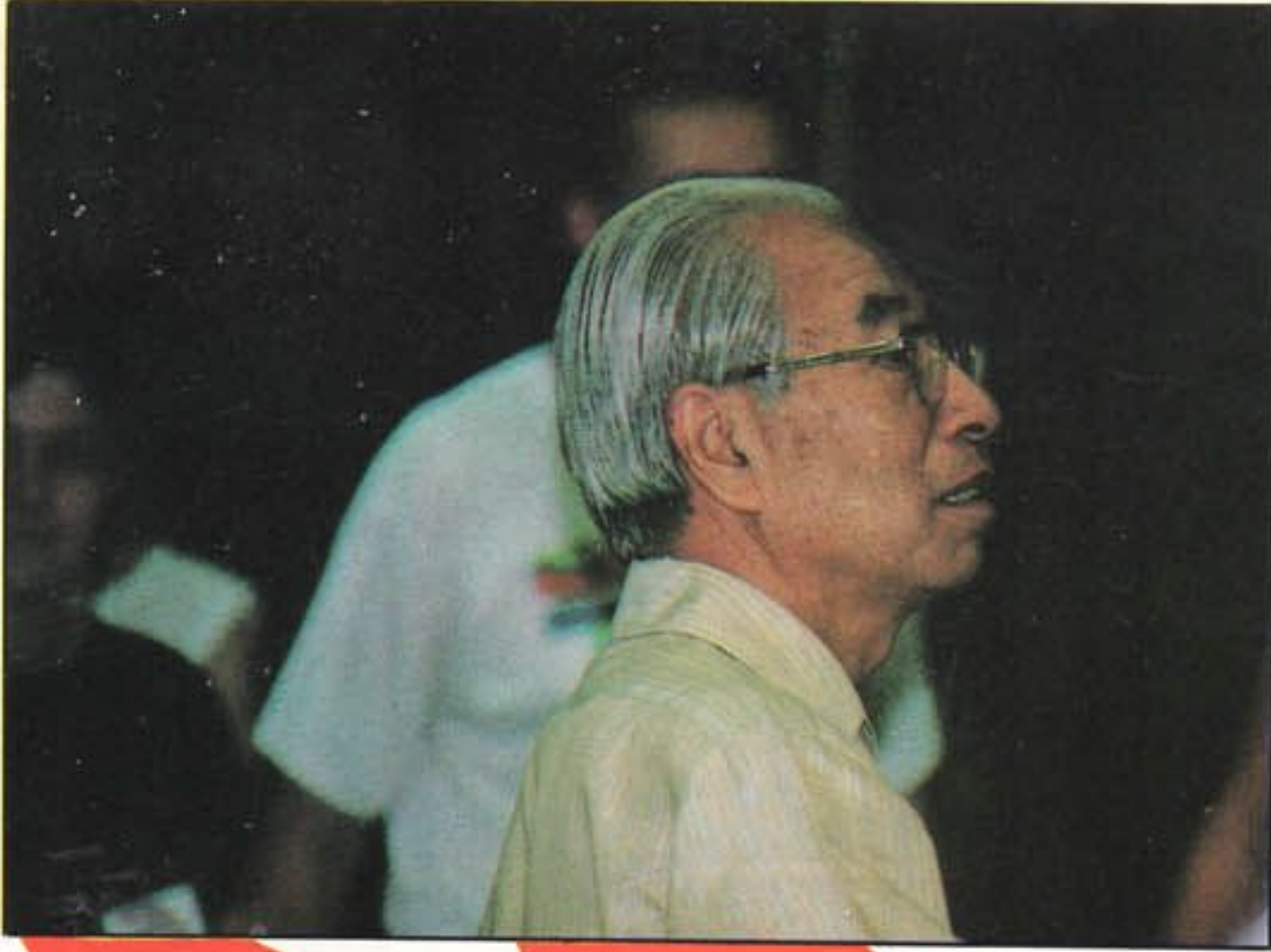
1/12 WORLD CHAMPIONSHIPS



Above left, Kent Clauson after his 'A' Final qualifying run. Above left, before the 'A' Final. Below right, PK Racing's Mr. Van Kooy seen here addressing the drivers. Below left, Masami Hirotsuka hard at work preparing his tyres.

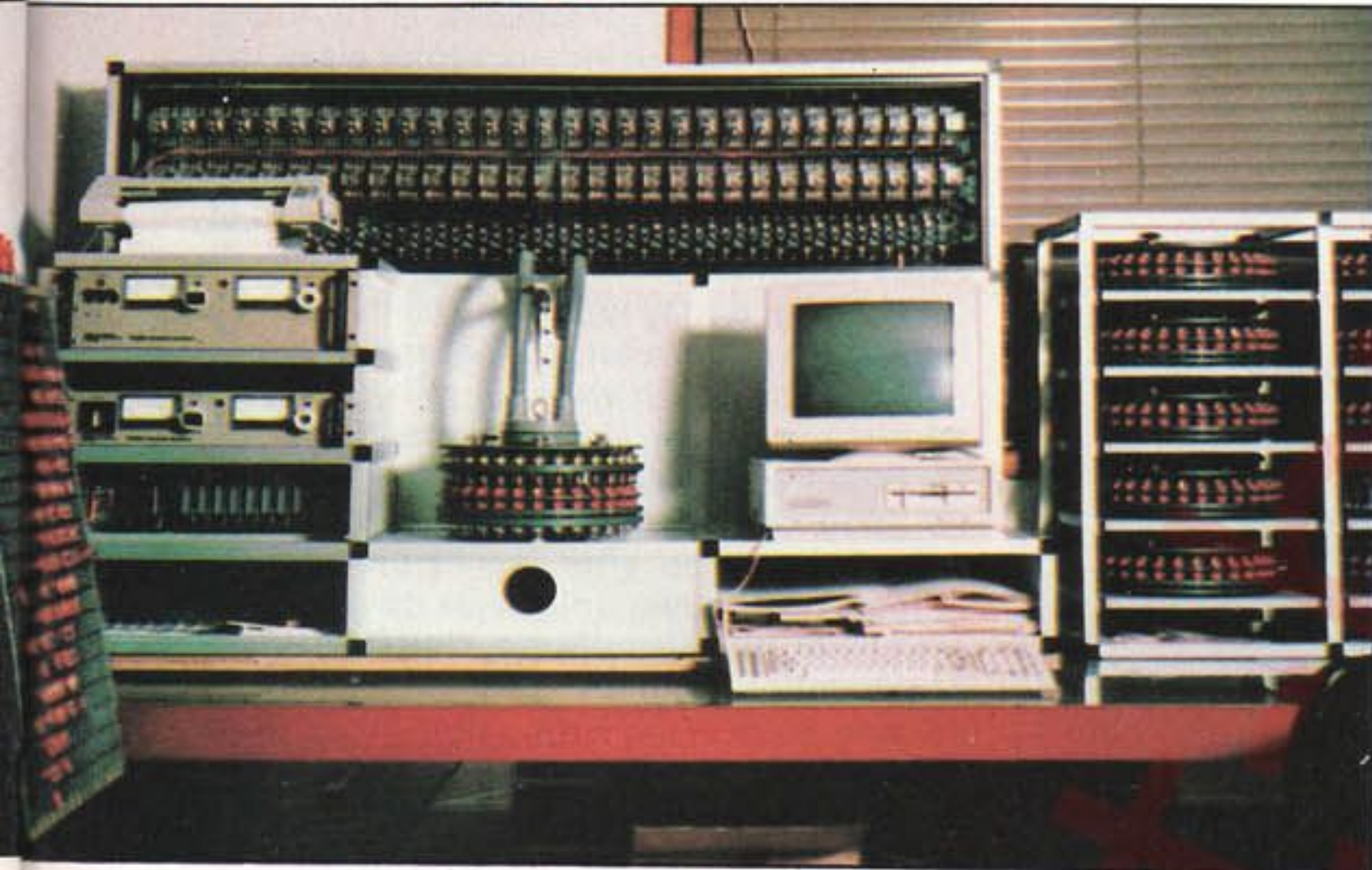


1/12

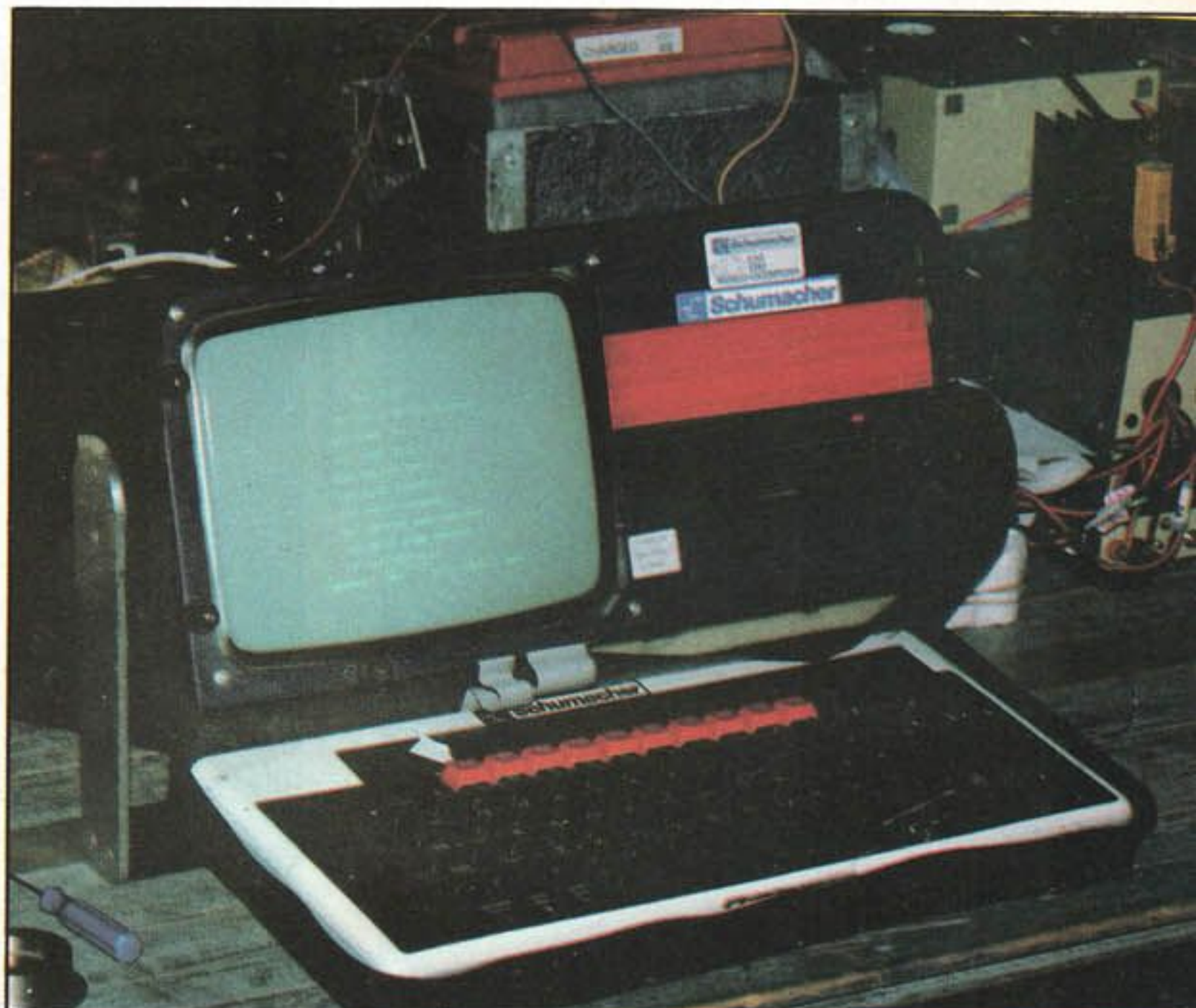


Left, to the victors go the spoils, first Masami Hirosaka, second Tony Neisinger, third Christian Keil. Above left, the man of the moment, Mr. Yokomo himself. Above right, Corally's new credit card sized speed controller as driven by several 'A' finalists. In situ, look under driver figure. Below bottom, the Schumacher team went fully prepared to do electronic battle with computerised battery and motor checkers. Below left, PK's cell mate looks a very impressive piece of equipment indeed.

TIPS

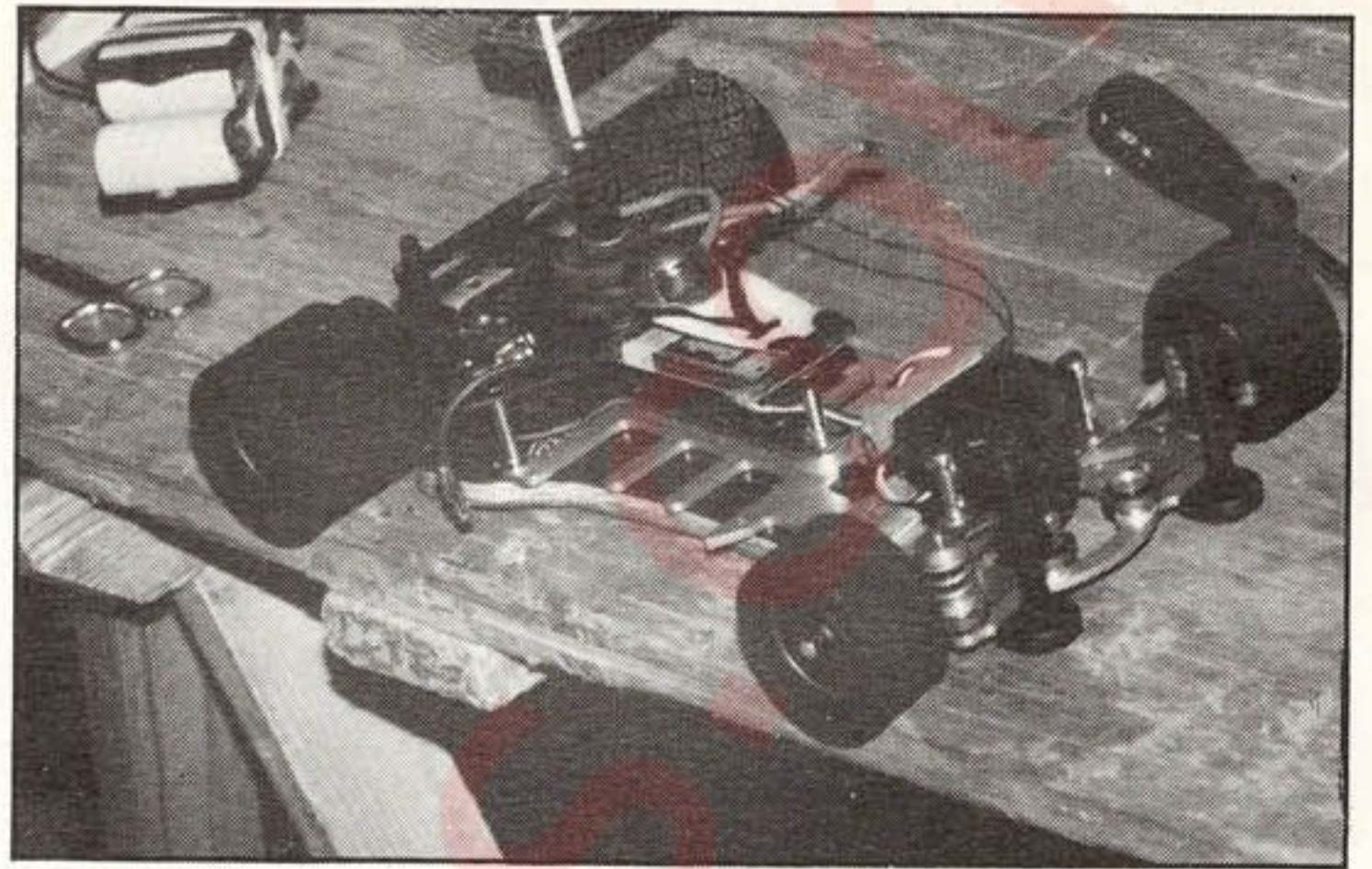


PK now have a dealer in central Europe, so we should be seeing a lot more of these very competitive cars soon, watch for the reievew.





PK's shop kept all drivers well supplied with any parts they needed.

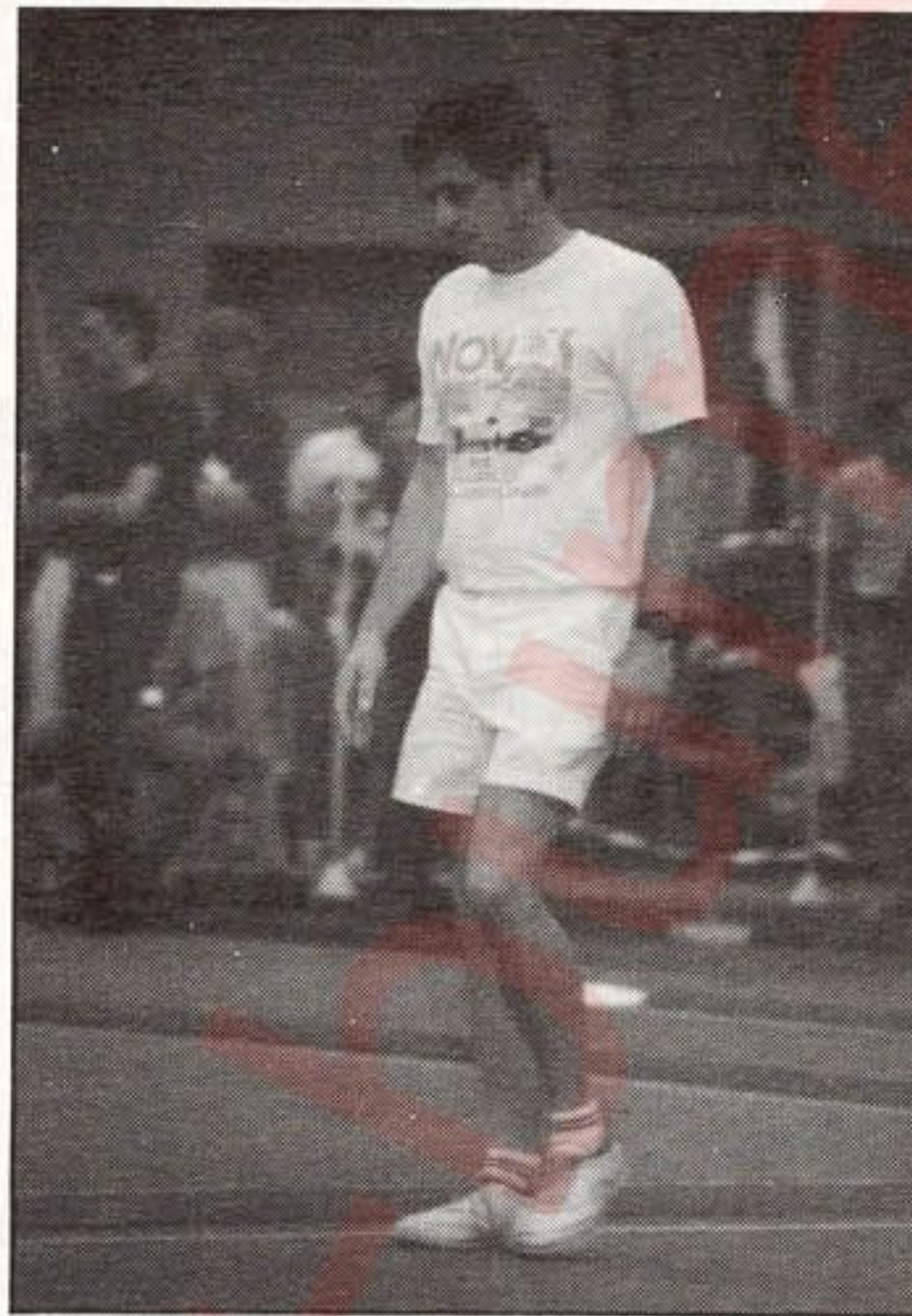


As already mentioned Corally's credit card sized speed controller in situ.

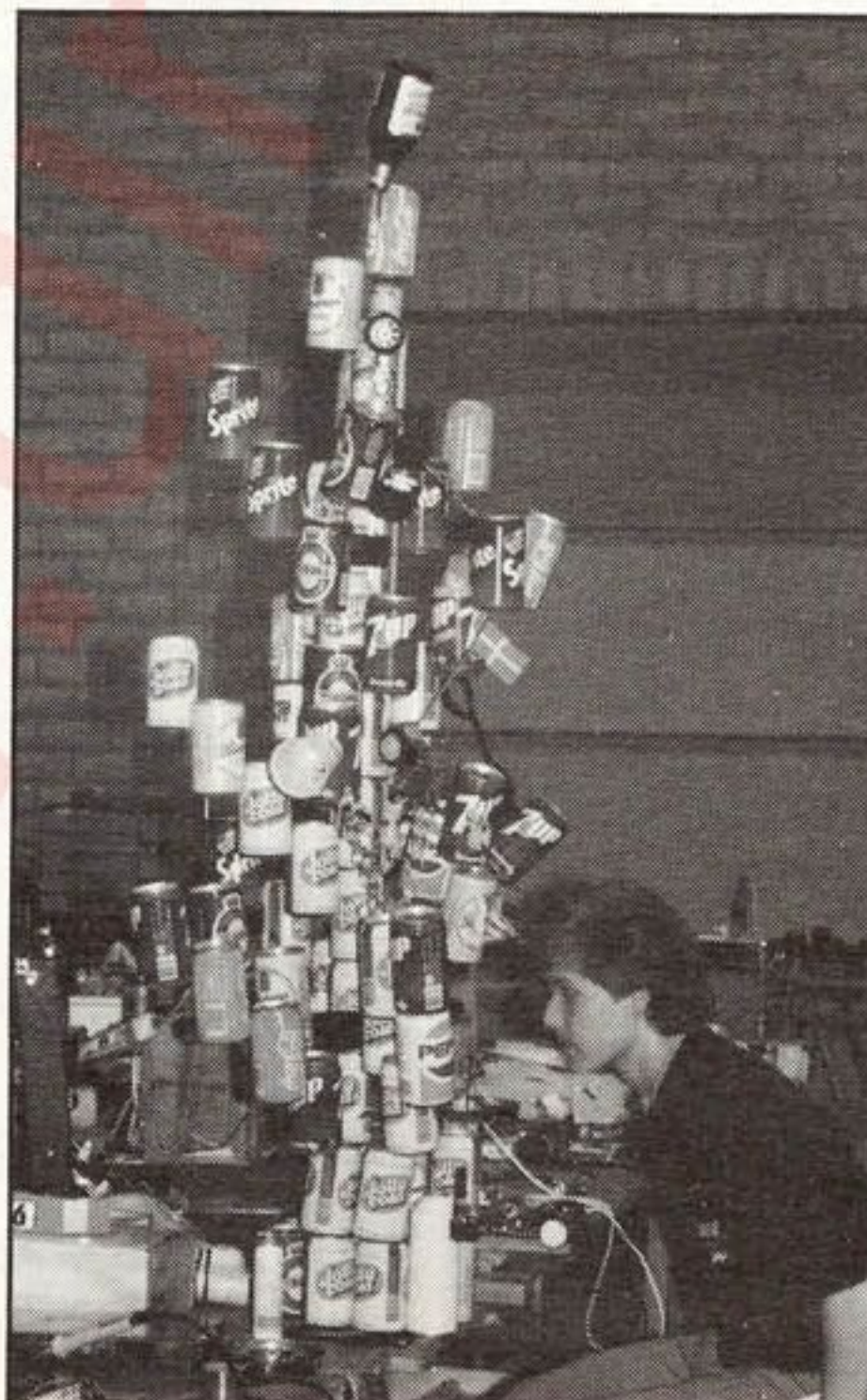
"Gentleman to your battlestations." These words will be remembered long after the dust and water, more about the water later, has settled over the Sports Hall de Trits, Baarn, Holland. That sentence was the rousing spoken overture to all three legs of the 'A' Final, three legs that one finalist described as the hardest ever! Blood, sweat, tears and Paragon tyre additive were what was needed to attain one of the ten 'A' Final places. Oh and one other element, the type of driving skills that words alone could not possibly begin to describe. Let us not forget that in order to drive your car at such an incredible pace, fourteen second laps were the order of the day on a very tight bend packed circuit, the knowledge of how to set your chassis up is also needed.

Baarn will be remembered by all who attended for two other reasons, the first and most important was the clockwork like efficiency in which everything was run, most of the more seasoned 1/12 racers were in total agreement that this had been one of the best organised and run World Championships that they had yet attended, credit for this must be shared by the Baarn home club and PK Racing the joint organisers of the event. The second event was an unusual one to say the least. All week long the weather had been changeable, that shouldn't affect 1/12 indoor racing you would think. Well it did at Baarn, during one of the heaviest cloudbursts that this reporter had ever seen the roof of the Sports Hall de Trits sprang a lead and showered

Mr Hirosaka senior works on Masami's car.



