

AUTO

Modeller

Vol. 3 No. 1 April 1981
Price 70p

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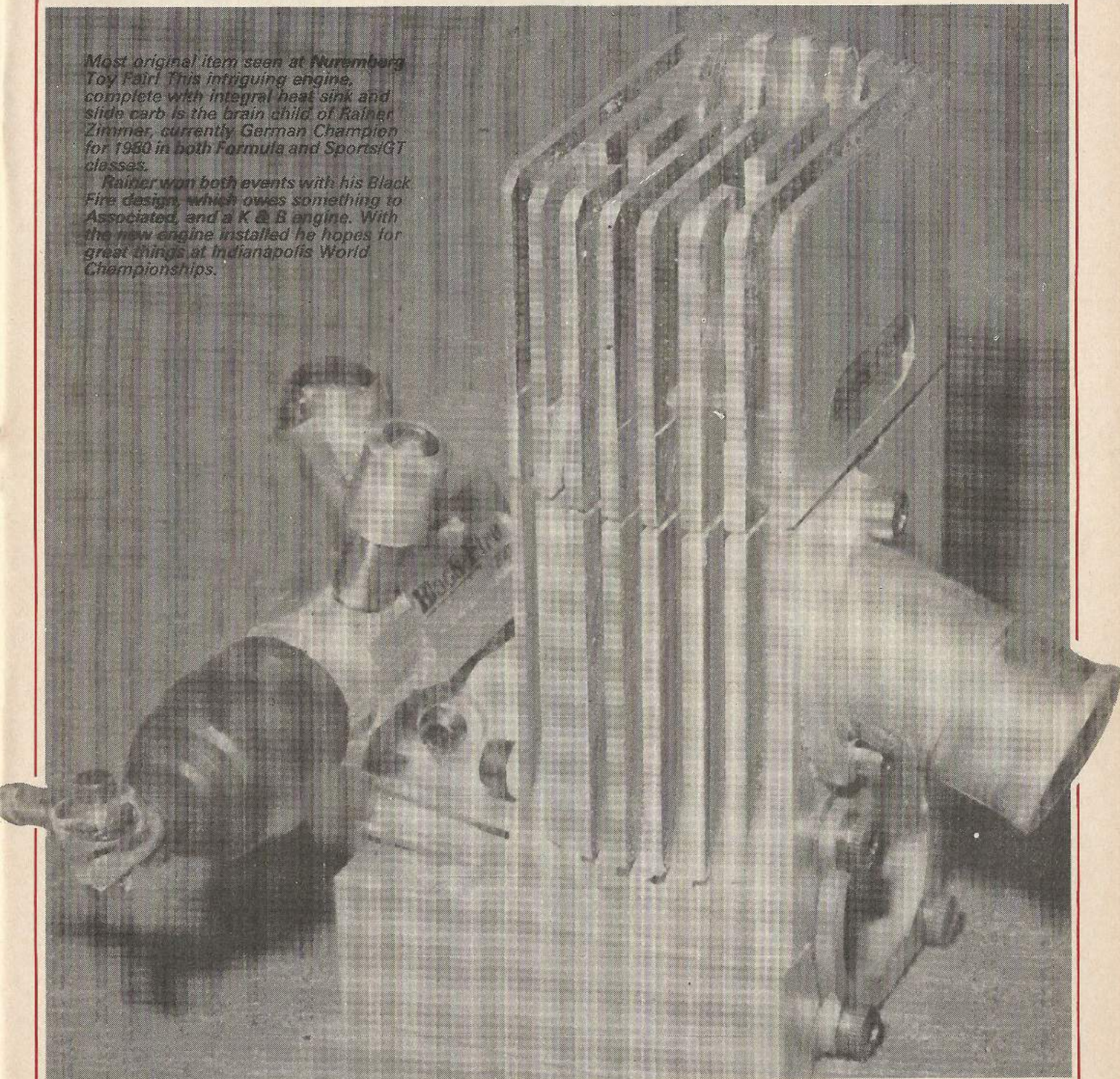


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M radio control MODEL CARS

Most original item seen at Nuremberg Toy Fair! This intriguing engine, complete with integral heat sink and slide carb is the brain child of Rainer Zimmer, currently German Champion for 1980 in both Formula and Sports/GT classes.

Rainer won both events with his Black Fire design, which owes something to Associated, and a K & B engine. With the new engine installed he hopes for great things at Indianapolis World Championships.

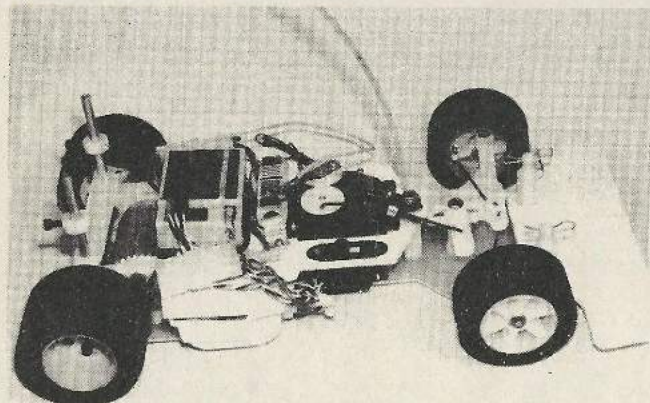


*RC Editorial/Club & Track Review/Nick Adams' Competition Electrics/
SG Futura VCS Montecarlo/Tweaking the Rapier/News from Nuremberg/...*

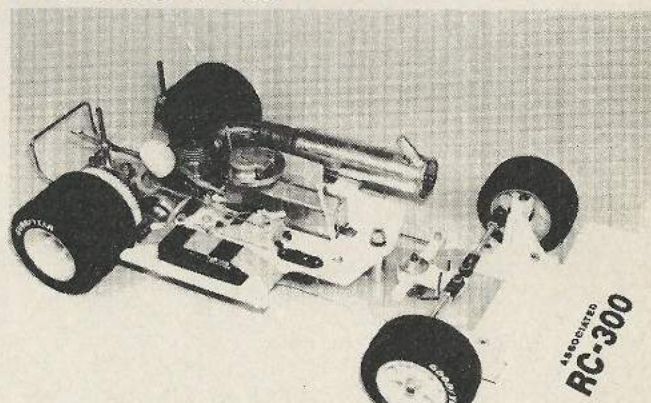
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Most teams have one or two Super Drivers. We believe our cars handle so well it enables more drivers to become Super Drivers EASIER and QUICKER. JOIN THE SUPER DRIVERS.

RC12E 1/12 ELECTRIC



RC300 1/8 GAS



Western Regionals Thorpe Raceway, 200 entries Expert Stock Class	
1. Mike Lavacot	Associated
2. Curtis Husting	Associated
Expert Modified Class	
1. Bill Jianas	Associated
2. Mike Lavacot	Associated
3. Curtis Husting	Associated
Amateur Stock Class	
1. Derek Coopersmith	Associated
Amateur Modified Class	
1. Derek Coopersmith	Associated

WINTERNATIONALS ORLANDO, FLORIDA USA		
1. Rick Davis	Associated	USA
2. Mike Rowland	Associated	USA
3. Gene Husting	Associated	USA
4. Phil Greeno	PB	England
5. Bill Jianas	Associated	USA
6. Roger Curtis	Associated	USA
7. Arturo Carbonell	Delta	USA
8. Phil Booth	PB	England
9. Keith Plested	PB	England
10. Jack Jacobs	Associated	USA

WORLD CHAMPIONSHIPS GENEVA, SWITZERLAND		
1. Phil Booth	PB	England
2. Bill Jianas	Associated	USA
3. Chuck Phelps	Associated	USA
4. Fujio Sasuga	AAT	Japan
5. Naoki Ishihara	Road Ace	Japan
6. Rick Davis	Associated	USA
7. Jeff Rod	Associated	USA
8. Ronnie Ton	Serpent	Holland
9. Dave Martin	PB	England
10. Curtis Husting	Associated	USA



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1/12 International race

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and Modified Classes and
WINS Modified Class with
his ASSOCIATED RC 12E
car powered by a REEDY
Modified motor.**



Debbie Preston

WIESBADEN GRAND PRIX WIESBADEN, GERMANY		
1. Rick Davis	Associated	USA
2. Debbie Preston	Associated	England
3. Franz Groeschl	Scratch	G'm'ny
4. Peter Bervoets	Serpent	Holland
5. Bob Errington	PB	England
6. Ronnie Ton	Serpent	Holland
7. Phil Greeno	PB	England
8. Curtis Husting	Associated	USA

At the WINTERNATIONALS race, BILL JIANAS qualified 1st with 32.8 laps, RICK DAVIS 2nd — 32.0 and JACK JACKOBS 3rd — 31.9. BILL JIANAS was in the lead at 65 laps when he lost a front tyre. At the WORLD'S CHAMPIONSHIPS, Ishihara from Japan qualified first, CURTIS HUSTING 2nd, JEFF ROLD 3rd, BILL JIANAS 5th and CHUCK PHELPS 6th. At 38 laps, CURTIS was leading with JIANAS 2nd and PHELPS 3rd. CURTIS's engine locked up, JIANAS's engine died twice and PHELPS ran out of fuel giving the lead to BOOTH. At WEISBADEN, CURTIS HUSTING was TOP QUALIFIER and the only car to turn 21 laps. JIANAS lowered the individual lap record to 14.0 seconds and DEBBIE PRESTON was TOP QUALIFIER from the Semis.

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New Associated 1/12 diff. available NOW!

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The Big Build Up

IT IS ALWAYS very difficult to estimate how many people are interested in any particular hobby or sport. There are so many "sleepers" who never appear in statistics but are nevertheless supporters. So often I go into a house, perhaps of someone I have known for years, and there on the chair is a copy of a model mag. "Oh! Yes!" my host will reply, "been interested for years, never seem to have time to make anything, but I've got lots of gear." Can we somehow waken the sleepers? Talking to people at the Toy Fair in Germany, I was told that there are 191 clubs and 2,500 registered members in the Deutscher Minicar-Club e.V. to give their association its proper title.

