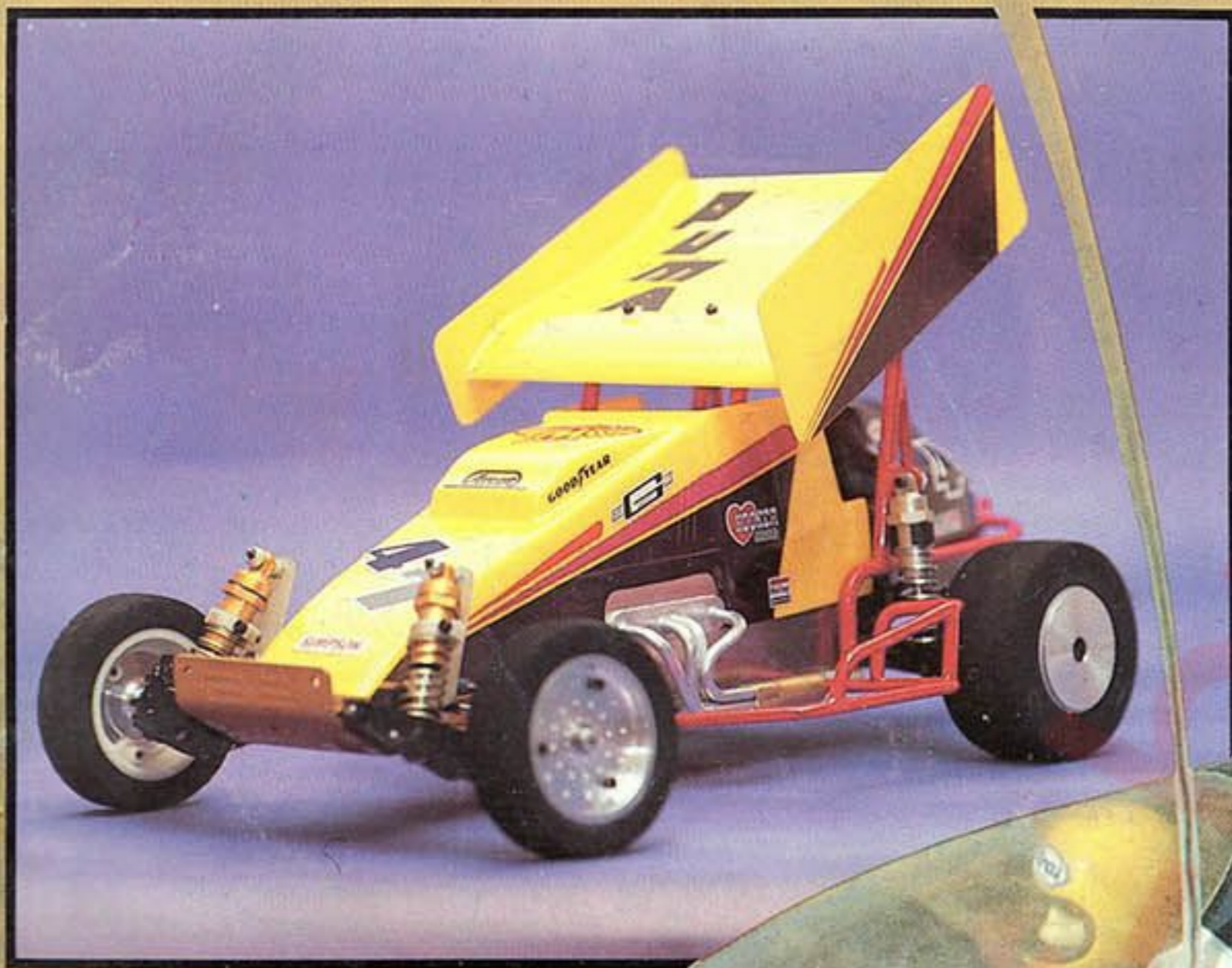


Radio Race Car

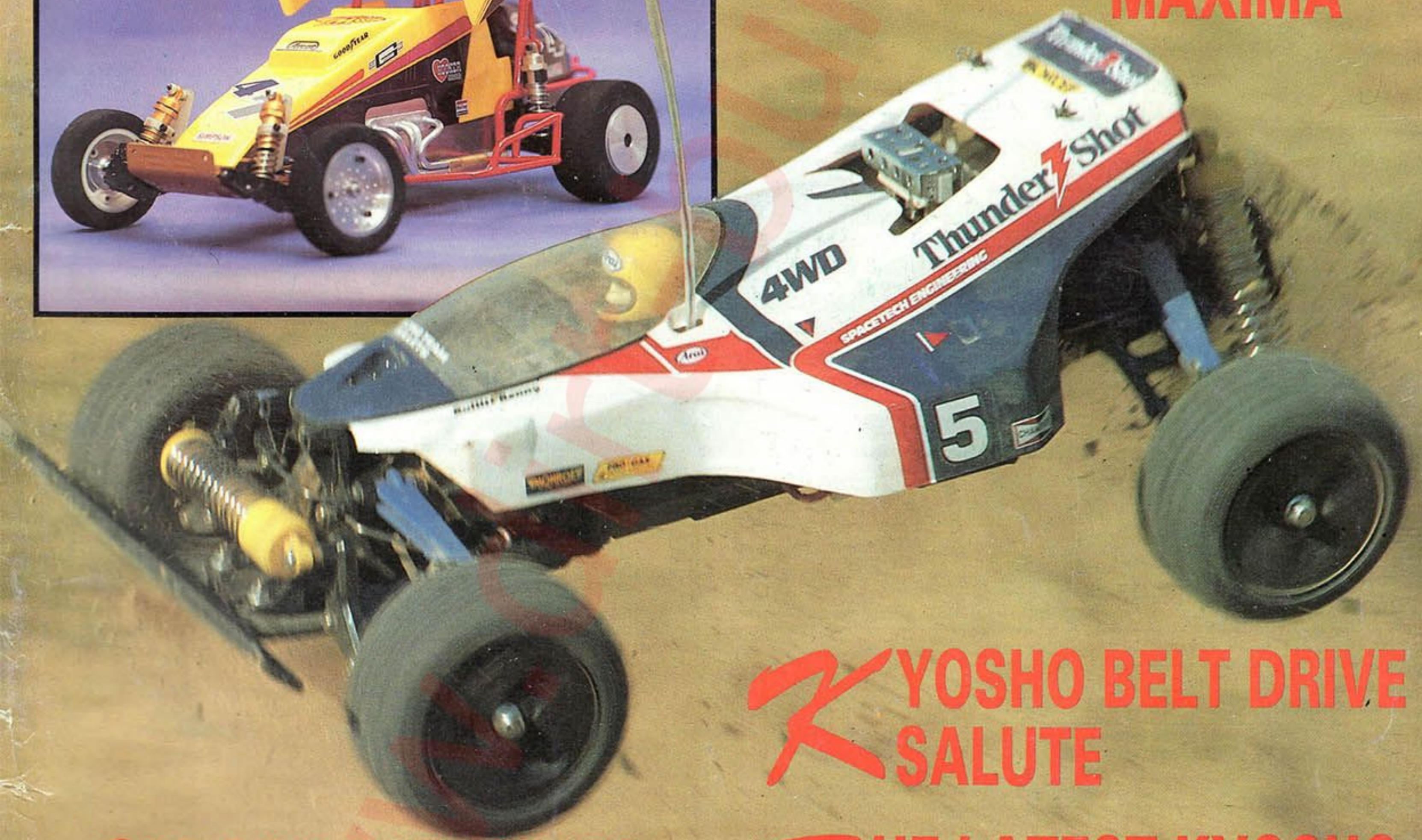
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Radio Race Car

C O N T E N T S

February 1988 • Issue 51 • ISSN 0268-3334

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Jim Davey • Bob Errington • Mike Billinton**

EDITORIAL

It would seem that Jim Crabb's column, *Everybody's Got to Learn Sometime*, has created more than a little interest amongst certain circles. A thought struck us at R.R.C. that one of the most frightening experiences of our lives was actually mounting the rostrum, transmitter in hand and seeing that little dot that we normally refer to as a car, sitting on that huge circuit. The race starts and the car refuses to do anything you ask it, then the next thing that occurs to you is that everyone standing trackside is laughing their socks off, at you!

In truth, no one is laughing at you at all, but it sure feels that way. In all seriousness that first trip to the rostrum, indeed the first day at a race meeting can be very traumatic indeed. To this end and following on from Jim's article, R.R.C. plan an introduction to race meetings for the first timers amongst us. We need your help to do this. R.R.C. are looking for six clubs to host these first timers' meetings, we are also looking for people to advise, help and cajole beginners through their first meeting.

Clubs interested in holding a beginners meeting, preferably on Saturdays, should contact:

D. Pearson, Beginners Meetings, R.R.C. International,
Masefield House, Wells Road, Malvern, Worcs.

Front Cover

Tamiya's new 4WD off roader, The Thundershot, in action! Inset
Puma's new 1/10 oval circuit racer.

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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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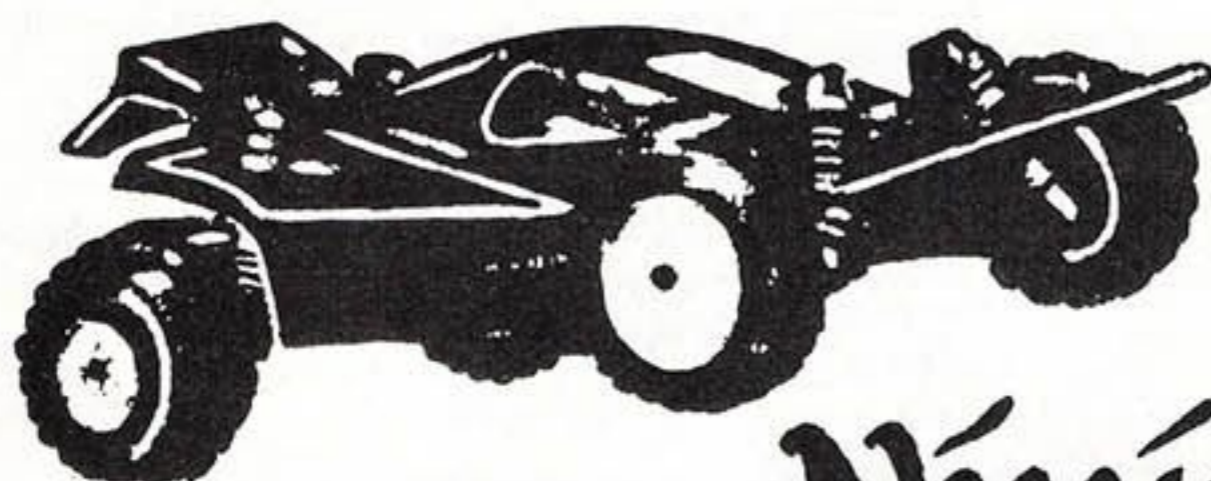
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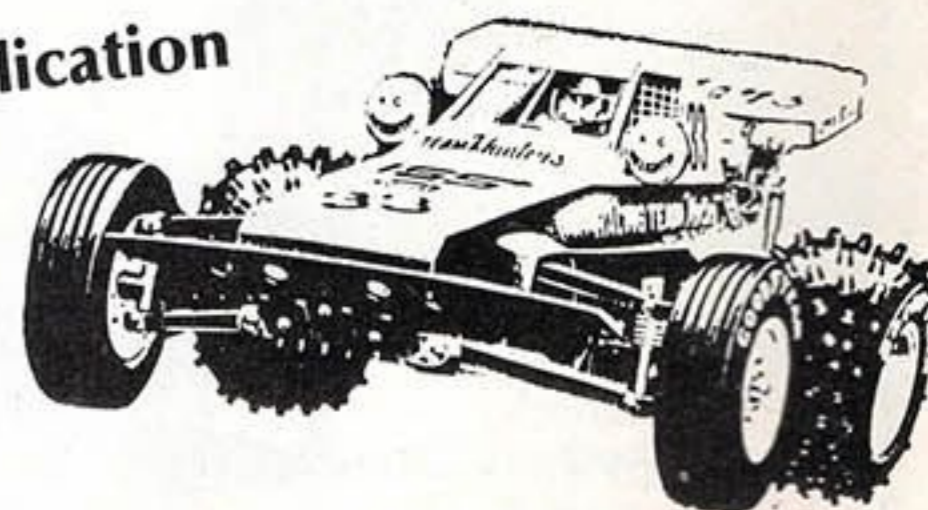
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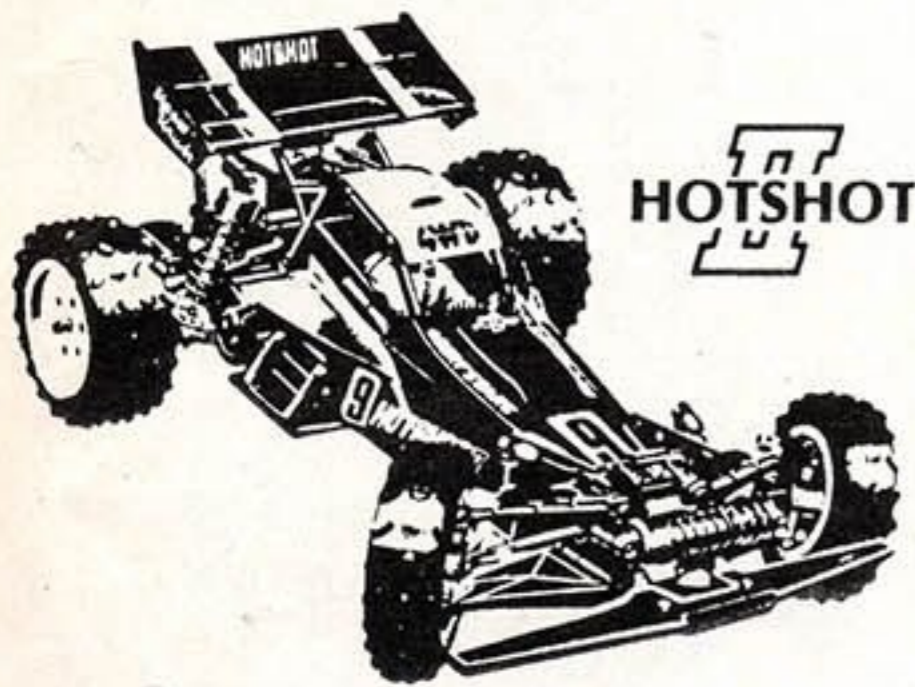
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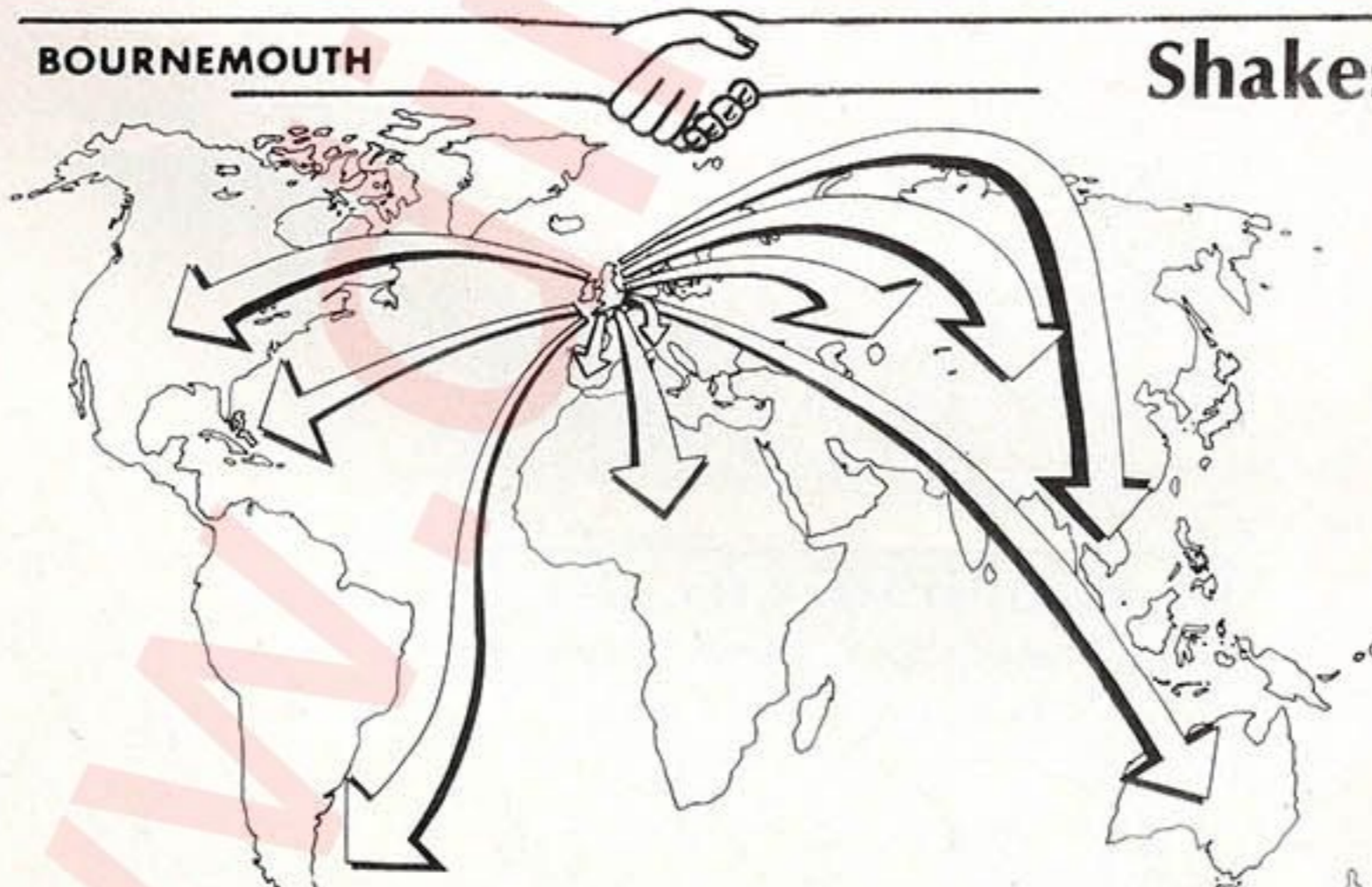
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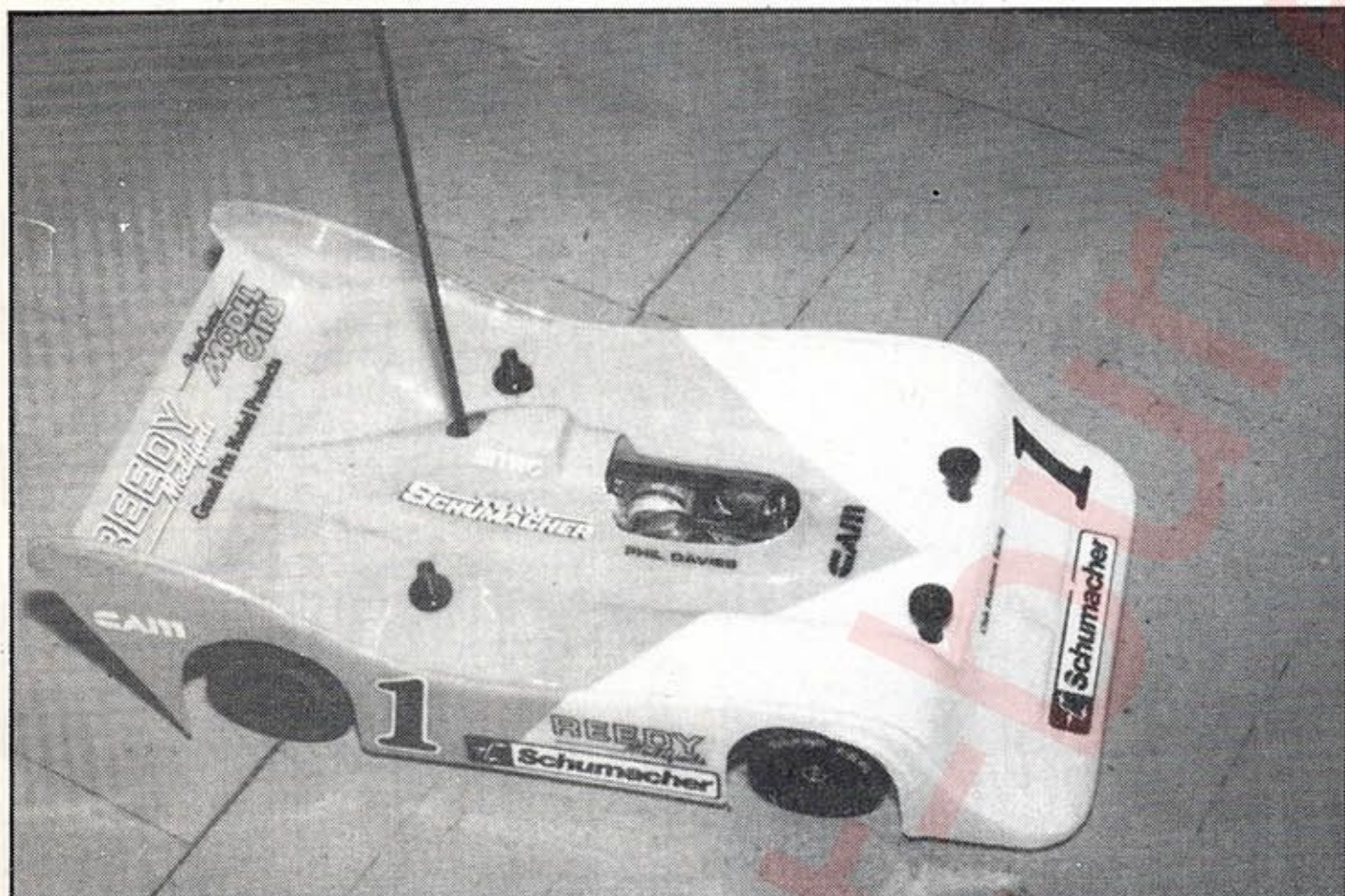
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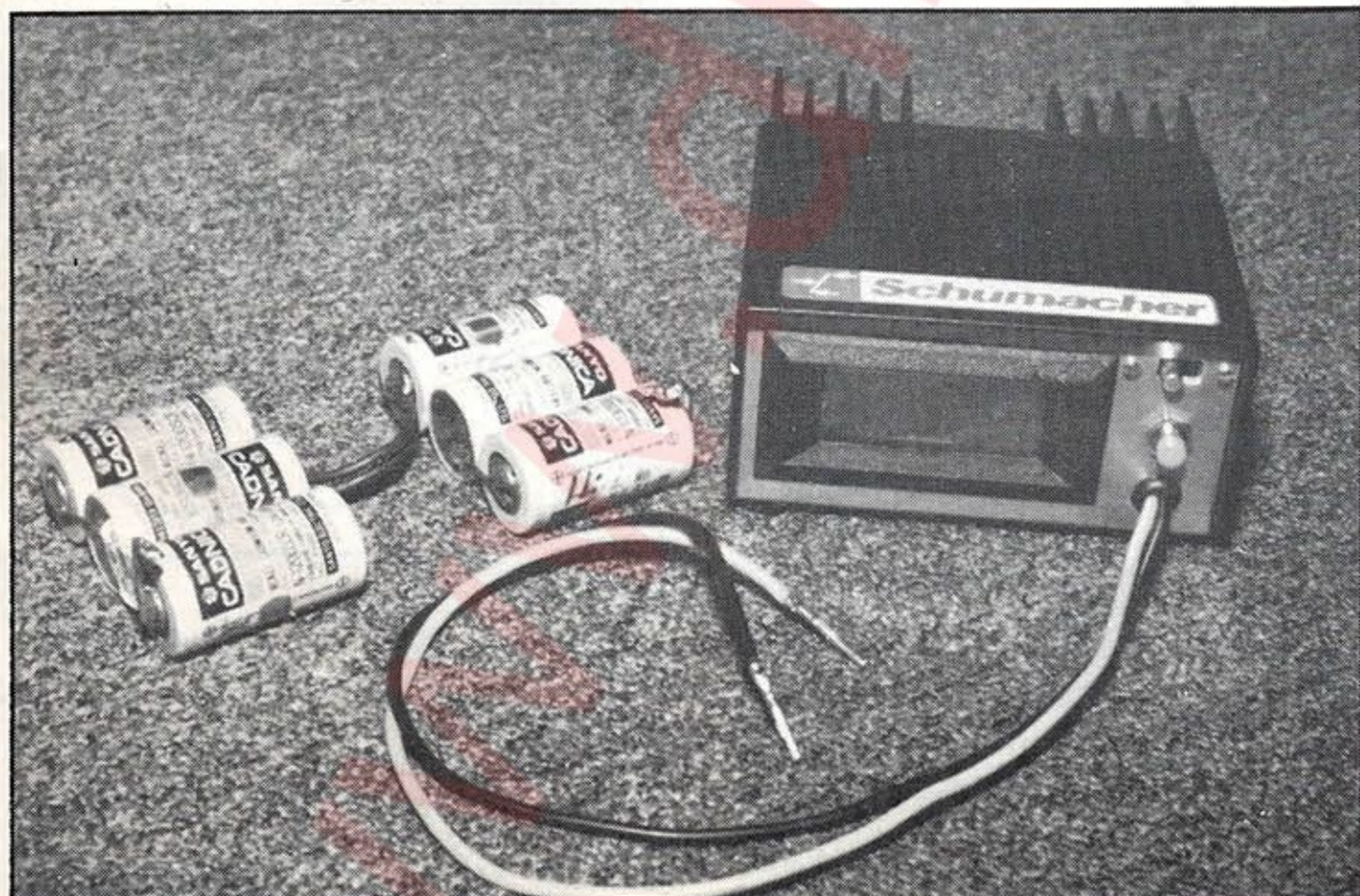
TRACK TALK

by Chris Evans



Schumacher prototype bodyshell at present under development. The Lola T530 shown here on Phil Davies's car.

Schumachers Nicad Capacity Meter a very useful piece of equipment for all drivers.



Once again this month there are some fresh idea's and new equipment being tried. Phil Davies has currently been testing a new bodyshell on his SP 'C' car, called the Lola T530 which could quite easily break the TOJ dominance for looks but as track tests have been limited to date, comparisons are hard to draw yet.

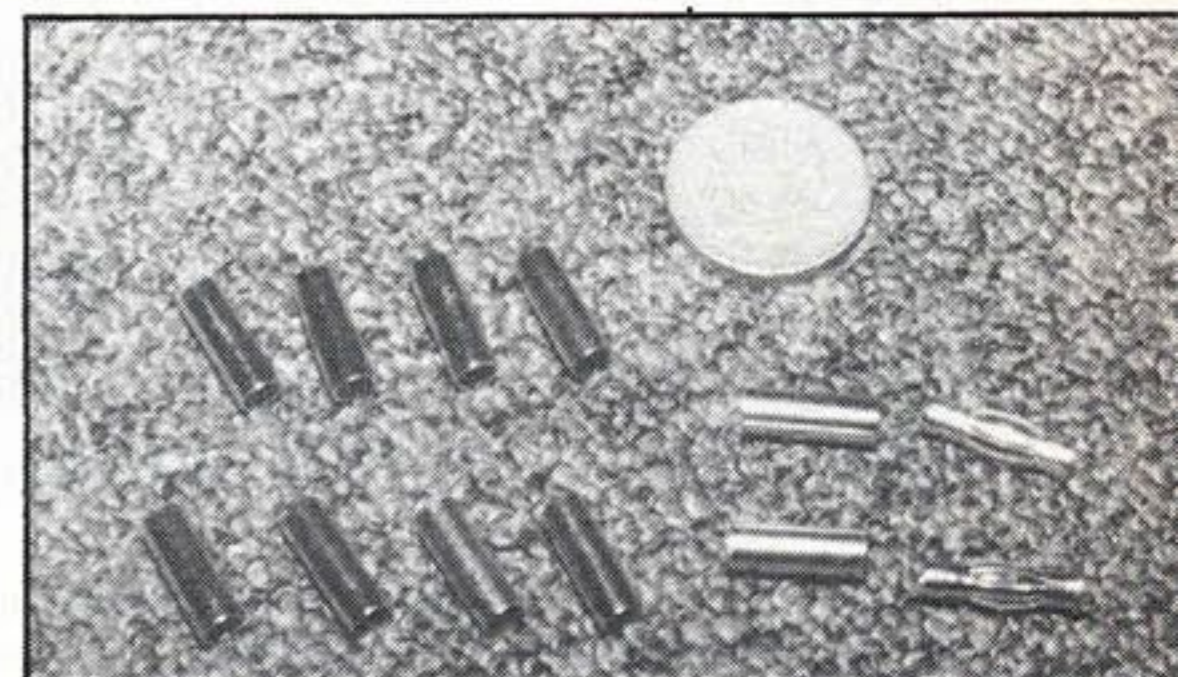
Also from the Schumacher camp is the Nicad Capacity Meter, retailing at about £125.00, boasting the following features.

- 1) The ability to measure the capacity of your 7.2 volt nicad packs automatically.
- 2) Allows you to select the best packs for the biggest races.
- 3) Prevents dumping by accurately measuring the power remaining in your cells after each race.

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The unit is switched on, the red 'reset' button pressed and the display will clear. The leads are then connected to your fully charged battery pack, and sit back and wait. The display will now advance as the pack discharges and the final result is displayed when the pack voltage falls to 3.5 volts.

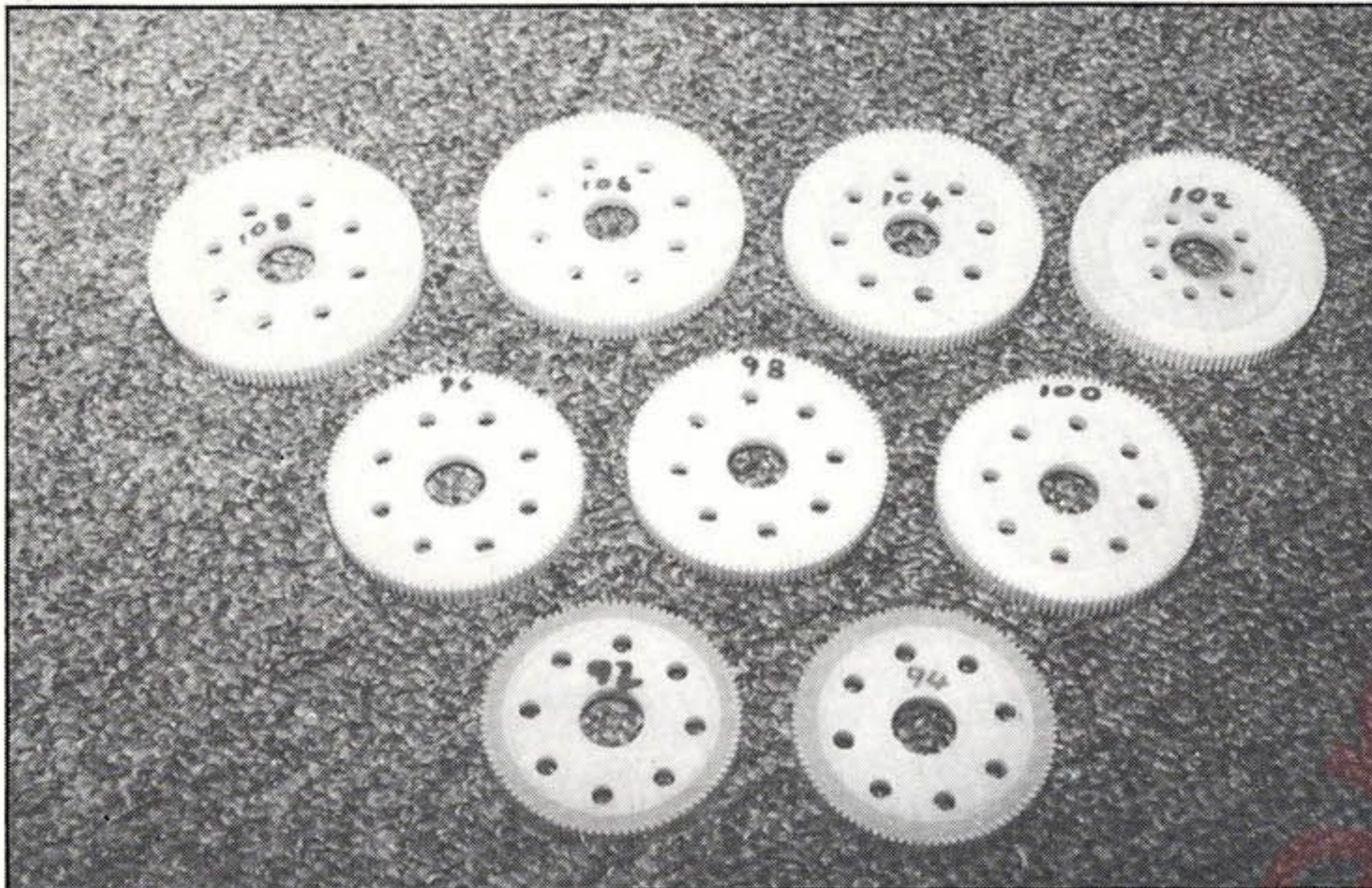
Apparently an average pack of nicads will display a reading of around 100.00%. A reading between 105%-110% is good enough to win at top level while a reading of 85%-100% is good for club use or practice. Although the meter gives a non linear reading i.e. cells which output a high voltage at the start giving more punch, give a higher reading than those that give out a lower voltage but for longer periods; the meter is only a capacity meter and gives very little idea of actual track performance in the way of punch when the cells are put under a heavy load under race conditions. However for comparisons between sets of



The latest and in my opinion the best Corally connectors yet.

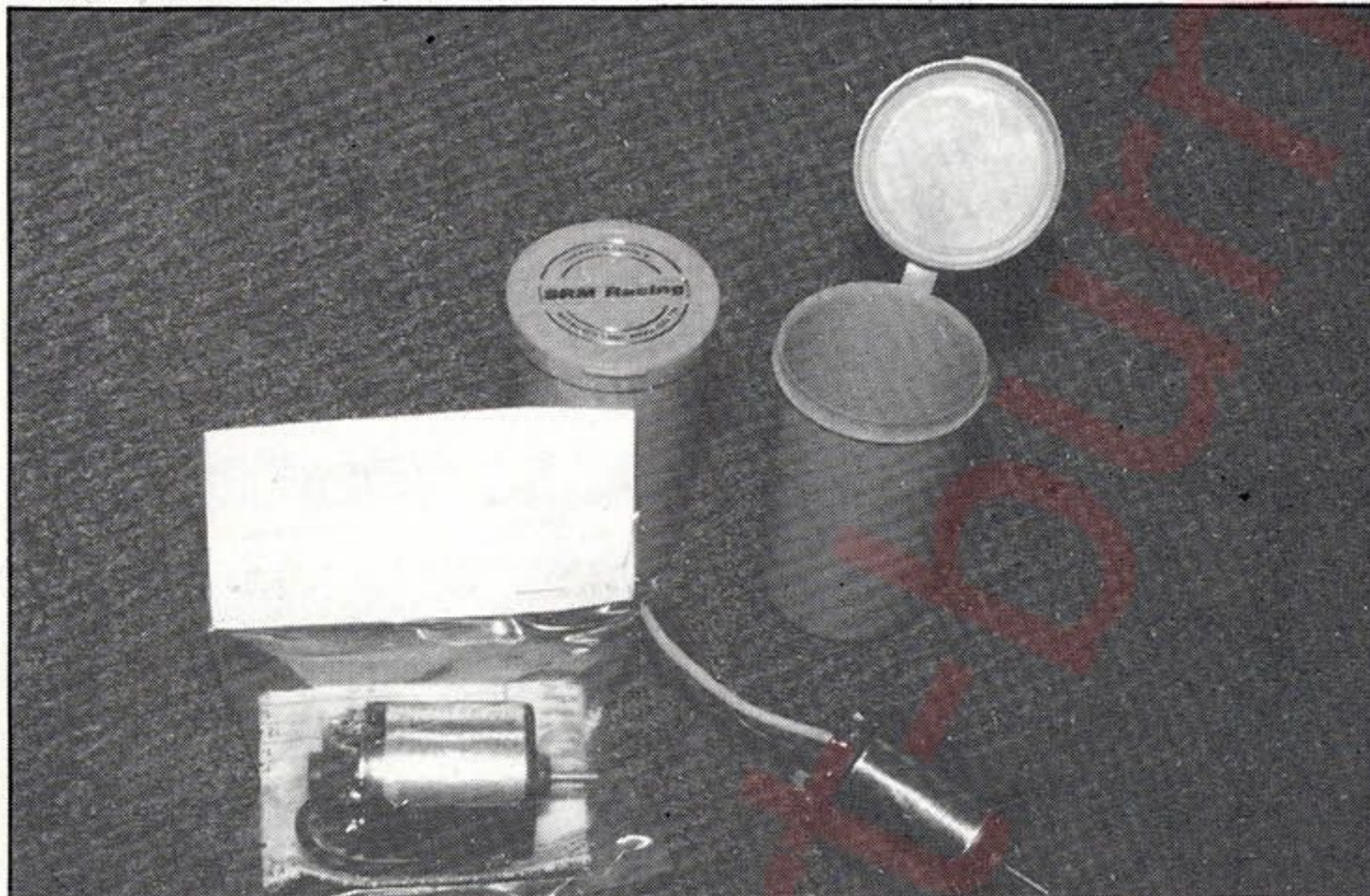
cells, different charging methods, etc., the units standard is accurate and worthwhile comparisons can be drawn, and in that respect, to the top drivers it's an extremely useful piece of equipment.

Yes, believe it or not, the SRM 64 DP Spur gears for the Associated and Schumacher differentials are now available. Nine gears are available ranging from 92 teeth to 108 teeth, being machined from Tufnol. In use you are advised to lubricate the gears with some light motor oil between heats and clean the teeth occasionally with a fine wire brush similar to the Parma Utility type. The gears are extremely strong and don't tend to get dented on impact like the Losi gears which are moulded from plastic. Although they are more easily damaged than the 32 DP gears, they are more efficient, and obviously that what counts.

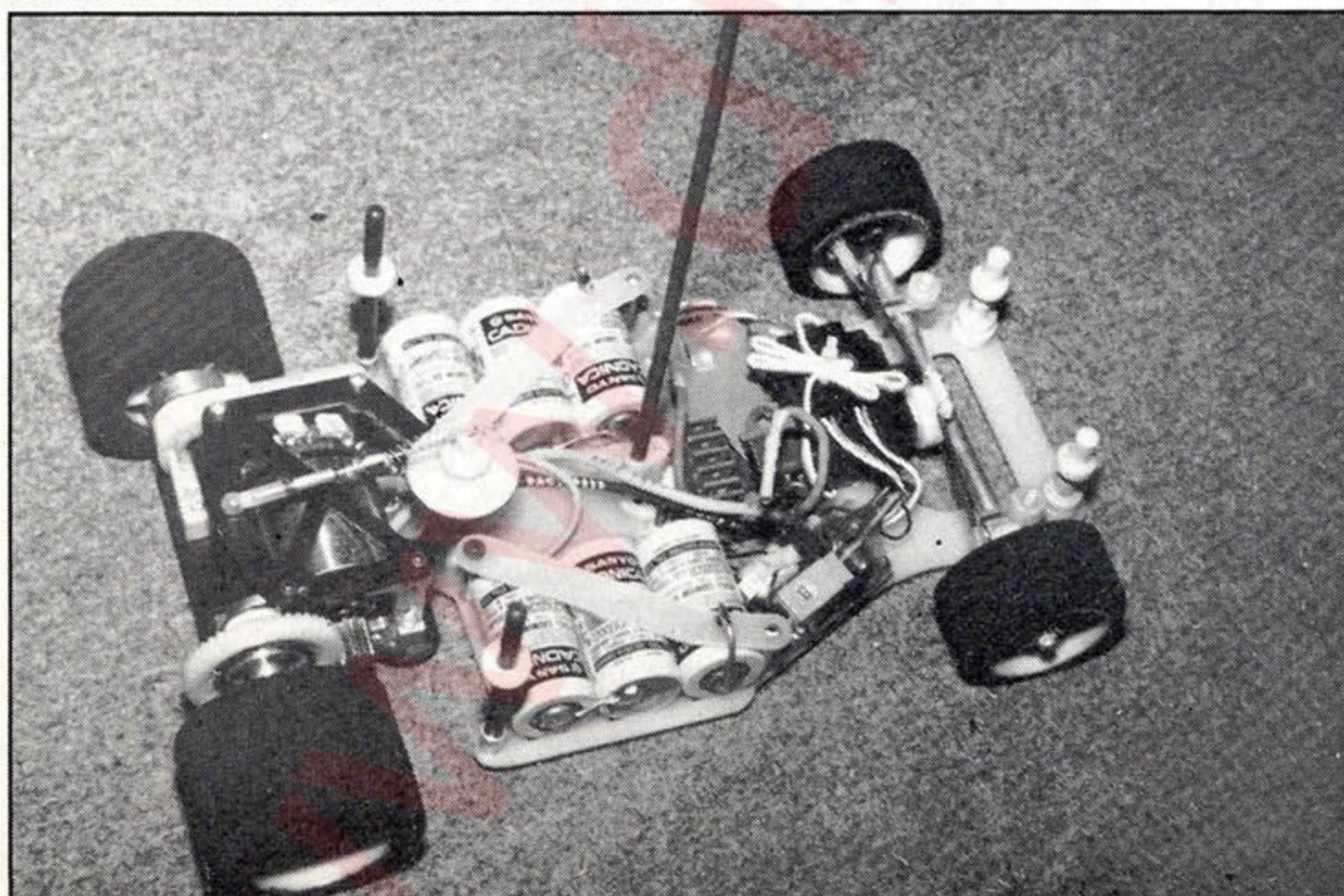


SRM's 64 DP spur gear range, made from Tufnol and designed for the RC-12L differential.

Two very popular motors around the tracks are the Twister modifieds namely the 27 turn double and the 27 turn quad. Both are readily available through SRM.



Geoff Burton's car utilising a Delta chassis married to an Associated RC12L rear end. Also fitted is a quick release nicad clamp arrangement.



Available from SRM at about £4.25 each. Ian Spashett has lately taken delivery of some new battery connectors from Corally. For your £1.95 you get ten female ends which should be soldered direct to the end of one of your cells and two male pins. The connectors are gold plated and are extremely heavy duty and just what you need for your on/off connection between cells and speed control, and are definitely the best on the market.

The male pin is soldered to one of your leads from the speed control while a female socket is soldered to the positive button of one of your cells.

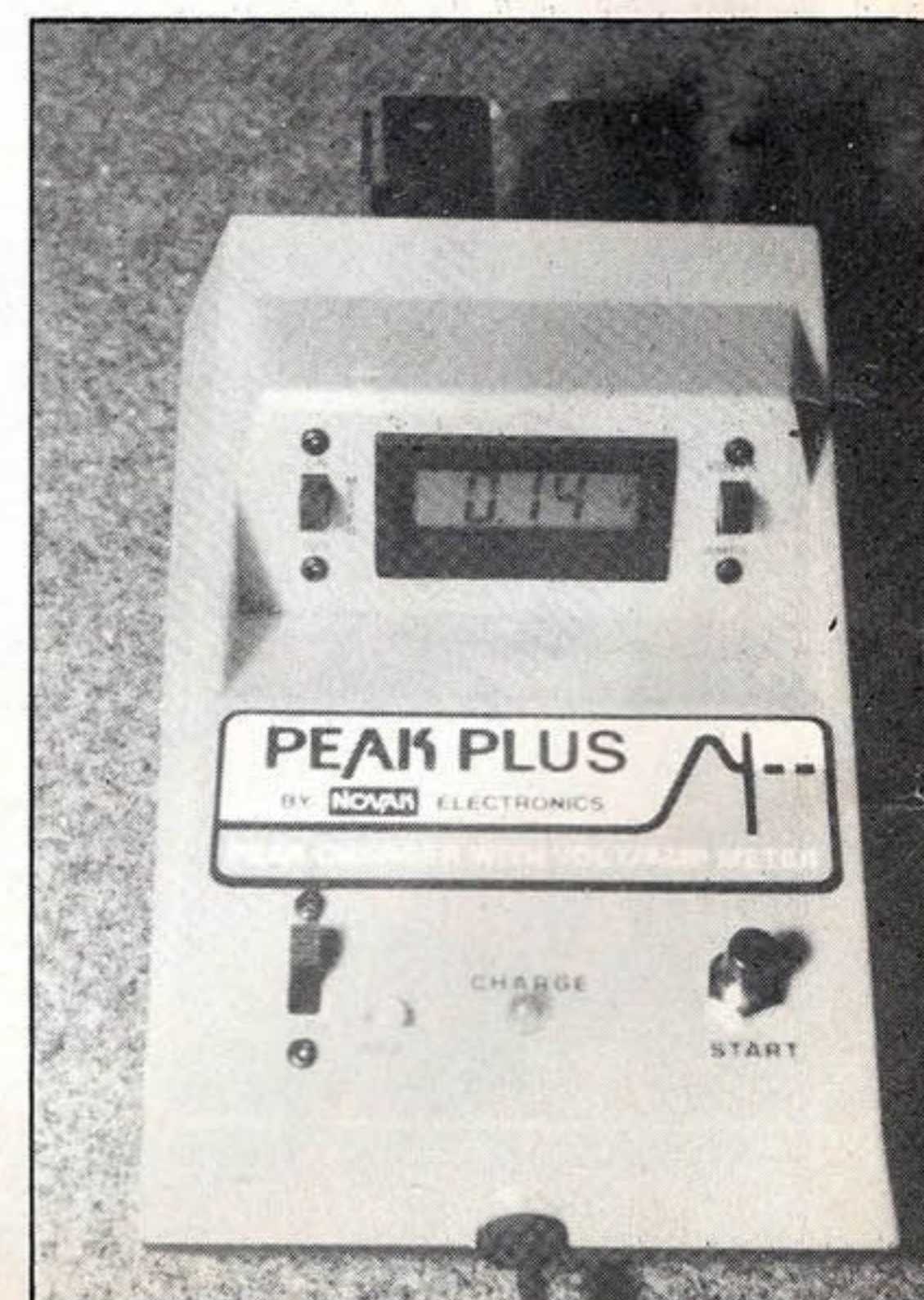
Lastly but not least, definitely the motor of the moment, the Twister 27 Turn Quad. The motors, produced by Mike Walker in America, and imported by Mick Langridge of SRM are excellent and that is a totally unbiased opinion offering both top end and acceleration on most tracks. They are available from SRM at £40 including a motor tub, and don't forget SRM offer a free rebuild service to all Twister customers.

Date Correction

The first round of the Stafford Mini National series for 1988 is now on the January 17 and not the 12 as some of the available literature shows.

The last two items this month, which were seen at the penultimate round of this years Stafford Mini National Series were one of the latest Novak Chargers and a Delta/Associated car. The charger is designated the NEC-3 Peak Plus and contains the following features:-

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- 5) Built in circuit breakers for all round protection.
 - 6) Built in L.C.D. which can show cell voltage or charge current at the flick of a switch. All enquiries to Central Models.
- The Delta/Associated car, built by Geoff Burton uses a Delta saddle pack chassis with the beam front end and an RC12L rear end including T-bar and pivot balls, the car

being very similar to some of the prototypes built by Gil Losi. By using the Delta chassis which has a bit more meat on it than the 12L version, a simple and efficient quick release nicad clamp arrangement has been fitted so no more fiddling with strips of reinforced tape, and on the track performance is comparable with any standard RC12L.



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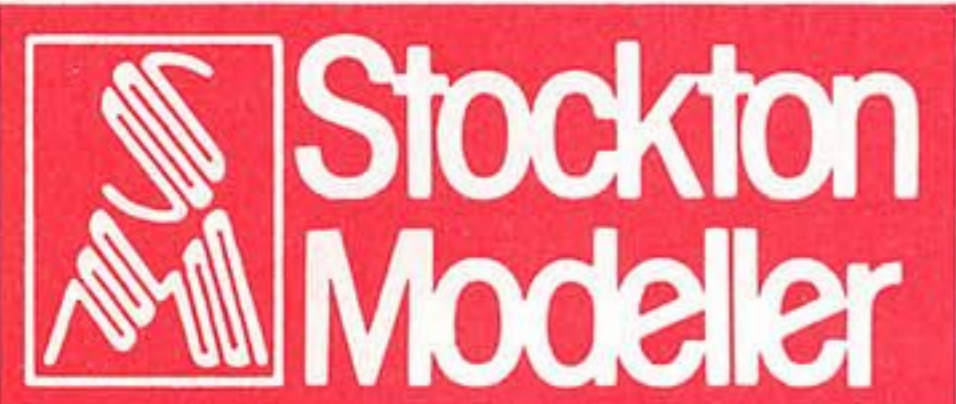
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1104 Crystal set Tx/Rx, band 4 Yellow (27.145)	£5.95
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1106 Crystal set Tx/Rx, band 6 Blue (27.255)	£5.95

1/10th Electric Buggies and Buggy Deals

Deal Price with the following Radio Equipment

	Acoms Techni-plus	Futaba Attack 2NBR Std & BEC	Acoms Techni-plus BEC
Tamiya Super Sabre	£89.95		
Tamiya Clod Buster 4WD	£159.95	£226.95	£226.95
Tamiya Toyota Celica 4WD 1/12	£142.95	£210.95	£210.95
Tamiya Vanessa's Lunch Box	£65.95	£130.95	£130.95
Tamiya Striker	£57.95	£121.95	£121.95
Tamiya Monster Beetle	£86.95	£150.95	£150.95
Tamiya Porsche 959, 4WD 1/12th	£135.95	£202.95	£202.95
Tamiya Blackfoot	£78.95	£142.95	£142.95
Tamiya Big Wig 4WD	£147.95	£215.95	£215.95
Tamiya Falcon	£63.95	£128.95	£128.95
Tamiya Boomerang 4WD	£89.95	£159.95	£159.95
Tamiya Hotshot II 4WD	£107.95	£176.95	£176.95
Tamiya Hornet	£51.95	£116.95	£116.95
Tamiya Grasshopper	£44.95	£111.95	£111.95
Marui Ninja 4WD	£94.95	£161.95	£155.95 £161.95
Marui Samurai 4WD	£94.95	£161.95	£155.95 £161.95
Marui Big Bear 1/12th	£49.95	£116.95	£109.95
Marui Toyota Land Cruiser	£45.95	£112.95	£106.95
Kyosho Turbo Rocky 4WD	£132.95	£212.95	£205.95 £212.95
Kyosho Optima Pro 4WD	£110.95		
Kyosho Salute 4WD	£177.95	£256.95	£249.95 £256.95
Kyosho Rocky 4WD	£99.95	£169.95	£162.95 £169.95
Kyosho Optima Turbo 4WD	£189.95	£257.95	£250.95 £257.95
Kyosho Optima 4WD	£123.95	£191.95	£184.95 £191.95
Kyosho Ultima	£102.95	£169.95	£162.95 £169.95
Mardave Meteor	£53.95	£120.95	£113.95
Circuit Electric Cars			
Tamiya Porsche 956 Newman	£76.95	£144.95	£136.95

All deals include the car/buggy, 2ch radio control (4ch with the Bruiser), 7.2v Tamiya/Sanyo racing rechargeable drive battery and either mains slow charger or 12v fast charge lead (please state which charger you require). Some buggies will also accept the 8.4v racing battery, Saft £7 extra, Tamiya £12 extra.
 BEC = Receiver battery eliminator circuit.
 The drive battery will run a buggy for approximately 5-10 minutes.

PHONE FOR PRICE

Ballraces

INCH	METRIC
1/8" I.D. x 1/4" O.D. F&S	2mm I.D. x 6mm O.D. S
1/8" I.D. x 5/16" O.D. F&S	3mm I.D. x 8mm O.D. S
3/16" x 5/16" O.D. S	3mm I.D. x 6mm O.D. F&S
3/16" x 5/16" O.D. F&S	4mm I.D. x 8mm O.D. S
1/4" x 3/8" O.D. S	4mm I.D. x 8mm O.D. F&S
1/4" x 3/8" O.D. F&S	5mm I.D. x 8mm O.D. S
1/4" x 1/2" O.D. F&S	5mm I.D. x 10mm O.D. S
	5mm I.D. x 11mm O.D. S
	6mm I.D. x 10mm O.D. S
	6mm I.D. x 10mm O.D. F&S

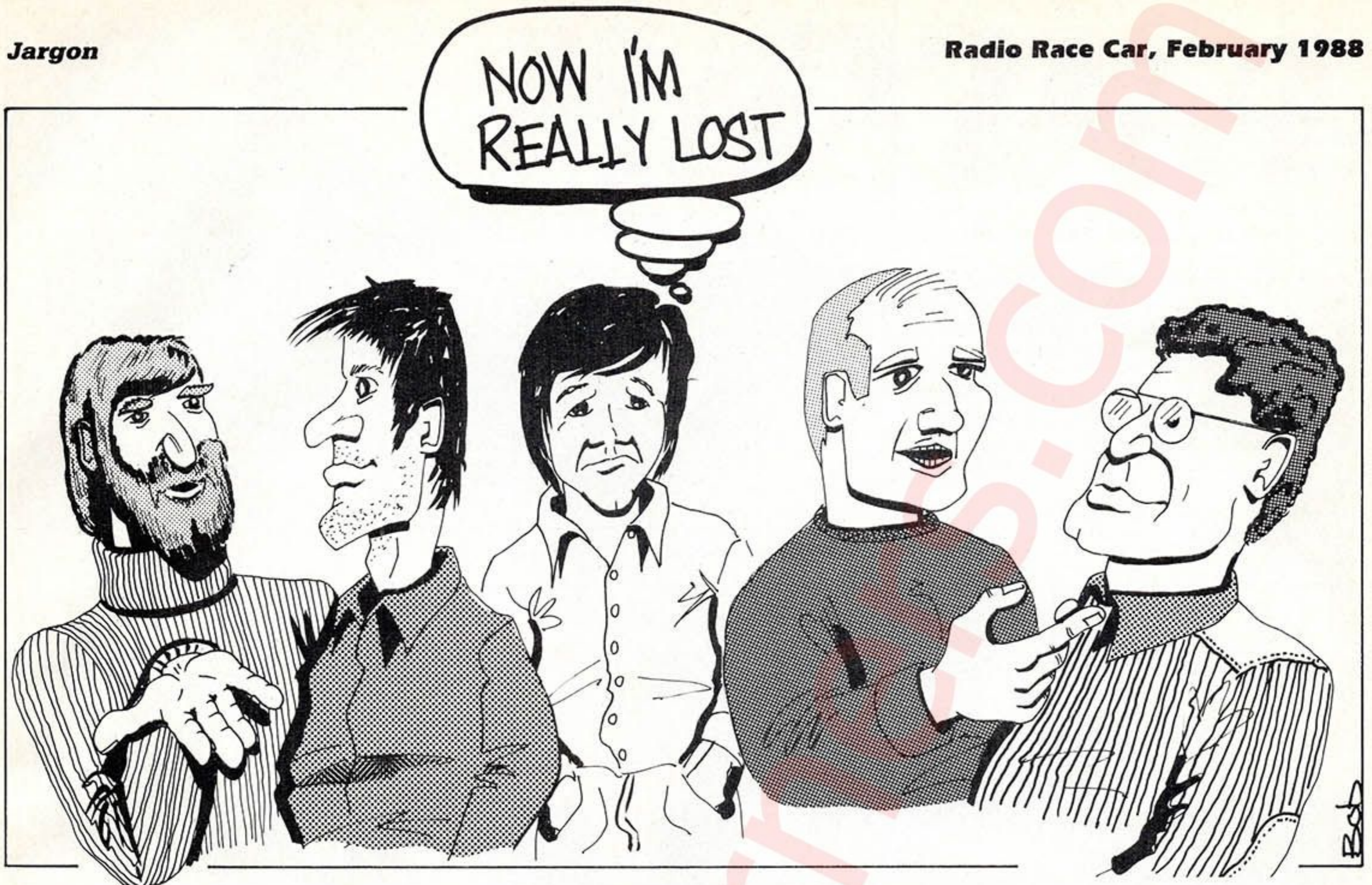
S = Shielded
 F&S = Flanged and shielded.

Ballrace Sets

Tamiya Porsche 959	£27.75
Tamiya Hotshot II	£19.99
Tamiya Lunch Box, Big Wig, Hornet & Grasshopper	£10.41
Tamiya Striker/Falcon	£12.39
Tamiya Boomerang	£23.99
Tamiya Fox	£3.96
Tamiya Hotshot	£19.99
Tamiya Monster Beetle, Blackfoot & Wild One	£10.92
Tamiya Frog	£7.92
Tamiya Rough Rider	£11.88
Tamiya Subaru	£12.90
Marui Ninja	£34.99
Marui Samurai	£27.99
Associated RC10	£36.50
Kyosho Rocky	£22.50
Kyosho Optima	£19.99
Kyosho Progress	£29.99
Kyosho Scorpion	£24.99

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 Buggies built to order
 £15.00 extra
 Send an A5 SAE for our illustrated Electric Car Catalogue

OXFORD



Everybody's Got To Learn Sometime

Part 4

Soon after the review I carried out on the 'Rocky' I had a phone call from a Rocky owner to say he did not agree with my report. He told me although he had a M.O.S.F.E.T. controller set up with a gizmo and peaked charged using a D.V.M. his triple zapped Rocky even though comm dropped prior to the start and geared at 11.1 was no where near F.T.D. yet alone T.Q. and that I should reconsider my review A.S.A.P.

An expert I thought (remember my definition of an expert) an ex is a hasbeen and a spert is a drip under pressure, we discussed at length my report and it was only when I suggested we raced my Rocky against his to prove its ability and its first outing F.T.D. was no fluke that it came out this was a novice driver who knew all the correct terminology and current buzz words. He knew the correct words and even had them in the right context but on closer questioning knew roughly what they meant but was unable to explain fully their meaning. Before I give you my J.C.D.J. (Jim Crabb Dictionary of Jargon) I will translate the telephone conversation into English.

His car has a Metal Oxide Silicon Field Effect Transistor (M.O.S.F.E.T.) speed controller set up with Calibration Device (GIZMO) and the driver battery charged to its Peak Voltage (Peak Charged). Using a

Digital Volt Meter (D.V.M.) the Triple Wound Armature Motor (Triple) has had the Magnetism of the Magnets Strengthened (Zapped) and even though the commutator had Commutator Additives applied (Comm Dropped) and a gear ratio which meant for every eleven times the motor turned the wheels went round once (11.1) it was no where near Fastest Time of the Day (F.T.D.) yet alone Top Qualifier (T.Q.) and that I should reconsider my review As Soon As Possible (A.S.A.P.)

As you can see Jargon cuts down on the number of words used and if written saves a lot of space on paper. Perhaps if we all used jargon when writing we could save a forest in Scandinavia. Jargon is ok if we all use it but how does the beginner or newcomer cope, it's like a foreign language so listed below are the abbreviations and buzz words in alphabetical order with a brief explanation where necessary.

Anti-Roll Bar: Device that can be fitted to both front and rear of car to resist sideways

B.E.C. Unit, separate battery not required.

roll which occurs during cornering.

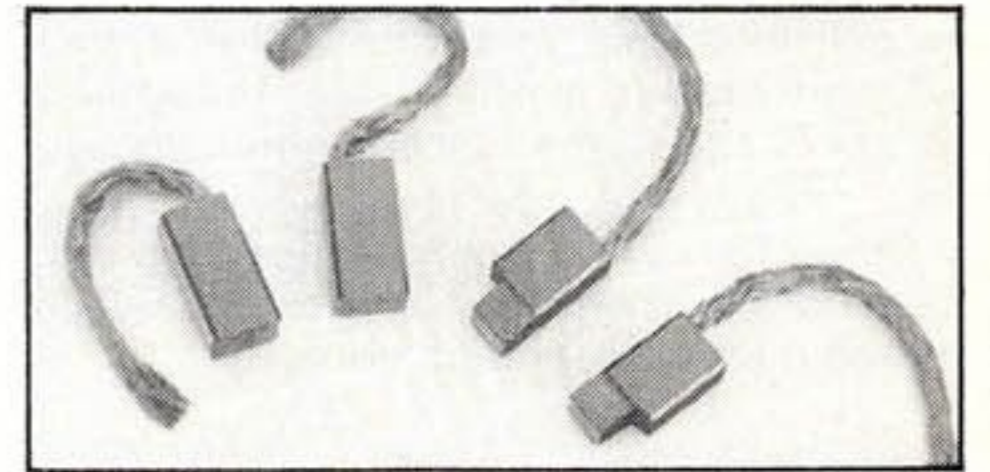
A.S.A.P.: As soon as possible.

A.S.A.P.P.: As soon as possible please.

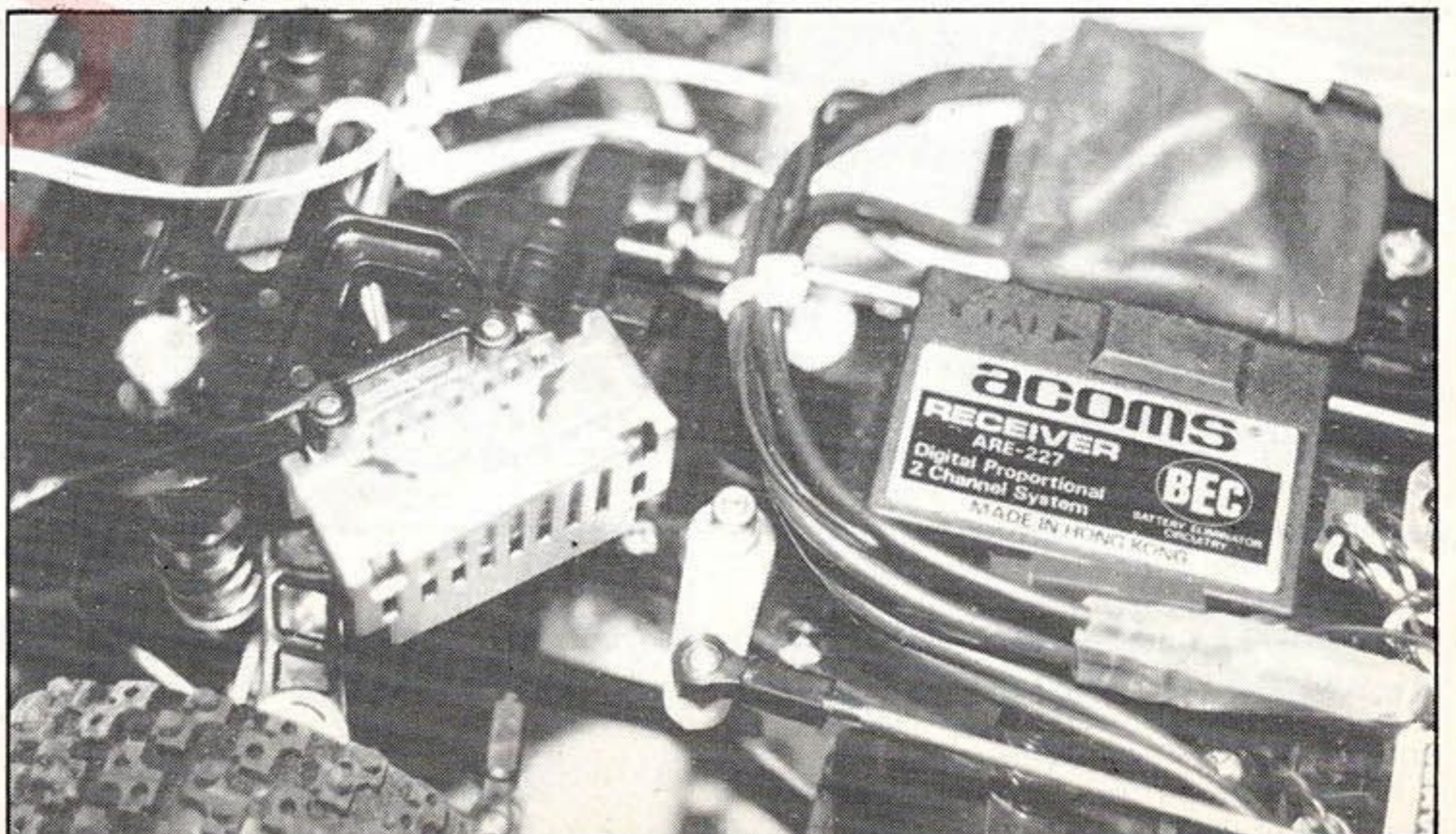
A.S.P.: Adjustable Safety Position. Feature found on more expensive radio systems to regain control of car when nicads run flat.

B.E.C.: Battery Eliminator Circuit. Incorporated in radio receiver so that you do not require a separate battery to power the receiver or servos.

Brushes: Small oblong pieces of carbon which conduct electricity to the commutator of the motor.



Brushes, conduct electricity to the motor.



Jargon

Bumpsteer: Occurs on front suspension. When the suspension is raised the geometry is changed from toe-in to toe-out.