Above, Bob Novak in a pensive mood. Below, the Swedish team built this amazing sculpture mostly from empty cans.

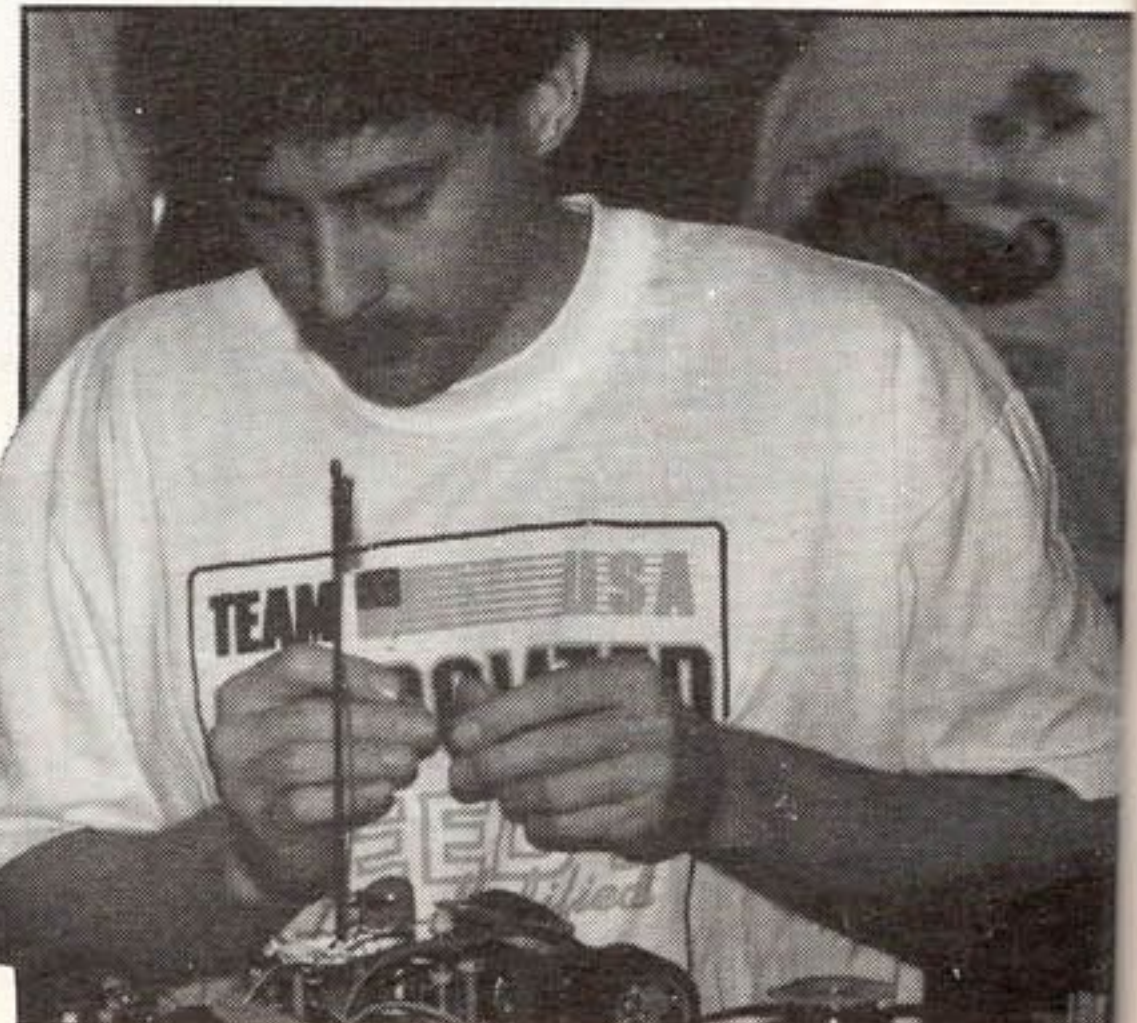


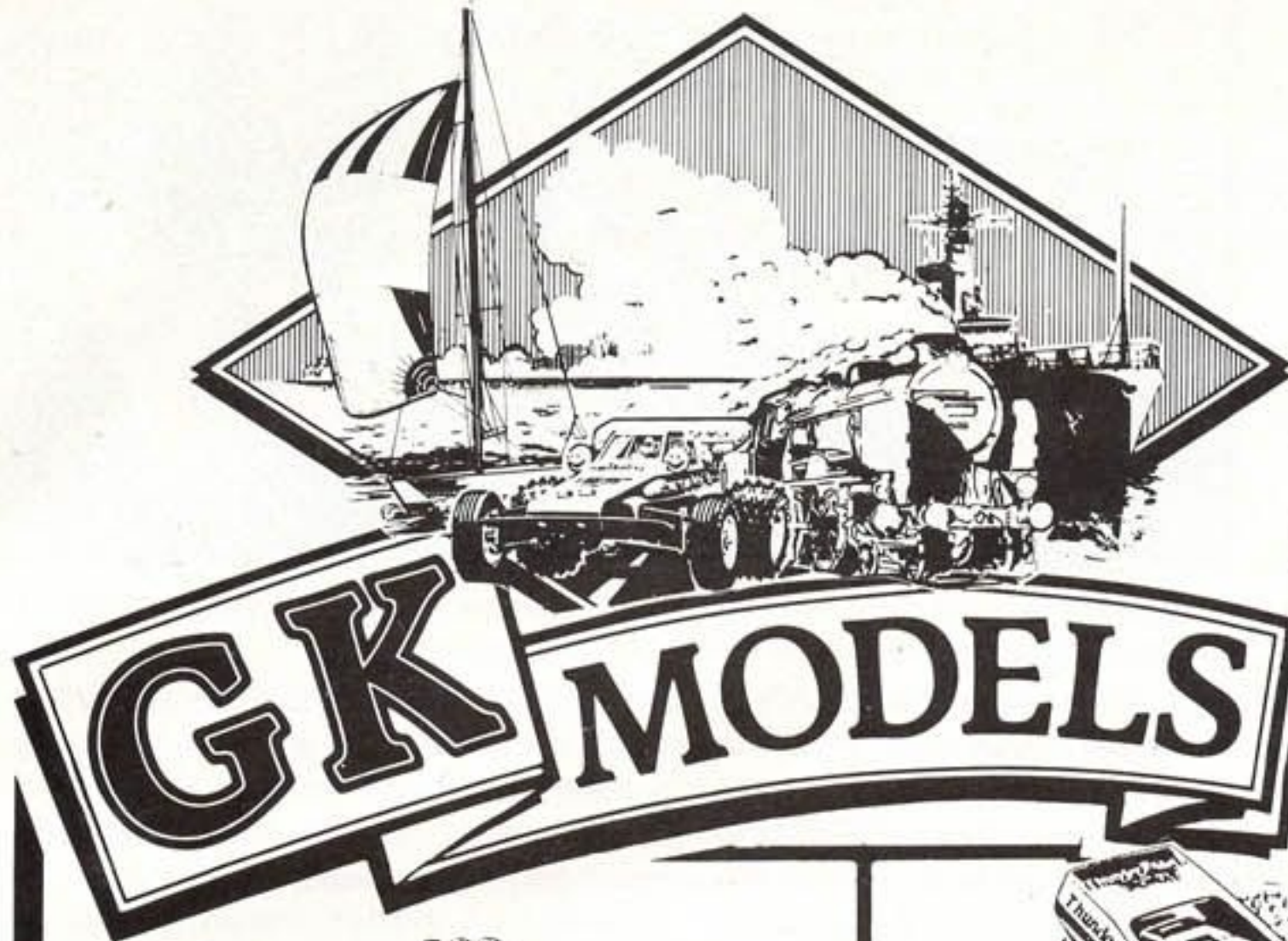
water over one section of the circuit. Even this totally unexpected problem could not shake the Dutch team of event organisers and within minutes the track was shielded, dried and back in use.

All positions were hard fought for but the one name that keeps cropping up in all electric r/c car circles is that of Masami Hirosaka. During practice it is rumoured that he set FTD using someone else's car! During the heats he did it again, this time with his own car, at this stage the rumour had changed and several people were now sure that Masami was in fact plugged into the transmitter, stood up and left to do his own thing. It may not be the truth but it did seem like it, lap after lap Masami drove the Associated as if it were on rails, always in the same place, always tight. Niessinger and Keil were also showing that they knew a thing or two about driving 1/12 cars as they turned lap after lap in the wake of Hirosaka. The two unluckiest drivers in the 'A' Final must surely be Phil Davies and Joel Johnson, both were always in the wrong place at the wrong time. None of the starts were the cleanest that anyone had ever seen but Phil and Joel always came off the worst from pile ups they did not start, both of their cars attracted other cars like magnets. Joel suffered a broken front end at one stage again through no fault of his own.

In the end though it was Hirosaka's day winning through brilliantly to take the 1/12 World Championship title and it must be said, deserving to win it too.

Tony Neisinger before the first A final leg, he needn't have looked so worried.





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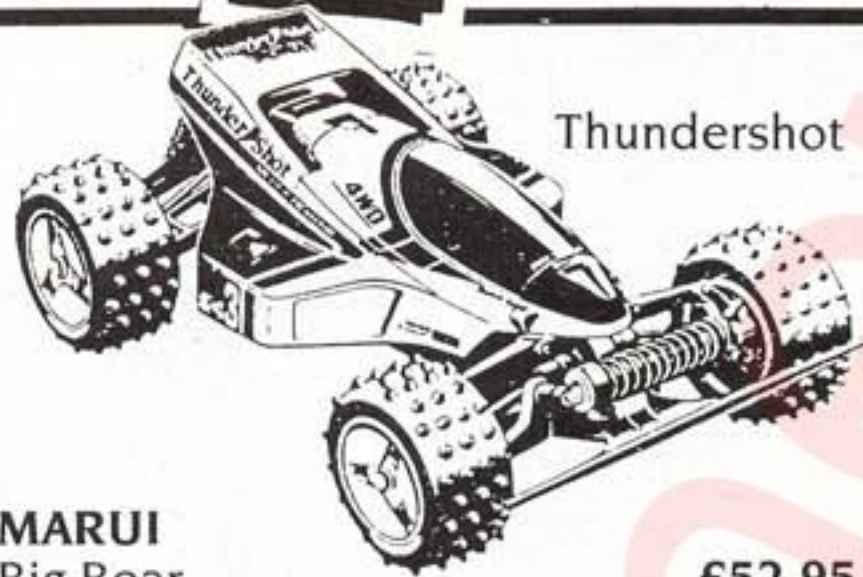


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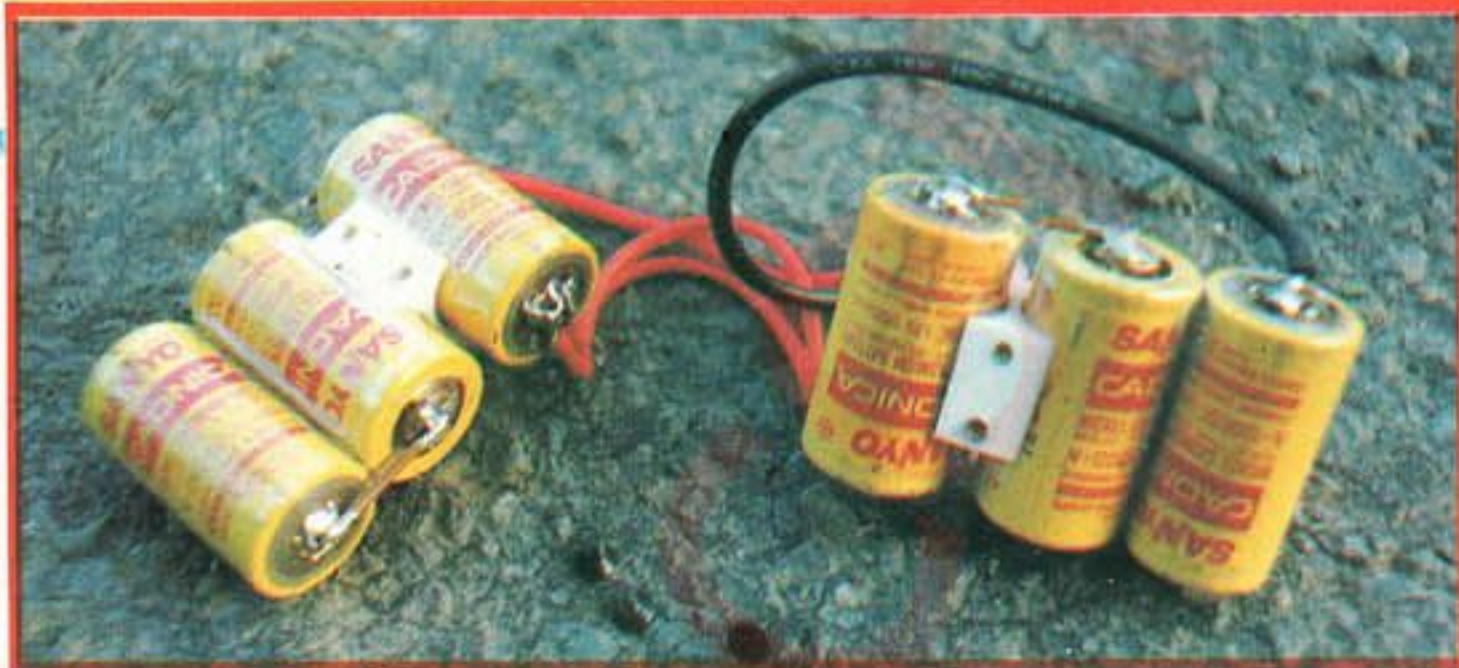
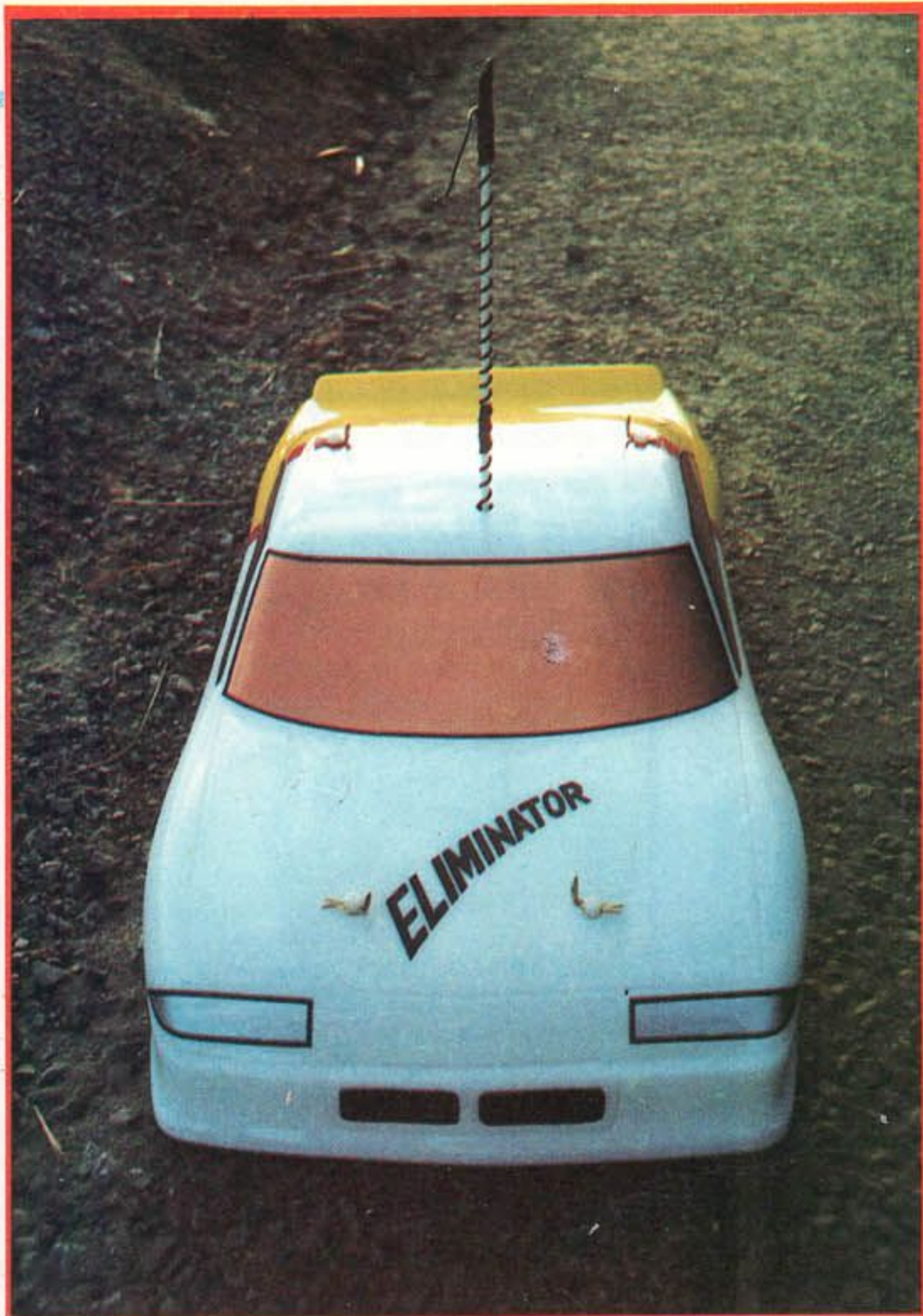
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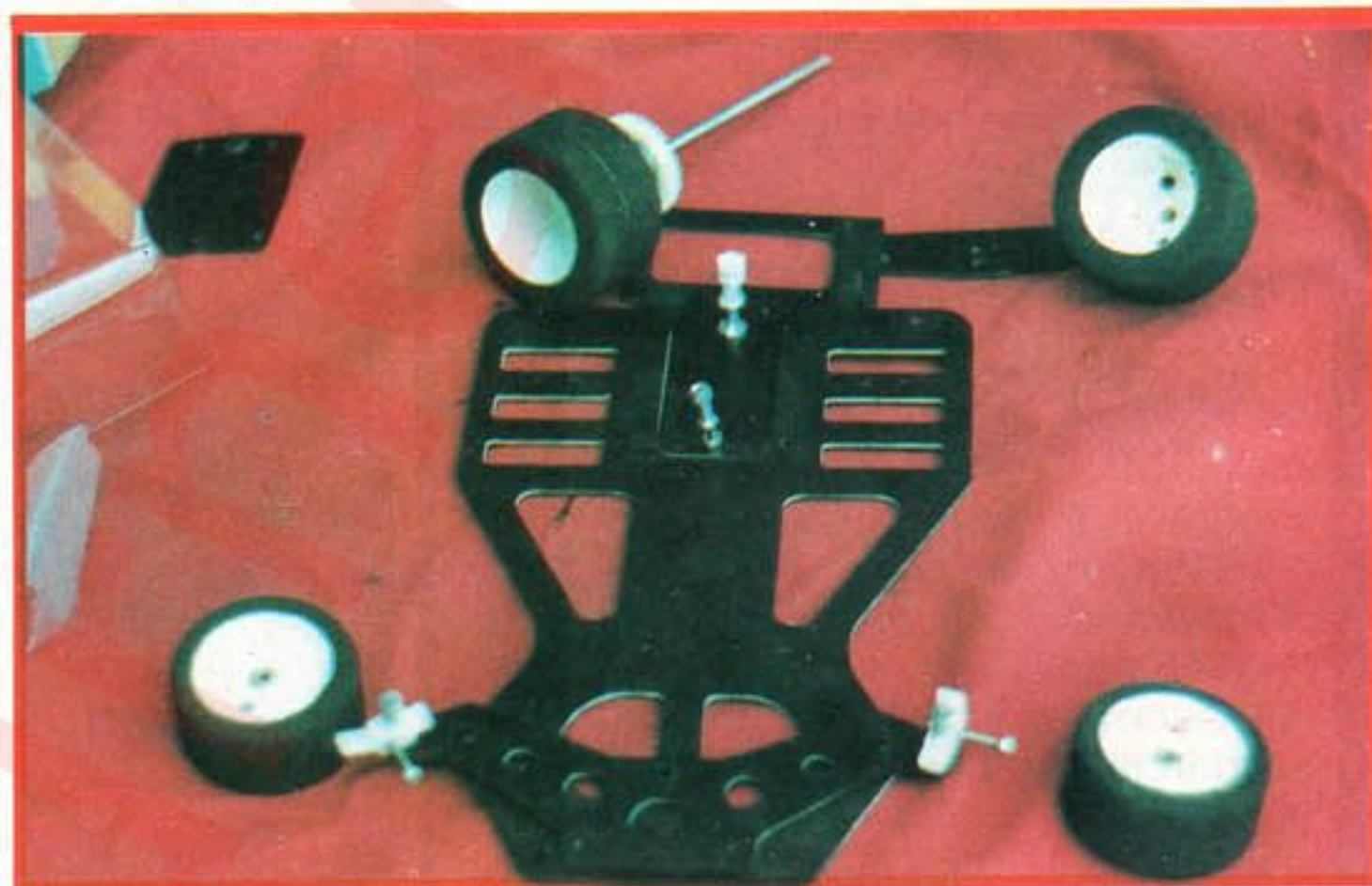
Expiry Date



The easiest way yet of keeping batteries held securely must be Bolinks battery blocks, simple quick and safe.

Left, the saloon shell really gives the Eliminator an aggressive look, a simple three colour scheme added to by the simple but very effective measure of adding the headlights.

Nice to see that Bolink like other manufacturers have kept the complete layout neat and simple, the very essence of what 1/10 circuit racing is all about.



Kevin Griffin reviews Bolinks latest addition to this fast growing, new, exciting formula.

ELIMINATOR

1/10 CIRCUIT RACER

Suspension is provided for the rear of the car by these two oil filled dampers, they are very positive in their action and extremely efficient.



As promised by Radio Race Car, here is another review on a car for 1/10 circuit racing. Again, it is a car originating from America, where this form of racing is already well-established and very popular.

The car for review is the Eliminator, produced by a well known company in the USA, but not so well known over here, Bolink.

Bolink have been producing cars right from the early days of Radio control car racing and are quite well known for their 1/12, cars so I think we will find that their entry into 1/10 will be a worthy one.

Now then, let's get down to the kit. First of all, we get a rather nice box to open. This bit is always exciting for me, it's just like

Christmas, not knowing what you will find inside. Well, I wasn't to be disappointed. What was to be found was a very complete kit indeed, complete with mechanical speed control and a Bolink motor, which looks to be very up-to-date Yokomo can with wet magnets and heat-sinks on the end bell. The body shell provided in the kit is a well-moulded Pontiac saloon, worth spending a few hours on with a paintbrush.

Congratulations to Bolink on their packaging. All groups of parts are sealed in their own plastic bags and numbered in accordance with the instruction manual, which I found was very well-written and everything very well explained, leaving you in no doubt as to where each part

should go. The only criticism that I have is, when assembling the differential, to have to read the instructions and look at a diagram two pages further on is difficult, but it is only a minor problem. Other than that, the instructions were good and for a change, written in American English rather than Japanese English.

The front end of the car differs from some other 1/10 circuit cars that we have reviewed, in that it does not have a beam axle. Instead, it has carbon fibre plate mounted on rubber mountings, to which the king-pins are bolted. The steering block sits on the king-pins with the stub axles pressed into them.

The chassis radio plate and rear T plate are again all made from carbon fibre. The chassis conforms to the normal configuration for 1/10, that is, the battery location is for saddle pack. The method that Bolink have come up with for holding the battery packs in the car is, I think, one of the best I've seen so far. It consisted of two white nylon blocks, one to be fitted to each half of your saddle pack and this is then held onto the chassis via two small screws, much better than actually taping the batteries into the car.