Our own British Radio Car Association can now boast over 1,000 members and the club list of "reported" clubs is around 100. There must also be a host of clubs who have not bothered to report their existence. Good luck to them, they may well be enjoying regular meetings with a good turnout of active members all racing at a useful club standard, but not aspiring to national heights. But they are part of us and we would really like to hear about them, even if their club secretary tells us it is closed membership, open only to a limited group. I am thinking here of company social clubs and so on where membership is restricted to employees.

The really nice idea is that more and more people should put their money where their hobby is and join the BRCA. It costs only £5 a year (less than 10p a week!) and gives members a voice in the running of the hobby. Half price by the way for juniors, and associate members (mums and dads). The bigger the group the louder the voice as when and if there is some question of status in securing local authority support for circuits, use of halls and so on. Clubs too can be part of the Association provided a limited number of officials are members.

A cheerful thought is that British prowess is such that our GB team to race in the World Championships in USA this year is allotted six places plus our own World Champion Phil Booth, making seven in all. Only Italy, that great racing country, gets as many — six plus World Cup Champion Giulio Ghersi. Other

radio control

Editorial

countries are allotted places according to their showing in International events: five each to Germany, Sweden, France and Switzerland, down to a minimum allocation of two to smaller countries such as Liechtenstein, making a total of European invitations of 60 places.

Radio Frequencies

From January 1st it has no longer been necessary to obtain a licence to operate the model frequencies. There has been a great deal of correspondence in the assorted model press on new allocations and the interference of illegal Citizen Band equipment. The National press has also had a number of words to say on the subject. I am receiving enquiries as to the immediate future, such as "should I buy equipment now, or wait until a new wavelength is allotted?" Here is my answer to a typical enquiry:

"A new wavelength for r/c is being negotiated for aeromodellers only!! It appears that car and boat modellers will retain the existing waveband also used by hospital beepers (legally) and CB users (illegally.) CB have been promised an entirely new band — which they do not like — but which would provide employment for a lot of people making their sets. It will be some time (as just announced by the Minister) before the arrangements are complete and Parliament has a lot of more urgent matters. A large number of CB sets exist in this country on our waveband and will doubtless continue to be used. My advice is to buy now — perhaps one of the ridiculously cheap outfits now on offer — you will get your moneysworth out of it until (and if) there is any major change. If you buy better there will be services

available to alter existing equipment."

From the trade side comes the sensible suggestion that we encourage the use of FM equipment with its narrow band potential. Also the cautionary note that a lot of quite prominent car men have been using illegal frequencies to try to avoid interference. This is naughty and frowned upon in high places. I would add the final word that the BRCA are purchasing monitoring equipment for use by clubs unable to borrow or afford to buy monitors for all the open meetings.

Silly Bodies

As I rather expected the recent 1/8th scale rule on bodies passed at the EFRA meeting in Paris is proving impossible to apply (just like all previous attempts!) and BRCA are pressing for a special motion to suspend its application (due to start in August) until a thorough investigation by EFRA to produce a really practical way of dealing with scale dimensions. A postal vote is suggested as the best way of clearing the air until next season. So do not be worried if your bodyshell, though beautiful, is not quite within the severe limits first contemplated, it just isn't always possible to follow body shapes exactly and still get a car to fit underneath!

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

Dickie Dickson,
Editor, RC Model Cars
P.O. Box 30,
Hemel Hempstead,
Herts, HP1 1NL.

Club & Track Review

Southern 1/12th League

During 1980 the 1/12th Southern League has been running inter-club meetings on a very informal basis. Nevertheless there has been a full team turnout (6 drivers) for each race and competition has been very keen. In the light of this experience Mike Lewis, 1/8th League secretary, called a meeting with a view to starting an organised league. Mike explained how successful the 1/8th League had been, and how it functioned. After a lively discussion Mike Langridge (12 Cooks Lane, Southbourne, Emsworth, Hants. Home Tel: 02434 71472) was elected secretary. A full set of rules is in preparation, but these are the main points.

(1) The area will be divided into three regions with five clubs in each as follows:

Northern Region Gloucester, Bath, Swindon, Maidenhead, Andover
Southern Region Southampton, Solent, Porchester, Sussex Adders, Sussex
Western Region Exmouth, Bournemouth, Cardiff, Northavon, Frome.

(2) Each team will consist of between 4 and 6 drivers with 36 heats to be run at each round, equally divided by the number of drivers in the team.

(3) Class will be sports/GT as per BRCA rules.

(4) Each club has been allocated a frequency for the season.

(5) As handicapping will not be introduced a single source of motor was agreed upon, and these motors will be picked at random by each team captain prior to practice at each round. This way it is hoped to try and equalize the performance of the teams.

(6) A token final will take place at the end of each round for one driver from each team. The driver who scores the most points for his team will qualify for the final, which will have no bearing on the League result.

(7) A finals day will be held at a central location on Sunday 1st November, the top two teams from each region will qualify and it is hoped to find a Trade sponsor for the final. The 1/12th Southern League Champions should emerge from this.

This looks like a very exciting programme for the season. If it proves anything like as popular as the 1/8th Southern League, now into its third season, success is assured.

Mendip Model Motor Racing Club

The club has at least two meetings which have acquired something of a "traditional", namely the team event that takes place normally during Pontin's Model Week at nearby Bream Sands and their New Year Grand Prix which tempts the hardier drivers from

their slothful ease to brave the wintry Western weather. Comp Sec. Dennis Jones reports the 1981 event. Held on January 1st for the past four years this meeting always produces some good entertainment to start off the year. This year was no exception. Thirty-nine drivers turned up to be greeted by a blue sunny sky and a track with a fair amount of traction considering that no racing had taken place since last October.

The order of racing was three ten minute heats, fastest 16 drivers to go straight through to two finals of 15 minutes each. First heat got under way at 11.30 am, and times were running 25/28 laps for the earlier groups, then up to 29/34 for the fifth and last group. Bob Errington had FTD with 34 laps in 10:15.9. Time schedule fell in arrears so that finals did not start until after 3.30 pm on a deteriorating light, and ever colder conditions. Light was really dying for the A Final and it was a problem seeing the numbers. Bob Errington, John Milne, Marley Parrant and Fred Martin contested the lead, until Fred had a gear strip and then John ran out of fuel leaving Bob to win from Marley.

Special thanks to the helpers and to Saric Vacform for providing FTD Trophy for the day.

Meanwhile, the club is pressing on with preparations for the British Grand Prix in June with both publicity and workdays at the circuit. John Hale has made up a suspension car... I thought he would! ... and look forward to seeing on the run.

Saffron Walden Electric R/C Car Club

Secretary: S. M. Kimber
 'Merrydown',
 Littlebury Green,
 Saffron Walden,
 Essex CB11 4XB
 (Tel: Crishall 669)

Club has been operating now for the past year with a regular Thursday evening meeting at Great Chesterford Village Hall. Members are beginning to feel the need to expand and try their skill in Open Events, so we may be seeing some new faces and cars in the line-ups.

Scunthorpe MRCC

Secretary: D. Spavin
 Brumby Hall Grounds,
 Ashby Road,
 Scunthorpe, S. Humberside.
 (Tel: Scunthorpe 64906)

Secretary thinks it is about time to put the club on the map! Now in operation for two seasons both 1/12th and 1/8th activities take place just out of the town centre at the rear of the Civic Centre. This permits a car park to run 1/8th every

Sunday, with covered pits, toilets, car parking and pleasant surroundings such as parks and swimming pool. A large hall for 1/12th every other Wednesday night makes up the package. A 10-car electronic timer is nearly complete, and there is even money in the bank!

Last season the club took part in the Academy Series with Ilford, Boston and Leicester, hosting two legs. Two electric invitation meetings were held, the latter attracting 72 entries. Thoughts are now turning towards a purpose built track adjoining their present quarters. Interested parties contact secretary, or go over for a day's racing with welcome assured.

Yorkshire R/C Model Car Racing Club

I get regular news from Yorkshire via their newsy Newsletter, being produced, believe it or not, by Jeff Lindstrom! (I should mention Jeff is also the official BRCA Handicapper and now involved in programming the Association's very own computer for not only handicapping 1/8th and 1/12th drivers but also fitting in Membership Numbers for the now four figure membership so that there can never be any problem as to eligibility of members to race, and, more particularly, enjoy the BRCA insurance cover.

Buggy Meetings are now being held at Littlemoor Park. The first attracted over 30 cars and some 200 spectators. Beatties of Leeds sponsored the event, and have been doing a lot to encourage "off road" activities via their branches now nicely spread across the country. The next Buggy event will be somewhat harder as it will run over a rough terrain.

Here is note of caution! The club funds have had to meet a £15 repair bill for spilling acid on the floor of the Richard Dunne Sports Centre. Apart from the cost this is no way to keep landlords happy and welcoming so let all clubs give a little thought to this problem. Recommended that batteries be carried in a stout container that will absorb any unfortunate spillage. Noise is another problem that rears its ugly head. Again, we have the Yorkshire Club providing sensible answers to this difficult problem. Solutions arrived at in a friendly chat with the local authorities include flag starts in lieu of horn, limited practice period (stops those 6 am practice people!) and a strict adherence to racing timetable agreed.

The club badge competition continues. What about some other clubs letting us have examples of their badges?

Cirencester Radio Control Car Club

Secretary: Arthur Rolls
 'Cranleigh',
 Home Ground Lane,

Fairford, Glos.
 (Tel: Fairford 712857)

This club races 1/12th electric with a weekly meeting at The Masonic Hall, Cirencester, usually Mondays 7.30-10.0 pm. Membership fees are £5.00 p.a. for adults and £2.00 for juniors, plus a 75p racing charge per meeting to members, and £1.00 per meeting for non-members. At present the club is open to new members, with a welcome to both juniors and adults.