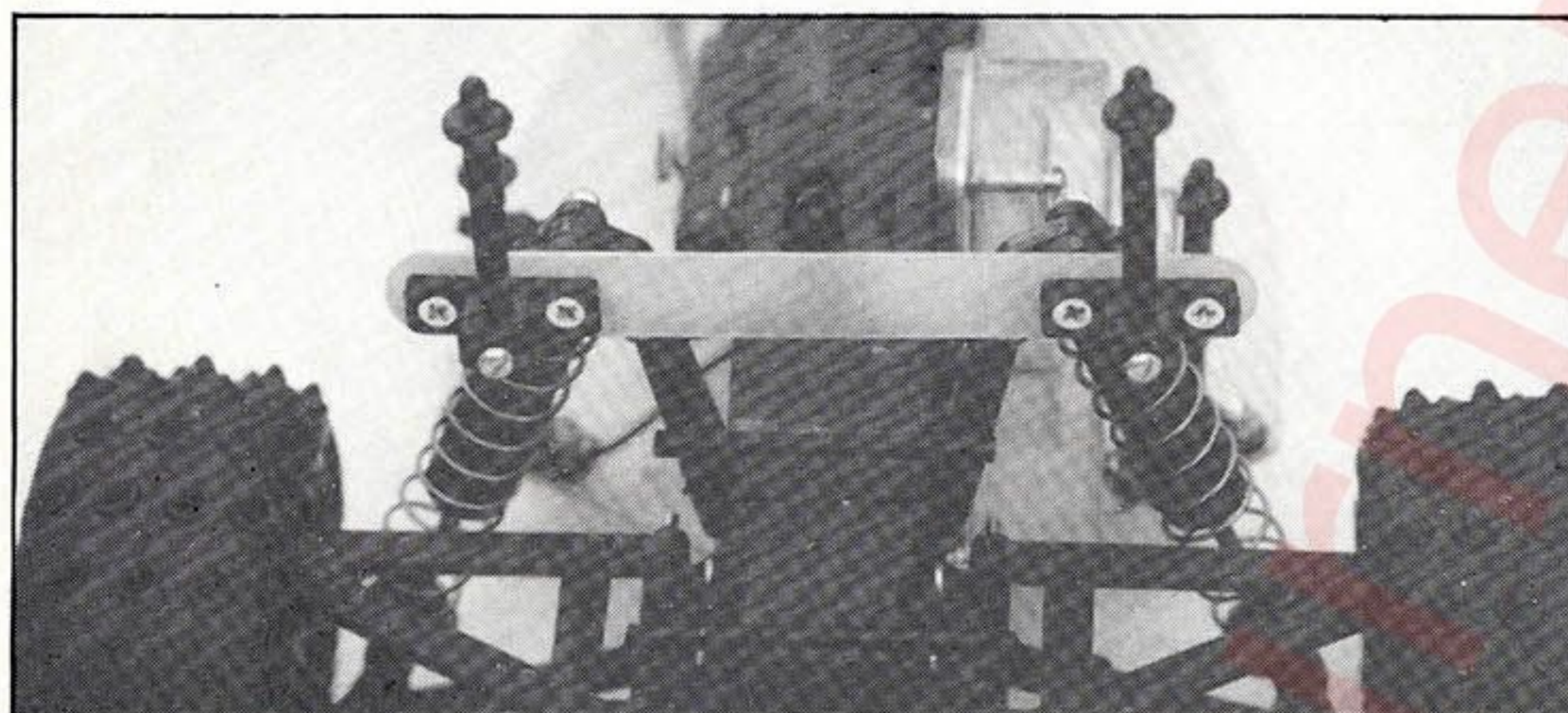
Camber Angle: The angle at which the cars wheels viewed from the front tend to lean. If the wheels lean outwards i.e. the distance measured between the top is greater than that between the bottom is said to be positive. If they lean in i.e. top of wheels closer together than at the bottom it is negative.

Caster Angle: Is the angle between the steering pivot axis and an imaginary line drawn through the centre of the wheel. Gives the car an inbuilt tendency to travel straight.

Coil-over Shocks: Shock absorber unit with the damping unit inside the coil spring.



L.W.B. Long wheelbase as in this CAT.



Coil over shocks.

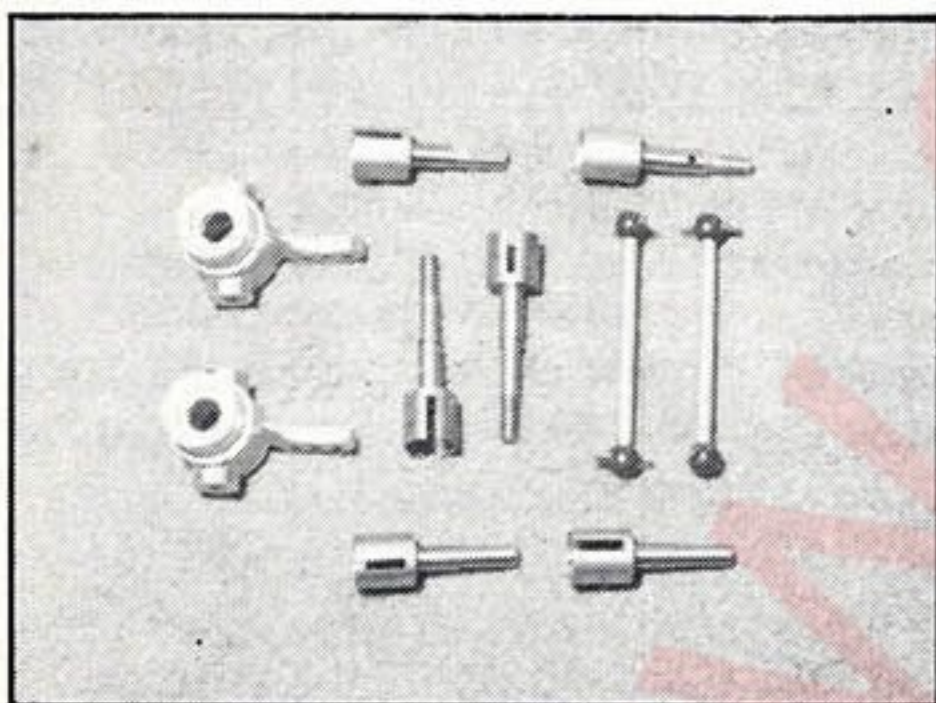
Comm.: Part of the armature of a direct current motor which changes the direction of the current. It is the copper segmented part which the brushes run on.

Comm. Drops: Additive which is said improves the efficiency of the motor and makes the car quicker off the line. Of doubtful advantage to the average racer.

Differential: Device in rear axle of two wheel drive cars and both axles of four wheel drive cars which enables the wheels to travel at different speeds when cornering.

Dogbone: Drive shaft, called this because of the protuberance each end which makes it look like a dogs bone.

Dogbones



Dump: When the main nicad battery has insufficient power left to drive the car.

D.V.M.: Digital Volt Meter. Very accurate measurement device with digital display.

F.E.T.: Field Effect Transistor. Very efficient solid state device used in speed controllers, chargers and other electrical equipment. They are expensive.

F.T.D.: Fastest Time of the Day. The quickest heat of the day.

Gizmo: Device used for setting up electronic speed controllers.

G.R.P.: Glass Reinforced Plastic. Strong, light weight plastic composite material.

L.E.D.: Light Emitting Diode. Electrical indication device used on electronic speed controllers, gizmos and chargers.

Limited Slip: Refers usually to the type of differential where not all the drive is transferred to the wheel not in contact with the ground thus keeping some traction.

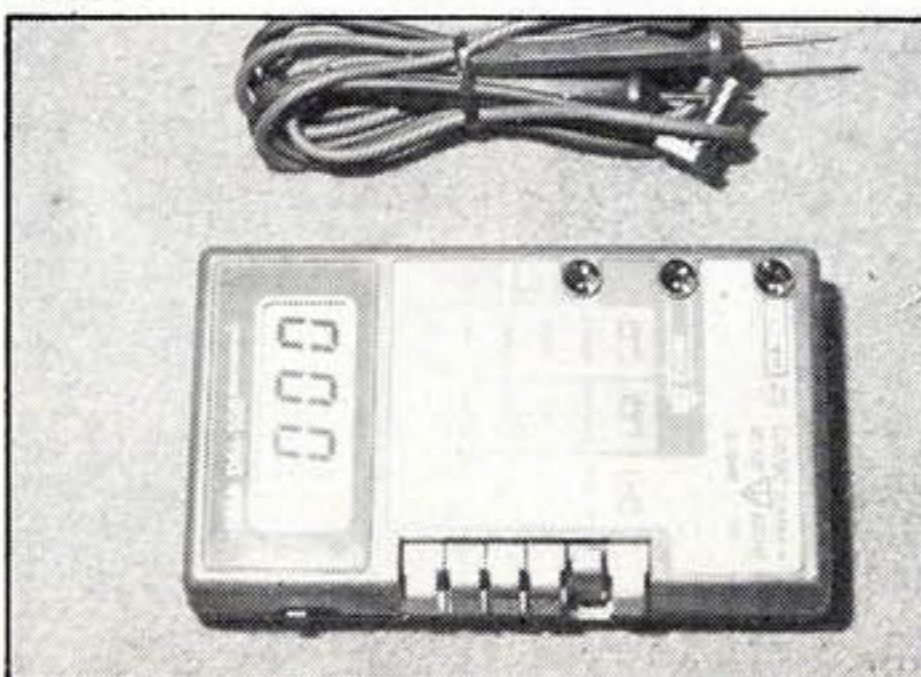
L.W.B.: Long Wheel Base. Refers to the distance between the centre of the front and back wheel. In the case of the CAT there are two versions of the car one has a wheel base 25mm longer than the other. See S.W.B.

Modified: Refers usually to the motor, it is a motor with less than 27 turns on the ar-

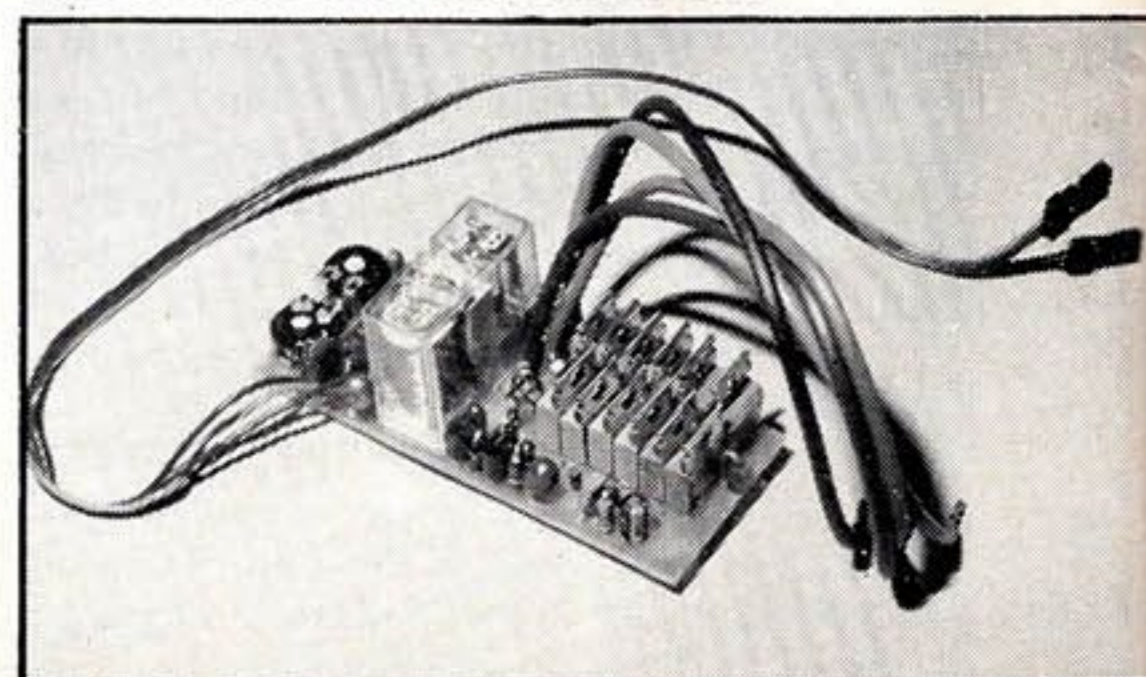
Typical modified motor



D.V.M.



Speed controller using ten F.E.T.s



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£199.00

SPECIFICATION

Weight — 1.44K to 1.59K (3lb 3oz to 3lb 8oz) depending on radio equipment
Wheelbase — 273mm (10.75in.)
Width Front — 247mm (9.72in.)

Width Rear — 249mm (9.8in.)
Max. Ground Clearance — 40mm (1.57in.)
Suspension Movement — 45mm (1.77in.)

FEATURES

All metal Hardy Spicer type universal joints outboard
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These features add up to a totally adjustable car which is simple to build, forgiving to drive, very fast and super efficient.



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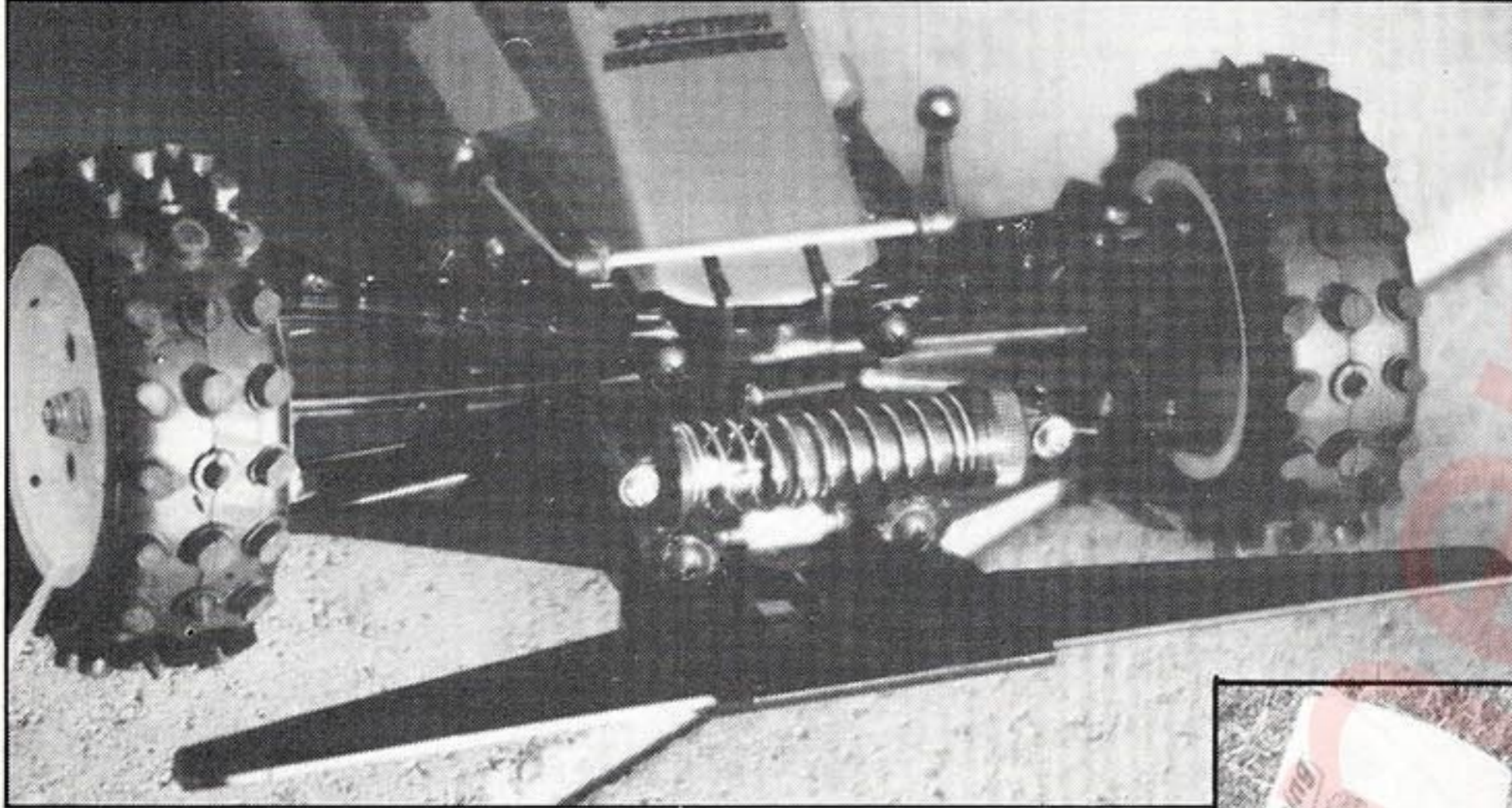
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Telex Agency 86736 SOTEX G. for PB Racing

mature and must cost less than £40. It is usually ballraced and has adjustable timing.

M.O.S.F.E.T.: Metal Oxide Silicon Field Effect Transistor. See F.E.T.

Monoshock: When one shock absorber is shared between two wheels to provide the damping for the suspension used on the front of the Boomerang and Rocky.

Monoshock



Nicad battery pack.



Ni-Cad: Nickel Cadmium. Type of battery.

Oversteer: When the car tends to turn more quickly than the driver intends.

Peak Charger: A charger that uses a phenomenon that takes place when charging nicads. There is a rise in volts at the point of maximum charge, followed by a drop. The rise and fall is known as the peak. Can be measured with a D.V.M.

Peak charger

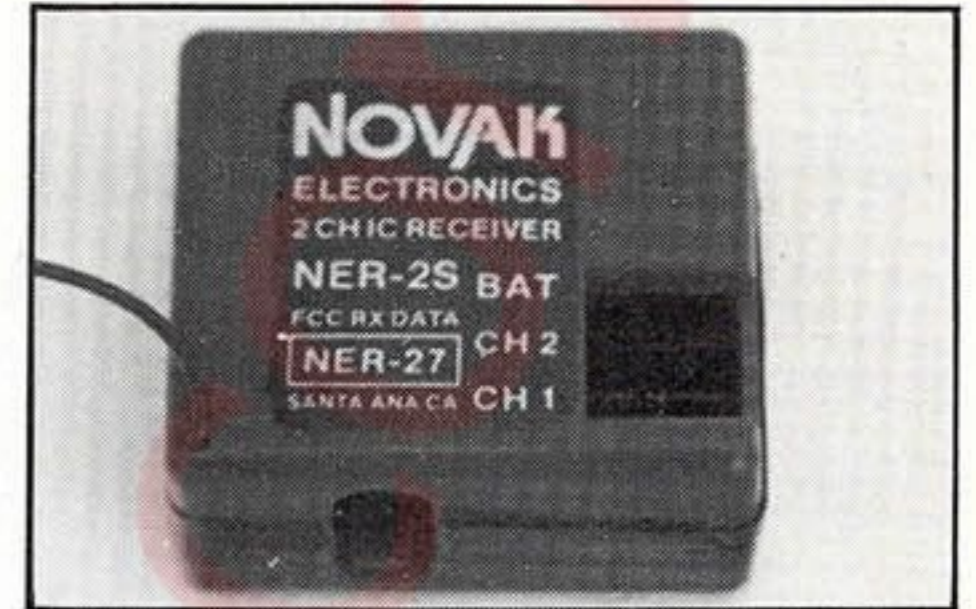


Quad: Quadruple. Refers to the number of parallel strands of wire per turn of winding on the armature of a motor.

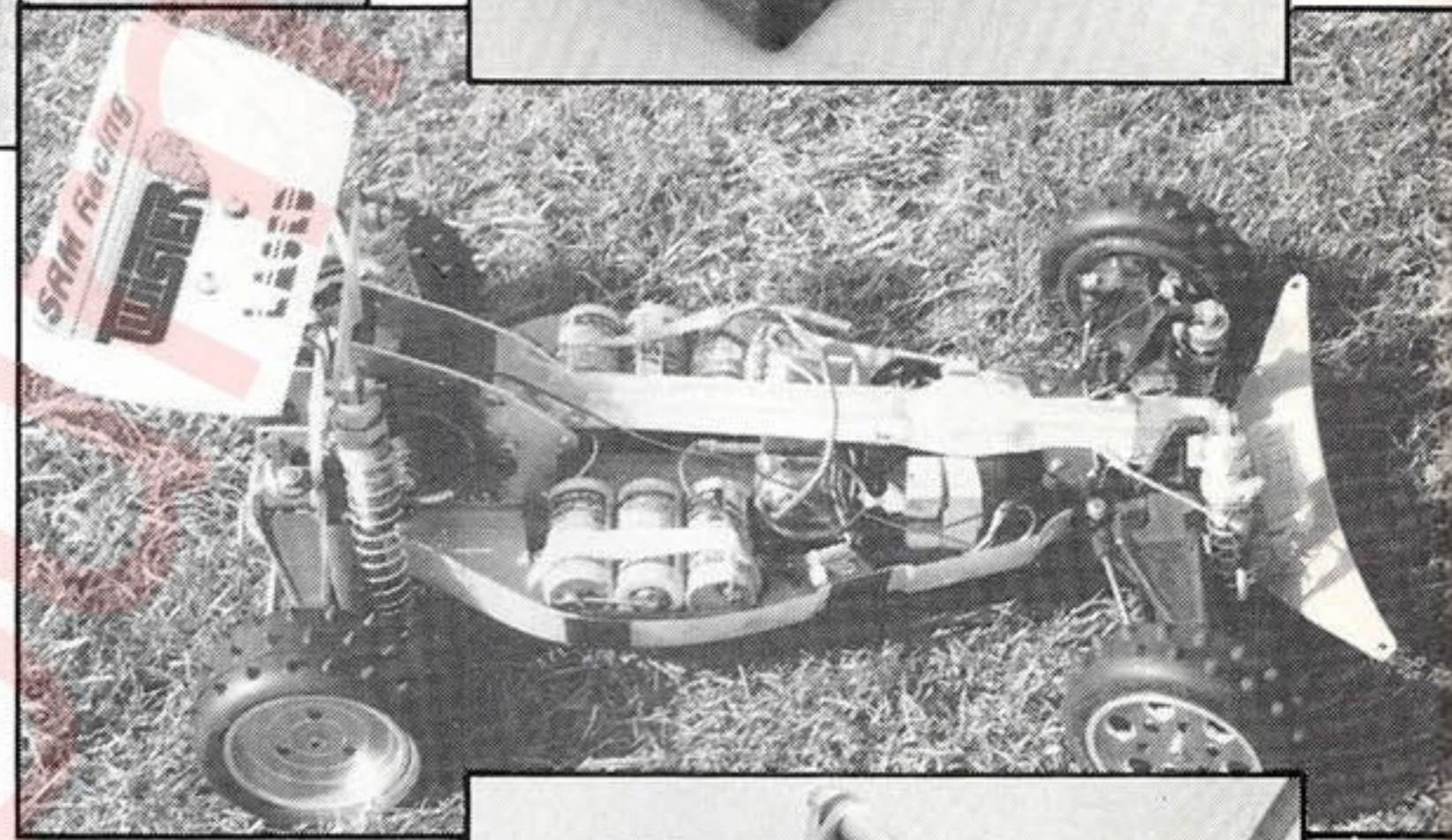
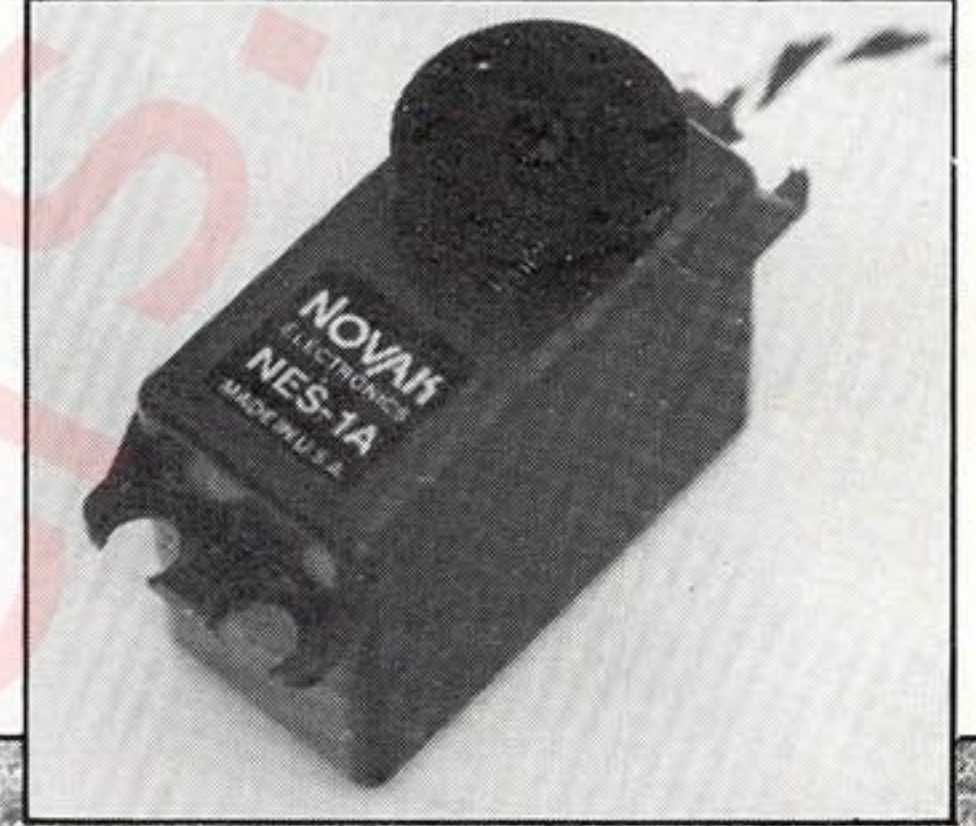
Roller Clutch: A centrifugal device that can be fitted in place of the motor pinion to give a smooth take off. For the racer who has everything.

R.X.: The Radio Receiver.

Saddle Pack: Shape of nicad pack where



R.X. Servo



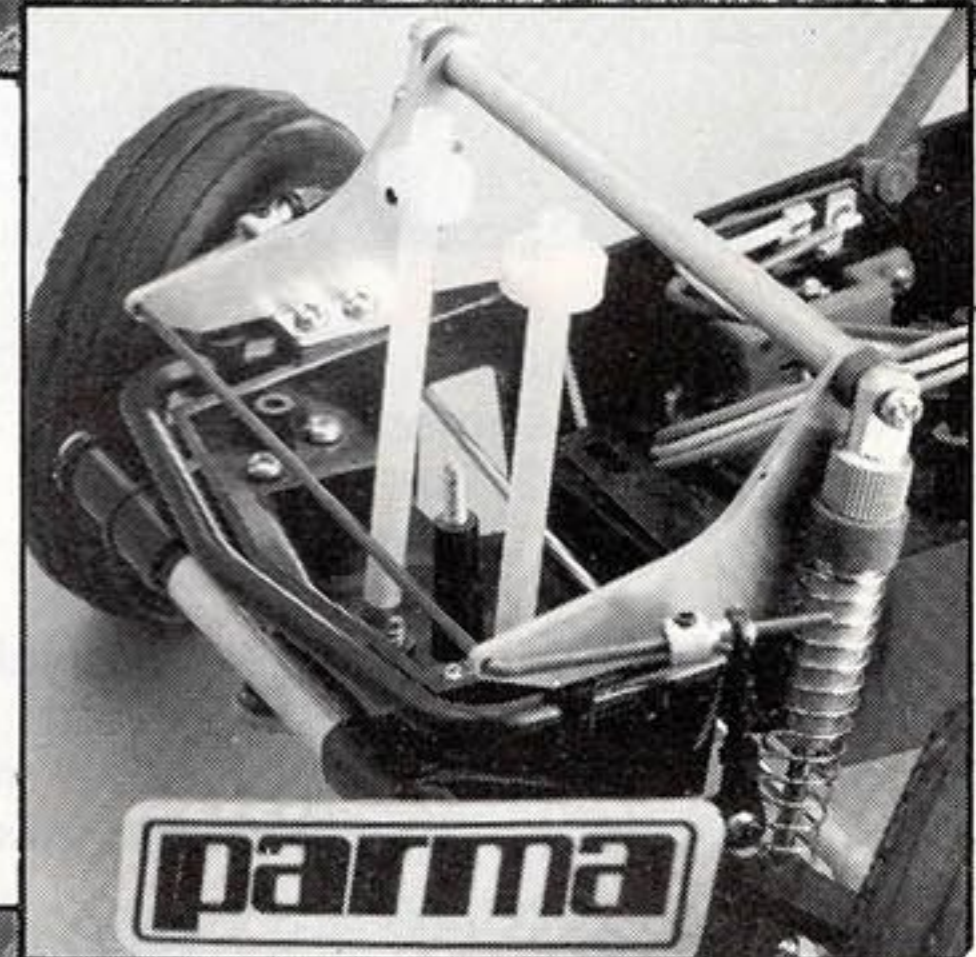
Saddle Pack

a 7.2v pack is split in two so that three cells sit each side of the centre line of the car.

Servo: Electrically driven component which operates the steering or mechanical speed controller.

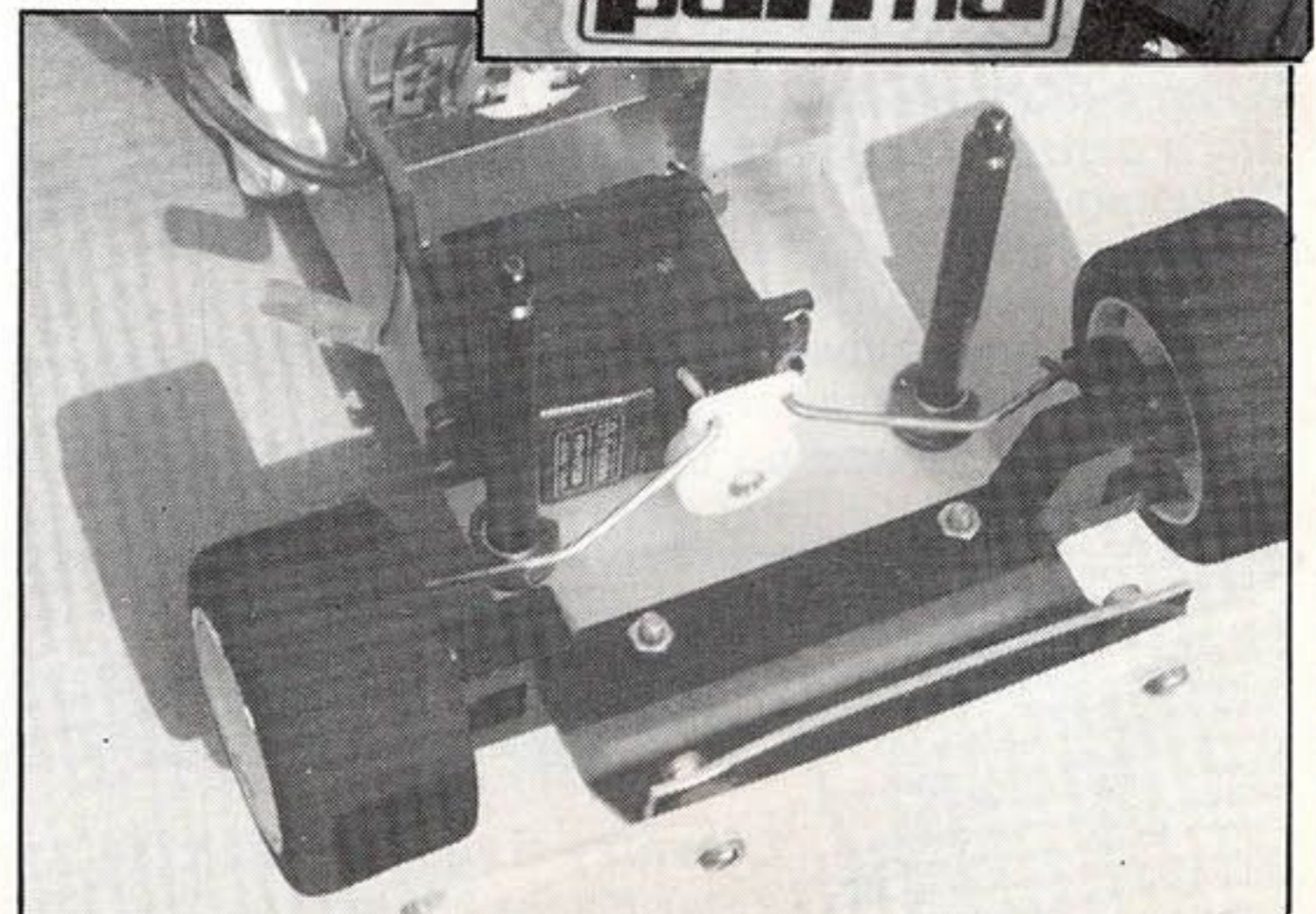
Servo-Saver: Spring loaded protection device which reduces shocks transmitted from the cars wheels damaging the gears in the steering servo.

Shocks: Shock Absorbers.



Shocks.

Track Rods.

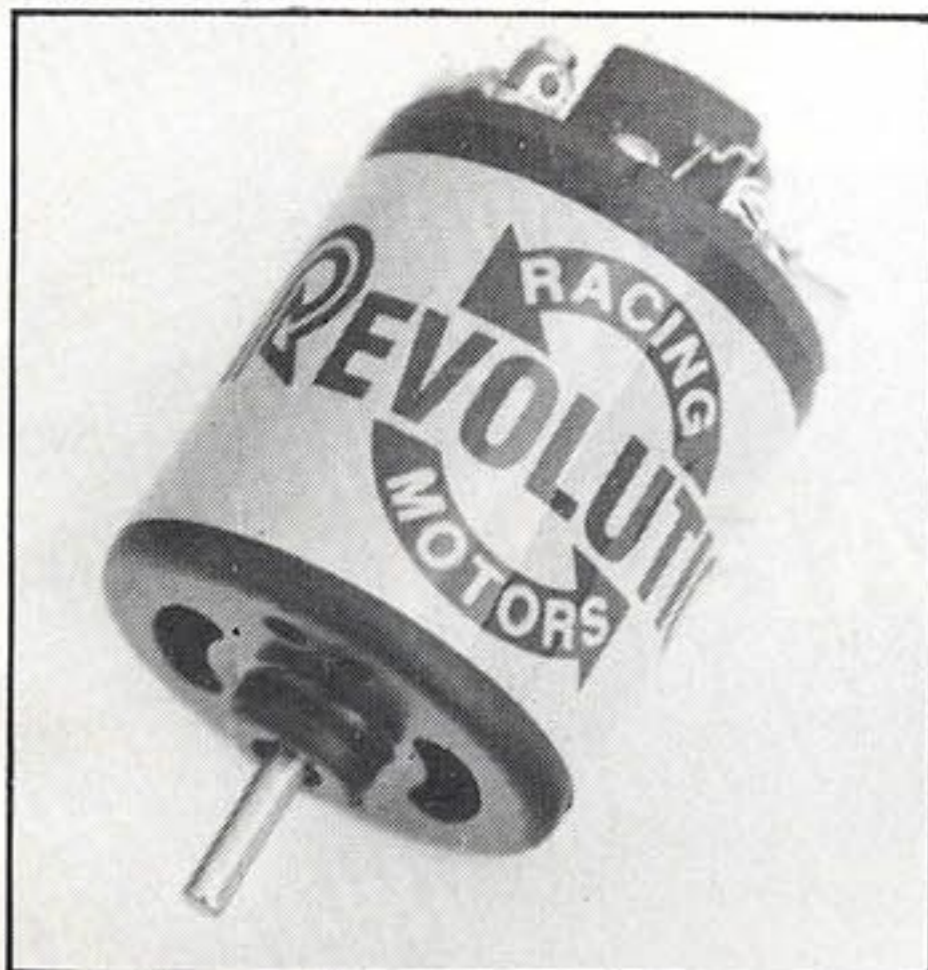


Single: Where there is only one strand of wire per turn of winding on the armature.

Split Time: The time it takes to complete what remains of the lap you are on when the five minutes of the race is completed. The lower the time the nearer you were to completing an extra lap to that shown.

Standard: Refers usually to the motor, it is a motor of 27 turns or more on the armature, must cost less than £15 with the can factory sealed. Is not ballraced and does not have adjustable timing.

Typical standard motor.



S.W.B.: Short Wheel Base. See L.W.B.

Thermal Charger: Fast Nicad charger that switches off when the cells become hot, usually 40°.

T.Q.: Top Qualifier. Overall fastest time of the day to put a person in number one position on the grid for the 'A' final.

T.Q. if not the winner then certainly a trophy winner.



Toe-In: When the distance between the front of the wheels (viewed from above) is less than that between the back.

Toe-Out: When the distance between the front of the wheels (viewed from above) is greater than that between the back.

Track Rod: The operating arm for the steering, usually connected between the wheels upright and the servo-saver.

Trickle Charger: Slow charger for charging nicads full charge takes about 16 hours.

Triple: Where there are three parallel strands of wire per turn of winding on the armature of a motor.

T.X.: The Radio Transmitter.

Understeer: When the car tends to turn more slowly than the driver intends.

Zapp: Method of restoring or increasing the magnetism of the drive motors magnets.

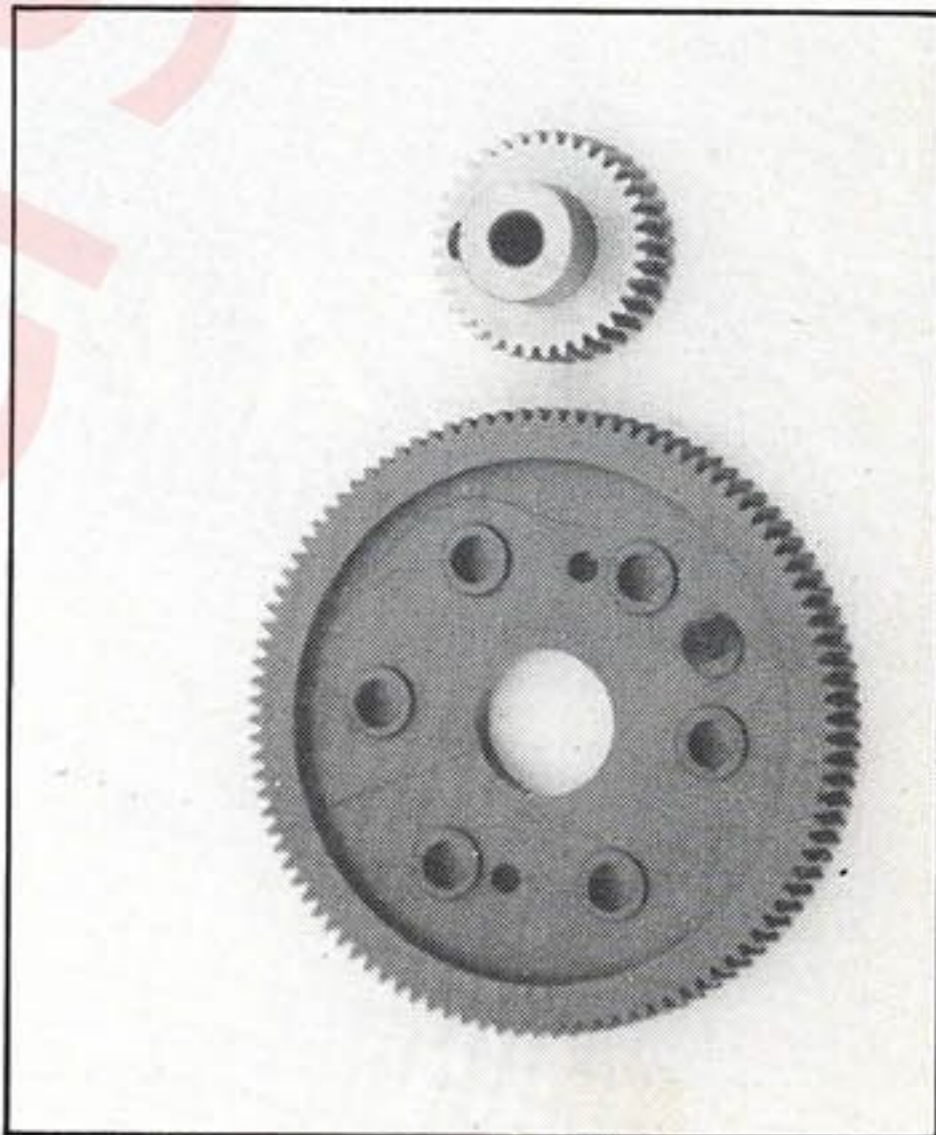
Two W.D.: Two Wheel Drive
Four W.D.: Four Wheel Drive. All four wheels are driven.

Four W.S.: Four wheel steering. Both front and rear wheels are linked and move to give tighter steering.

10.1: Method of expressing the gear ratio. It means for every ten times the motor turns the wheels go round once.

32, 48 and 64 DP Gears: The DP stands for the diametrical pitch of the gears, most common is 32DP found as standard on most cars. 48DP is on the new Mid-engined Optima. 64DP is known as fine pitch and is usually an optional extra claimed to be more efficient.

64 DP gears.



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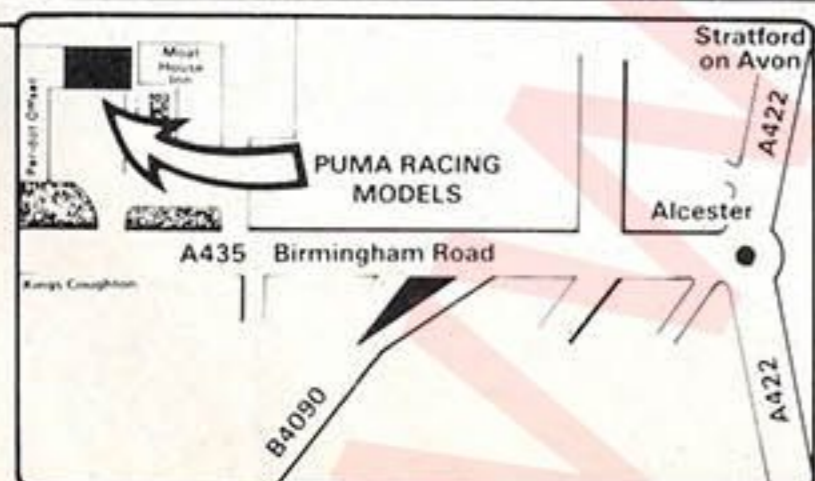
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THE DAWN OF A VERY SPECIAL BATTERY

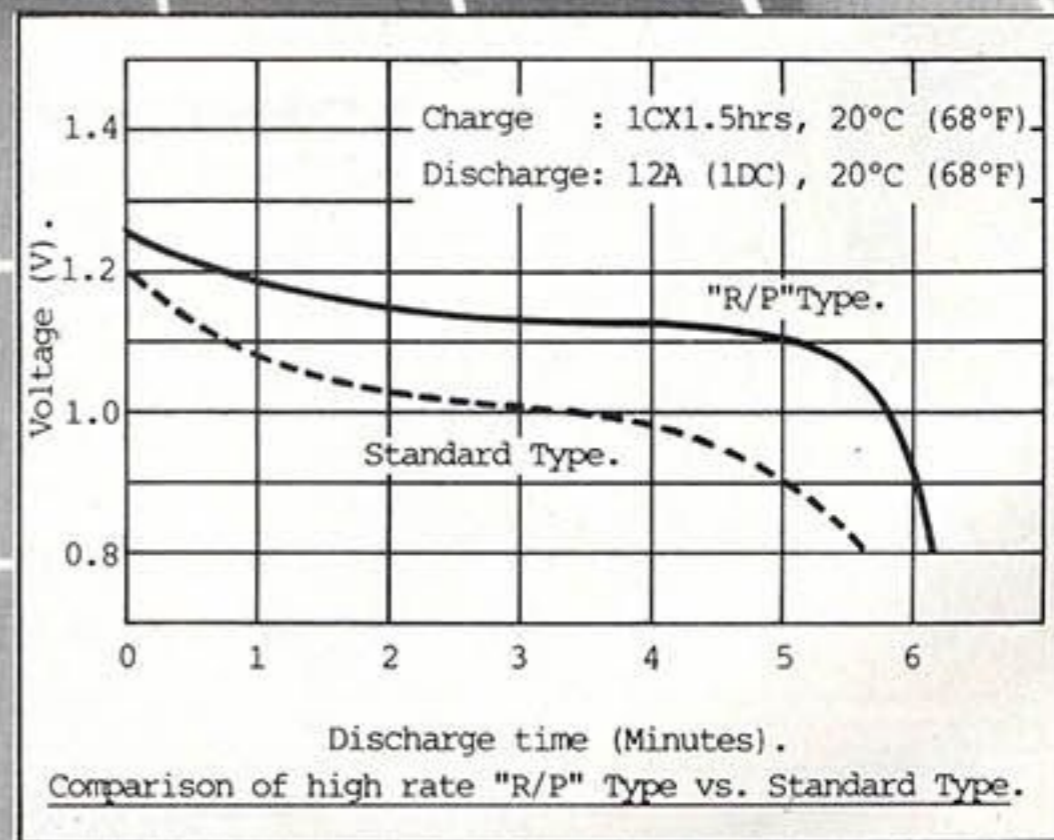


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The Magnum SCR is distributed to the model trade by BLACK KNIGHT MODELS LTD, all U.K. enquiries (Genuine outlets only please) to the above address.

A BRIEF SPECIFICATION OF THIS VERY SPECIAL BATTERY.

- # The Magnum SCR is capable of a very high rate of discharge (approx 25CmA) max 30A continuous, so it is an extremely powerful battery.
- # Silicon rubber - glass leads.
- # Overall length (not including leads and connector) 137.5mm max.
- # Overall width 48mm max.
- # Card inner sleeve for extra protection.
- # Computer tested for voltage, capacity and internal resistance.



Using edge welded plates and terminals, the resulting cell has sharply reduced internal resistance and improved voltage characteristics during high rate discharge. See graph above:-

Personally Speaking

What can we find to talk about this month, Christmas is over and the new race season is nearly upon us and what a season it seems to be, with a meeting being held every Sunday from March right through to October. Maybe what is now needed is one more prestigious series, this would ensure the days of the pot hunters are finally over and wouldn't that be nice eh!

B.R.C.A. News

It seems that so far this year there isn't any, can we really believe that nothing has stirred in the B.R.C.A. circles? Surely that can't be so. Is there anyone out there that can inform us of anything that is happening, or anything that is about to happen B.R.C.A. wise. Watch this space for further information.



Diary Dates II

There are one or two one offs happening in '88 that are well worth paying particular attention too. First an indoor series that should attract a selection of the U.K.'s top drivers, the British National Indoor Series, held at the Leisure Centre in Mansfield. Nice to see so many 1/10 indoor meetings

taking place. Anyone interested in running in the series should contact Malcolm Webb on 0623 653346.

Another earlyish meeting that should be well worth attending is the return Ireland/England International to be held at Kidderminster Car clubs circuit. This should be one of the friendliest meetings of the year and will be one not to miss, preference will be given to those competitors who competed in Ireland, watch this space for more details and a confirmation date.

Nothing more than a rumour at present, but one which could prove interesting is the series of events that are being planned for the car crusher type of vehicle so readily available at present. This type of event could really sort the men from the boys when it comes to muscle power. A major U.K. importer is rumoured to be looking at this type of event very seriously!

Finally drag racing. Could 1988 be the year that drag racing finally comes alive in the U.K.? There are already more than twenty dragsters built in the U.K. and running times of just under five seconds for forty plus yards are regular events, hopefully drag racing is something that R.R.C. can bring you more coverage of in '88!

The Real Thing

It would be great to see 1/10 meetings held in conjunction with full size formula meetings, a short while ago it was our pleasure to witness one gentleman standing open mouthed in wonder at his first 1/10 meeting. After making the gentlemans acquaintance he explained that he ran a full size motor racing school, but hadn't seen anything like this in years. His excitement was apparent and wondered why he'd never seen any 1/10 racing in the National press or on T.V. We wonder that too!

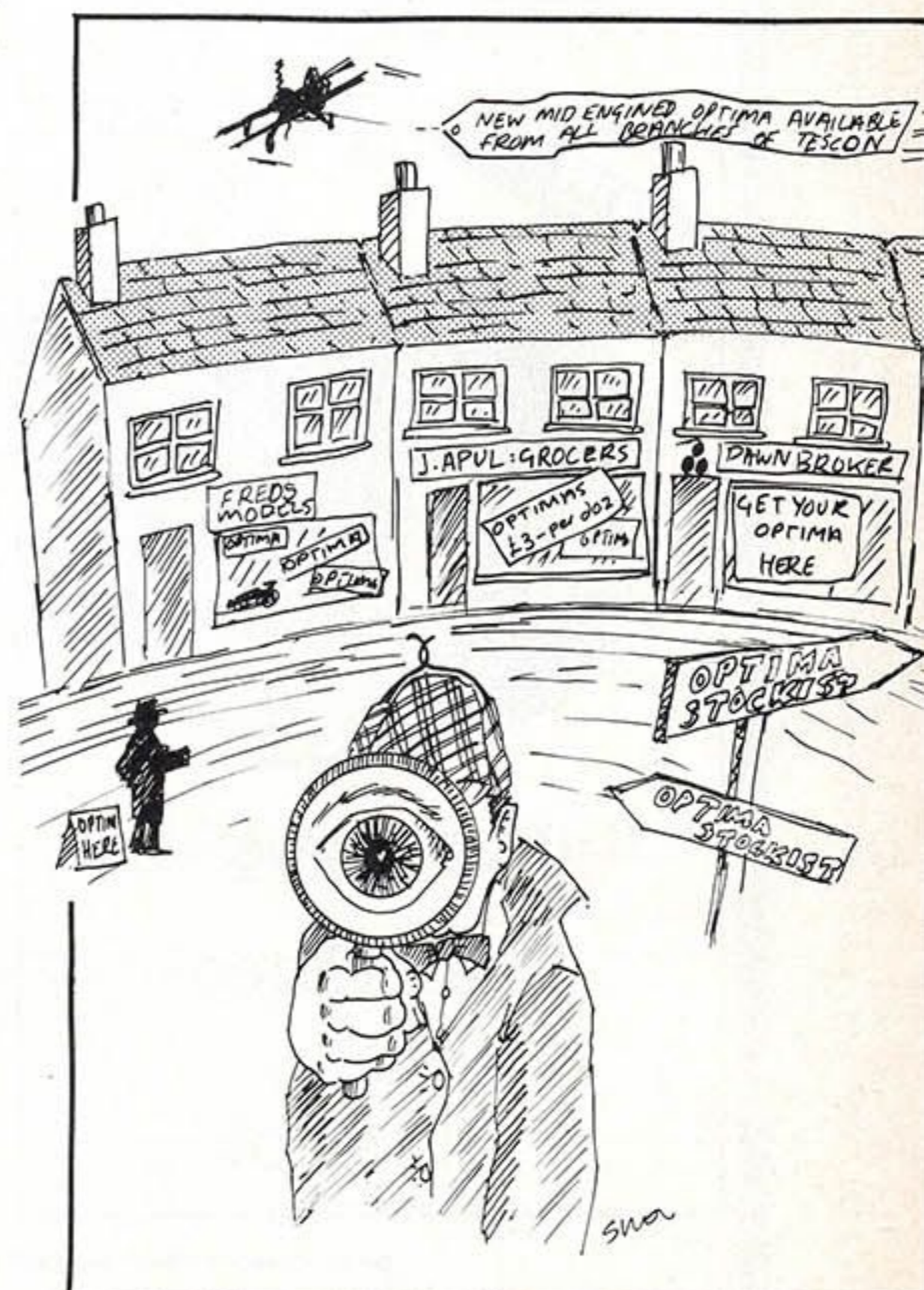
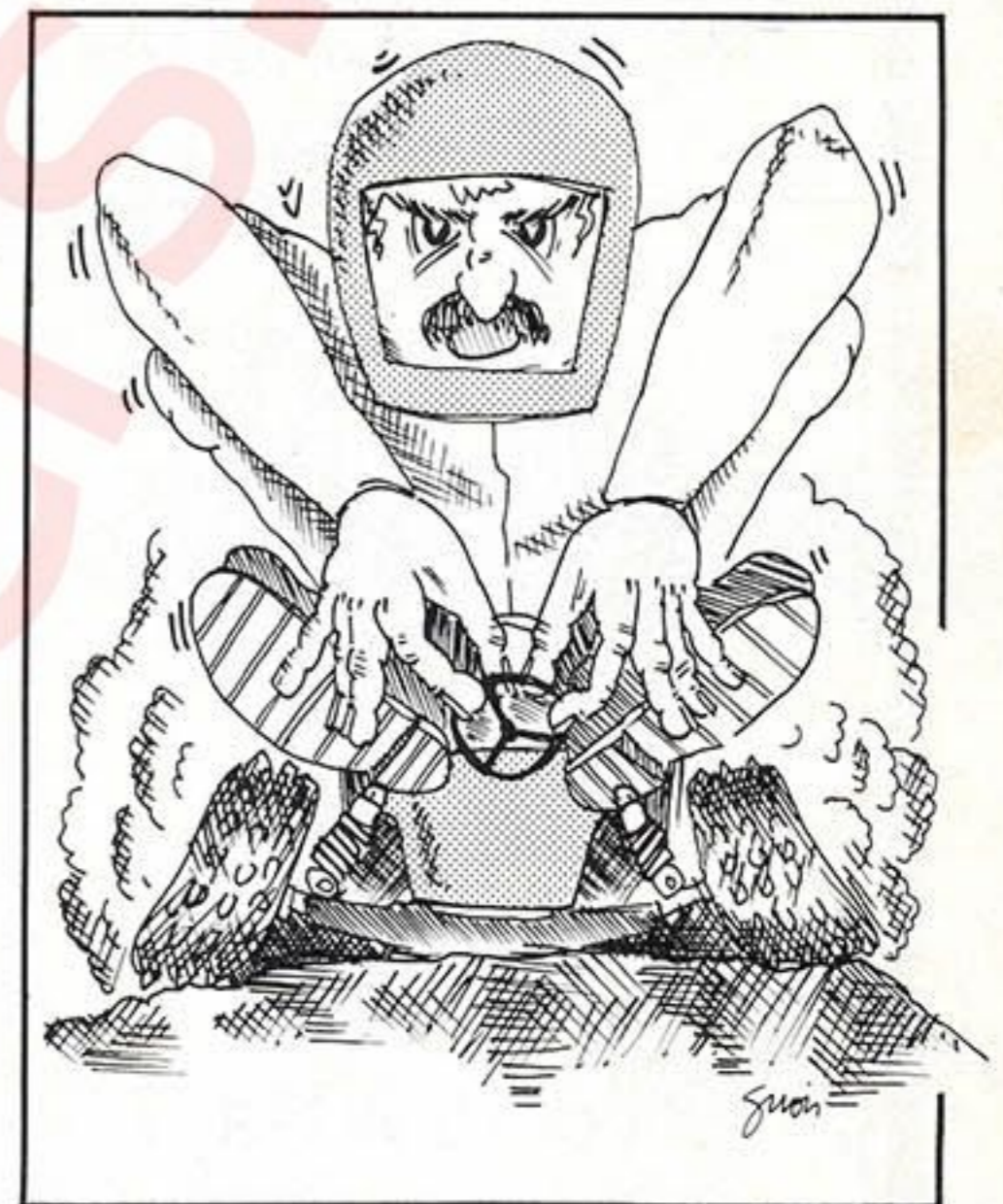
Rumours Dept

If rumours are to be believed, the Mid Engined Optima seems to be available from more sources than a Gideons Bible, everybody and his aunt have them in stock, everybody that is other than the importer. Is someone telling fibs?

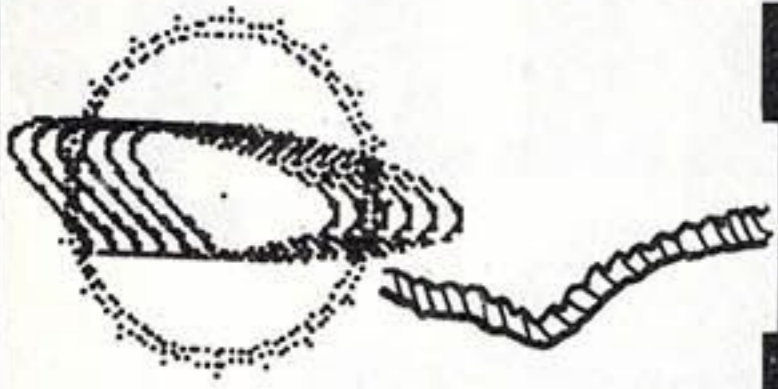
Anybody know where the Reedy Spring Internationals are being held this year? It seems three or four clubs believe that they're holding them yet no one is certain.

It is also true that National class drivers who lived and died by their Cats are now abandoning them for another? Surely this can't be true, surely no-one is so fickle, so perverse as to cast aside one old faithful for a touch of Eastern promise? It does seem that one or two are, tut, tut, tut!

Do you have anything to say? If so write in, your letter will be published if possible. Letters should be sent to:- Personally Speaking, Radio Race Car International, Masefield House, Wells Road, Malvern, Worcestershire. WR14 4PA.



Dave Pearson.



DYNAMITE

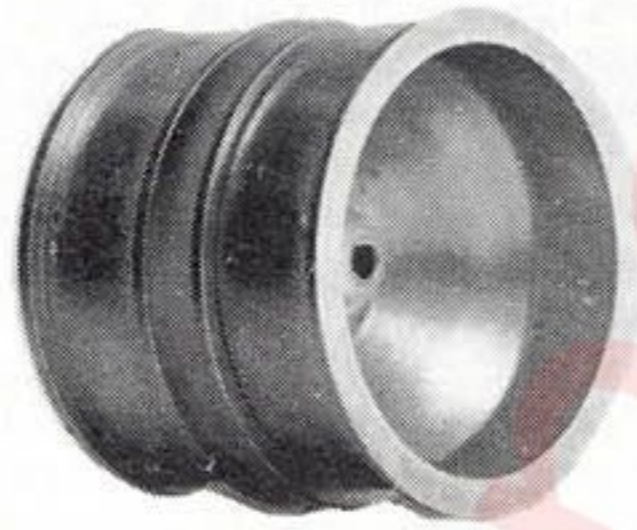
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Front Wheel
for
Tamiya RC10



WS-662
Rear Wheel
for
RC10

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WS-663
Front Wheel
for
Hotshot PB

NEW



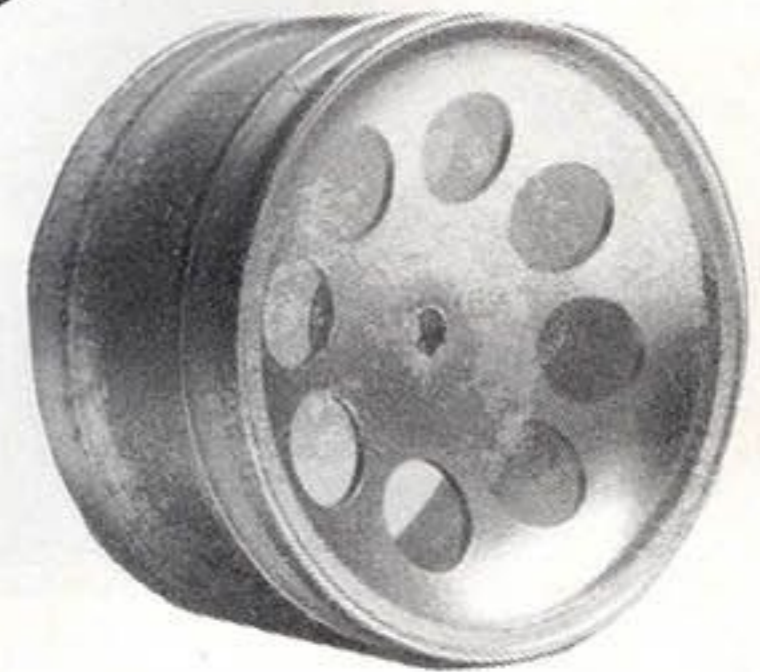
WS-664
Rear Wheel
for
Hotshot

NEW



WS-665
rear Wheel
for
Tamiya

NEW



WS-666
Rear Wheel
for
Kyosho RC10

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CHARGERS

NEC-2

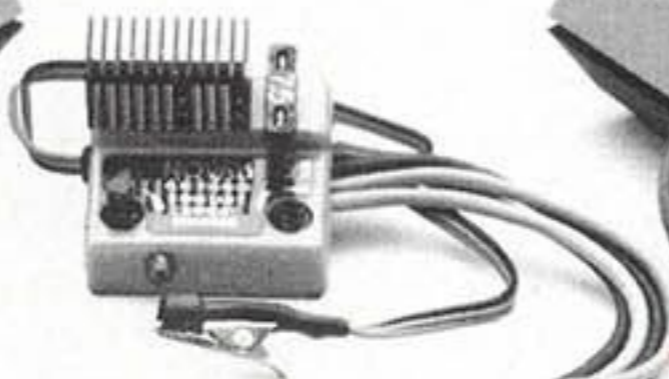
PEAK CHARGER



NEW

NEC-1

TEMPERATURE CHARGER



NEC-3

PEAK PLUS



NEW

SPEED CONTROLS

NESC-1X



NEW

ELIMINATOR

NESC-4



ECONO - II

NESC-1



PRO - II

RECEIVER

NER-2S



SERVO

NES-1A



NEC-1

TEMPERATURE SENSING FOR ACCURATE CHARGING

• ADJ. CONSTANT CURRENT OUTPUT (1.5 TO 5.5 AMPS) • 1.50" L X 1.35" W X 1.15" H (1.5 OZ) • CHARGES 6 TO 7 CELL PACKS FROM 12 VDC CAR BATTERY OR 12 VDC POWER SUPPLY

NEC-2

PEAK DETECTION SYSTEM FULLY CHARGES 4 TO 7 CELL

PACKS FROM A 12 TO 16 VDC POWER SOURCE. 2 CONSTANT CURRENT CHARGING RATES: ONE RATE ADJUSTABLE 0 TO 3.5 AMPS, ONE FACTORY SET AT 4.5 AMPS. SWITCHES TO 180 MA TRICKLE RATE CHARGE. BUILT-IN CIRCUIT BREAKER PROTECTION AND TWO VOLT METER JACKS.

NEC-3

ALL NEC-2 FEATURES PLUS: • BUILT-IN DIGITAL VOLT-AMMETER • VOLT-METER CAN BE USED SEPARATELY (e.g. SET UP ESC'S) • INTERNAL 9 VOLT BATTERY TO POWER VOLT/AMP METER.