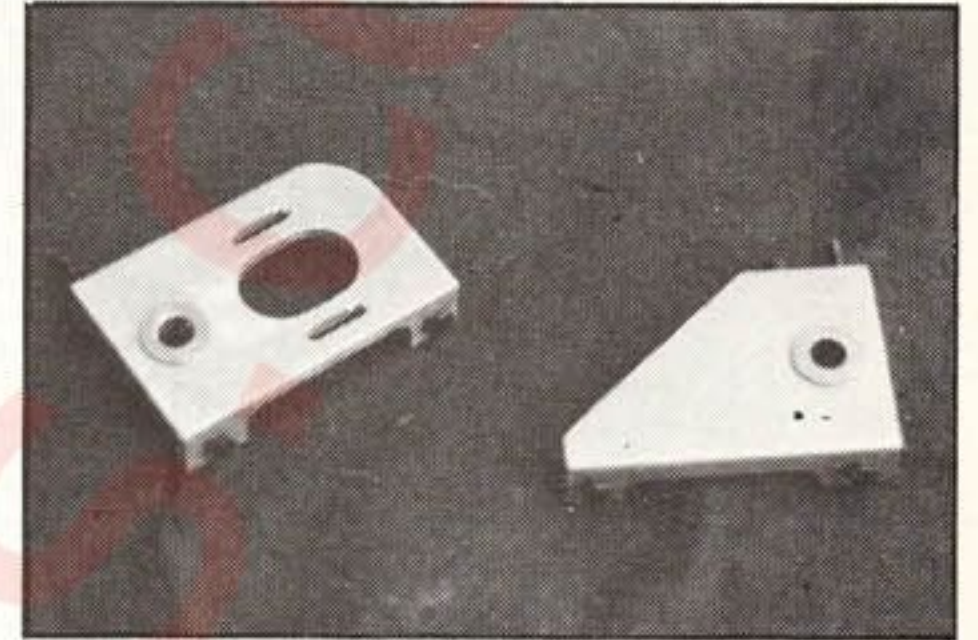
Assembly

The assembly of the car will take you a couple of evenings, plus another couple to trim the body shell, paint it and install the radio gear.

While on the subject of assembly, it would be pointless to go into great detail as the instructions are so well written and the assembly quite basic. If one follows the

three rear ones are rubber mounted so as to allow you to adjust the amount of caster you require. The normal setting is one or two degrees positive caster, ie. the king-pins should be just leaning towards the rear of the car. You will find that the more caster angle that you dial into your car, the more under-steer you will have. Once you have bolted the front of the car together with the steering blocks mounted on the axle plate, you can attach the two front wheels.

As the 1/10 car does not require much

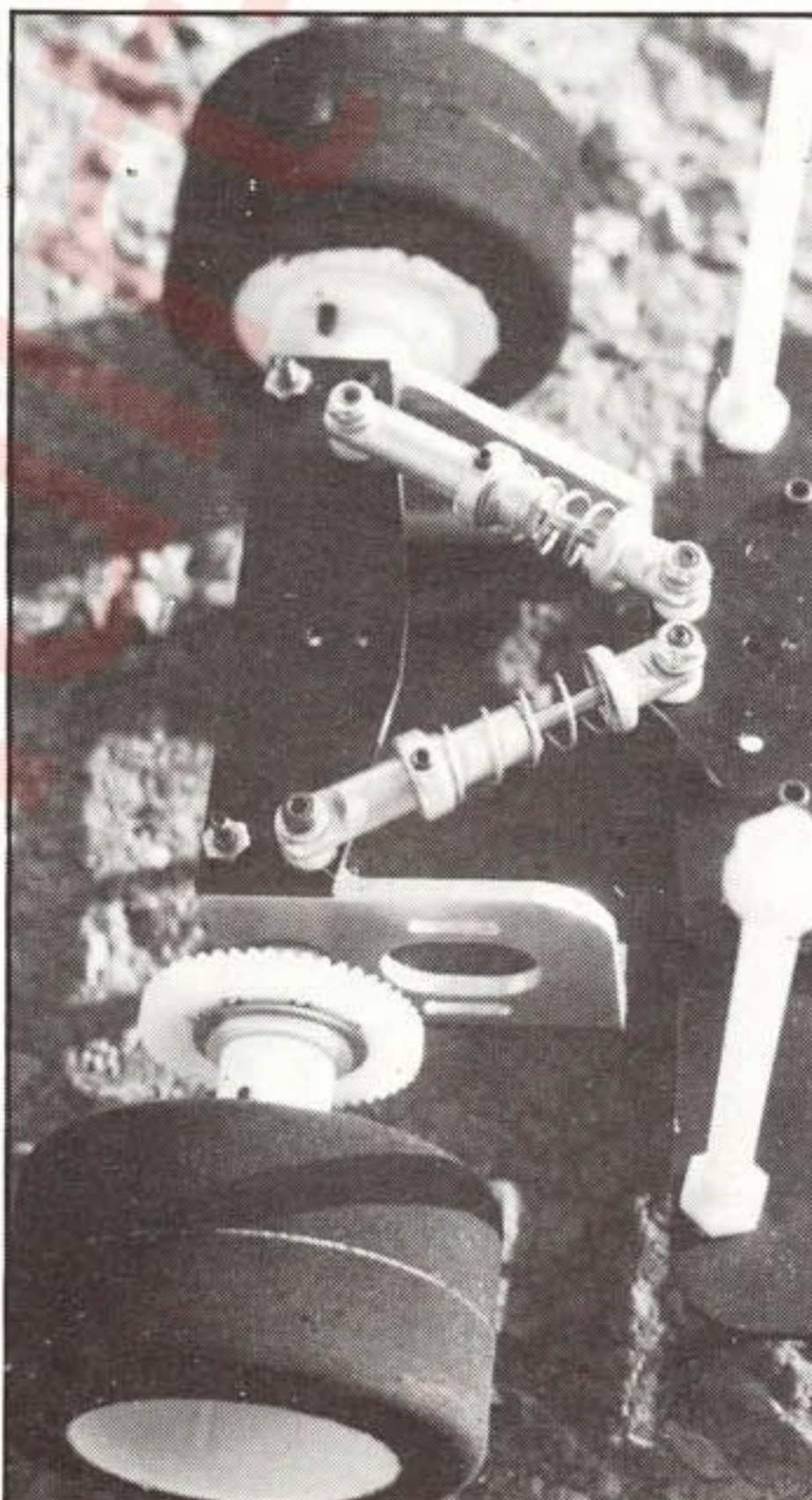


Top and below, alloy side plates act as motor and rear axle mounts, they are also a superb heatsink dissipating most of the motor heat. A top plate holds everything together and doubles as a damper mounting.



instructions to the letter, then you cannot go wrong. One point, the bearings supplied with the kit are a very tight fit in the motor and axle sideplates. It does say in the instructions to be careful pressing them in. The way to put them in was to place the sideplates one at a time in a vice with the bearing lined up in the start of the hole and then gently close the vice, checking from time to time, that the bearing is being pressed to the housing squarely.

The instruction manual starts with the assembly of the front of the car, the axle plate having a five point mounting. The



overall suspension travel, you will find that on the front of the car, the only suspension movement is governed by a small spring keeping the stub axle assembly under tension, allowing it to move about 1/4 inch up and down. Now we have finished with the front of the car, let's tackle the rear.

Two axle mounts with bearings fitted are held onto the T plate by four screws in all. These four screws must be locked in with the Threadlock. Loctite 242 is one of the best on the market, but I am sure that there are other brands that will be just as good. If you don't Threadlock these screws, the vibration will loosen them. Next step is to assemble the shocks. These are quite nicely

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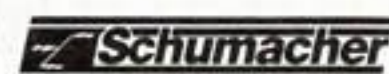
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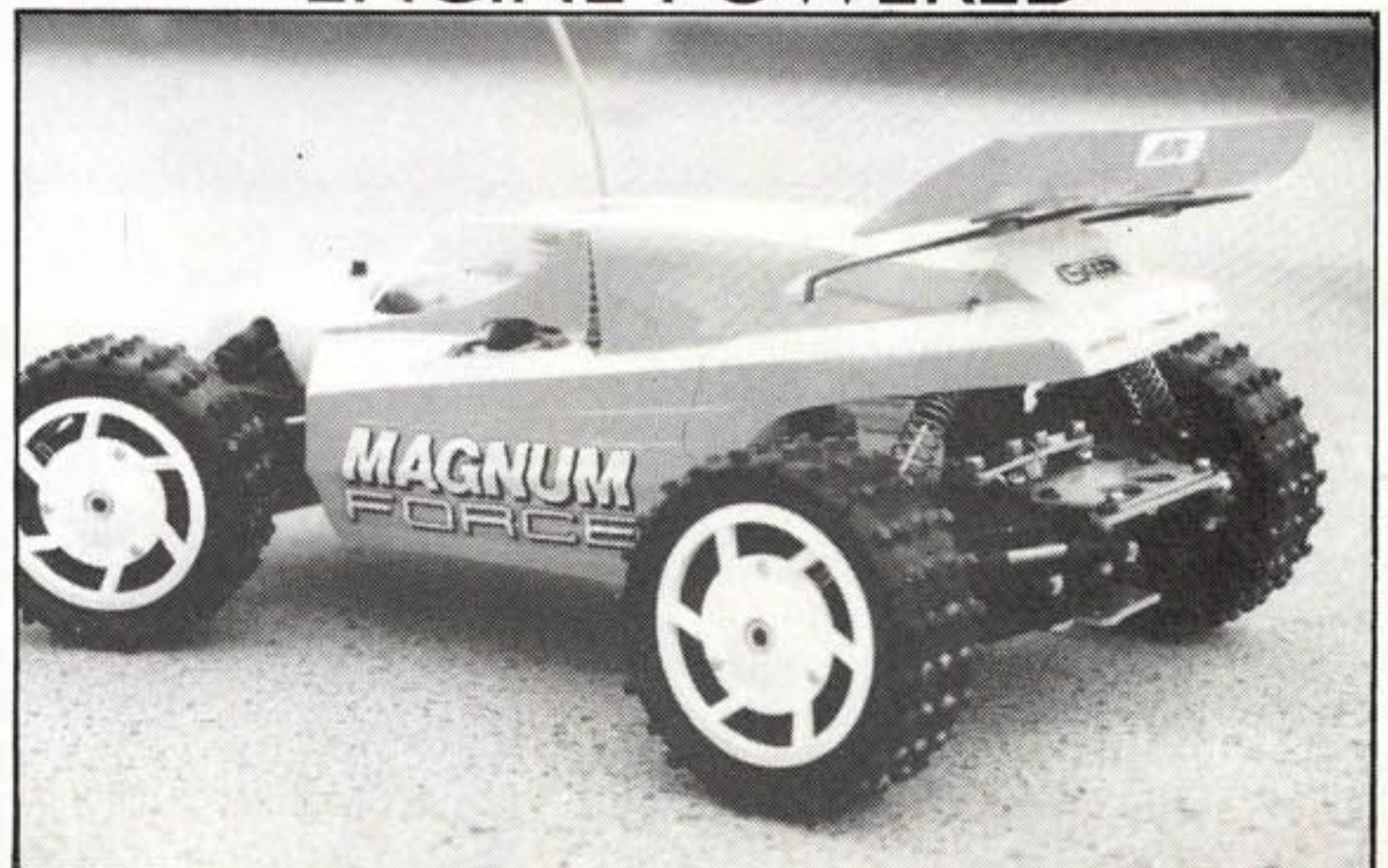
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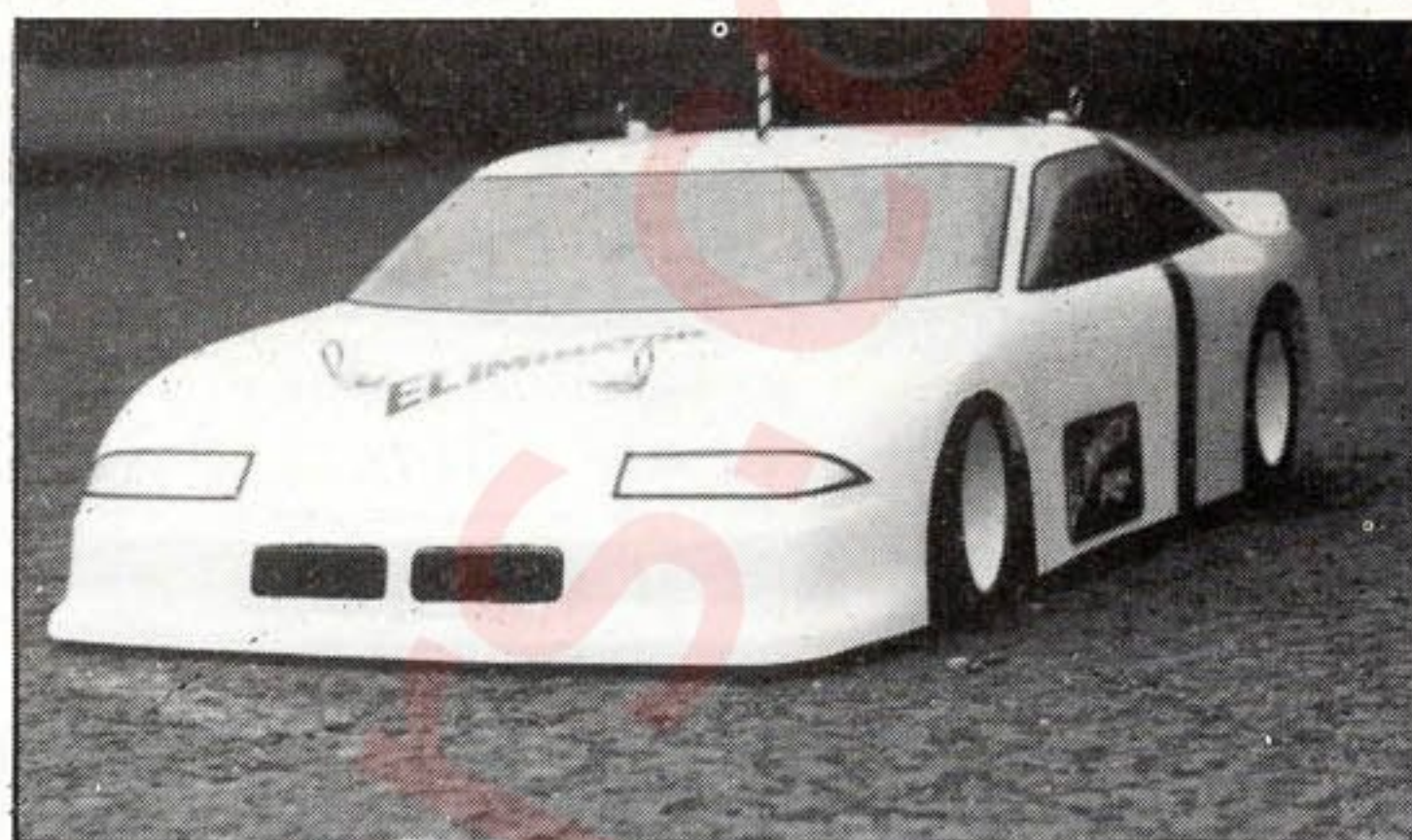
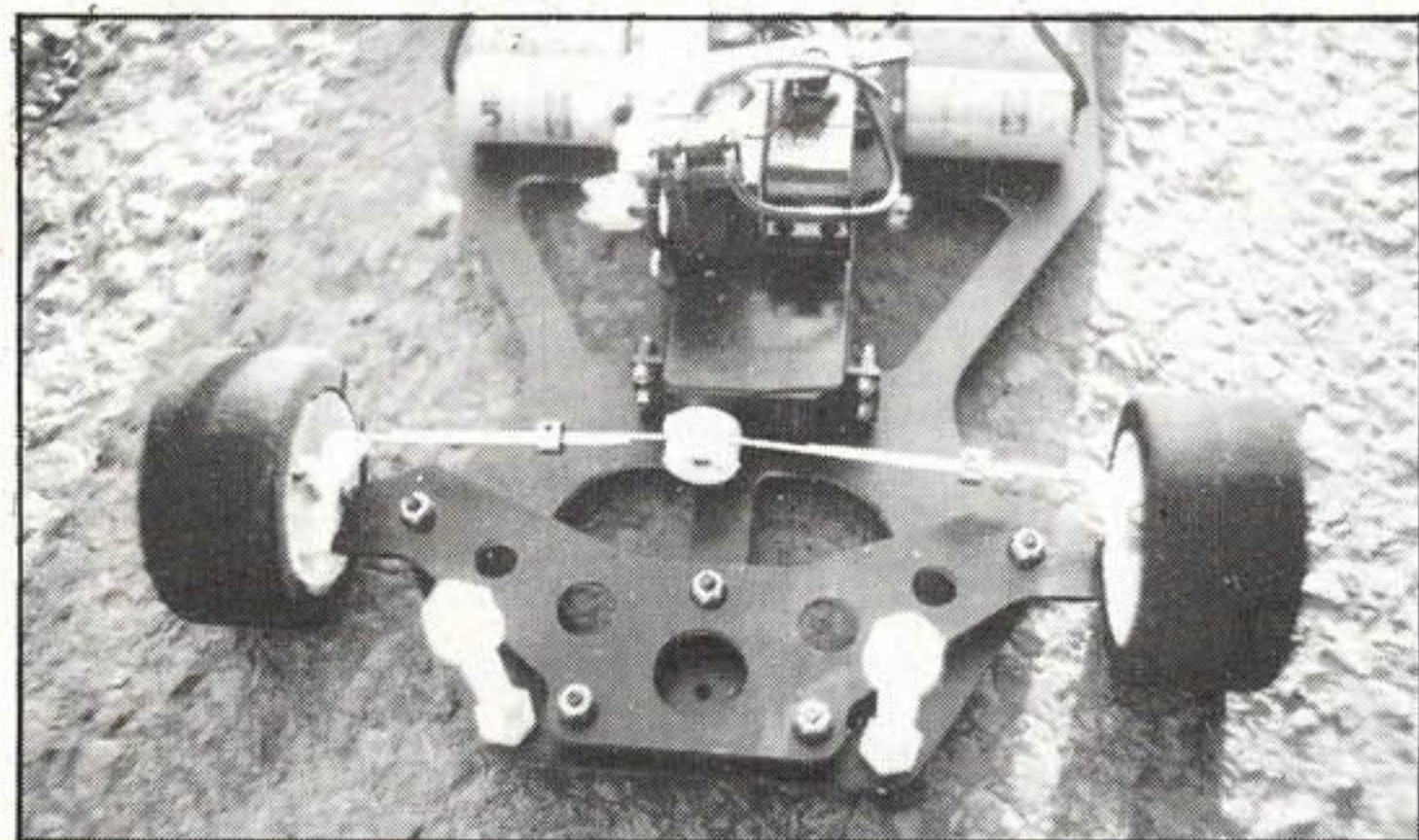
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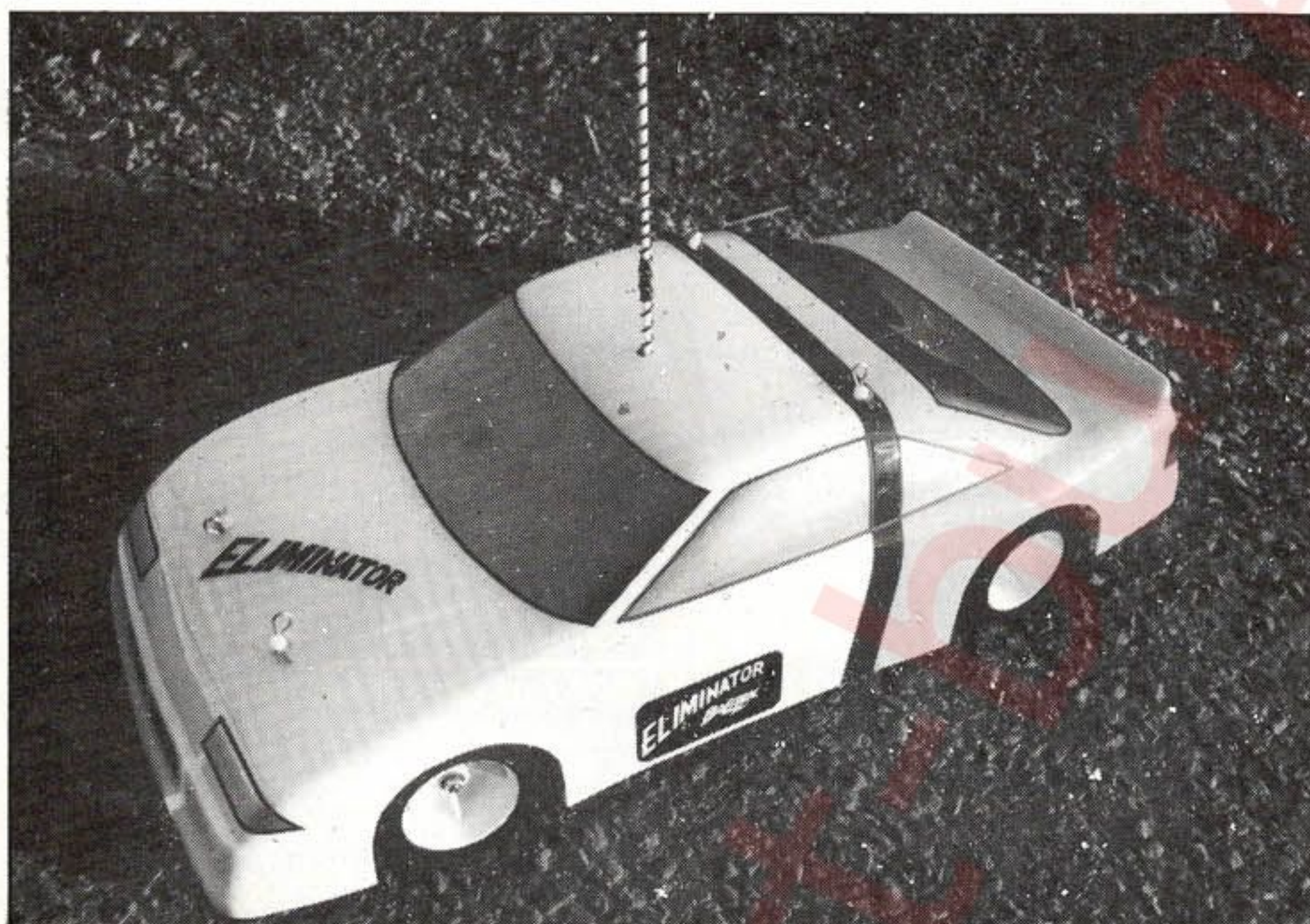
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Above, the beam axle is adjustable for caster by wedges or shims placed at the leading edge before it is tightened down, around two degrees is the norm. Right and below, once the body is painted, the car takes on a very aggressive look indeed.



to the chassis.

The last step of the construction of the basic car, is the rear axle which is again carbon fibre to which the ball differential is attached and the two aluminium hubs. Once assembled, you will find the ball differential is very nicely engineered and smooth in its action.

Now the car is basically finished. The only thing left between you and all the other miniature Derek Bells, is the installation of the electrics. I decided to call this stage electrics rather than Radio installation for two reasons. One is that the kit provides you with a motor and two, it also includes a good quality wound resistor type speed control.

Now, a number of you will say that, "Oh, I won't use that speedo, I'll just put my electronic one in." Well, I thought I would use the resistor type provided and, believe me, it is very good, providing you use a very smooth forwards action, with good braking and a full power reverse through a micro switch. You have to assemble the speedo and mount it on the side of a servo, which is a little fiddly, but it is well worth it and I think you will find that it propels you along as quickly as the electronic equivalent. The rest of the radio installation is easy and any make of radio will fit with loads of room to spare.