Huddersfield & District Model Racing Car Club

PRO: P.C. Oldfield
 18 Birmingham Lane,
 Meltham,
 Huddersfield.

This is a recently formed club for electric 1/12th racing and meets every Wednesday 7.15-9.30 pm at a small gymnasium at Dryclough School, Huddersfield. New members welcome. PRO also asks where can *AUTO-Modeller* be purchased? Easy! If you cannot get at the local model shop, or at the leading newsagents, then we will gladly send it to you each month on subscription. There is always an Order Form tucked away in the issue.

Bury Metro Radio Car Club

Secretary: Peter Barry
 98 Bankhouse Road,
 Bury, B08 1DZ
 (Tel: 061 764 5798)

Please note change of secretary. The club has also changed its name as above, being the former Heywood and district r/c car club. Regular meetings are held every Monday, 7.0 pm at the Transparent Paper Mills (TPL) Social Club. A growing membership of over thirty reflects all ages and levels of skill. A club championship is held every five weeks, with a handicapping system in operation to give everybody a fair chance. All makes of cars are raced on the small polished wood track surface. Race fee is only 25p. Interested would-be members should contact secretary.

Stonehaven & District RCC

Secretary: Hugh Denholm
 Fairview,
 Duffshill Road,
 Portlethen,
 Aberdeen, AB1 4RX
 (Tel: 780673)

No, not a new club, but a change of name for the former Aberdeen RCC. This has been done to give due recognition to the establishment of their permanent track at the Mineralwell Park in Stonehaven. As well as catering for 1/8th enthusiasts the club also meets every Tuesday evening to race 1/12th electrics. A Championship is currently running with handicapping to ensure that even novice members are in with a chance. New members very welcome:

have a word with the secretary.

Isleworth Electric Car Club

Please note that Bert Hocking is no longer secretary. Enquiries should, for the time being be addressed to the Chairman David Burgess, 46, Saville Crescent, Ashford, Middlesex. (Tel: Ashford 59573)

Harrogate Model Car Club

Secretary: Robert Thorn
 41 West End Avenue,
 Harrogate, HG2 9BD
 (Tel: 63781)

This club will be holding a 1/12th meeting at Boroughbridge Leisure Centre, just off the A1 between Wetherby and Dishforth on May 3rd., with classes for 1/12th and Tamiya 1/10th. A good opportunity for fans in those parts to spectate and see what it is all about.

BADGE OF THE MONTH

This is the club badge of Expo Norr — a winged Viking Helmet in blue on a bright yellow background. As might be expected it comes from Ostersund in Sweden. The club team runs Associated RC300 cars with K & B/Mc Coy engines and diffs, with drivers Kalle Jacobsson, Per-Ake Andersson and Bosse Bäckström. Perhaps we shall see them

radio control



in operation at the British Grand Prix in June on the Mendip Circuit.

Meanwhile, a regular club badge will be shown each month, from far or near. If you think yours is noteworthy send a specimen along with a brief description of your club efforts and information.

Add to Club List

Cotswold Electric Car Club
 Secretary: J. Hollington (E)
 3 Walnut Close,
 Cheltenham,
 Glos. GL52 3 AF (New members welcome)
 Cleethorpes & District MCC
 Secretary: Tracey Griffiths (E)
 c/o 127 Bentley Street, (IC)
 Cleethorpes. (Tel: 699404) (New members welcome)

CONTEST CALENDAR... Leading 1/8 & 1/12th scale MEETINGS

Date	Event	Location
4th April	Bournemouth RAC Season's Opener 1/8th	Turnbary Park, Bournemouth
16th-20th April	Solway Lido GP 1/8th	Silloth, Cumbria
18-19th April	Aldershot MCC 1/8th	Aldershot Circuit, Badshot Lea, Nr. Aldershot
18th April	Mintex Meeting 1/8th	Littlemoor Park, Queensbury, Bradford
25th-26th April	Boston RCC 1/8th	Boston Circuit, Great Steeping, Nr. Spilsby
3rd May	Harrogate MCC 1/12th Electric 1/10th	Boroughbridge Leisure Centre, Boroughbridge, Yorks
23rd, 24th, 25th May	Stonehaven & Dist RCC 1/8th	Mineralwell Park, Stonehaven, (10 miles south of Aberdeen)
24th May	Bournemouth RAC Spring G.P. 81 1/8 Sports/GT	Turbary Park, Bournemouth
6th & 7th June	Mendip Car Club British Grand Prix 1/8th	Mendip Model Motor Car Racing Circuit, Bleadon, Nr. Weston-super-Mare
20th-21st, 21st June	Malvern Grand Prix 1/12th	The Winter Gardens, Priory Park, Malvern, Worcs.

Porsche Championship 1981

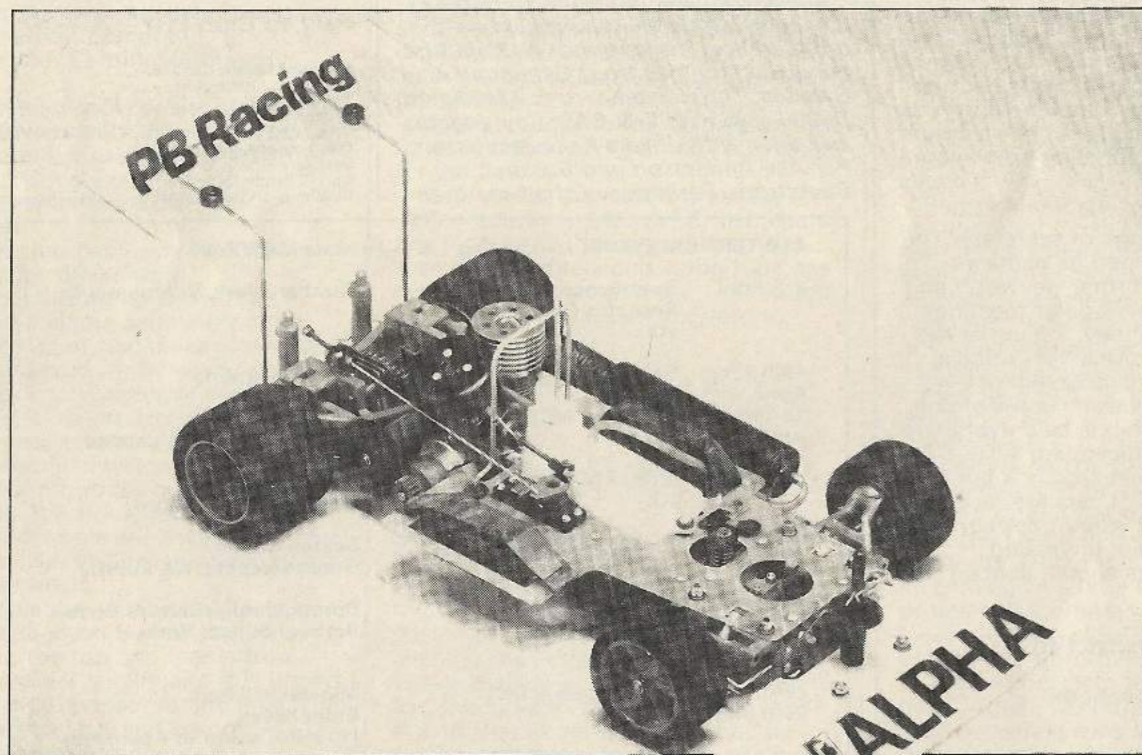
The first round of this new and important series for 1/8th scale cars takes place on 2nd, 3rd and 4th May at Lilford Park (on A605, four miles from Oundle and Thrapston). Racing daily from 9.15 to 5.30 pm.

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YOU DON'T HAVE to have a Tweak Board, but it helps. As experienced tweekers of orthodox models know any flat — and flat means flat — board will serve as the adjustment base. A glass topped coffee table serves well and allows work in comfort. The glass merchant will always provide a piece of offcut from a plate glass window that has been smashed and replaced for a small sum. It is worth asking for it to have edges rolled and polished for a little extra. I have several such pieces using them in lieu of the very much more expensive surface plate in the workshop.

But to proceed, the ideal arrangement for the Rapier is to make up a board as illustrated. A good thick piece of chipboard at least 3/4in thick and 16ins by 11ins is needed. Your local timber yard may be able to let you have a suitable offcut. Thicker is no problem, thinner may not be flat enough, just as an ordinary bit of planking certainly will not be.

Cut off the last 3ins from the length, giving you two pieces, one 13ins by 11ins and the other 3ins by 11ins. Mark along the centre line lengthways and drill a hole 1/2in dia. about 2ins deep in the larger piece and right through the smaller piece matching the hole exactly.

Take a length of 1/2in diameter steel rod and stick it firmly in the hole in the large piece with epoxy or similar adhesive. A pair of ball bearings of 3/4in outside diameter and 1/2in inside are then inserted on each side of the ready drilled hole, enlarging them to fit, and slightly enlarging the drilled hole so that the rod can swing freely on the bbs. This provides a flat table with swinging end. It is unlikely that it will be so balanced as to rest exactly in line with the main base. Lightening holes must be drilled in the edge of the heavier wing until an exact balance is achieved. A refinement is to finish the top surface with a plastic veneer facing.