NER-2S

FUT.G, FUT.J, KO, AIRTRONICS PLUGS • USE WITH ALL 2 OR 3 CHANNEL AM TRANSMITTERS • OPERATES DOWN TO 3.0 VOLT INPUT • OFFERED ON 27, AND 75, MHZ BANDS • 1.45" L X 1.30" W X 0.70" H (0.75 OZ)

NES-1A

FASTEST TRANSIT TIME, 0.27 SEC/90° • TESTED FOR UP TO 6 CELL USE • STRONG, GLASS-FILLED NYLON GEARS • 21 OUNCE INCHES TORQUE • 1.50" L X 0.75" W X 1.18" H (0.98 OZ)

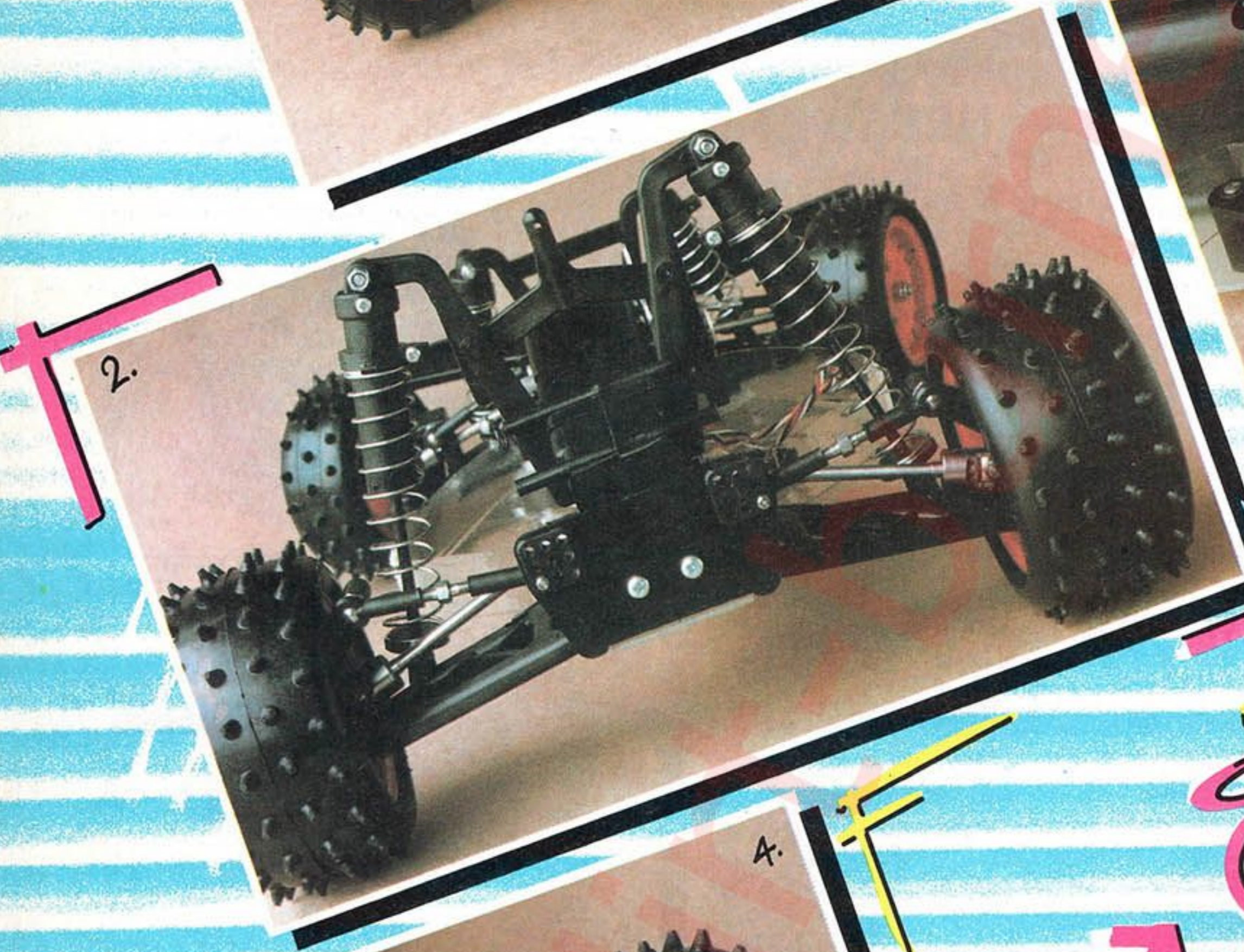
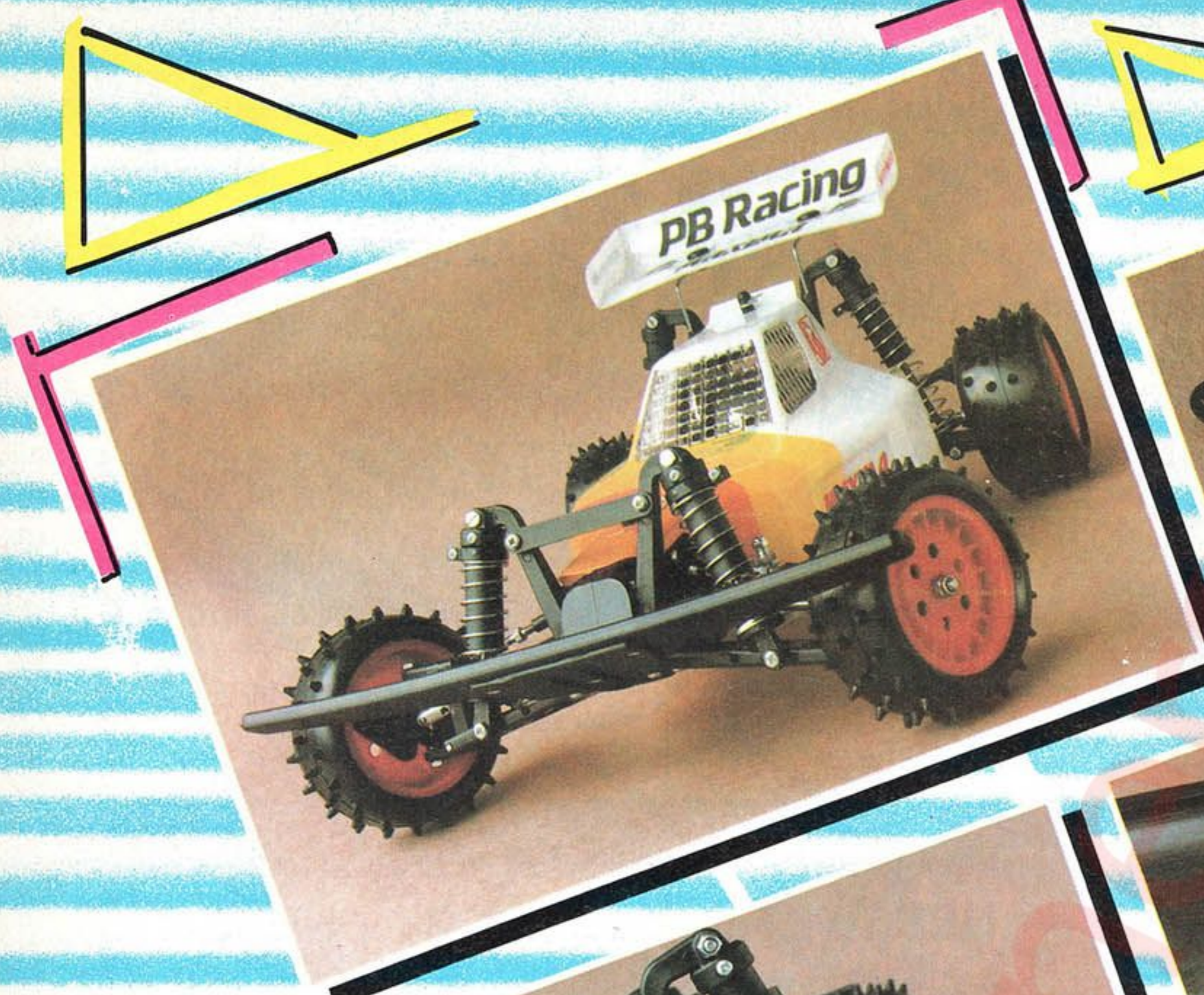
SPEED CONTROLS

	NESC-1X	NESC-1	NESC-4
MAX. CONTINUOUS CURRENT	360A	180A	120A
VOLTAGE DROP W/ 12 AMP LOAD	0.015V	0.03V	0.06V
VOLTAGE INPUT	4-10 CELLS	4-10 CELLS	4-10 CELLS
POWER CONSUMPTION	20mA at 7.2V	20mA at 7.2V	20mA at 7.2V
PLUGS INSTALLED	FUT.G, FUT.J, KO, AIRTR.	FUT.G, FUT.J, KO, AIRTR.	FUT.G, FUT.J, KO, AIRTR.

NOVAK
ELECTRONICS INC.

For more information contact NOVAK ELECTRONICS, INC., 128-C E. Dyer Rd., Santa Ana, Ca 92707

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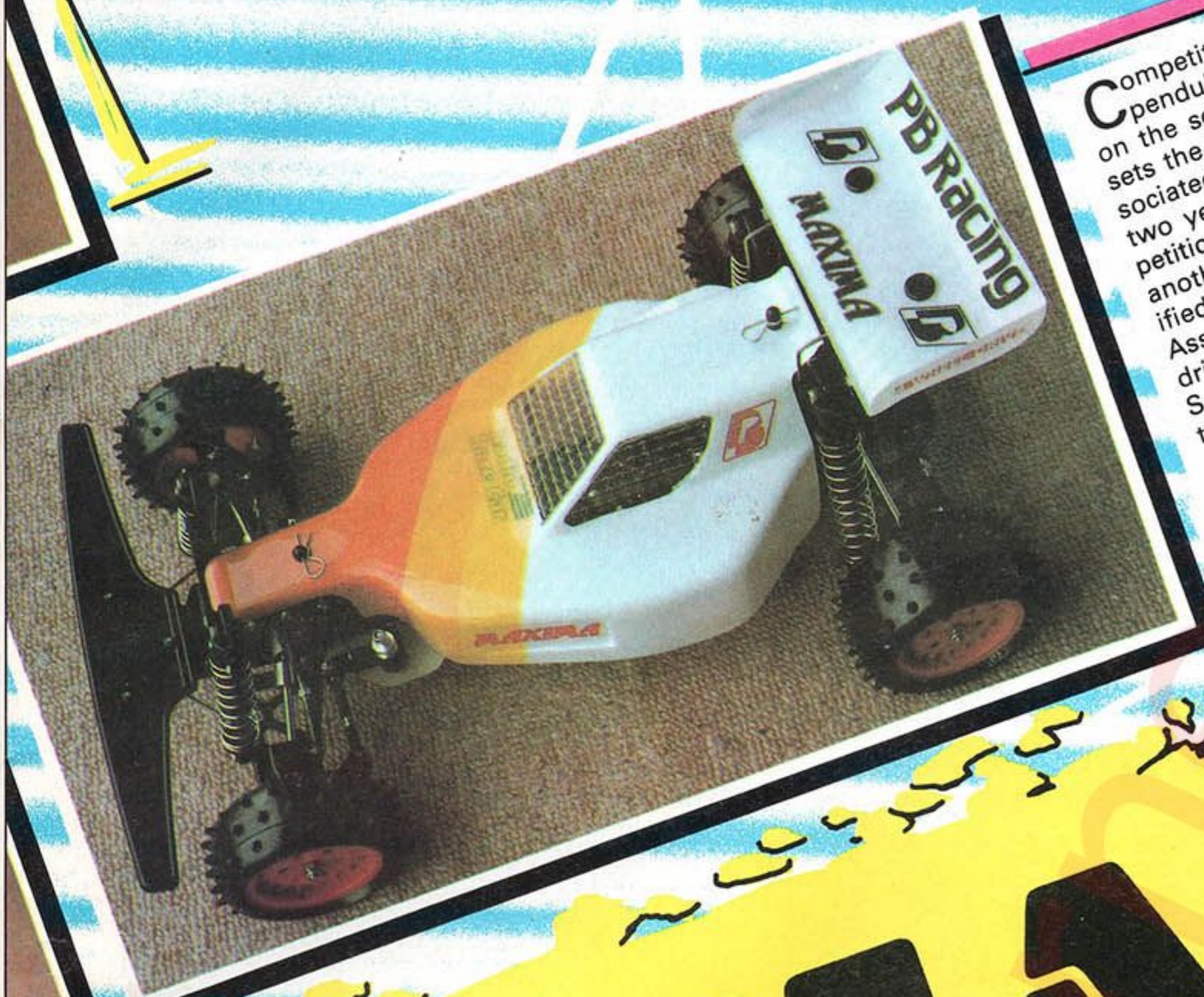


M
GREG HALLIDAY



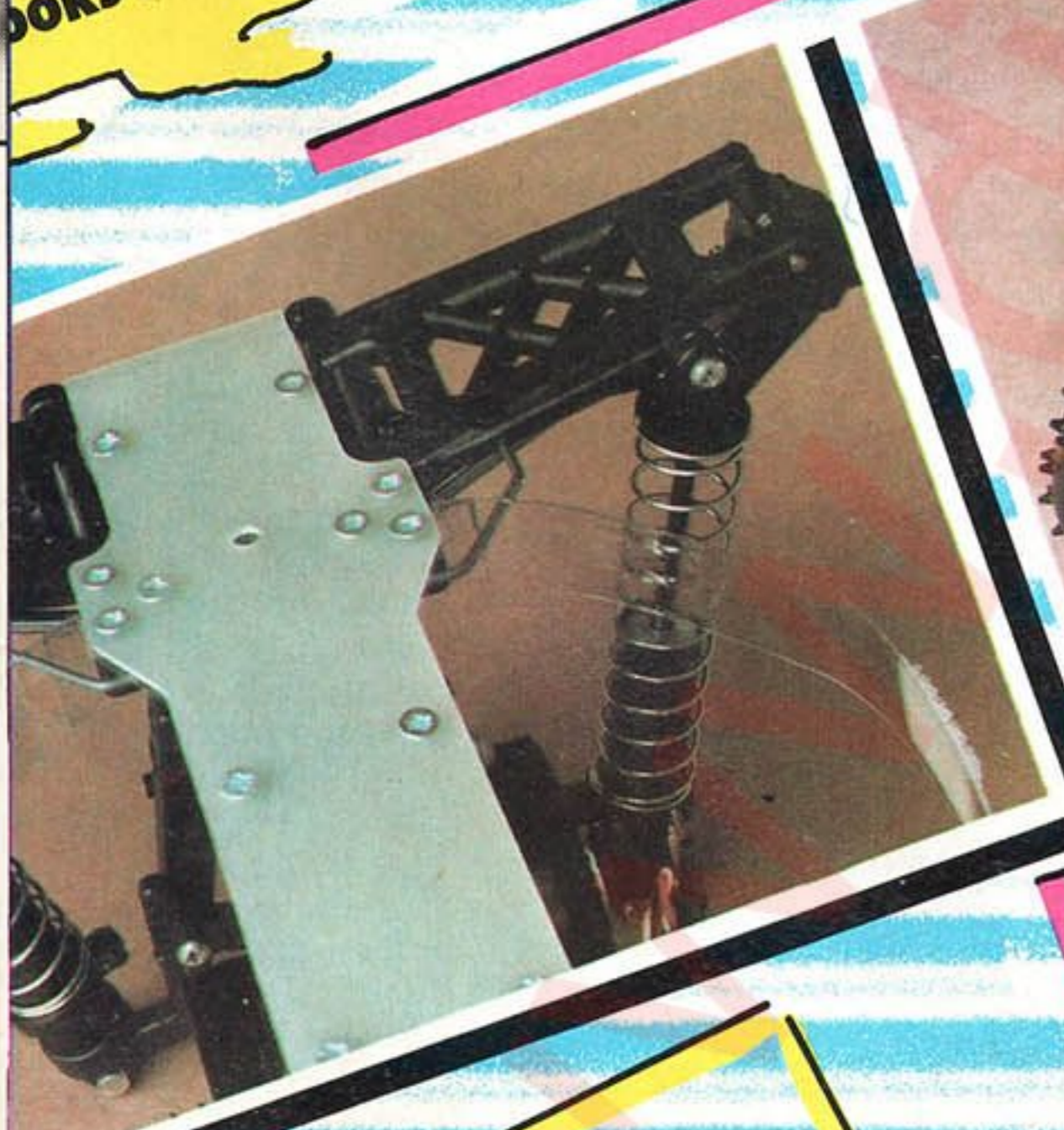
Competition off-road racing is like a pendulum; every so often a car comes on the scene that becomes a winner and sets the trend. The two wheeled drive associated was a good example of this about two years ago when virtually every competition was won by an RC10 in one form or another. Occasionally the odd highly modified Hotshot or Optima got in amongst the Associateds and showed that four wheeled drive could be competitive. When Schumacher produced their early Cat, this too won the odd competition but it never

1. PB's new universal rear driver shaft.
2. Close up shows off the nine position fixing points and those clever adjustment rods.
3. Steering assembly could benefit from ball joints on the tie rod but overall the set up works well.
4. One way roller clutches and universal joints are shown clearly here.
5. New wishbone design is tough and durable.
6. The rolling chassis complete with lexan undertray to keep even more of the mud out of the works.



MAXIMA

Look at the new 4wd contender from PB the Maxima



6.

really dominated the scene. Then, right at the end of 1986 the PB Mini-Mustang appeared and seemed an instant success. People who saw this car competing at the Model Engineer Exhibition were very impressed and many immediately put their RC10's up for sale and ordered a PB. Within a few months competitions were being dominated by the Mini-Mustang — the pendulum had swung! However, Cecil Schumacher had constantly been developing the Cat and with the advent of the long wheelbase XL version, he really showed the potential of his brainchild. Yes, the pendulum swung again and now virtually all the really keen racers drive Cats.

Of course, PB have never been a company to rest on their laurels, and they too have been developing their design. Well, now at last the new car is available and it's called the Maxima! Will this be the car to swing the pendulum in 1988?

So What's New

First of all, don't get the impression the Maxima is just a slightly modified Mini-Mustang. The product appears about 80% new and all of the problems areas previously complained of have been redesigned. Mind you, there is really nothing wrong with the Mini-Mustang for the club racer, but when you are competing at top level you must have the best handling car.

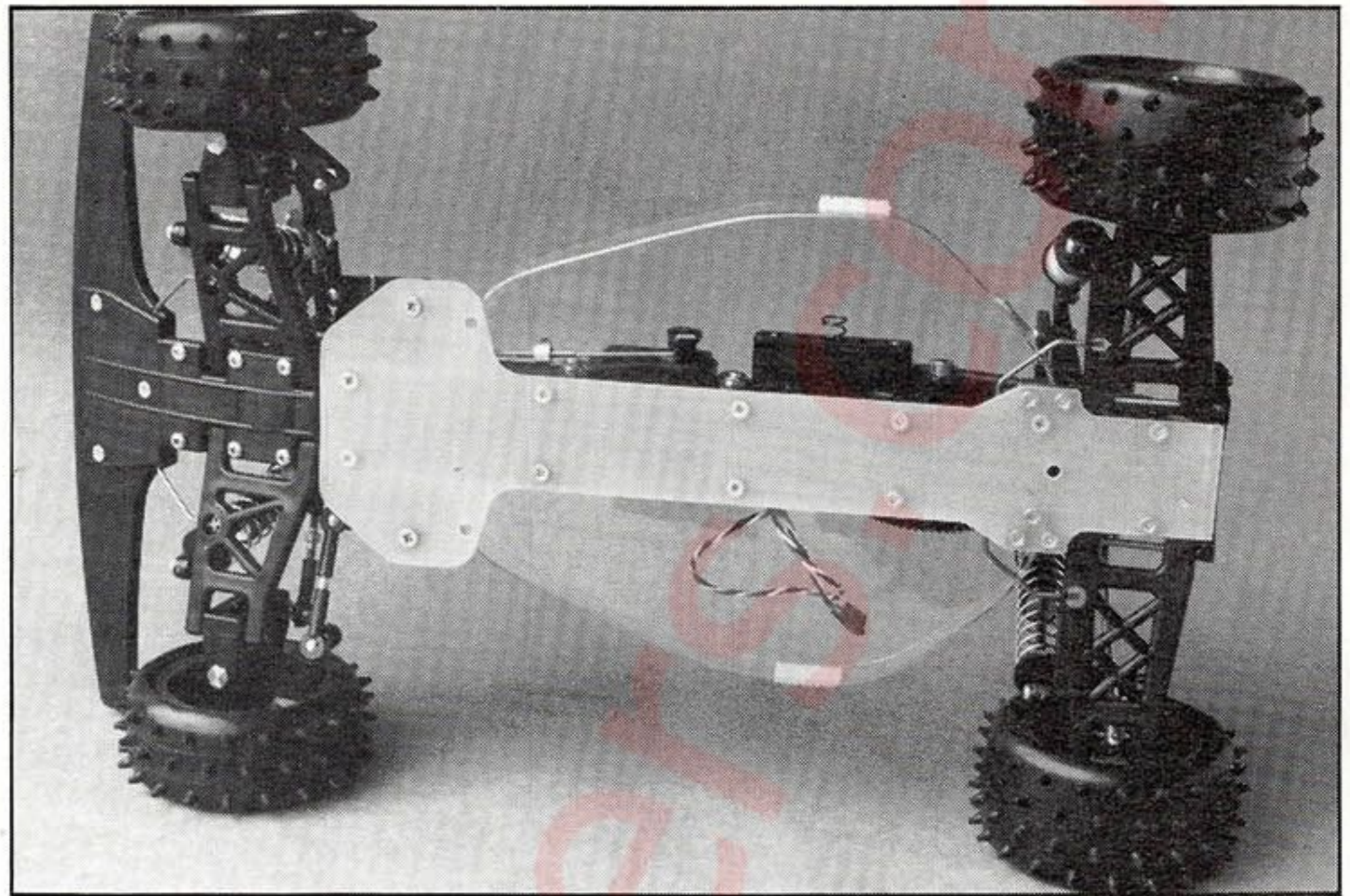
The major criticisms of the last model were a 'skittishness' on the rear end and understeer on the corners. Well, the new Maxima comes with a fully adjustable suspension system incorporating rear end castor, that should control the rear and a new universally jointed transmission system which, along with the revised front layout, is claimed to allow 22 degrees more lock in each direction, plus the ability to use wide rear wheels and tyres on the front — if that doesn't get you around the corners, nothing will! So the major criticisms appear to have been answered, now what about the details of the other modifications?

Faster?

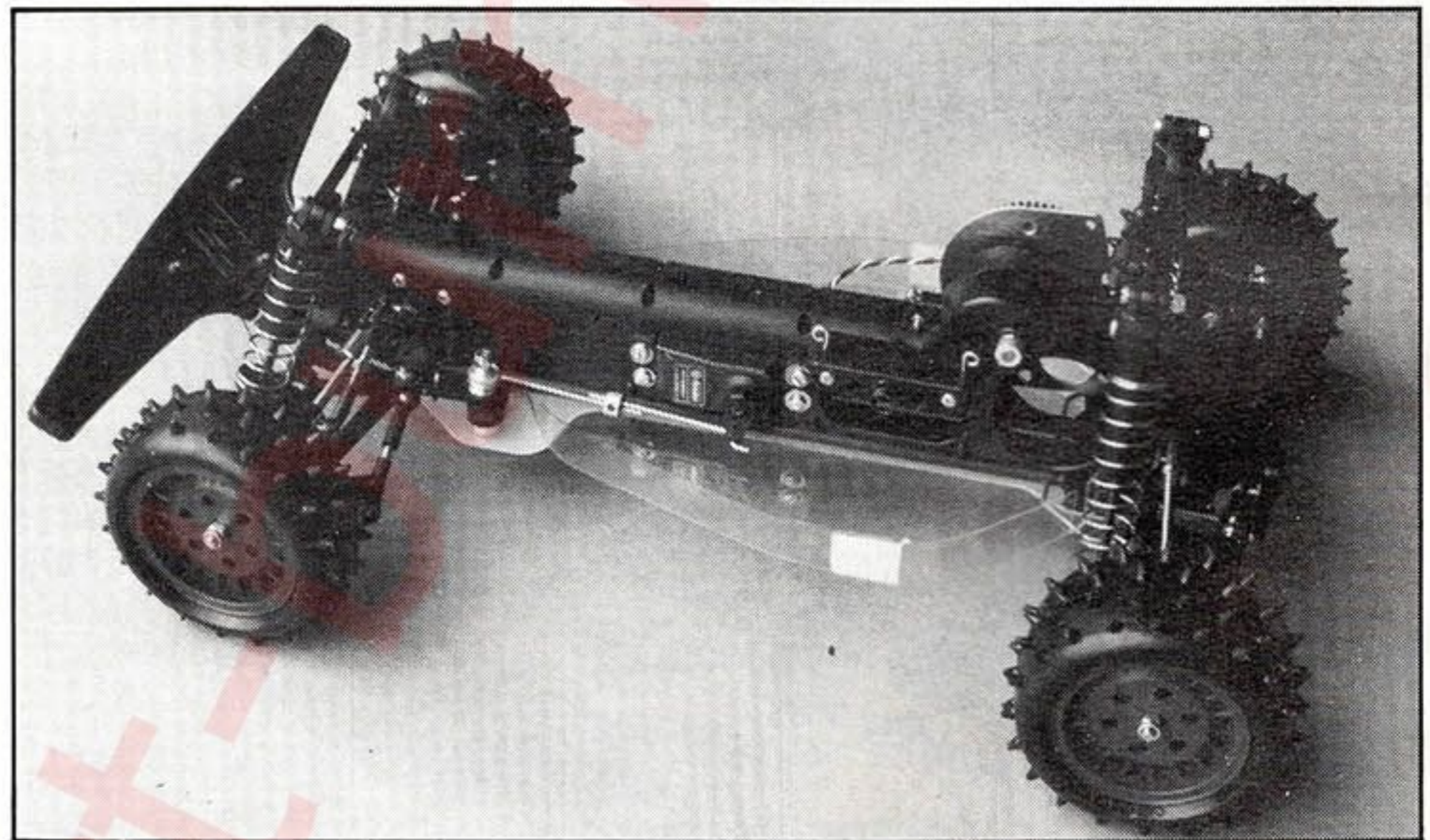
First of all the transmission is claimed to be some 20% more efficient than any other car currently available and 26% more efficient than it's predecessor. The Mini-Mustang was always a fast car so that is quite some claim! A new fine pitch belt (or mini pitch as PB call it) is driven by the motor through a belt tensioner, now ballraced, to front and rear geared differentials. The drive-shafts are ball ended on the chassis side, with beautifully made all-metal universal joints on their outer ends. One way bearings come as standard on the front and naturally the rest of the car is fully ball raced. Surprisingly the tyres supplied in the kit are hard Cat spikes, possibly a case of: "If you can't beat 'em, join 'em"! Another claim of PB's is that the new transmission efficiency enables gearing up by as much as 2-3 teeth on the drive pinion whilst still maintaining the same battery duration — that's also some claim.

Smoother?

Now let's analyse the suspension modifications. The mouldings are appreciably stiffer than before and quite a lot of the components looked to me as if they are formed in glass filled nylon, which is extremely tough and strong. (Servo cases are normally made of this material). Gone are the very flexible upper and lower wishbones to be replaced with a nylon cross-braced



Above, new skid plate and undertray are evident in this photo. Below, the rolling chassis shows how different and how new the Maxima really is.



lower and fully adjustable metal link type upper. This means camber can be set to your liking. I particularly liked the right and left hand threaded rod top link as this enables in-situ adjustments; by rotating the nut shaped centre it either expands or contracts dependant on the direction rotated. The rate of camber change can also be set by repositioning the top link inner ball joint fixing in any of four holes at the front, and nine holes at the rear. There is an adjustment for two ride heights obtained by moving the location of the front and rear shock absorber tower fixing screws. Incidentally these towers are much stronger and more rigid than the previous type, as are the bodyshell mounts. It is interesting to note the wheelbase has also been extended in line with current trends, and front and rear anti-roll bars are fitted as standard.

The four shock absorbers are as before, but the geometry is entirely different with the top mountings being further out from the centre line of the chassis which enables a more vertical and better acting location. On the front lower wishbone three alternative shock absorber fixing holes are provided and this is increased to five holes at the rear. These, coupled with the ability to

harden or soften the suspension with the spring collars, permit the car to be set up for virtually any track or driving style. Incidentally, the Maxima's front spring rates are different to the Mini-Mustang.

Cleaner?

Having re-designed the operating bits PB weren't going to put it all under one of their original bodyshells, so they have produced a new one — the Bee-Jay. This shell may not be the prettiest around (people say beauty is in the eye of the beholder) but it is extremely practical. It is of minimum dimensions to get all the equipment inside and is provided with a full polycarbonate undertray to keep the muck out. A large fully adjustable rear wing (or aerofoil) is also supplied. I particularly liked the position of this wing being mounted high up out of the turbulence created by the bodyshell. It's in a location where it should really work. A nice touch is that the wing wires are pre-kinked to hold them in the mount.

Hints And Tips

Most of you who will build the Maxima will probably have built a few cars before,

therefore I don't propose to take you through the construction stage by stage. However, you may find the following points useful if you do decide to become a Maxima owner.

The plastic parts are packed in bags still containing a small amount of water (this was used to 'cure' the nylon) and removal some time before you require the components saves lots of kitchen roll being used for drying! Our parts didn't have a lot of flash on them so some time was saved not having to bother with this chore. When constructing the differentials make sure you rub down the backs of the small planetary gears on wet and dry paper or the assembled unit won't work smoothly. I also had to slightly ream out some of the pivot pin holes. Make sure you also ream out the two holes in the front upright carriers so that the king pin bolts revolve smoothly. Quite a bit of plastic had to be removed on our car and even then the axle block did not rotate as smoothly as I would like to see. Perhaps the gap between the carrier is a little wide and would help.

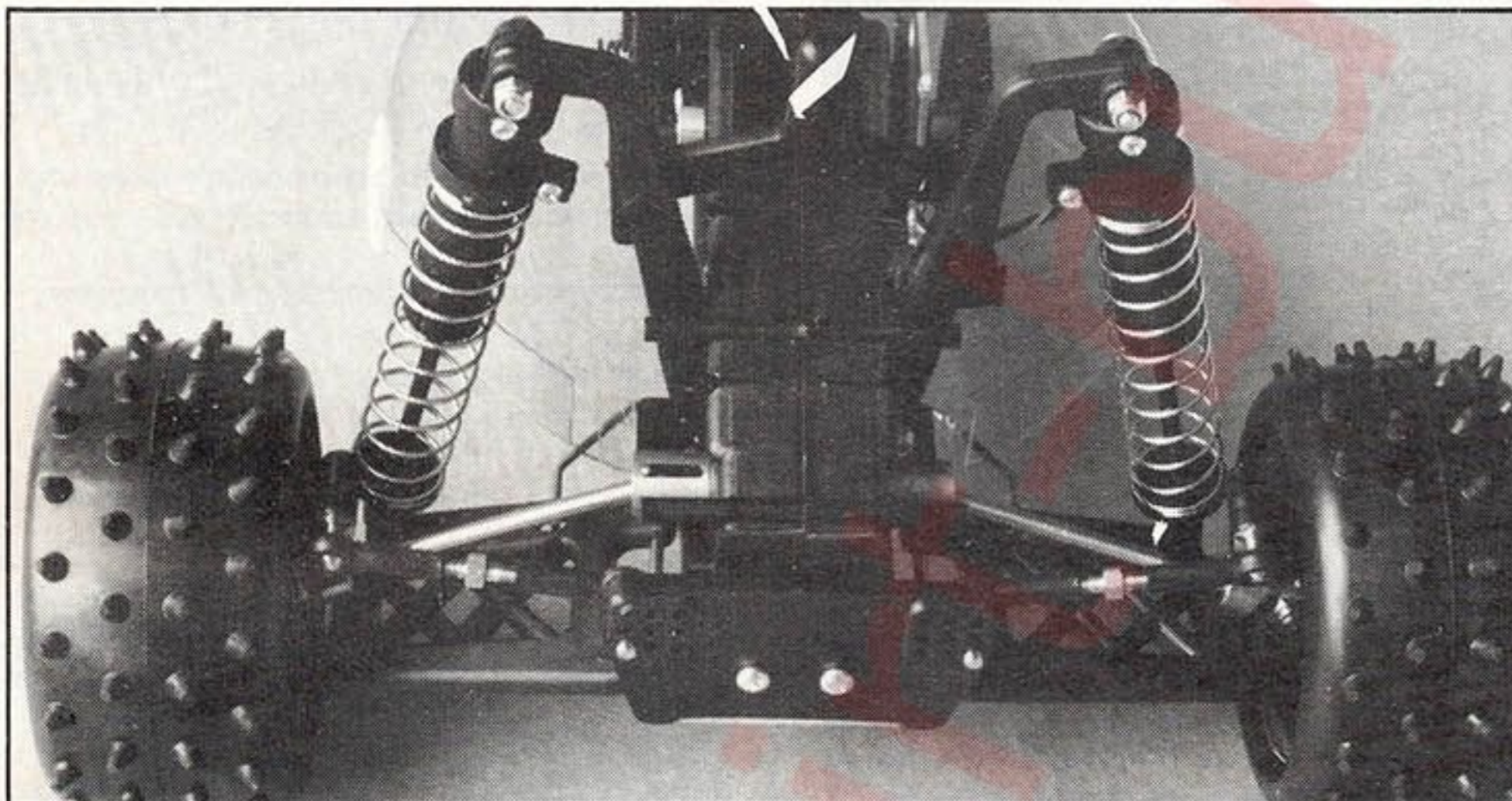
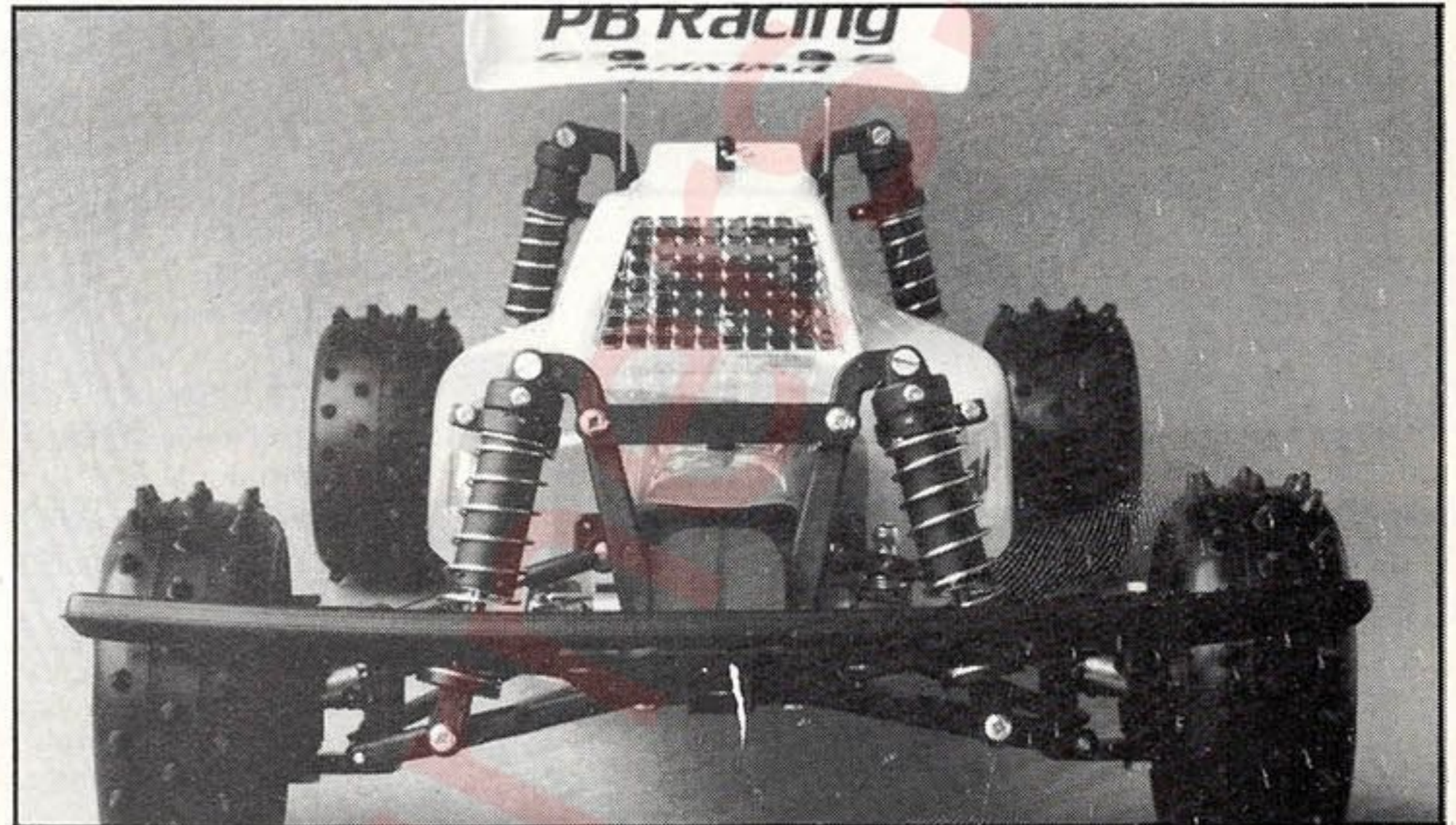
Make sure you put a lot of pressure on the steel ball joints when driving them into the plastic or the threads will not be cut properly and will strip. Take care when pinching the ball joint cups and with pliers as it is possible for the cup to jump off the ball and be crushed. Don't cut away a lot of the chassis spine when installing your servo. If you are using a Futaba 131, cutting the back off the grommets will allow the servo to sit further into the spine and then

only a small amount of plastic needs to be removed on the opposite side for the wires. (Don't use the Futaba brass ferrules either). The right hand rear shock absorber tower/wing mount fixing hole needs drilling right through the moulding, and I was unable to shorten the front shock absorbers below 75mm; PB say the overall dimension should be 74mm.

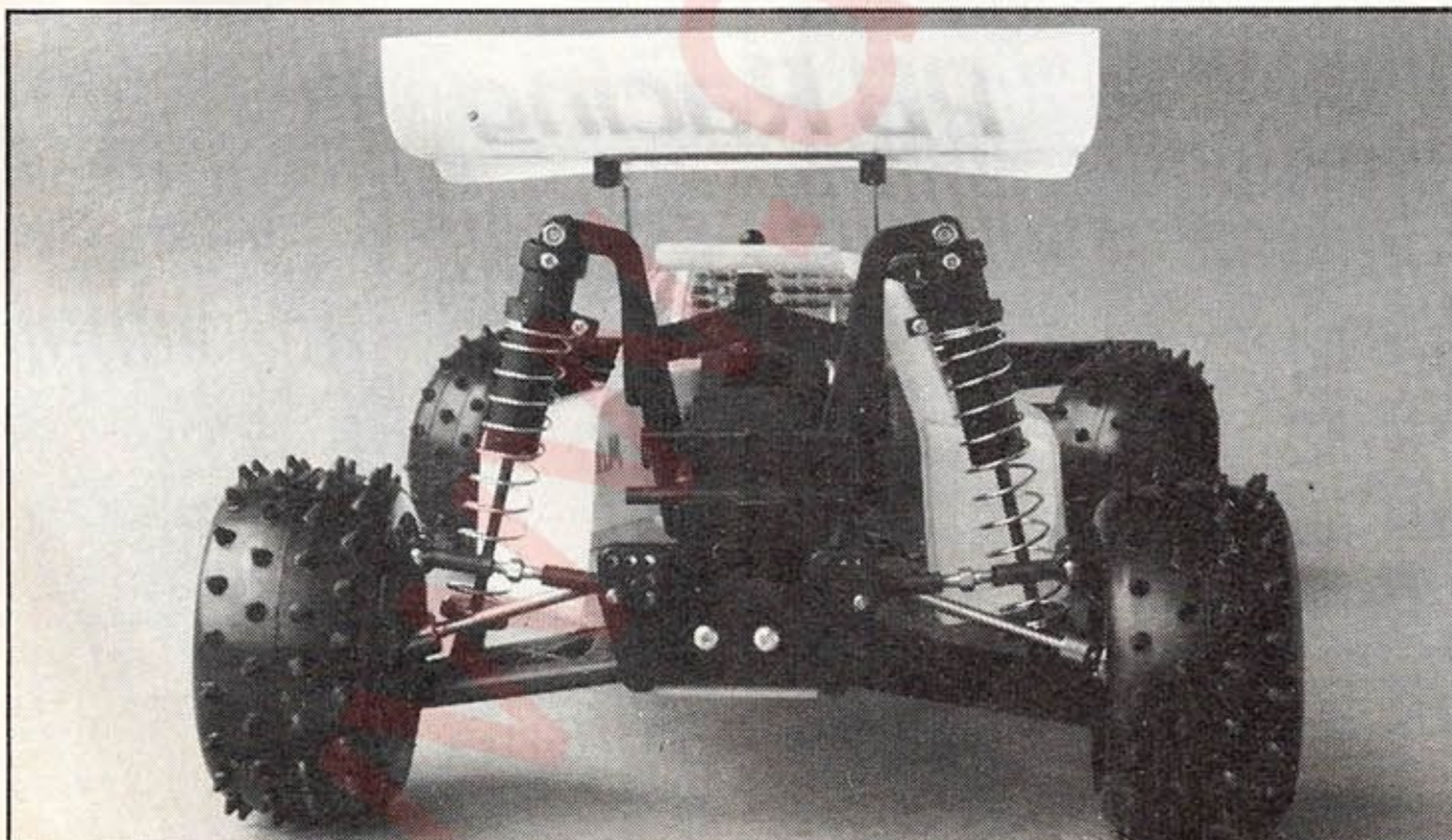
One very important point specified in the instructions is to ensure the front and rear drive shaft lengths are correctly set and altered when you change the camber angles — if you fail to do so this correctly, the con-

sequences could be either shortened suspension travel on the rear, or possibly damage to a one-way bearing on the front. PB suggest you carefully chamfer the top of the shock absorber pistons with a modelling knife — this is quite difficult to do, but if you put the piston on the rod and very lightly clamp it in the jaws of a mini drill, it is possible to sand it down on wet and dry paper. Use only light pressure though or the piston will revolve on the rod.

Finally, if you want your Maxima to look like the one in the adverts, don't trim the



A range of suspension settings, camber angles and track conditions can be allowed for with the Maximas very complete variable position fixing points.



front of the bodyshell to the line on the moulding as it won't cover the front of the chassis spine. Shaping it as per the ad. could also stop dirt and dust getting into the shell. It might also be a good idea to glue some sponge rubber across the spine behind the front body mount to further protect the internals.

First Impressions

At first the price of the kit seems expensive, but when you consider the extent of the contents and that a Cat XL with a front differential and one-way bearings costs a few pounds more, it's actually competitively priced. I do have one gripe though — an aerial tube is not included!

PB claim the Maxima is for the expert racer and no doubt they are right. With all the transmission modifications, plus an all-up weight of around 3lb 6oz, it's bound to be very quick and with so many permutations of suspension set-up available it certainly looks as if the car should be capable of excellent handling. All who have seen the assembled car have been impressed, so look out Cecil, maybe the Maxima will turn out to be a Cat crusher in 1988!

Technical Specification: PB34 Maxima

- Overall length — 396mm
- Overall width — 249mm
- Wheelbase — 272mm
- Track — 249mm

Track Test

When a car of this calibre comes on the scene, a few five minute runs at the local track just can't do it justice, so I have enlisted the help of two of the top Welsh drivers, Mark Stockford and Steve Jones, in carrying out a short test programme. In next months issue we'll tell you how we got on.

The Maxima is available from your nearest PB agent, price £199.00.

Bob Errington's

PIT PATTER

Happy New Year, I think this is appropriate, but at the moment I am totally confused as to print dates, publication dates, copy by dates — not to mention Christmas dates and calendar dates! Still I think we are in order.

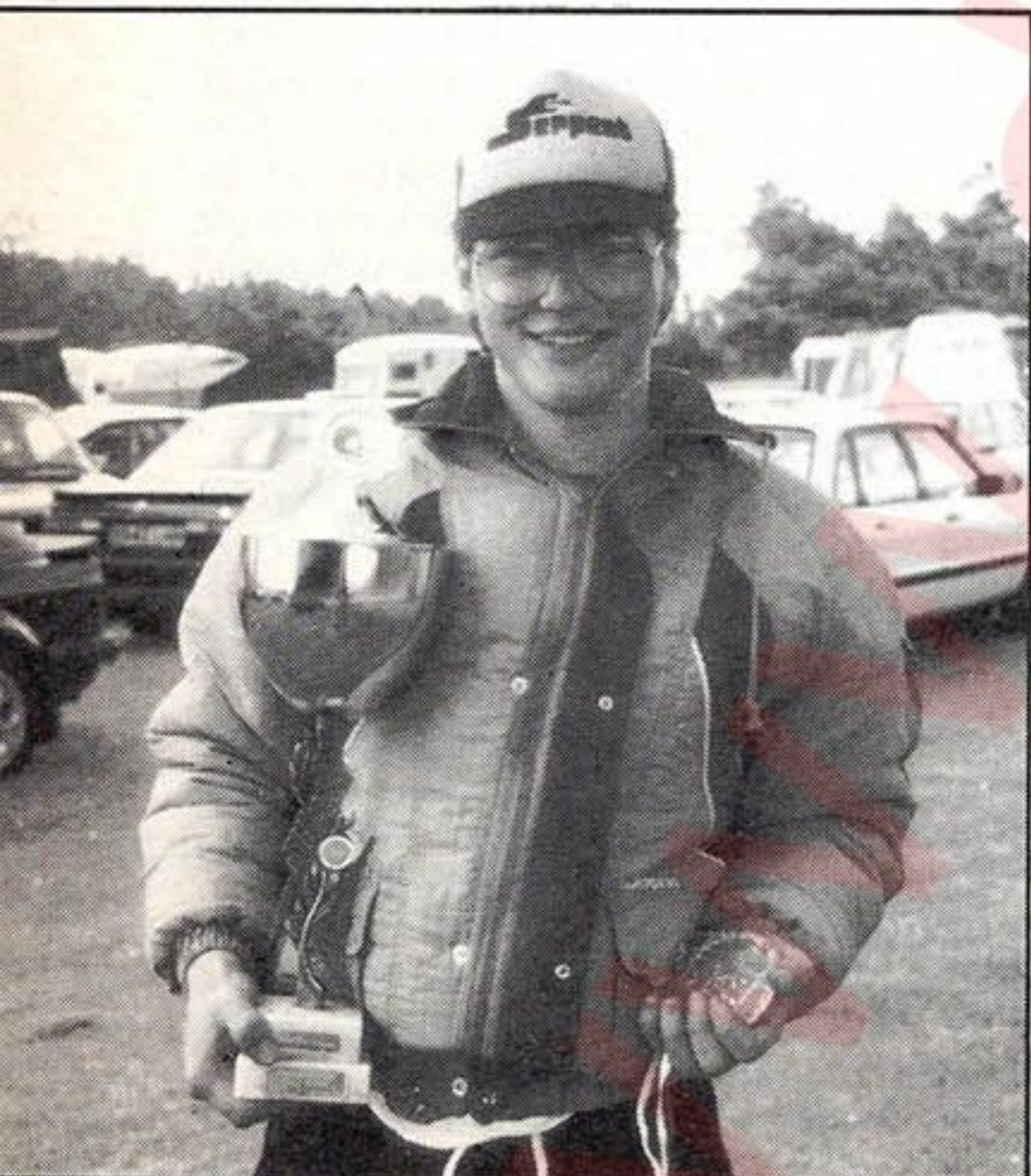
I certainly hope you all had a festive Christmas holiday and have been able to exchange all those "thanks Aunt May, these will be really uh! um! well, useful!" type presents that only spring into existence just before hand. Do bear in mind though that even such excellent firms as Marks & Spencers and British Home Stores, will not exchange a new Picco for a pair of woolly socks — even if you do offer to pay the difference. (Picco being the brand name of the latest thing in executive toys).

B.R.C.A. Conference

November saw the B.R.C.A. gathering once again en mass, to air views and sort out policys for the coming season, or seasons.

Section Chairman, Eric White, opened the meeting, at about 9.30am, with usual review of the year past. Englands had faired well on International terms with Paul Cook bringing home the European Saloon

Will Paul Cook hold on to his E.C. Title?



Championships (for B class EFRA licence holders), and young Nigel Sayles winning the European Youth Championships. The main Formula Champs this year had been in Denmark and although England had sent a full contingent, none made it to the final. The World Champs, held every two years, had been held in America and only Gary Culver had been brave enough to try his hand.

Racing in England has held numbers constant with a few losses and a few newcomers in from other sections. Serpent was by far the most popular car in use, which was very good for Serpent but not good for racing as a whole.

Track safety had not been a problem and all clubs had successfully done whatever had been asked of them, wich was not the case with the majority of people responsible for sorting the race entries!

With the reports completed the meeting moved into the rule change proposals.

First issue to be raised concerned a couple of details on points scoring meetings and now confirms that a Grand Prix held in the U.K. is countable for points.

Handicaps was a subject widely aired with several present expressing concern on the handicap's resulting from certain meetings. Dennis Jones, section handicapper, expalined that he had been going through the computer program and had uncovered a few errors which could well have caused problems in these circumstances. Dennis was also in the process of improving the programmes for easier use as well as correcting any inaccuracies.

It has also been observed that so called 'scratch rated' (zero handicap) drivers were often experienced drivers from other sections or well practiced drivers only now joining the B.R.C.A. With this in view, a new rule enabling race directors to amend a drivers handicap rating was passed.

Next item on the list was of the Auto-Count system now so widely expected at top class meetings and so very vital when places are won or lost in split second decisions.

The system used a present belongs to the Tibshelf club and they had decided to stop renting it out to the section therefore the section is now buying its own with the aid of a generous interest free loan from an anonymous lender. Money will be collected back to cover this loan by a £1 levy on race

fees, which have also been standardised at £5 per class for 1988.

Note that the auto count system can be hired out to other users with the approval of the section committee.

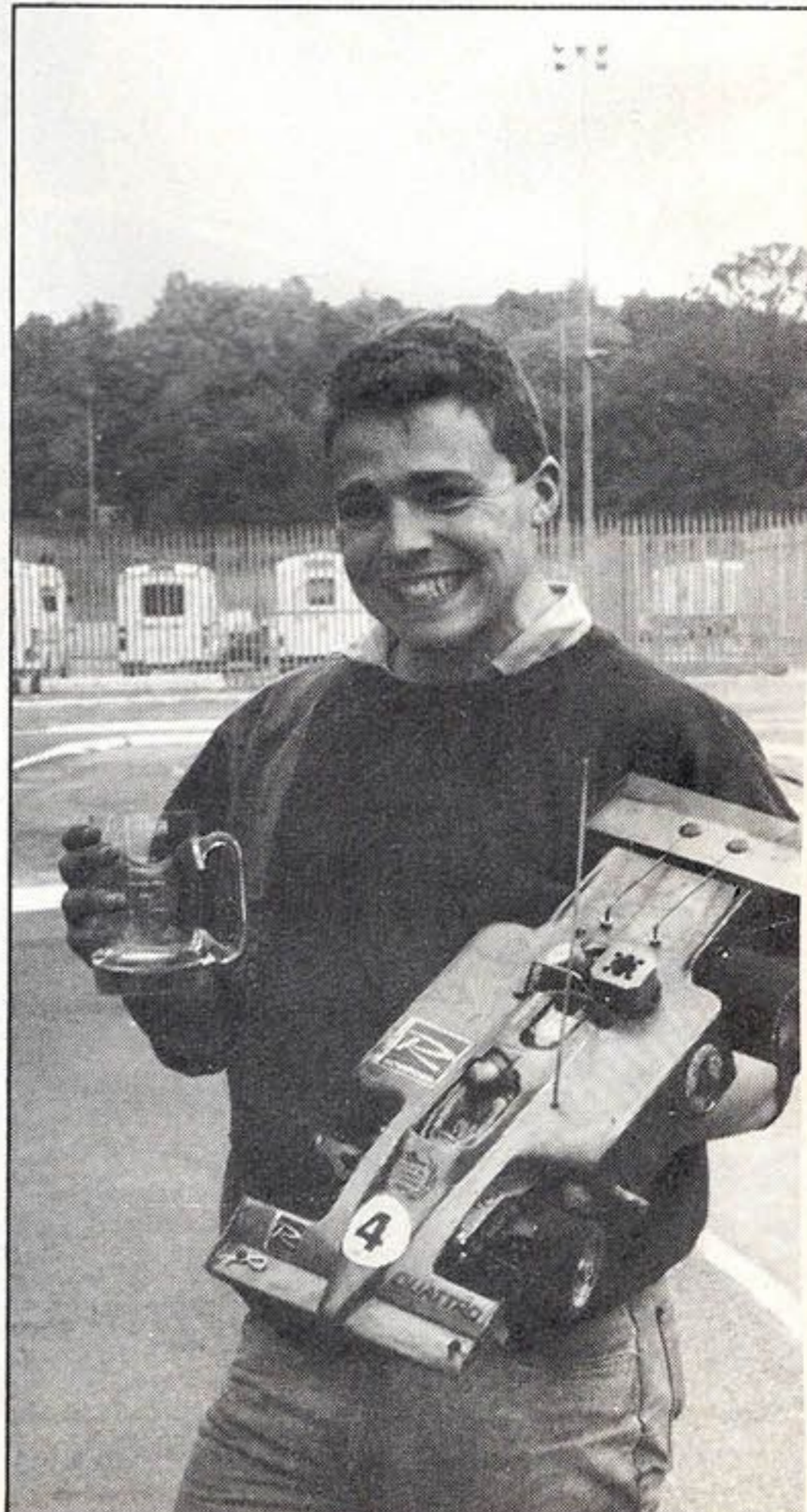
Minimum weight limit rule was an inevitable amendment after all the fuss of the last season both at European meetings, where it was clearly against the established rules, and also in England where although it didn't break any rules, it did break peoples spirits. The new rule therefore is for a minimum weight of 2.6kg (or 2.4kg for two wheel drive) and most importantly prohibits the use of 'ballast' to achieve this minimum. Be warned, therefore that if you over lighten a car, then it cannot be used by sticking weights back on if the officals catch you! Also note that the weight will be measured on an 'official' set of scales and tales of, ... "but honest it weighs 6ozs heavier on my scales!" will be totally rejected.

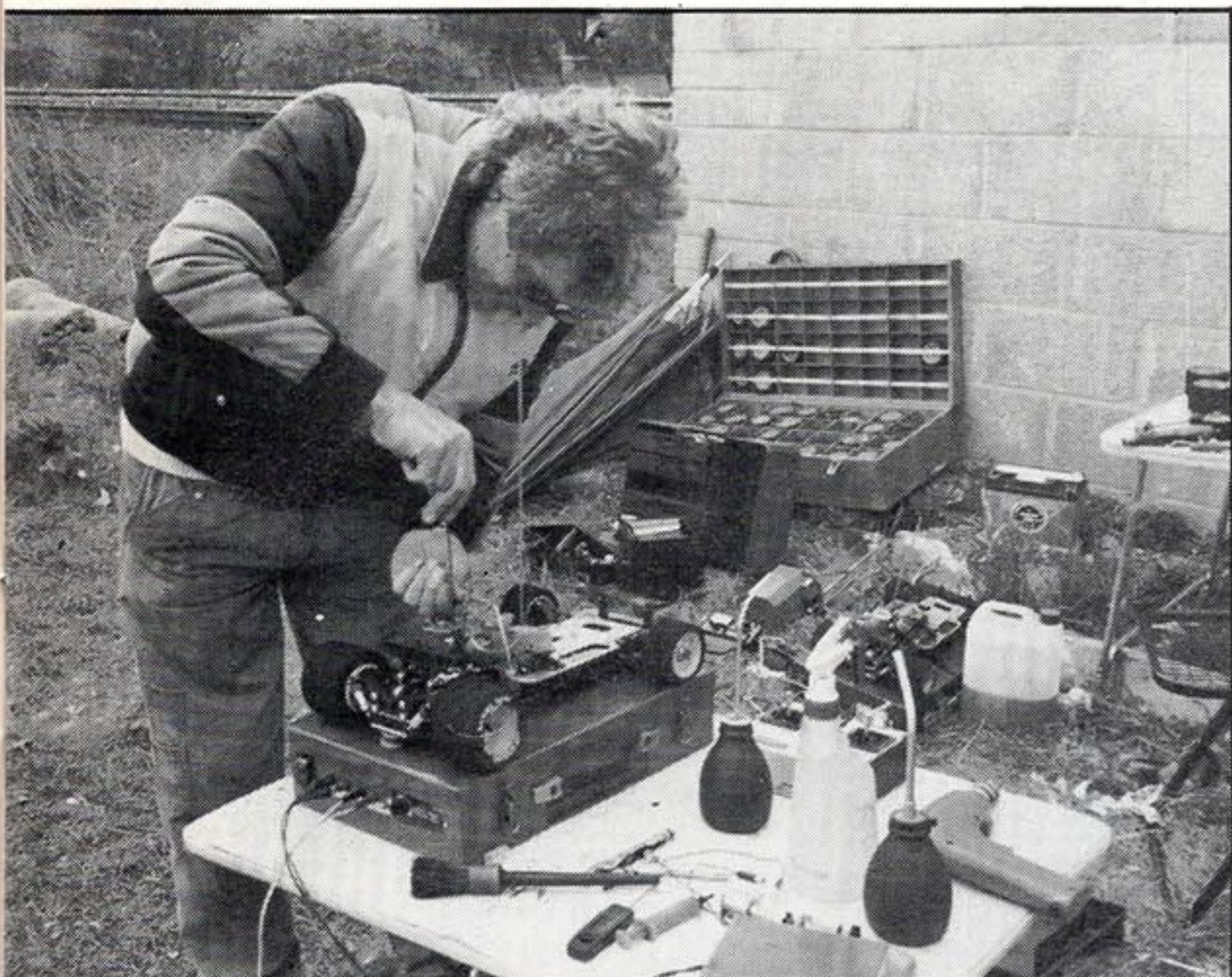
Limited Cost Racing

This subject once again was raised and heavily discussed, but this time at least someone had carried out some tests of the theory. The theory this time being the banning of nitro in order to reduce both direct and indirect costs, i.e. if you reduce nitro then you save money on the fuel (direct cost) and thus with less power you reduce tyre wear and damage costs (indirect cots).

John Russell had carried out tests at Tibshelf with and without nitro and put forward the case for having an additional class of racing at meetings. The end result is probably the most interesting development in racing for some time and one

James Haydon had an excellent season in '87, but will he learn to smile properly for '88?





Above Walt Bailey trying to screw more power from his motor. Above right: Hopefully now we will no longer see these stick on, fall off weights!

which will be watched carefully by others. Thus, at a B.R.C.A. meeting, the first set of heats are set aside for the formula of, no nitro, no tuned pipe, use only a specified body shell with no additional wings etc., whereas the remainder heats are still of an 'Open' nature. The new formula will therefore have its own final.

Please note that several details are still to be sorted by the committee for this format but expect the specified bodysells to be a 'Ford Sierra Cosworth' on Saturdays and a 'Renault 5 Turbo' on Sundays. Interested? Don't forget that not only does this reduce costs, but also enables you to have a dual entry at race meetings either in restricted and open both with no nitro, or with restricted nitro, and open with nitro. Understand?

With this new class will also be a series championship and there is also a rule stating that a driver may only score points in either the restricted or the open class. (You may compete in both though).

Those people aspiring to the dizzy heights of referee now have more power to crave with the approval that referee's can now impose 'real' penalties to definite offenders. This in itself is fair enough but great care must now be given to the choice of referee especially regarding brand loyalties (Refer to recent cricket incident V England in Pakistan!)

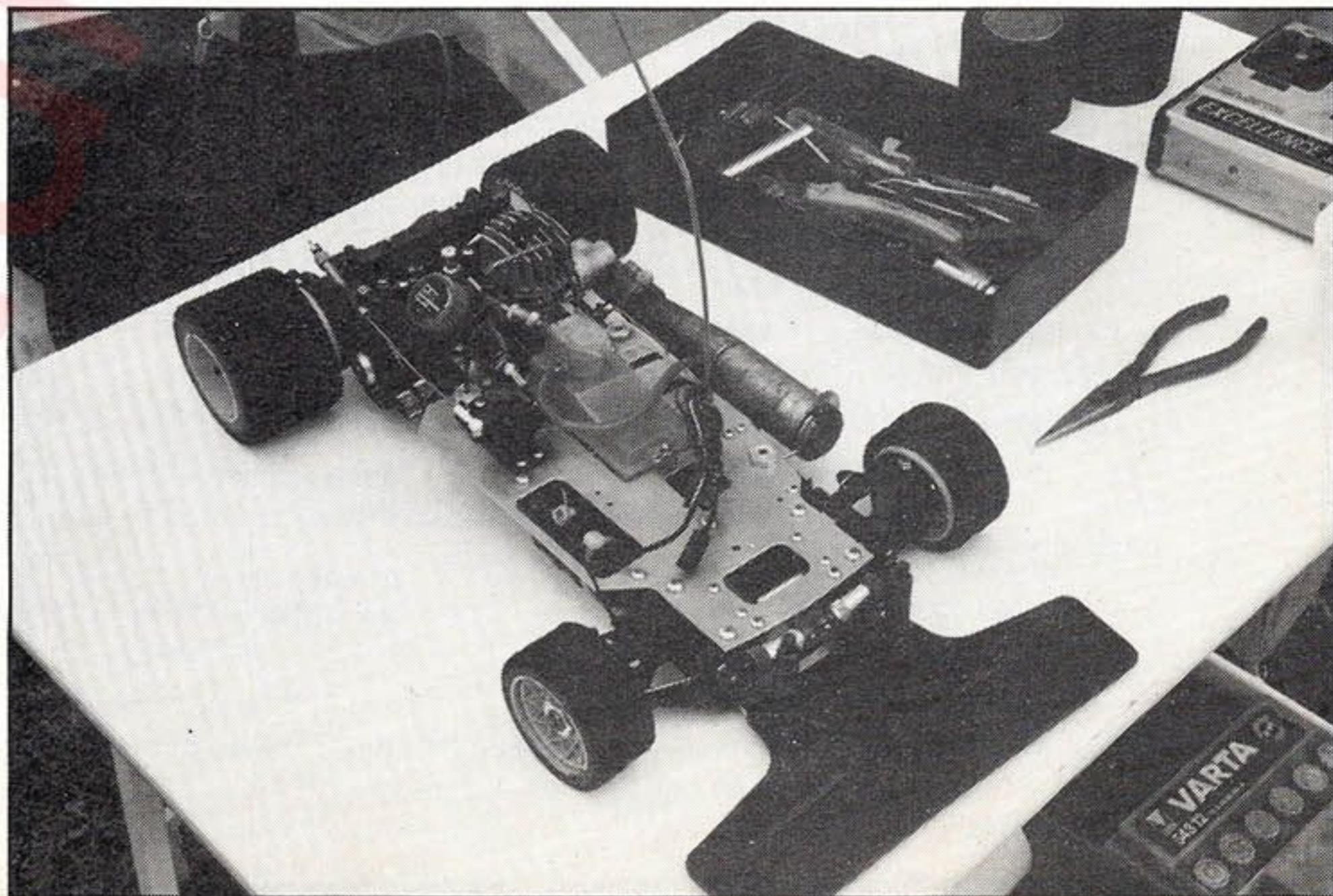
The 1988 British Nationals to be staged on August Bank Holiday, was a three way choice between Halifax, Lilford and Tibshelf. Tibshelf polled 21% of the first vote, and so dropped out of the second stage vote. This gave the Nationals to Halifax on a narrow 54% : 46% vote split.

The 1989 British Grand Prix was loosely discussed and looks likely to go to Mendip as they are the only applicants so far.

There is the strong possibility of a special charity meeting at Ford's in Essex, but no formal details yet.



The '87 SG Space. What will '88 see?



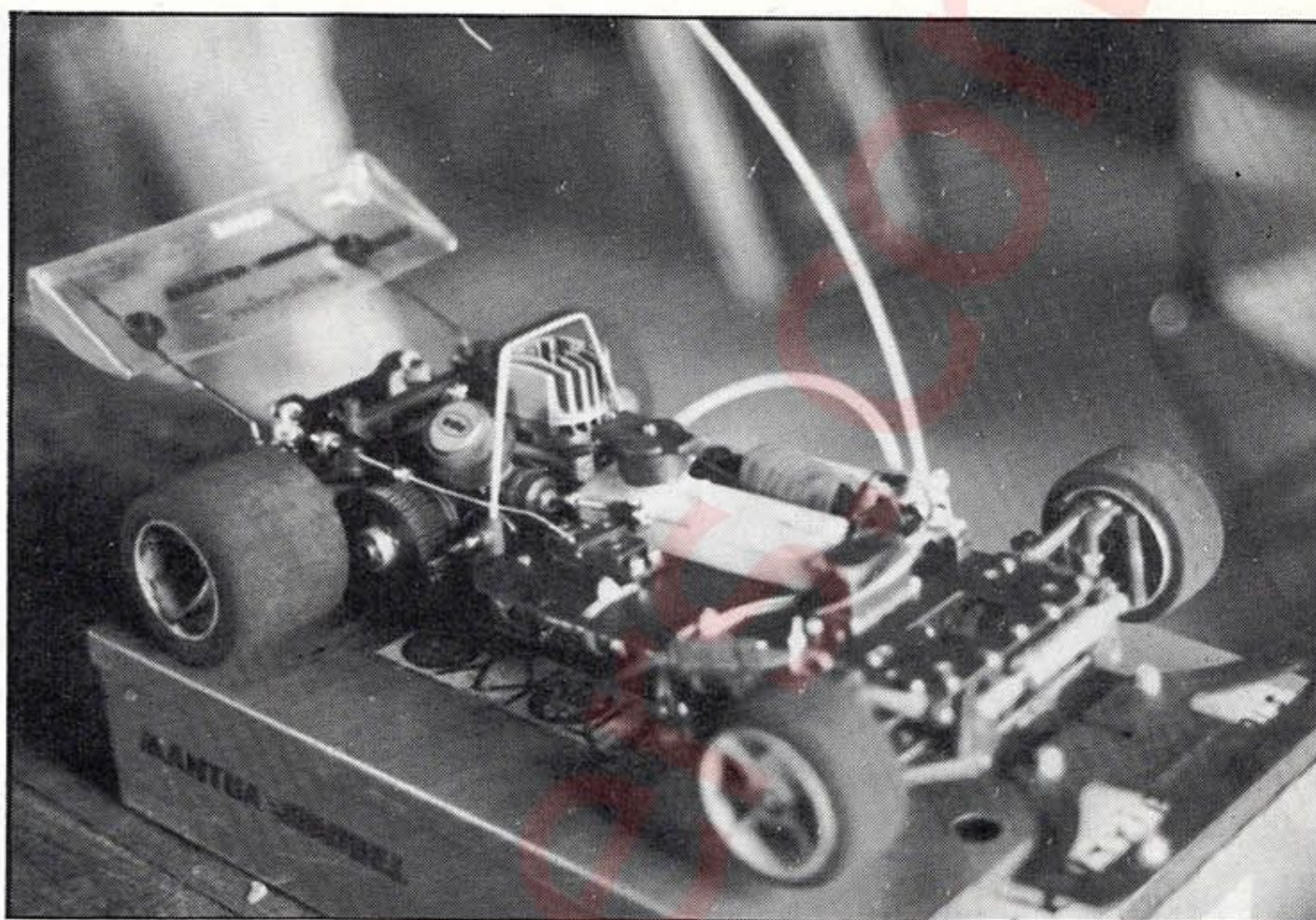
Serpent Quattro still the car to beat?

Finally, the committee was elected and is nearly the same as last year save that the Chief Steward is now Ian Briggs and the section P.R.O. is Mike Jackson.

E.F.R.A.

Two weeks later saw the EFRA A.G.M. held in Belgium and although full details are not yet available as to all that transpired, some details are known.

The main European Championships are to be held in Italy and England has a quota of twelve drivers. The saloon champs is being held in Grenoble with the English quota at ten plus one, for the current Champion. This means that for 1989, when England hosts the European saloon Championships, we will probably have a quota of ten, plus two for being the hosts. The present method of team selection is more relevant to the main champs, and so the committee will be looking into the fairest method for selecting these twelve 'B' class drivers with due consideration to those that have represented England in the past, as without these people we would not have so high a quota!



Could the Mantua be a contender this year?

Calendar of Events

1988	B.R.C.A.	E.F.R.A.	Invitation
April 3	Southampton		
10			
17			Ford Charity Race (Essex)
24			
May 1	Aberdeen	GP (GB) Aberdeen	
8			
15	Crystal Palace		
22			
29	Tibshelf	E.C. Saloon	Grenoble (F)
June 5			
12	Wrexham		
19		G.P. (NL) Heemstede	
26			
July 3	Mendip		24hr Naestved Naestved (DK)
10		G.P. (D) Walsum	
17	West Burton	E.C. Youth (D) Walsum	
24			
31	CRIEFF	G.P. (CH) Brugg	
August 7		E.C. Sports (I) Ancona	
14	Aldershot		
21			
28	Halifax		
September 4		G.P. (DK) Naestved	
11	Lilford		
18			
25	Wombwell		3hr Heemstede (NL)
October 2			
9			Mendip 4hr Bern (CH)
16			
23			
30			

E.C. — Euro Champs
G.P. — National Grand Prix.

1988 Calendar

After the usual delays from certain clubs, we have managed to colate the full 1988 calendar. The only date not fully confirmed is for Crieff in Scotland on 30/31 July which is provisional at the moment. Note that dates shown are for the Sunday. Saturdays are usually for formula class and the bank holidays encompass a saloon meeting on the Monday. The only exception to this is the grand prix in Aberdeen where the meeting is primarily a two day sports meeting with Christmas tree type finals, and a one day saloon meeting on the Monday.