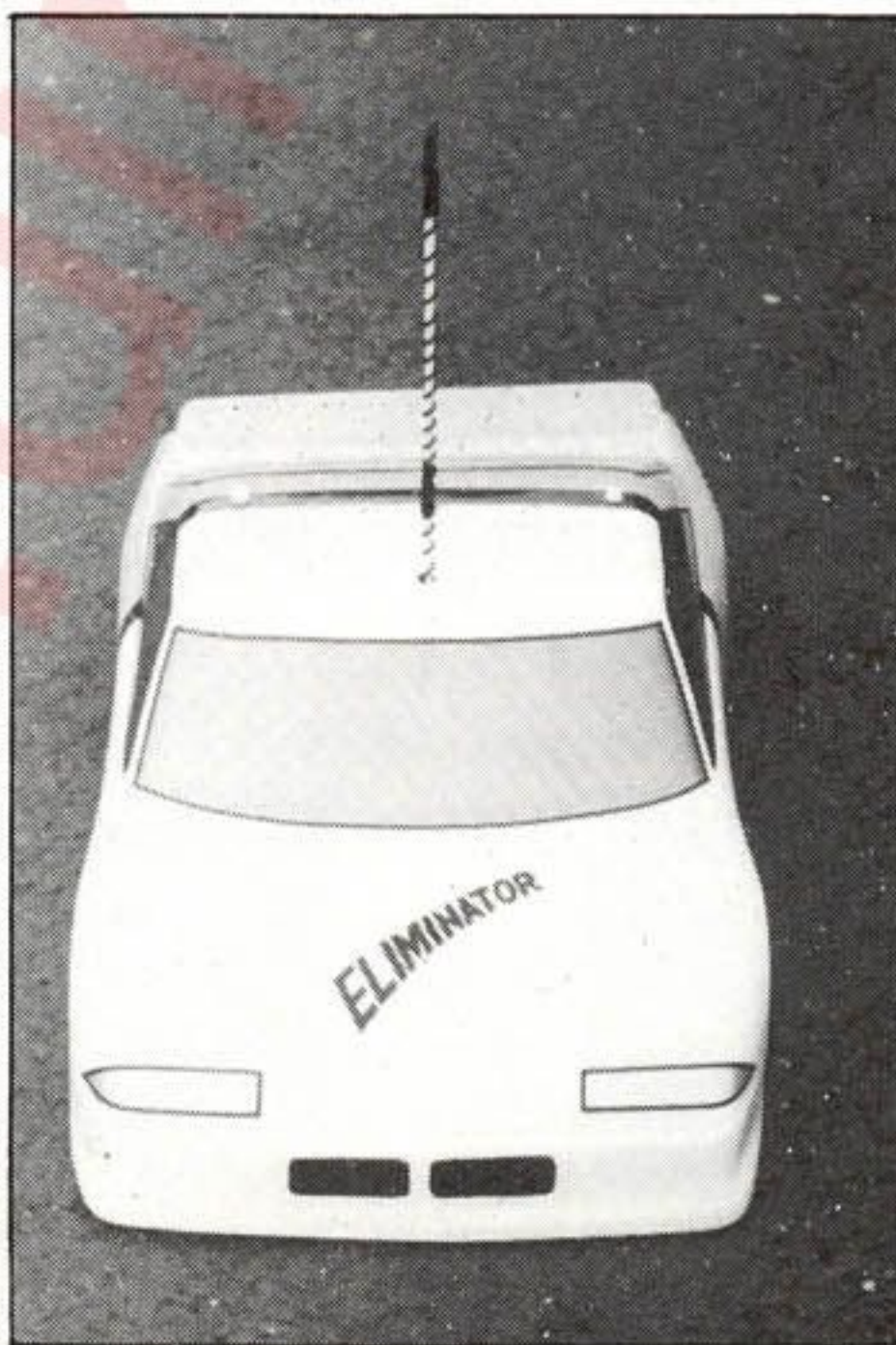
Well, that's about it, other than the running of the car. All in all, the car went together very well indeed, everything fitted perfectly. The instructions were very clear and easy to follow and I enjoyed building it (perhaps not as much as I am going to enjoy running it).

As regards the price of the Eliminator competition, it is £56.50 and well worth every penny. It is available from your local model shop or direct from Ted Longshaw Model Cars and spare parts are all ex-stock, as Ted reliably informed me.

A Clubman version is also available from Ted Longshaw with a glass fibre chassis, steel axle and oilite bushes for £89.95.

So come on all you 1/10 circuit racers, let's get some more meetings organised. This is still a very young form of car racing and so much scope for all you budding future champions. Just think, next year you could be the first British 1/10 circuit racer champion.

made. They are simple to assemble, with a good exploded diagram telling you all you need to know. This whole assembly then mounts to the main structure on two mounting points, the rear of which is a pivot that is adjustable, allowing you to adjust the amount of side roll, that is, the amount of twist the T plate has in relation



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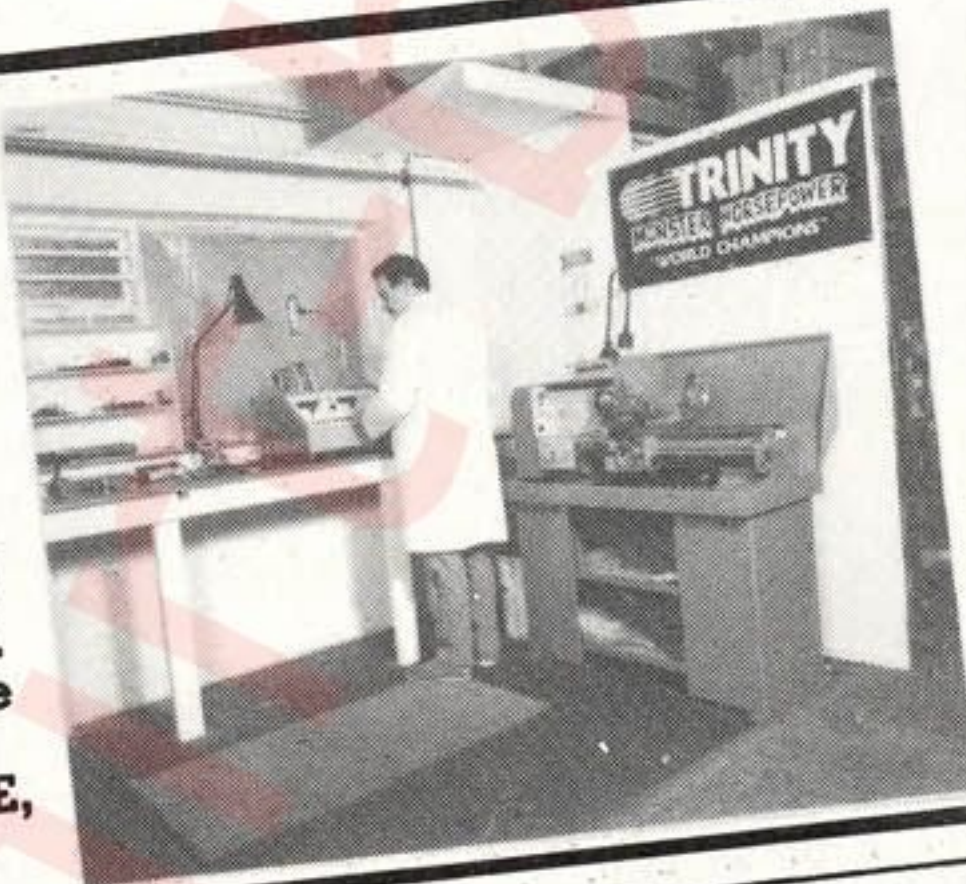
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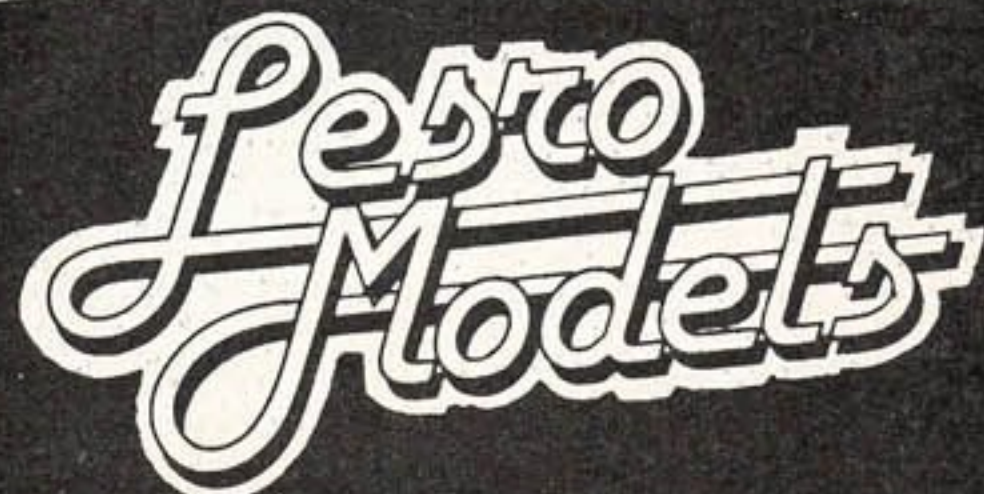
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ACCESS

CLUBMAN 89

Greg Halliday airs some different views on 1989 and invites your comments.

If you read Dave Pearson's editorial in the September 1988 issue of Radio Race Car and are not aware of what's going on, you are probably wondering what prompted him to make accusations that some drivers are cheating in the 1988 standard motor classes. Well, the truth is that if you are 'in the know', it is possible to obtain a so called 'standard' motor fitted with an armature wound with any number of turns you want. It is even possible, with a little knowledge and some considerable care, to open your standard motor and drop in your favourite modified armature. If the timing of the motor doesn't seem advanced enough, then a little tweak known as 'cranking' should put it right. And after all this, what are you left with? Possibly a nineteen turn so called 'standard' motor (remember 27 turn is the correct wind).

There are all sorts of other accusations flying around that 'works team' drivers are being supplied with illegal motors too and so if you follow the whole thing through to its logical conclusion, the demise of the standard class is inevitable. Or is it?

The Problem

For any sport to survive it must have a firm base and this is usually formed by a steady influx of new participants. The same philosophy applies to model car racing; it will grow at a rate relative to the increase in keen newcomers. When these newcomers have learn't the basics of the hobby, many want to try their hand at a competition or two and the first problems they usually come up against are; (a) the car is not competitive, (b) the rules seem very complicated, (c) lack of funds to get the right gear. So what can we do to assist these people and provide sport for the more experienced driver who doesn't want to spend an arm and a leg on his hobby?

What can we do to ensure we kindle the interest of the majority?

The Way Forward

First let me explain that the purpose of this article is to put forward proposals for general discussion in order that, hopefully, a new class of 1/10 'limited cost' racing can be started. Whilst mainly applying to 2 wheel drive, the ideas on motors and batteries could equally be adopted for standard class four wheel drive racing and even the BRCA standard classes.

My knowledge of model car racing stretches back to 1979 and surprisingly that's not long after the sport got under way. I have always striven to make my racing as economical as possible, but have still found sufficient funds to be competi-



The Associated RC-10 still out in front after nearly five years.

tive enough to win the odd trophy or two! However after reading this article some of you may well consider that I am talking through the top of my head, but if that prompts you to write to the editor with alternative ideas, then at least we may end up with a class of racing with rules determined by a large group and not, as I hear, so many drivers complain of, by a few people with some vested interests. Certainly this magazine is seriously considering implementation of a class run on similar lines in 1989.

Now let's consider a set of proposed rules.

Rule 1: The Car

ANY 1/10 OFF-ROAD BUGGY ALLOWED WHICH MUST HAVE BEEN DESIGNED AS TWO WHEELED REAR DRIVE ONLY, WITH A MAXIMUM RETAIL PRICE OF £120. IT MUST BE RACED AS SUPPLIED IN THE BOX WITH THE FOLLOWING ITEMS ONLY BEING ALLOWED TO BE CHANGED:

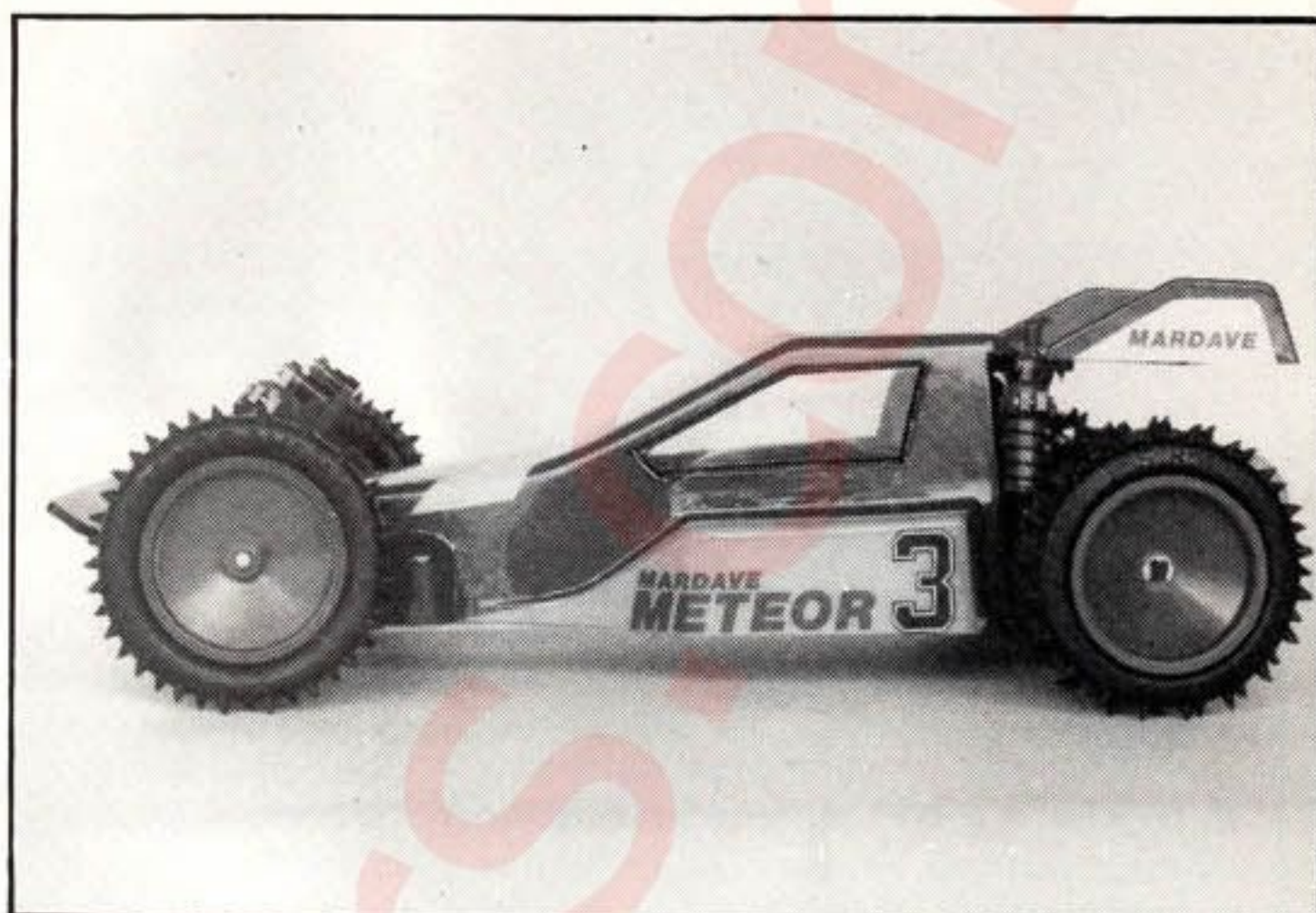
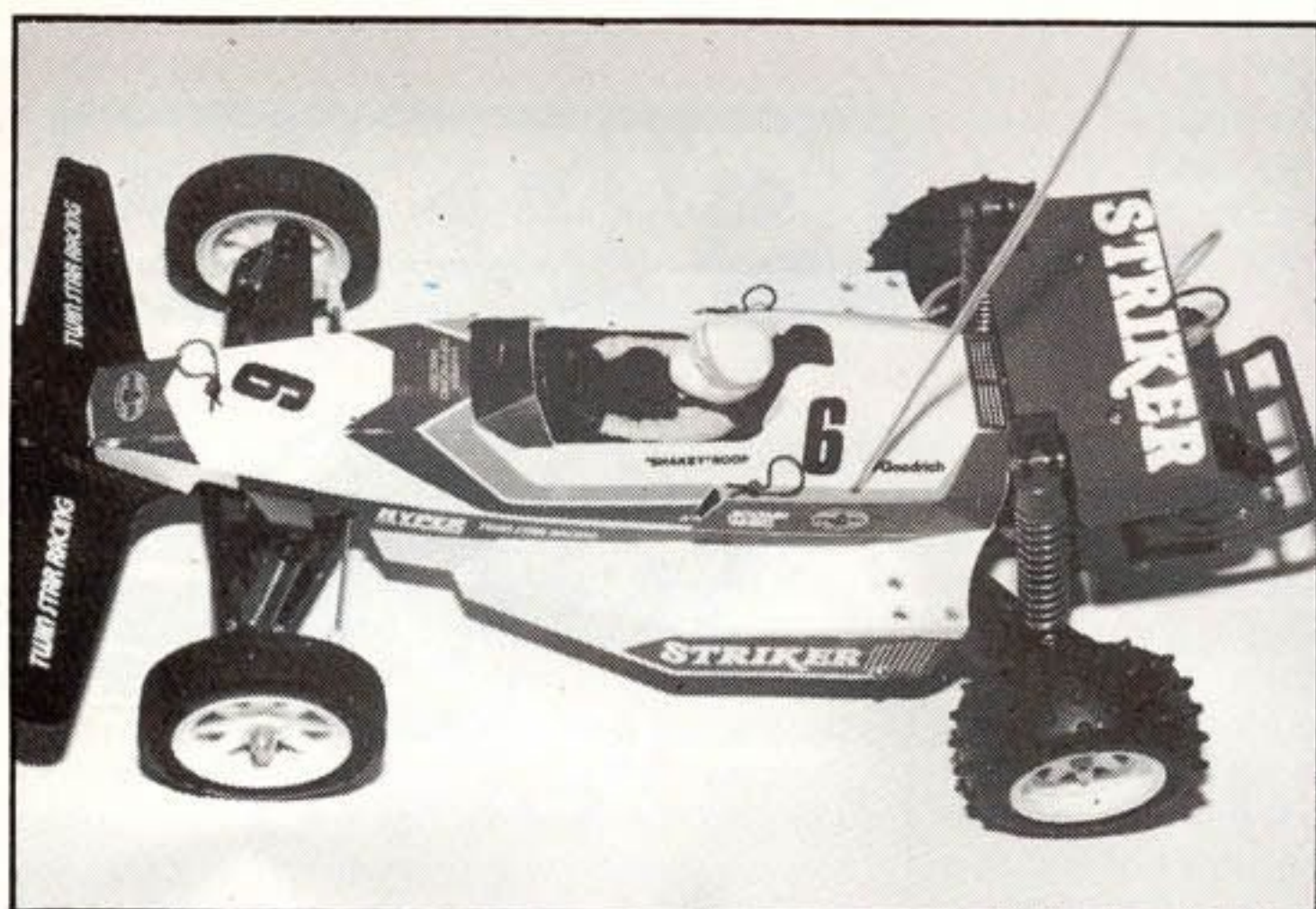
- A. WHEELS AND TYRES.
- B. SHOCK ABSORBERS AND SPRINGS.
- C. FULL-BALL RACING WOULD BE ALLOWED.
- D. BUMPER, MAXIMUM WIDTH AND MINIMUM WEIGHT AS DICTATED BY EXISTING BRCA RULES.

No other tune-up or chassis change

items would be permitted.

Let's now analyse this rule. You could consider a one-make class, but in my experience this seems to eventually stifle the racing. If a driver cannot succeed with one marque, he has the option to try with that provided by another manufacturer and although he still may not win, it keeps his interest alive.

Two wheel drive is the natural choice for low cost and ease of maintenance and I think it's important to specify rear wheels only driven as you can bet your bottom dollar, eventually some clever manufacturer will design an all conquering front-wheel drive car that will make the opposition obsolete! A price limit of £120 includes all the current favourites such as RC 10's, Ultimas and Meteor's. Some of Tamiya's products would also be eligible and maybe even the secret new Schumacher! Okay, so you can't fit the latest graphite saddle pack chassis, shock towers and super extended suspension arms, but if that's what you need to make a competitive car, then you still have the option of utilizing all of them and more, but running in the existing modified class. The main handling improvement on the standard RC 10 is the fitting of Tamiya 'Fox/Wild One' wheels and low profile tyres (we should have to allow spacer/adaptor rear wheel fixings



Two more examples of cars that are acceptable under these proposals are Tamiya's Striker and Mardave's Meteor. Examples of both car types must be in the hands of hundreds of young would be Jamie Booths itching to race them.

and probably lengthened front wheel stub axles on the RC 10, better ride is achieved on the Ultima by the fitting of Option House shock absorbers, and the Meteor too benefits by a change of shock absorber. By the end of the year the latest revised suspension, long wheel based Meteor kit should also be available. This car is very similar to the one driven to success by Steve Jones in Radio Race Car/WDA Grand Prix in June. If you don't already know, Steve gained first place and FTD in the 27 turn standard class (with a genuine standard motor) and was second only to Jason Varley in the modified class. I am sure you'll agree it goes to prove you don't need to spend a lot of money in order to win! In fact, that weekend 5 Meteors appeared in the 'A' finals (for sceptics; it wasn't a track Steve knew, practicing was not permitted and he doesn't even normally race two wheel drive class).

Rule 2: The Speed Controller

EITHER MECHANICAL OR ELECTRIC TYPES MAY BE USED, WITH A MAXIMUM RETAIL PRICE OF £65.

Why a maximum of £65? Here is an area where the cost/performance ratio is high. For example, comparing two different high performance models produced by the same manufacturer, it costs £70 extra to prevent approximately 1/24 volt drop across the controller; this is equivalent to £10 for every 0.0064 volts saved! Since the BRCA cost control rule was dropped new 'high-tech' electronic units have become available, but they cost more than twice the price of the units from which they evolved. I really don't think these are necessary at this level of racing. To make life easier for the scrutineer, it would probably be a good idea to form a list of approved units.

Rule 3: The Drive Batteries

ANY TYPE OF 7.2 VOLT SUB 'C' NI-CAD CELLS ARE PERMITTED, BUT ONLY TWO/THREE PACKS WILL BE ALLOWED PER MEETING; THEY MUST BE OFFERED FOR MARKING BY THE SCRUTINEER BEFORE COMMENCEMENT OF THE EVENT.

Battery control has been a most difficult area and it wasn't too long ago that a maximum cost of under £20 was imposed, but with the advent of the 'super' cells such as SCR's (and now SCE's), policing the rule became virtually impossible. I am sure it

would still be a great problem and that's why I consider control of the motor is the area to concentrate on. Restricting the number of packs will probably cause a lot of controversy, although in 1/12 racing the restriction of two batteries has been around for a number of years. Personally, I think that with the higher current drain of 1/10 racing, a maximum of three packs should be allowed, but I throw this open to discussion.

Some of the more technical amongst you will be saying that the batteries lose efficiency if they are used more than once per day, so my next comment is likely to cause a lot of controversy! I have asked quite a number of the longer term (I won't say older because I might upset some of them!) racers whether they consider that ni-cads perform better on their second charge of the same day, or not. In the main, the answer was yes and the remainder were not sure, but nobody said they were worse. There was general agreement that the third charge was not quite so good. Some of you are probably shouting 'rubbish' by now, so I thought I'd better investigate a little further before letting my case rest.

One racer had access to very expensive test and monitoring equipment and so I asked him what were the results of tests he had carried out. He commented that packs do appear to give slightly higher output (read speed), on second charge, but the capacity (read duration), is reduced. However, as far as I am aware, no test equipment can simulate the widely varying current drain that occurs on the track and perhaps that actually is what makes the difference. The cars appear to go faster and run longer and it certainly isn't because the driver has learnt the track! I bet some of you are already reaching for pen and paper; remember I said some comments will upset a few people!

Rule 4: The Radio Equipment

ANY MAKE AND TYPE OF RADIO CONTROL EQUIPMENT CAN BE USED, BUT IT MUST OPERATE ON EITHER 27 MHz or 40 MHz, THESE BEING THE ONLY BANDS PERMITTED FOR SURFACE VEHICLES.

'Why bother with a rule for radio equipment?' I hear you ask. Well occasionally some entrants have turned up at competitions with 35 MHz sets; these are only permitted for model aircraft use.

When one driver was asked why he did this his comment was: "No trouble queuing for practice, mate". This is a thoroughly foolish, selfish and positively dangerous attitude. Model fliers usually will not use 27 MHz sets if they know car racing is taking place in the vicinity, but they will use the frequency they know is assigned for them. The range of a transmitter is increased dramatically surface to air and the irresponsible car racer could cause a high powered model aircraft flying at 70 mph+, with a sharp whirling propeller rotating at 20,000 rpm, to go out of control with serious, or even lethal results. I know these comments are not strictly to do with the rules, but they must be said.

Anyway, you do not need to spend a fortune on radio gear, although I must admit the all singing, all dancing units can make life easier when carrying out installation. Any good quality unit can be used quite successfully. I have used a Futaba 131 SH servo now for over two years; it's very fast and reliable and I can thoroughly recommend it, but unfortunately they now cost £50. Looking around, there are a few good alternatives at less money, the new Acoms mini AS10 being a good example at around 128. It is excellent value offering similar performance and torque to the 131SH, although it does need waterproofing if fitted in an exposed position. Two large phosphor bronze brushes are fitted to the output arm.