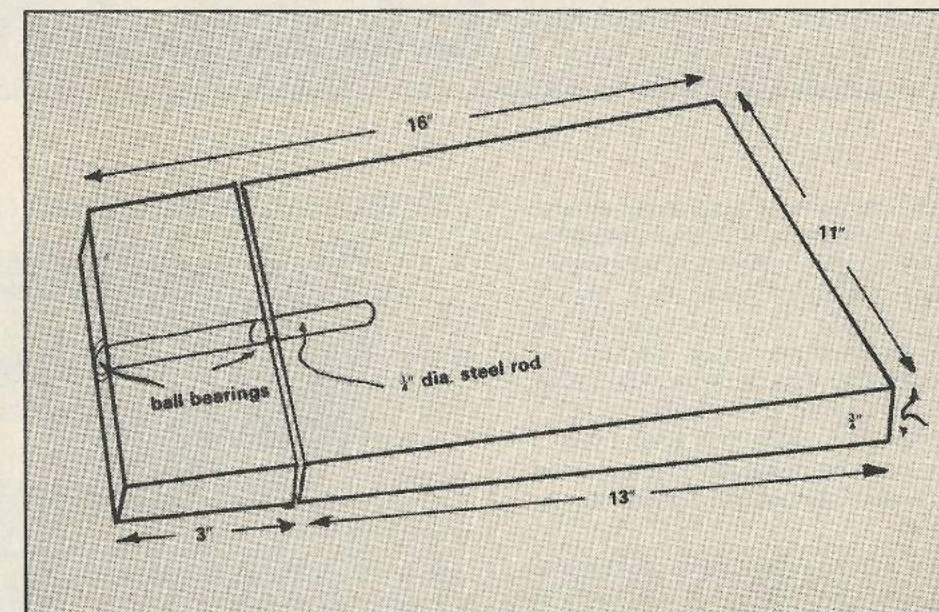
To set up the car, adjust the car visually so that angle of wishbones appears as equal as possible. Bottom rear wishbones should be from 0°-minus 1°. Adjustments can be made with spring adjuster screws. Front wishbones should be adjusted to about 3 1/2° upwards from the ground, leaving about 4-5mm ground clearance. Your checking skill is then tested by putting the car on the tweak board with rear wheels on the "propeller" part. It should not move this part at all, and adjustments continue until it sets perfectly. Turn the car round and repeat with front wheels.

For all operations car should be in full running trim with radio gear, nicads etc installed but with bodysell removed. When satisfied with static set-up track trials can begin, first concentrating on straight running, then with left and right hand turns, gradually working up the speeds.

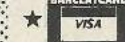
This is a very much shortened version of the more detailed instructions provided in the kit, but gives an idea of procedures to adopt.

radio control

Tweaking the Rapier



EAST LONDON MODELS



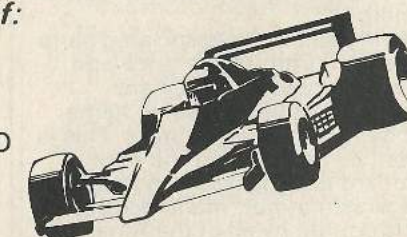
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**Nick
Adams**

COMPETITION ELECTRICS

1981 is going to be even more fiercely competitive in National $\frac{1}{2}$ th electric car competitions, than previous years, due mainly to the new rules introduced by the governing body, British Radio Car Association (BRCA), but due also to the new and advanced parts and ideas which are constantly being developed, both in this country and the USA.

Parts from America are produced by several manufacturers in that country such as, Parma, MRP, Associated, Jerobee, Bo-Link, Jo-Mac etc, as well as many others who make a smaller number of specialist items. The bigger manufacturers all offer complete car kits, as well as a range of spares and tuning items. Unfortunately, all of the American goods have to be imported by firms or individuals into this country, with the resultant wide variation in mark-up of prices and also the limited, and sometimes annoying, shortage of spares.

The situation in regard to the cost of American items is becoming quite ludicrous, since the official importer will have a recommended retail price, whereas the same items coming through the back door by the endeavours of various enterprising individuals, result in them being able to sell at a much cheaper and more realistic price, as far as the purchaser is concerned.

A case in point is the Associated parts which vary enormously in price and whose recommended prices are severely higher than the same items offered by other manufacturers. This is illustrated by considering the case of the standard class Igarashi motor.

The Igarashi motor, manufactured in Japan, is bought by all of the American manufacturers either separately, or as a combine, and then resold with their own labels attached to the can. However, by the time it reaches the shops in this country, the price varies as follows:

£4.86 for the Jerobee 520
£6.50 for the MRP 550



£6.60 for the Parma Renault
£8.16 for the Associated 3500.

I must add that the Associated has a plug with it.

However, the price limit set by the BRCA is £7.50 and it must be debated at Committee whether the addition of a plug or anything else allows the price limit to be exceeded, or whether the price limit is too low.

Continuing on the standard motor theme, the photograph shows the standard motors as offered by three kit manufacturers and the appearance of the respective labels. As you can see, each is easily identified, but the Jerobee gives you the details of the armature.

The rules allow for the motors to be quality controlled at the Japanese factory, but under no circumstances is any rework or modification allowed after leaving the factory.

As stated, the armature consists of 35 turns per pole, of which there are three, of 23 gauge wire. After winding, this is either epoxy or lacquer coated to ensure reliability. Balancing of the armature may be carried out if necessary and this varies from batch to batch, probably depending on the quality control of the manufacturing machines.

As a point of interest, the early motors were neither balanced nor

epoxy coated and suffered badly from shorted turns and variation in performance. These latest motors are exceptional in their consistency and reliability.

When you buy one of these motors, they may appear unbalanced when running from new. However, this is due to sparking at the commutator, causing the motor to jump. Careful running in at two volts for at least two hours will bed the brushes into the commutator and the motor will become extremely smooth.

This bedding in, or breaking in, is offered ready-done by some manufacturers, such as in the case of the Associated 3501, which carries an additional 'REEDY' sticker to identify it. However, the price rises above £10.

I have not shown the Associated since the labels on all Associated motors are colour-coded and do not show any reference number. This does lead to confusion when trying to identify the model type.

The situation is further hampered by the fact that the 'REEDY' stickers are easily removed. As far as I am aware, the standard 35 turn Associated motor has a blue label, whereas the 32 turn variation has a red label.

As far as breaking the motors in goes, my own investigations show that at least 90% of the standard motors perform equally after being run in, and even the others perform as well in the car. When run in you can expect around 16,000 rpm at 0.8A and 7.25V, and a very smooth, unflinching note from the motor.

When seeing the motors in colour, you will notice that the plastic endbells come in three colours: white, light blue and black. Until recently, these colours had no meaning in relation to the armatures. However, the situation is now changing.

Looking at the photograph, you will see on the Jerobee motor an additional sticker stating GROUP 12/ROAR PRODUCTION-STOCK MOTOR. This is a paper label fixed over the endbell to try to prevent tampering but also ensuring you that it is perfectly legal for the two classes run in the states, ie. GROUP 12 and PRODUCTION-STOCK.

Without going into too much detail,

what has happened is that six of the American concerns have grouped together to run a very special limited-cost class called 'Group 12'. This resulted in the sticker on the motor and, more significantly, the use of the white endbell only for the standard 35 turn motor.

So, if you see a motor in future with a white endbell and sticker, you are assured it is legal.

However, MRP has not joined this combine and their 35 turn motor has a black endbell. Also their 32 turn motor, type 552 also has a black endbell, as do many previous motors; therefore, if you have a black endbell motor without a label, you cannot be sure what armature it has.

The blue endbells have an even longer history, as these were the original colour supplied for all motors. Quite a few motors around still have blue endbells but all the new ones except the ASTRO 05 are now black or white. The ASTRO 05 RACING SPECIAL is a 32 turn motor and can be further identified by its thinner lead-out wires, which also have tiny writing along their length.

The lead-out wires from the endbell are soldered inside to the brush springs, but you must be careful not to pull or bend these at the entry point since the joints are extremely susceptible to fracture and then you will have to open the motor to resolder it back on — which means you will not be able to use it at a National Competition.

Some people are worried that even the motors as identified, may turn out to be of a different wind, but, in my experience, I have never known a motor with a label on it to be an incorrect wind.

Motors imported without labels, which then have the shops put labels on them, could be suspect but if you have access to a rev. counter then a motor which does at least 18,000 rpm at 1A and 7.2V is certainly a 32 turn or modified. Further, the quality of winding at the factory is improving all the time and, whereas it was quite common to find one or two poles with 34 turns instead of 35, this is becoming very rare.

For those interested in other features of the standard 35 turn motor, the shaft which carries the pinion can either be splined or smooth with a flat ground on it. Until recently, the splined type was the only type and it ensured a good tight fit for the pinion, without the need for a grub screw. However, changing the pinion called for a gear puller, as sold by Associated and others, that more often than not resulted in screwdrivers and pliers being used which could end up pulling the shaft out of the armature.

I am slightly confused at the moment whether the shafts with flats ground on them will be standard, but both types are appearing on all winds of armatures. One useful thing to notice is that the splined shafts will not pass through a ball-race such as fitted in the modified motors. Therefore, be suspicious of a standard motor with the splines filed off.

Ball-races are the accepted norm for modified motors, but the oilite bearings of the standard motor are exceptionally good if looked after. It is very rare now to find a tight bearing, but always check. Most people use a light oil such as 3-in-1 on the bearings, but remember, this will also attract dirt and dust. Although a lot of people use TRIFLON lubricant, those with knowledge advise against this, especially since it may get on the commutator.

The commutator itself originally was not trued, but now, even the standard 35 turns motor has a trued comm. done at the factory. This has resulted in a minimum of running in being required for the brushes.

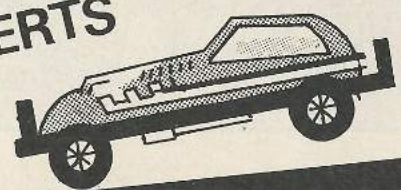
The brushes themselves are extremely well compounded and give excellent life. However, a new brush compound is available for tuned motors, although I am not sure whether it will ever turn up in the standard motor.

Overloading the motor can result in rapid wear of the commutator and overheating of the brush springs. The spring tension again is now well quality-controlled, but overloading can cause them to distort or lose tension.

As the motor is used, a lot of brush

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Fully extendable rod antenna to obtain optimum performance from output signal. May be left in to test linkage or make adjustments.

Tuning panel. Open for adjustment of the twin kickdown circuits, left/right steering balance and servo reverse switch: should be closed when adjustments are completed.