November 28 saw the Southampton clubs annual presentation evening held at the Ponderosa, near Fareham in Hampshire. No it's not the Ponderosa from that old T.V. series — 'Bonanza'. My golly it wasn't half cold though! Still always a good evening with a good mix of social chat, skittles and trophy presentation. I wonder if all the clubs have a social like this?

It was Mike Hooper who had cleaned up on the years championships with victory in both classes so this together with his BRCA Open final win at Aldershot means that he certainly had a good 1987.

The Coming Year

Well, the year ahead looks interesting especially with the new classes being introduced — what do you think of these? — and the driver changes that are going on. Several prominent drivers are taking the gamble and have joined P.B. racing in the hope that the development car grows into a good racing machine, which it certainly should do now that it bears more than a passing resemblance to other well known machines.

Some of the driver changes are surprising and some are not. Some are cost orientated and some personality. However as some don't wish others to know at this stage we had better not reveal names. (We'll do that next month!)

Hopefully next issue we will report from the traditional New Years day meeting at Mendip where we hope to scoop photo some of the new combinations.

Good racing for '88.

DIARY DATES

A British National Indoor series is being run this year at the Leisure Centre, Mansfield, dates for this series are as follows:- Sunday Feb 14, Saturday March 12, Sunday April 3, Saturday April 23. Final Monday May 29.

Points are scored from any two meetings plus the final.

For further details contact Malcolm Webb on 0623 653346.

LEX AID

A 1/10 indoor meeting will be held on February 21, all proceeds are in aid of Cystic Fibrosis. The meeting takes place at Lex Tillotsan, High Street, Kingswood, Bristol.

For further details contact Sarah Workman, High Park, Poulton, Bristol, BS18 5LN.

WORCESTER MODEL CAR CLUB

Are giving drivers the opportunity of entering a major event out of the main season. The Worcester Car Club are running an indoor open meeting on January 17, sponsored by Wadham Stringer. The meeting will be held at Perdiswell Sports Centre, Bilford Road, Worcester.

For further details contact Dave Ranford, Worcester 353142.

SWINDON OFF ROAD CLUB

February 21 sees Swindon Club holding a model exhibition around a 1/10 indoor meeting to try to raise £1000 for local charity.

For further information contact Clive Taylor on 0793 29239 after 6.00pm.

INTERNATIONAL DATES

March 11, 12, 13 — Reedy International
 April 30, May 1 — French Grand Prix.
 May 3,4,5 — Swedish Grand Prix
 May 21, 22 — Austrian Grand Prix
 June 5 — Home International Meeting
 June 24, 25, 26 — Eurochamps Lyon
 July 17 — British Grand Prix
 July 30, 31 — Belgian Grand Prix
 Sept 17 — German Grand Prix

Radio Race Car Series 1988

A coupon has been inserted into this Race Car and is for your benefit. Anyone wishing to take part in this series should register now. This will ensure that a driver number will be issued to you and you alone and no confusion will occur over names and initials.

Whether you intend running one round or all ten please obtain your driver number in advance.

Thankyou.

BRCA CALENDAR 1988

BRCA SERIES 1988 DATES

Worcester	March 20	2WD
Lincoln	April 3	4WD
Eden Park	April 10	2WD
Halifax	May 8	4WD
Southport	May 15	2WD
Chingford	June 5	4WD
Stockton	July 3	2WD
Bolton	July 24	4WD
Donisthorpe	August 14	2WD
Dumphries	August 28	4WD
Hatfield	Sept 4	2WD
Teffyside	Sept 11	4WD
Swindon	Sept 25	2WD
Stafford	Oct 2	4WD

1/12 Racing Calendar 1988

February 20 — Watford League
 February 21 — Stafford League
 February 27 —
 February 28 — Nantwich National
 March 4 —
 March 5 —
 March 6 — Euro Champs Denmark
 March 19 — Watford League
 March 20 Stafford League
 March 26/27 — Washington National
 April 2 —
 April 3 — Dutch International (World Practice)
 April 9 — Watford League
 April 23/24 — Stafford National
 May 7 — Watford (Possible)
 May 22 — Stafford League
 May 28/29 — Chesterfield National
 June 25/26 — Watford National
 July 9 — Watford League
 August 6 — Watford League
 August (TBA) — World Champs Holland.

1/8 Circuit Racing Calendar 1988

April 3 — Southampton
 May 1 — Aberdeen GP
 May 15 — Crystal Palace
 May 29 — Tibshelf
 May 29 — European Saloon Champ quarterly
 June 12 — Wrexham
 July 3 — Mendip
 July 17 — West Burton
 July 17 — European Youth Champs Germany
 July 31 — Crieff
 August 7 — Euro Sports GT Champs Italy

August 14 — Aldershot
 August 28 — Halifax
 September 11 — Lilford
 September 25 — Wombwell

1/8 Stock Calendar 1988

April 10 — Bournemouth Championship Round 1 (11am start)
 April 24 — Lilford Park (Puma Racing Pairs) (11am start)
 May 15 — Lilford Park Championship Round 2 (12pm start)
 May 29 — Ootmarsum (Holland) EMSA Euro Champs
 June 12 — Pendle (Nora) Champ Round 3 (12pm)
 June 19 — Leicester (British GP) (11am start)
 July 2/3 — Lilford Park (2 day Puma GP)
 July 17 — Hastings (Championship Round 4)
 July 31 — Nottingham (British Champs) (10am start)
 August 14 — Yorkshire (National Championships) (12pm)
 August 21 — Coventry (Championships Round 5) (12pm)
 September 4 — Pendle (Nora) 'Team Challenge' (1pm)
 September 11 — Leicester (EMSA World Champs)
 September 25 — Lilford Park (Harry Talbot Memorial Meeting) (12.30)
 October 2 — Yorkshire (Champ Round 6) (12pm)
 October 23 — Chessington (Champion of Champions) (Invitation only) (10am)

1/8 Off-Road Calendar 1988

March 20 — Slough
 April 3 — Ipswich
 April 17 — Stockfold
 May 1 — Scarborough
 May 14/15 — British Nationals Gloucester
 June 4/5 British GP Henlow
 June 19 — Bicester
 July 3 — Kent
 July 11/17 — World Champs Mantoa
 July 24 — Gloucester
 August 7 — Slough
 August 21 — Hackney
 August 27/28 Euro Championships — Denmark
 September 11 — Ilfracombe
 October 2 — Bicester

Radio Race Car Off Road Series 1988

JANUARY

Mon		4	11	18	25
Tues		5	12	19	26
Wed		6	13	20	27
Thurs		7	14	21	28
Fri	1	8	15	22	29
Sat	2	9	16	23	30
Sun	3	10	17	24	31

FEBRUARY

Mon	1	8	15	22	29
Tues	2	9	16	23	
Wed	3	10	17	18	
Thurs	4	11	18	25	
Fri	5	12	19	26	
Sat	6	13	20	27	
Sun	7	14	21	28	

MARCH

Mon		9	16	23	30
Tues	1	8	15	22	29
Wed	2	9	16	23	30
Thurs	3	10	17	24	31
Fri	4	11	18	25	
Sat	5	12	19	26	
Sun	6	13	20	27	

March 6 2WD Stafford
March 13 4WD Swindon

APRIL

Mon		4	11	18	25
Tues		5	12	19	26
Wed		6	13	20	27
Thurs		7	14	21	28
Fri	1	8	15	22	29
Sat	2	9	16	23	30
Sun	3	10	17	24	

April 3 4WD Birmingham
April 10 2WD Medway
April 24 2WD Chesterfield

MAY

Mon	2	9	16	23	30
Tues	3	10	17	24	31
Wed	4	11	18	25	
Thurs	5	12	19	26	
Fri	6	13	20	27	
Sat	7	14	21	28	
Sun	1	8	15	22	29

May 8 2WD Worcester
May 15 4WD Medway

JUNE

Mon		6	13	20	27
Tues		7	14	21	28
Wed	1	8	15	22	29
Thurs	2	9	16	23	30
Fri	3	10	17	24	
Sat	4	11	18	25	
Sun	5	12	19	26	

June 5 2WD Kidderminster
June 18 Gala Weekend
June 19 Aberdare

JULY

Mon		4	11	18	25
Tues		5	12	19	26
Wed		6	13	20	27
Thurs		7	14	21	28
Fri	1	8	15	22	29
Sat	2	9	16	23	30
Sun	3	10	17	24	31

July 10 4WD Cosford
July 17 2WD Donisthorpe
July 31 4WD Kidderminster

AUGUST

Mon	1	8	15	22	29
Tues	2	9	16	23	30
Wed	3	10	17	24	31
Thurs	4	11	18	25	
Fri	5	12	19	26	
Sat	6	13	20	27	
Sun	7	14	21	28	

Aug. 7 4WD Bournemouth
Aug. 28 2WD Birmingham

SEPTEMBER

Mon		5	12	19	26
Tues		6	13	20	27
Wed		7	14	21	28
Thurs	1	8	15	22	29
Fri	2	9	16	23	30
Sat	3	10	17	24	
Sun	4	11	18	25	

Sept. 4 4WD Chesterfield
Sept. 11 2WD Bournemouth
Sept. 25 4WD Stafford

OCTOBER

Mon	3	10	17	24	31
Tues	4	11	18	25	
Wed	5	12	19	26	
Thurs	6	13	20	27	
Fri	7	14	21	28	
Sat	1	8	15	22	29
Sun	2	9	16	23	30

FINALS
Oct. 2 4WD Worcester
Oct. 9 2WD Swindon

NOVEMBER

Mon		7	14	21	28
Tues	1	8	15	22	29
Wed	2	9	16	23	30
Thurs	3	10	17	24	
Fri	4	11	18	25	
Sat	5	12	19	26	
Sun	6	13	20	27	

DECEMBER

Mon		5	12	19	26
Tues		6	13	20	27
Wed		7	14	21	28
Thurs	1	8	15	22	29
Fri	2	9	16	23	30
Sat	3	10	17	24	31
Sun	4	11	18	25	

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Hotshot II	Rocky
Lunch Box	Turbo Rocky
Porsche	Optima
Celica	Pro Optima
Big Wig	Turbo Optima
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Club/Team

2 WD STD/MOD
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Please Tick	1	2	3	4	5	6	7	8	9	4WD

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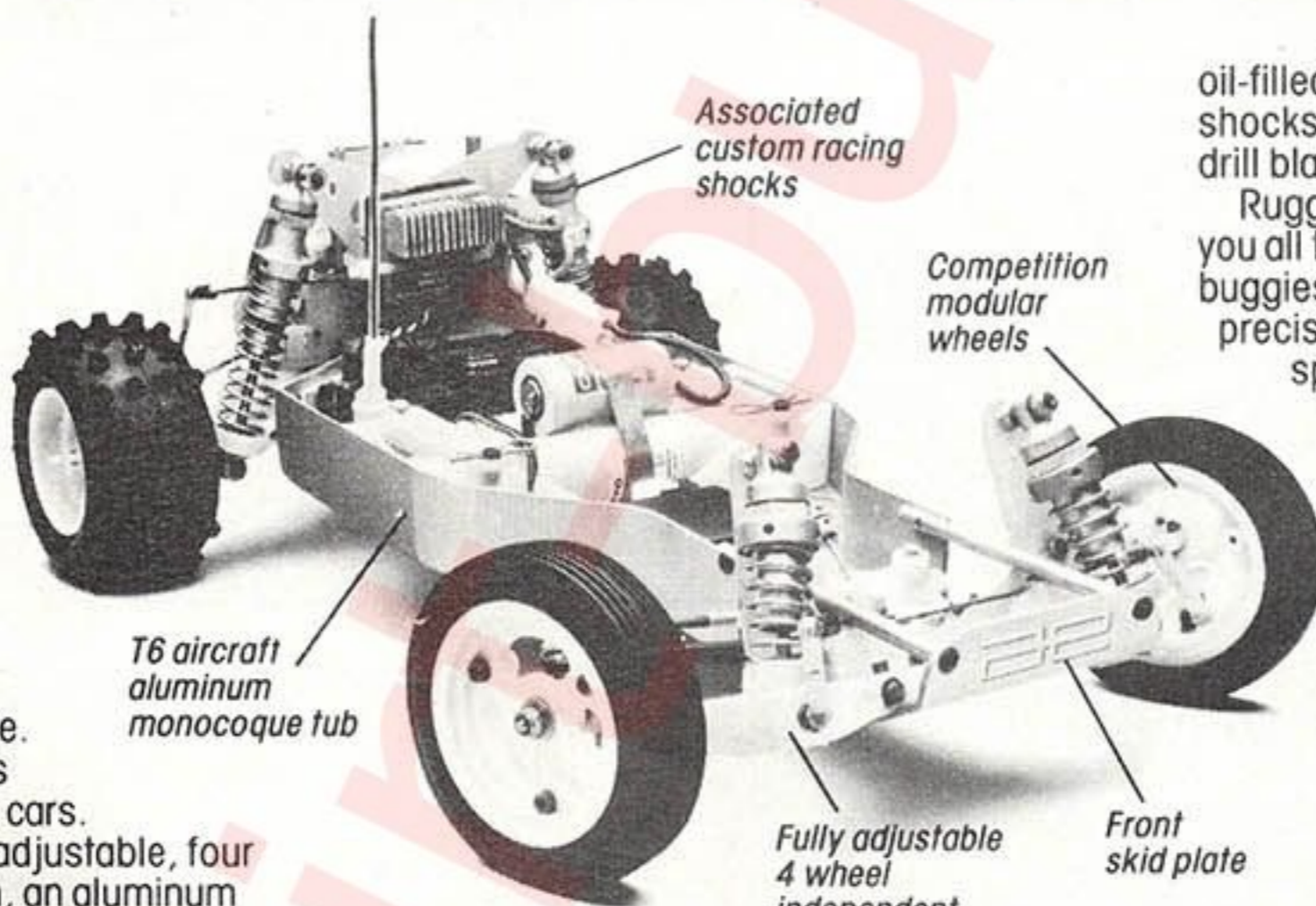
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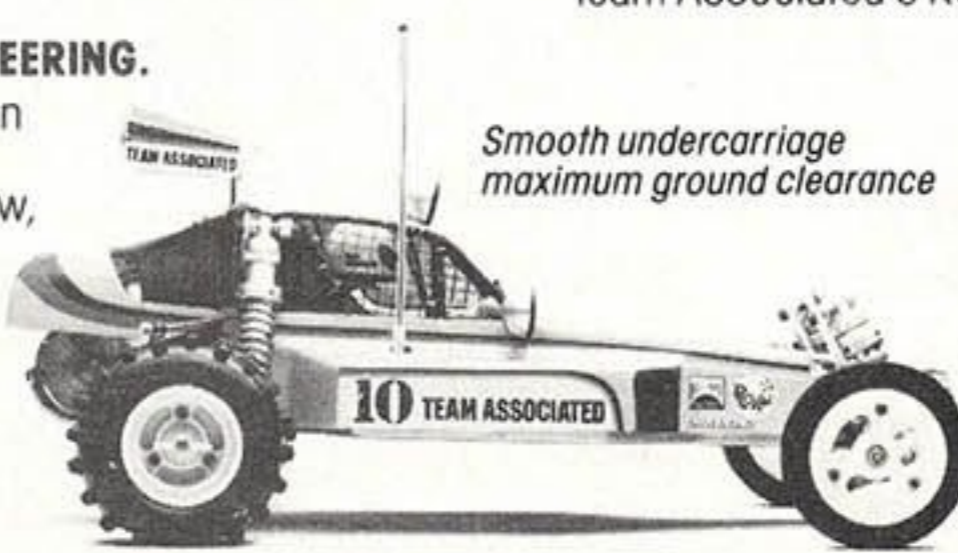
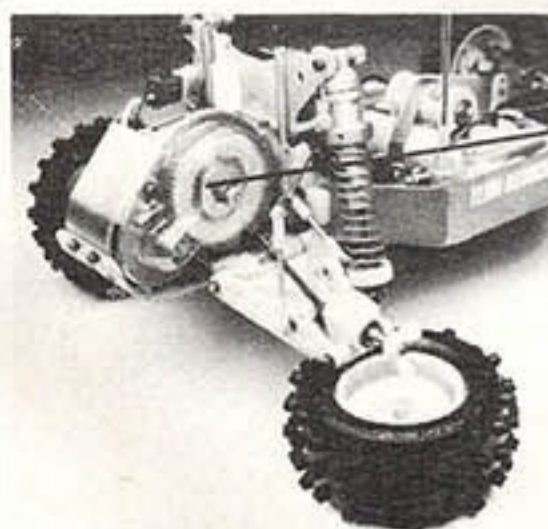
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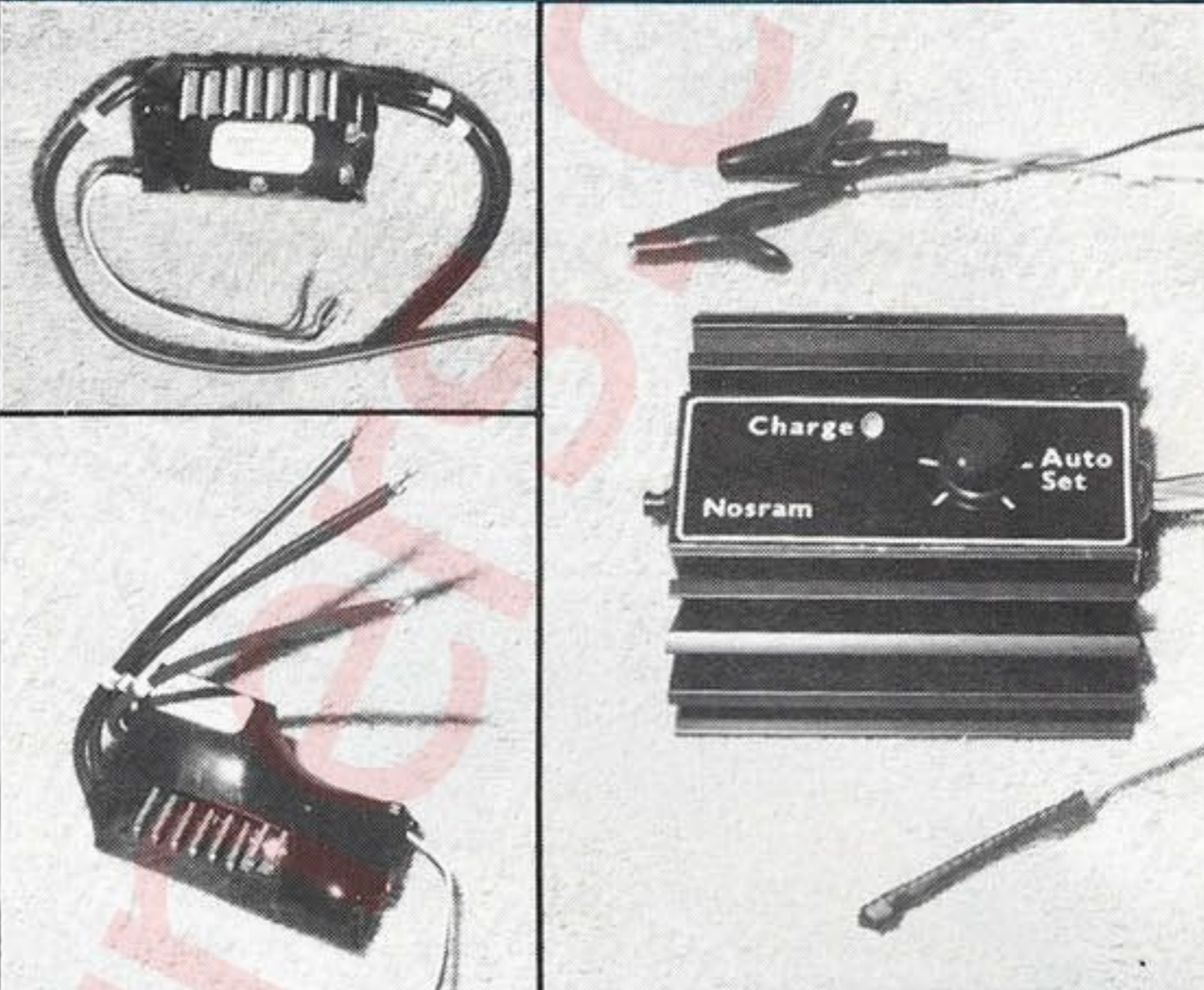
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1st	Eastnor Model Spectacular	Mike Bridges
1st	Swords — Weston-super-Mare	Mark Mainey
FTD	Weston Park — Standard	Simon Evans
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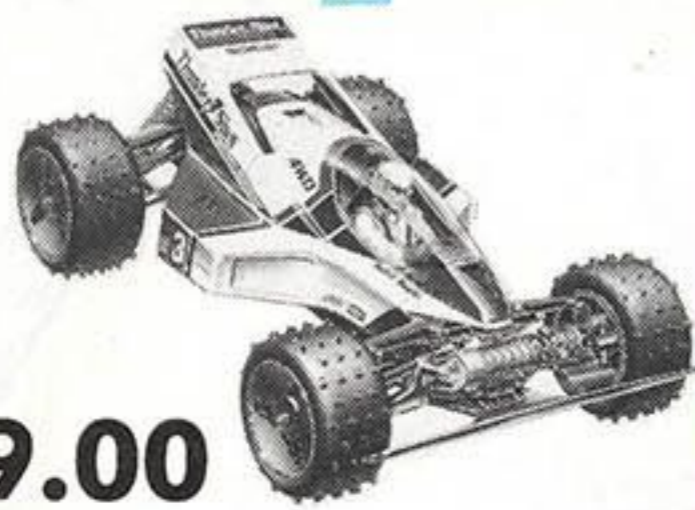
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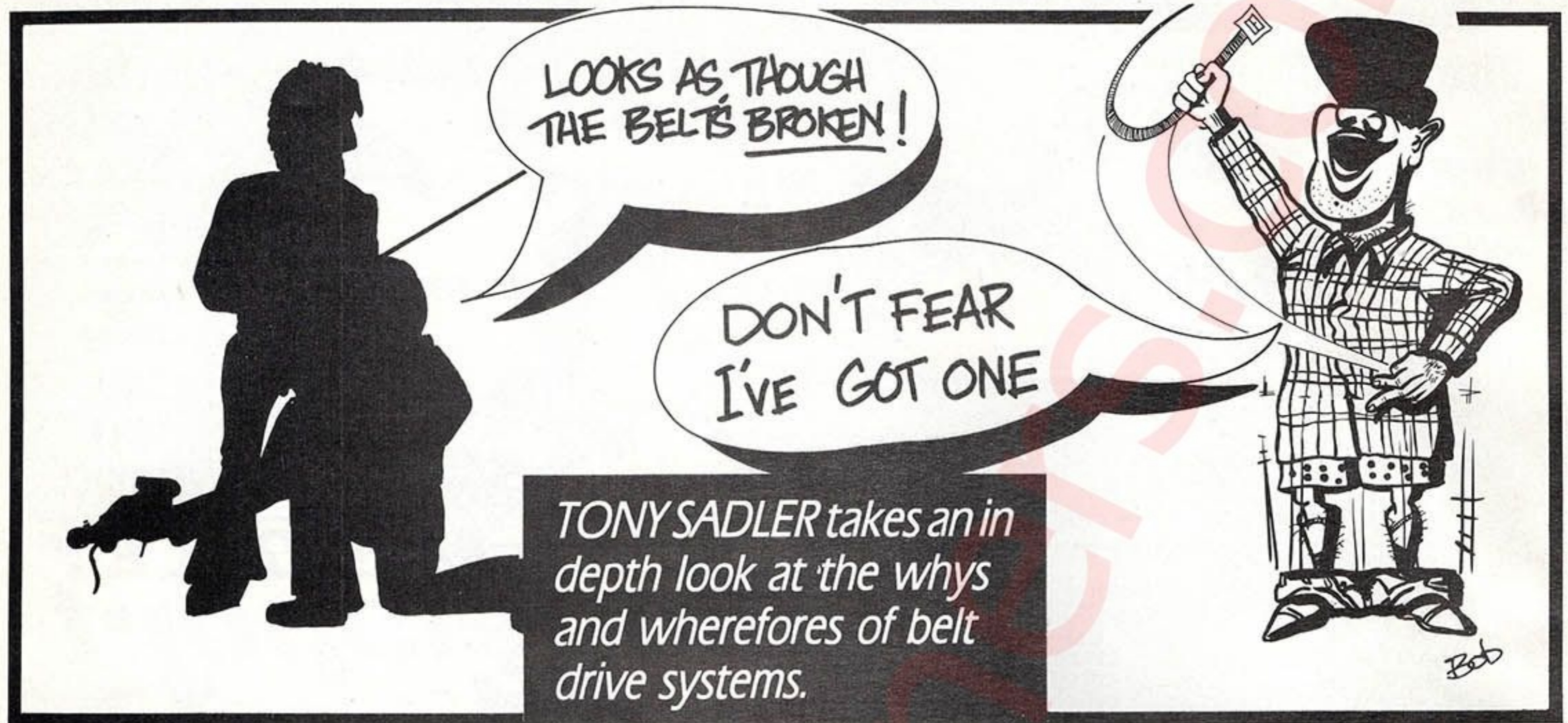
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BELTING ALONG



Those of you who know your old testament will recognise the following: "In the beginning all was dark and shaft drives reigned supreme. Then Lo came forth Cecil and spake "Let there be belts" and there were — two small ones and a big one.

Perhaps I've twisted it a bit but you must agree that belts are the flavour of the month as far as 4WD drive electric cars are concerned. There's the Cat, Mini-Mustang/Maxima, Yokomo (anyone seen one?), new Optima and of course all the conversions for chain driven to belt drive.

Materials

What is so special about belts? Perhaps it is

because they are so flexible and being designed to flex do not age or wear in the same way as chains. They are also lighter and thus have less effect on acceleration and braking. Having said this belts are very high tech and deserve as much study and care as more exciting bits of our cars. Let's look at the construction of a typical belt. First of all there is the material of the belt casing or body. This will usually be natural rubber (black), or Neoprene (again generally black) or polyurethane/Urethane (orange & translucent). The second factor that affects the suitability of a belt for a specific purpose is the tension members or cords that give the belt strength. These are usually Polyester, Kevlar or fibreglass.

Tension Members

The following tables show the relative strengths of the tension members but for electric cars the most important aspect is the modulus or "flexibility" of the cord which needs to be low in order that the belt may rotate smoothly over small diameter pulleys and provide the most efficient drive. This must be traded against strength to strength but for the electric cars the current materials are well able to cope from these aspects. I/C cars are another matter however. From the table it can be seen that fibreglass although being strong is much stiffer than Kevlar which in turn is stiffer than polyester. Polyester also has the ability to absorb shock loads better and dampen vibration reducing loading on gear trains and motor bearings.

Teeth

Turning to the shape of the teeth provides yet another area for design options. The two belt tooth forms that have been used on electric cars to date are the HTD and the MXL. The HTD (High torque drive) was used on the original Mini-Mustang. This type of belt is designed with a large tooth form on coarse pitch and is an exclusive Uniroyal design. It was developed for industrial drives where power losses were subordinate to drive force. With our small and relatively low power motors the efficiency of drive is of paramount importance and it there fore came as no surprise when PB announced that a change to a smaller pitch drive belt (Model Cars Oct. 1987) was planned. Having said this it was just as great a surprise when Kyosho demonstrated their new mid engine Optima at the Wrold Champs with what appeared to be an HTD belt. Time will tell on this decision.

The alternative belt to the HTD is that often referred to as the mini-pitch, or MXL drive (miniature XL) which has an 80 thou tooth pitch (see fig. below). Hirobo were perhaps the instigators of using MXL in their Zerda

Belt Cord Materials

	Polyester	Kevlar	Fibreglass
Tensile Strength	160000lbs/sq."	40000lbs/sq"	350000lbs/sq"
Elongation At break	14%	2.5%	3.5%
Modulus (Flexability)	2,000,000lbs/in.	18,000,000lb/in.	10,000,000 lbs/sq"

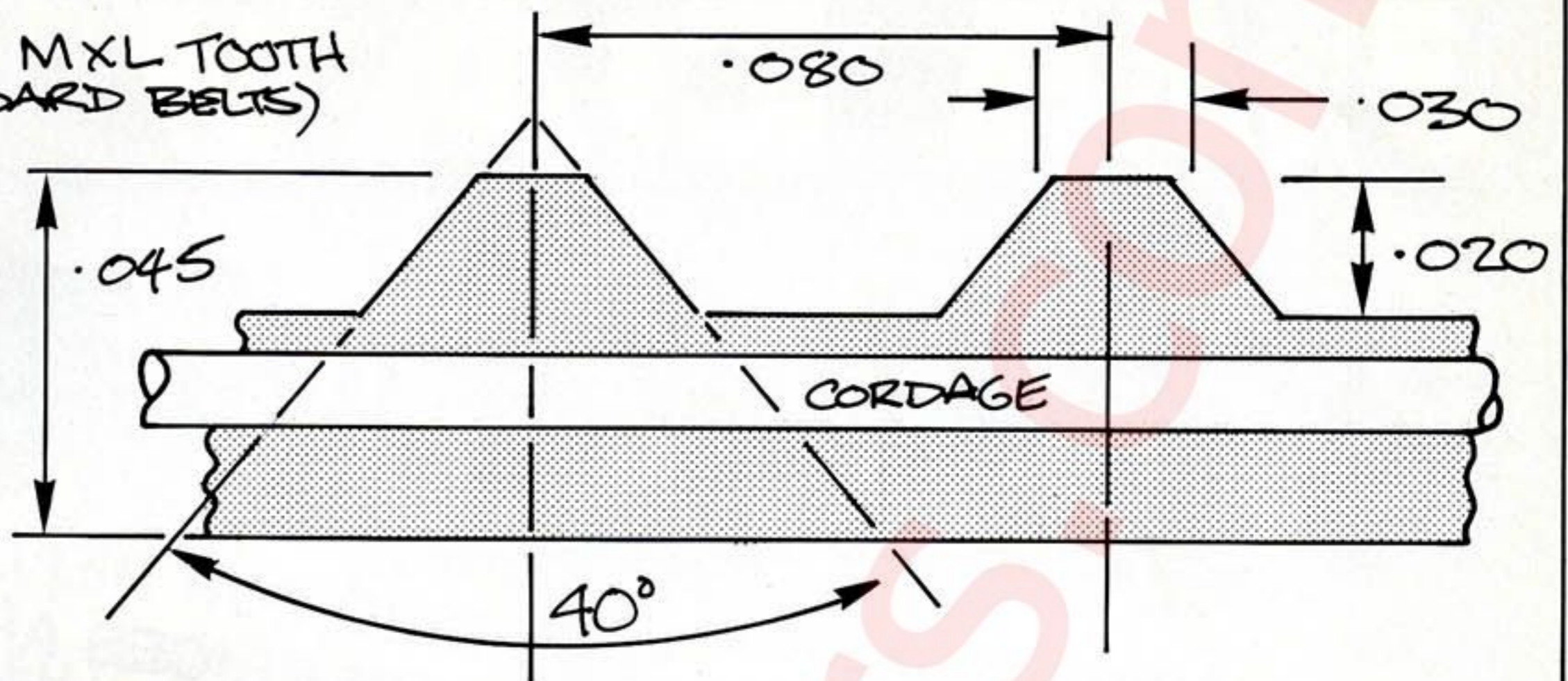
Comparison of Cord Materials

Requirements	Material			
	Polyester	Kevlar(1)	Kevlar (2)	Glass
Operate over small pulley	E	P	F	P
High speed pulley	E	P	F	P
Intermittent shock load	G	E	E	P
Vibration absorption	E	F	F	P
Good Belt tracking	E	F	G	F
Rapid start/stop operation	E	P	G	P

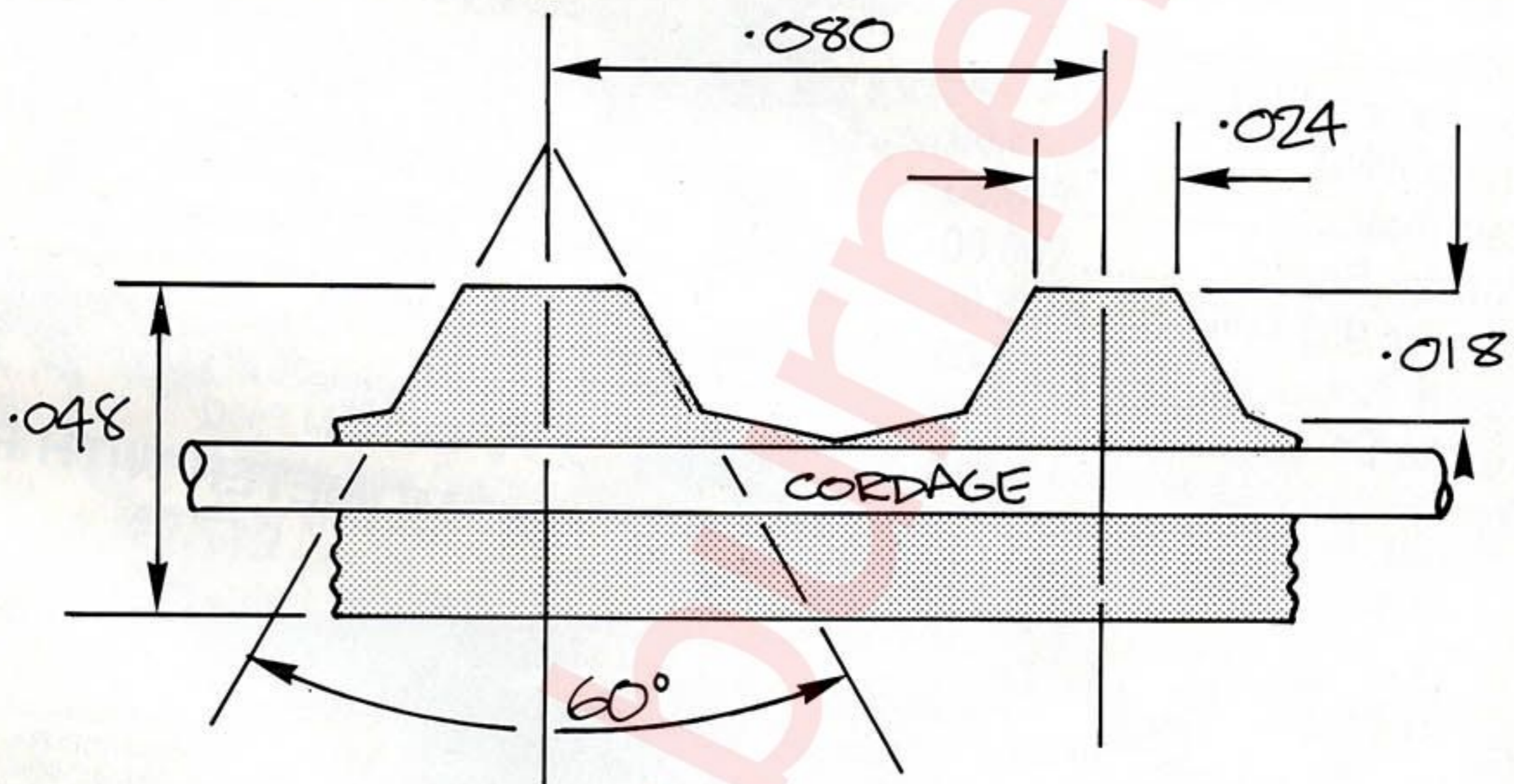
Key: E — Excellent, G — Good, F — Fair, P — Poor

Kevlar 1 — continuous yarn, Kevlar 2 — spun yarn cordage.

STANDARD MXL TOOTH FORM (STANDARD BELTS)

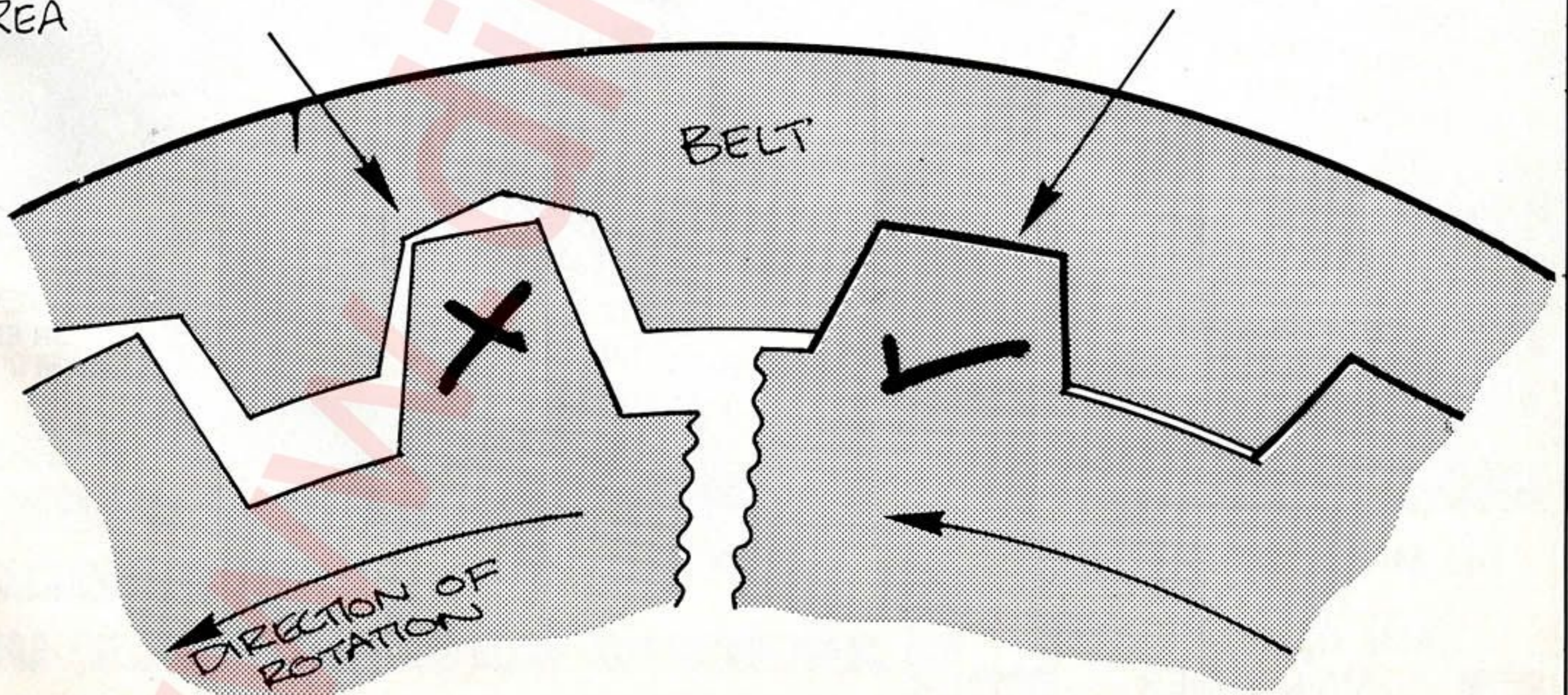


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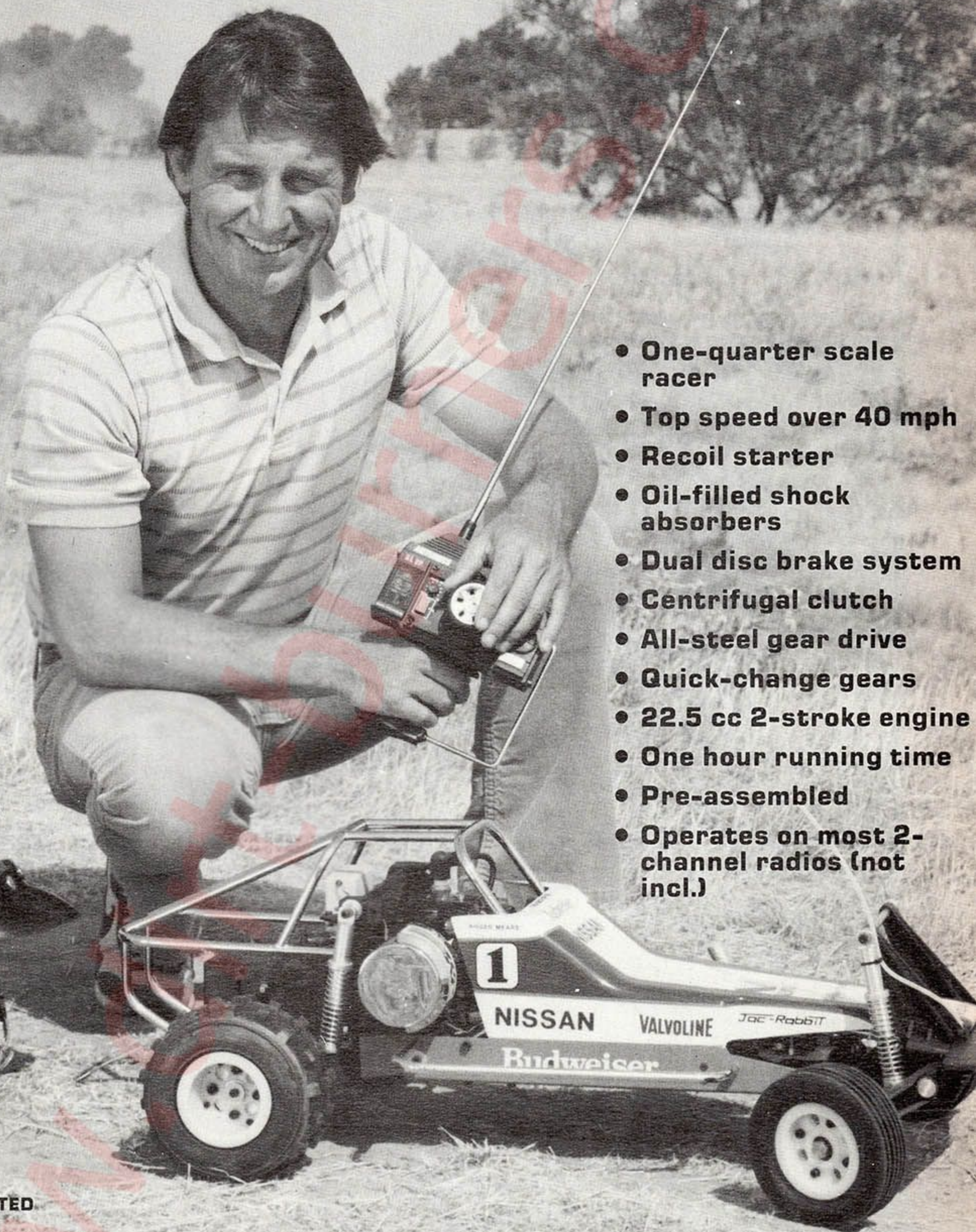
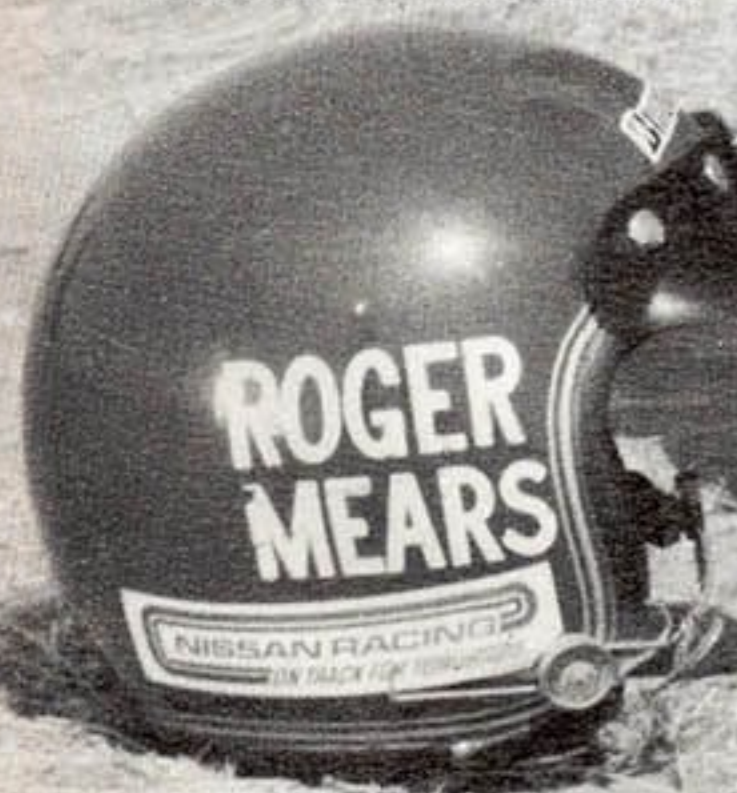
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RALLY CROSS

by Paul Leach

We start this month with a brief report on the 1987 annual B.R.C.A. conference. It is not the intention to go into too much detail but simply to outline the main points which will effect racing in 1988.

The conference was attended by thirty one members, and this was acknowledged as being a very good turnout, for the section, reflecting the fact that there is a growing interest in 1/8 rallycross racing.

After the usual opening speeches, and thankyou's to the outgoing committee, it

was noted that there was a need to attract more people into the hobby, and to B.R.C.A. meetings. I would like to point out here, that B.R.C.A. open meetings are not just aimed at the top, or sponsored drivers, but are there for everybody to compete in no matter what experience, or how good they are. There are many drivers who do not attend the meeting because they feel they are not good enough this is certainly not the case. The best way to improve your driving, and car preparation is to come

along and join in the action, you'll be warmly greeted at any B.R.C.A. meeting, and will find any of the top drivers more than willing to help you out, 1/8 rallycross is a very friendly and sociable form of racing, so dig out those cars and come and join in!

It was noted that the new A.M.B. lap counting system has been a great success, and thanks were given to all who helped to both obtain, and operate the system which has greatly improve the accuracy of race timing.

The 1988 calendar was roughly decided, and is to include a total of twelve points scoring meetings, all to be held at different venues, with the addition of the National Championship meeting to be held at the Staverton Steam Rally in Gloucestershire, and also a British Grand Prix, two team races, plus the usual invitation meetings. There will also be the European Championships in Demark, and the World Championships in Italy, so all in all a very busy and exciting year in prospect.

One of the most important rule changes concerned the duration of the qualifying heats, this has been reduced to five minutes, as it was felt that this would be of advantage to the more novice drivers. Also each driver should receive four qualifying heats, unless the entry exceeds fifty six, when it will be cut back to three.

Another important change was the format of the finals. Next year only four finals will be run, A, B, C and D finals, being run in reverse order, i.e. D final first. All finals will consist of ten driver,s this will give forty competitors a final position.

A large amount of time was given over the hobby, various suggestions included things like classes for novices, two wheel drive only, or one make championships to be run along side the national meetings. If you have any thoughts or suggestions towards encouraging new members, please let me know and drop me a line via Radio Race Car, remember the hobby needs your participation in order to flourish

Running The PB X3

1987 saw the PBX emerge as one of the top, front running cars, much of the development work being carried out at the beginning of the season by top line drivers.

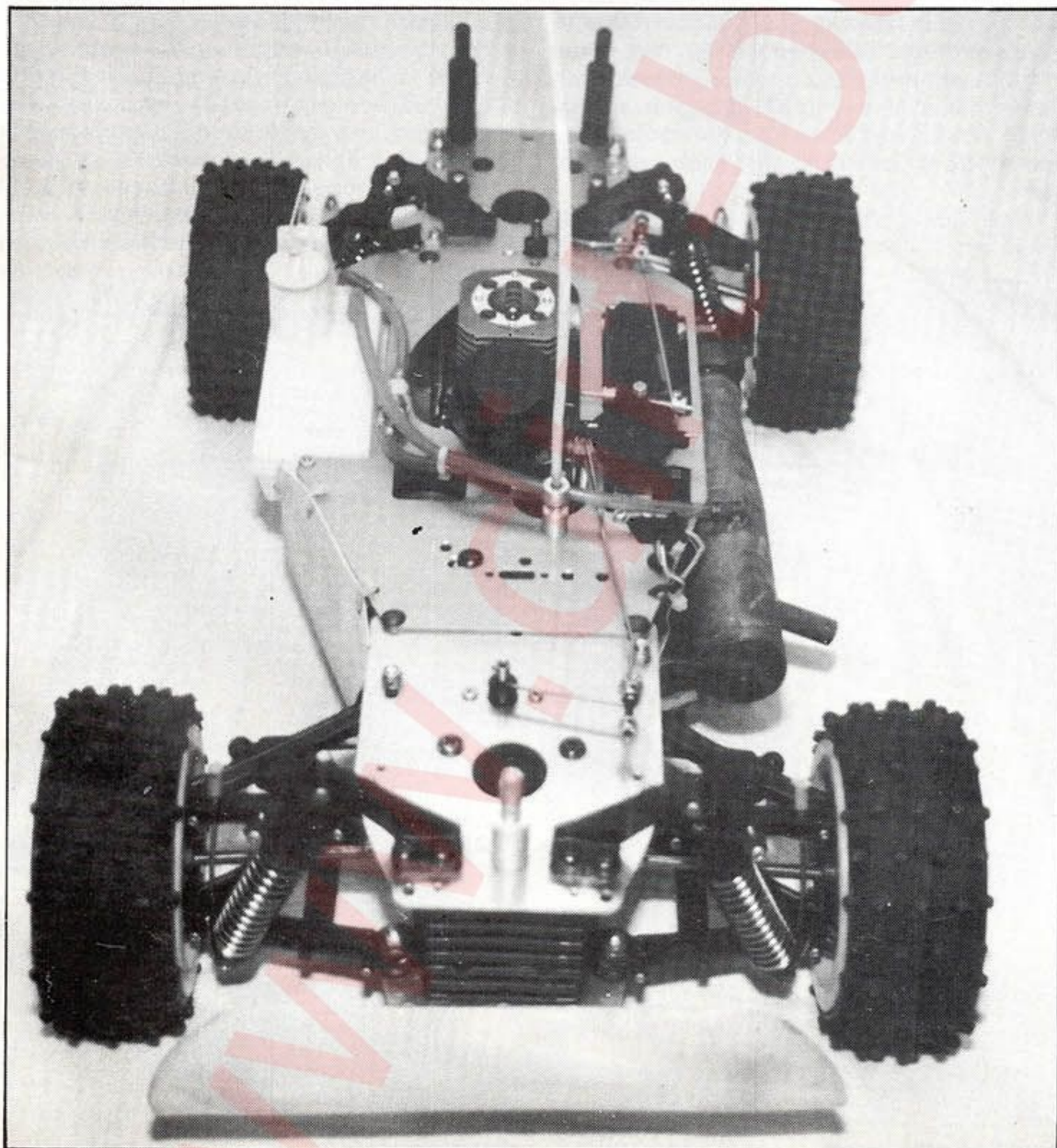
I was fortunate enough to be one of the first racers to receive one of the first production cars, and feel that after running the car now for the majority of the season with some reasonable success, feel that I can now pass on some valuable hints and tips on how you can get your PBX3 to perform as well as the 'works' cars.

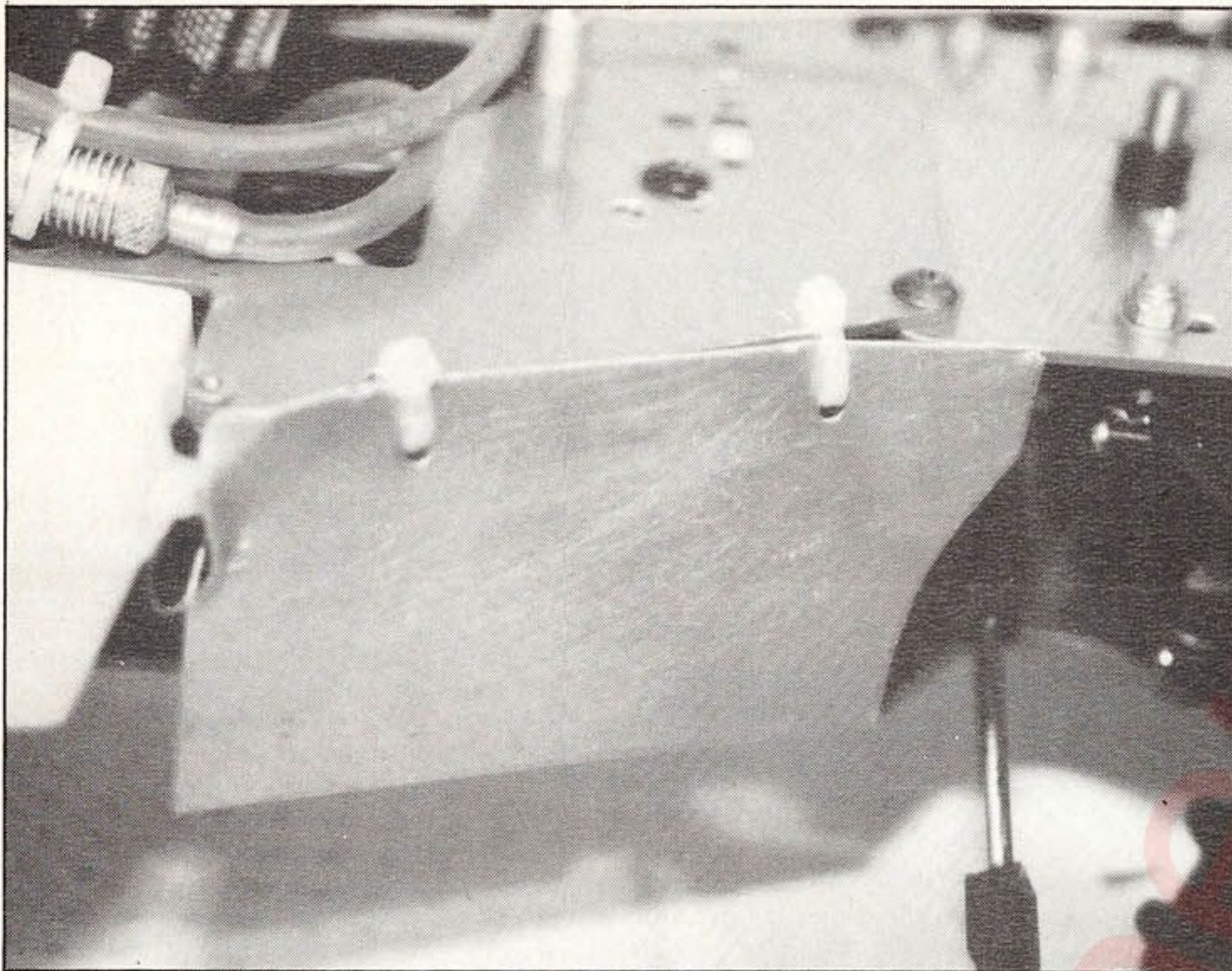
It is not my intention to detail the complete construction of the car, this is already more than adequately covered by the manufacturers own instructions, but simply to try and give you some advice on how to get a little more speed and reliability.

Chassis and Radio Plate

The standard kit chassis is made from a very hard aluminium aircraft type alloy, (this material does not lend itself to any kind of bending, and any attempts to do so will simply cause the chassis to fracture), however the material is extremely strong, and takes even the most brutal of crashes

Front view of your authors very modified, very reliable PB X3, races are won and lost during preparation as well as on the track.





A simple stone guard solves the problem of protection for the transmission shaft.

without being tweaked. One problem I have found is that even with the radio plate fitted to form a strong box structure, there is still an alarming amount of twist in the chassis, and this can allow the gear mesh to alter. A simple solution to this is to make up a 'chassis stiffening plate', approximately three inches square, and fit this under the engine mountings to double the chassis thickness at this point, this will keep the gears in mesh constantly.

One problem that beset the car at the start of the season, was the tendency to strip the main, and rear transmission shaft gears, two simple modifications are required here.

The first is to cut out a small hole under the main gear, although this does expose the bottom of the main gear, it prevents stones from becoming 'wedged' between

the gear and chassis. The main gear on my car has lasted all season, and is the original supplied with the kit!

The second modification is to make up a shield to prevent stones from the front wheels being thrown backwards into the transmission gears. Throughout the year various types of shield were tried, and in the end a small simple guard, made from either aluminium or lexan, was found to be all that was needed. The guard is fitted to the right hand side of the car in front of the fuel tanks, and is held to the chassis with the outer screws on the two front transmission shaft blocks, and to the radio plate with two small tie-wraps, this makes for very easy radio plate removal.

The radio plate as supplied with the kit is held in place with self tapping type screws, these tend to vibrate loose, or strip at the

most awkward of moments, my method here is to top the front and rear chassis top plates to 4mm, and fit allen bolts with spring crushers, this totally cures any problems of the screws loosening.

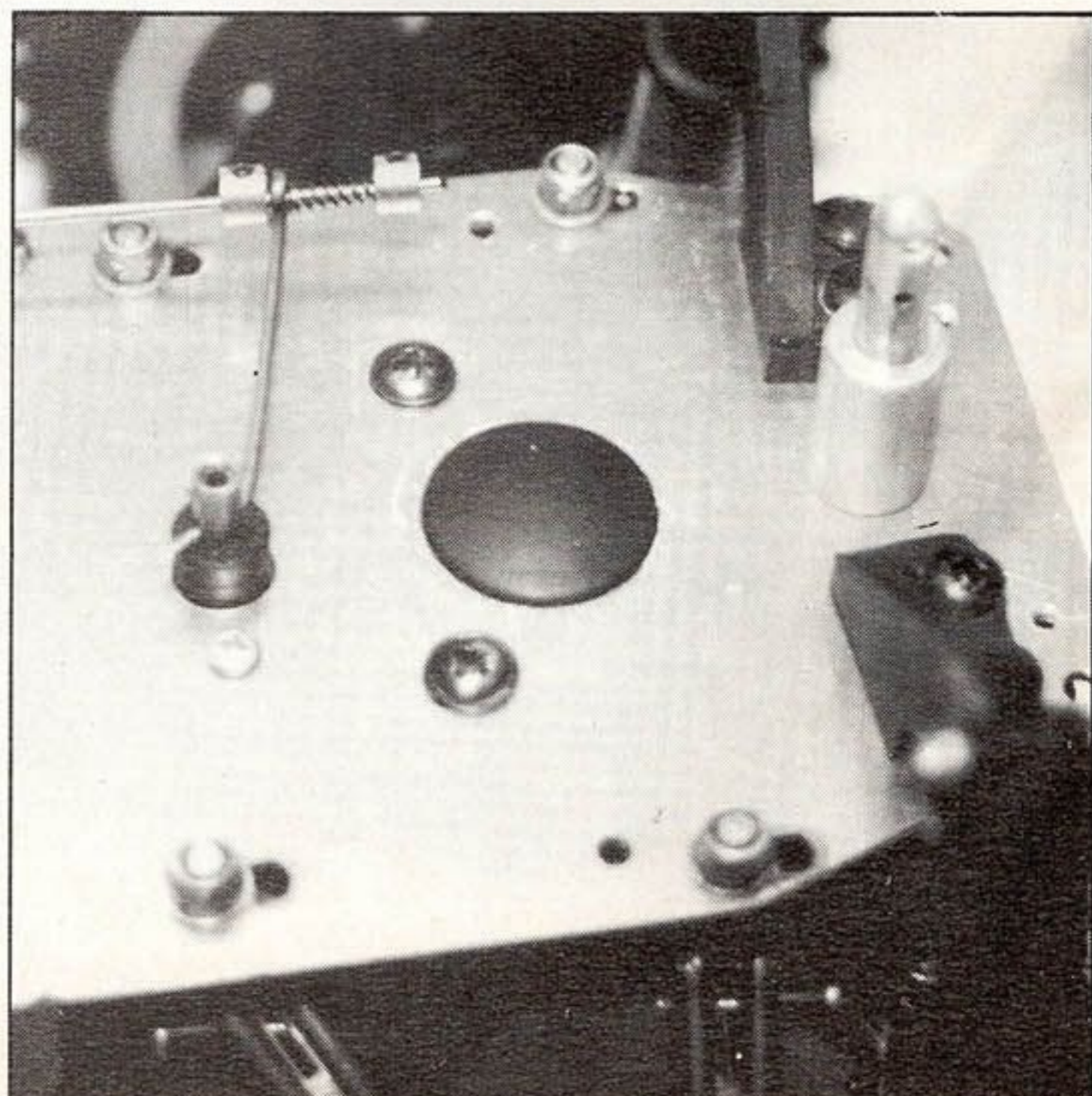
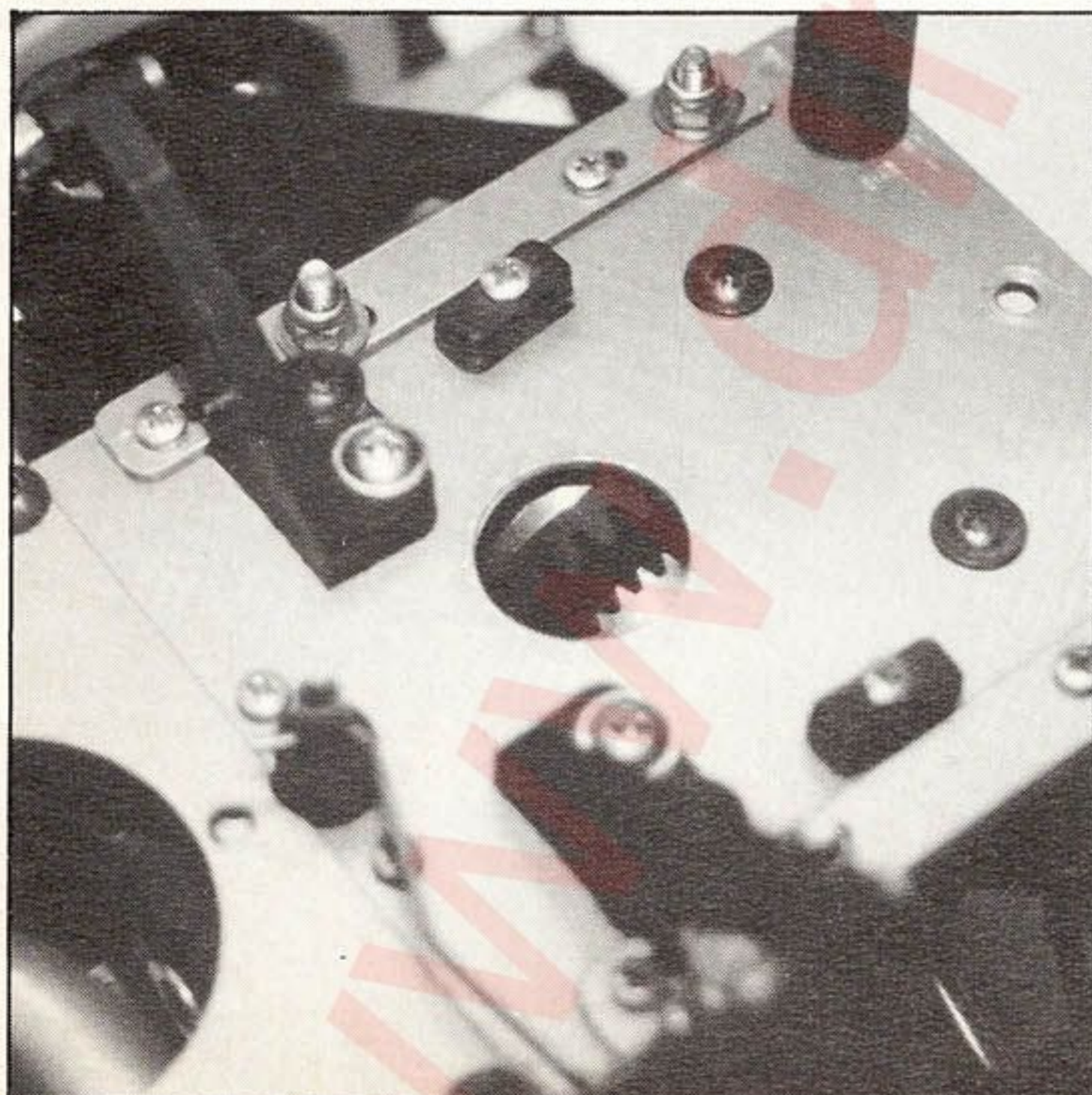
When first building the car, I added a 3/4 inch hole to both the front and rear chassis top plates, this is in order to instantly be able to see the condition of the differential bevel gears. The hole is simply fitted with a rubber grommet to keep out the dirt, and one can check the condition of the gears between each heat. This modification has proved invaluable, as twice I have been able to discover faulty gears before they caused failure in either heats or finals.

Lastly on chassis and radio plate, I have modified the front suspension mounting points on the front gearbox top plate, to enable the front caster to be adjusted. The mounting holes have been elongated by 5mm towards the front, in order to reduce the amount of positive caster, this gives the effect of making the car more responsive to turning into the corners at high speed, but note that this will also make the car more twitchy in a straight line, and also give more understeer at slower speeds, so this modification if you wish to be able to fine tune your X3 a little more than standard.

Transmission

The PBX3 comes with a choice of three transmission shaft options, these are:- single speed direct drive, single speed with centre differential, and two speed transmission. All three options use a one way roller bearing to the front differential, this has the effect of making the car four wheel drive with 'power on', but only two wheel drive on 'over run'. The idea of this is to eliminate the tendency for four wheel drive cars to push straight on in corners, and make the steering more responsive in tight corners. I do not know any of the top drivers who use the two speed transmission for British circuits, as these are generally not large enough for two speed to be an advantage, also personally I have found that when the car drops into first gear, on a slow corner, the higher gearing makes the

Gear mesh problems can be swiftly unearthed by simply drilling a hole into the gearbox and fitting a grommet for inspection and to ensure no grit, water or stones can get in.