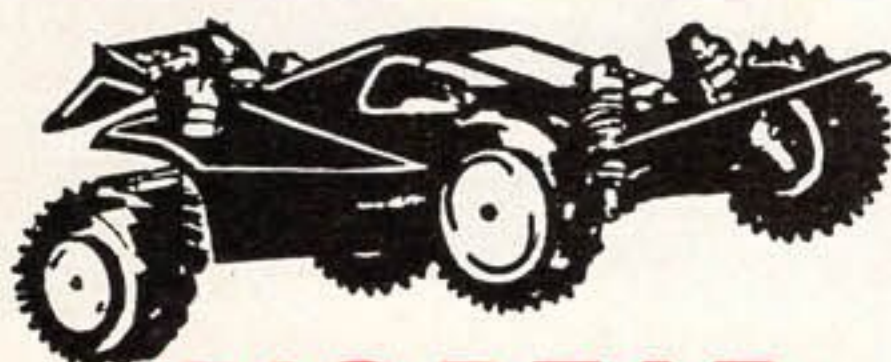
Rule 5: The Motor

So finally we come around to the major problem, how do we stop the cheating? One proposal suggested to me was to limit the supply of the motor to one manufacturer. By doing this there would not be any reason for the 'works team' to specially select motors as the supplying company would not have to prove their product was better than the competition! Nice idea, but I am afraid that it wouldn't stop the individual from cheating and I don't think the remaining motor manufacturers would be too happy about the idea!

Motor technology really is a complex subject and so I decided the best approach would be to consult a motor specialist, Mick Goddard of MG Model Products, with the problems. His comments follow:

"The object of your exercise is to obtain a motor specification which meets four major criteria:

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Obviously the first two criteria are inter-linked and there is a band of specifications which gives the best compromise between performance and working life. This would appear to be in the area of twenty turn winds, as although more performance is obtained below this number of turns, an increasing reduction in brush/commutator life is experienced until you get a situation where at current full modified specifications (16-15-14 turns), useful working life before noticeable performance drop off occurs is after about four to five competitions. I would think this useful working life



Motors have been the most controversial subject this year in the standard class, here we see an example of Schumacher's new Ultra Stock, a very good 27 turn wet mag motor.

could be extended to months if a specification around twenty turns were chosen, as was the situation when motors of this type were used in the standard class some years back.

A point I feel worth raising at this time is that going for a milder wind specification does *not* derive improved working life. This observation may seem a little strange at first glance and certainly a BRCA annual general meeting changed the then standard rules in the belief that moderating specifications to 27 turn motors would improve working life. This somewhat confusing situation hinges on the variation in difference between best performance gearing and best working life gearing for the two types. In the case of motors of around twenty turn specification, best performance and working life gearing are very similar, which in real terms means that attempts to obtain more performance from them by gearing up actually reduces the performance of the car on the track. Conversely in the case of twenty seven turn motors, the higher you gear them, the faster they go and the shorter running time. I won't go too deeply into why this is the case, but it principally hinges on the higher peak torque curve figure of twenty seven turn motors when compared with lower turn set-ups and the actual current drawn when you push the operating RPM of twenty seven turns motors deeply towards this peak (ie. gear up on pinion size), whilst still keeping it sufficiently low to be able to make the five minutes running time. Actually one way to stop many of the twenty seven turn standards cheating problems would be to increase the heat times, but that's another approach altogether!

Now, how do we determine what is a legal motor for the new class and be able to check it? This is a really thorny problem, as I feel not many people like the idea of getting another competitors motor dismembered as was the situation in 1/12 racing. Consequently, certain unscrupulous people appear to have taken advantage and stretched this point to its limit!

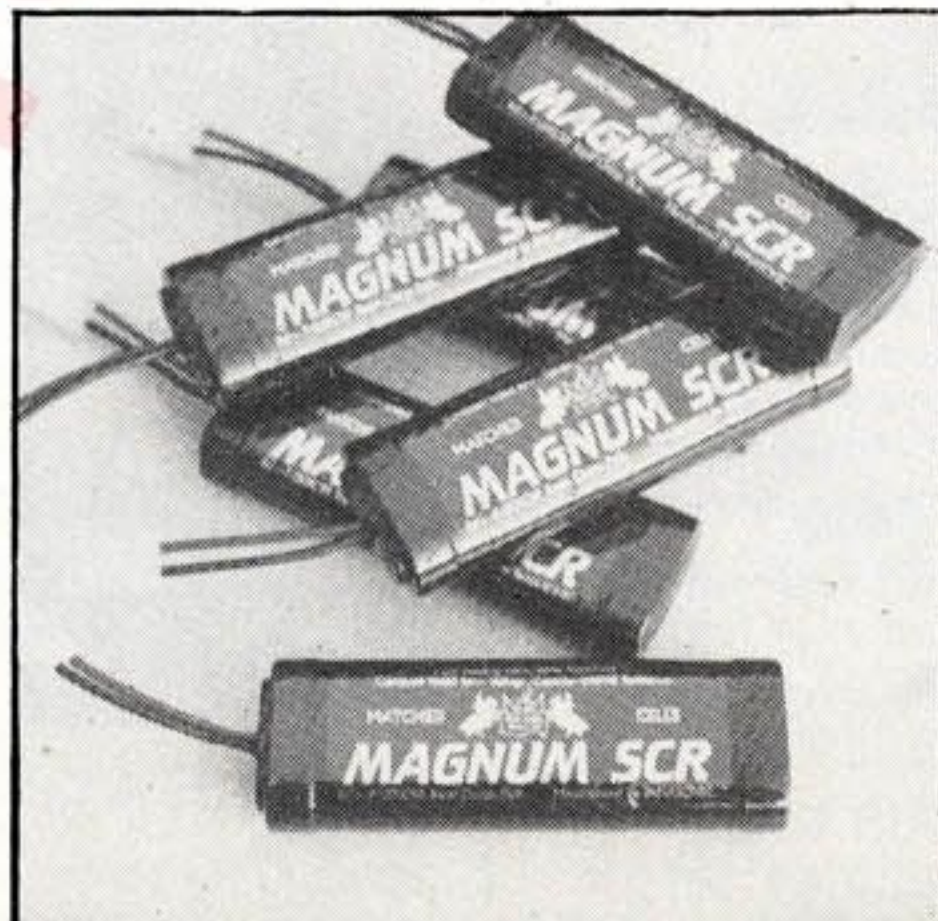
We need some form of testing which can be carried out trackside by the scrutineer without too much difficulty. I have given this problem a lot of thought and consider that current consumption testing is the most reliable method. To establish what parameters could be set, I have carried out some tests. The equipment used in my tests is the same as I would suggest the scrutineer uses, namely: 6 inch x 3 inch propeller on a 1/8 inch shaft driver (Windsor Manufacture on test), an ammeter reading over 20 amps and a 7.2 volt DC supply (an average pack of SCR's were used giving a nominal voltage of 8.5 volts, which dropped under load to approximately 7.2/7.3 volts).

A properly set-up 20 turn motor was first tested as this gives best performance and highest current consumption. The motor was set at various timings and at a timing one would expect to give best results, an initial cold current consumption of 20.5 amps was experienced, with a drop back after only a few seconds running to 19.5 amps. 18 turn triple and single armatures were tried and although consumption figures of under 20 amps were obtainable, it was not with a timing that one would normally expect to give good performance for this wind. Finally, a 17 triple was tried, again with a good commutator condition, but it was not possible to get a reading of below 20 amps from this wind.

These figures indicate that a maximum allowable consumption of 20 amps (144 watts) when tested, as previously described, would be the format to go for. This would enable non destructive testing with all its inherent benefits to be used and I'm sure checked propellers and ammeters calibrated against reference units would become commercially available very soon, should this method of checking become broadly accepted.

A final qualification is required; fully cut down brushes should not be permitted, as with these it is possible to use a slightly hotter wind, but still not exceed the current consumption.

Well do you get more power from your cells the second time around? Your thoughts on this or any of the topics discussed are welcome.



So we have the means to resolve the cheating problem, but at what cost? A detachable end bell and ballraced case would be best due to the fact these can be rebuilt when performance has deteriorated and they can also be timed to give the legal consumption. I believe that this type of motor could be offered by manufacturers for under £30."

Well now we have derived a means of ensuring all drivers have similar power units. Before any meeting, the scrutineer would offer competitors the opportunity of having their motors checked to ensure legality and all motors would be marked by the scrutineer. Between heats the cars would be examined to see that only the marked motors are being used and at the end of the 'A' final the first four cars would be taken straight from the track and given to the scrutineer. As the current drain of a motor is less the hotter it gets a cooling down period (say 10 minutes), would take place and then competitors would remove the motors from the cars, again observed and the aforementioned checking procedure carried out. If anyone is caught cheating then he is disqualified, therefore it would be important to ensure the motor is set-up to draw slightly less than legally permitted.

Okay, let's now then word the rule:

ONLY 540 SIZE MOTORS DRAWING A CURRENT OF LESS THAN TWENTY AMPS WHEN FITTED WITH A 6 INCH x 3 INCH PROPELLER AND OPERATED ON 7.2 VOLTS WILL BE ELIGIBLE. CUT DOWN BRUSHES WILL NOT BE PERMITTED. THE MAXIMUM RETAIL PRICE IS NOT TO EXCEED £30. NO MORE THAN TWO MOTORS ALLOWED PER MEETING.

Of course, some people will say that a motor costing around £30 is virtually a full blown modified, but I am assured that motors of the specification proposed could give a useful working life of around six months if kept clean! It therefore has to be argued that they would be more economical if kept clean! It therefore has to be argued that they would be more economical in the long term, particularly as the unit could be overhauled when the performance dropped off. Plain bearing versions of the motor could also be manufactured and this would be very useful for the driver with an extremely tight budget. Even this type can be overhauled because opening the can would not make the motor illegal.

Where Now?

Perhaps at last we've cracked it! A genuine clubman class where cheating could be a thing of the past and the winners will be the best drivers without needing loadsa money! I said at the beginning of the article that some of you might disagree with my comments, but please remember this; I am most sincere in my wish for fairness to all parties, both racers and the model trade, we need each other. At the moment all sorts of accusations are flying about that so and so model shop will provide a motor with any armature you want and so and so manufacturer is handwinding 25 turn motors. Let's get rid of this agro, we don't need it. Remember, it's a great hobby and it should be fun!!

Now, let's hear whether or not you support my proposals. Talk about them at your club, track, model shop, maybe even the BRCA and Model Car Club Association and finally write to the editor with your comments.

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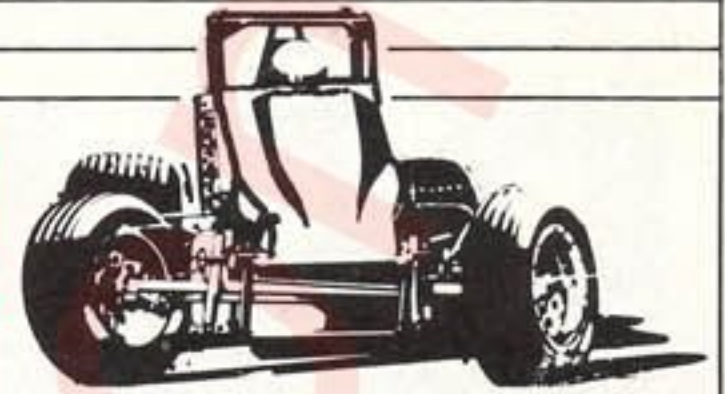
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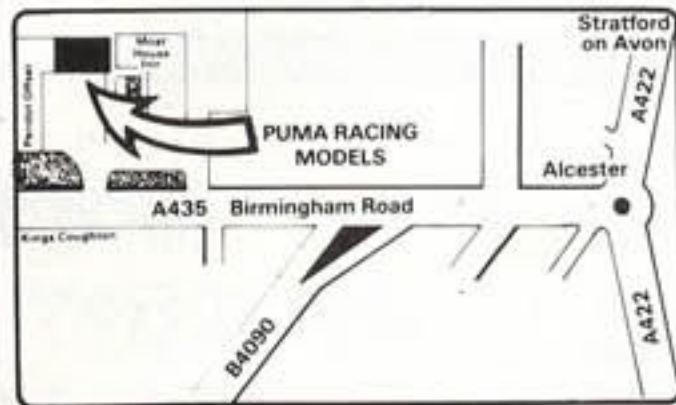
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Bob Errington's

PIT PATTERN

This year it was the turn of the Italians to stage this prestigious event and they chose to run it at the Monsano circuit near to Ancona on the Adriatic coast.

The distance involved must have put many English drivers off and as a result we did not fill our allocation which may mean we lose numbers for future years. Three of our drivers had not been to a Euro Champs before and to these we should extend our thanks for trying to keep the quota up. Several of our drivers are concentrating hard on trying to qualify for next years World Champs in the much nearer location of Holland, but it should be remembered that, the only reason we get allocated the number of drivers that we do get is because of the number of competitors that we have always sent to major events! I.e. if no-one attends Euro Champs meetings then we will get no places allocated for World Class events.

For many years we had the largest numbers at these meetings, only to be eventually overhauled by the strong Italians. But here in Italy, we had sunk to a joint fourth.

Italy was top, as you might expect, with a grand total of 20 drivers with the fourteen countries participating turning up as follows:

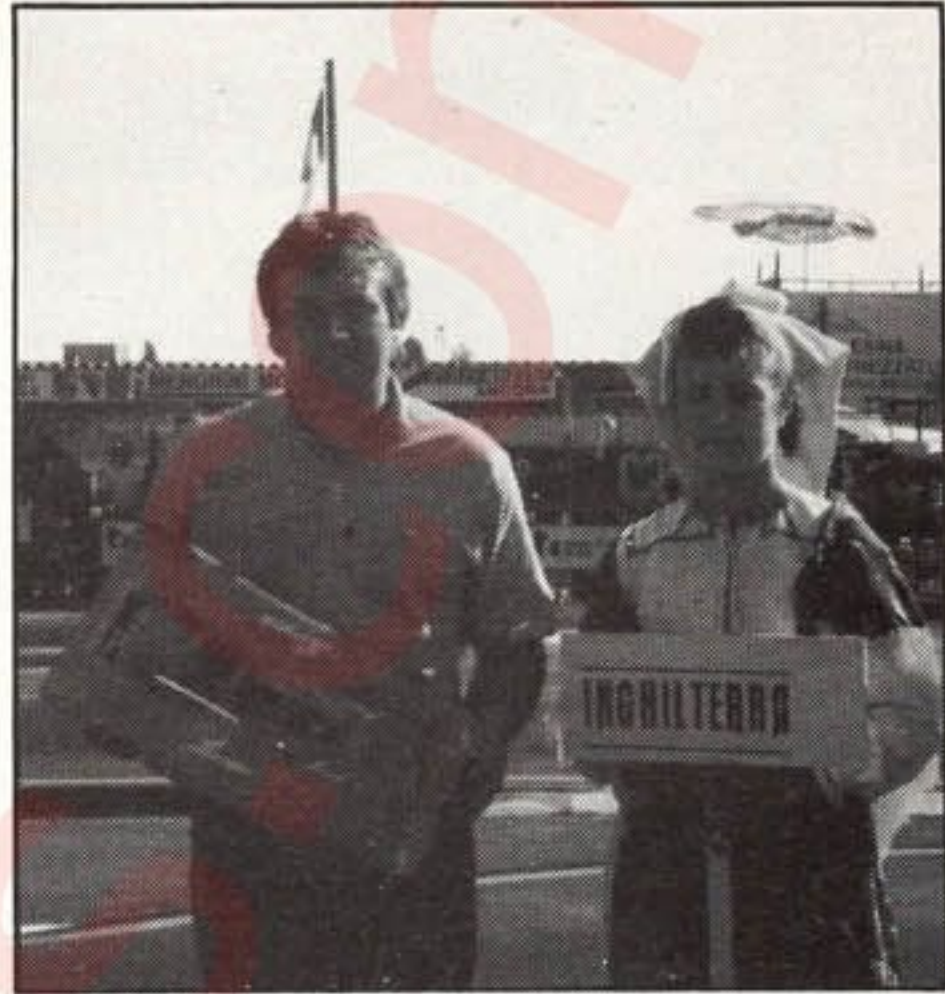
Italy	20 Drivers
Germany	13 Drivers
France	11 Drivers
Switzerland	10 Drivers
England	10 Drivers
Sweden	7 Drivers
Holland	6 Drivers
Denmark	5 Drivers

Belgium	5 Drivers
Austria	3 Drivers
Luxembourg	3 Drivers
Spain	3 Drivers
Monaco	2 Drivers
Yugoslavia	2 Drivers

This being the first time that Yugoslavia had entered an EFRA meeting, they were officially welcomed at the opening ceremony.

The English team consisted of, in alphabetical order; Murray Collins, Dave Dixon, Roger Doran, Bob Errington, Dennis Jones, Paul Pagdin, Nigel Sayles, Mark Stockford, Colin Straus and last but not least, Steve White. Out of this ten we had 6 Serpent Sprints, 3PB Phoenix and 1 SG Space with consequentially 6 'S' power engines, 3 Nova Rossi's and one Picco. Most of the team drove the 1100 odd miles each way, with Dave Dixon actually being brave enough to tow a caravan as well! The rest of the team elected to fly down to Bologna airport and then take a hire car for the mere 180 remaining miles.

Those that drove, started to encounter the much warmer temperatures from central Germany onwards and to give you some idea of the temperatures, just after our car load of four had entered into Italy, we stopped at a service point to take on liquid refreshment and had to part unload the rear of the car. Imagine the thoughts then when we noticed that the plastic wishbones on the Serpents were actually sagging with this heat and loading the suspension springs. Further investigation only showing that the plastic was more



Lone Englishman Steve White representing us in the final.

akin to the rigidity of a jelly baby! The temperature in the car? Well in the passenger area it was showing about 100°F, in the shade! Who knows what it was under the glass at the rear of the estate car!

The journey south through Italy took us into Modena and we took the opportunity to try and find a Hotel for the night. To no avail, but we did pass the Maserati factory and one of Ferrari's, also pausing to stop and stare in the roadside showroom full of Testa Rossis, GTS's and a sole F40! And to think that only some two weeks later we would hear that Enzo Ferrari had passed away. The end of an era, perhaps things at Ferrari would change now!

To all of you who are now worried that we hadn't found a Hotel, let me tell you that all was well in the end. The Italians though do have some strange customs, like putting signs up showing the way to a Hotel and then suddenly there are no signs and no Hotels either! We followed several of these till we eventually concluded that either some silly had swopped all the signs about, or that this was like Spain where it is common place to find your booked Hotel doesn't exist. Either way, we eventually passed one on the 'A' road to Bologna which we duly stopped in. It was a pleasant surprise to find the rooms air conditioned and very cheap at that. The good nights sleep that we got was much appreciated, we wouldn't know how much so till later in the week!

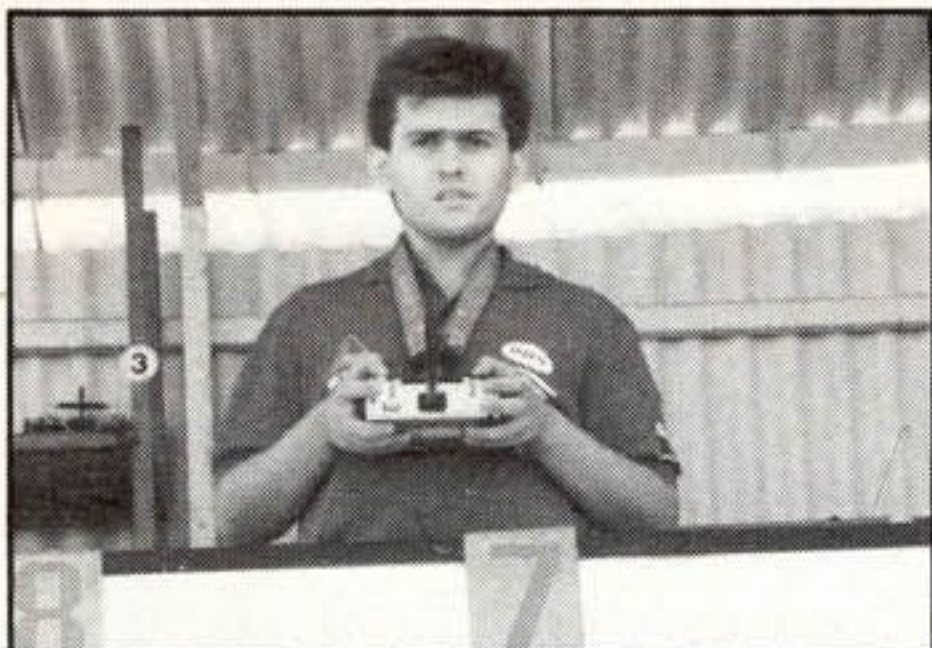
Two and a half hours in the morning concluded the journey once we had managed to escape the friendly clutches of the hos-

Winner; Lamberto Collari.

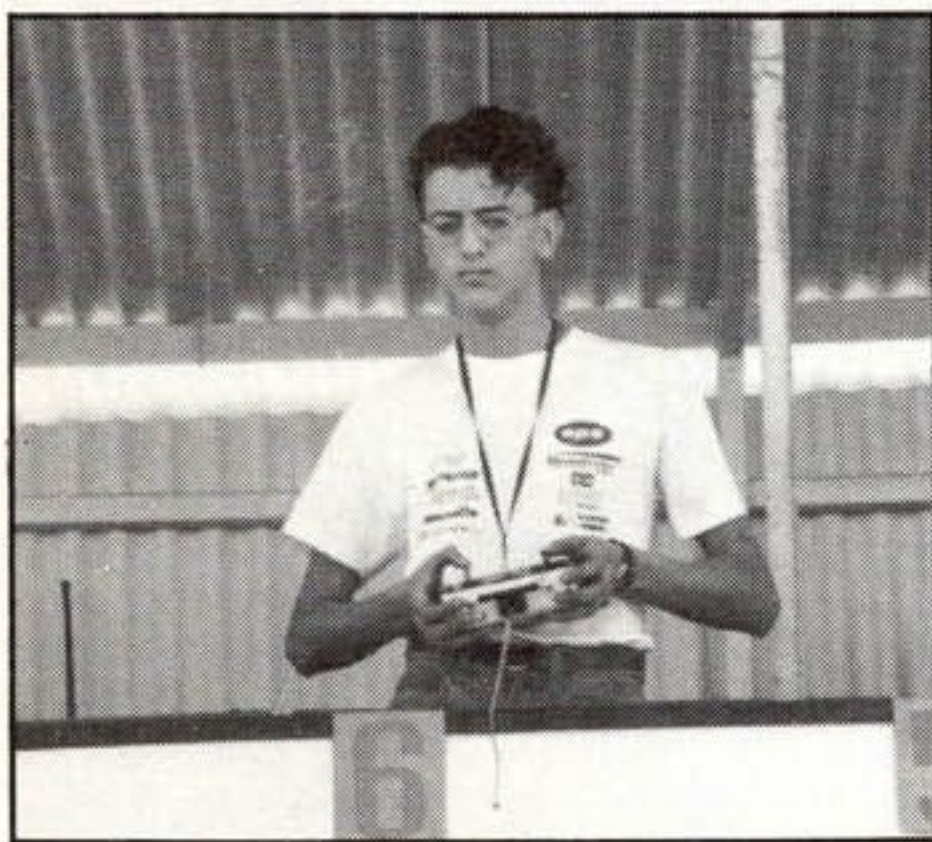


The four engine manufacturers/sponsors get their accolades. Left to right; Garoffoli (Super Tigre), Rossi (Nova Rossi), Track Owner, Picco (Picco), Mutzio (OPS).

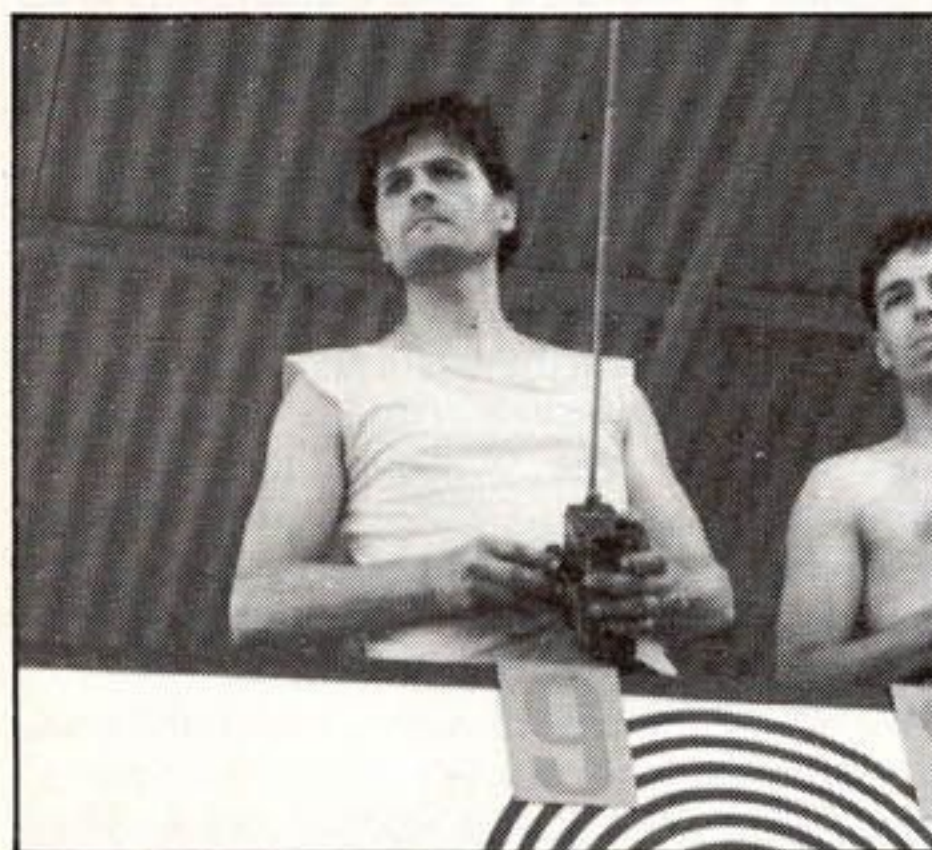




Massimo Fantini settles the new 'Blitz' car in during the warm up.