Channel 3 (CH3). Used for wing trim, needle control, etc.

Steering wheel (right hand operation). Either Porsche or Datsun 280 Z type steering wheels may be installed as desired.

Battery holder. When using dry cells, eight AA batteries are set in the holder; the battery pack connector cord is not used. When using the nicad battery pack, simply snap in the battery pack connector.

Engine Trigger (left hand operation). Engine (motor) speed increases when the trigger is pulled back. Two types of triggers provided, one for engine vehicles (normal trigger) and one for electric vehicles (back trigger).

Control Engine (motor) speed increases when the trigger is pulled back. Two types of triggers provided, one for engine vehicles (normal trigger) and one for electric vehicles (back trigger).

Rudder Trim (CH 1 Trim). Adjust so that the vehicle (or vessel) advances in a straight line when the steering is centred.

Pilot Lamp. LED lamp helps prevent you forgetting to turn off the power.

Large Output Level Meter. Does not move unless the RF module operates. Replace batteries or charge the battery pack when the needle falls to the boundary between the green and orange regions.

Engine Control Trim (CH 2 Trim). Used to adjust throttle or brakes.

Power Switch. Large, trouble free switch is moved up to turn on the power.

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radio control

COMPETITION ELECTRICS (cont'd)

and commutator dust is generated inside the motor and can cause sparking and loss of performance. Those in the know, clean out the motors by squirting special aerosol cleaning fluid through the small screw holes and letting the dirt and dust be washed away.

The screw holes themselves are 4-40 thread, and must not be confused with the Mabuchi motor 3mm thread, or with BA screws. Also, do not use too long a screw as it may hit the armature, especially if there is a lot of end float on it.

This end float is controlled by small washers inside the motor and ensures the motor does not seize up when it gets hot. Also, allow for the float when setting up the pinion, since the magnets will always force the armature towards the back of the can when at rest. The magnets themselves are so

important to the performance of the motor. It is amazing that the strength of them is so well controlled. Turning the shaft over by hand reveals the strength of the magnets, but remember bedding in of the brushes will bring up the magnets on an apparently weak motor. Also, one cannot compare the magnets of different modified motors, since the winds and timing will affect the feel.

The timing on the standard motor is now very well controlled and, although twisting the commutator can be used to advance up the timing, this requires opening the motor, which immediately makes it illegal. Also, one or two degrees variation produces virtually no change in performance.

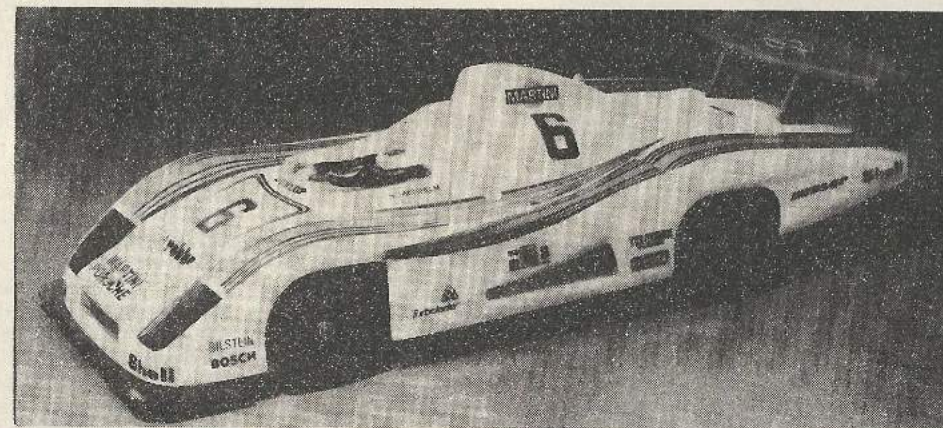
The endbell itself is held by two lugs bent over from the metal can and it is impossible to re-time the motor by turning the endbell, without cutting off the lugs.

I have not touched on the gear ratios to use since that depends a lot on the car and size of track, but, for large tracks with a lightweight car and 8-minute races, 12/46 is a favourite, although some go as high as 13/46.

Finally, summing up, the standard 35 turn motor is now an excellent quality product produced to close tolerances and giving superb performance. You can be assured that the variation between one manufacturer and another will only be the difference of one batch to another and, in my experience, even selecting from a bath of hundreds of motors, is not worth the effort. However, running in and careful maintenance of the motor will ensure a sustained competitive performance.

In a future article I will discuss the modified Igarashi motors and other motors available for competition electrics.

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The car comes ready assembled and requires only the addition of 2 Channel R.C. equipment and drive batteries then you're ready for the track. The body is moulded in pre-painted polycarbonate and the full set of MARTINI-PORSCHE self adhesive trims are included.

A four wheel drive conversion set is available (order No. 3447) complete with twin differentials. Prices for the Robbe Sonic Sports Porsche 936-78 start from £44.25.

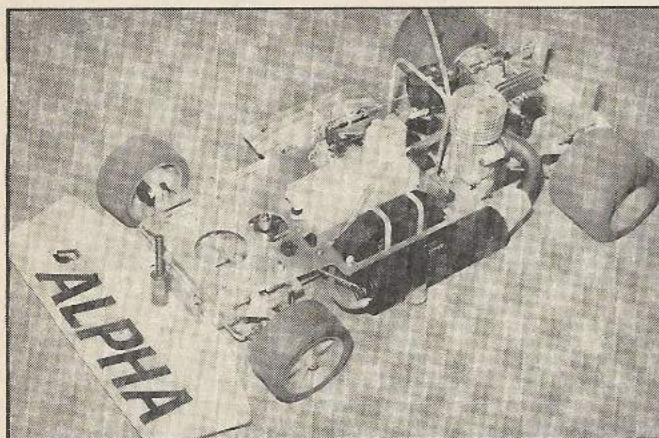
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NUREMBERG



PB Racing Products' production model of their successful "wobbly wheels" suspension car, type designated ALPHA PB12 IS (Independent Suspension). Deliveries in April.



Graupner's Rally Buggy with 20 Baja Body.



Electric-powered Harley Davidson motorcycle — radio gear, batteries, in top box — from Graupner.



Another well protected off-road offering from Graupner with "climb anything" type of tyres.



USUALLY SELECT a "Fairest of the Fair" on my visits to the Nuremberg Toy Fair, certainly the largest in Europe, and perhaps the most prestigious in the world. Waving my Union Jack furiously it is wonderfully encouraging to be able to say that PB Racing Products production model of their suspension car is not only my choice, but evidently that of a great many continental buyers! Keith Plested confessed on the fifth day of the Fair that he had only had a couple of 20-minute breaks to look at the opposition — otherwise he had been glued to the stand, hard at work. The car bears the name Alpha IS (Independent Suspension) and the Marque No. PB12. (Readers will remember that the PB9S bears the name Omega).

The cars on show have their various moulded parts in bright red, an experimental colour that is appealing to visitors and will be maintained though, as a concession to fashion, mainly in cameras, will be in a satin rather than gloss finish. Whilst I was talking to Keith a courier (Phil Booth no less!) brought in the final style for the wheel hubs, the finished job having just been completed at the factory. All is now set for guaranteed delivery date in April — which means virtually a full season's running.

What sort of changes are there from the car recently described in *AUTO-Modeller* and the production Alpha? Well, first of all, the geometry is exactly the same so that running style will be as developed during the past season. Weight is much reduced and the car weighs almost exactly the same as the conventional Omega, involving an improvement of around 80zs on the prototypes. Appearance is somewhat changed in that the original metal box structure like a model aircraft fuselage is replaced by a flat GRP chassis, which nevertheless provides the same rigidity where necessary as the box. The other distinctive features such as the chain drive are retained.

By a pleasant arrangement with the Saudia Williams GP car management a bodyshell of their successful championship car will shortly be

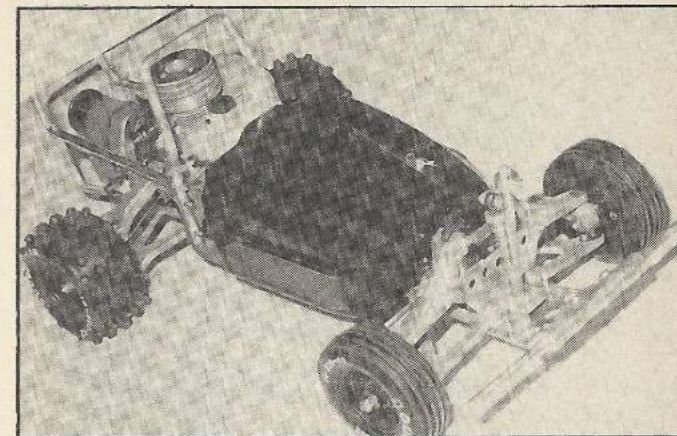
available, modified to the nearest to scale possible to enfold a 1/10th scale i.c. car. A pull from the original mould was on show but the final product will be more detailed, and I look forward to illustrating it shortly.

Moving on to the *Serpent* stand to see the Peter Bervoets/Ronnie Ton suspension car, which was showing such promise last season and took the Dutch Championship for 1980; it lived up to all that I had been able to guess at from photographs. The company operates under the name of *Berton bv* which I think is self explanatory, and is the successor company to the former FWF Engineering company which handled the earlier marques of *Serpent* for Peter.