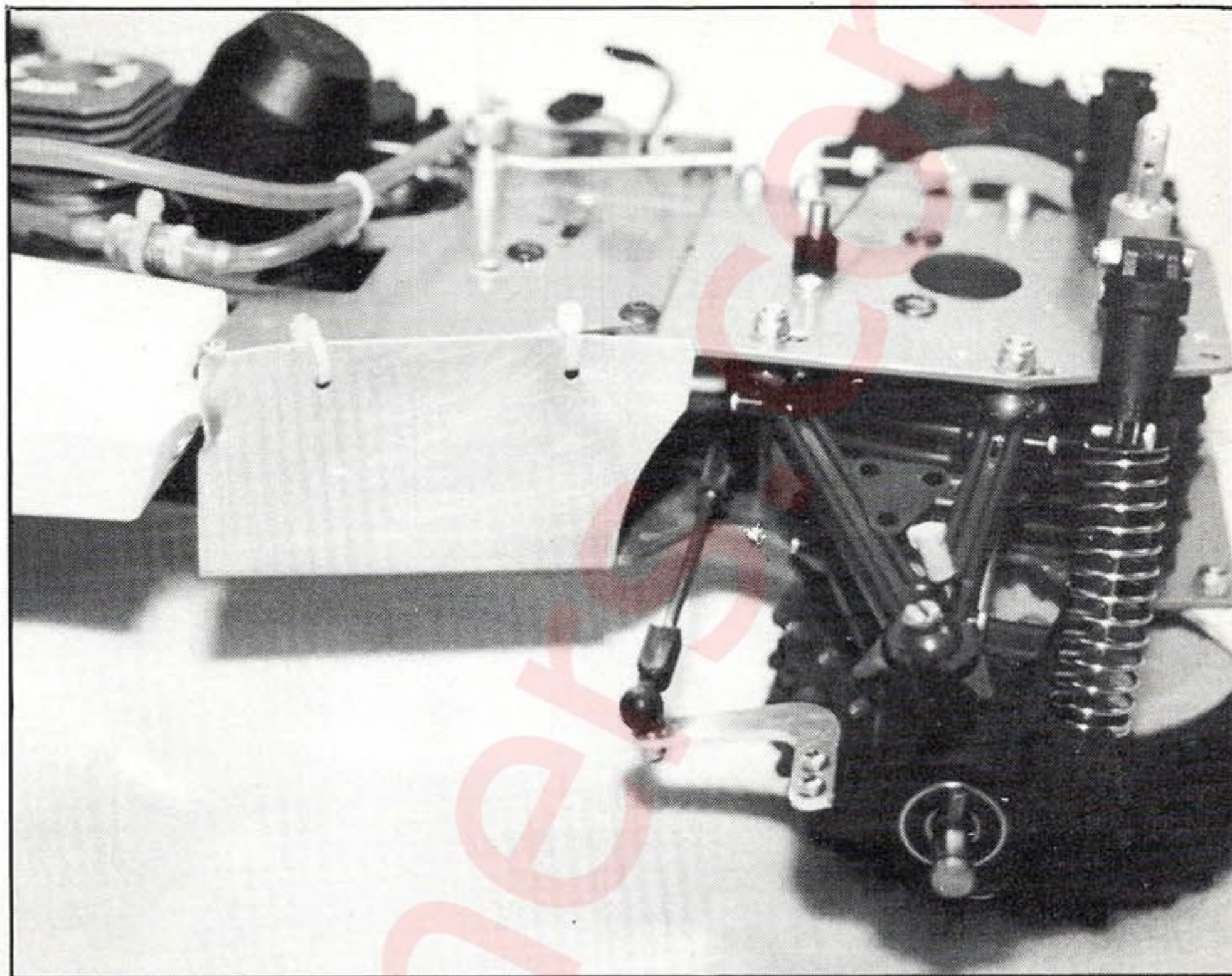
car slower out of the corner due to excessive wheel spin, and hence loss of traction.

The centre diff was used widely at the start of the season, and in this mode the car is at its easiest to drive and so this is a good choice for the novice driver, or if the conditions are very slippery. The disadvantage of this system is that besides adding quite a lot of weight to the car, drive can be lost if one front and one rear wheel are spinning at the same time. Another disadvantage of the centre diff is that if a drive shaft is lost, then drive is lost completely.

The most popular choice among the top drivers seems to be the single speed direct drive option this has the advantage of being very simple and light, and also means that the car will still drive in two wheel drive, should a breakage occur at one end of the car. The car can sometimes be more difficult to handle though with the single speed direct drive set up.

Whilst on the subject of the centre transmission, it is advisable to slot the mounting block holes in the chassis slightly in order to obtain a perfect gear mesh. A range of different ratios are available for both the overall gearing, and also altering the amount of front end overdrive. Only experimentation will enable you to obtain the best settings and ratios to suit your own driving style, but as a guide line, most of the top drivers use the maximum amount of front end overdrive available, this does give the car a degree of understeer, but makes the car far easier to drive out of the corners, with power on, I would advise this setline for most circuits, or as a starting point.

The front and rear differentials and bevel gears are identical, but there are available three different types of bevel gear, these are steel, aluminium, or nylon. The aluminium gears are supplied in the kit, and are generally the most widely used. These gears do wear, but will last quite a long time if treated correctly. The mesh of



Another shot of the gear shield, this photo also shows the slotted, front suspension pick up points clearly.

the gears when new is not perfect, and they do need 'running in', the manufacturers recommend a mixture of grease and oil, for lubrication and this is perfectly adequate, but I would recommend that the gearboxes are stripped and cleared after your first meeting, or days running as quite a lot of swarf will have come off the gears.

There is a steel gear available, as an option, and these should be treated in exactly the same way as the aluminium ones, but these do have the advantage of lasting longer, and should do a complete seasons running, they are of course much heavier,

and will therefore reduce the acceleration slightly, due to the higher revolving mass. Steel gears are a good idea for the modeller with limited preparation time.

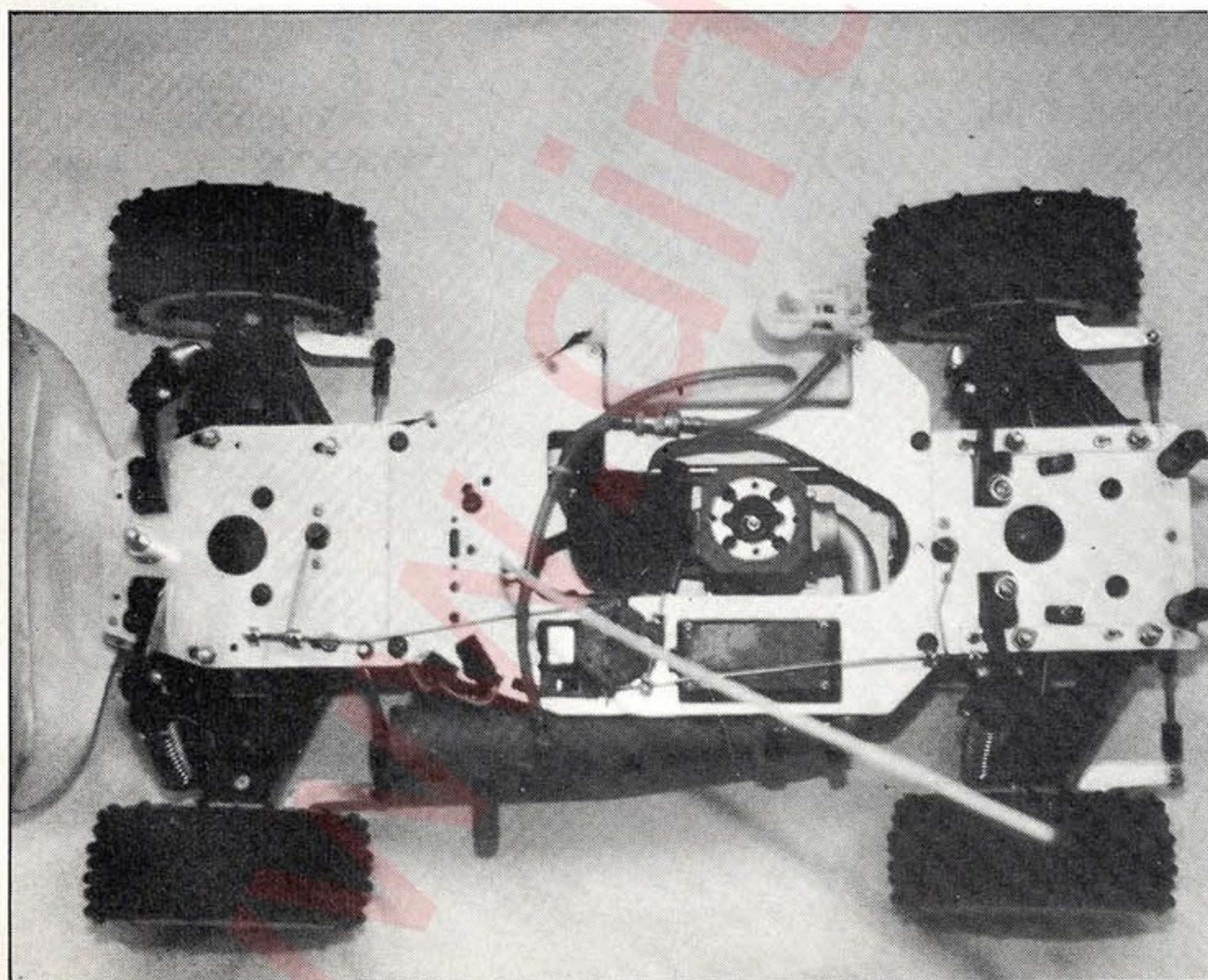
Lastly there are nylon gears, these are not new, as is widely thought, but stem back to some of the original PB's, the nylon gears are now used by most of the top racers as they offer a great saving in overall and revolving weight, "but do be warned", they do wear out quite quickly and will need replacing for every meeting! The nylon gears also have the advantage of not requiring any lubrication, in fact they must not be subjected to lubrication as most greases will affect the strength of the nylon.

A slight amount of weight can also be machined from the differential casings, any weight saving in the transmission department will pay dividends in the overall acceleration and breaking of the car, also as the revolving masses are less, the car will not tend to push straight on when cornering and hence will also change direction better.

Many drivers have gone to great lengths and expence this year to trim off weight by using exotic materials for chassis and radio plates, and whilst this will certainly improve the performance of the car, it is far more important to remove the weight from the actual revolving components of the transmission, remember the less work the engine has to do in overcoming the internal weights and friction, the more power is available for racing.

Well that's it for part one, remember these modifications are only mear guidelines, developed from experience with the car this year. Next issue, part two will deal with:- suspension, shock absorbers, engine, clutch and wheels and tyres, as well as generally getting to grips with setting up the car on the track. We should also be able to give you the full 1988 calendar and also news of who drives what next yaer, so until next month, bye for now, and get cracking on those cars.

Top view showing the authors well prepared PB Mustang, a lot of hours go into preparation to this standard, results however prove it worthwhile.



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R.R.C. look at the latest new car crusher the Big Brute

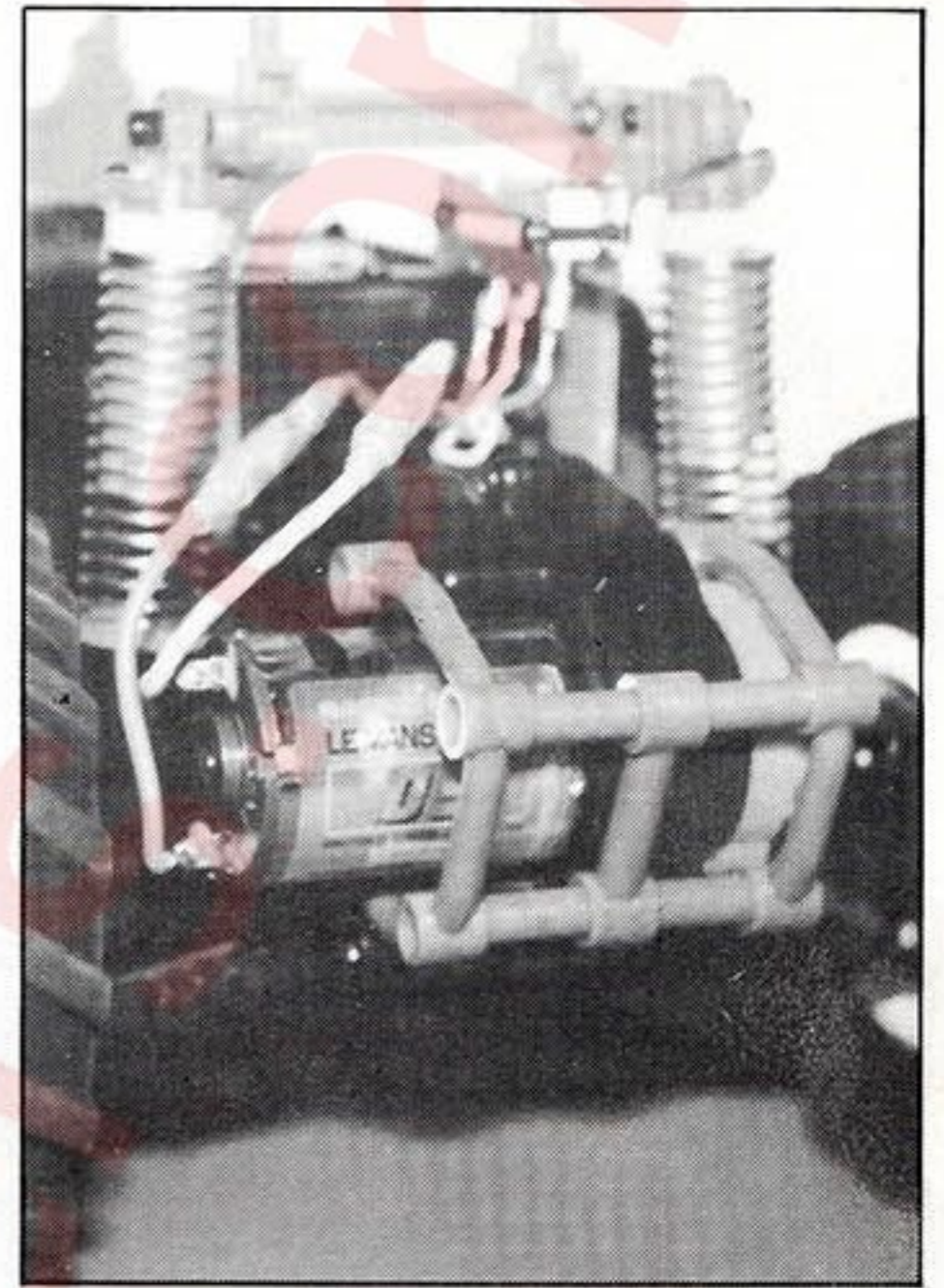


It's not very often I answer the phone and there is a television director on the other end wishing to make a TV programme about toy cars. I am very vulnerable and quick to rise to the bait when my hobby is referred to as toy cars, so I naturally thought it was some kind of joke or 'wind up'. When the person on the other end of the phone also asked if any of our (Medway) members between the ages of 17-25 drove either a Porsche or preferably a Ferrari I knew it was a 'wind up'. At our club we have no yuppies so therefore no Porsches although with the recent stock market crash I suppose those would have gone anyway, one member does drive a Ferrari but his age is nearer the addition of the two age groups not between them!

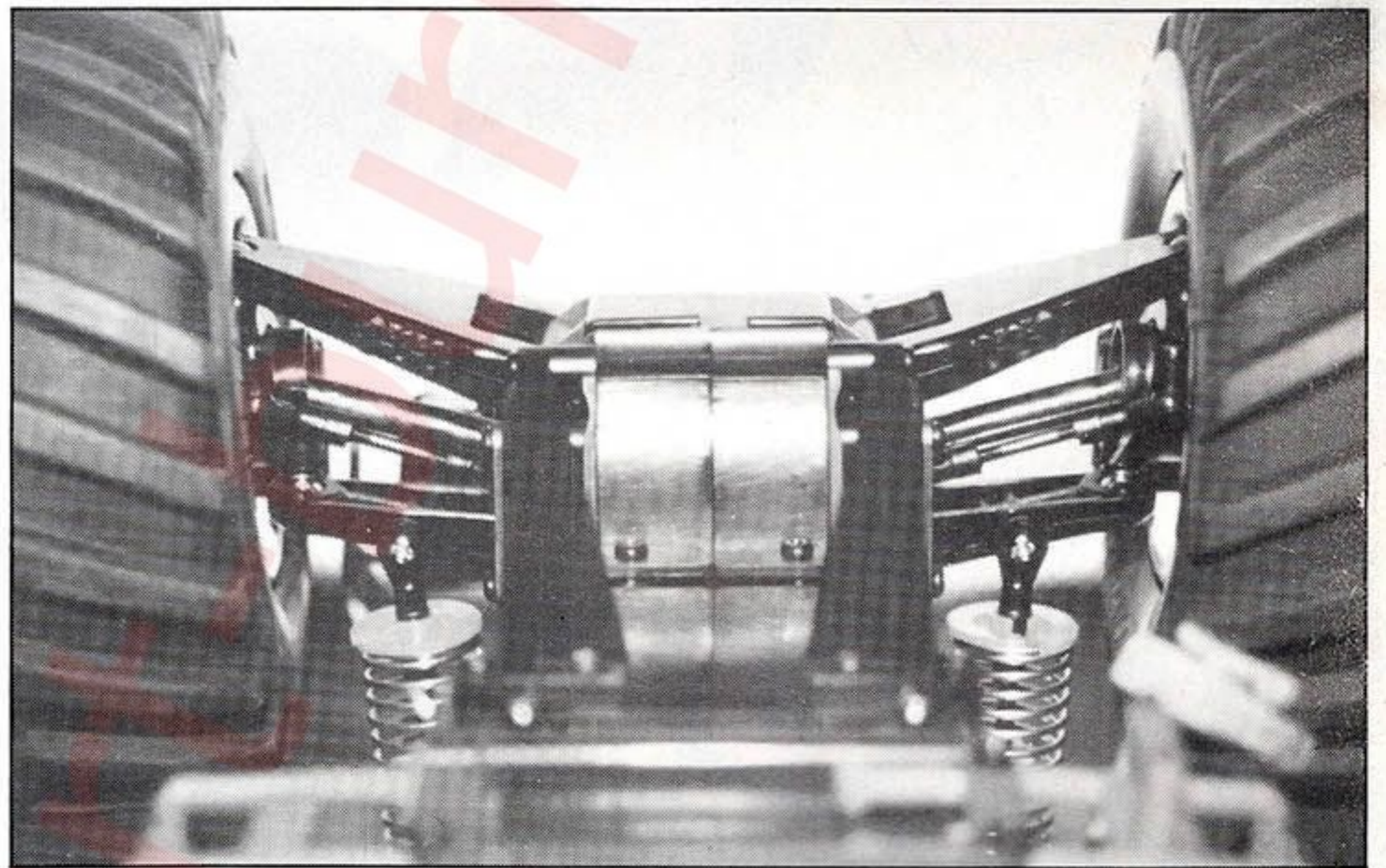
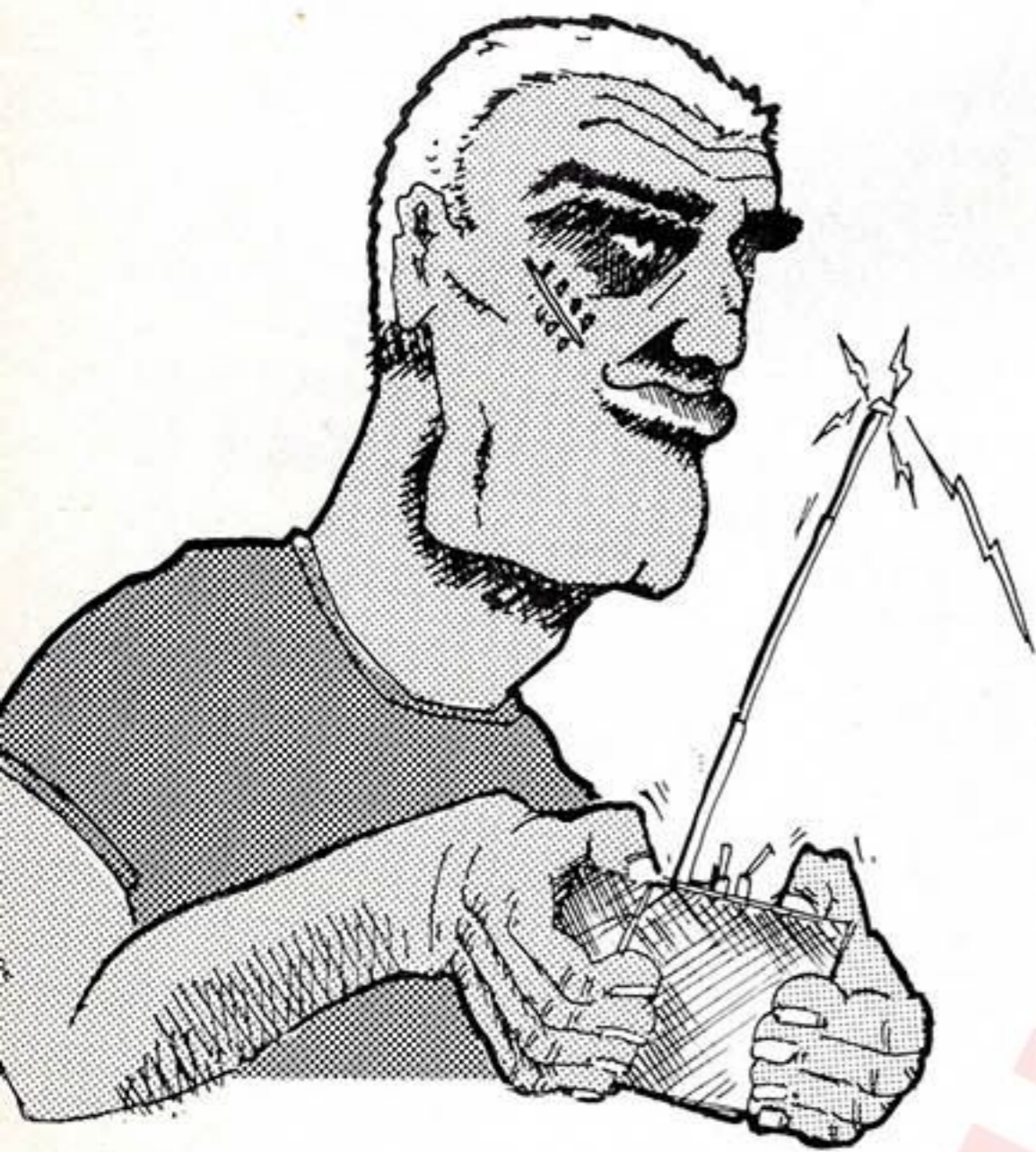
The call turned out to be genuine and there is a programme going out in the New Year on ITV specifically aimed at the 17-25 year age group and one of the programmes will deal with motoring, that's where the model not toy cars come in. Model car racing will be shown as will real car crushing trucks



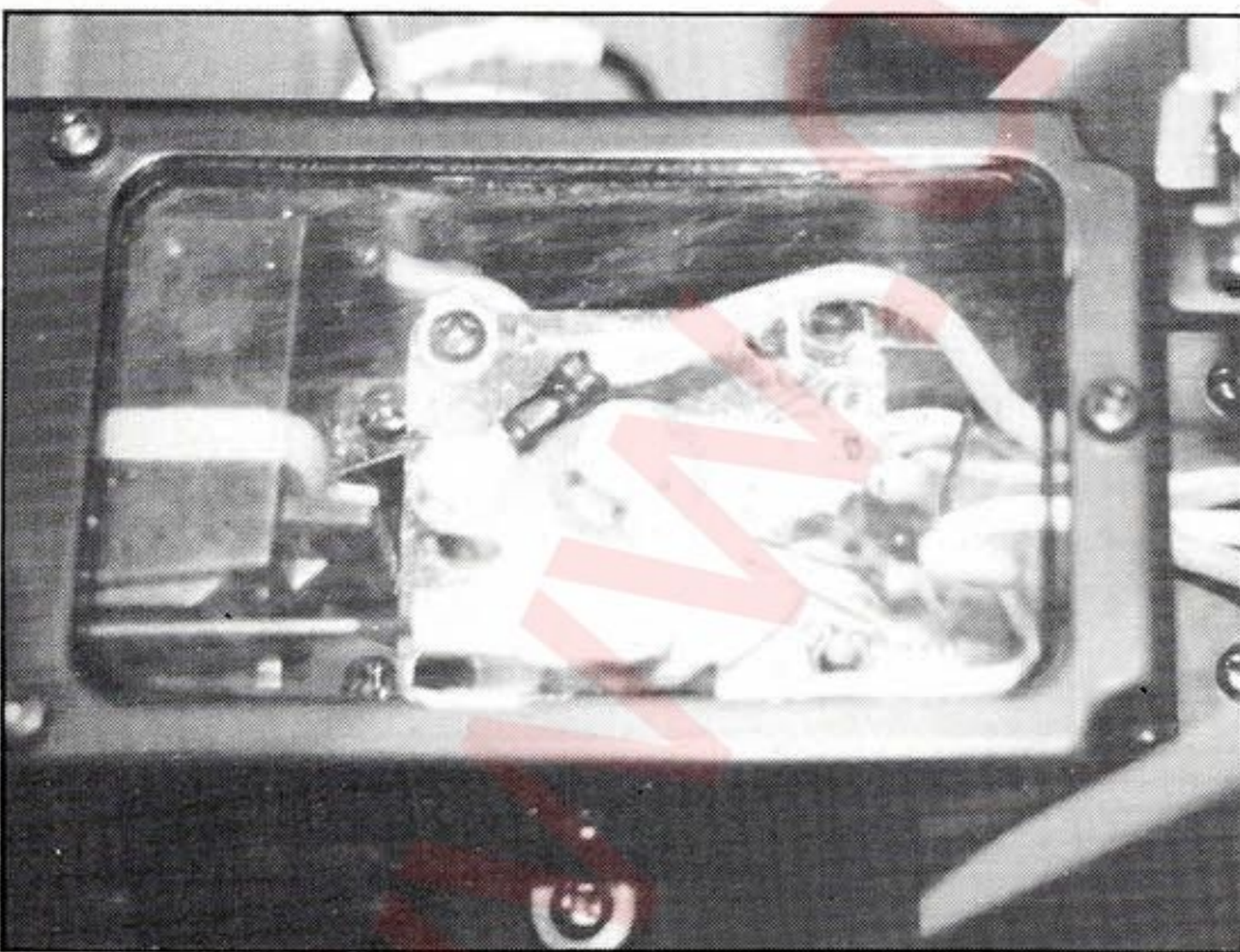
A thoroughly marvellous paint job by Mr Airbrush Darwell.



The motor is well protected against knocks and bangs by this sturdy guard.



Upper and lower wishbones make sure the Big Brute goes where you point it and nowhere else.



Speed controller is well protected from the elements by shrouding inside its own waterproof container.



similar to those we have seen on TV from the States, where a standard pick up truck is customised by raising the chassis to such a height that a ladder is needed to get into the cab and fitting the largest and widest wheels possible. The latest phase of the craze is to fit wheels so large that the car crusher can float and be driven on water. The producer when he learnt that there were model versions of the car available was most interested and asked for as many as possible to be at the TV studio.

Phone calls were made to importers and model shops to borrow any model car that could be classed as a 'crusher' when I phoned Ripmax who's range of cars tend to be aimed at the competition end of the market I was surprised at their reply to my enquiry, it was 'How would you like a Big Brute', I am sure Benny Hill would have made much more of a reply than my 'Thanks, what is it?'

'Nice One Henry'. 'I Think So Too Kevin'.

Big is beautiful so they say, we certainly have the biggest Kyosho car yet and with their race pedigree we may have the fastest crusher as well. Even with beauty being in the eyes of the beholder I cannot say it is the most beautiful Kyosho car, but I can say it's the most impressive with the sheer size of the wheels and tyres dwarfing anything I have seen before.

'Open The Box Henry'

The packaging and presentation would do justice to Henry and Kevins favourite body deodorant and the box thankfully does reflect the size of the model because if it did your local model shop would need a warehouse built adjacent to it. On opening the box it is completely dominated by the four huge wheels which are 138mm in diameter and 80mm wide. The rest of the car is either packed in labelled bags to simplify construction or in bubble packs with each item individually labelled.

'Is It Going To Score Kevin'.

It's bound to score with a specification that gives fully independent suspension, four large friction shock absorbers, a powerful Le Mans Stock Motor and a three forward and full power reverse speed controller. The ABS box-beam chassis fully protects the radio gear and gives the car a massive ground clearance. Both the body and motor are provided with adequate protec-

Handling, despite the enormous tyres is quite good.



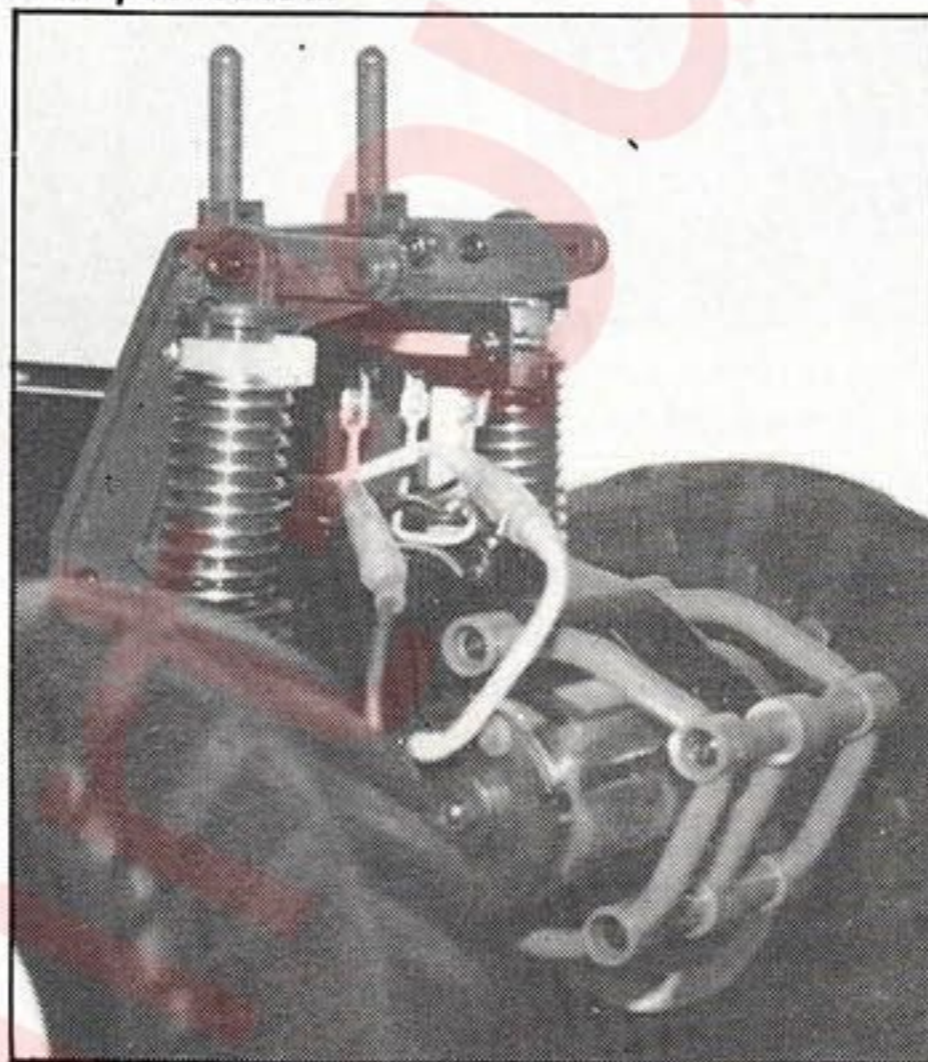
The Big Brute poses, showing off its body beautiful.

tion, the body by a large white front bumper and black anti-roll bar, the motor by a plastic cage.

'How Do We Build It To Last The Distance Henry'.

Building is straightforward and should present no problem to the first time buyer, all the parts are large and a small cartoon

Rear body mounts, note spring tension is adjusted using cable ties. The motor is well protected.

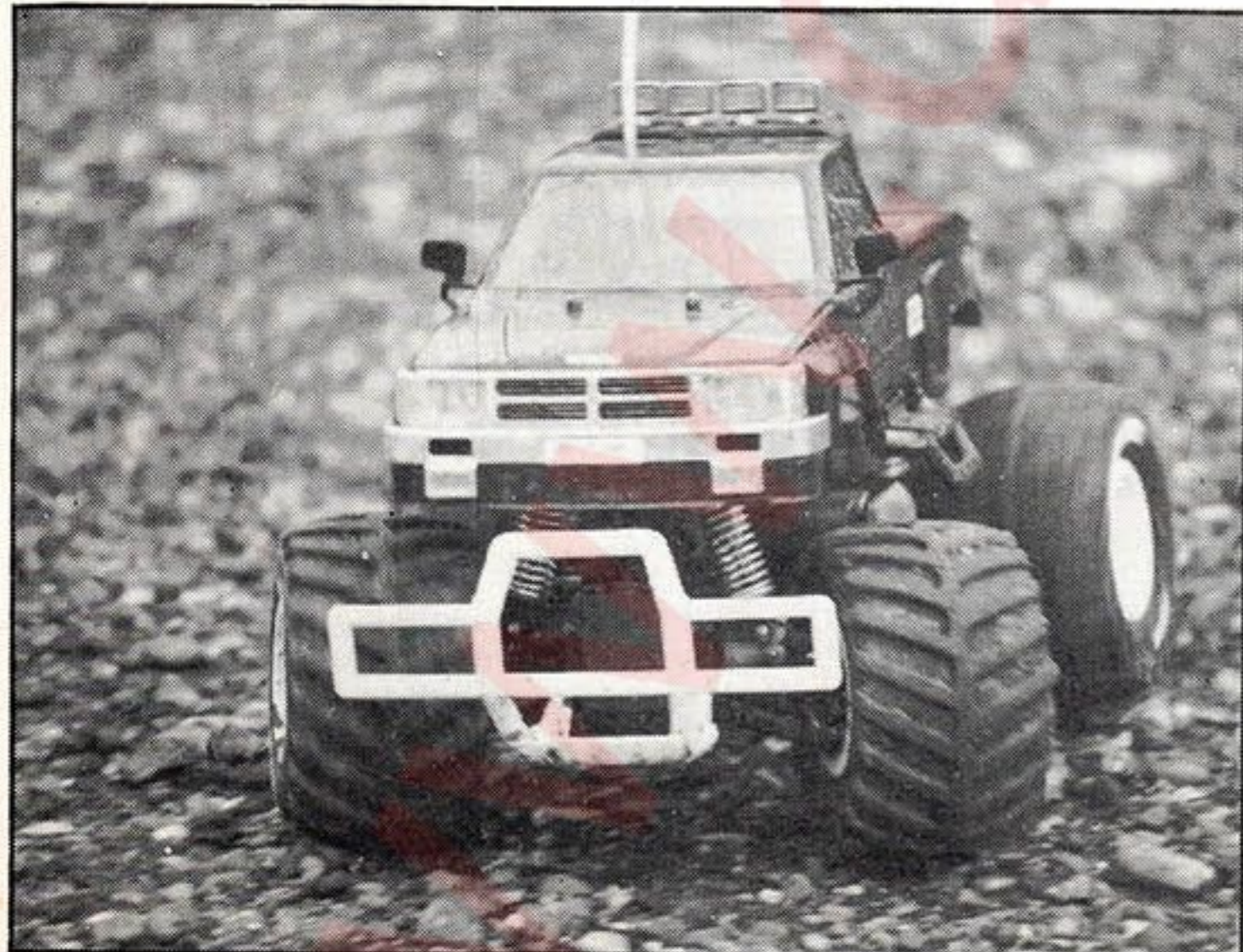


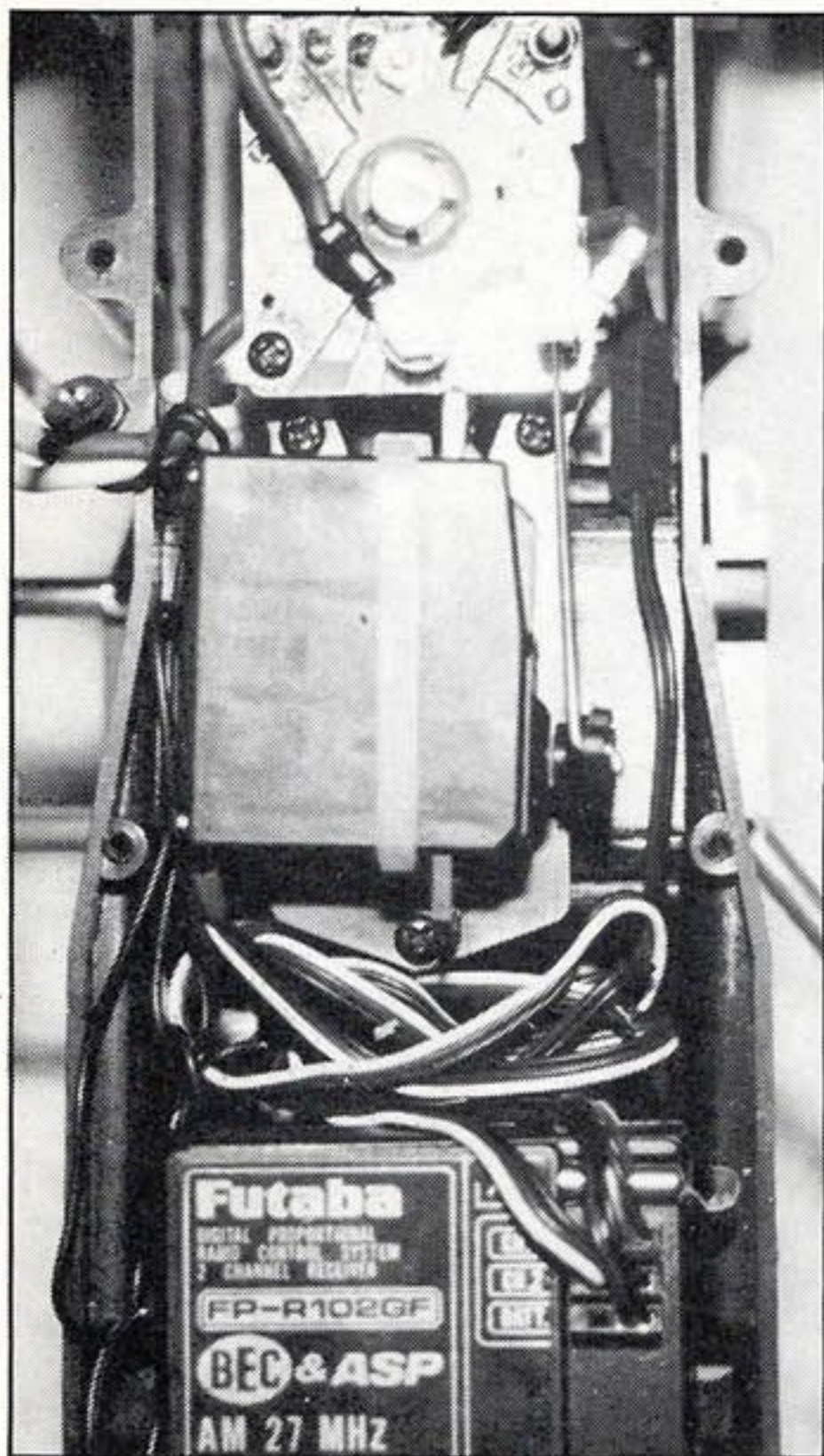
View from a position of dubious safety!

character in the instruction manual points out the important steps. Grease and an allen key are supplied but a small Phillips and slot screwdriver is needed along with pliers to build the kit. The Brute's speed controller is the well proven Optima unit and is equipped to be used with a B.E.C. receiver. If you do not have a B.E.C. radio receiver there is a dropping diode on the controller to power your receiver and servos.

'Will Building Take Us Into Extra Time Kevin'.

Although the car is large it is quite quick to build, taking only a couple of evenings, there are no tricky parts. As with any plastic car, care must be taken not to overtighten the screws and also that the screws used are the correct length. The one part of construction which is different to all other cars that I have seen is in the positioning of the motor pinion. The pinion is fitted with the teeth nearest the can with 1mm of clearance between the teeth and the can. The box of the pinion (the part with the locking screw in it) is outermost, convention is that the pinion is normally fitted the other way. One part of the construction was time consuming and that was putting a thread in the plastic track rod ends. I found the easiest way was to first of all screw in one of the self tapping screws and then a 3m screw. This has to be repeated for all sixteen of the





Top cover removed to show speed controller, servo and receiver, notice how the battery holder swings for easy access.

track rod ends. Tie rods with the track rod ends are used to locate the rear suspension, the instructions could be clearer, so to save you working it out, the lengths of the two required are 55mm and 39mm respectively. Two 53mm track rods are used for the steering.

'A Body Like That Will Need A Lot Of Spray Henry'.

A car which is so outrageous and is customised in real life needed a paint job to match so real life custom sprayer extraordinaire Pete Darwell once again came up trumps. He has made such a beautiful job of the body I will keep it for display purposes and not drive with it on and risk damaging it. I obtained a second body to use when running the car. Prior to painting a modicum of preparation is required, first of all wash the shell thoroughly with a little detergent to remove any greasy finger marks or smears and then allow the shell to dry. When the shell is dry mask off the windows and spray the inside of the body, let the first coat dry before applying subsequent coats. Once you are satisfied with the result remove the window masking and apply the transfers. Position the transfers prior to removing the backing so you know exactly where they are to go. When you are happy peel back just one end of the backing and then remove it slowly, this should ensure there are no air bubbles underneath. Fit the roll over bar, spot lights, wing mirrors and radiator grill and you will have a body you have prepared yourself and feel proud of.

'Lets Splash It About Kevin'.

Track testing or should I say track destruction took place at a South of Watford meeting on the South Coast. A test drive of the car was offered to any driver who had a charged set of cells. The interest and

number of people who wanted to drive the car once my son Robert had given it a couple of laps was surprising since the meeting was a competitive race meeting and drivers should have been preparing their cars for the finals as we were using the break whilst the finals were being sorted for the test.

We were disappointed at the slow speed of the car until a very observant ten year old noticed it only had two speeds, adjustment of the trim gave the car its third and top speed. The turn of speed was then very impressive and the four inch track markers proved to be no obstacle for the large wheels.

The two wheel drive system coped with

would be happy if the finals were cancelled as the Brute had been the most enjoyable part of the day for him. This action by the father of a boy who allowed his expensive racer to be driven over by a crusher shows that a lot of us have forgotten what fun can be had from R.C. cars. The Brute with its large soft tyres does no damage when it is driven over another car. The car each time it has been driven has caused interest and continues to be the centre of attraction every time we give it a run.

'Looks A Heavyweight To Me Henry'.

Weighing in at nearly 6lbs., and the speed at which it can travel means it possesses a



holes, bumps, wall bricks and with the help of the rear differential turned on a six-pence. Robert was so taken with the Brute he challenged one of the finalists to race his Optima against the Brute. It was no contest until Robert took a short cut across the in field clearing all the track markers by either going over them, through them, or just smashing them out of the way and then waited for the Optima, crushed it flat, and then swore blind that the Optima driver crashed when trying to overtake!

Body jumping proved a popular test where the Brute was driven up the ramp to see how many juniors laying flat on their backs it would clear. It cleared the first youngster, landed on the seconds stomach and drove on over the next two bodies. Rather than put people off, the queue to be driven over got larger, what a peculiar lot of people model car enthusiasts are!

By now we had got carried away with all the things we could do with the car and Robert had another set of cells charged and was enjoying playing to the audience by putting it in reverse and then into forward speed to pull wheelies down the straight, he then went over the top literally. A junior final was being lined up and Robert asked the drivers if he could drive his crusher over the line up of eight cars, they all agree, (I told you what a peculiar lot racers are) he then drove over all eight cars and was told if he pulled that stunt again he would be banned from the meeting.

One of the fathers of a finalist sprang to his defence and said in his opinion he

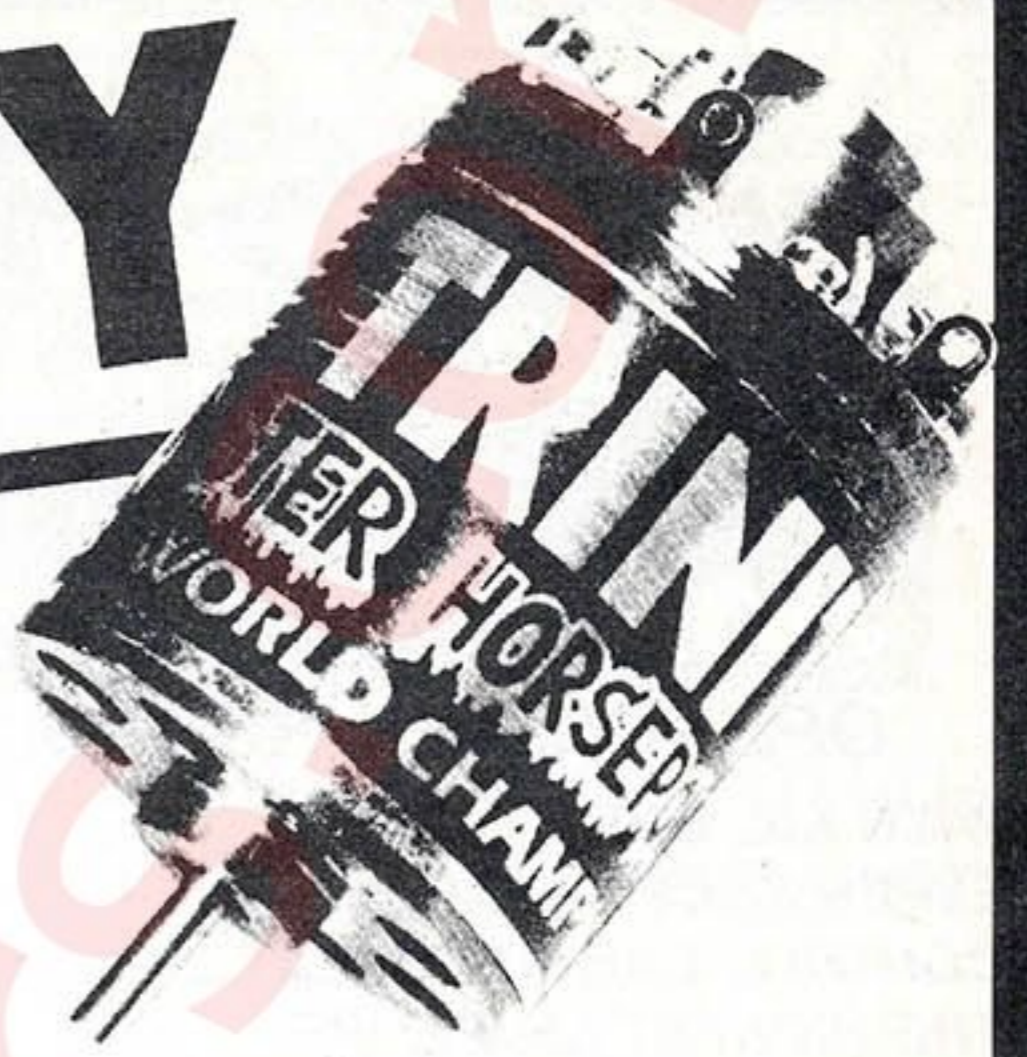
lot of kinetic energy when driven on full throttle, so make sure it does not hit anyone. If you decide to do body jumping like we did when testing be careful where you land it. 6lbs., of Big Brute falling onto certain parts of the body can be very painful and do a lot of damage, so take care. I would suggest that this type of fun should be attempted when you are an experienced driver. What a pity there is no formal type of competition for this type of model as the formula could be limitless if sufficient imagination was to be used. A very interesting circuit could be constructed with obstacles such as ramps, mud, water filled gullies and hill climbs. Five minutes of spectacular racing would be provided for both drivers and spectators alike. How about it, secretaries of car clubs, is there sufficient interest, are there cars in numbers enough for competition of this type of will these cars just remain fun vehicles which will only be seen in back gardens or occasionally at the local park?

'What's The Result Kevin'.

'The cars knock out Henry'. For the racer who has some spare cash it will give him a different kind of enjoyment to that of racing. For the person who is not interested in the competitive side of model cars it will provide hours of fun be it in the garden or local park. To sum it up it's strong, it's big, it's fast, it's easy and quick to build and above all its fun.

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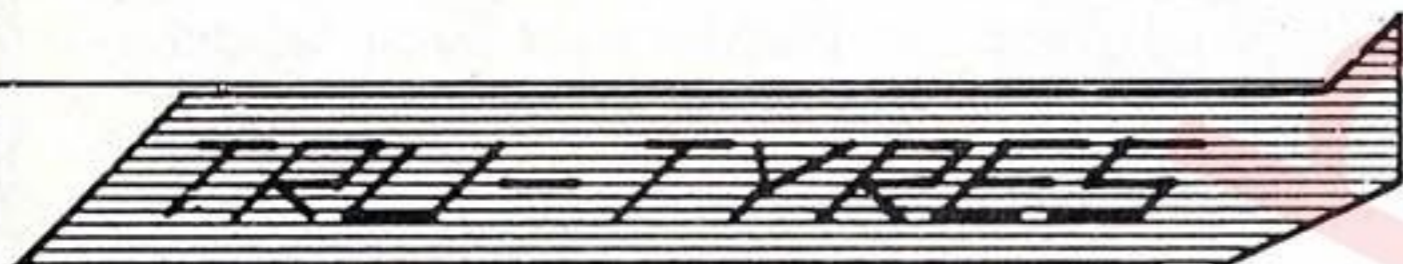
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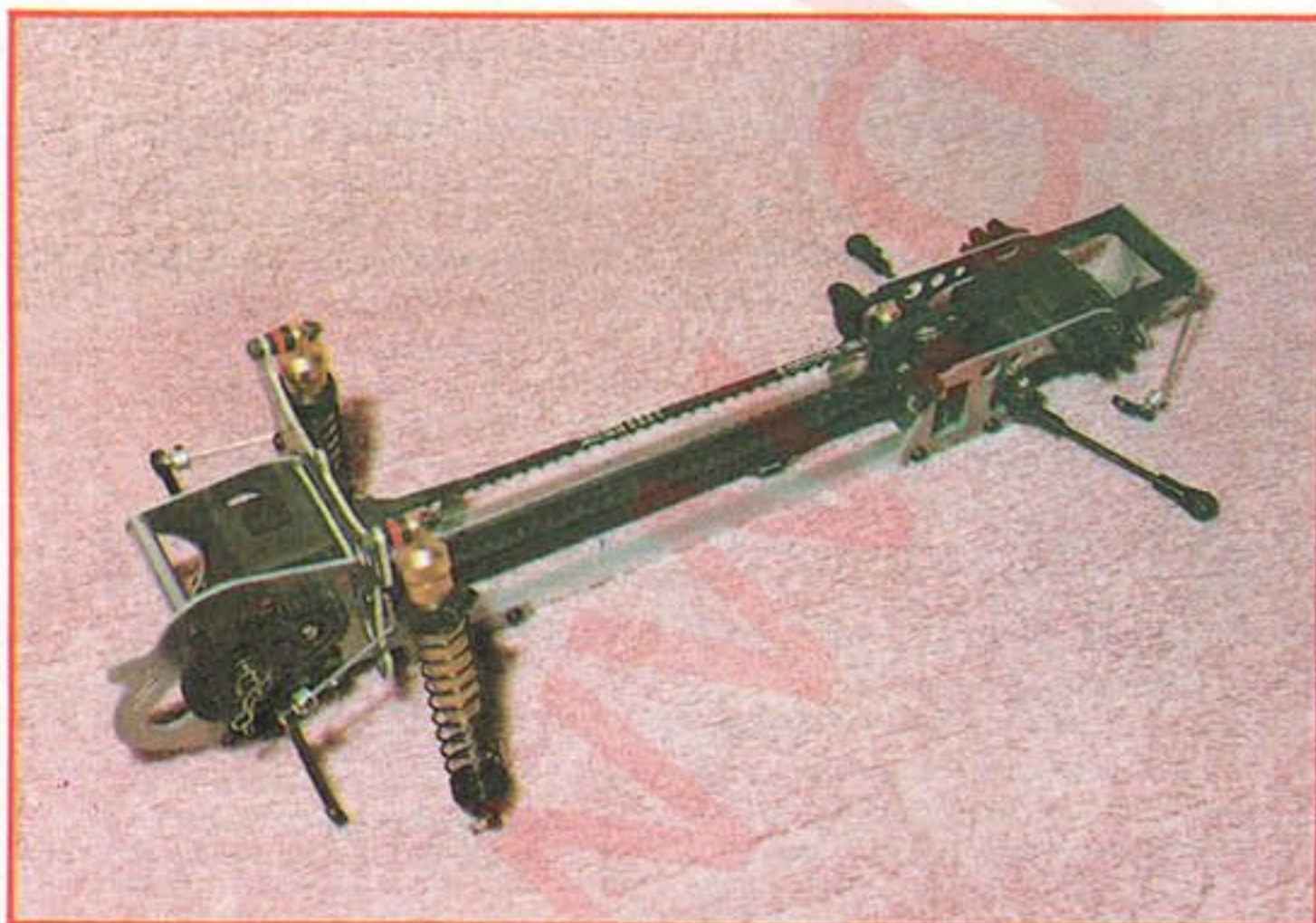
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Kyosho Salute plus new belt drive is reviewed by DAVE PEARSON

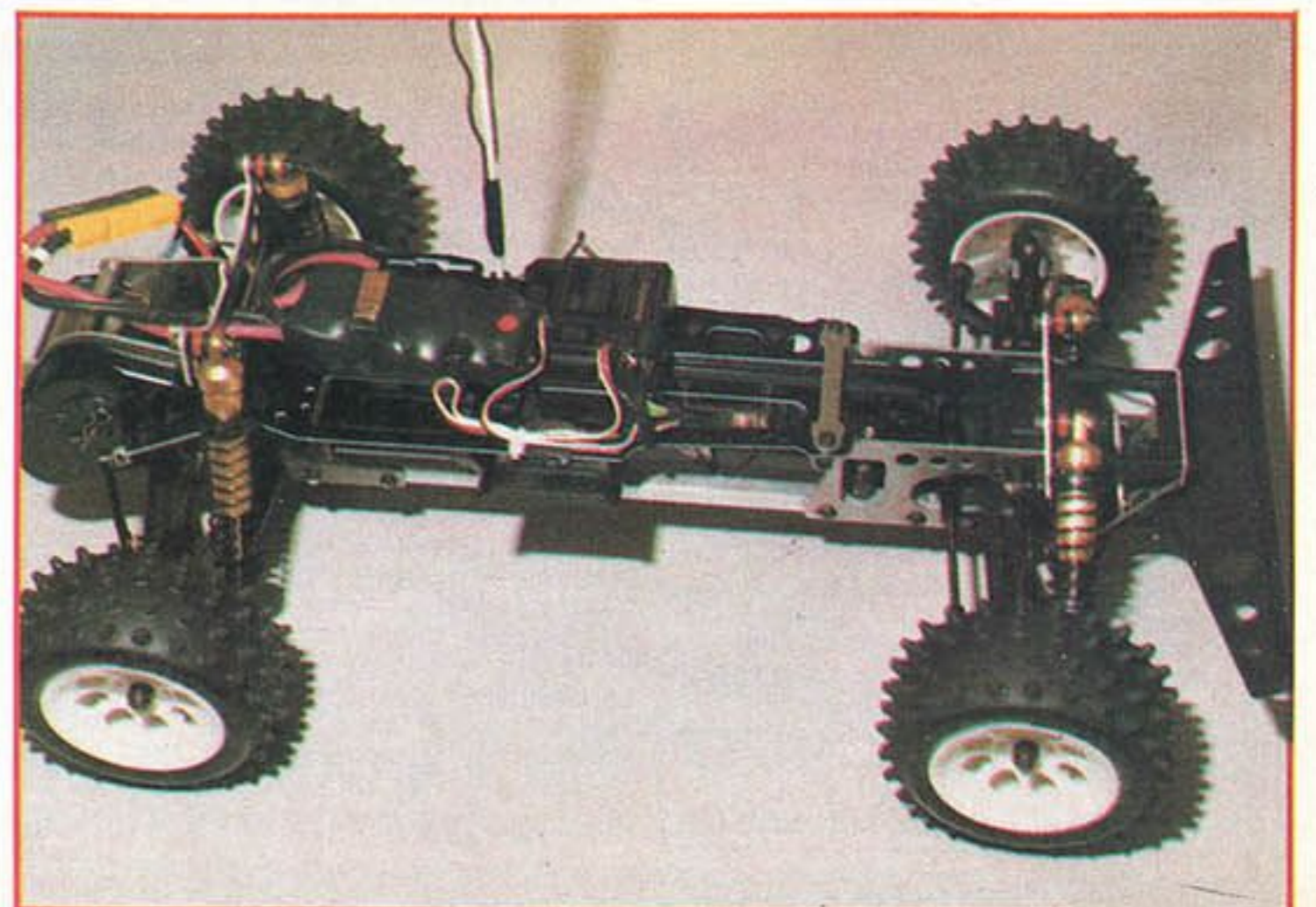


S a l u t e

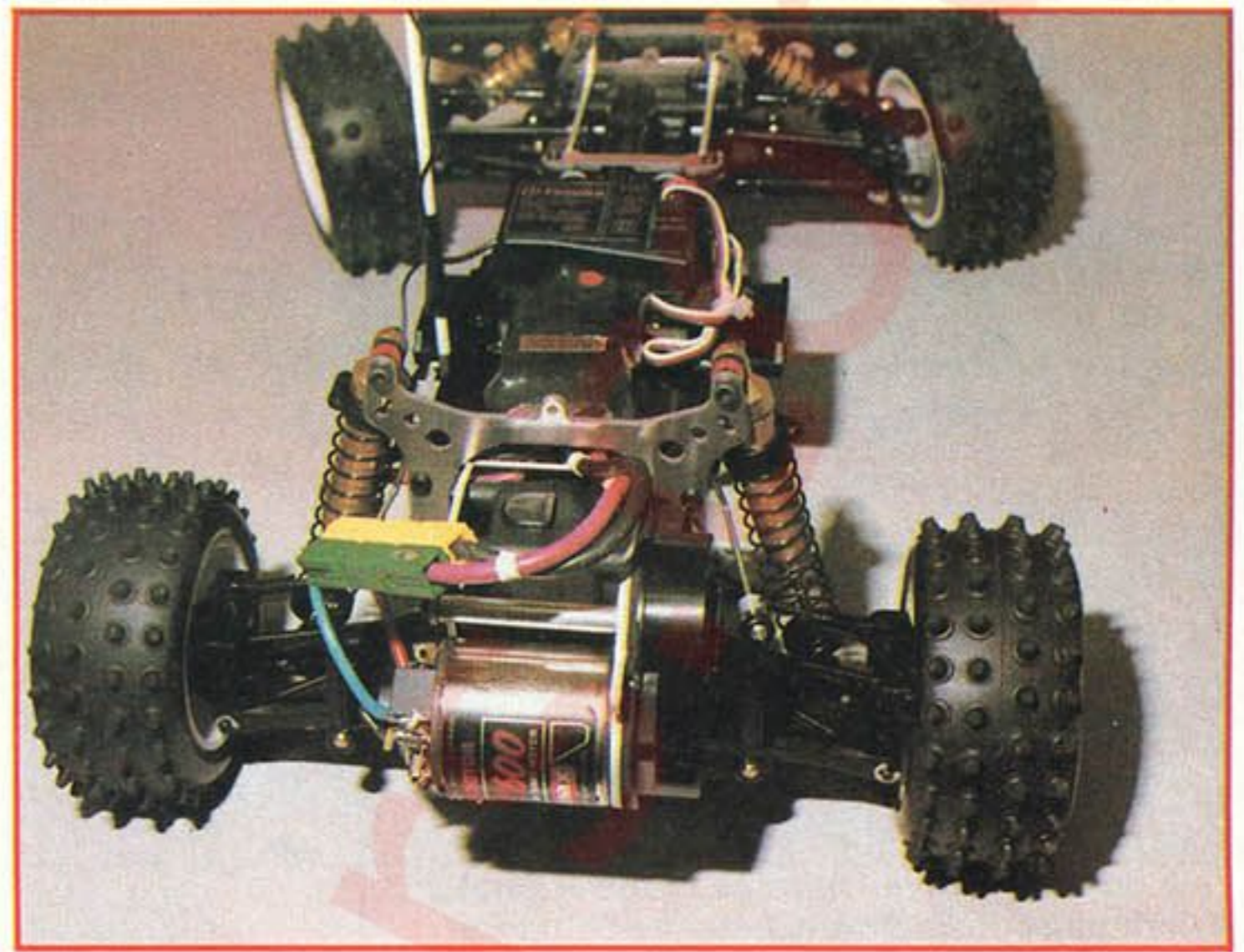


Chassis, front and rear gearbox assemble to make one neat, easy to work on unit.

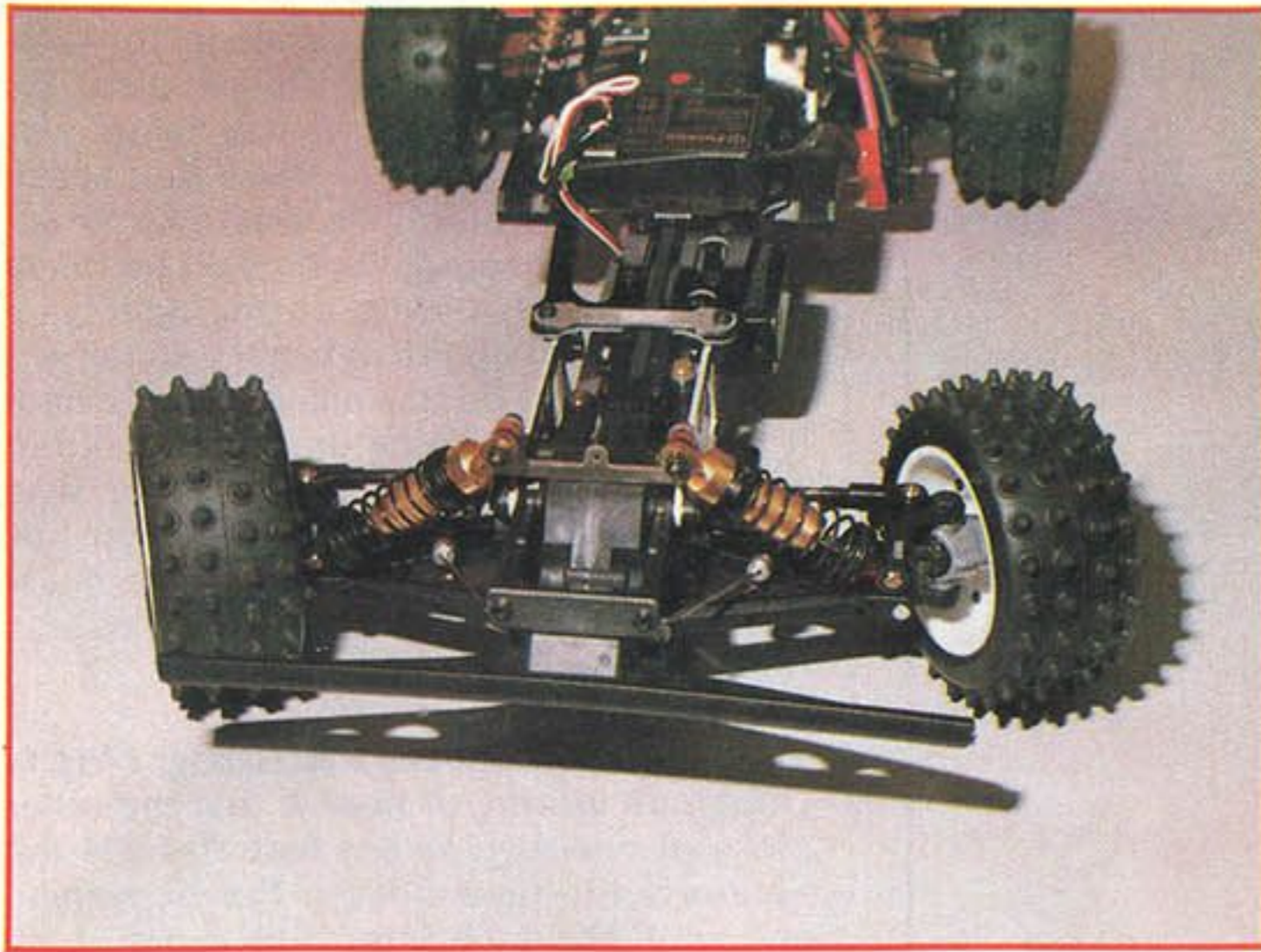
Every item of equipment fits with the minimum of fuss. Strip down and re-build time is phenomenally fast, one and a half hours total.