Top qualifier, Daniele Cantarella in warm up.



The 1987 winner, Albert Grob from Switzerland concentrates hard alongside Colin Straus.

pitable landlord, who was most insistant that we sampled each and every one of his local spirits!

On arrival at the circuit we found our own Dave Dixon busy rebuilding his PB Phoenix. 'Problems?' we asked. He smiled quietly to himself. "This is my third rebuild!" he replied, "And I only arrived yesterday!"

There was an air of resolution in his voice as he continued the re-build.

"Going out to practice then?" he asked. It was obvious that Dave knew something, but he wasn't going to tell. Still it was not long before we found out for ourselves. You see, we had been informed that the circuit had been re-surfaced, what we hadn't been told was that the re-surfacing was some nine inches above the old circuit! Not only that but the edging to this was in the form of Toblerone shaped concrete with the combined effect that if you made just one slight mistake, then you became part of the European space program and your car became somewhat distorted, just like Daves had been!

To say the circuit was destructive would be a gross understatement. True, it was fine if you drove slowly or managed a lap without a mistake, but the chances of that were remote to start with. The most difficult section was the chicane on the return back straight. There was no straight line through but you wouldn't have thought so to see the drivers who obviously know the circuit. However, as traction improved, so the number of wrecked cars reduced although there was still that mysterious interference which seemed to effect so many people, usually once (after that the car was no longer anyway!).

Enough of the problems though. The circuit was demanding in all respects with a 90 metre straight running into a flat sweeping bend which could be taken without lifting off (not for the feint hearted)! As we said earlier, the surface was some nine inches above the base and there was virtually no chance of getting back on if you should 'fall' off, thus the builders had placed some ramps around the circuit to facilitate the climb back. There were only about half a dozen of these around the circuit and so this in itself cost a lot of time trying to re-mount, such that it soon became obvious that if you 'fell' off the main straight, then you just ran full pelt down the gully, on the loose and then back up on the ramp at the end, providing you hadn't made contact with the metal fence!

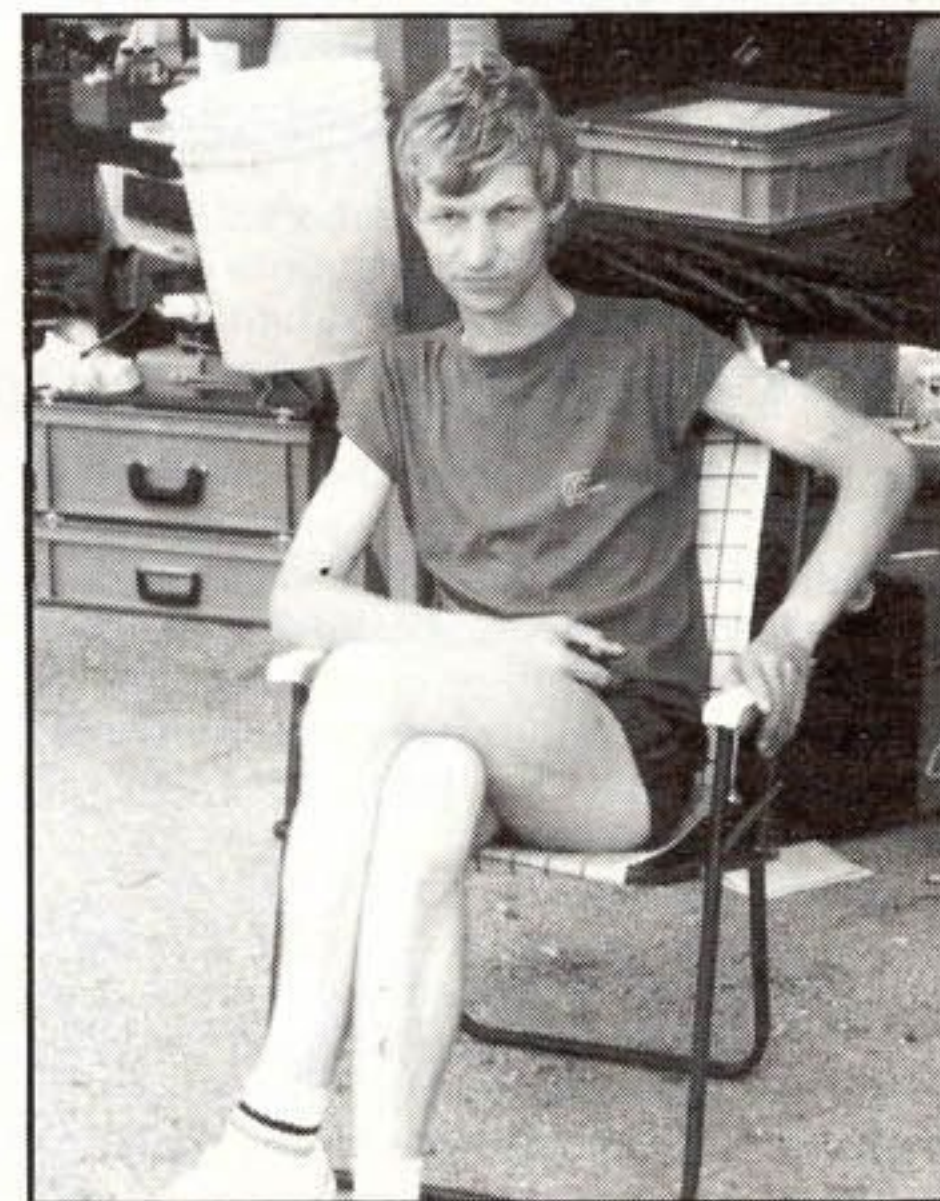
Friday was organised practice day, which meant that you were due four dummy rounds of heats to try and eliminate any potential problems. Whilst this was going on the cars were being scrutinised by the race officials, which is where a problem started to evolve.

Now EFRA has passed a rule regarding what tuned silencers are legal with a view to keeping the noise problem in check. An official list of approved silencers had been drawn up together with all the appropriate dimensions so that each silencer could be identified. First problem, many of the approved silencers were 1 or 2 mm short on the outlet pipe from the supposedly official

figures. Race officials would not therefore accept the silencer. New, wrapped, silencers were opened to find that these too did not comply! Some silencers were deemed to be 'near enough', but would that stand if the silencer was checked again later? Needless to say an official protest was made and the organised practice stopped whilst the Team Managers and the Race Officials sat down to try and sort this out.

Next stage was when EFRA decided that it was the installed length of the outlet pipe that mattered and that this should therefore be measured from within the silencer. At this, the Italian officials decided that this was too much, it was not an interpretation of the rules, but a change to the rule. They also decided that if this was to stand both they, the officials and the entire Italian team would withdraw from the whole event!!

There then followed a short interlude of some two hours whilst a solution to this dilemma was sought. Everything meanwhile was static and all present just sat around in the early afternoon sun pondering as to whether there will still be a European Championships.

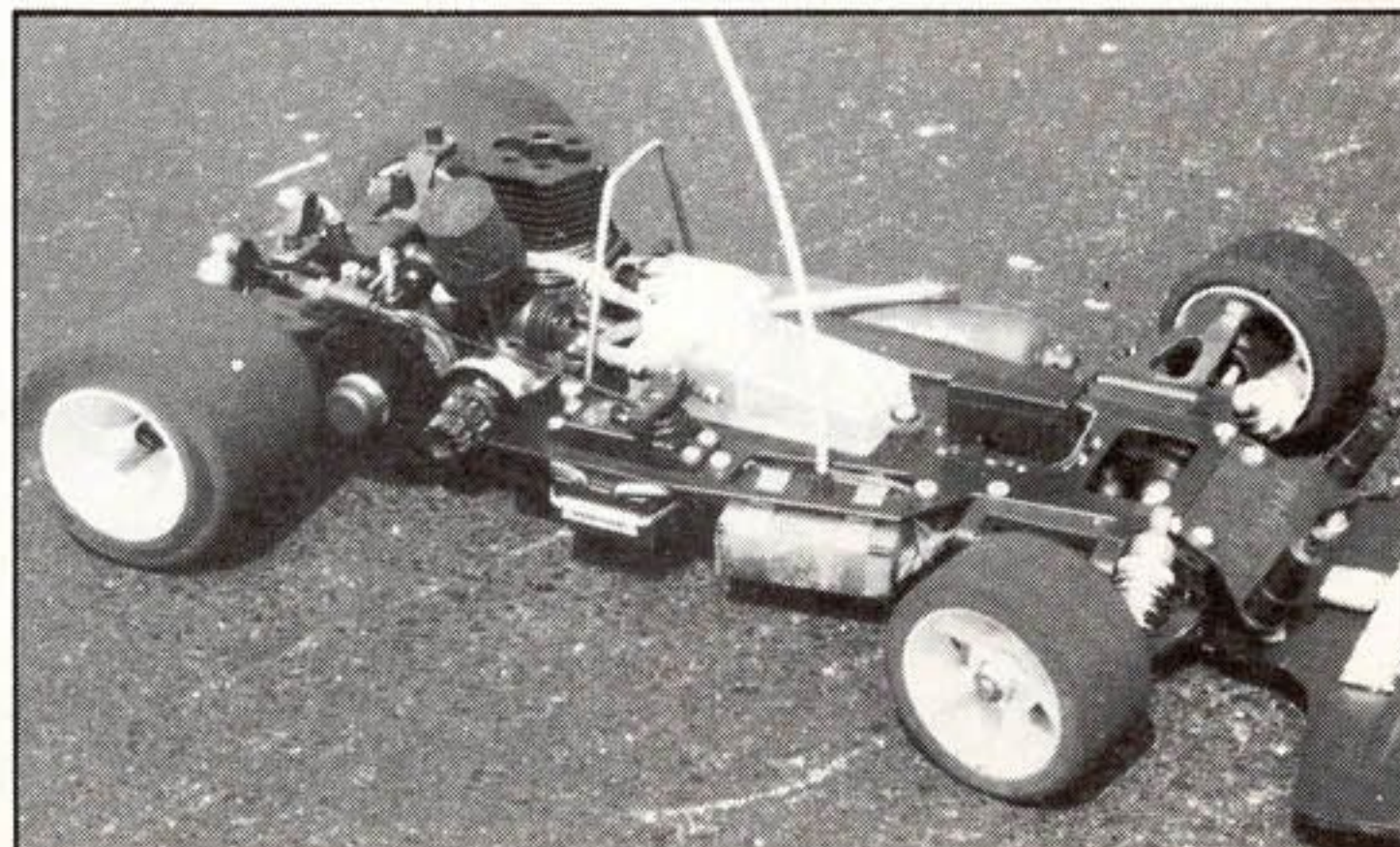
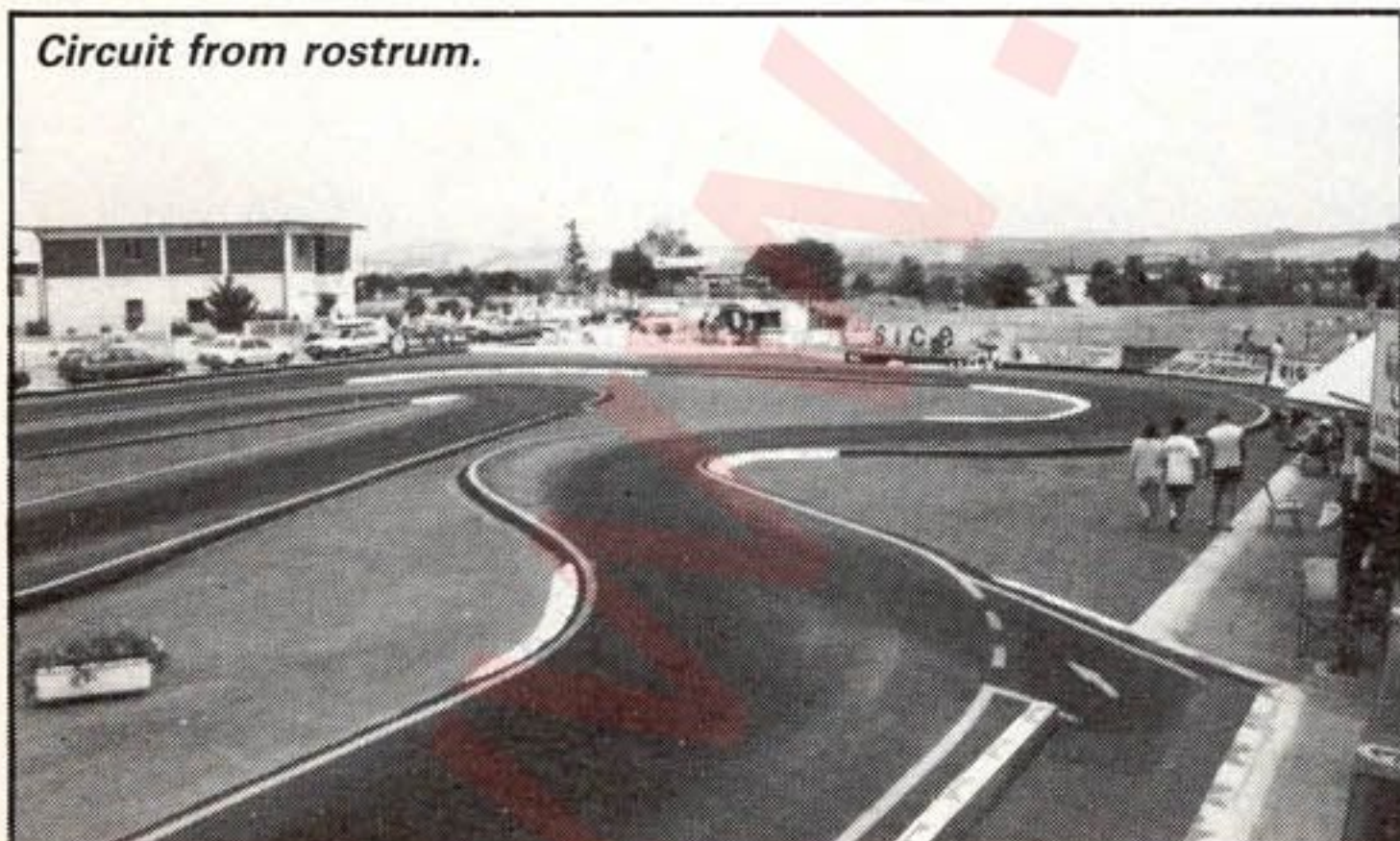


Germany's Jurgen Bahr caught semi-relaxing.

Finally a compromise was reached in the form of one millimetre. Yes a single mm became the answer to both sides stand. The original set of dimensions were still to stand but a tolerance of this one millimetre was now included. Amazing isn't it that if this 1 mm had not been agreed then the whole Championships would probably

Rody Roem's Serpent Spirit.

Circuit from rostrum.





Anders Ljungquist from Sweden in the Final.

apparently defunct SG. The front suspension has two novel features, one taken from the SG Space, namely the camber of King pins, the other being the angle of the top wishbone which many people thought most strange. Strange as it might be, it certainly worked for Fantini.

Heat two featured European Champion, Albert Grob who set off his chances with a 15 lapper in 10.1 seconds, nearly a lap away from Fantini. Heat three had a whole host of potentials and it was a credit to the new staggered EFRA start system that all got clean starts. Not only this heat, one should add, but 90% of all the heats had perfect starts, which in itself is 100% better than previously.

It was Rody Roem who won the heat on 16 laps in 8.4 seconds and Jurgen Bahr from Germany on 15.6 seconds. The sixteens were starting to clock up! Heat four had our Dave Dixon who didn't finish the heat but still managed fourteen laps. Not bad for a start but Dave was not to know that this would be his most trouble free heat!

The following heat five had Nigel Sayles score an opening 14 laps in 6 seconds but eclipsed some what by Lamberto Collarri (who), a young local Italian driver who had clocked in a sixteen in 17.1 seconds with an SG Space!

Michael Mielke drove his Space to a 16 in 12.9 seconds in heat six followed by his fellow countryman, Klaus Hoeschen, one heat later with a 16 in 17.2 seconds. Klaus now running a Serpent in preference to last years Mantua.

Heat 8 was another all star line up but only Roberto Pezzini scored a 16 in 18.6 seconds. Paul Pagdin clocked a 14 in 7.1 seconds and like team mate Dave Dixon, this was to be Pauls only finish.

The last two of the heats could not better 15 laps although Roger Samli ran out of fuel on his last lap.

Thus at the end of Round One we had nine 16 lappers with Rody Roem heading the list. Straight into round two.

Roger Doran in heat one managed his best time of 14 laps and in this level of company that is very respectable. Albert Grob, in heat two, lifted himself into the 16's whilst heat three again saw four 16 lappers go in. Cantarella improving his time to 7.0 seconds, Bahr to 8.6 seconds and Jakob Buhler to 11.2 seconds.

Heat five again saw Collari with a sixteen, this one some 10 seconds quicker, with Renè Schar also going onto 16. Next quick heat was number eight with Stefan Habbecke on 16 in 7.6 seconds and Steve White opening his account with 16 in 17.1

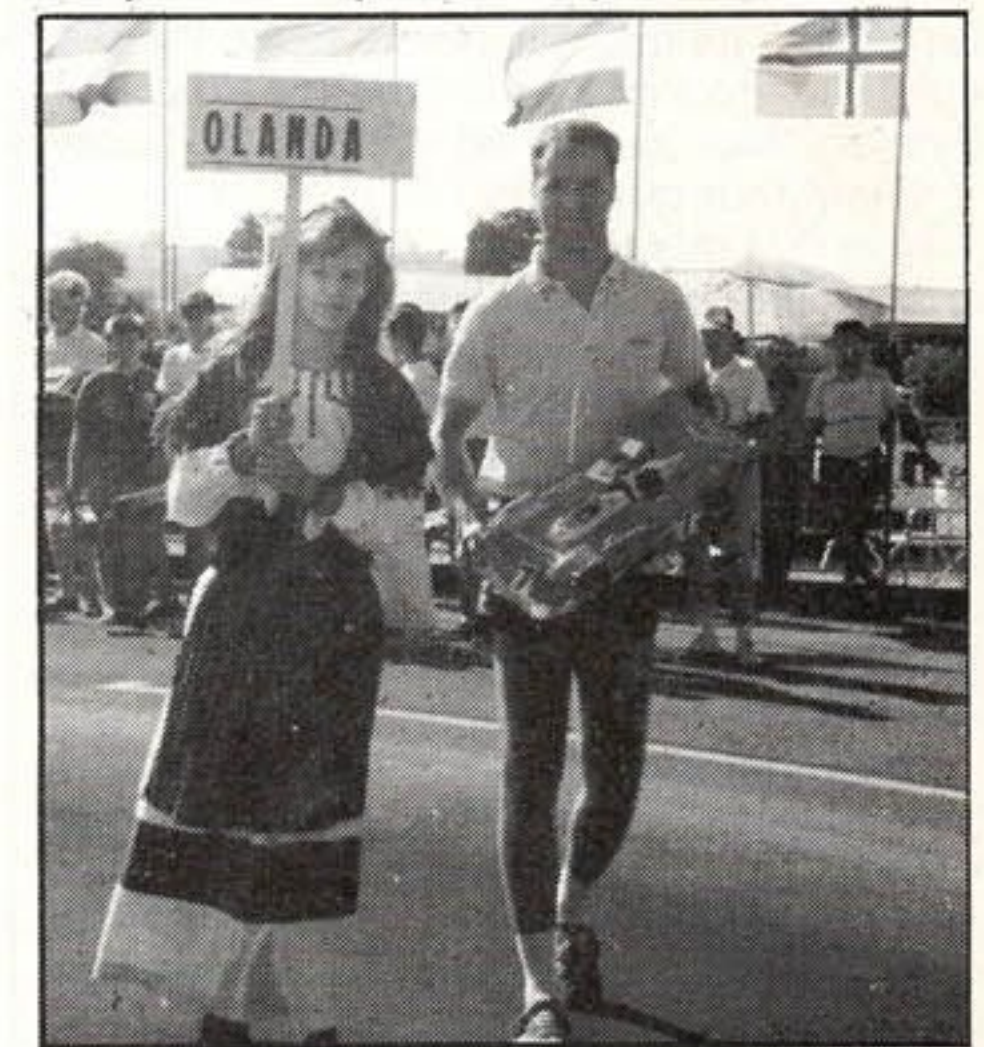
seconds.

A few more sixteens did go in before the end of the round, so at the lunch break we had now seventeen people on sixteen laps with Daniele Catarella top qualifier and Lamberto Collari second, just 0.1 second behind. Rody Roem had slipped to fourth and Stefan Habbecke was holding on to that third spot (top four at end of qualifying being straight into the Grand Final without having to suffer the ordeal of semi or quarter finals).

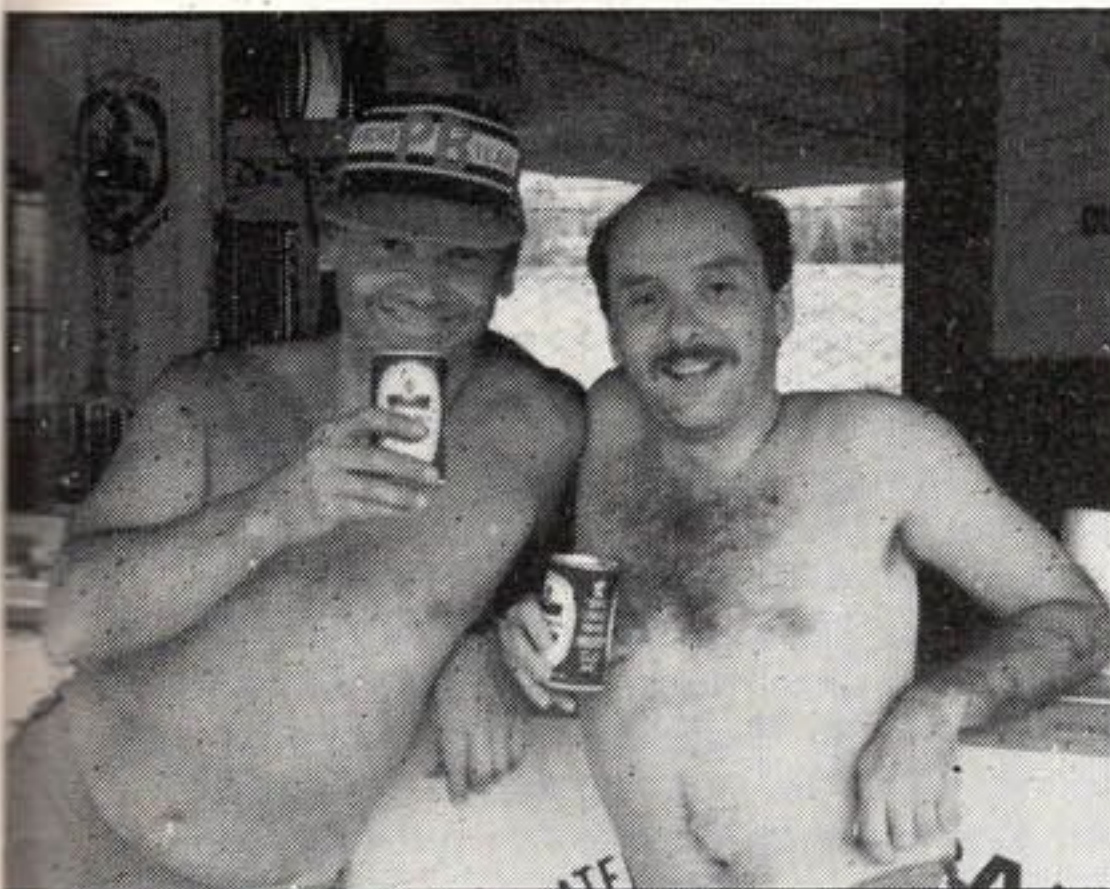
The third round got under way on time and up until heat six nothing blistering happened, except maybe if you had stood outside in the sun for the lunch break. The two Picco brothers had moved into the 16's with Lars Sonnerud, but in heat six Michael Mielke ousted Roem out of the top four with a 16 in 7.1 seconds. It was the turn of heat 8, this round to produce four 16 lappers, Anders Ljungquist surprising everyone with 7.1 seconds from nowhere, Steve White coming down to 12.5 seconds and Michele Baruzzi and Moris Margarucci both joining the club. The last 16 of round three came from Stefano Colombini whose Associated had always looked fast and stable throughout the weeks practice sessions. Now we had twenty four drivers on sixteen laps. Cantarella was still top with Collari and Ljungquist tied in second and Habbecke now holding on to that fourth spot.