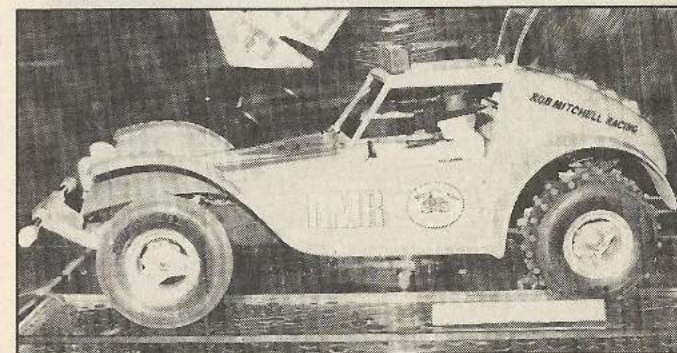
FWF's former Manager Wiep Radsma of Postbox 572 Haarlem Holland is distributing for them. In England I understand that a limited number of main dealers will be supplied direct including such firms as Ted Longshaw Models, Phil Greeno Models and Jim Davis Models of Mansfield. But, and this is an interesting bit, the suspension car will not be in production until towards the Autumn, since both the drivers would like to give the prototypes a further few races, and hopefully, a further few wins before offering it to the public.

Meanwhile, the range of *Serpent III* cars will continue to be available in four progressive kits. The Mark III (also called Alfa — note the spelling and do not confuse with PB's Alpha!) is the beginners' model with aluminium chassis. Mark III Competition goes a step further with GRP chassis, and is the car which was runner-up in the 1978 European Championship meeting. Next comes the Mark III Super Competition model all the virtues of the earlier designs plus the unique adjustable limited slip differential weighing less than 1 oz. more than the solid axle version. Finally, in the current programme, is the Mark III Super Pro. This embodies the famous side muffler designed by Ronnie Ton and is developed from the '79 and '80 Pro models which have between them

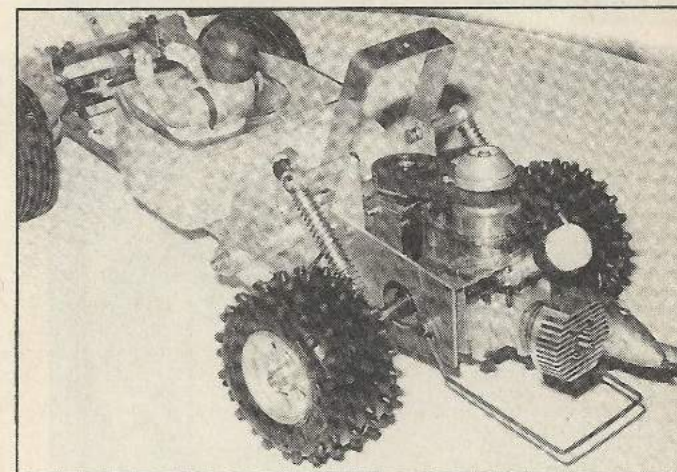
Circuit Buggy in 1/10th scale for OS Max 10 FSR-C 1.76 c.c. Takes a Mercedes 450 SLC body (Graupner).



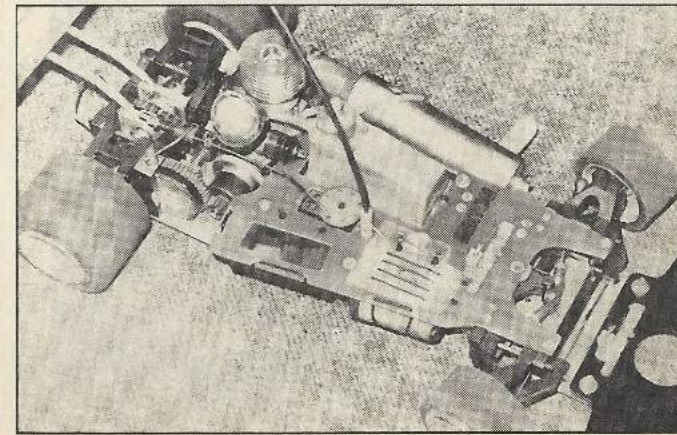
New from the Tamiya stable — very much on the lines of the successful *Rough Rider*.

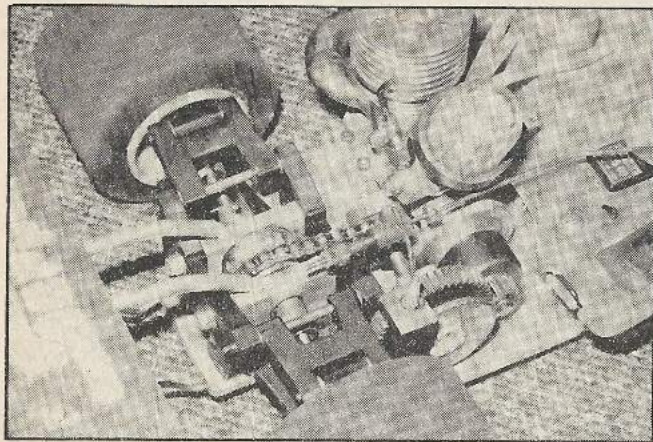


Another of the numerous off road vehicles on show. This one is waterproofed and belt drive. Seen on Garbo R/C Models, Bologna, Italy stand.

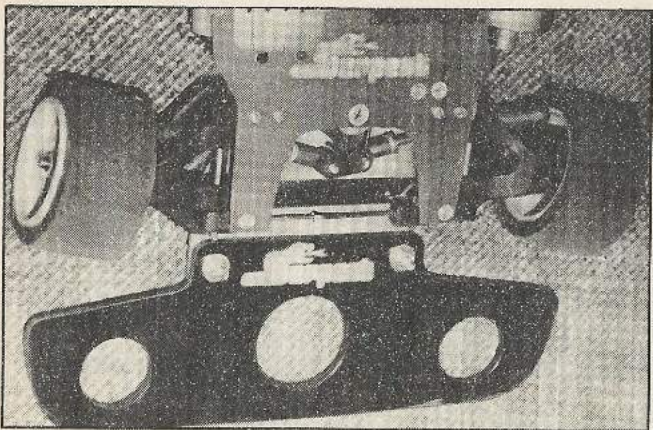


Serpent to be! The independent Berton designed car expected to be in production in the autumn.





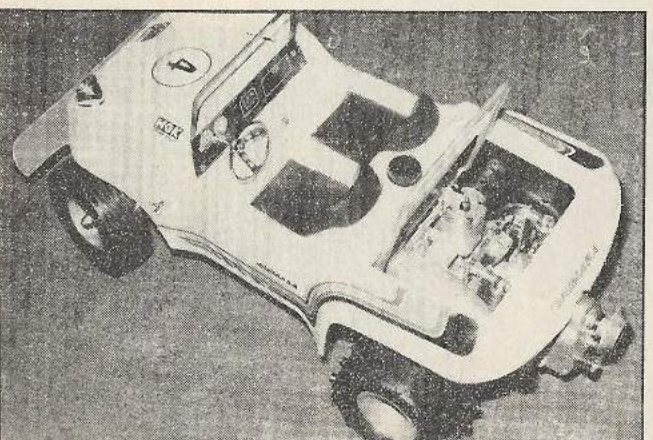
Rear end detail of I.S. Serpent. Chain drive as PB Alpha but with a difference. Disc brake adjoins drive gears, airfoil supports fit in axle housing.



Front end of I.S. Serpent. Simple layout and components. Wires just behind bumper can adjust tension (or what?).



MacGregor are going in for i.c. powered off road cars in a big way. This their BMW M.1 Coupe.



Rat Buggy II from MacGregor, oil damped springing and two stage silencing, again for 1/12th scale.

taken three European titles and many national events.

The elegantly displayed Graupner stand was making a great point of "off road" cars, buggies and motorcycles, not forgetting their fascinating little Go Kart powered with a 10 glow engine. There is no doubt that the show theme this year points towards an "off road" revolution for powered cars in both 1/12th and 1/8th versions. The Minitz Buggy in 1/12th driven by .061 OS motor (1 c.c.) is bound to be popular. Rear end is sprung and the whole rear end formed from a casting with a forward "box" to carry radio, steering etc safe from damp and mud. Body is a Range Rover (it all helps BL, thank you Mr G.)

Also in the 1/12th scale range is a conventional Sports/GT design for OS Max 1.76 c.c. with bodies for Alfa Romeo and Mercedes 450 SLC. This latter is described as a circuit buggy and is modelled on the East African Safari car. Substantial roll bars protect it from spills, and lovely knobby tyres suggest these will be infrequent. Then we have a Baja bodied Rally Buggy in 1/8th suitable for HP21 PDP Car engine or OS Max 21 FSR-C. My own preference must be for the quarter scale Go-Kart complete with helmeted driver who swings with the wheel. This is intended for OS Max 10FSR-C.

In their electric range we have a new motorcycle the famous US Harley Davidson complete with the numerous accessory items that made this so popular in its fullsize state. Radio and batteries go conveniently into the carrier box at the back. These are all new items. The other cars in 1/8th such as their Expert Car, and the wide selection of 1/12th electric cars continue.

I should just mention that this is Graupner's 50th Year of producing model kits and is naturally being celebrated with a very special output of novelties, not only complete kits, but also useful accessories. Ripmax is the British distributor and will certainly be bringing in everything at all likely to appeal to the British public.

So often it is among the less well-known manufacturers that items of interest are found that, but for the Toy Fair, might never have been seen. I do hope that the Meg car becomes more widely known. It is the product of an old established engineering firm that had spare capacity and modellers on the staff and so turned their skill to producing a 1/8th scale model kit. It has its own design of differential, aluminium axle beam, power pod and 3mm GRP chassis, disc brakes, ballbearing front wheels, in fact all the items making a nice simple reasonably priced car. It has one delightful gimmick. If you buy a kit you get the box to carry the finished car in!

According to your choice of model it ranges from an extruded plastic attache case to a finely tooled metal case such as the more professional photographers carry their gear round in. A lovely touch!

On Modell-Car Vertrieb's stand I saw for the first time the Black Fire car which has been advertised in the German model press. A beautifully finished model it sports a tuned pipe silencer side mounted, but with exhaust exit rearwards. Of special interest is the engine with integral heat sink which is the special production of the regular driver, Rainer Zimmer. The car was German Champion Sports/GT in 1980 and also won events at Essen, Nuremberg and Wiesbaden in Sports/GT, plus Formula wins at Fichtenberg and Nuremberg, plus a second place at Wiesbaden. I am sure we shall hear a great deal more of it! Manufacturers are RC-Modellrennsport & Tuning, Imbuschstr 59 Nuremberg.