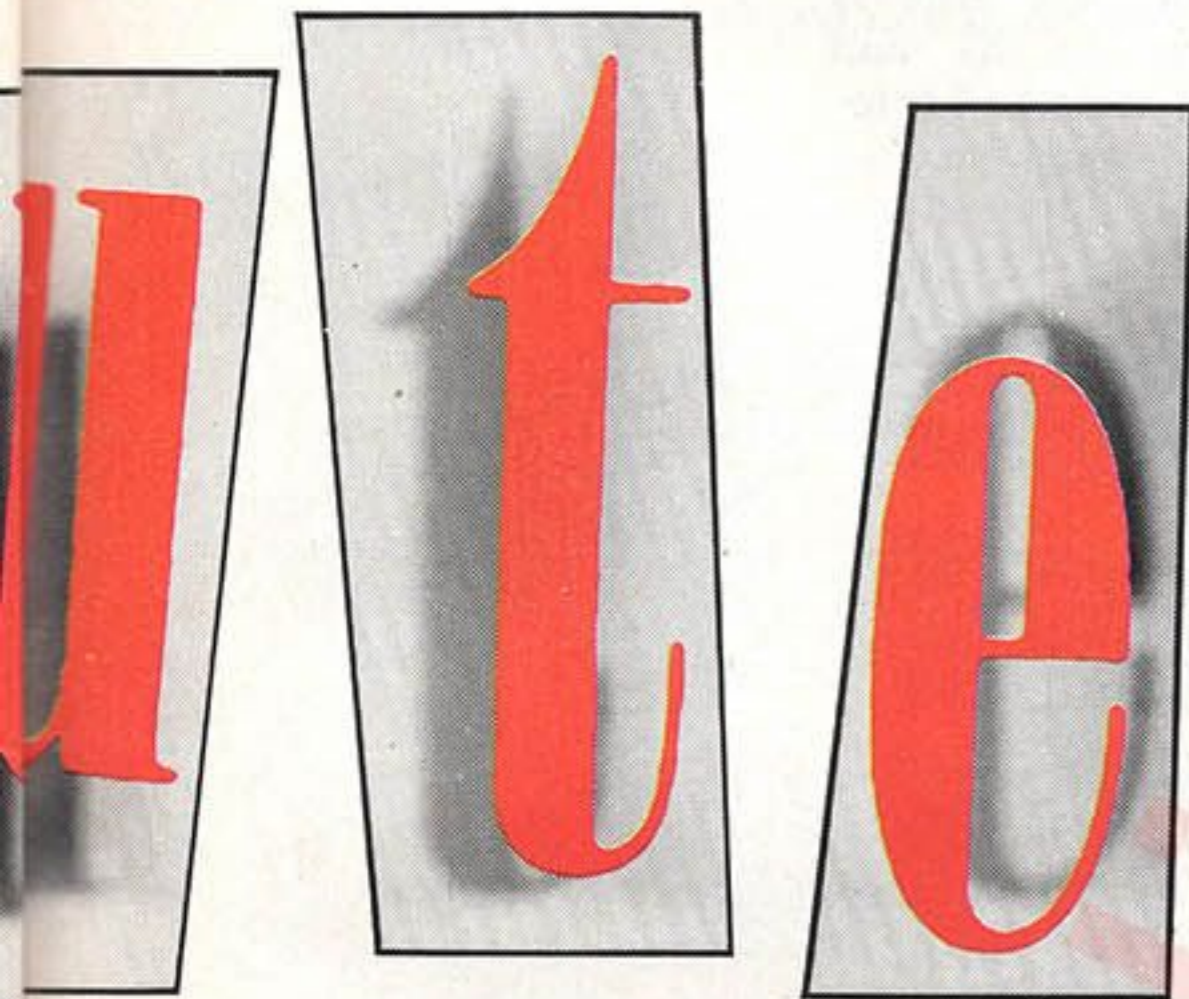
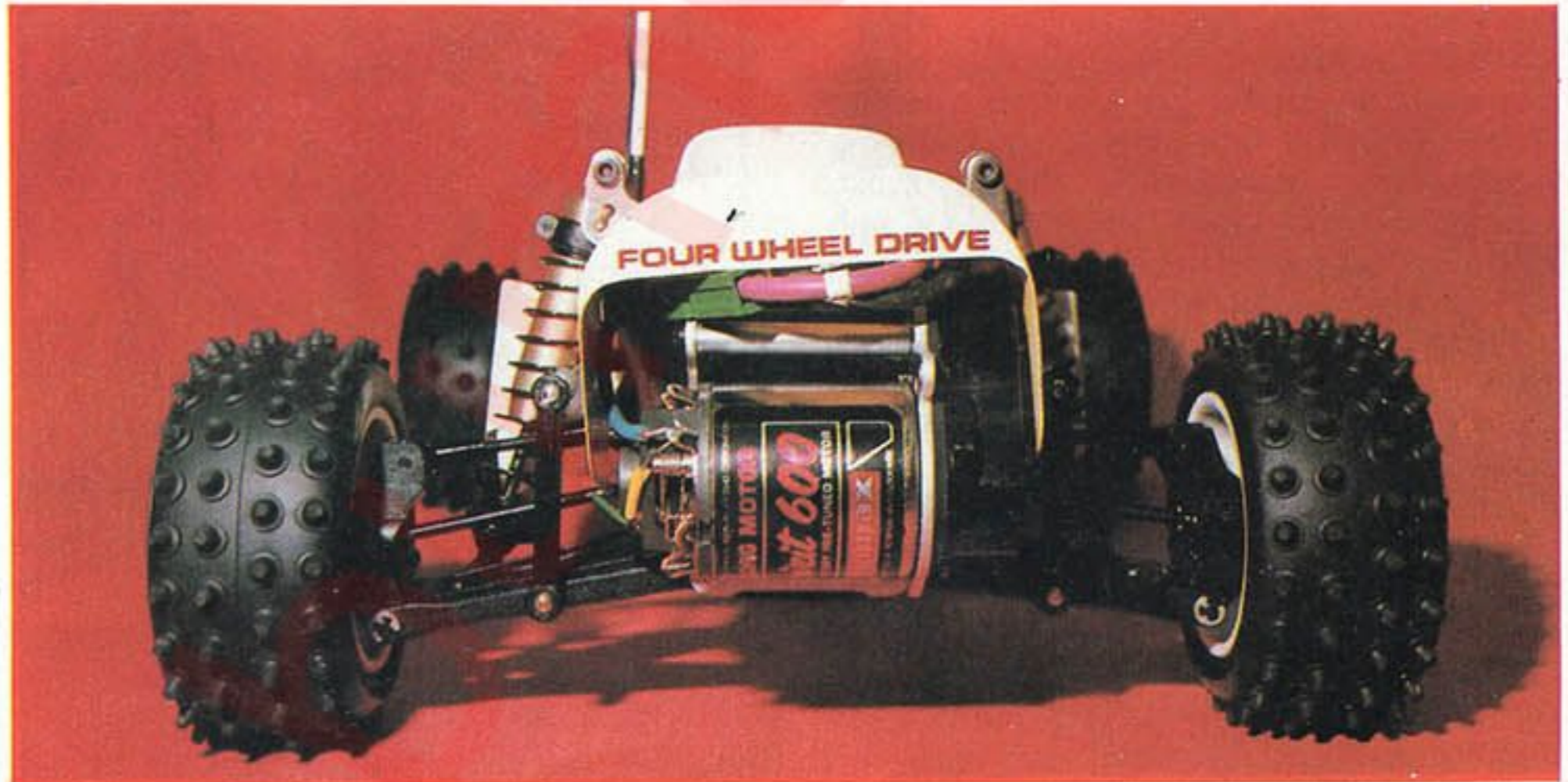
*Right, Multi position rear shock mount will allow a variety of track characteristics to be handled with ease.
Below, Wide track width makes the Salute very sure footed, damp-
ing is excellent.*



Below, The Optima Pro-bodyshell comes complete with undertray which certainly helps keep mud, grit and water out and doesn't look pretty.



In some racing circles, namely that of livestock, pedigree and breeding count for almost eight ninths of a reputation. In the world of radio controlled racing cars this is not always this case, although there are one or two exceptions to this statement. This case in point, the Kyosho Salute, is one of those rare exceptions. Undoubtedly the Salute owes its existence to the Kyosho Optima bloodline, a winner in



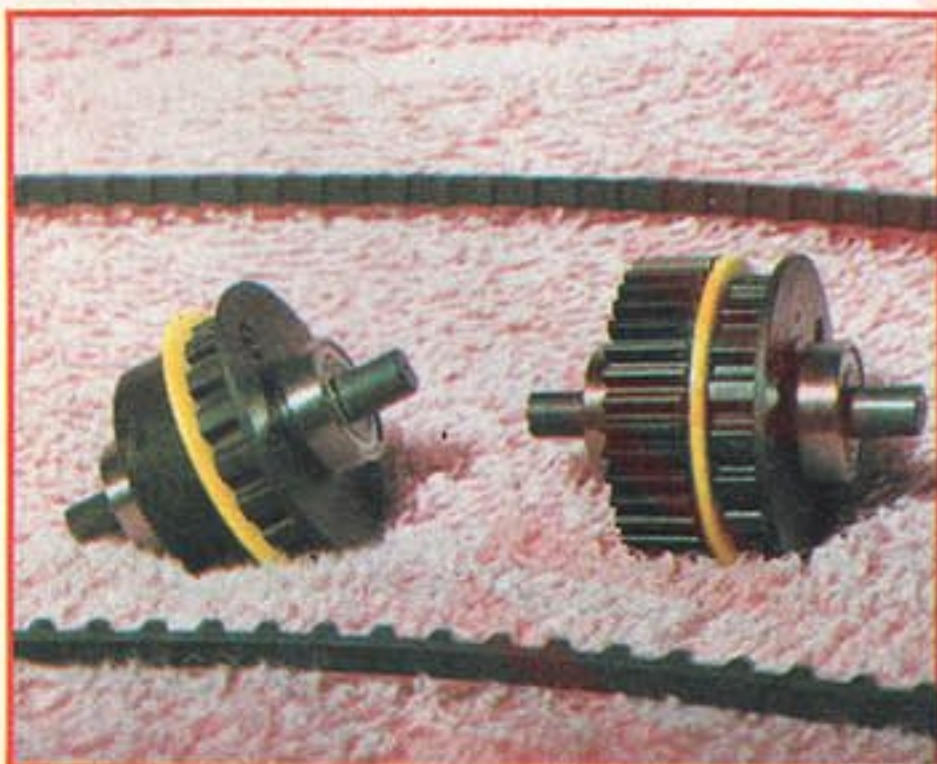
anyone's eyes, indeed the Optima is still a very strong force and fierce opponent today. However, in order to get the best from any car, the best ancillary equipment possible has to be used, to this end your average Optima driver took great pains to fit Option house shockers, anti roll bars front and rear, strengthen anything he deemed fit and add low profile tyres.

Off The Shelf

Someone saw what the racing driver was doing and decided to do it ex-factory, this resulted in a very nice car indeed, namely

the Salute. One point should be made mention of at this stage, anyone considering this car should not be put off by the 8.4 volt specification, all this means is that the car is stressed to the limit that an 8.4v battery pack will take it to. It does not mean the car weighs in like a sack of potatoes, in fact the Salute is one of the lightest cars on the tracks today, weighing in at 1,700 grammes approx. What it does mean however is, racing the car using six cells, 7.2 volts the Salute never reaches the red line, she is always under the "I am going to self destruct if you don't back off the throttle" limit. The

The secret of the new and very friction free drive system Kyosho's course tooth belt.



latest add on super part from Option House is now available and that is?

What You Need Is A Good Belt

How many times have we heard our fathers say that and probably right they were too. In the case of the Optima/Salute stable this was certainly the case, or at least appeared to be. Four wheel drive cars that were 4wd by provision of shaft drive were amazing, until the chain came along, removing a lot more friction from the drive system. Until, enter the belt, the most friction free drive system to date. Until now Kyosho were excluded from the belt drive club, allowing P.B and Schumacher to do most of the spade work, that was up till the World Championships. This meeting saw the introduction of Kyosho's belt drive system and almost lethal it was, Kyosho had five new belt drive Optimas in the A final. When you consider how new the belt drive was then, you must agree that that is some going. It was only a matter of time before existing Kyosho cars had a belt drive made available to them, at last it is here and what a difference it makes.

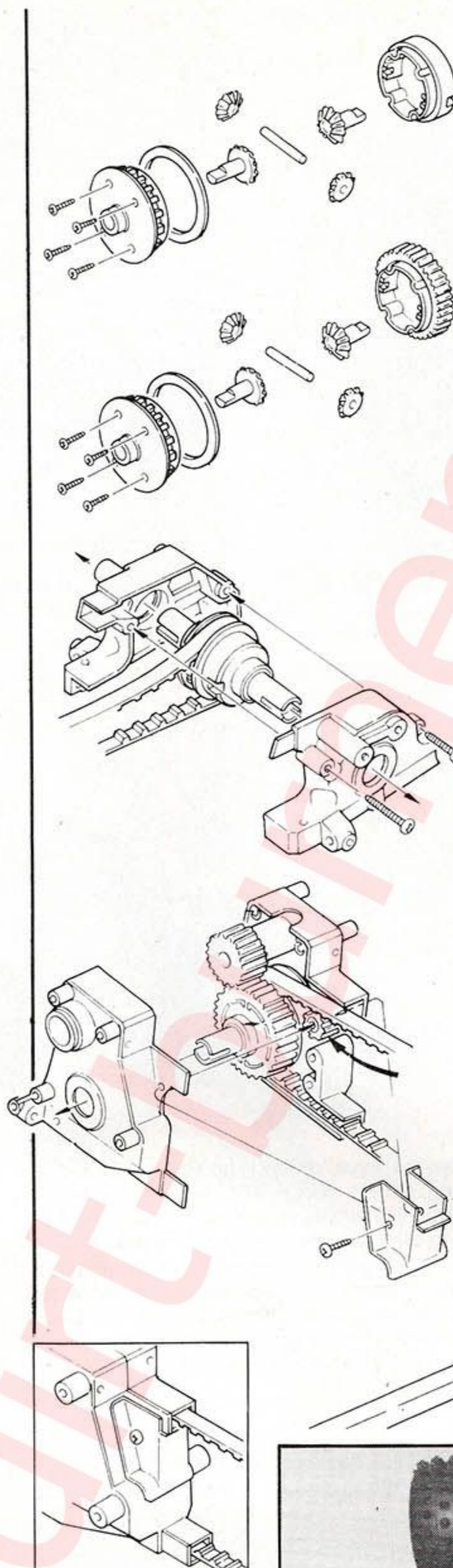
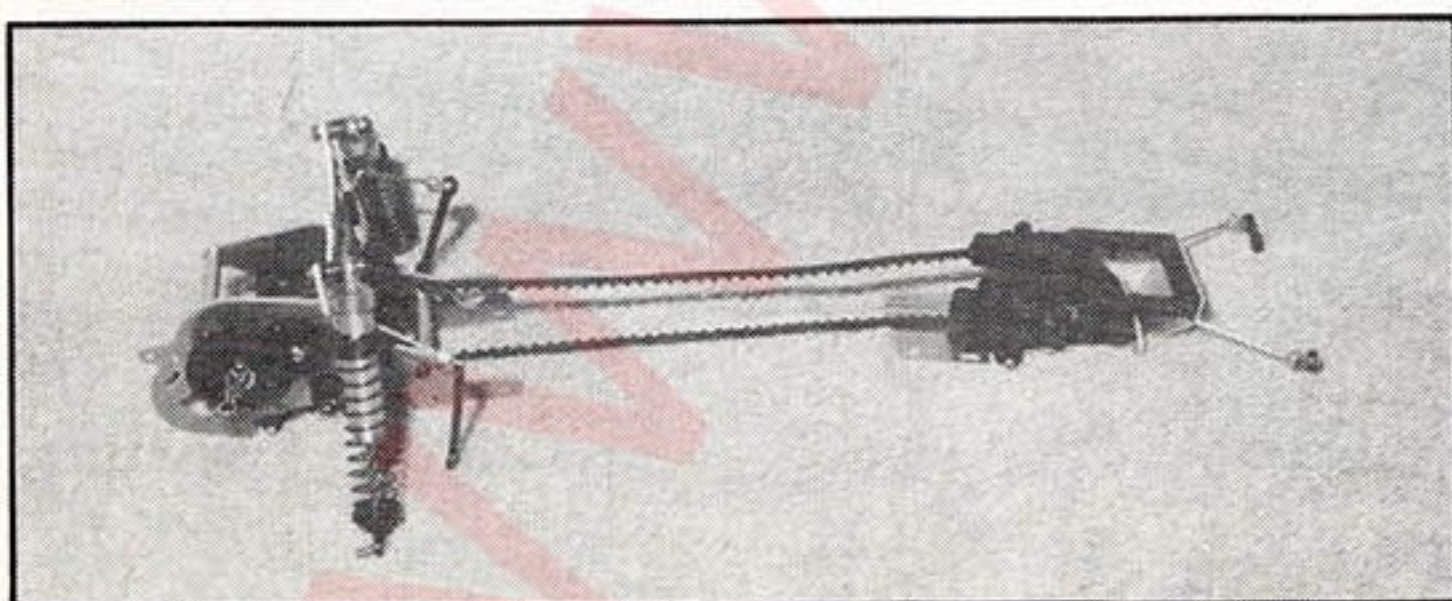
Construction

Construction started as per manual but using the belt differentials. Apart from the components included in the belt kit, namely, recessed belt carrier wheels, belt tensioner guide and new rear gearbox case all else was standard.

Front and rear gearboxes were assembled in double quick time both are then fixed to the chassis rails, care needs to be taken here as the pre-drilled holes in the chassis rails are drilled off centre on purpose, consequently line them up carefully. Liberal use of Loctite or other proprietary thread sealing agent is highly recommended when final tightening takes place however at this point don't tighten the screws.

Front supports, belt guard and point collar are next to be fitted, all present no problem. The steering assembly is one of the neatest and tightest yet seen and incorporates a very effective servo save. Front suspension is easily and quickly assembled along with the rear. The coil over oil shock absorbers are next and again post no problems, the Option House units provided are large bore and provide a smooth, fluid action that really feels right. Mounting the shockers is easily done and a choice of fixing points are included both lower wishbones and shock mounting plates. At this point the motor, pinion, centre gear and centre gear bearings are added, adjusted, greased and finally covered with a gear cover, held tightly in place by a hook pin.

The heart of the new Salute is Kyosho's new belt drive conversion, smooth, silent and very efficient.



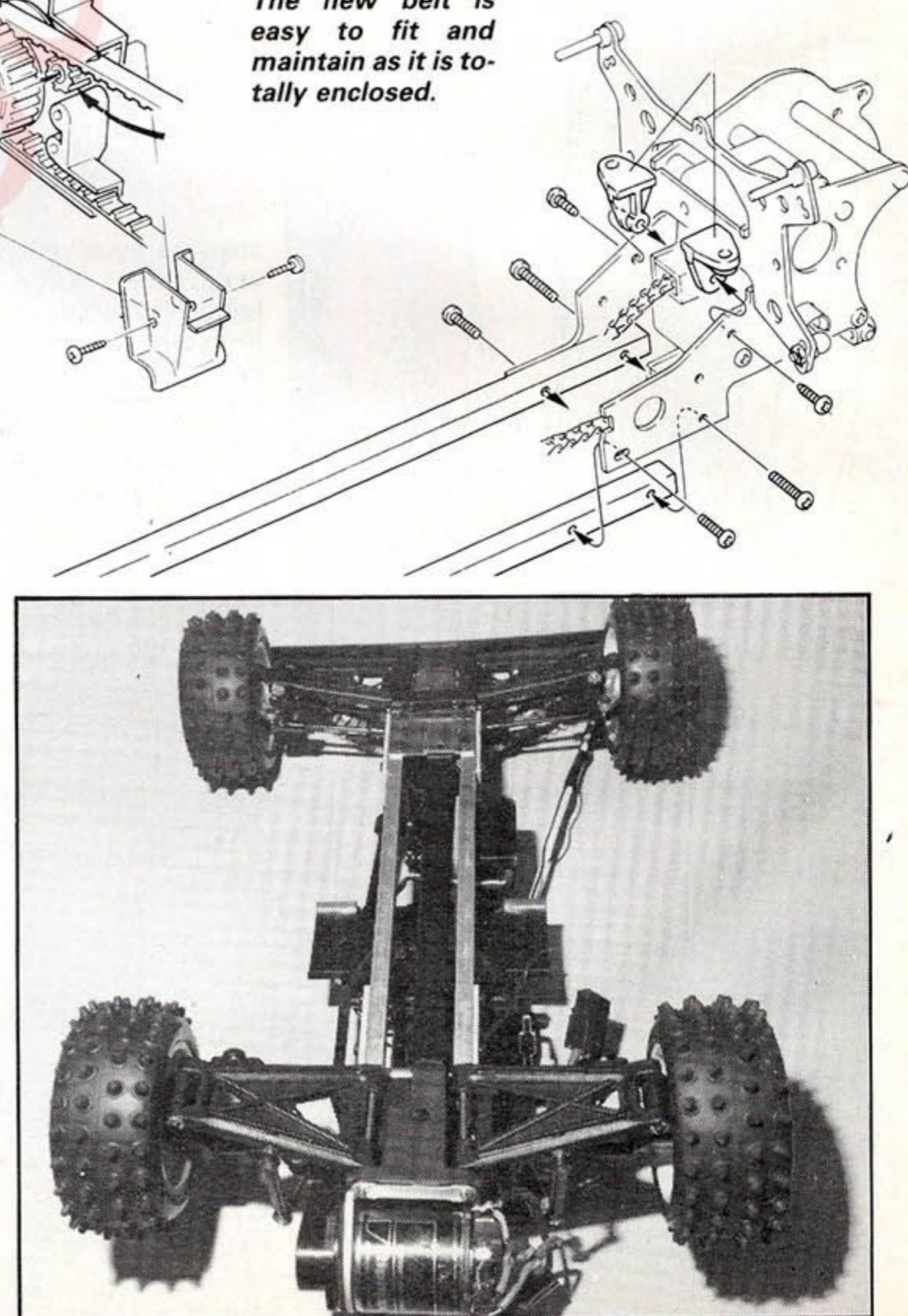
Radio Gear

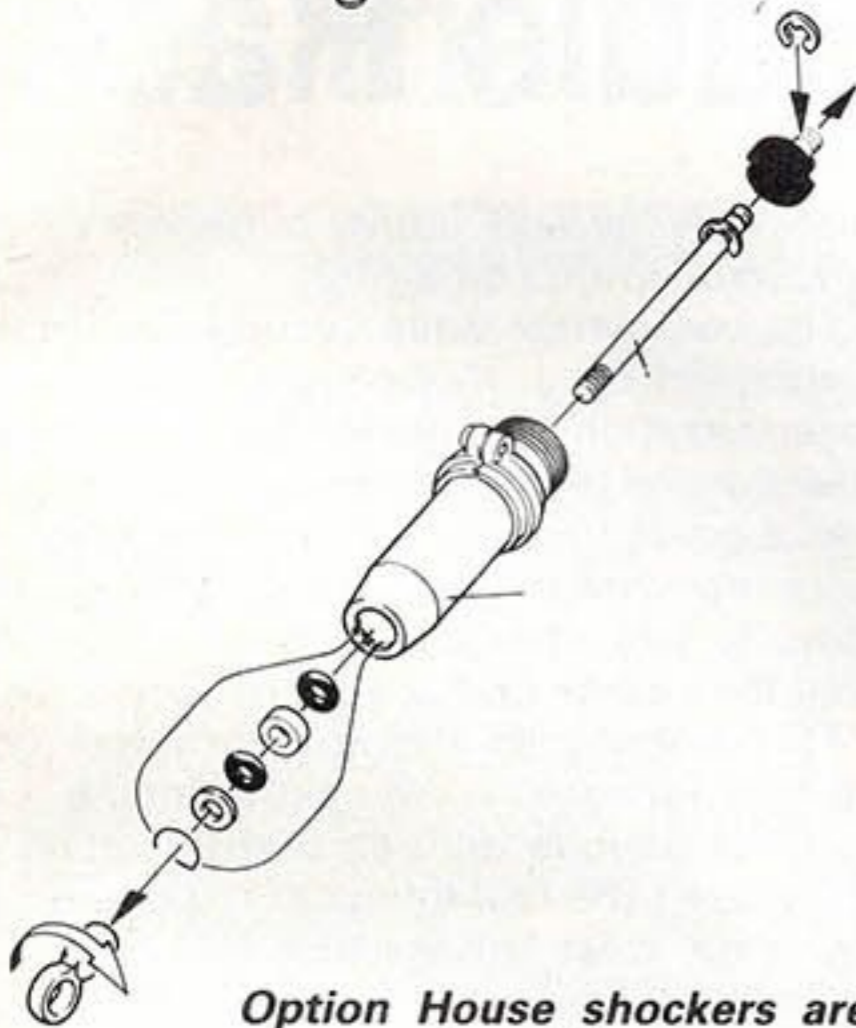
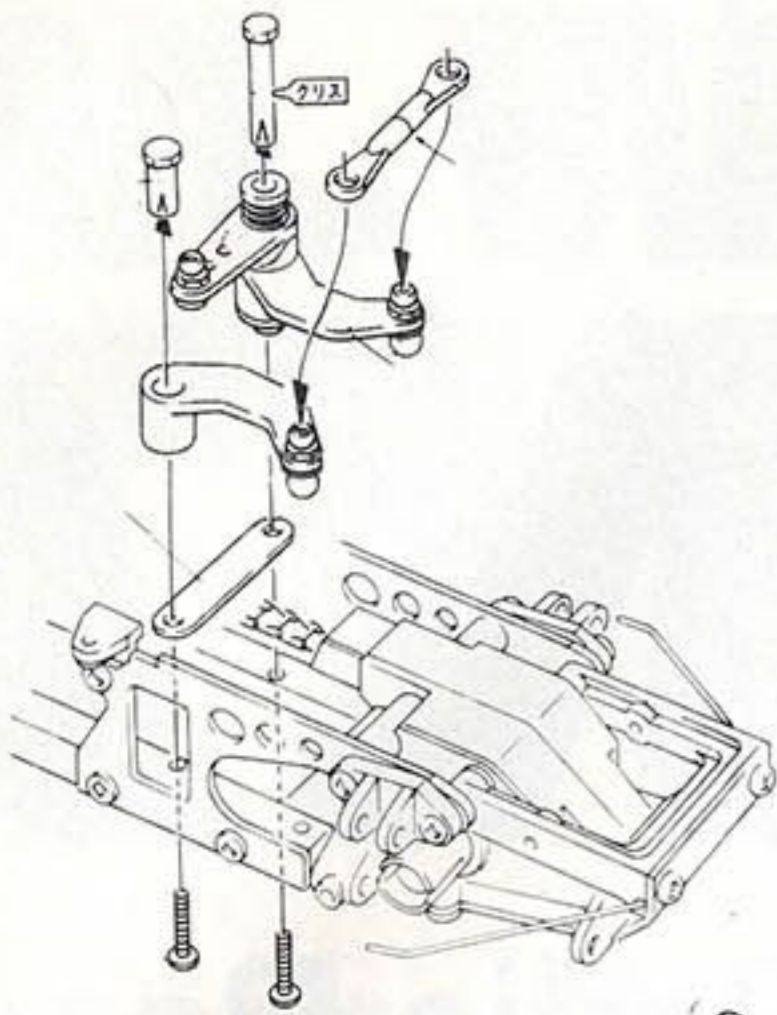
Most modern radio gear will fit, however installation is made easier by the use of Kyosho's radio plate, steering and speed controller servos mount directly onto this plate, the excellent three stage forward, one reverse speed controller also fits directly onto this plate, as the Salute was due to be track tested a Black Box speed controller was fitted, this was only to ensure that a fair comparison could be made and in no way reflects on the quality of Kyosho's speed board. In fact if a statement has to be made on this piece of equipment it should be, that some drivers who either cannot afford electronic speedo's or who prefer not to use them seek out Kyosho's board as reputation has it to be the finest available. On with the wheels and the car is ready to go.

The Proof Of The Pudding Dept.

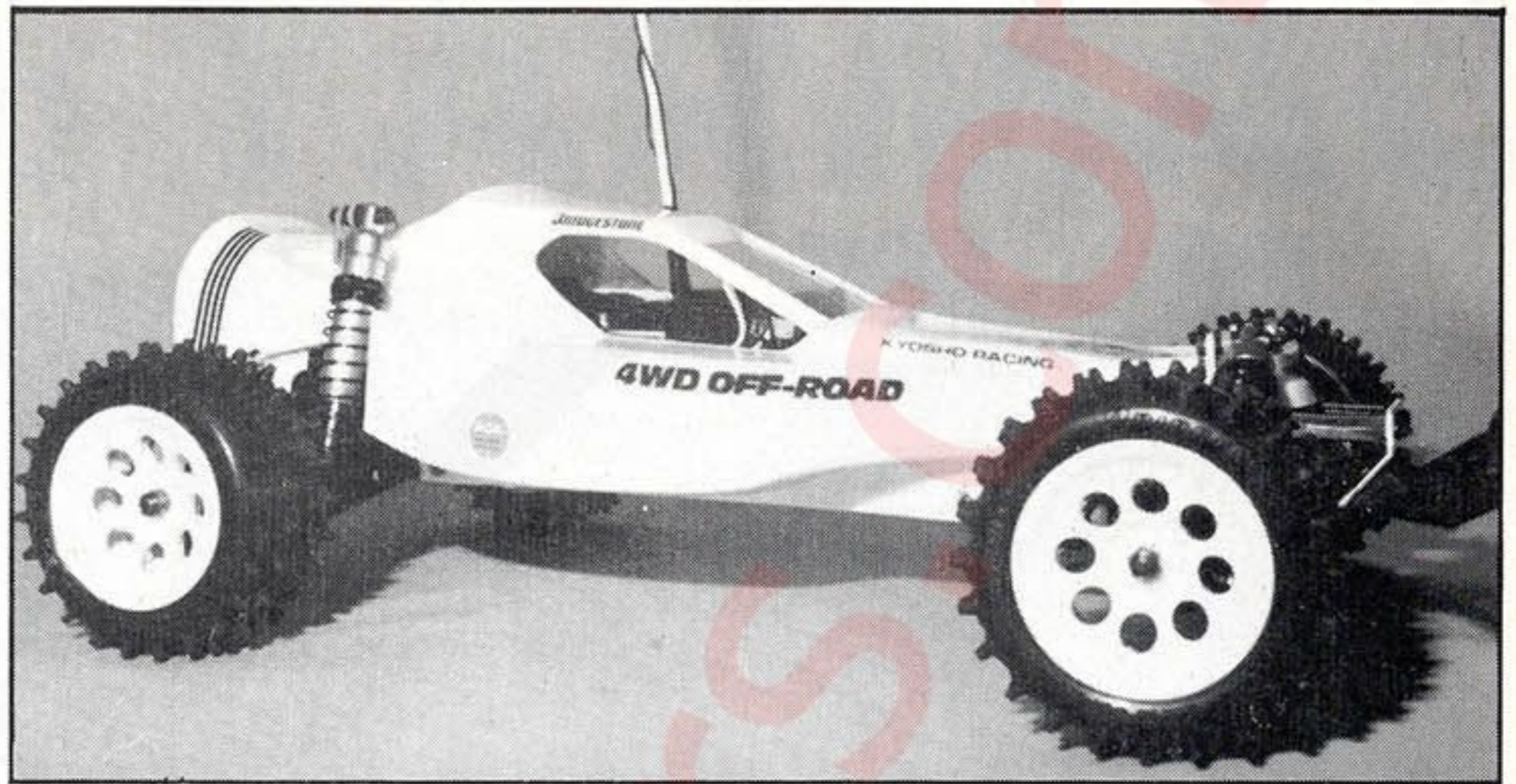
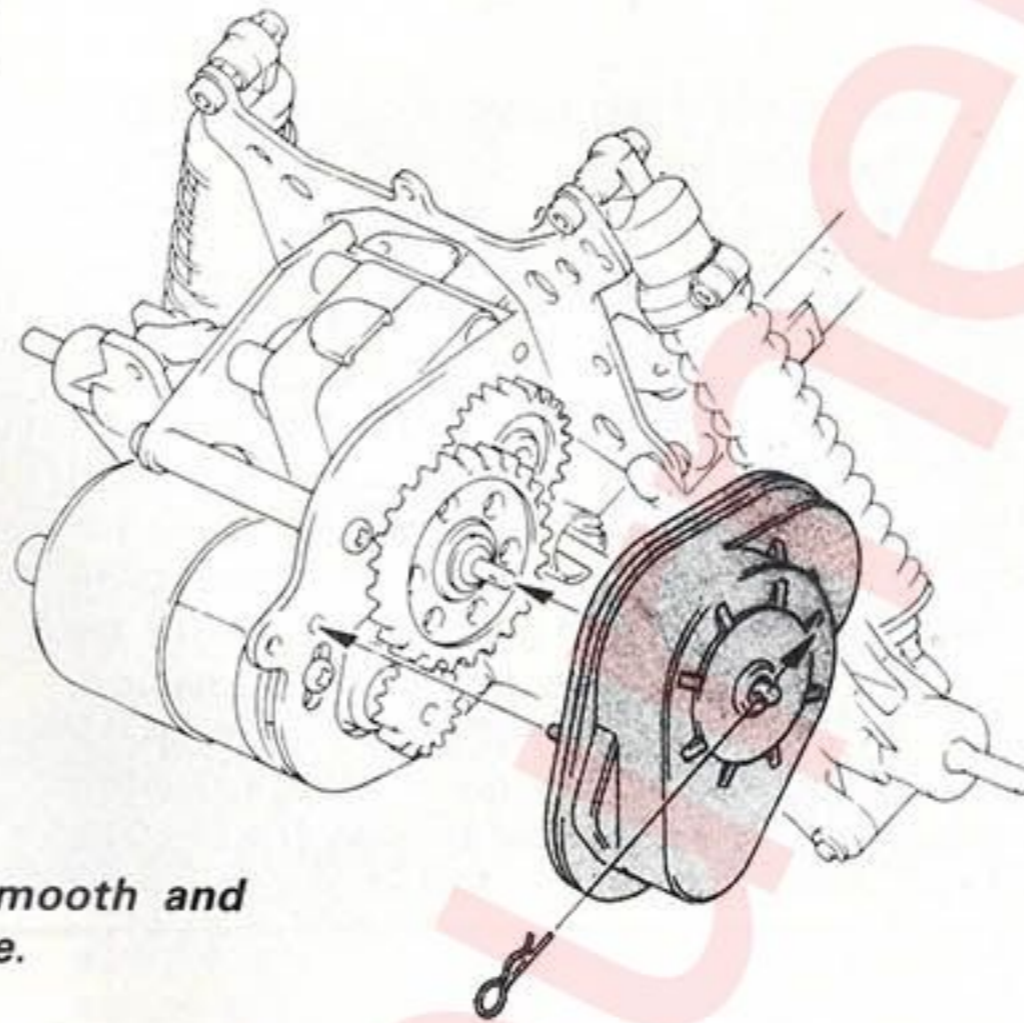
One point worthy of note is that the other piece of new equipment that also fits the Salute is the new Optima Pro bodyshell, and very nice it looks too. The proof of the pudding is in the eating so they say and in this case they are right. First impressions were one of astonishment, the belt drive makes the car run so silently that it really is a new driving experience. The belt also makes the car drive very smoothly, this was also the opinion of a long standing Optima driver. The Kidderminster 1/10 club very kindly allowed us to take the car along

The new belt is easy to fit and maintain as it is totally enclosed.

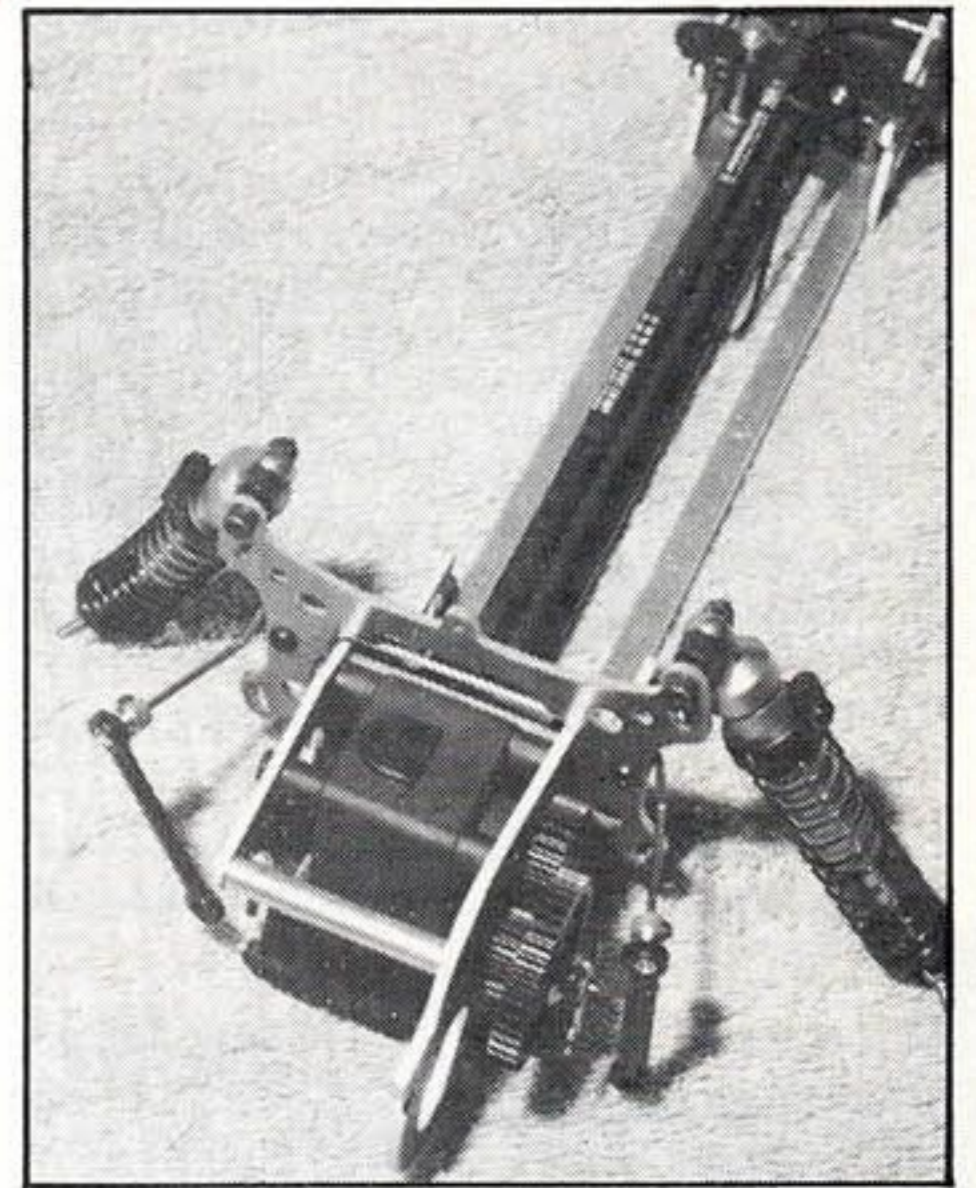




Option House shockers are smooth and progressive giving a great drive.



Top the new Optima Pro bodyshell fits superbly giving the car a very no nonsense, aggressive look.



to their indoor meeting for initial track testing. The car was set up as follows.

- Batteries — Panasonic SCR
- Tyres — Kyosho Dimple Block
- Motor — Spirit 600
- Speedo — Black Box

As your reviewer has nightmares over driving on tight twisting tracks and was showing it, the car was passed over to an old Optima campaigner Warren Dawson for another independent assesment. He didn't need to comment his driving said it all, first drive and he set F.T.D then he wanted to know where to obtain a belt drive for his own car.

My own opinion is that of a straightforward car to build and dismantle, most important trackside. The Salute certainly handles well and I am assured a couple of meetings soon have you conversant with its very direct handling characteristics, that is to say that the car steers very neutrally with no tendency to over or understeer so initially you are trying to pre-empt and correct a very stable car that doesn't need correcting, thus making you appear very twitchy for no reason. Onlookers must think you suffer a nervous disorder, however this soon passes. Certainly one to watch out for in 1988.

Salute kit, Optima Pro bodyshell and Optima/Salute drive belt available from Kyosho/Ripmax stockists everywhere.

W.M.B.C. N.A. Radio Race Car



It was only a matter of time before someone had to do it, finally it was Chris Kennedy that took the credit for the initiative, for it was he that argued that the average driver who pays £200 plus for his car and equipment to fill it, does not wish to wreck it during a winter seasons racing. You can argue that there are always indoor meeting and you would of course be correct, however, racing indoors somehow does not seem quite as atmospheric. Why then do we not use a clean outdoor surface such as a tennis or a netball court? And that

is just what happened at the W.M.B.C. Tarmac National.

The meeting was held using modified motors for two and four wheel drive cars, both classes were well attended, that must be a good sign for the new two wheel drive in '88. Racing throughout the day was fast and furious with drivers giving their all on the fast, tight circuit. It does seem as if this may be one way to go, cars were going home in a very clean condition, no mud, no blown speedo's due to water ingress, no seized bearings, just good, clean fun.

Jim Davis Models were well represented with both Paul Lisseter driving his Cat like

an old master and Jimmy himself giving a new Mid Optima an airing.

The two wheel drive section was being dominated by J. Howels giving a driving demonstration to thrill the onlookers. There were plenty of onlookers and that was a great thing to see, most spectators were not drivers but local people who came to see what all the fuss was about. Well they came and were most impressed.

This meeting should not be missed and we look forward to the next tarmac event, don't let anyone tell you that this style of racing isn't the real thing, it is just as exciting as on grass and a whole lot cleaner.



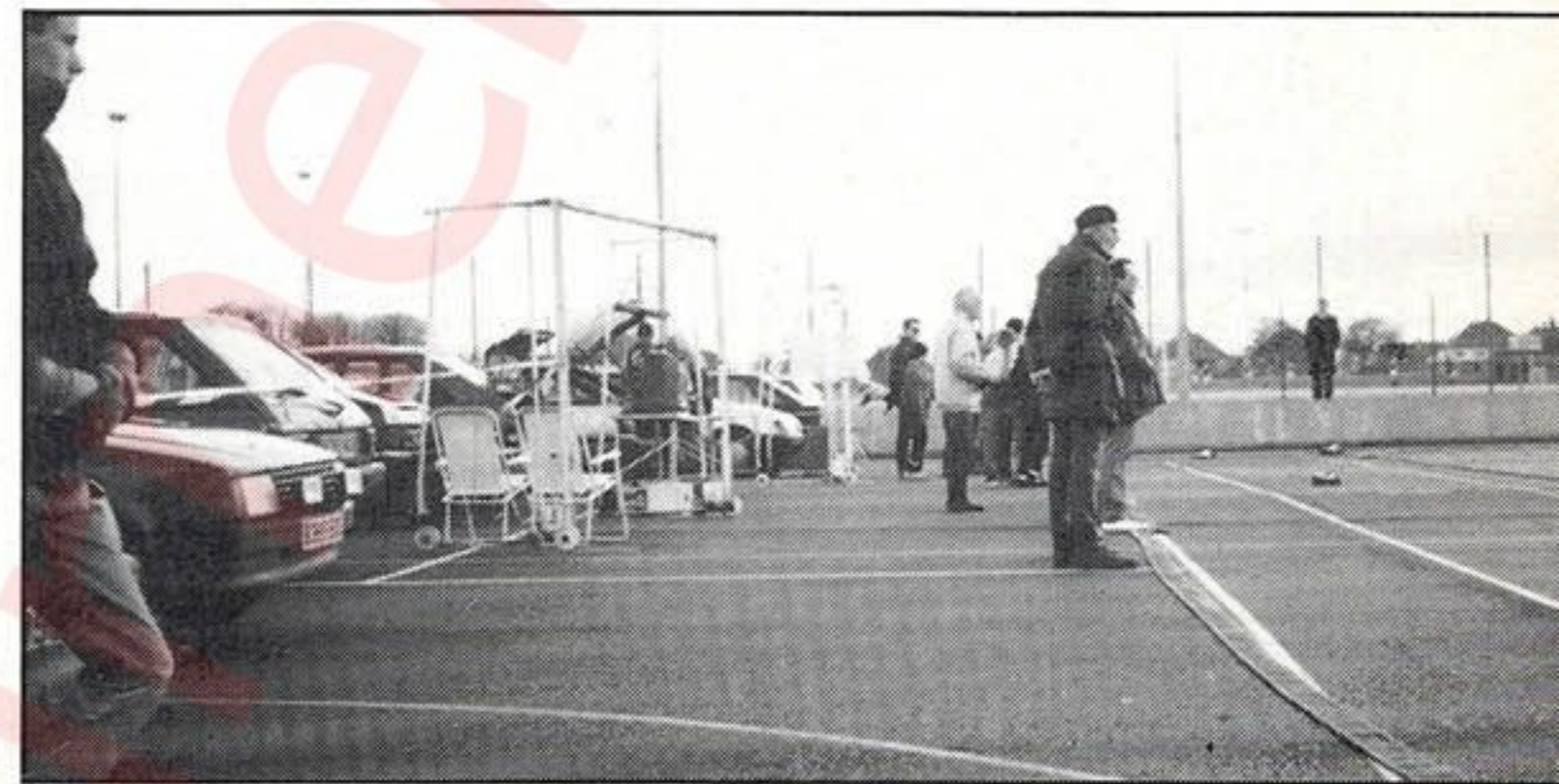
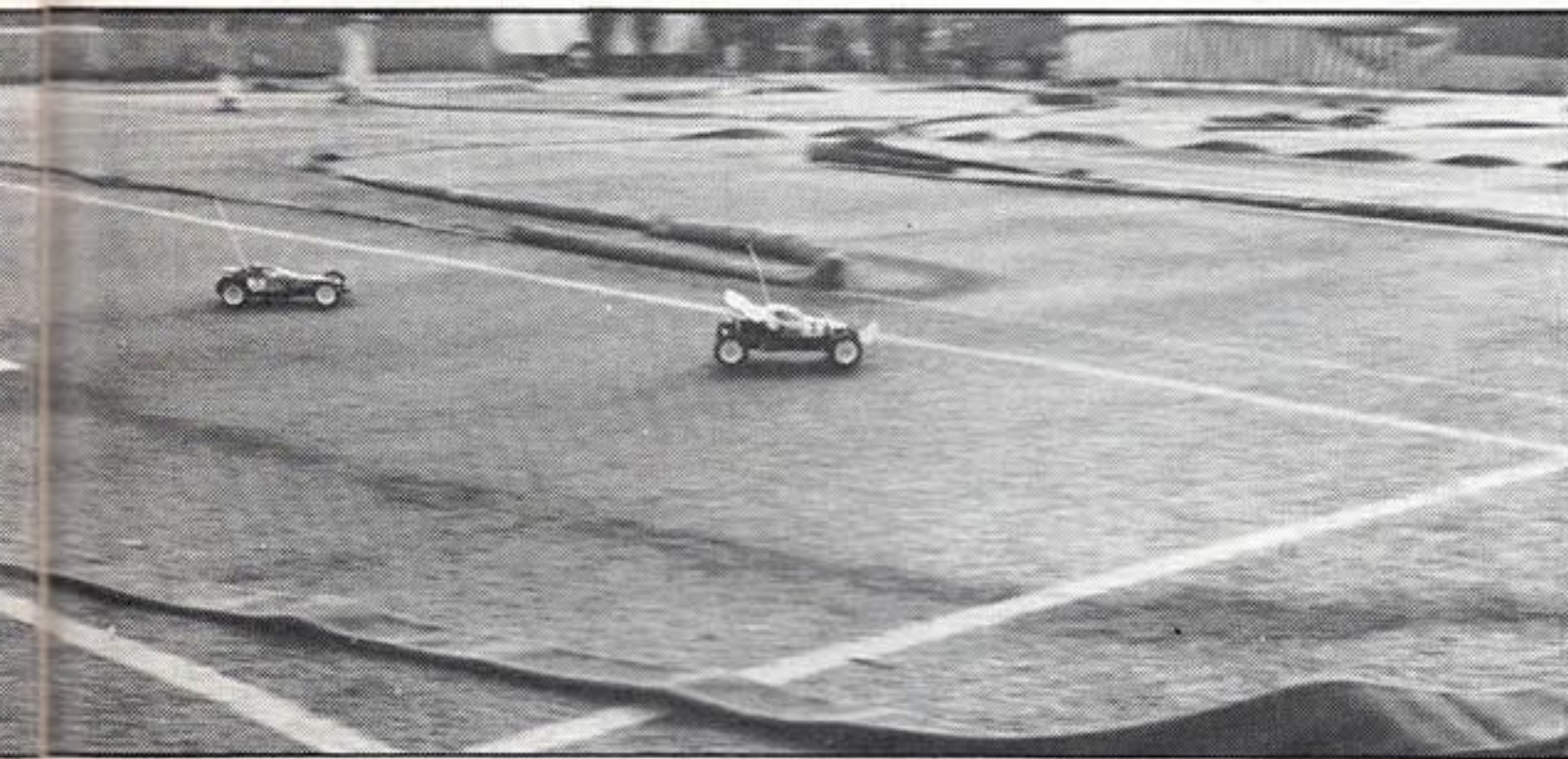
Top of page, The circuit was open and very fast, foam tyres were the order of the day giving maximum grip on the smooth surface.

Above, Even floodlights are available should they be needed every home comfort is provided by the Fox Hollies Leisure Centre.

Left, The entrants car park and pit area, just goes to show how many drivers will turn out on a very cold Sunday if you make it interesting enough.

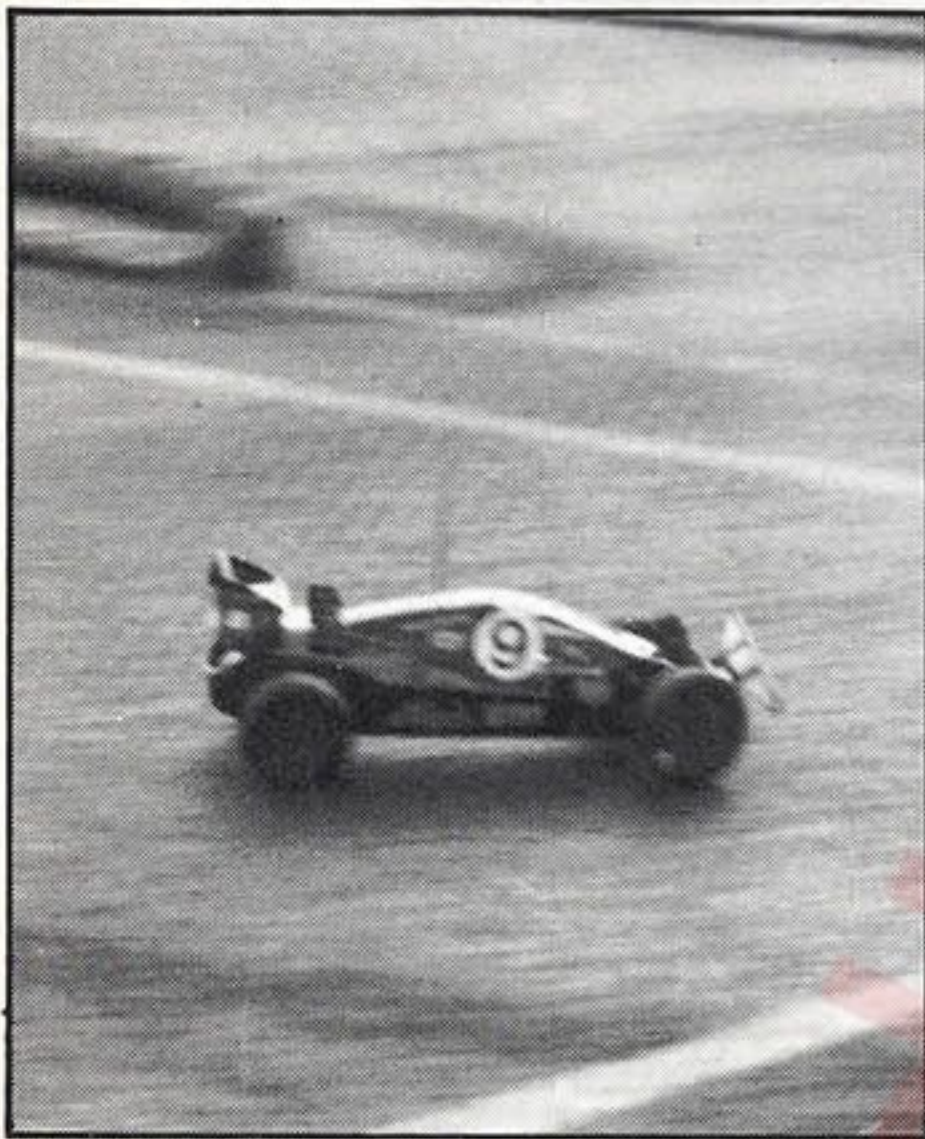
B.C. 1/10 TARMAC NATIONAL

ar visits the W.M.B.C. 1/10 Tarmac National.



Spectators came and went throughout the day but they were always there. The nice thing about this venue is the proximity of the general public.

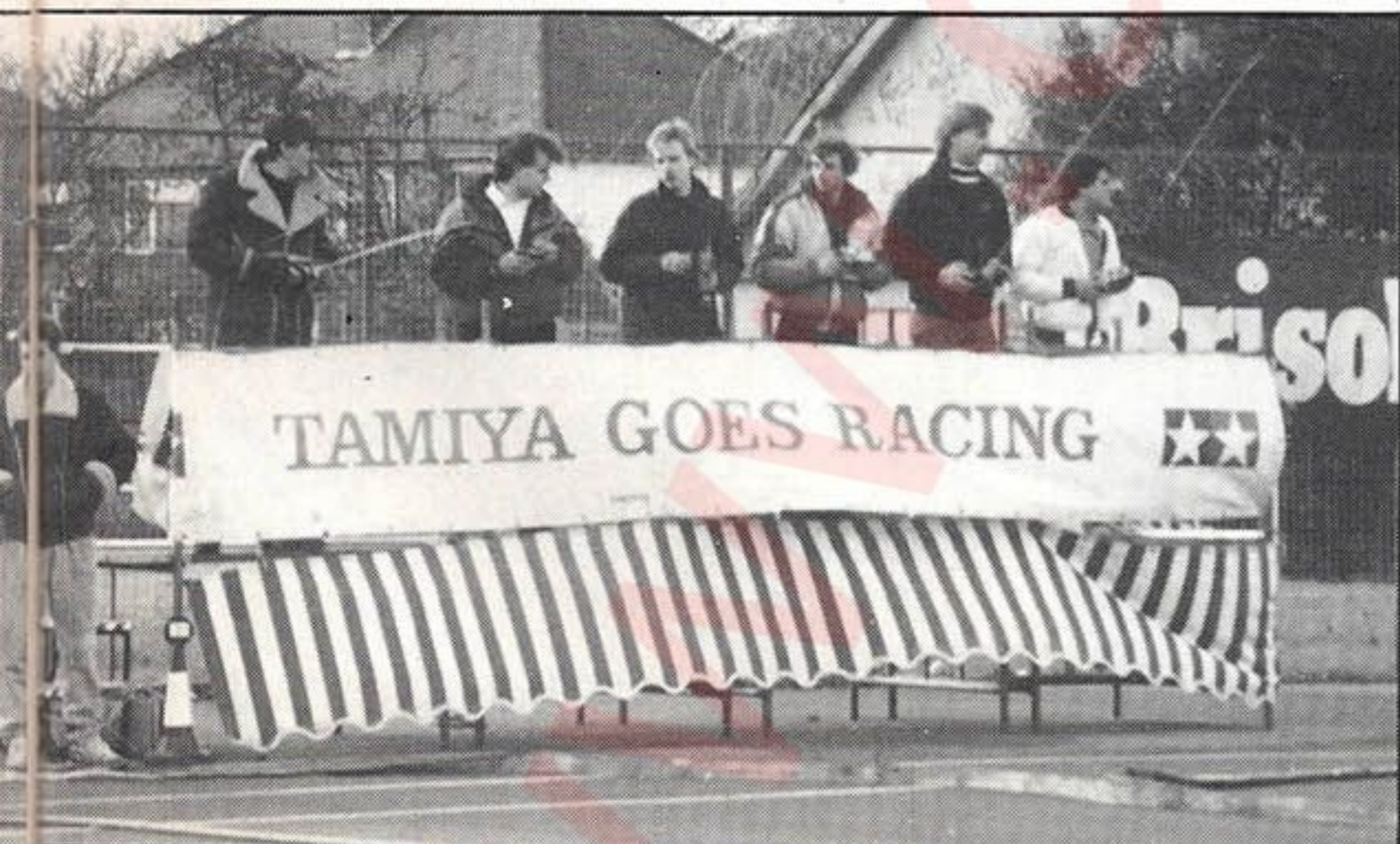
Above left, Sideways into the infield, the racing was fast and furious all day long.



Results			
2WD A Final	2WD B Final	4WD A Final	4WD B Final
J. Howels 1	R. Hopkins 1	P. Lisseter 1	A. Peacock 1
J. Davis 2	R. Merrick 2	J. Davis 2	C. Heath 2
M. Stewart 3	M. Taylor 3	J. Fowler 3	R. Cole 3
J. Brewer 4	R. Heath 4	G. Cutler 4	S. Bates 4
A. Smallbrook 5	R. Harwood 5	J. Brown 5	C. Darnley 5
W. Jones 6	H. Beard 6	R.L. Biro 6	P. Jones 6
J. Fowler 7	D. Richardson 7	M. Glover 7	E. Stevens 7
K. Velson 8	D. Cutler 8	J. Howels 8	
B. Stewart 9	S. Richardson 9		
	A. Syska 10		

Left, Full flight into the infield, juniors are encouraged at every opportunity to actively participate.

Below, Drivers on the rostrum including the eventual winner of the four wheel drive class Paul Lisseter (far right).



STOCK AND OVAL

by Mike Smith

1988, and we already have some of the main fixtures for the I.C. stock car calendar, the venues are still to be decided but the dates are hopefully correct.

The series Championships starts in the South on 10 April, at Bournemouth, with the Best Pairs meeting being held in Lilford Park on 24 April, this is the one meeting where two's company the rest competition. The second round of the series will be in the Midlands on 15 May at Lilford.

The E.M.S.A. European Championship skips across the Channel to Holland, 29 May is the date to remember for this one, at a place called Ootmarson, in fact you could do with a good long weekend to sample the Dutch hospitality.

12 June is the date for round three of the series Championship hosted by the Northern Oval Racing Affiliation at Pendle which is in Lancashire.

There is a two day event planned at Lilford 2/3 July, this is the Puma Grand Prix which was formerly hosted by the Leicester Model Stock Car Club, this two day meeting is a trial for a new format for E.M.S.A. International meetings, it was decided to try a two day event rather than race more than six cars at once, this would allow for a bigger entry.

Series Championship round four will be in the South on 17 July, at Hastings, with the Radio Race Car British championship at Nottingham on 31 July, this meeting will herald the official opening of the new per-

manent circuit of the Nottingham Radio Controlled Stock Car Club, we have included a map of the new venue (I hope) so make a special note in your diary it's going to be one not to miss.

The R.S.C.A. Championship will be up in Yorkshire on 14 August this will probably be now known as the B.R.C.A. Championship, Yorkshire Model Stock Car Club will be on their new permanent circuit inside Pontefract Park. Series round five is at Coventry on 21 August.

The E.M.S.A. World Championship is on

11 September in the U.K. with Leicester being the venue, the Harry Talbot Memorial Trophy is on 25 September at Lilford.

Series six the last of the series will go up North on October 2 and the Champion of Champions meeting down South at Chessington on the 23.

We will give more details of the fixtures as they are finalised, always check before travelling.

Racing radio race cars can cost an arm and a leg, if you are about to take the plunge ask yourself these questions. Firstly, 'Do you want to race model cars competitively', secondly, 'Will you be restricted by cost?' If your answer is yes to the first question then you are one of the millions, if you can answer not to the second question then you are one in a million, for the unfortunate truth is, being a top competitor can be a very expensive business.

When I started racing model cars the most expensive item was the radio gear, this is now the least of your worries. Most people of taking up this wonderful pastime will already have an idea of which formula they would like to persue, many will enter with limited resources, with a loosely termed fun car, this means a car which will give your friends the fun of seeing you six laps down.

The term brandished about for none competitive kits is 'one for the novice driver', 'the ideal car for the club racer', these types of statements refer to the ina-



Above: I.C. stock car racing is an International affair. Limited cost racing knows no boundaries, this is a group of multi national drivers who converged on this country for the European Championships in the Summer of '87. **Below:** I.C. stock cars race in all weathers so if you want to be the World Champion in this formula be prepared to add a large umbrella and a set of waterproof to your list of necessary items to go racing.

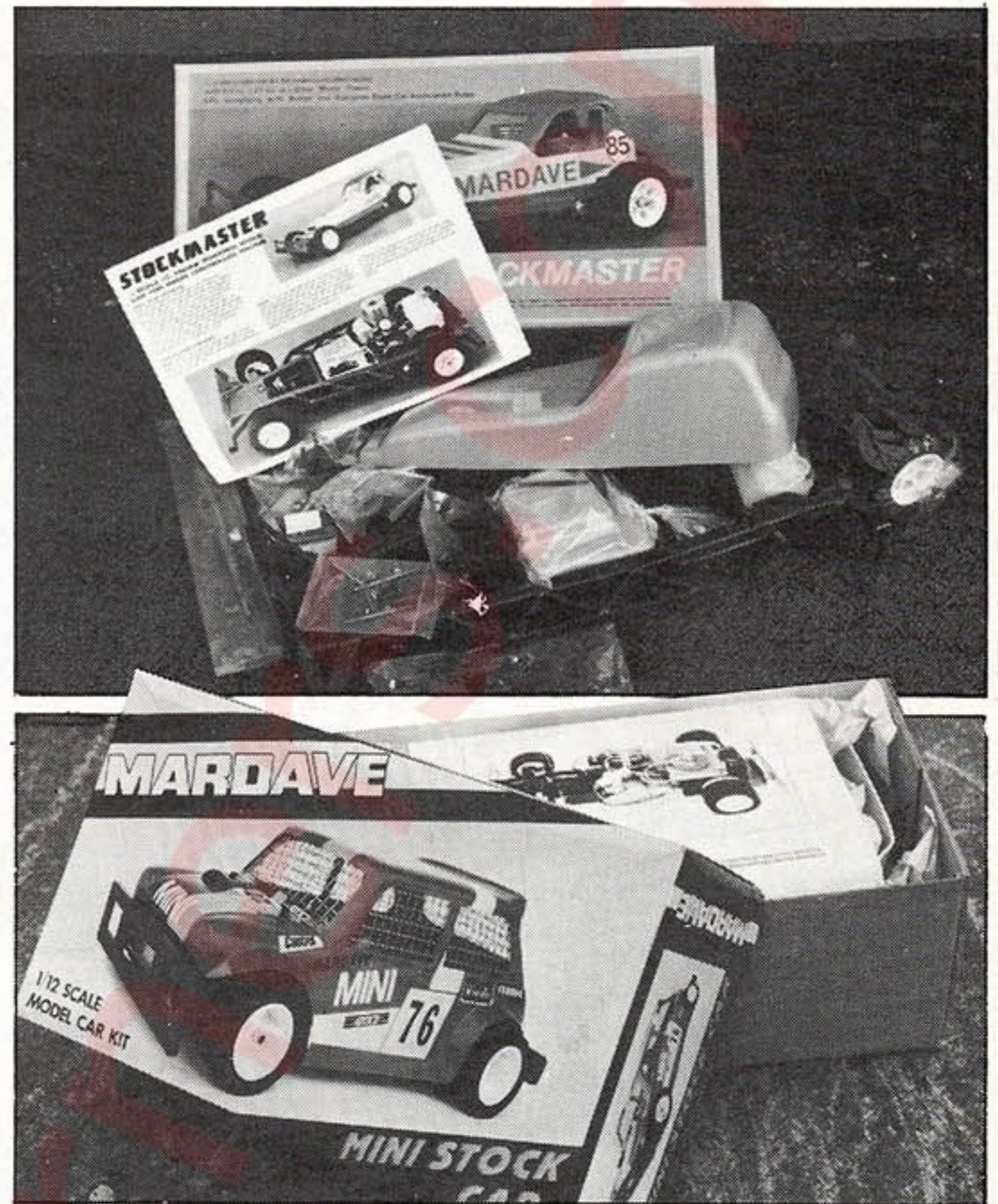


bility of the car to win major events. It used to be said that any car in the hands of a top driver would win but this is no longer so, even cars heralded by the manufacturers as World beaters have often been no more than a fun car, again the owner not appreciating the joke.

Not everyone strives to be a World Champion, in fact there are more back garden loners than competition drivers so the need for the budget kit is important, but if you are aiming for life at the top, you must pick your formula very carefully.

There are no cheap ways of being competitive, but there are racing formulas that try to limit the cost and promote close competitive racing.

I have always been of the thought that you have to be in with a chance of winning to make the effort worthwhile, many will



Above, right and left, The mini stock is probably the best thing to enter the scene for years, ironically this car is identical to the very first electric production 1/12 car, it has now gone full circle slightly re-vamped in the form of a mini and is dragging 'em in again. This car retails at £39.95 with batteries, speed controller, motor, and charging leads, just add the radio and go racing.

say it's not the winning it's the taking part that matters, I can go along with that, when receiving the winners trophy, but most of the time, and it is most of the time winning is not important but being competitive is. So which are the formulas that promote low cost high skill racing.

I.C. Stock Cars

Oval racing forms the backbone of limited cost racing, I.C. stocks are the main limb of the oval circuit.

The sport is International with World, European and British titled meetings, the sport in this country comes under the banner of the B.R.C.A. under the title of 1/8 Oval Racing.

Stock car racing is one of the formulas that permit contact, in fact contact is one of the skills to be mastered along with restraint.

About the Cars

An I.C. stock is an awesome car, with half inch steel square section chassis, a beam front axle and a solid rear axle. All cars are belt driven from a centrifugal clutch to a rear drive pulley, there are restrictions on tyre width, cost of kits and engines, with a limit on the scratch builder who has the ability to manufacture his own tune up parts.

The racing of these 1/8 I.C. cars is all about taking part, watching from the side lines is no way to get a feel for what is a completely different way of driving from that of the circuit, only six cars are raced at one time using the solid frequencies, this is

due to the close racing on a short circuit.

The first time spectator could be forgiven for thinking this type of racing lacks the same skill level as the other more prolific formulas, but be warned, once bitten or should I say once nerfed twice shy, they stock car drivers don't get mad they get even, but only a very skilful master would attempt to take out another car aggressively or in anger, for one of the first lessons learned is only give when you can take it.