So into the fourth and final round with many drivers not yet happy with their performances. Fantini in heat 1 set the old

Rody Roem is presented prior to Final.



Collari's very stable SG Space.

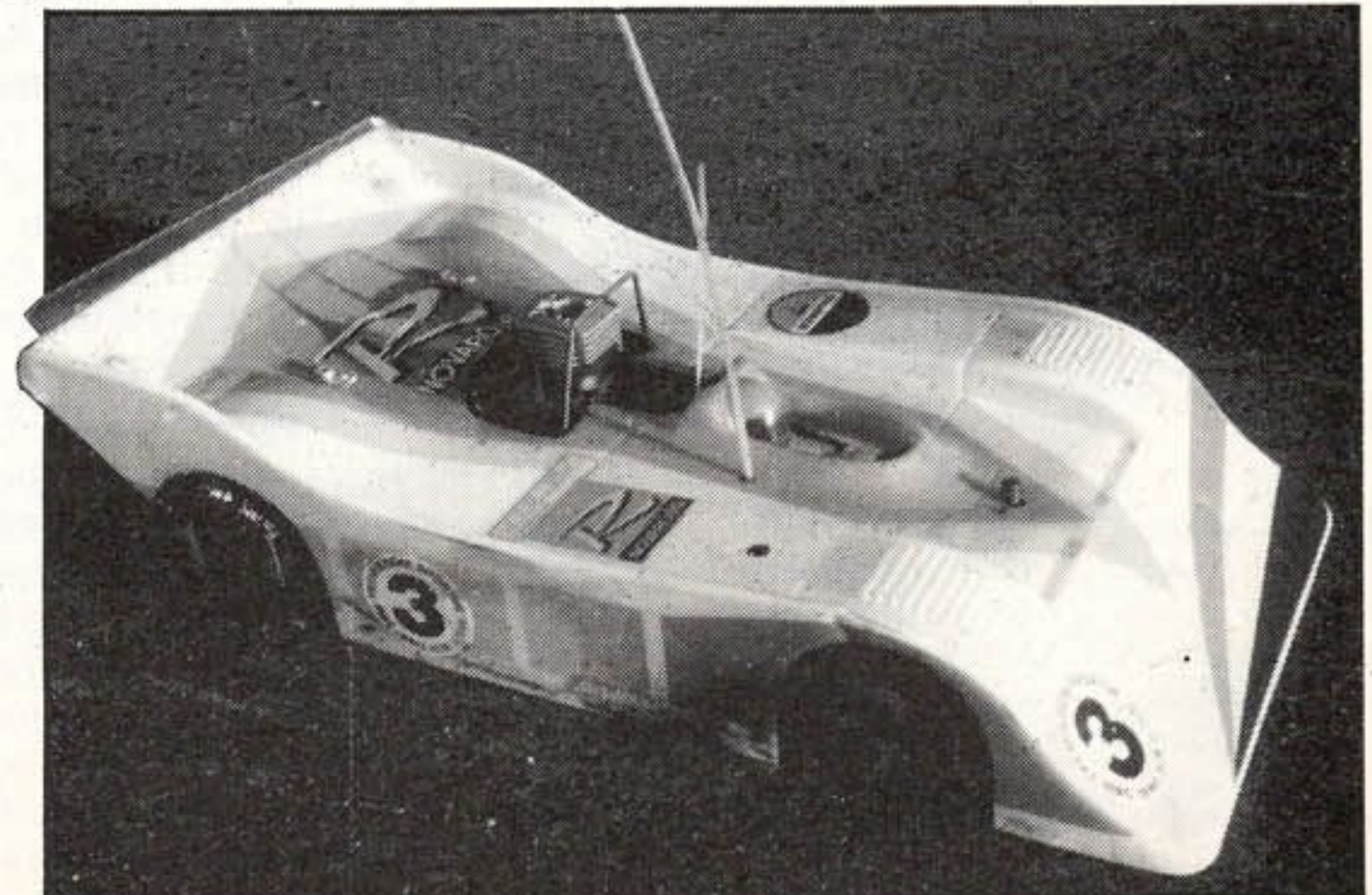


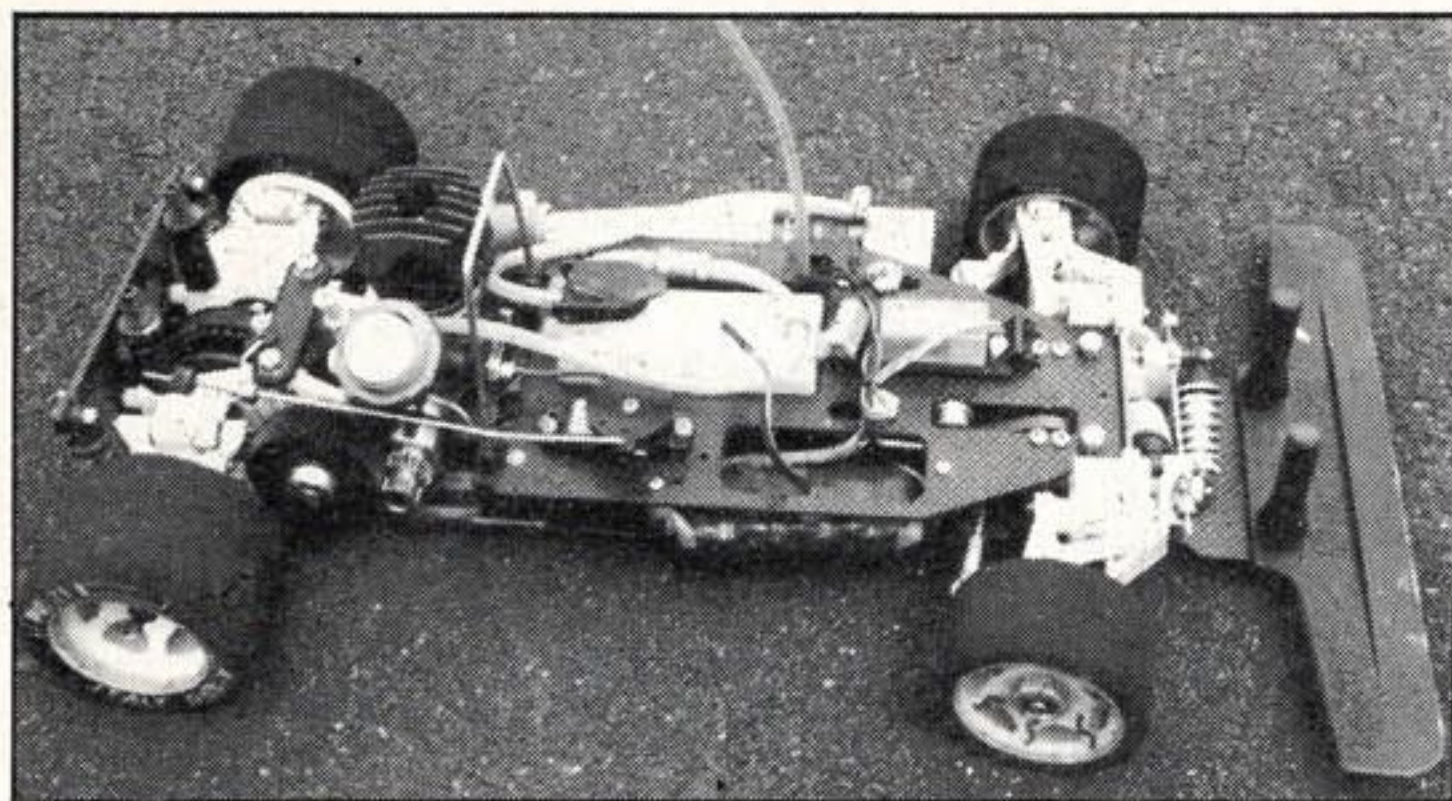
The English in action. Paul Pagdin and Murray Collins helping support the bar!

have been cancelled. The word ridiculous comes to mind!

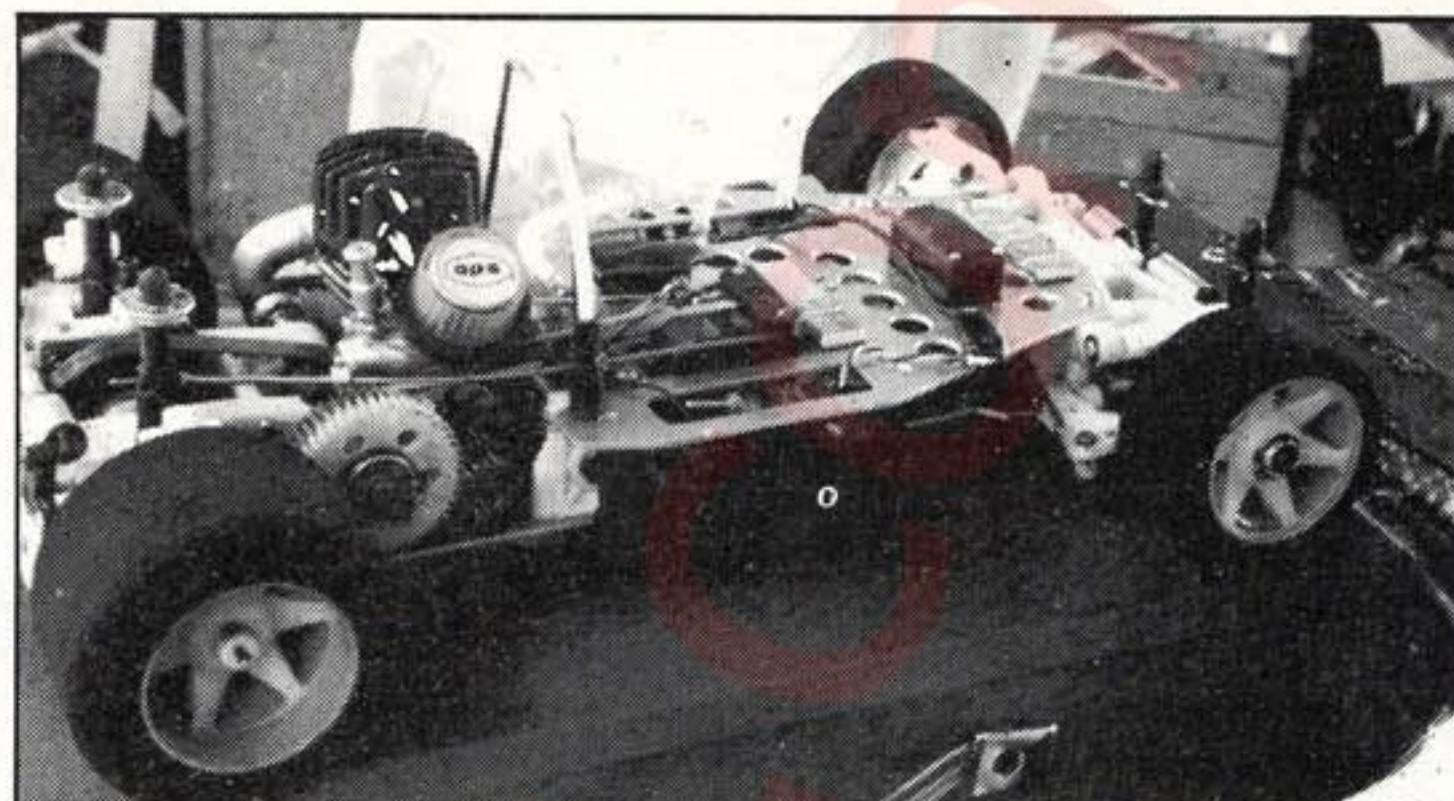
Grateful as we all were that the meeting was back on, it had completely finished the rest of the day thus moving us straight into the qualifying heats on Saturday morning.

The very first heat set a blistering pace for the new 'Blitz' car of Massimo Fantini, who scored a near perfect run of sixteen laps in 13.1 seconds, a full lap upon Bernhard Haas, his nearest rival. This 'Blitz' car has been designed by former SG designers Agostino Caronello and Maximo Garofoli and bears more than a passing resemblance in several areas to the SG Space. Although there are many features on the 'Blitz' which are absolutely unique to model cars so far produced. This car is due to be released in February next year and could well be a replacement for the now **Serpent's Rody Roem working with Daniele Cantarella.**





The BP car of Italian Stefano Solaroli.



The SG of Michael Mielke.

tongues wagging again by pedalling his new 'Blitz' round to a new FTD of 16 in 6.6 seconds and hence pushing Habbecke back out of the top four. It wasn't to last for long though as in heat 3, four drivers again scored 16. Cantarella had retaken pole with a time of 6.1 seconds whilst Domenico Calce finished his first heat with the second 'Blitz' car in a time of 16 in 8.9 seconds. Peter Warfvinge moved into the 16's whilst Jakob Buhler notched up another 16, making three in total, although not quite as quick as before.

Much had been expected from Germanys Michael Salven as his form over the last two seasons has gone from strength to strength. Here in Italy though, he had been seen little in practice and had certainly not had the best of luck in qualifying. Heat four seemed to be thus quite a relief as he clocked 16 in 7.9 seconds to assure himself of a place in the semi-finals (upto then he had not even been in the top 60!). Alberto Picco improved his time and Jacques Mouton joined the 16's to boost the heat four qualifiers.

Heat five this time was not as quick with Collari retiring early, although Englands Nigel Sayles used the heat to gain his best time of 15 in 2.7 seconds.

Heats six and seven saw two more join the 16's, whilst heat eight saw Steve White cut half a second off of his best time and Stefan Habbecke try to regain at least fourth slot, but fail even to match his previous best.

Mark Stockford on his first Euro Champs visit attained his best in heat nine to move onto a 15 in 14.9 seconds and with only one more sixteen in heat ten, this ended the qualifying. Drivers started to contemplate where they were lying and there were many long faces when the final qualifying list eventually arrived. Main list was as follows:-

1	Daniele Cantarella	I	Serpent/S Power	16	6.1
2	Massimo Fantini	I	Blitz/Nova Rossi	16	6.6
3	Lamberto Collari	I	SG/Nova Rossi	16	7.1
4	Anders Ljungquist	S	Serpent/Nova Rossi	16	7.1
5	Stefan Habbecke	D	Serpent/Nova Rossi	16	7.6
6	Michael Mielke	D	SG/OPS	16	7.7
7	Michael Salven	jD	Serpent/S Power	16	7.9
8	Rody Roem	NL	Serpent/S Power	16	8.4
9	Jurgen Bahr	D	Serpent/Mongal	16	8.6
10	Domenico Calce	I	Blitz/Nova Rossi	16	8.9

15	Steve White	GB	Serpent/S Power	16	12.0
36	Nigel Sayles	GB	Serpent/S Power	15	2.7
41	Bob Errington	GB	Serpent/S Power	15	4.9
60	Mark Stockford	GB	Serpent/S Power	15	4.9
64	Dave Dixon	GB	PB/Nova Rossi	14	
74	Paul Pagdin	GB	PB/Nova Rossi	14	7.1
78	Roger Doran	GB	Serpent/S Power	14	19.5
79	Colin Straus	GB	PB/Nova Rossi	13	
94	Murray Collins	GB	SG/Picco	12	
98	Dennis Jones	GB	Serpent/S Power	7	

As you may gather, our Dennis didn't have the best of luck, perhaps he was suffering from withdrawal symptoms as he was not allowed to even touch the official computer systems!

Out of the 100 entered, two did not actually compete, oops! Sorry Den! But out of this 98 we can analyse the entry as follows:-

Cars		Motors	
Serpent	63	Serpent 'S'	40
PB	12	Nova Rossi	26
Mantua	6	OPS	14
SG	6	Picco	14
Associated	3	Mondial	3
BP	3	Rossi	1
Delta	3		
Blitz	2		

Finally on the Saturday we had two consolation finals for positions 91 to 100 and 81 to 90. Our Murray Collins featured in the first with Dennis Jones. Den did not run and Murray only managed 16 laps in fifteen minutes, which just about summed up their weeks.

Saturday night was arranged as a 'Do' for the race officials and the team managers and judging by the staggered state of them all when they arrived back at 2.00 am, they must have enjoyed themselves.

Sunday morning seemed to dawn very quickly, especially when some silly so and so was running his car round the circuit just before 7.00 am!! Needless to say, a few of the competitors told him how to improve his chances of being alive at 8.00 am!

At 9. 0 the 1/32 'B' Final got under way with England's Dave Dixon, Paul Pagdin and Roger Doran. Dave held onto second place for a few laps until the leader rolled and let Dave through to the lead with Roger up into fifth spot and Paul back in seventh. Then for a short while Dave was in the lead with Roger third and Paul fourth. At 1 1/2 minutes, Dave fell off the circuit letting Paul into first with Roger now in fifth. At 4 minutes Paul came in for fuel with Dave now down in fourth and Roger a little way behind. At this stage Dave came in early for fuel and an adjustment of his mixture, which in all cost him a full lap, thus leaving Paul now back in front with Dave in fourth.

Basically, from then on, positions didn't change, except that Paul's inevitable extra fuel stop dropped him to second, Dave finished fourth, half a lap down with Roger coming home a splendid fifth. Still at least Paul had moved up into the 1/16 finals.

The 1/32 'A' featured Colin Straus who, like Dave Dixon, finished out of the top three in fourth place, so we moved on to the 1/16's.

The 'B' now featured Paul Pagdin and Mark Stockford, but it was to be the end of the line for both of them, as first went to Mantua driver Fulvio Lodi on 59 laps, second to Eric Vandereyt (that man from last year who had moved right on up into the main final — was he on his way again this year?) with Guy Dejean third, Mark Stockford had finished 5th with 53 laps and Paul 6th with 49 laps.

The 'A' had no English content and went to Alessandra Aspesi on 59 laps. Werner Rosenhammer second and Karl Heinz Shafer in third.

Nigel Sayles was running in the first of the 1/8 finals and after the twenty minutes he had held onto third spot behind Robert Hofmann on 60 laps and Harald Huhn. The second 1/8 was not so good for Bob Errington after an engine cut put paid to what looked like a third place. Peter Harder won on 60 laps, Herman Raith second and Werner Rosenhammer third, making it two finals on the trot with Bob back in fifth on 56 laps.

By the quarter finals, the pace had not really altered, but this time Nigel Sayles had a few snags which left him on 52 laps and that fourth place. Jack Erman had come home first on 60 laps with Robert Hofman second and Michele Baruzzi third. Moris Margarucci took the 'B' with a high 61 laps with Roberto Pezzini second and Peter Harder in third.

There now followed the lunch break and the practice session for the top four qualifiers. The most obvious thing about this session was the 'Blitz' team, who were still trying various different settings on Fantini's car. Cantarella's car looked quick and it certainly was beginning to look like he would avenge himself for last years disqualified win (15 grammes underweight if you remember).

The 'B' semi final got under way with Rody Roem shooting straight out into the lead followed by Michele Baruzzi and Robert Hofmann (the latter two having come up from the 1/4) Hofmann obviously had got used to the circuit now as he moved into the lead with Roem second and then Baruzzi Calce, Haechler, Alberto Picco and Schar. Hofman started to run out of steam by the ten minute half distance mark as now Roem lead from, Calce, Hofmann, Schar and Erman. shortly after this Rody Roem's car cuts and he loses precious time in the pits letting Calce into the lead, but still holding second spot from Hoffman, Schar Picco and Haechler. At this stage the circuit had to bow its toll and there were just five cars running. Rody managed to re-take the lead when Calce ran into problems, but at least these two were guaran-



2nd, 1st and 3rd.

ted places (the first two from each semi going into the final with the next fastest from either semi being the last to make up the numbers).

Result Of Semi 'B'

1	Rody Roem	61 laps	7.3 secs
2	Domenico Calce	60 laps	1.2 secs
3	Robert Hofmann	60 laps	8.8 secs
4	Traugott Schar	59 laps	19.9 secs
5	Alberto Picco	55 laps	5.7 secs
6	Andrea Haechler	54 laps	2.8 secs
7	Jacques Mouton	31 laps	
8	Jack Erman	29 laps	
9	Michele Baruzzi	26 laps	
10	Michael Mielke	6 laps	

The second semi appeared to get off to a clean start but within two laps there was a large pile up involving about half the cars. Michael Salvem had taken the lead from Steve White, Stefano Colombini, Jurgen Bahr, Pezzini, Habbecke, Margarucci, Sahli and Buhler. Colombini rolls his car which seems to have damaged something as he starts to go slower down the straight. After the first pit stop the cars are settling down with the order, Salven, Bahr, Margarucci, White, Sahli, Pezzini, Habbecke, Colombini, Buhler and Harder. Somehow Bahr finds a way past Salven and Habbecke runs into more trouble dropping down the field. By the second fuel stop the order has been firmly established with the top four a short distance away from the rest. Sahli ran into terminal problems and retired, but the real battle was between Bahr and Salven who circulated around the circuit as if tied together with string, finally finishing up just 0.5 seconds apart!

Result Of Semi 'A'

1	Jurgen Bahr	62 laps	1.4 secs
2	Michael Salven	62 laps	1.9 secs
3	Moris Margarucci	61 laps	0.4 secs
4	Steve White	61 laps	10.0 secs
5	Stefano Colombini	60 laps	17.5 secs
6	Jakob Buhler	59 laps	17.0 secs
7	Stefa Habbecke	58 laps	4.4 secs
8	Roberto Pezzini	58 laps	19.4 secs
9	Peter Harder	47 laps	13.7 secs
10	Roger Sahli	39 laps	

As this had been the quickest of the two semi's, it meant that the first four all joined the final meaning that Steve White was in the final on position no. 10.

There was a twenty minute recess for these drivers to prepare for the 45 minute European Championships and believe me, it is not very long to check everything over, re-charge the ni-cads, put new numbers and tyres on, etc., etc.

Surprise, surprise. At the start of the final, Cantarella on pole position, is awarded a one lap penalty for a jumped start. For the pole position Italian to be so penalised by an Italian official is surely

proof of absolute fairness. The actual penalty must have seemed like an almighty blow to Cantarella as it is certainly not the way to become European Champion. On the road though it was Cantarella in the lead from Fantini, Bahr, Salven and Roem. Roem moved up quickly to third place before the car rolled off the circuit losing him lots of places. Now it's Fantini in the lead followed by Collari, Salven and Steve White up to fourth. Fantini hits a problem and drops back moving Steve up to third, then suddenly Salven is missing and Steve White is in second place as we are approaching the first fuel stop!

At six minutes, it's still Collari in first with Steve second and Salven third. Then a mistake loses Steve places when a mistake puts him on his roof and the marshalls seem to take an eternity to arrive, dropping him back to fourth.

One third distance and Collari still leads from Salven and Cantarella. Half distance, 22½ minutes and Cantarella's lost lap is beginning to have less effect, but by now Rody Roem has retired when his special FET powered servo has destroyed itself after falling off the car.

As the hooter blasts the end of the 45 minute ordeal, Collari just does not seem to be able to believe that he has become champion. The local lad, being just fifteen years of age, is fairly moved by the entire Italian ensemble. There is a strange air amongst the manufacturers as there is no longer an SG concern! The German pairing of Salven and Bahr have done exceptionally well to finish second and third. Blitz are dissatisfied in one way, but pleased that both cars made it to the final.

The final positions then as follows:-

1	Lamberto Collari	I	139 laps
2	Michael Salven	D	137 laps
3	Jurgen Bahr	D	136 laps
4	Massimo Fantini	I	134 laps
5	Moris Margarucci	I	133 laps
6	Daniele Cantarella	I	133 laps
7	Steve White	GB	128 laps
8	Anders Ljungquist	S	113 laps
9	Domenico Calce	I	96 laps
10	Rody Roem	NL	35 laps

Other British final placings were:-

27	Nigel Sayles	52 laps
41	Bob Errington	56 laps
55	Mark Stockford	53 laps
57	Paul Pagdin	49 laps
67	Dave Dixon	54 laps
68	Colin Straus	51 laps
69	Roger Doran	50 laps

Right, Close up view of the much modified chassis on Collari's SG Space.