It was interesting to see that AMPS very successful Rapier suspension car now in full production, (nearing the end of its second thousand I believe), has been taken up for Europe by Multiplex, and is the subject of the centrespread in their catalogue.

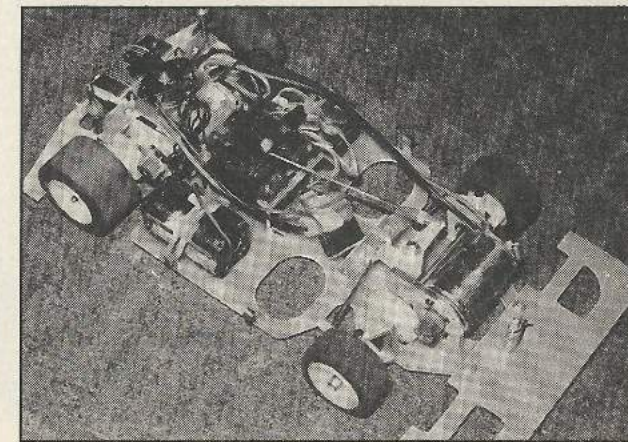
The Swedish Carlsson car which did so well from its inception continues virtually unchanged with its limited slip diff. built integrally into the wheel hub; their driver Brunner was one of the few to beat Franco Sabattini last season and has a fine big cup to show for it. The manufacturers Bygg and Krantjanst of Habo have now also produced an attractive 1/12th electric car, employing the same diff. principle with one or two improvements. Instruction sheets for both 1/8th and 1/12th cars are in the form of successive sheets of three view drawings, lettered on the shield of a fierce looking Viking character who also appears in the Team Carlsson emblem and as driver of their car on the cover. Any one or two word instructions are given in English as well as Swedish. I hope I can obtain a car shortly to make up.

MacGregor whose German branch handles the PB range over there enjoy a next-door position to Keith and should perhaps have been mentioned earlier, but for their now very wide range of equipment which makes them hard to place.

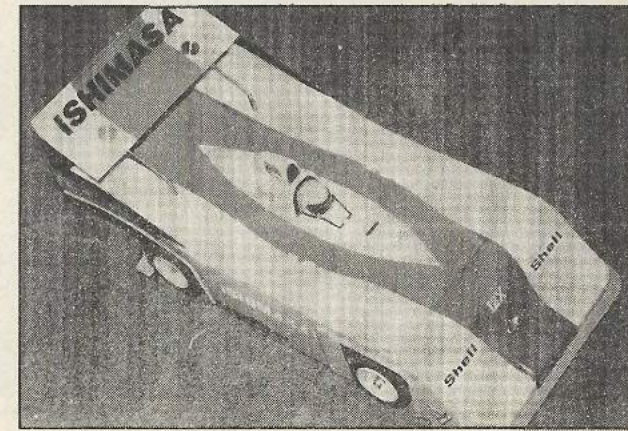
First of all they are extending their i.c. powered buggy range with their Rat Buggy II and nice off road coupé duly illustrated. Again I look forward to building up one of these as soon as adequate stocks build up.

Their Ishimasa X12 electric is an unusual car. As supplied it is arranged

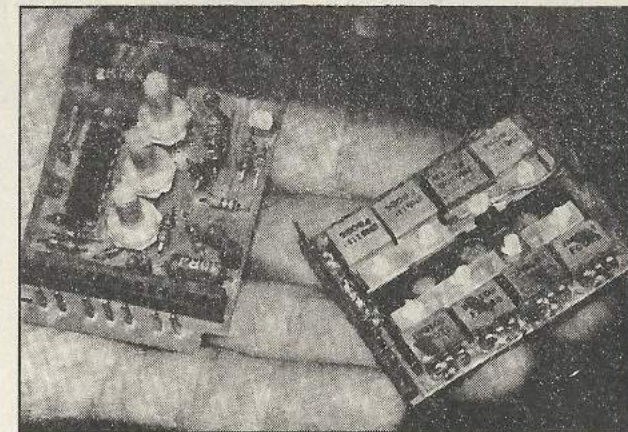
Is it unique? Twin engined four wheel drive or front wheel drive or rear wheel drive — options all there (only one motor supplied) A MacGregor Ishimasa 1/12th electric offering.



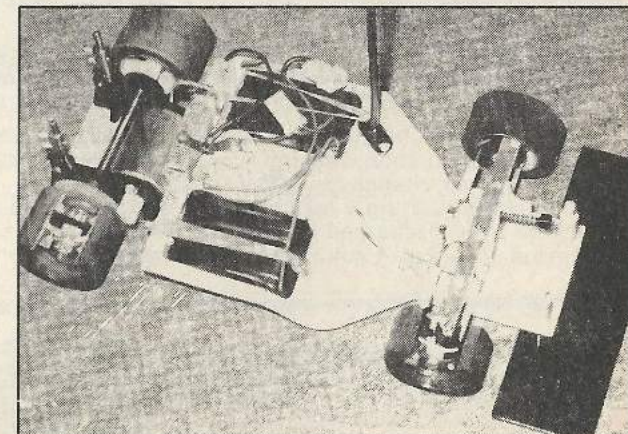
The Ishimasa 4 wheel drive with body on.

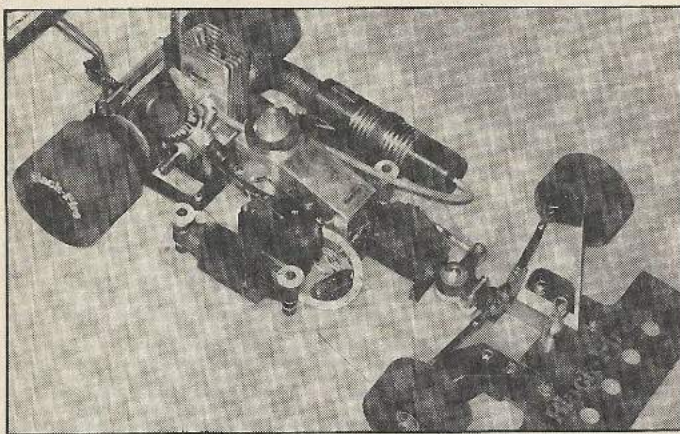


MacGregor MR16 tuneable speed controller, opened up to show the works. Transistor half can be replaced in a jiffy should the need arise.

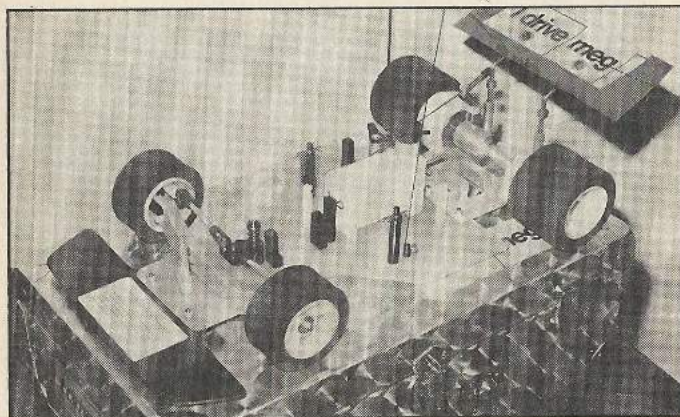


A Carlsson 1/12th electric from Sweden. Cutaway tyres/wheels show the Carlsson diff. developed and improved from their 1/8th version.





Black Fire — German Champion car 1980 in hands of Rainer Zimmer — here with his o.d. engine installed.



The Meg car: buy the car kit and you get the engine turned metal carrying case! It is also, of course, a pleasant orthodox layout car built to best engineering standards.

for the motor to be installed either as a front wheel drive vehicle, or as a rear wheel drive vehicle. Alternatively, for non-contest purposes it can be both — i.e. a fourwheel drive car driven by two motors. The options all provide for differential operation.

The tough Trial 12 off road electric buggy is continued. Their proportional speed controller described last year is also continued. In normal form it provides forward travel; with the addition of a couple of mini-cells it will give reverse as well (not for contest work on current rules). Plug and socket connections permit very quick changes from car to car. The whole unit can be split open for easy access to circuits or for replacement in event of a transistor going on the blink.

Macgregor are also agents for a wide range of Fuji engines, now gathering support as moderately priced schnuerle ported ABC engines suitable for stock car use and club level racing. We almost forgot to mention the JR range of r/c equipment so closely associated with their name.

Both Simprop and Robbe are featuring a very nice (looks almost unbreakable) American Jeep in 1/8th scale as well as an open Racing Buggy. Tamiya have gone one better than last year. Whilst retaining the successful Rough Rider they have introduced a new 1/12th car which is so waterproofed that it was being demonstrated in

operation in a constant spray of water! Some very glorious motorcycles and sidecars alas did not seem to be motorised for r/c . . . but I expect someone will soon be trying them with the works in the sidecar perhaps?

After quite a long run of conventionally shaped r/c gear (only the Japanese at Geneva in 1979 departed a little from it with hand held controls and the bulk of the Tx in their hip pockets) it was exciting to meet Roy Lever of Harden Associates brandishing the latest KO Digiace Tx. This is a nicely balanced unit combining trigger speed control and wheel steering with a multiplicity of adjustments possible, and of course, the usual neat quick change crystal facility. Design is rather like a space opera weapon, but everything is there for a sensible purpose.

Minor improvements were noted with SG cars, but basically the Futura VCS model runs on through 1981 as, indeed, it has every right to, in view of last season's excellent showing.

Another potential "chain gang" suspension model was noted on Mantua's stand, featuring a metal box structure not very different from the prototype PBs, but it looks like at least a year before a production model will be available. I expect the final job will be on usual Mantua lines involving a great deal of moulded parts integral with the chassis.