The cars are designed to do just that, they're simple construction using the principle that if you can bend it you will do and simple in an engineering term is efficient. The sport has progressed in this theme of closed competition without the need for go faster innovations, this does not mean that new ideas aren't in abundance, for the stock car fraternity are just as resourceful as the rest, but claims of go faster gimmicks tend to be one hit wonders, one hit and you wonder why you bother.

Most of the people who take up this limited cost formula do so from a love of the real thing, the poor relation image has been put about by those who find difficulty in competing on driver skill alone, these cheque book champions have a destructive outlook of the sport. Stock cars are 'fun at the end of your thumb' and not 'go daft with the overdraft'.

The Cost

There are two manufacturers of I.C. stock car kits, the most widely used I.C. stock car is the Mardave Stockmaster it carries a

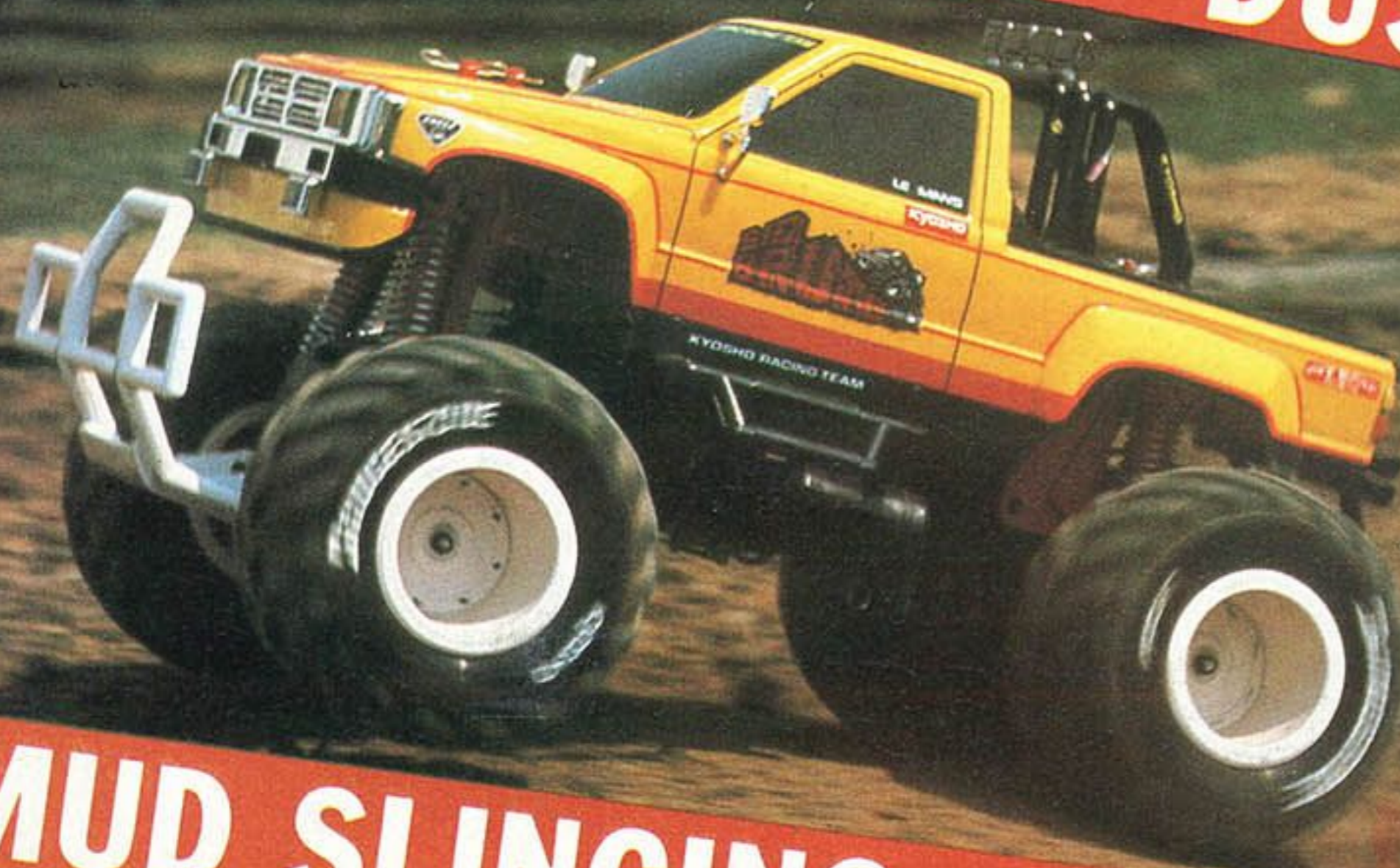
price of £54.00 for a complete kit without engine, the other is the Puma International Stockcar with a tag of £70.75 again without engine. Both the cars have good reliability, proven winning design and are easily obtained.

When it comes to the engine you have a top limit of £150 for engine and carburettor this may seem a lot of money for a limited cost formula but you must remember that at the moment 90% of the engines used in competition cost less than £50, so why allow this great scope. There is more than one way to keep close competitive racing without always aiming for the pocket, the width of the tyres for instance are kept to a maximum width of 35mm this means that there is a limit to the power that can be used, also most of the circuits in this country have a short straight again limiting the power.

The Racing

Mostly the racing takes place on Sunday, clubs up and down the country race alternate weekends throughout the summer months this gives a variety of venues, in amongst these are the national events. Stocks are raced in an anti-clockwise direction around the oval circuit, races last four minutes, finals five minutes, during the heats you are trying to achieve the best laps, as these totalled at the end of the day will determine you place in the final, providing your total score is good enough, in the finals you race to win and not to attain the highest laps, although the end result is the same. The skill of the oval circuit is to

DUST RAISING

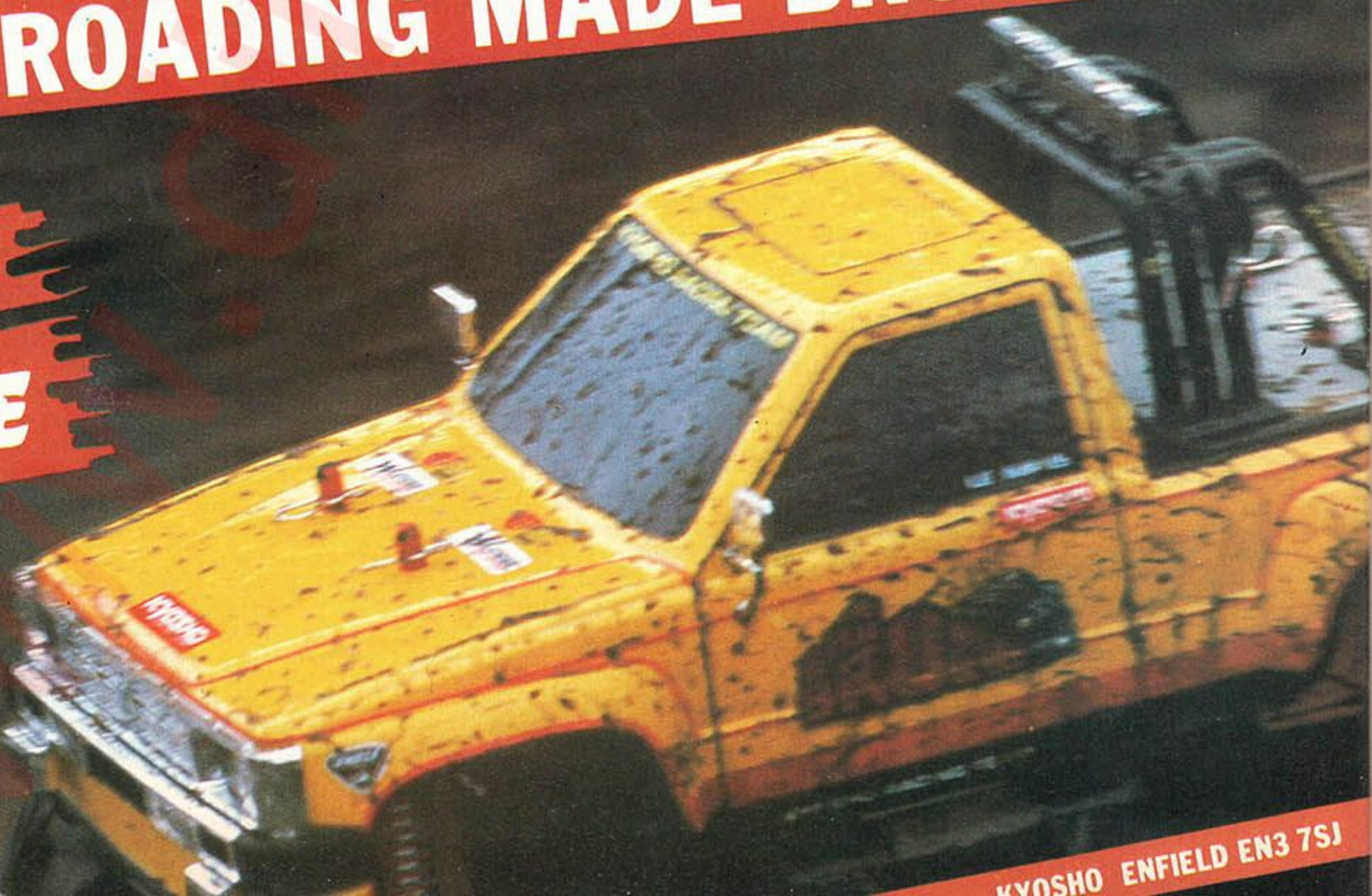


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keep cool in a frustrating environment, you may be well in the lead but never at the front.

Electric Stocks And Mini Stocks

These are 1/12 scale cars of simple construction to make the racing close and inexpensive, you can race in this class with a kit that costs less than £40.00 including the batteries and the charging leads. The stock car side of the formula is based on full size racing in the same way as is the I.C. version, again most competitors are full size fans who race these scaled down versions as a continuation of their fanaticism for the sport.

perform the super cars.

With these cars being powered by electric motors which are also supplied with the kits, you only need to add the radio gear. The simplicity of these cars make them ideal for the young driver who should, once the basics have been mastered be able to maintain his own car without the help of Dad or Mum.

The Cost

This is by far the easiest on the pocket of being a competitive driver, again as was stated at the beginning you will need the radio gear but apart from that for less than £50 you can have a ready to win car.

found, unfortunately they do not switch on like the electric cars. This means making a starting box into which you can house a hand starter and your glo pack, most I.C. drivers will need to spend another £60 to complete their outfits. The 1/2 driver may gain a little here if he sticks to basics, a box in which to house your 12v car battery if you are not using a mains charger will be a valuable asset this should be large enough to carry the odd spare part or tools you will need at the meeting, you can of course spend a great deal on the extra items like mains chargers battery testers etc., etc.

Conclusion

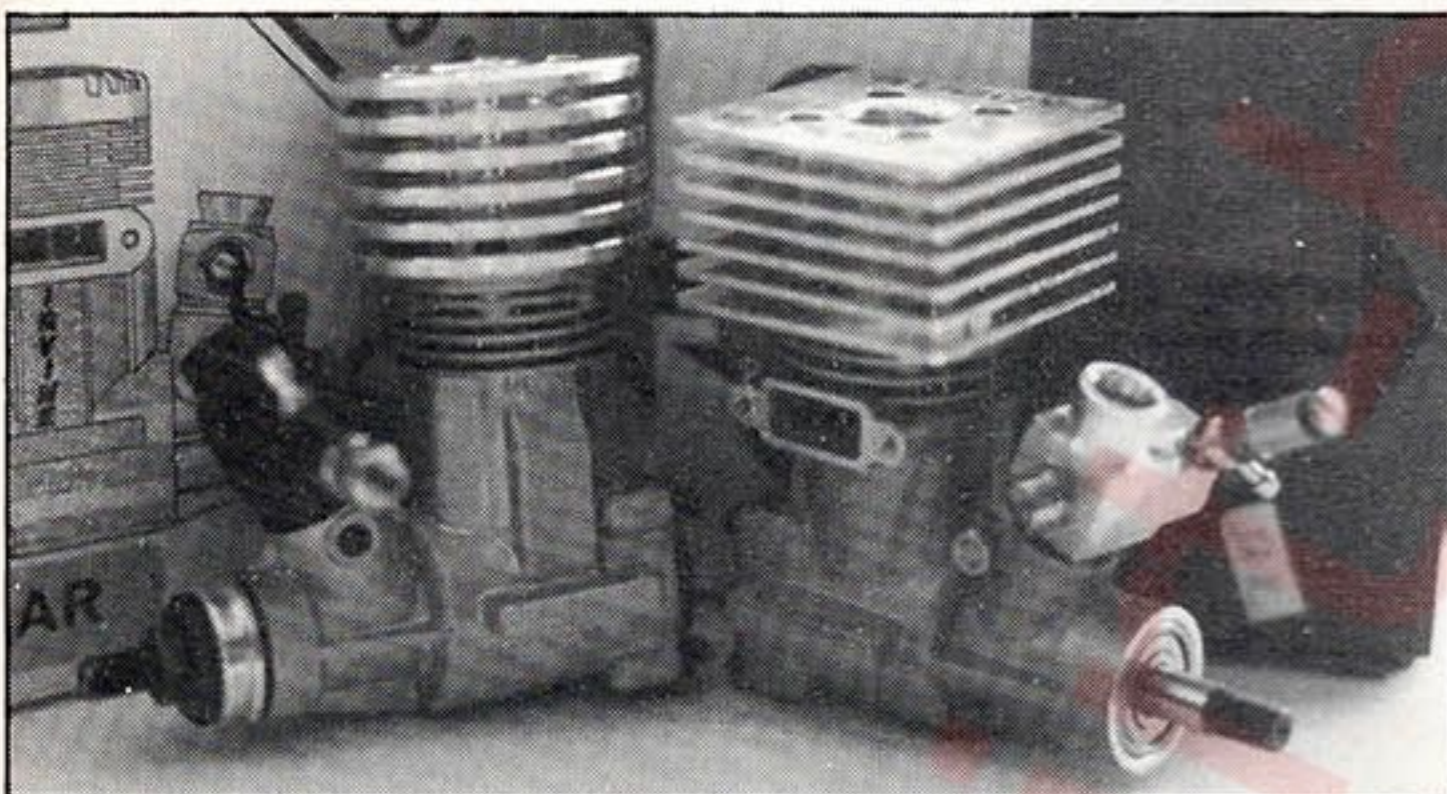
I hope I have given just a brief insight into limited cost racing the cost of the two types either I.C. or electric are not that vast even when taking into account those little extras that are necessary, if you are very young the electric side may be your best bet, as I.C. racing can be difficult on your own and of course transport to and from meetings can be a problem.

The cost of oval racing is low the fun high, the competition is there at a price that most can afford, so if you are thinking of taking up this wonderful pastime then be competitive in a formula that won't leave you bitter and penny less.

Limited cost racing is on the increase, if you would like more information on this type of racing then you can contact the B.R.C.A. or the representatives whose addresses were in the last issue.

A Word From Coventry

The secretary of the Coventry Model Stock Car Club, M. Joul has written in with the



Above: Two engines the Irvine and the Cipolla, Mardave designed their stock car to take the Irvine but the Cipolla along with a host of others will fit, the Irvine retails at under £50, the Cipolla for around £70.

The mini stock is a new arrival to the scene, born again from the happenings on the full size oval circuit. A place where the mini is given large bumpers and teeth, and battles its way around the oval with others of the same kind, nerfing and nudging in a very competitive limited cost sport.

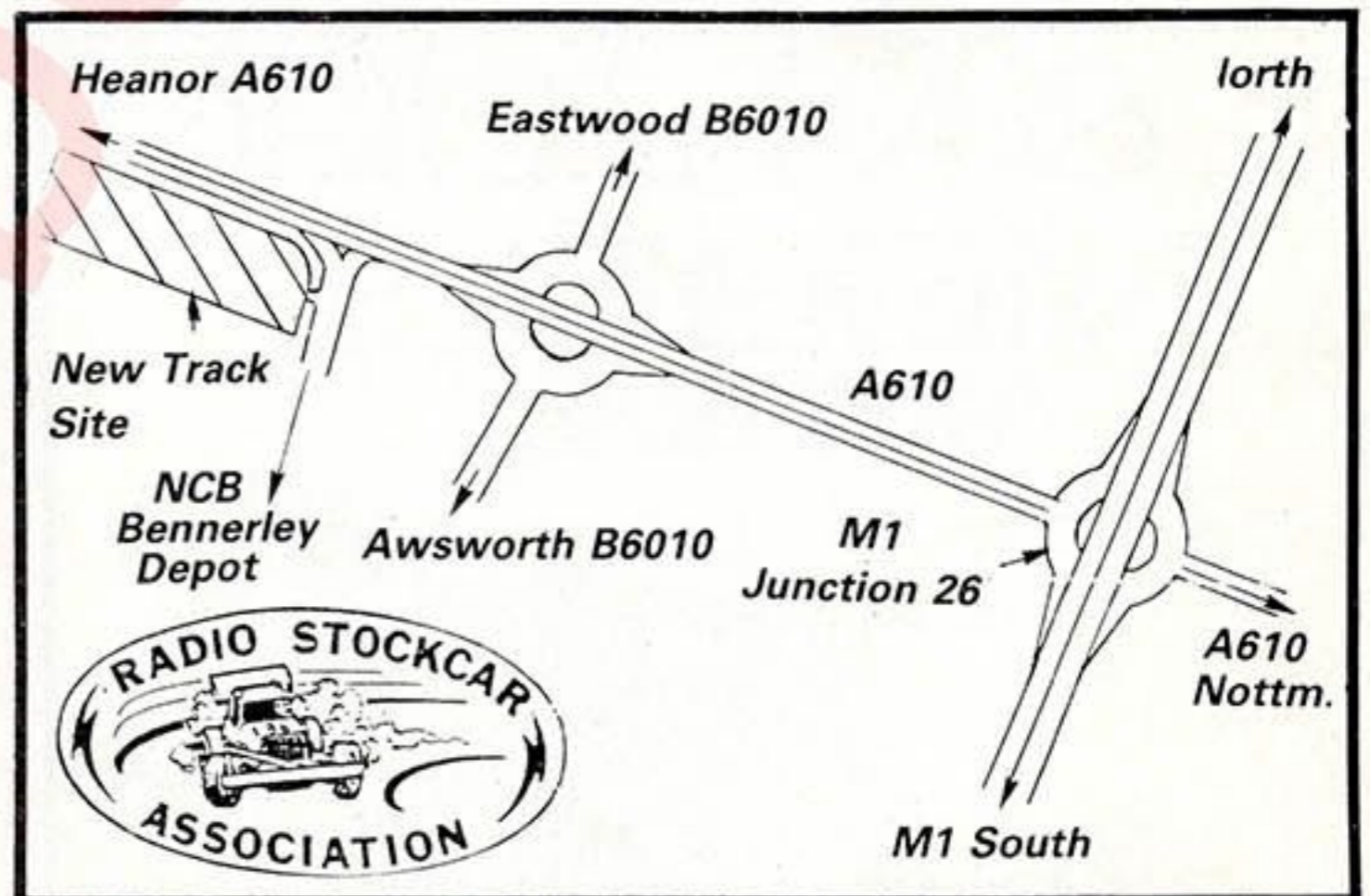
In the model version the much loved minis turned into an aggressive 1/12 driving machine in yet another contact oval racing formula. It was always intended to race the mini as a stock on the oval, but it does appear to have been taken very seriously by people who prefer to race on a more conventional circuit, mini circuit racing is becoming very popular, it would appear that the car is left in most cases as it comes with no modifications whatsoever, its success as a limited cost circuit appears to be due to the fact that it is a mini, a car which was designed for fun and not expected to out

The Racing

Both the stock car and the mini stock are raced on ovals, although the mini seems more popular as a circuit car, oval races are of five minutes duration and like the I.C. variety you go for laps rather than to win outright, following the full size tradition each driver is graded to his ability this is denoted by his car roof colour, a novice is a white top then he progresses up the ranks to blue then red and maybe if he wins the world title he will have the crown and glory of being the gold top. Mini stock racing is much like the stock car but they race in a clockwise direction.

Those Extra Items

We have talked about the cars and the racing but there are those extra items that you need to go racing, if you choose I.C. then a means of starting the engine has to be



clubs full fixture list we unfortunately can't print the lot as the club have more going on than we have space, but their 1/12 Stox section races every Wednesday night from 7.30 till 11pm at the British Legion Club, Ryton on Dunsmore, their I.C. Stox season kicks off on 6 March, with the D.J. Morgan trophy meeting, the meetings then run approximately every fortnight until 20 November 1988.

Stock Exchange

For those wishing to move into mini stock racing but already have chargers, batteries, speed controller etc., may be pleased to note that Motile Model Development are offering a rolling chassis version of the Mardave Mini Stock, complete with body, all you need is the electrics and the steering linkages and you are racing, price £20.00.

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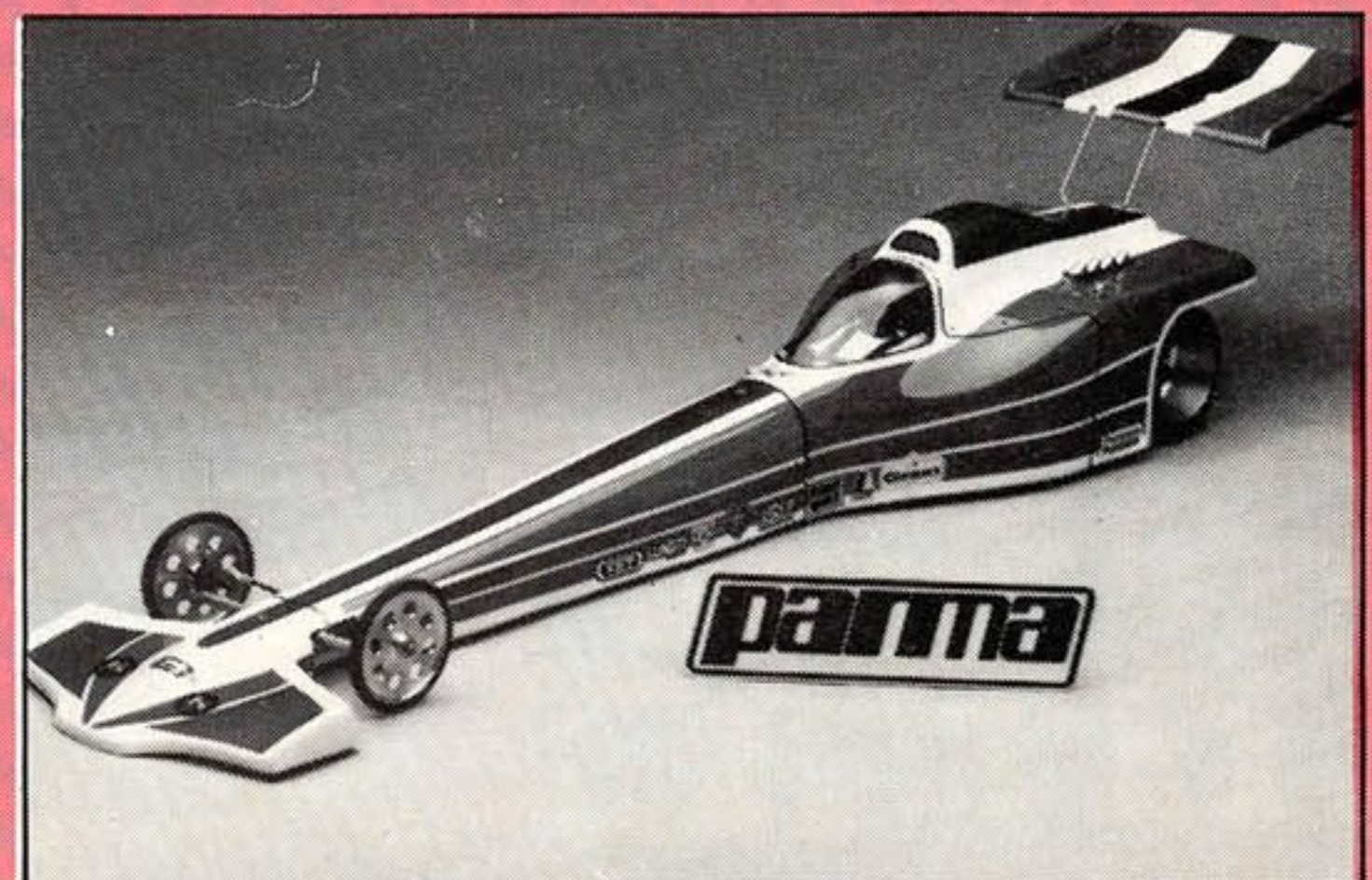
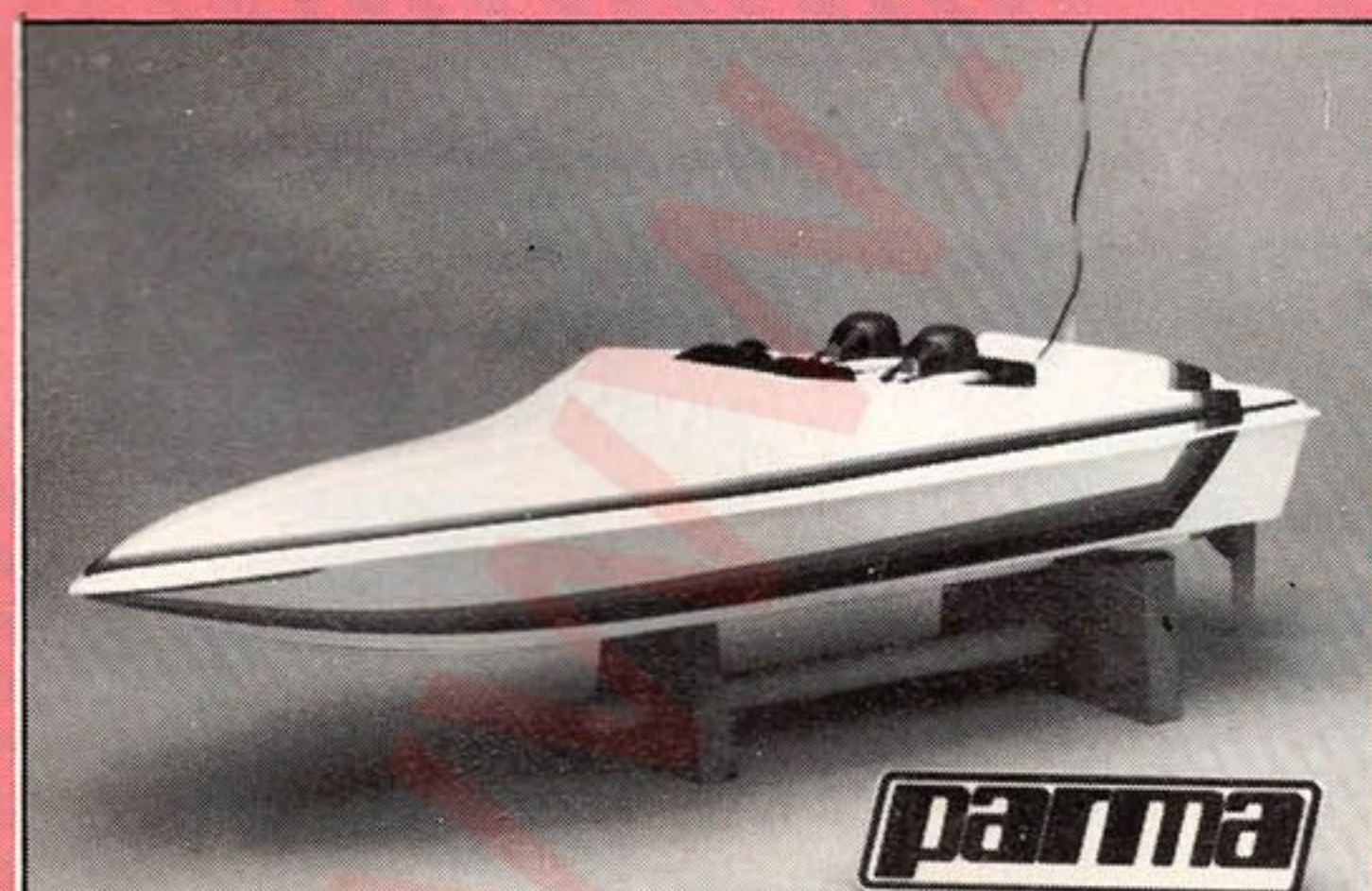
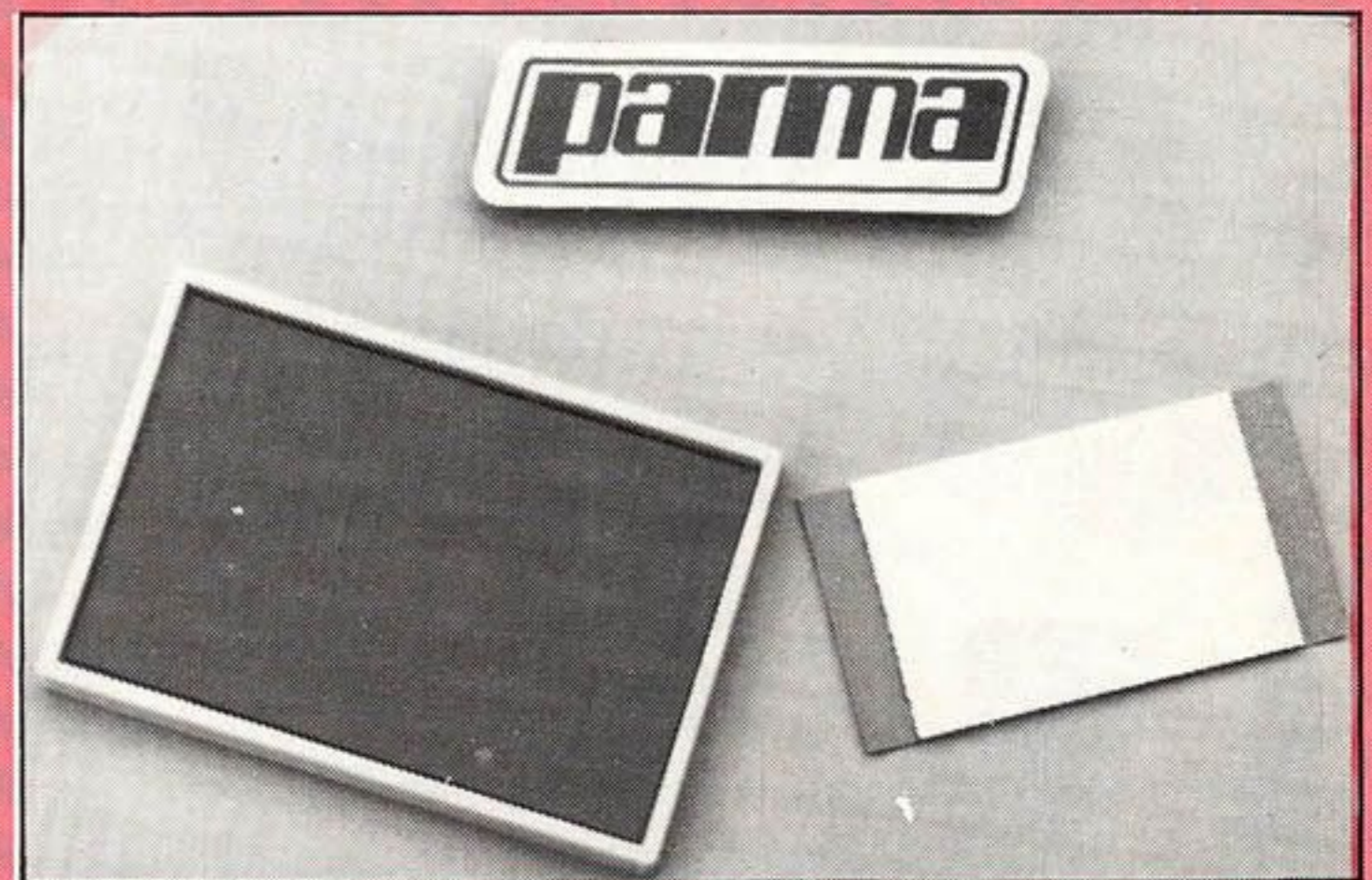
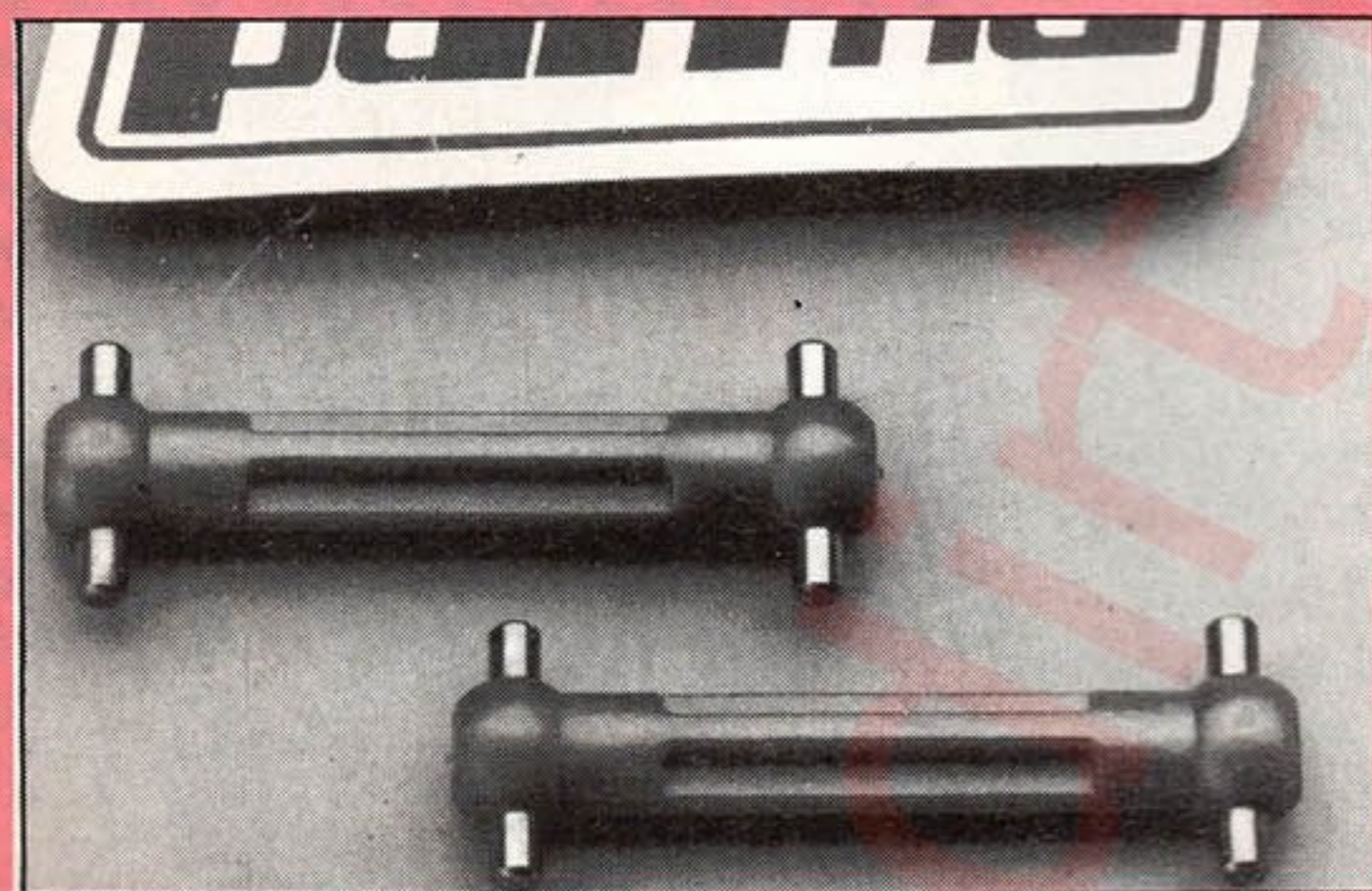
ONE DAY SALE DECEMBER 26

MARKET PLACE

Parma

As usual an amazing amount of new releases from Parma. First Parmas super matched Sanyos the ultimate power source is now available in four, six and seven cell packs. New drive shafts for the Falcon and Striker are also available manufactured from a low friction fibreglass material, the drive shafts are more durable and efficient than stock units. Parmas dragster range continues with this beautiful 24 in dragster shell, the shell will fit scratch built as well as kit cars. A magnetic tray keeps all your screws and metal parts off the floor and neatly organised, a great idea. Finally how about this for a great idea the Ski Tiger a boat from Parma! Incorporating surface drive technology and car know how the Ski Tiger is a fast, responsive speed boat.

All items available from your nearest Parma stockist.



Thermal Charger From Intronics

Intronics have introduced sophistication into the art of thermal charging with their thermal sensing auto charger.

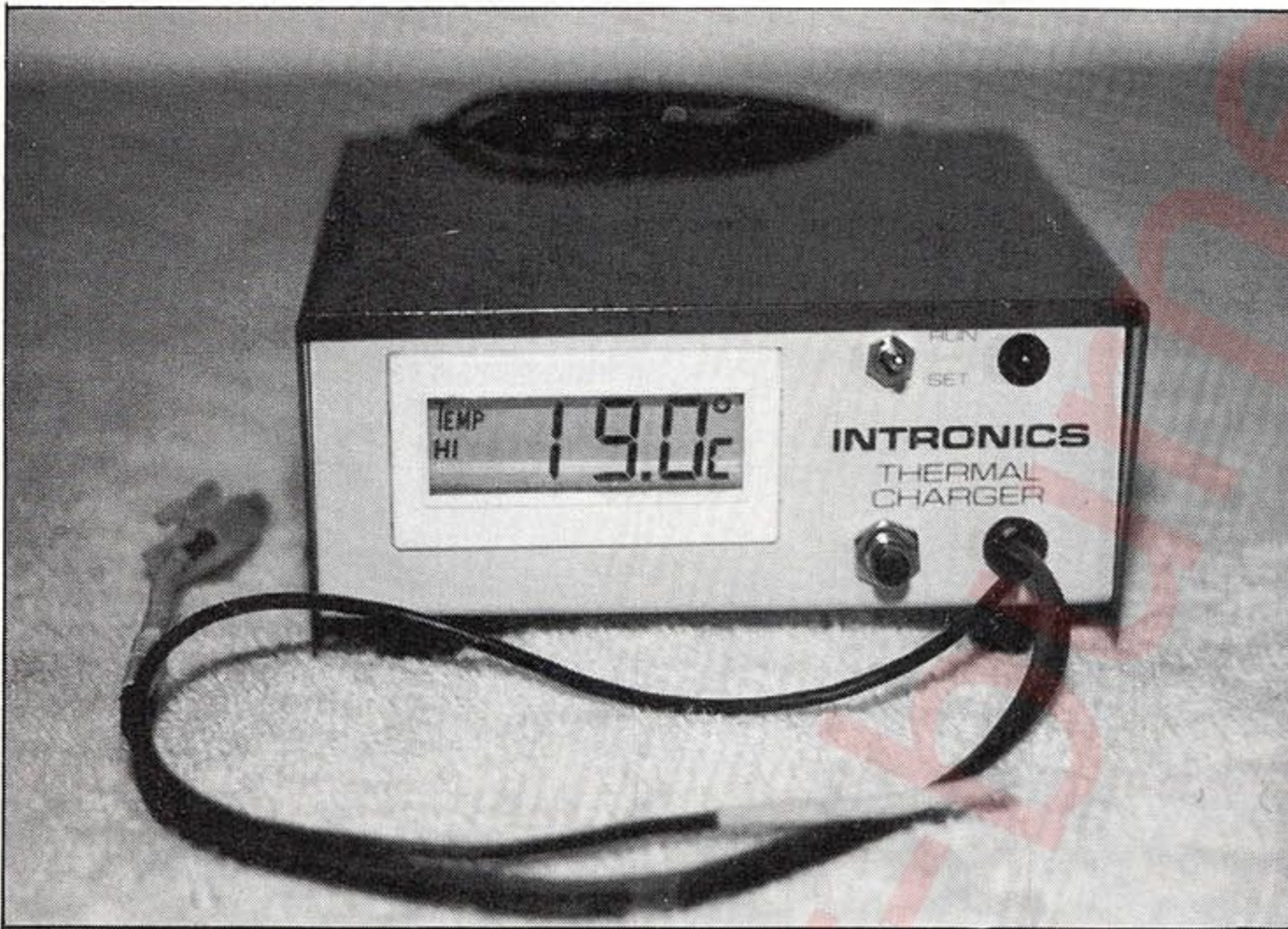
The sophistication comes in the form of a LCD display which monitors the temperature of the cells being charged and that the user of the charger can select prior to charging the temperature at which the charging current will be cut off. The facility of selecting a cut off temperature by the user means that users of 'pushed' cells who like to charge at 45°C and users of CS cells who like to charge at a temperature less than the normal accepted 40° are both catered for, Intronics recommend 40°C.

The charger which is completely automatic is simple to use, select the temperature you require the charger to cut-off, insert the temperature probe under the cells

heat-shrink, switch to run mode and press the start button. A constant current charge rate of 5.5A is given to the cells and a red light indicates that charging is in progress. On reaching the cut off temperature charging is complete. The light goes off and the charger will remain off until the start button is pressed again. The LCD serves two other purposes, with the charger disconnected from its 12v power source battery and switched to run mode it will read ambient temperature, and should the temperature probe get damaged it displays a warning to prevent inadvertant overcharging.

Two large anodised black heat sinks and a neat blue case complete a very well engineering piece of kit.

Available from Intronics, Claerwen, Bexhill Road, Pevensey, East Sussex. Price £44.95.

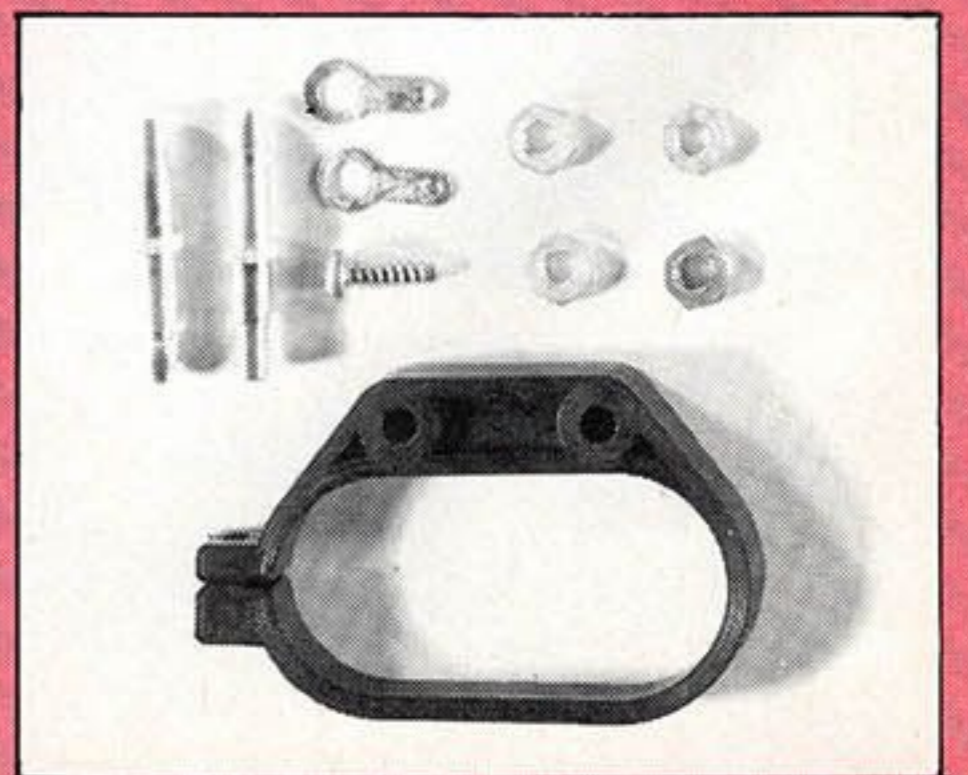
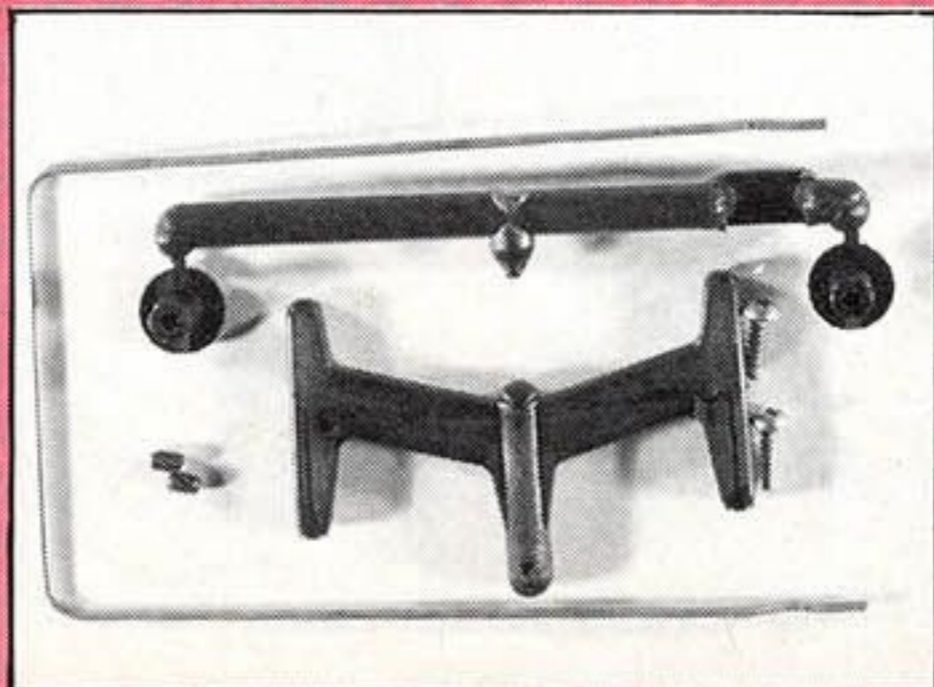
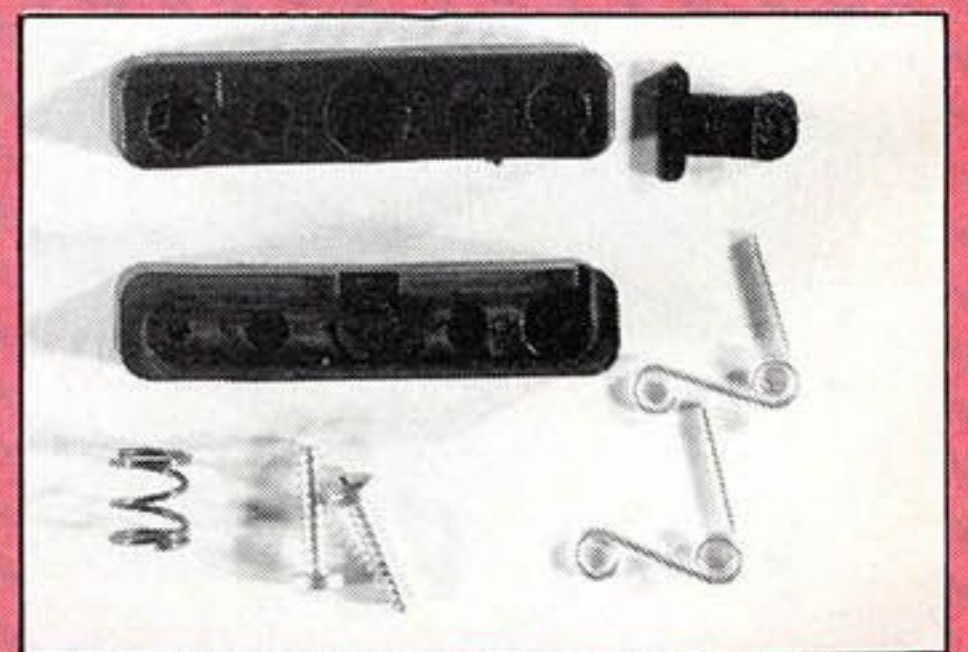
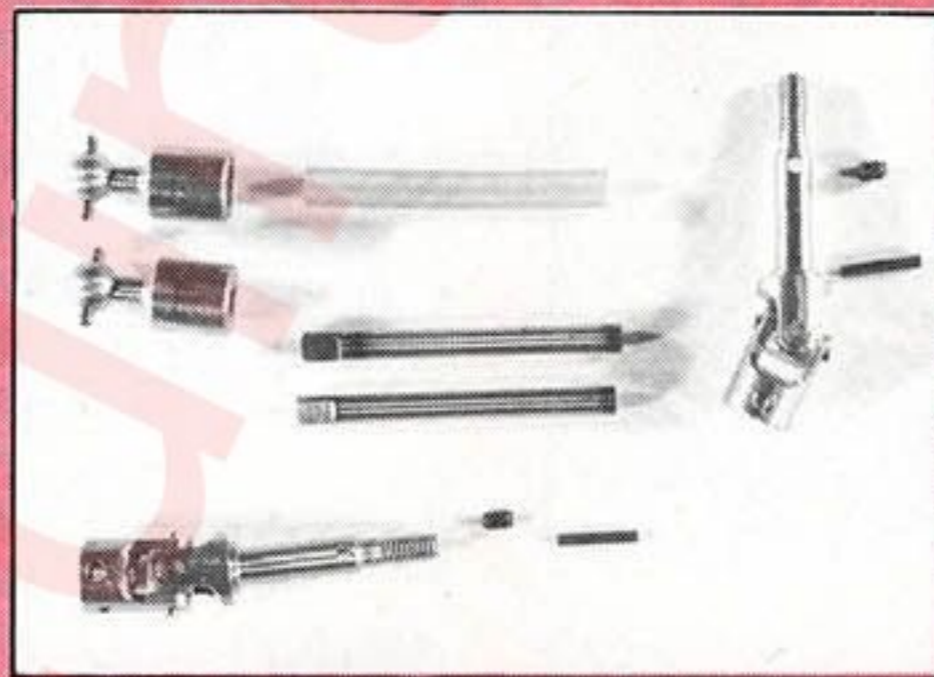
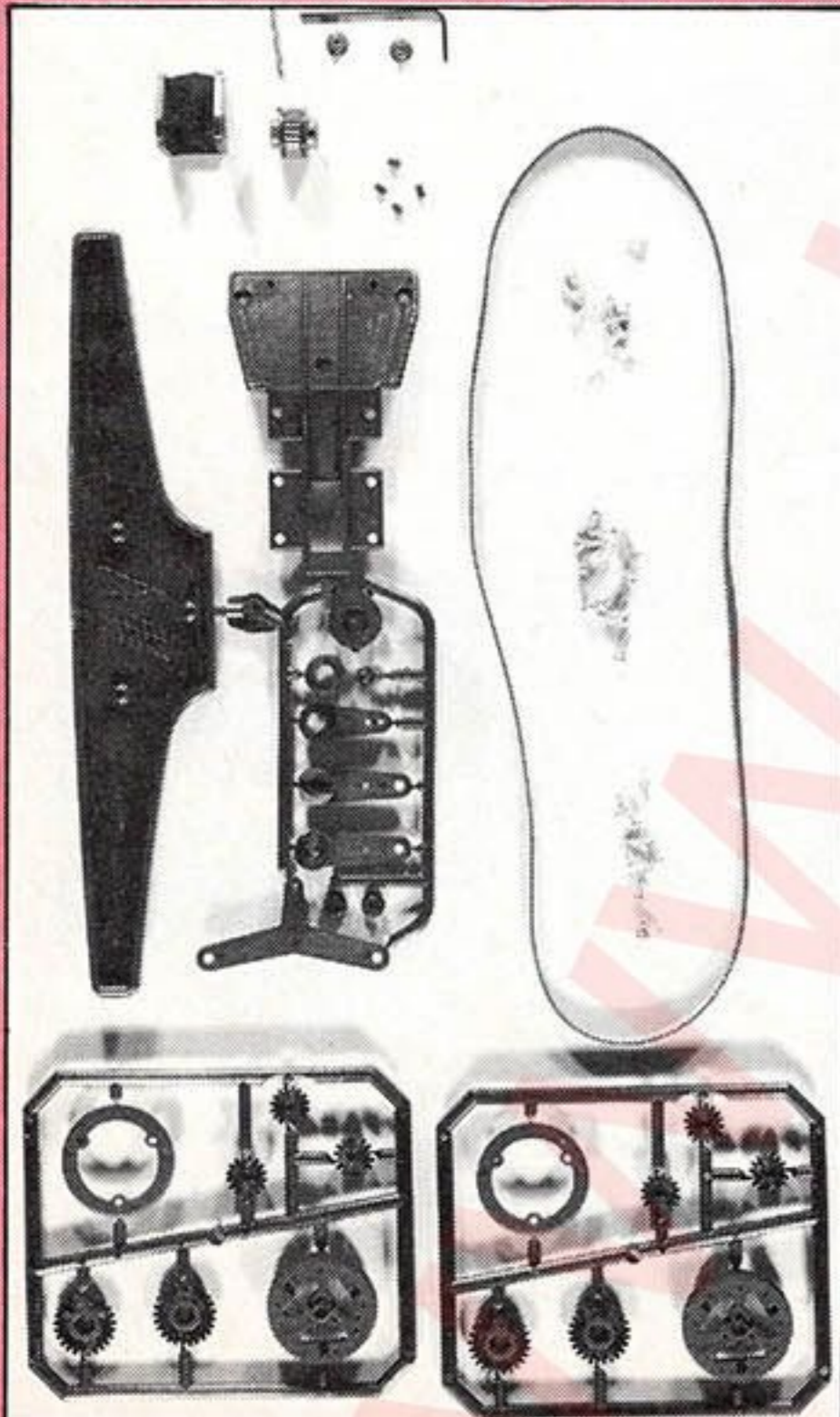


P.B. Racing Products Ltd

Several new and very important beef up parts are now available from P.B. for Mini Mustang or new ECO owners. The parts are as follows:-

- 1 x 02/16 Ret. Price £14.57 — U/J Standard Axle/Drive Shaft Pair
 - 1 x 02/17 Ret. Price £27.97 U/J One Way Axle/Drive Shaft Pair
 - 1 x 04/11 Ret. Price £2.32 Wing Wire Pack
 - 1 x 04/25 Ret. Price £2.75 Wing — Lexan
 - 1 x 07/14 Ret. Price £24.94 Belt conversion pack for Mini-Mustang with ballraced belt tensioner.
 - 1 x 07/15 Ret. Price £2.66 Battery Clamp Set.
 - 1 x 07/16 Ret. Price Battery Charger Socket Pack
 - 1 x 07/23 Ret. Price £59.80 Elect. Speed Controller
- New lexan bodies and undertrays for Maxima and Eco.

All new beef up parts are available through your nearest P.B. agent.





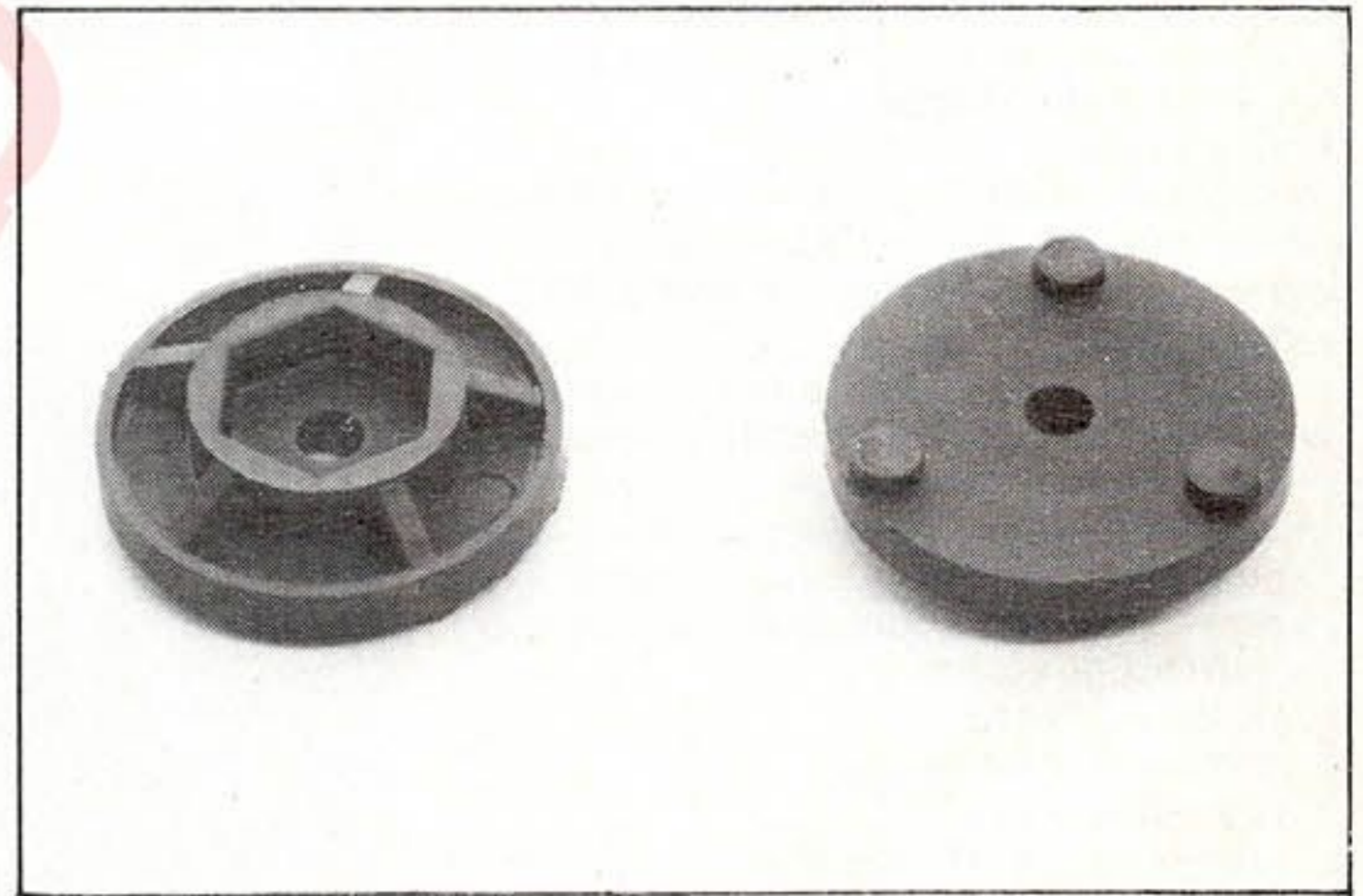
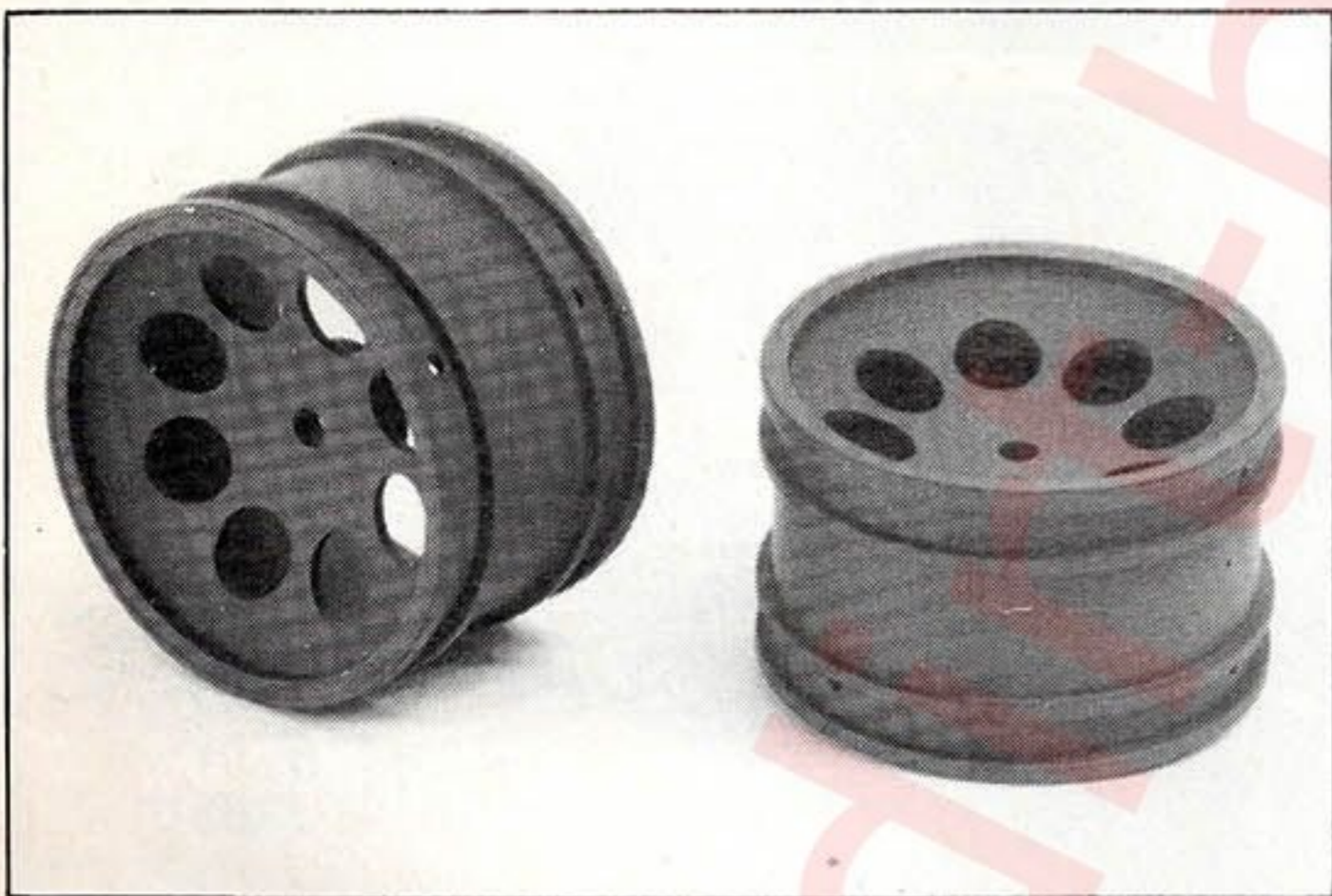
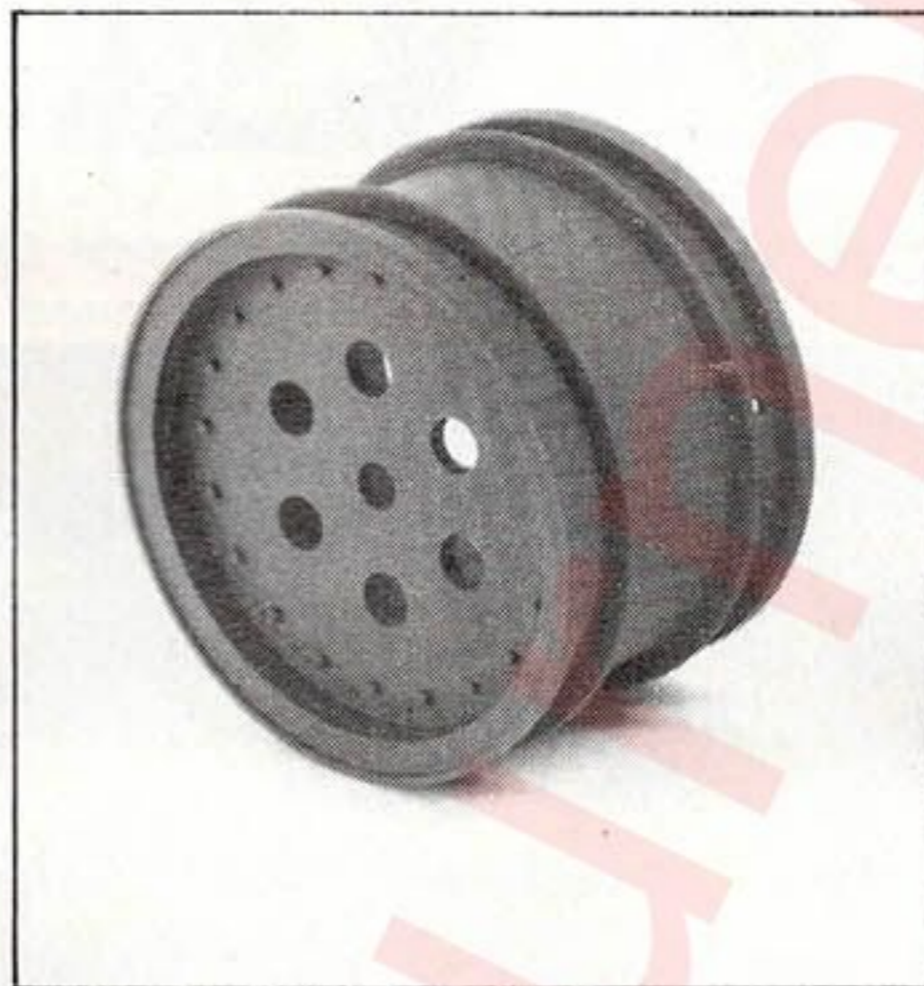
C.R.P

A whole host of new products have been released by Custom Racing Products this month. Front steering arms are first in line. Made from super tough nylon to reduce damage, and will fit the Hornet, Grasshopper, Falcon range plus Lunch Box and many others.

One piece wheels moulded again in nylon are also available from C.R.P. new one piece wheels can be dyed to your favourite colour and are available for Kyosho, Tamiya and RC-10 products.

Finally a Tamiya to Kyosho wheel adapter is also available.

Items can be obtained from C.R.P. dealers.