One of the three Delta's present, this one belonging to Spains Riuz Borja.

Half Distance Positions

1	Collari	71 laps
2	Salven	71 laps
3	Fantini	70 laps
4	Cantarella	70 laps
5	White	69 laps
6	Bahr	68 laps
7	Margarucci	65 laps
8	Calce	61 laps
9	Ljungquist	47 laps
10	Roem	35 laps

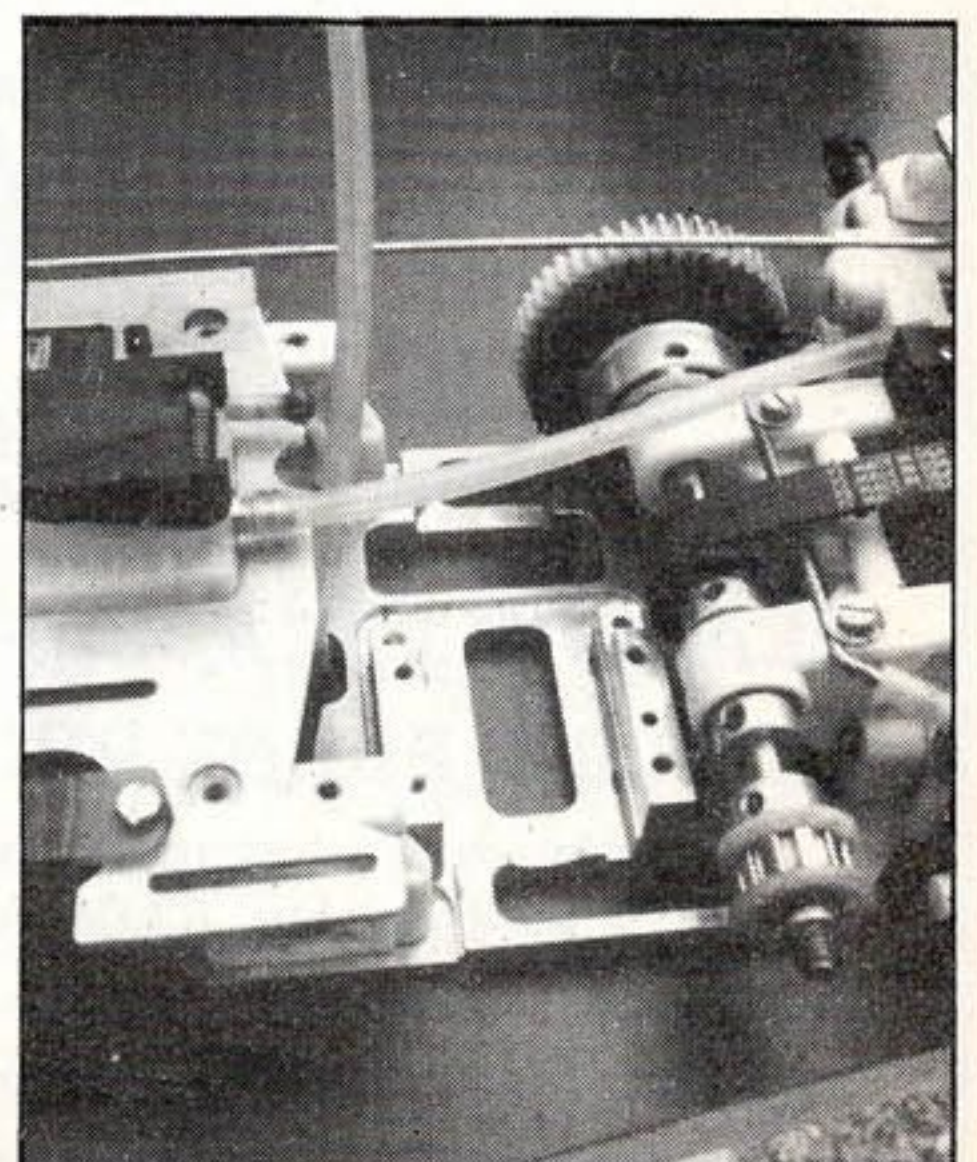
At the thirty minute mark, positions have changed a bit, now Collar has a two lap lead on everyone.

Two Thirds Distance

1	Collari	95 laps
2	Salven	93 laps
3	Cantarella	93 laps
4	Bahr	92 laps
5	Fantini	92 laps
6	White	91 laps
7	Margarucci	90 laps
8	Calce	79 laps
9	Ljungquist	79 laps
10	Roem	35 laps

With just five minutes left to run and now Cantarella has dropped back to fifth and Calce down to ninth. Cantarella is obviously having some problems, as in the last few minutes, he is the only one to change positions, downwards. At least the British got a good grouping!

The race over, the awards presented, everyone was packing up and even now there was talk of the 1989 Euro Champs. Now — what is the best way to get to Madrid?



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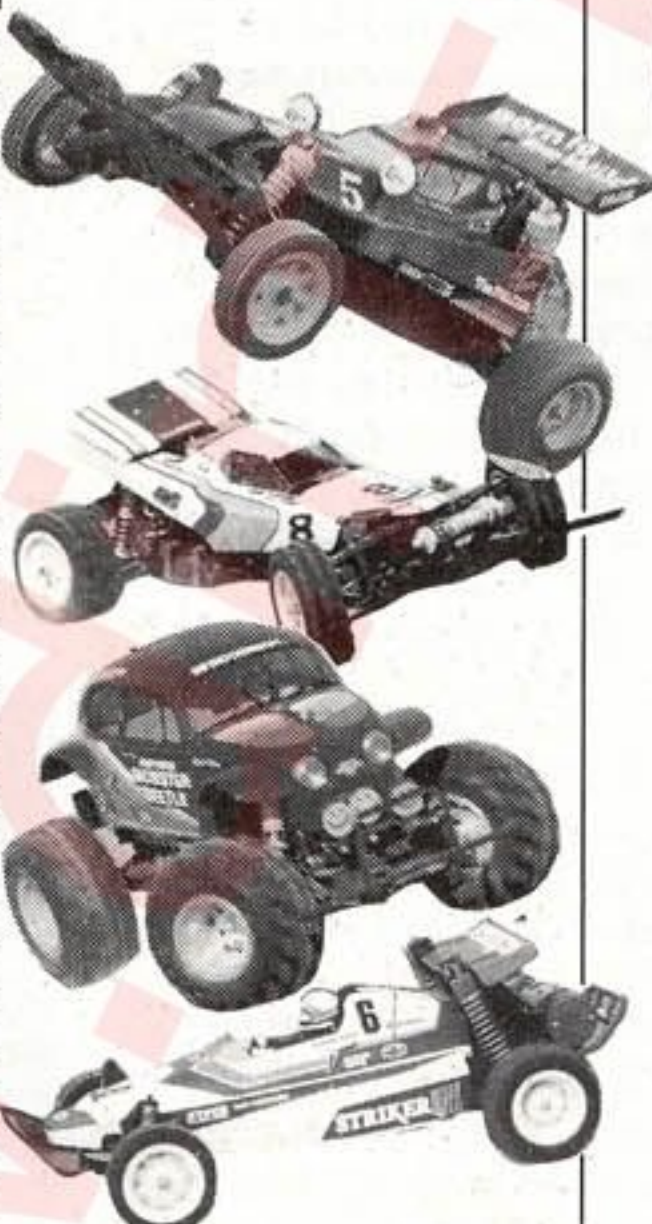
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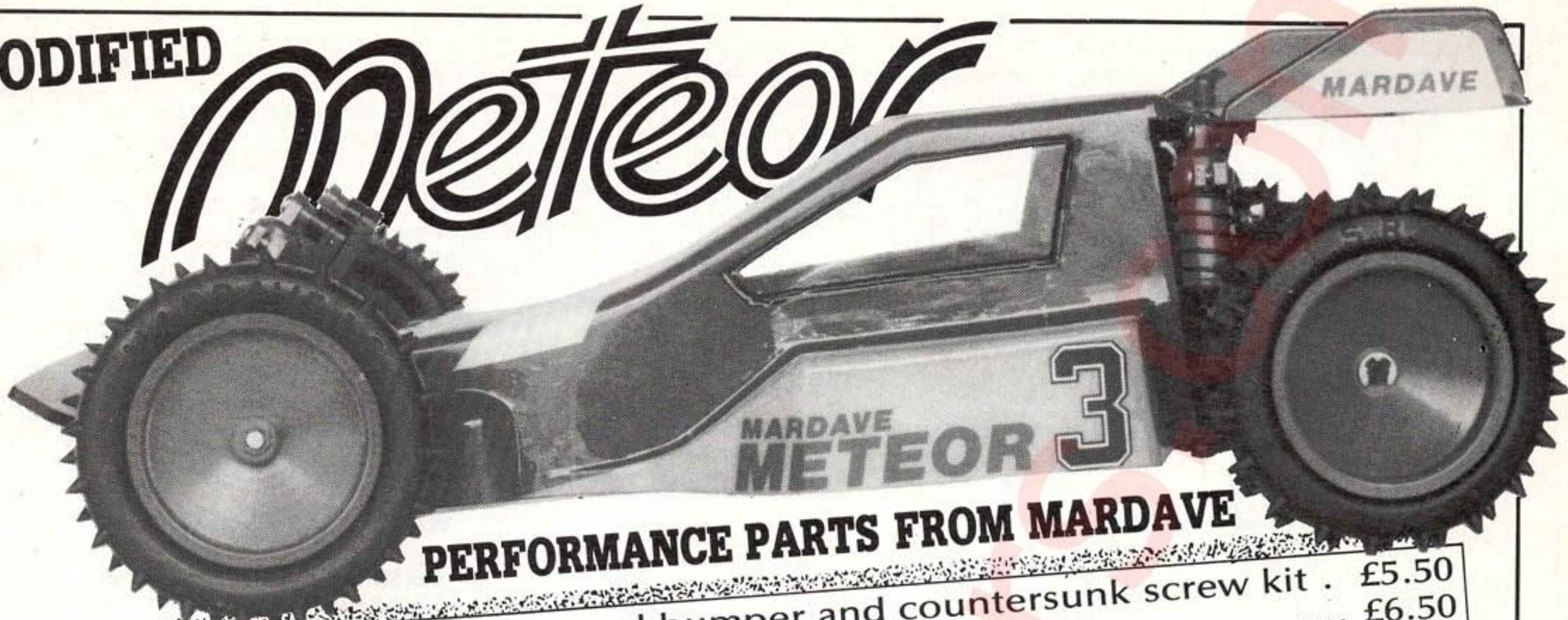
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 SPECIALISTS



Friday
 0900 hrs
 to
 1900 hrs

SPECIALISTS IN THE SUPPLY OF RADIO CONTROLLED EQUIPMENT

TAMIYA CARS

Hornet	£53.00
Falcon	£64.00
Sabre	£89.00
Hotshot II	£105.95
Boomerang	£89.95
Thundershot	£89.00
Monster Beetle	£86.00
Lunch Box	£65.50
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Midnight Pumpkin	£70.63
Avante	£178.50
Thunderdragon	£89.00

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7.2v Racing Packs	£13.95
7.2v SC(P) Computer Matched	£17.00
7.2v SC Trinity Matched	£26.95
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MONSTER HORSEPOWER

Trinity Standard Stock £15.00
 in wet mag can. Just simply the fastest! A full range of Trinity Modified Motors £40.00
 In wet mag cans for use only in the well insured car!!

RADIOS

Acoms Techniplus	£39.95
Futaba Attack	£49.95
Futaba 2LGX	£89.95
JR BET 202	£49.95

FOR YOUR JS DEAL

Just add **£65.00** to any car kit of your choice!!
 This gives you a choice of Futaba or Acoms Radio, Gear plus 7.2v quality Battery Pack plus a timed fast 12 volts Charger c/w meter.

SPARES

We can replace all of the parts that fall off or break.

With all our years of experience in radio control car racing at the highest level, we aim to help and advise the beginner, and interest the expert.

Postage — Extra

KYOSHO CARS

Raider	£53.00
Ultima	£94.00
Optima Mid Std.	£140.00
Optima Mid Turbo	£160.00

Schumacher Cat XLS	£175.00
Associated RC10	£120.00
(with Body and Bumper)	
Yokomo Dog Fighter	£195.00
Mardave Meteor	£59.95

BATTERY CHARGERS

Fast Charger with meter	£9.95
JME Fast Auto Charger	£16.99
Intronics Thermal	£44.95
Novak Peak	£58.00
Mosfet Peak Slope Charger	£49.95

SPEED CONTROLLERS

Demon Proking	£69.95
Novak	£69.95
Futaba MC112B	£49.95

WE FEEL SURE YOU WILL FIND OUR PRICES COMPETITIVE. WE AIM TO PLEASE AT ALL TIMES. OUR SERVICE INCLUDES PERSON TO PERSON CONTACT PLUS MAIL ORDER. WHATEVER YOUR PROBLEM OR REQUIREMENTS PLEASE RING

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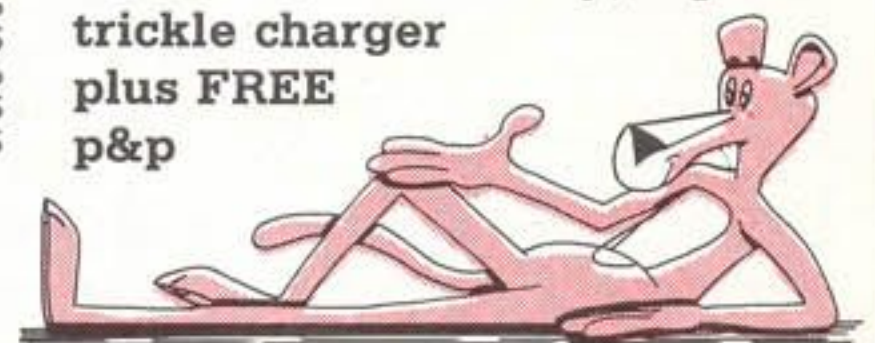
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TAMIYA KITS

Grasshopper	£44.95
Hornet	£51.95
Striker	£56.95
Falcon	£62.95
Lunchbox	£65.95
Midnight Pumpkin	£71.95
Blackfoot	£77.95
Monster Beetle	£86.95
Boomerang	£88.95
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Thundershot	£88.95
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Avante (Deal POA)	£194.95

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O/H UJs. Fit Mid Opt & Optimas . pr £19.50
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SCHUMACHER
4WD. XLS Cat kit £189.95
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WE STOCK MOST CAT SPARES

WHEELS & TYRES

Cat wheels. Front or rear pr £2.52
Cat wheels chrome. Front/rear ... pr £2.99
PB wheels. F/R also fits H/shot ... pr £1.69
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Dynamite WS665 W/one Fox R hub pr £3.25
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Cat narrow 2x20 Fr. Hard only pr £5.80
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H/shaft block very soft rubber F/R .. £7.80
Dynamite TS2211 Spike PB.H/shot Fr £6.50
Dynamite TS2212 Spike PB.H/shot Rr £6.50
Dynamite TS3311 stud PB.H/shot. Fr £6.50
Dynamite TS3312 stud PB.H/shot. Rr £6.50
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Dynamite WS661 Fr. Hub (Ultima) £3.25
RRM adaptors Fox F.Hub-Ultima B/R4 £2.50
Dynamite TS2213 Rr. Hornet £6.50
Dynamite TS2214 Optima/Rr.RC10 £6.50
1/10 foam tyres GP/Cs set of 4 = £7.00
Tru Tyres 04 foams set of 4 = £7.00
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Optima - PB wheel adap. aly. .. 2 = £4.25

CAR BODIES

Body posts 44mm long 4 = £1.80
CAT XL body or U/tray ea. £7.99
PB Stiletto, Scalpel, Eco or Maxima . £7.95
Eco & Maxima U/trays ea. £2.75
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Demon Dart U/tray. Fits Mid Optima £5.00
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PB Wing wire & Mtg. Brkt £2.32
1/10 120mm wide wing and wire kit . £2.80
1/10 150mm wide wing and wire kit . £3.20
1/10 Body clips 4 = £0.79
1/8 Body clips 5 = £1.30
1/12 Bodies phone for stock .. £5.80-£7.50

NICADS

Sanyo Technicad SCR. Std. £18.00
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Schumacher 'Matchpacks' SCs £19.95
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SRM Scorch plus, w/magnet 27 x 1 £14.95
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Demon 18 x 4* £25.00
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MG red dot plus 18 x 1 £27.95
Reedy red dot 17 x 4 £40.00

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Checkpoint platinum 16 x 2 w/mag £40.00
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Demon 15 x 2* £25.00
Demon 15 x 3* £25.00
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New Option House platinum shocks with
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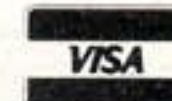
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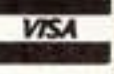
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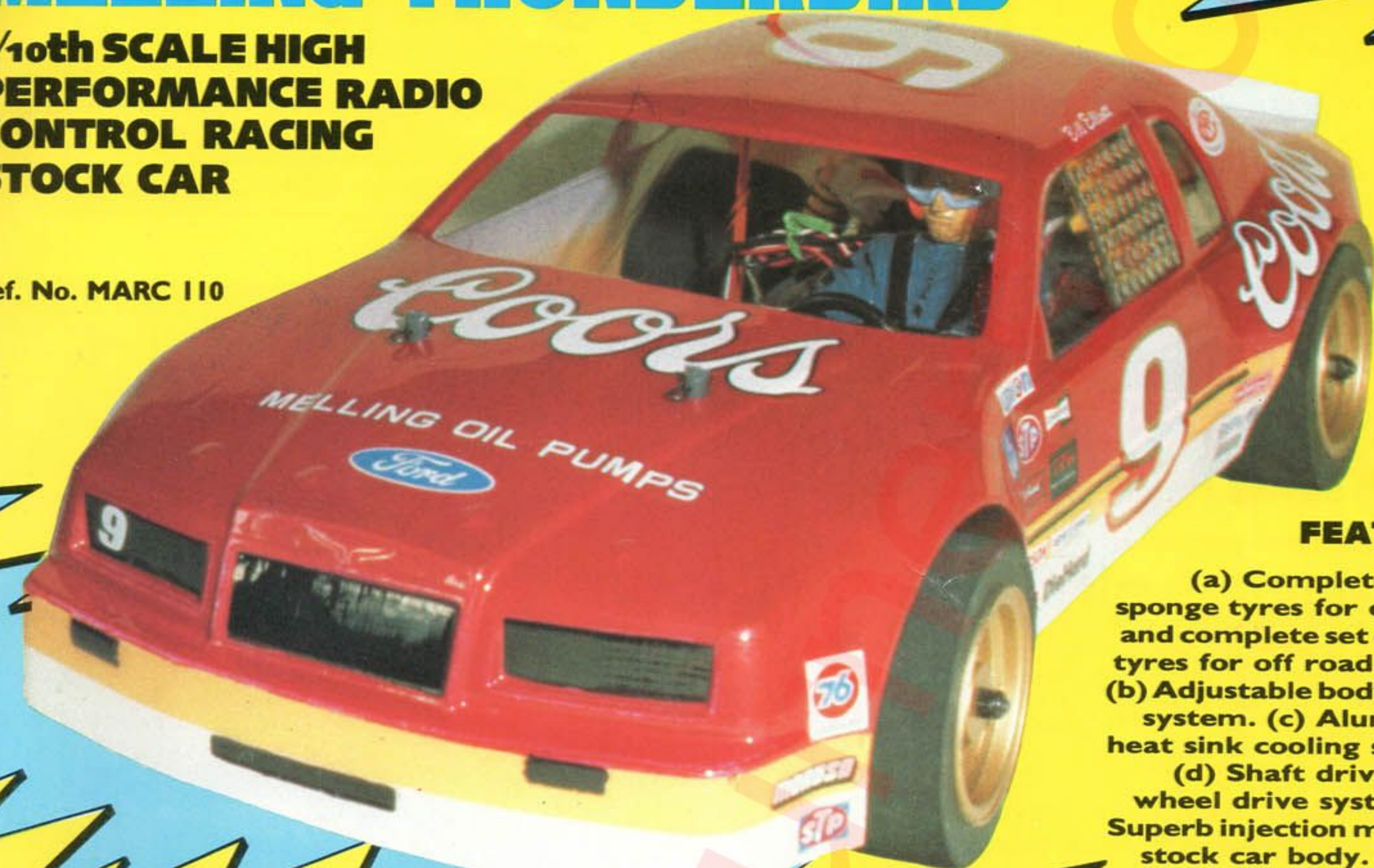
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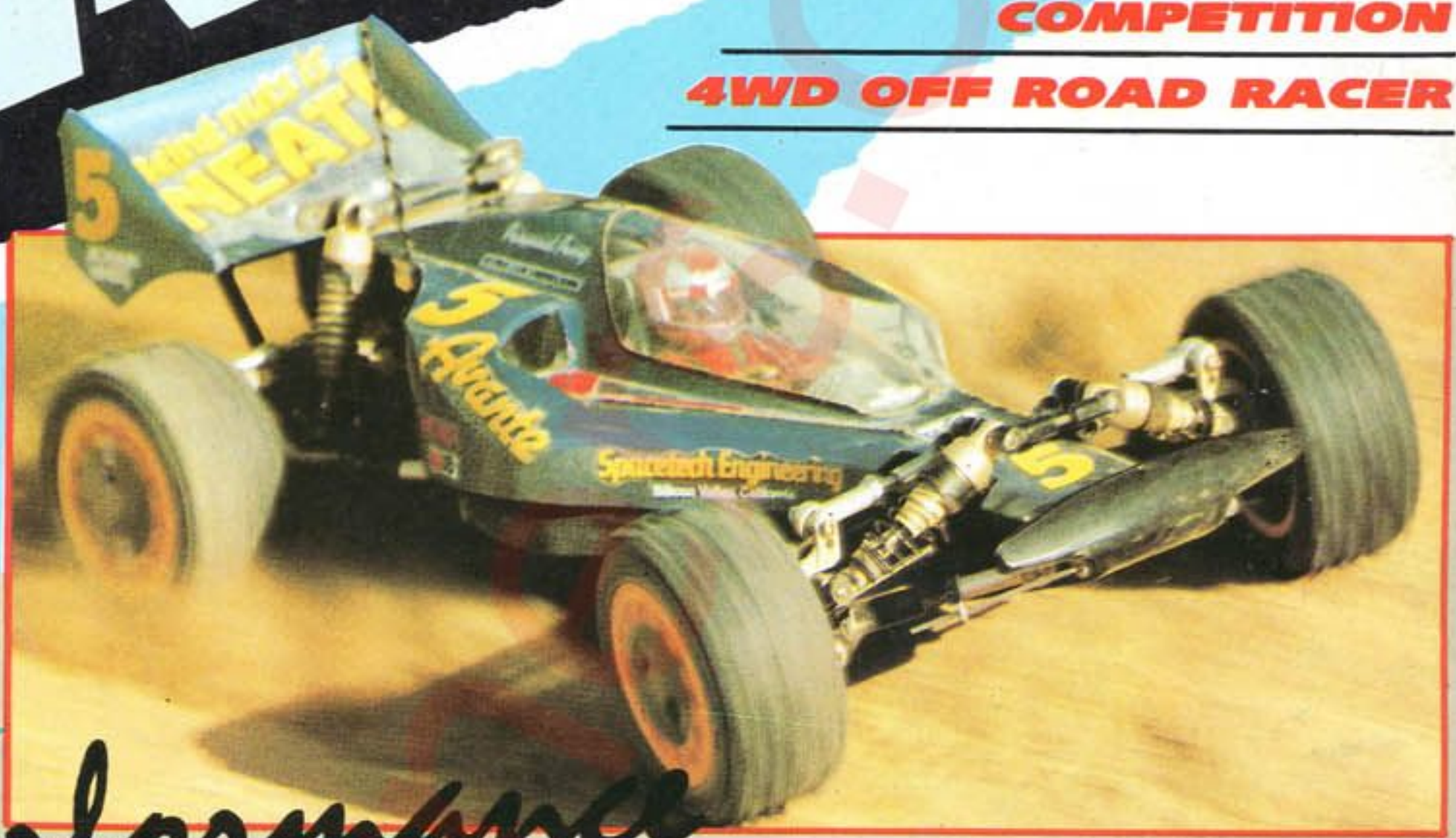
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