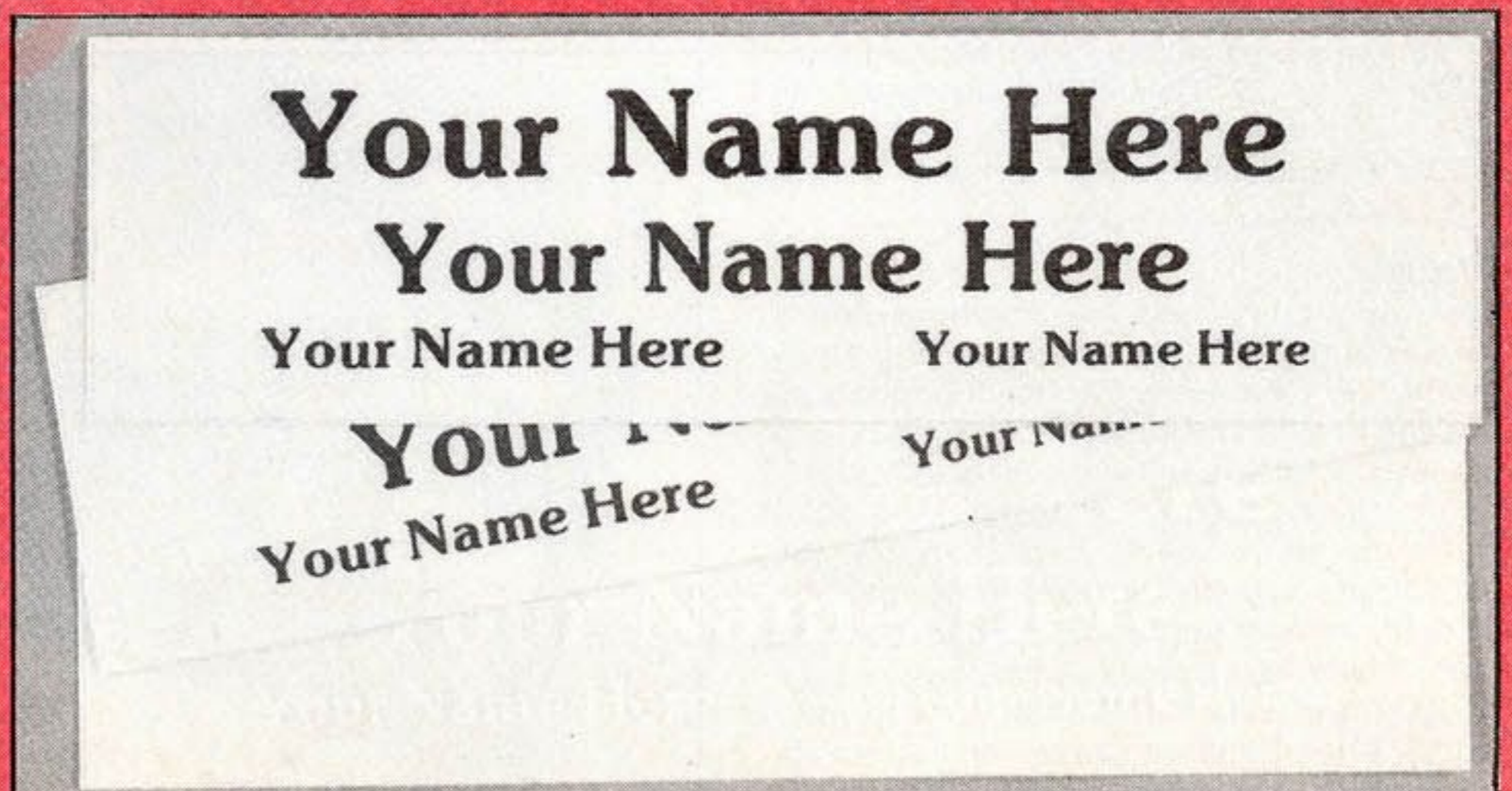


Circuit Promotions

A new super sticker idea to really personalise your car. Now you can have your own name printed in ten different type faces. Sponsors names, nicknames any name can now be printed to order!

A choice of four convenient sizes and three separate colours.

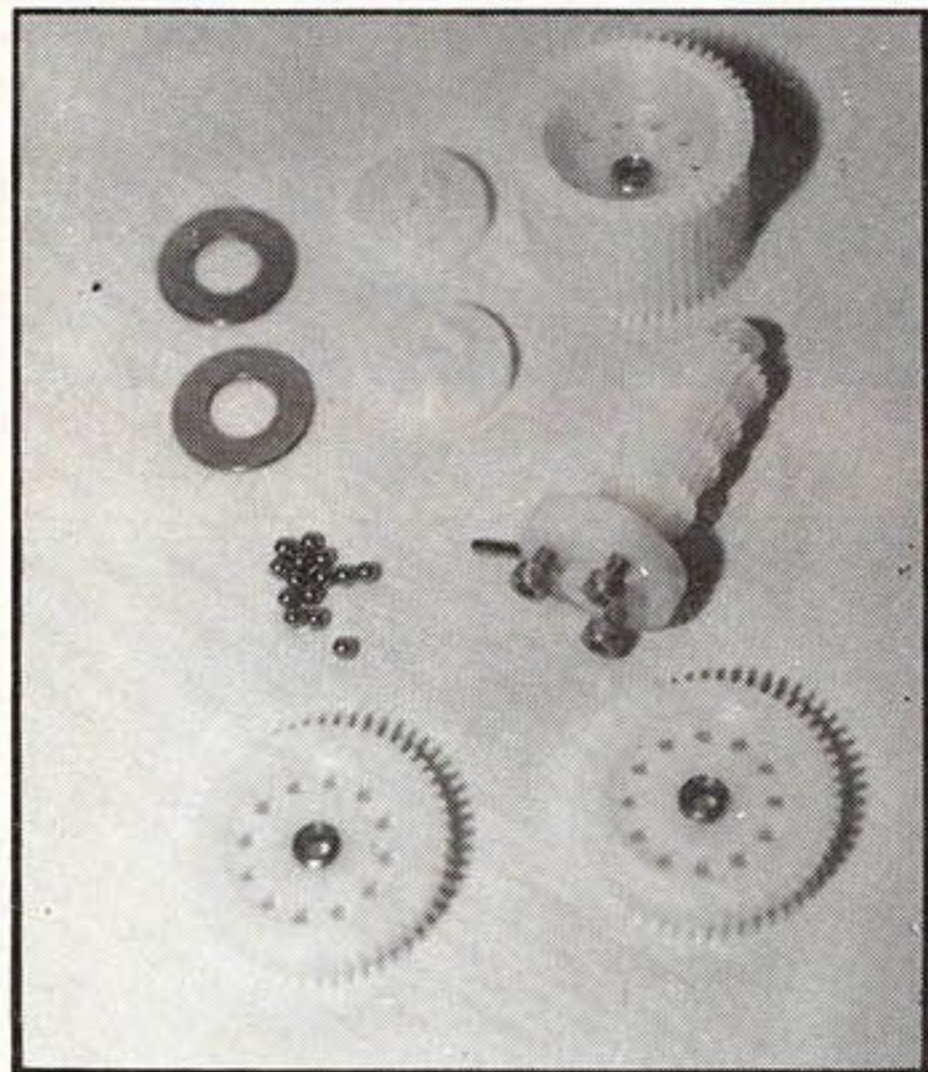
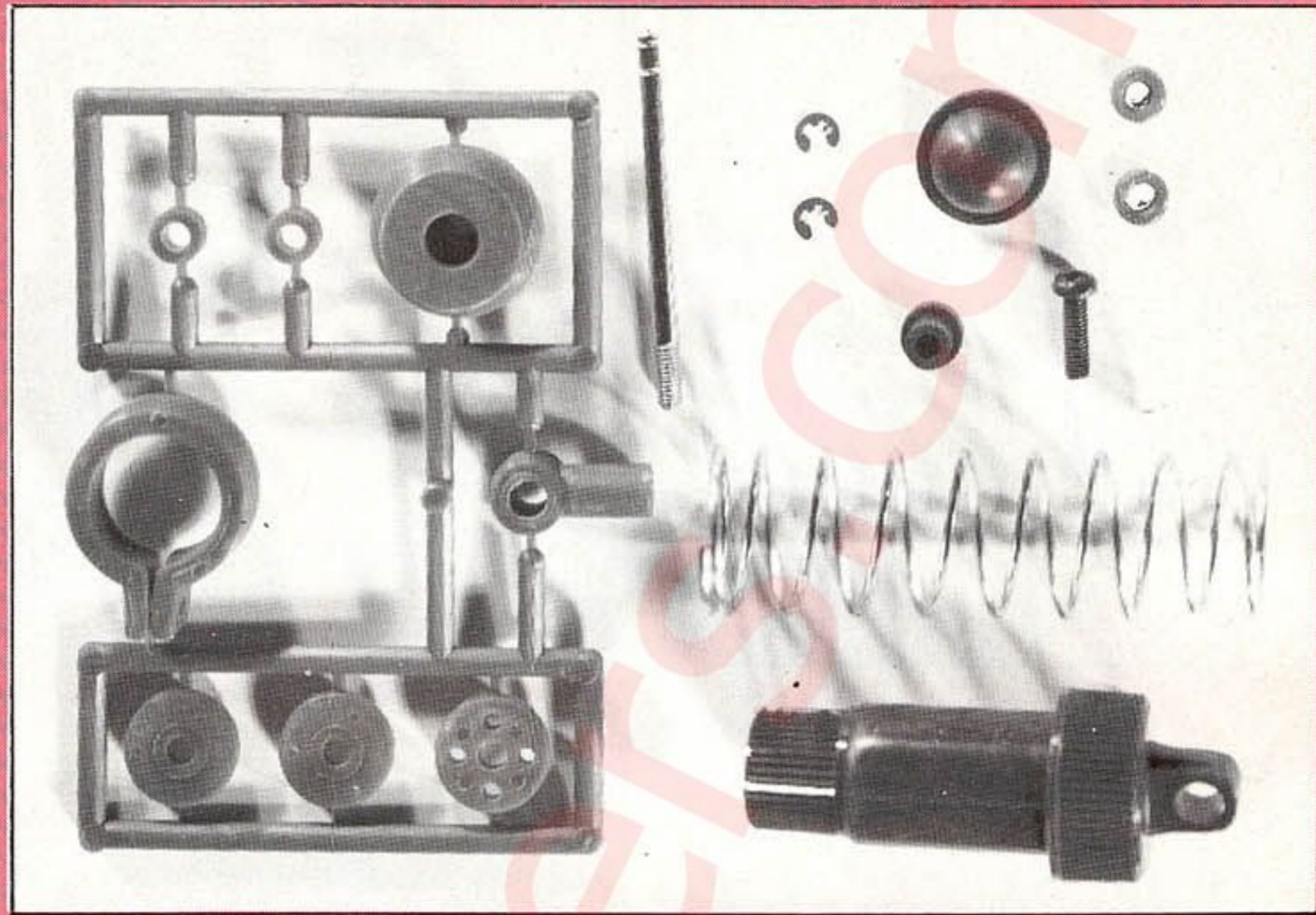
All enquiries concerning new Circuit Promotion stickers should be addressed to Circuit Promotions, Assurance House, 1 Russell Street, Gloucester GLE 1NE.



Dyna Shock

Replacement shock absorbers have been with us for sometime, now from Infinite Trading we have the Dyna Shock, having a 13mm bore cylinder, adjustable spring rate, interchangeable pistons and being constructed from nylon, itself a very strong material, these shocks could well be the replacement answer for all club racers.

Available from leading model shops.



Model Motor Sport Ltd

More new Cat transmission parts from Alan Stewart superbly manufactured and hand finished in nylon 66, extremely light and strong these parts give the Cat improved handling and smoothness due to their efficient operation. All pulleys are ballraced and feature a 12 ball drive, with shoulders to keep the belts in place.

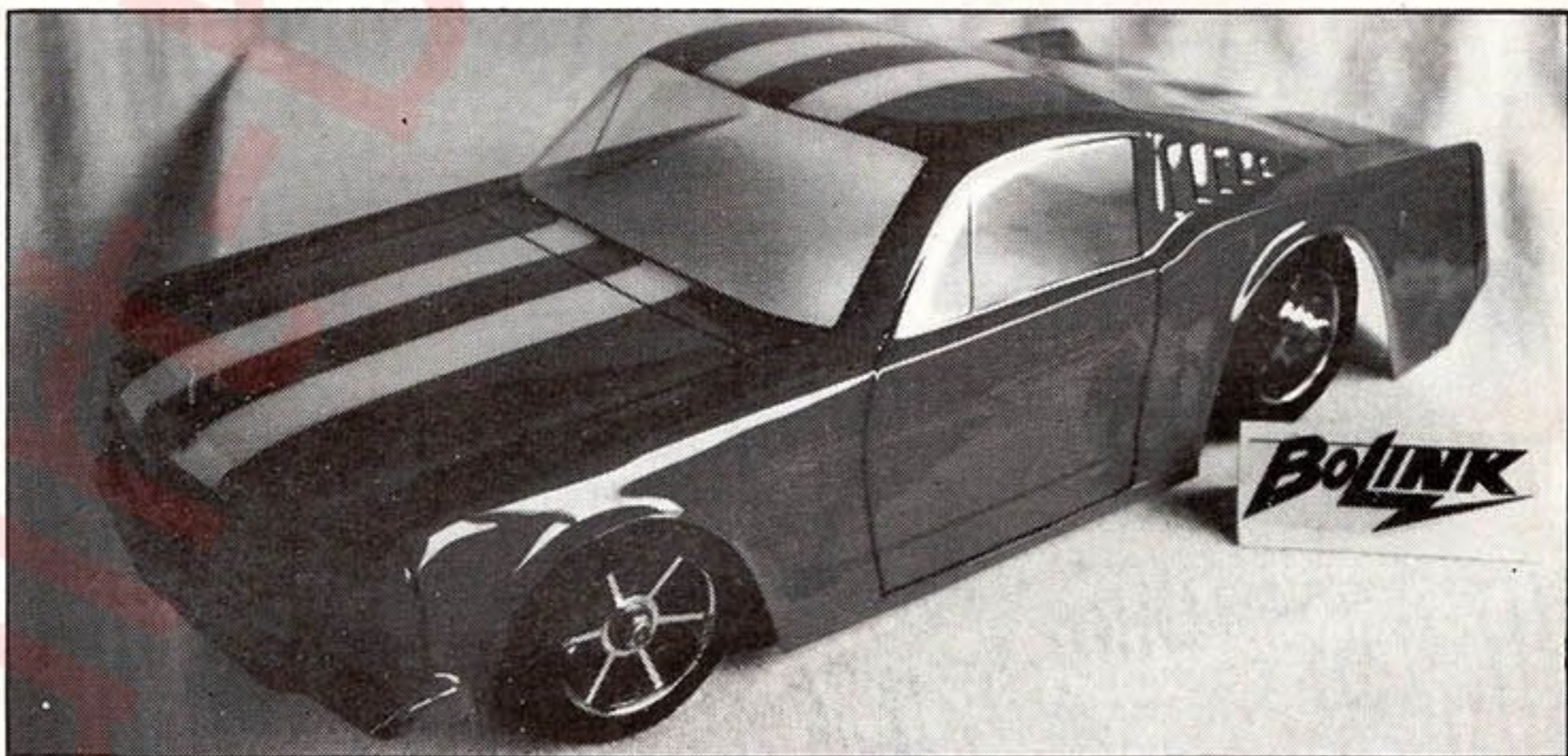
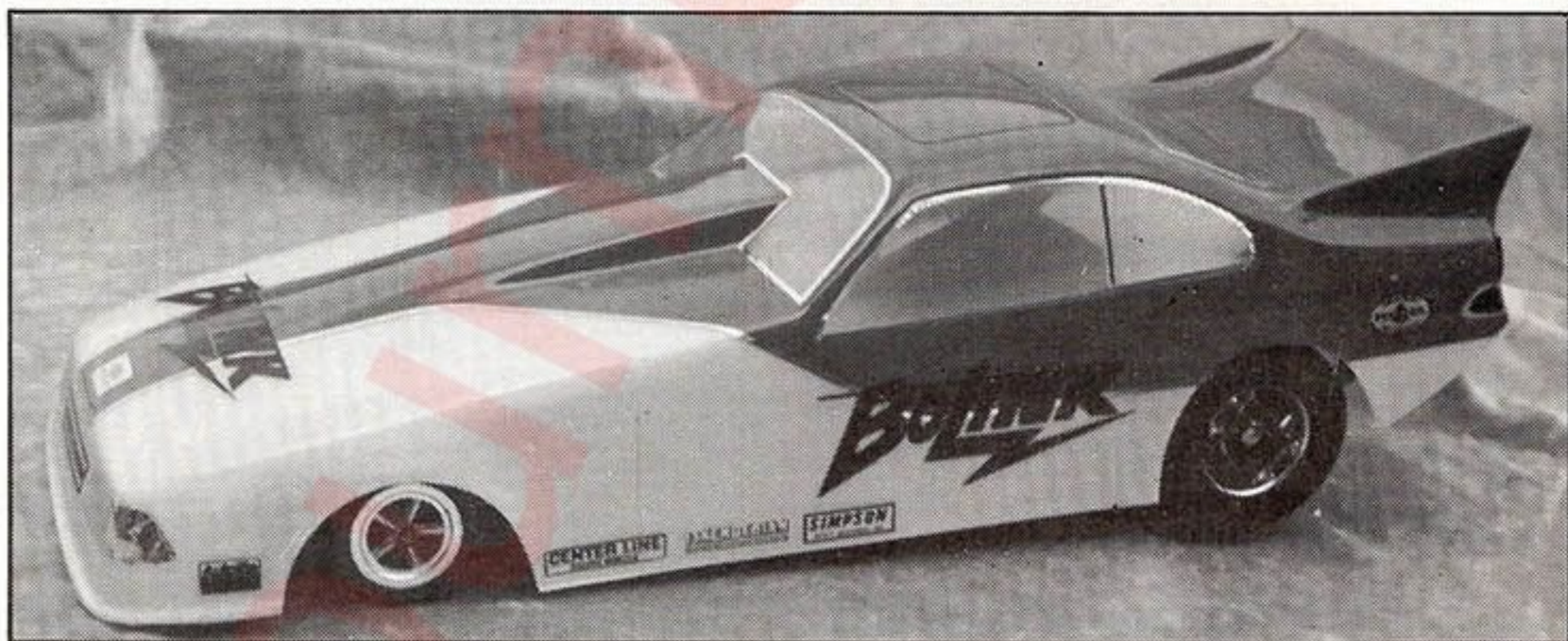
Shown are the well known tri pulley diff. complete with all parts necessary for fitting, a 51 tooth front diff. pulley and an alternative 50 tooth overdrive pulley for two wheel drive down the straight when front diff. and one way roller drive shafts are fitted together.

Finally the new one piece top pulley which drives on all three belts for increased efficiency and accepts all popular spur gears with simple three screw fitting and centre location. No additional parts are necessary as Alan supplies everything you require for direct fitting.

- Tri Pulley £24.95
- 50T and 51T £8.95 each
- Top pulley £13.95

Also all Nylon 66 parts are guaranteed for 30 days but will most probably last the life of the car.

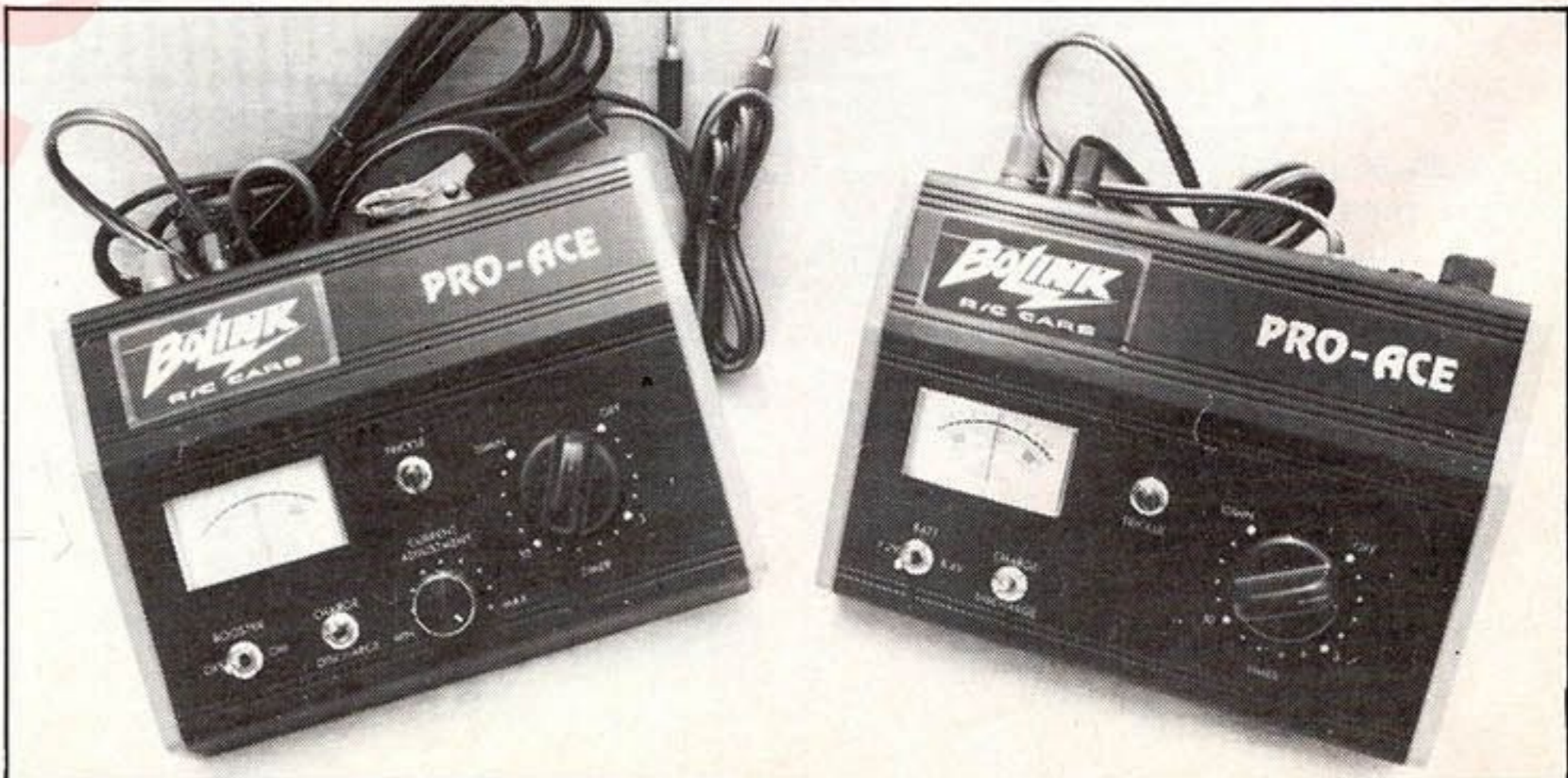
All items are available from Model Motor Sport Ltd., 22 Castlehills Drive, Castle Bromwich, B'ham B36 9BP. Phone 021-749-1008, or your local MMS stockist.



Bolink

Two new bodyshells are first from Bolink this month. A new 1/12 drag racing body patterned on a funny car, having a natural wedge shape and designed for a ten inch chassis. Also available for 1/12 and 1/10 cars is the classic 1966 Ford Mustang.

Finally from Bolink, two chargers, the AC/DC pro ace an adjustable amp rate and fifteen minute timer which also features auto trickle and discharge facilities and the DC six and seven cell charger with auto trickle and discharge capability, both available from your nearest dealer.



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ULTRA FAST & SMOOTH MOTORS FOR 1/10th AND 1/12th

1/10th ★ 200 — 23T Dbl. for 2WD ★ 201 — 21T Dbl. for 2WD & 4WD ★ 202 — 19T Dbl — for 2WD — High Grip
 ★ 401 — 19T Dbl for 4WD — winner of 3 international races this year (so far). ★ 402 — for 4WD High Grip —
 ideal indoors ★ 501T — 16T Triple — our newest 4WD motor. Very fast and economical ★ 501 — 16T Dbl. — all
 the power you need ★ New 701 — 15T Dbl. "Insanity in a Can" — if you must have power ★
 1/12th ★ 727 — 27T Dbl — smooth & fast ★ 747 — 27T Quad — punch & speed ★

All Twister Motors like a little more timing for some tracks — phone for advice

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- ★ Glyn Peglar — Team SRM Laser — TO & Winner Reedy International
- ★ Glyn Peglar — Team SRM Laser — Winner French G.P. du Beaujolais
- ★ Glyn Peglar — Team SRM Laser — Austrian International TO & Winner of all 3 Finals
- ★ Denis Blandin — Auto 8 (France) — TO & 2nd overall French G.P. du Beaujolais
- ★ Jimmy Davis — Team JDM — TO 1st BRCA National — Worcester
- ★ Simon McRae — Team SRM Laser — 2 wins & 3rd O/A Romsey Winter League

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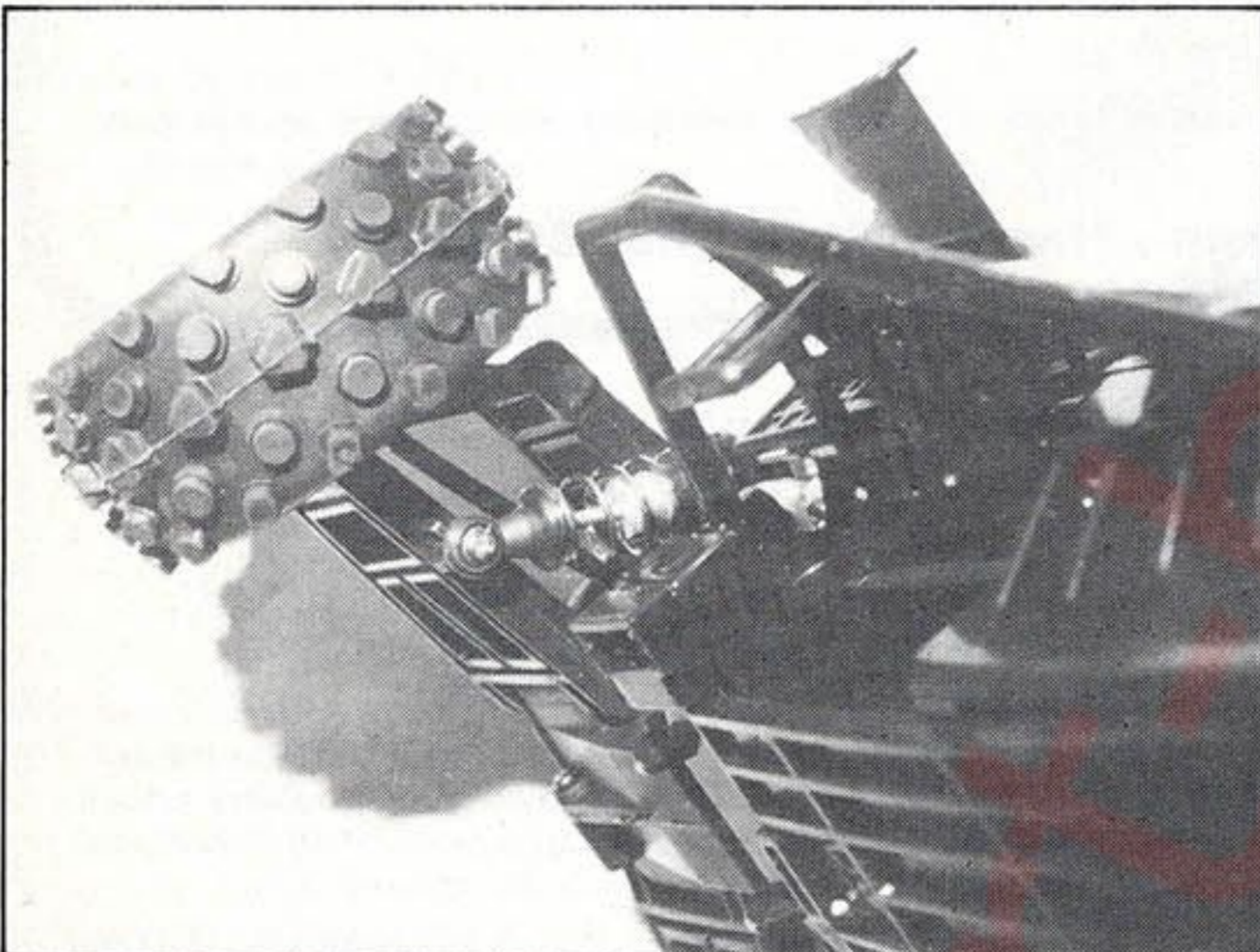
Mail Order a Pleasure
 (ANSWERPHONE SERVICE OUT OF HOURS)

ROAD WINNER

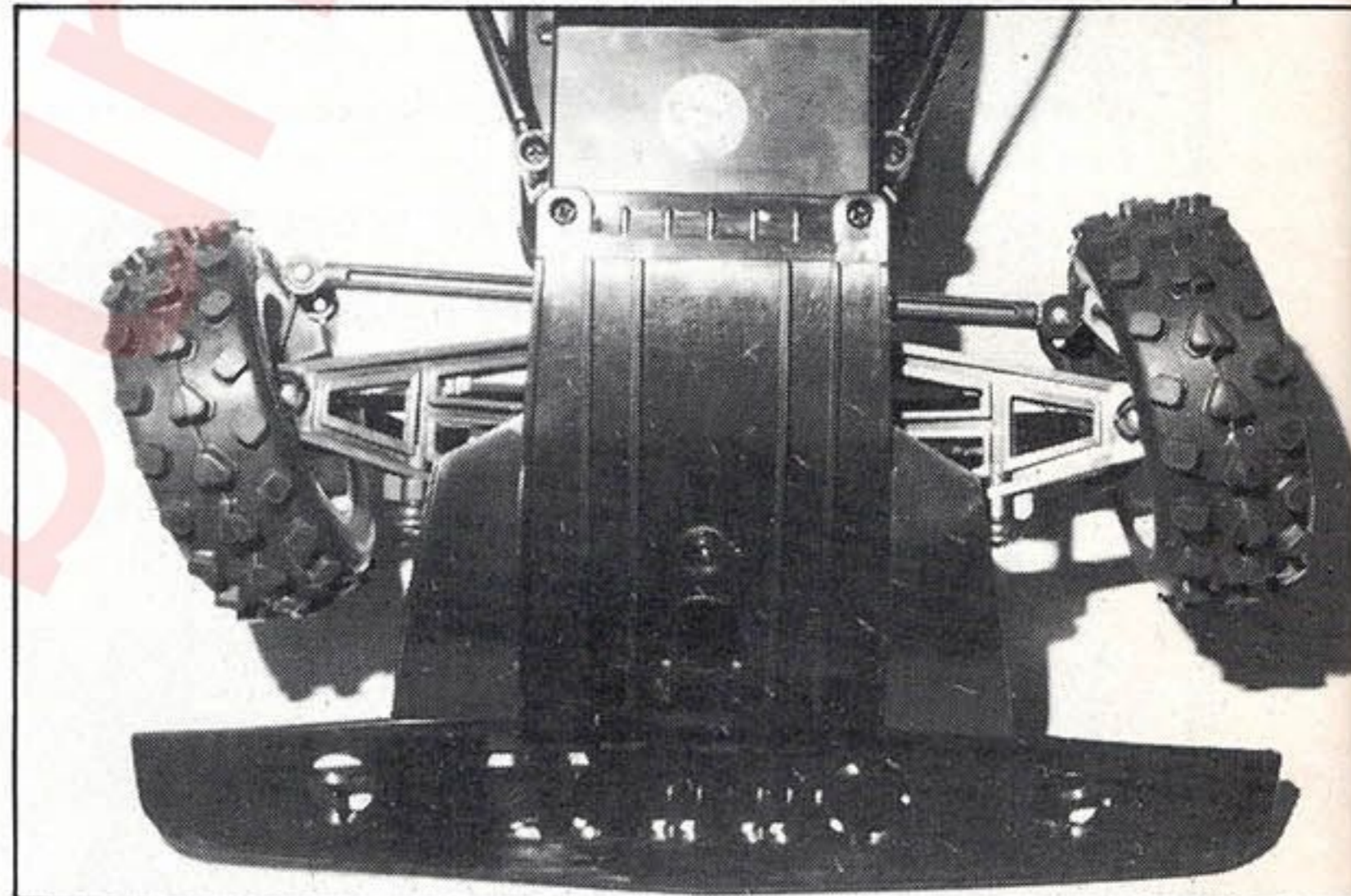
R.R.C. looks at this A.R.T.D. winner.

Front and rear suspension is double wishbone variety, protection to the front wheels is afforded by a large skid plate.

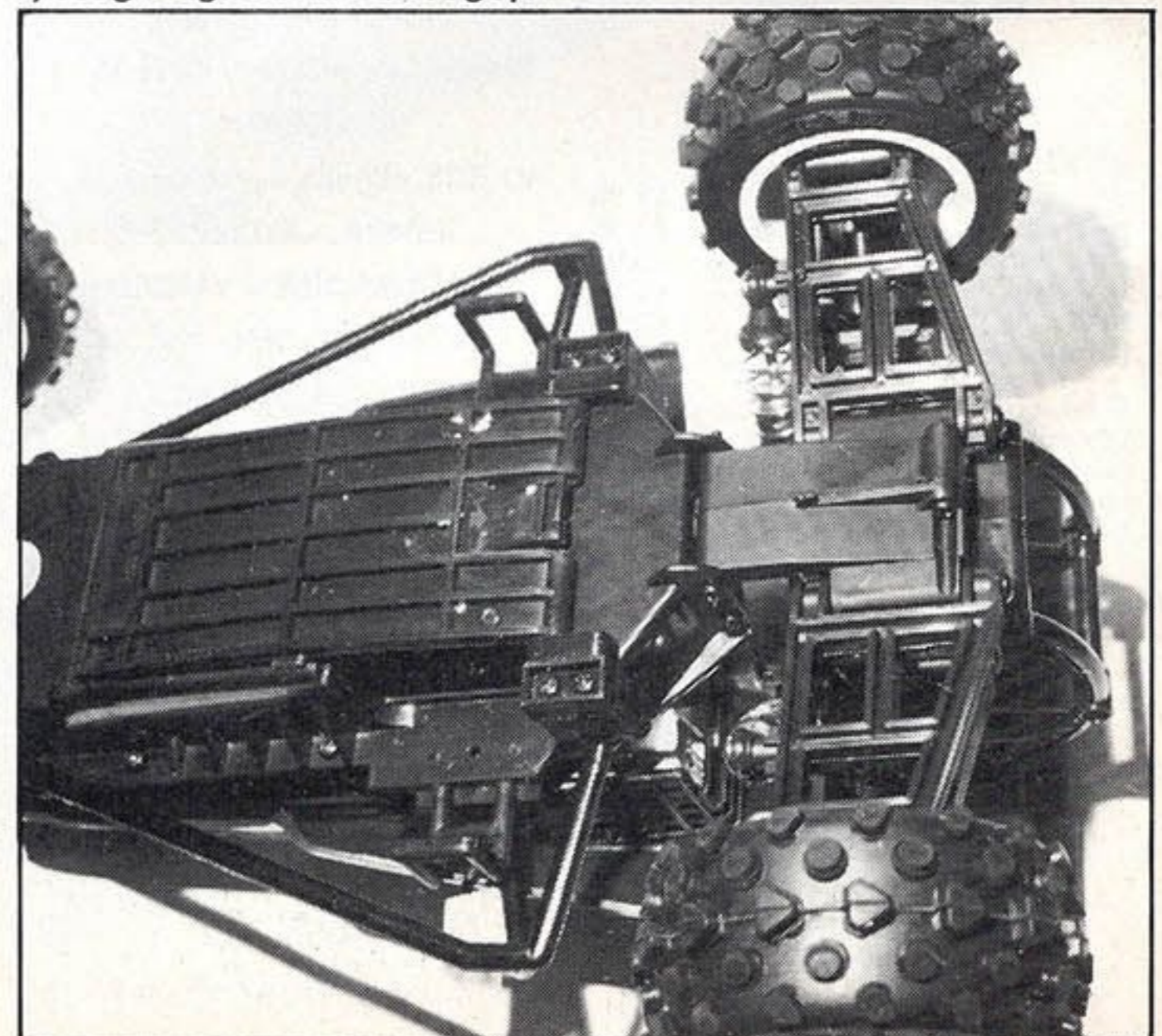
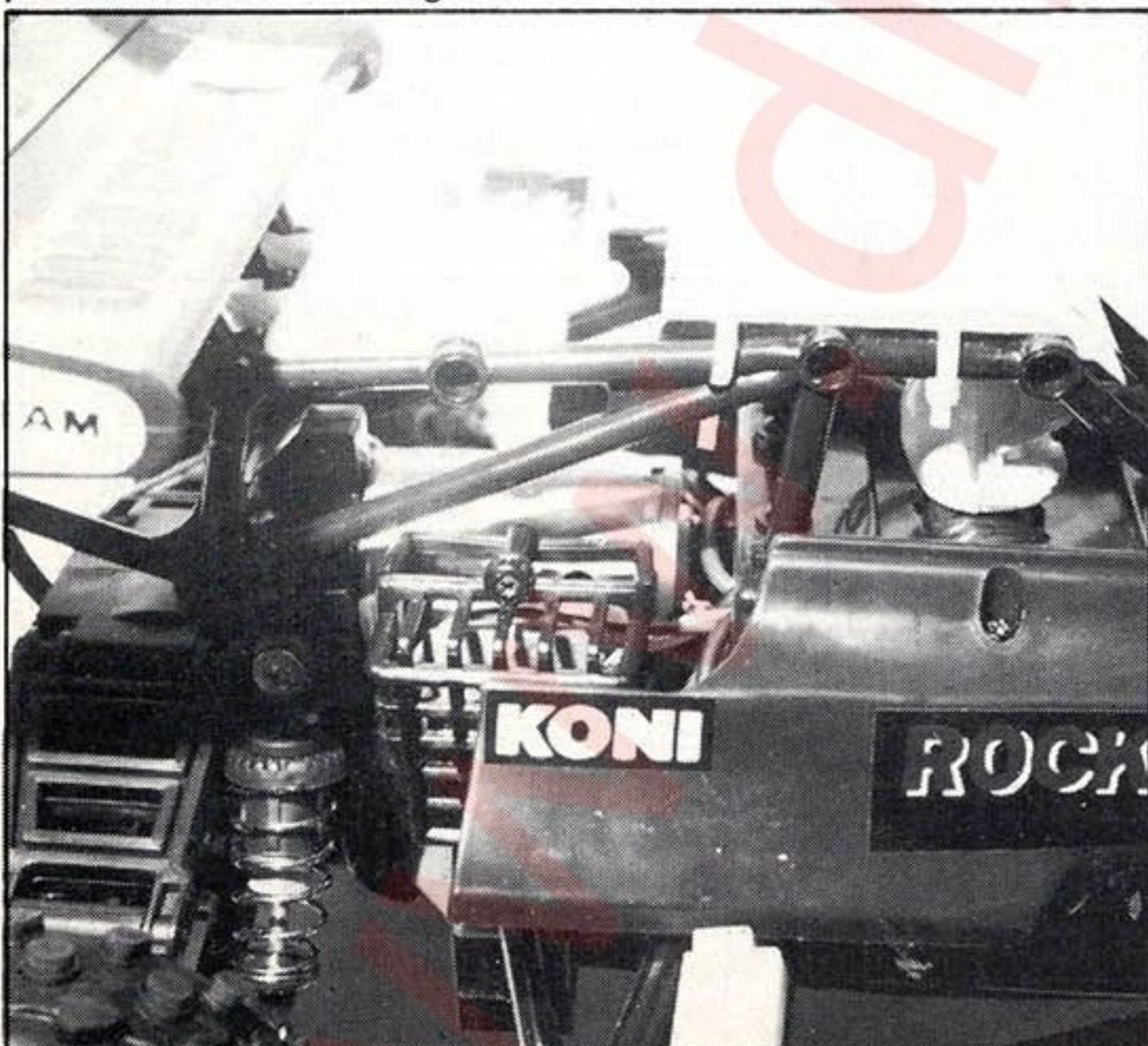
How many times have we all seen some one do or state the obvious and then think, "I wish I'd have thought of that". Plenty we bet, well in the world of 1/10 racing cars, some one has just done it again.



Speed controller resistors sit out in the airflow but are caged to prevent burns to the fingers.



Protection is given to the sides by strong nerf bars, block pattern tyres give good all round grip.





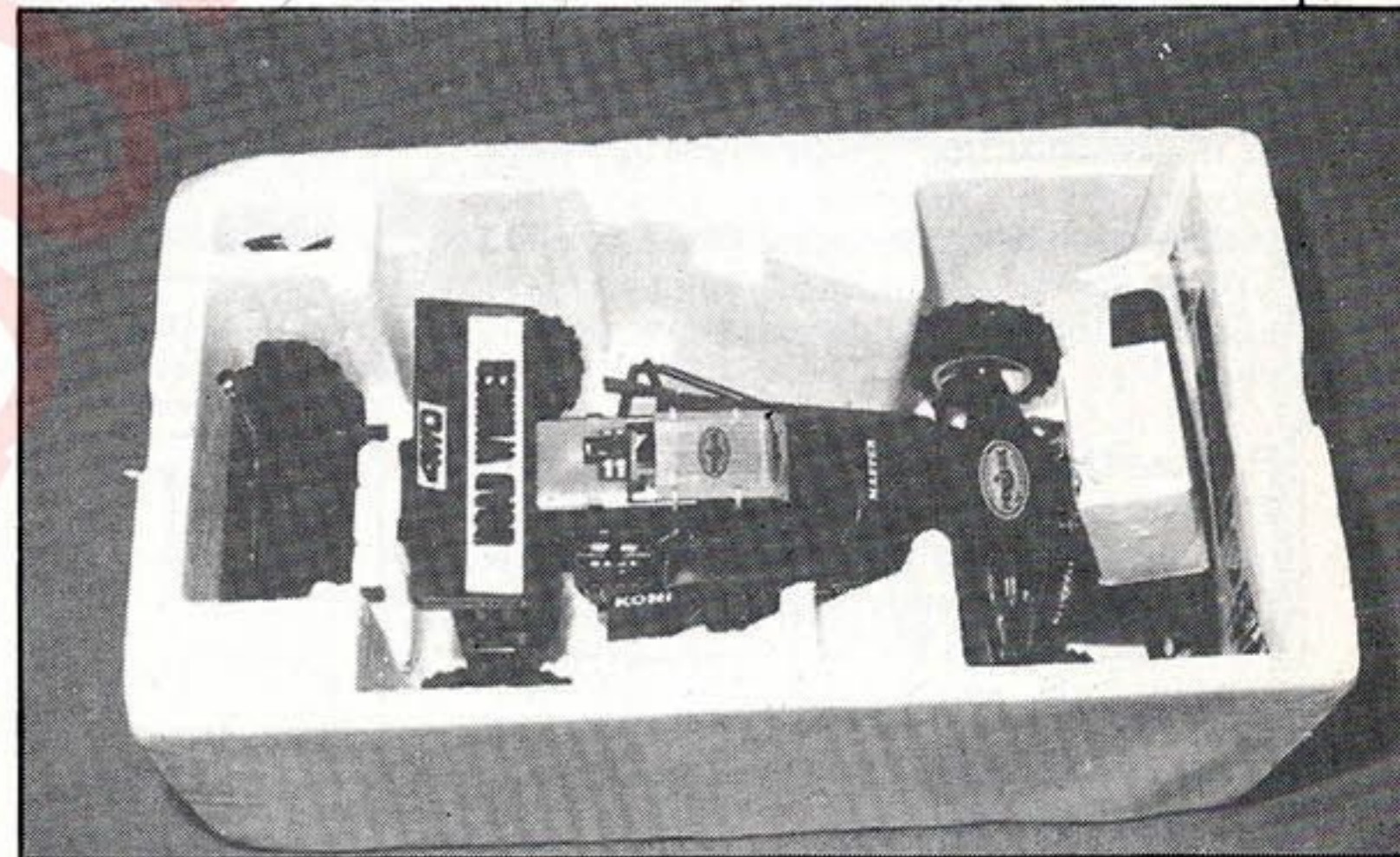
Not wishing to put anyone down, the world of A.R.T.D., almost ready to drive cars have not seen much to shout about. One or two cars have been just about above the toy level, but not really up to the rigours of 1/10 racing. Spares for these cars were another problem, the Kangaroo was the first of the A.R.T.D. cars to have and still has a great spares back up. Overall reliability was the one major flaw that dogged a large percentage of the A.R.T.D. cars available. So to the onlooker who was at all

From every angle the Road Winner gives great value for money. Below left, metal driveshafts deliver the power to front and rear wheels. Below right, good strong packaging prevents any pre-race mishaps.

alert, here was a yawning chasm in the market, a gap big enough to drive two or three container loads of reliable, strong, competitive up to a point, real 1/10 racing cars complete with spares back up.

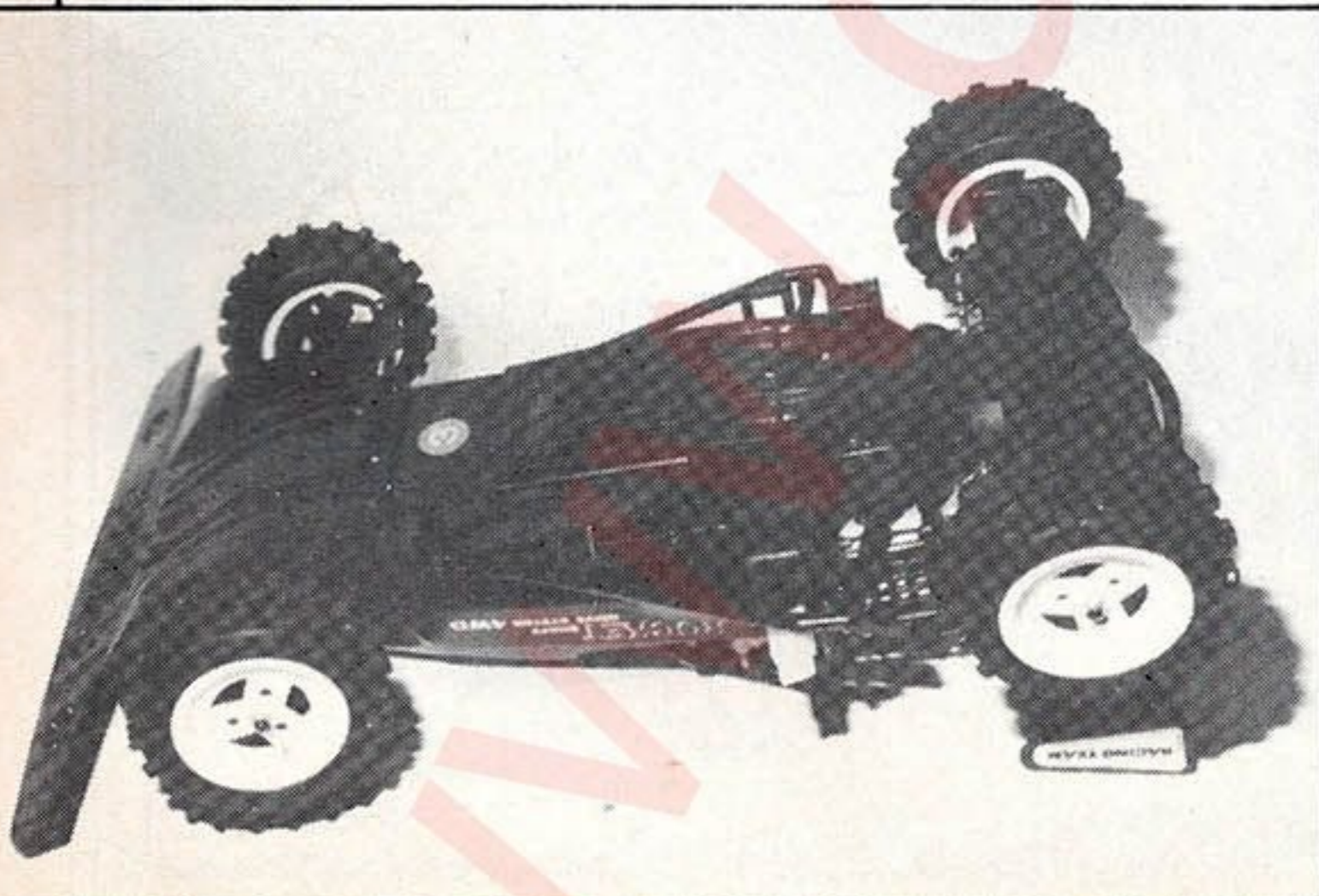
Left Hand Down A Bit

That certain someone, namely a company entitled Chipstead Springs have plugged the gap quite nicely with their latest car, the Road Winner. Here at last is a strongly built, reliable, well handling four wheel



Right radio, battery and slow charger make up the rest of the Road Winner package.

A full length skid plate protects the Road Winner from stone and rock damage.



Battery charged and ready to go!

drive car that drives straight from the box and the box contains a radio, charger, drive battery and operating instructions.

To Begin With

The box itself is sturdy and very nicely packaged showing the major features clearly and precisely. Very little mention is made of the battery and charger however. The box art showing the car in full colour should prove a crowd puller. Open the lid and the Road Winner is safely restrained in polystyrene, that should save any pre-race incidents having any lasting effects. A sheet of self adhesive decals are included to decorate the Road Winner to your own preferred scheme.

Bits 'n' Pieces

What you get for your money in car terms is outstanding, the Road Winner is a four wheel drive, shaft driven off road racer, built from flexible, strong plastic the Road Winner uses double wishbone suspension front and rear coupled to coil only shock absorbers, this gives very steady, predictable driving characteristics. The Road Winner's motor is mod mounted, this no doubt adds to the driving manners.

Radio Gear

Road Winner comes with radio gear in place and ready to run. Speed controller is of the resistor board type and uses three forward and one reverse speed. The ceramic resistors are exposed to the airflow for cooling purposes but are well guarded to stop accidental burns, a very neat idea!

Protection

The car is well protected using side and rear nerf bars and a full length skid plate runs along the underside of the car. A Tamiya type bathtub frame keeps servos, receiver and speed controller safe and sound.

All This And More

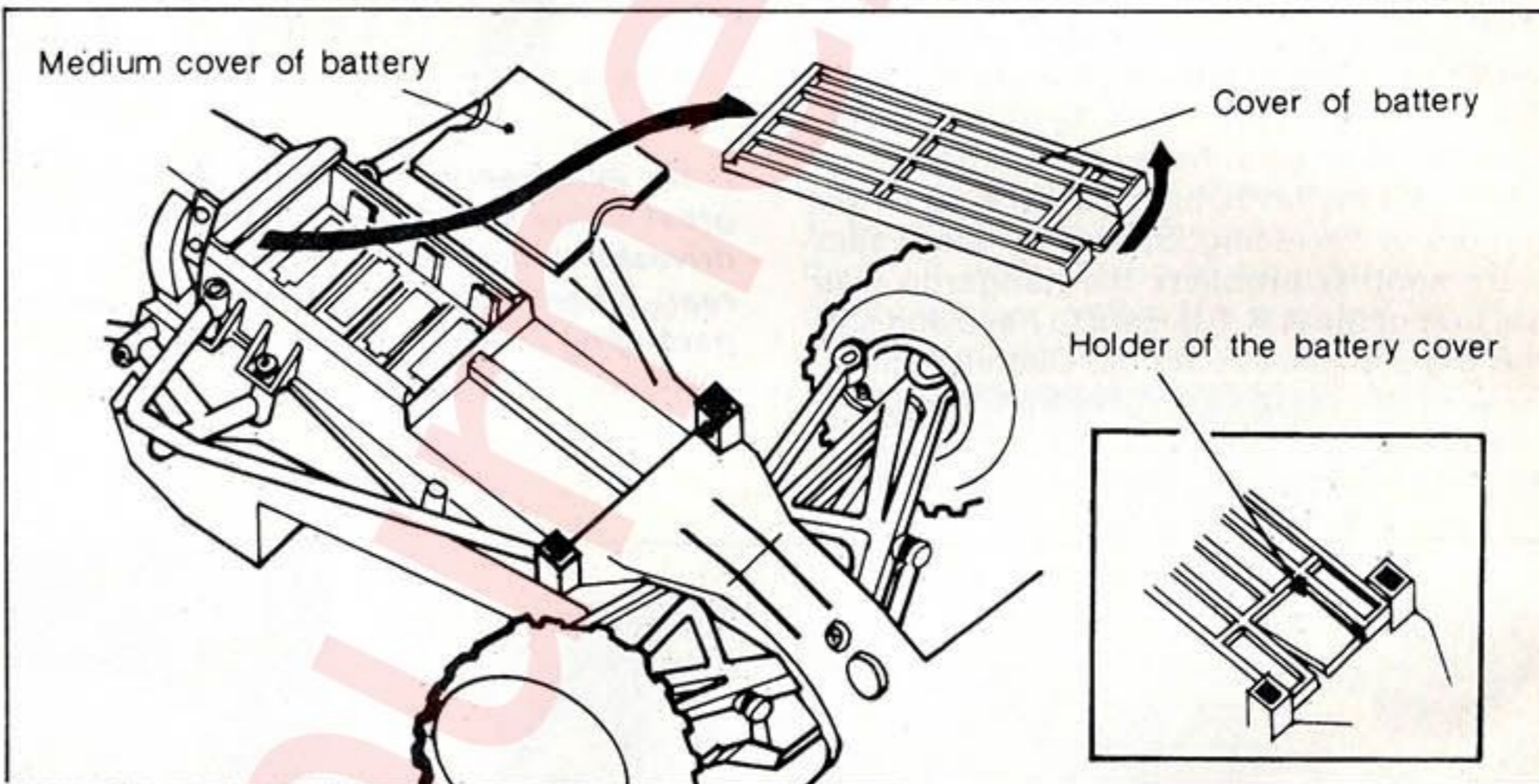
To make up the rest of the package a 27 MHz two channel transmitter, a 7.2v drive battery and slow charger are thrown in for good measure.

The transmitter although not a branded outfit works well and seems to have a superb range. Crystal changing would cause a slight annoyance rather than a problem as the crystal is fitted internally, however a screwdriver soon solves the problem and within minutes you are on a different frequency.

All Things Considered

The Road Winner must be looked upon as the first serious out of the box car, the term "would make a good clubman racer" does mean exactly that in this case. We are also assured that a full stock of spares is being held in reserve so that there should be no problem should a mishap occur. The best part of all of course is the price for just £99.50 plus £2.50 postage and packing and insurance all this can be yours.

Available from Chipstead Springs Ltd., The Old Chapel, 172 London Road, Guildford, Surrey.



No instructions are available for the Road Winner but a full set of running and maintenance notes arrive with the car.

TO PLAY TO RUN

the antenna of transmitter as high as possible (height is effective to control distance)

the switch on transmitter

the switch on car

trim (Neutral adjustment)

the lever and play to run

the switch on car

if the switch on transmitter

the battery Ni-cad racing pack

- If not keep the above order, occasionally car is moved itself.
- Occasionally Ni-cad racing pack is heated under playing its not out of order.

HOW TO READY TO RUN ROAD W

- Insert antenna pipe to chassis
- Be sure to adjust trim lever for exact control (refer to be illustration for adjustment)
- Turn on the switch on transmitter and car. Be sure to keep the first of all turn on the switch on the transmitter, next turn switch on the car. *Trim adjustment

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GERMAN INTERNATIONAL HILDENSHEIM Team MGN. All 5 team members in A Main (6 out of 8 in main final using works Magnum 16 Triples). TQ Mike Bridges, 2nd Fastest time Stevie Haynes, 4th Stevie West, 5th Neil Stringfellow, 8th Keith Chaplin. That makes over 18 wins and TQ's in top National and International meetings during past 12 weeks, need we say more...?

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NEW SPEC RED DOT 17 turn double oilite/tags all extras. £17.95. Available in 17 double, 18 single, 19 double winds.

NEW RED DOT + Full ballrace, detachable end bell, 17 turn double armature semi handwound (actually machine wound, but wire controlled on m/c by hand for better wire layering than m/c job) £25.95. Available in 17 and 19 turn double, 18 and 27 turn singles.

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MAGNUM WORKS UNITS Buggy specs. 16 triple & 16 quad. Ready starting approx. mid November. All the MGN racing team extras. All checked for output and completely ready to go. Orders will be met in strict rotation, so order yours now for earliest delivery.

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MOTOR SERVICES Well it had to happen. Until further notice we will only be able to rebuild our own full modified and Red Dot + units. **PRICES:** rebuilding including ball/true/Zapp £7. Rebuild & replace brushes/fit £9.50. Replace ballraces £2.50 each. We should now be able to turn this work around in 3/4 days. If unsure of the cost of rebuilding your unit make cheque out "Not exceeding Twelve Pounds" and we can fill in charge appropriate.

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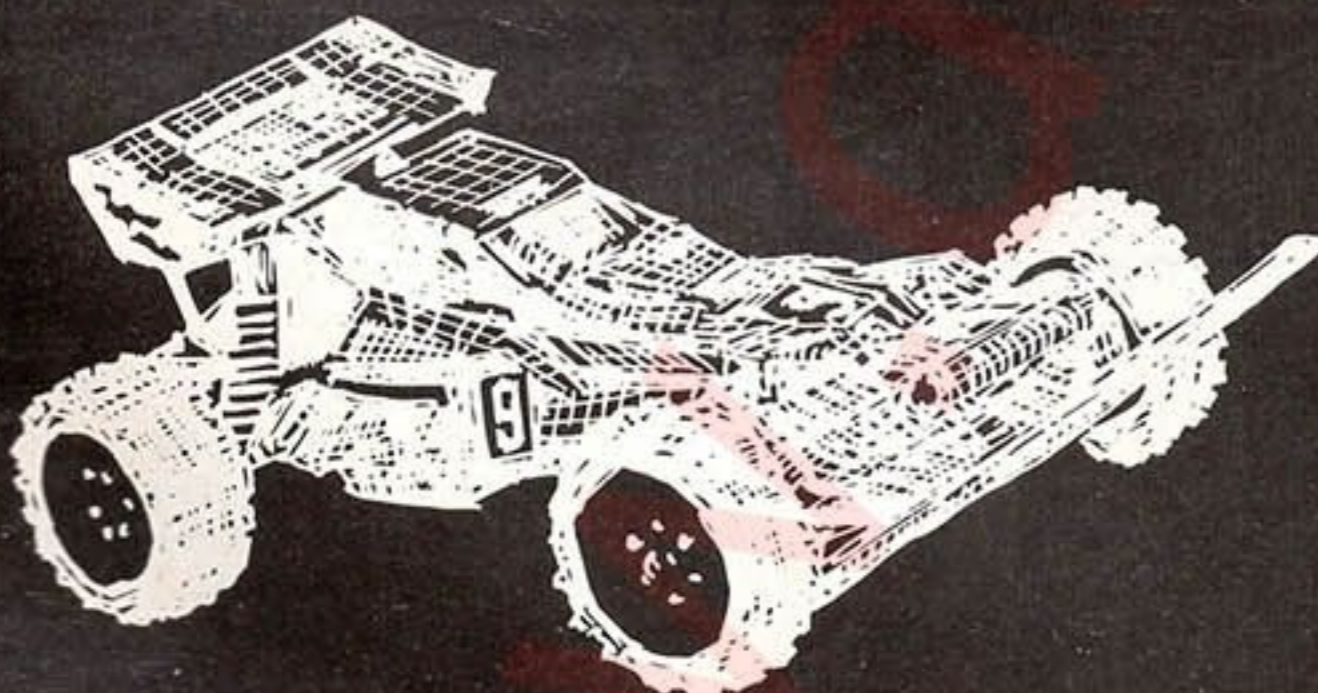
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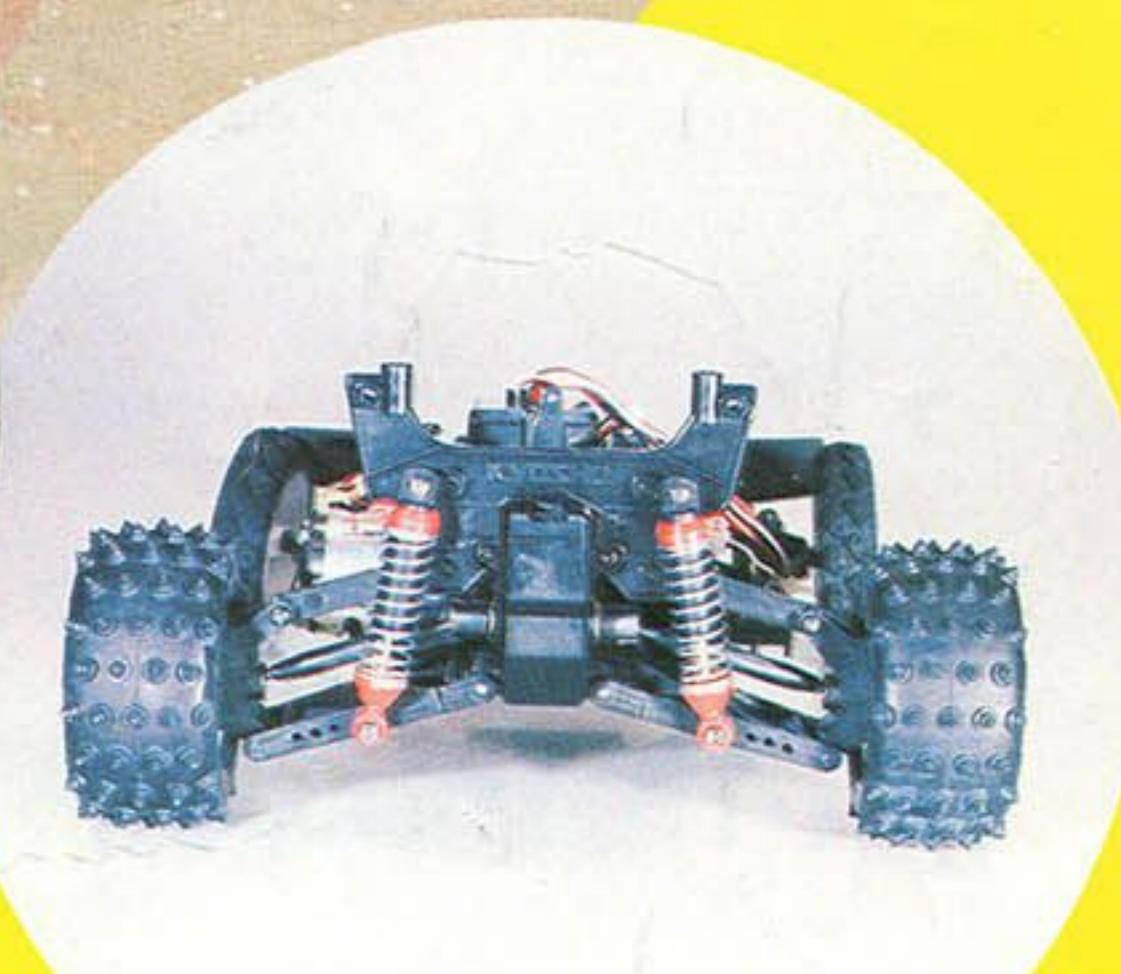
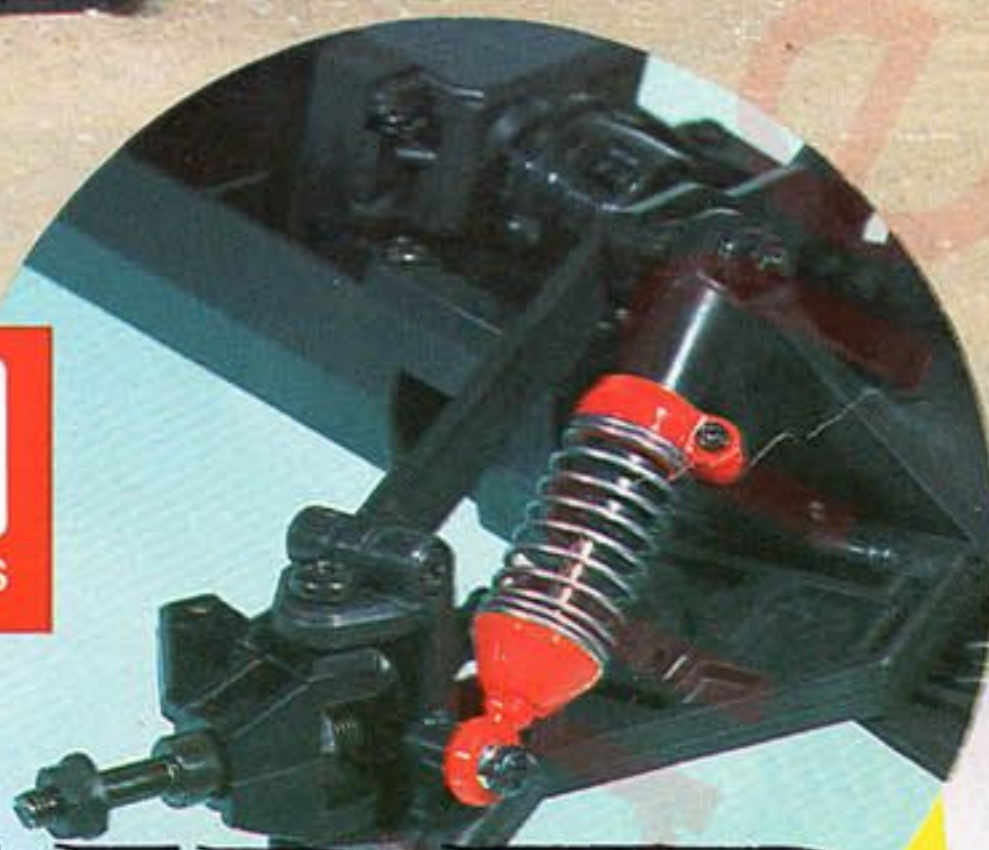
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