Space-gun like latest KO Digiace Tx design. Trigger operates speed, wheel the steering. Loose cover fits over adjustment panel. Harden Associates will be handling in G.B.



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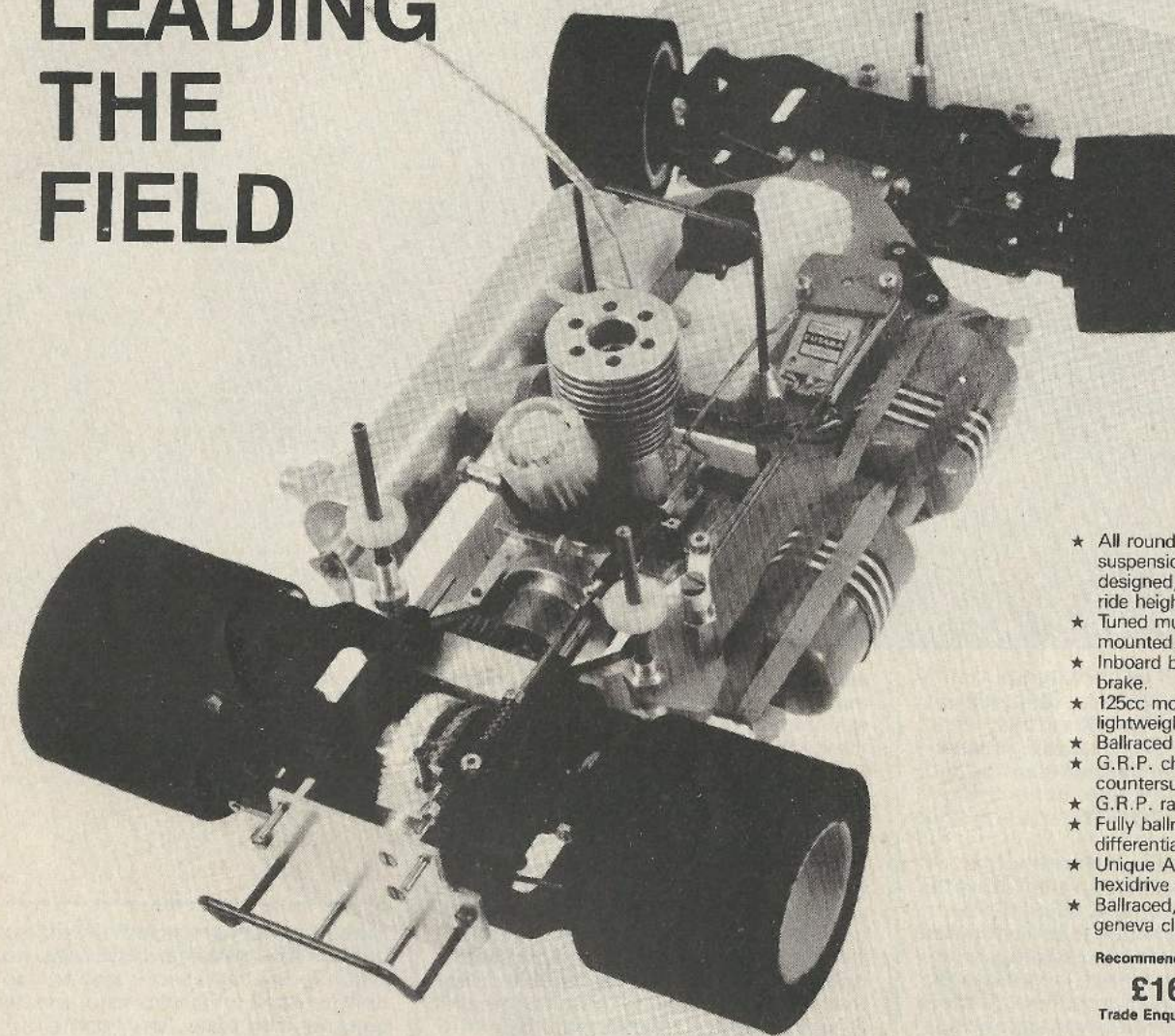
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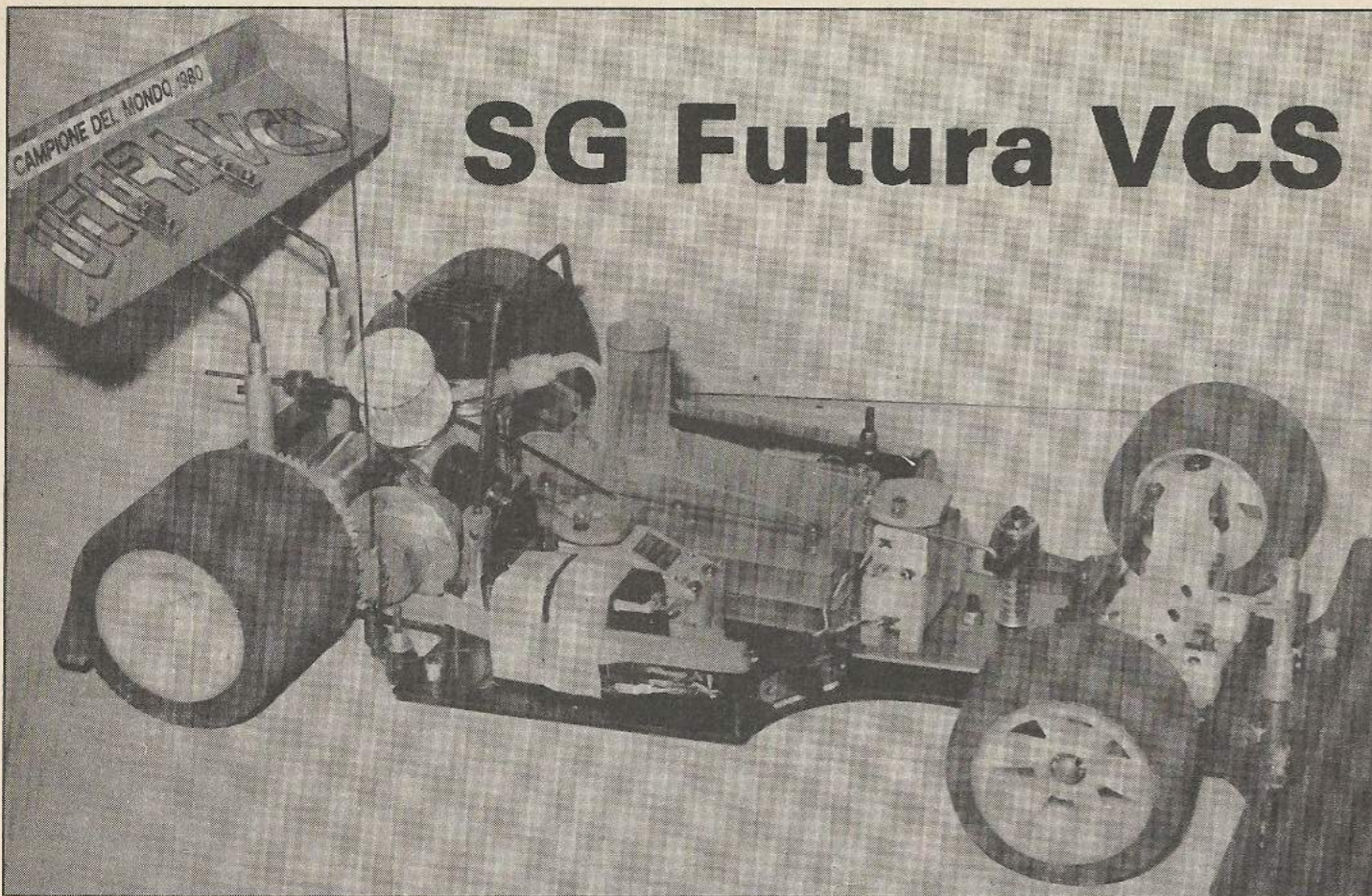
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SG Futura VCS



JACK WILLIAMS of Model Rectifier UK Ltd has really done me proud with this review, Futura not only including the latest SG pipe silencer but also the prestigious Picco engine that is the ideal combination to make up a winning package.

After a fantastic set of building instructions in pictures for the Futura III, designer/driver Franco Sabattini has reverted to the practice followed in his earlier "Expert" car of providing no instructions whatsoever! They say little Italians are born with a spanner in their hands in place of the silver spoon; so doubtless Franco thinks anyone incapable of putting his cars together doesn't really deserve to have it. To be fair, the car is presented in what appears to be ARTR state — or "Almost Ready To Run", but there is still quite a bit to do before taking to the track.

This is the car that Giulio Ghersi drove to victory in the 1980 World Cup event at Monte Carlo, and the week before the Sports/GT at Carnoux in France. Among other victories for the marque was, that aimable ex-boxer and darling of Italian fans, Giorgetti's win on the fast new circuit outside Vienna to be the scene of this year's Euro Champs. Other wins were listed in our 1980 summary an issue or two ago and clocked up seven in all.

Almost alone among the leading manufacturers SG have remained faithful to all metal chassis, though reinforcing the rear end with a

substantial power pod on top of the main chassis. The radio plate itself is really an extension of this chassis. As the kit comes in its very attractive box (save it: it has the only pictures on it to aid construction!) it has already been partly assembled. At the rear the double disc brakes, differential, and wheels are in place on neat nylon plunger blocks. At the front the elegant variable control steering unit (hence VCS) is attached to the independent swinging front section. Tyres are all glued and trued in place. I notice that front are considerably softer than those supplied with my original Futura III (I later substituted a pair of moulded by Associated). From a cosmetic point of view main chassis and front bumper plate are anodised black with power pod and swinger in a golden anodised finish. You won't see it under the bodyshell but it is one of those touches that appeal. Servo saver is in place, but steering arms have not been fitted. Radio plate has radio posts and recesses for gear; slotted holes have been cut out for servo mounts, also provided and ready drilled to take ST screws.

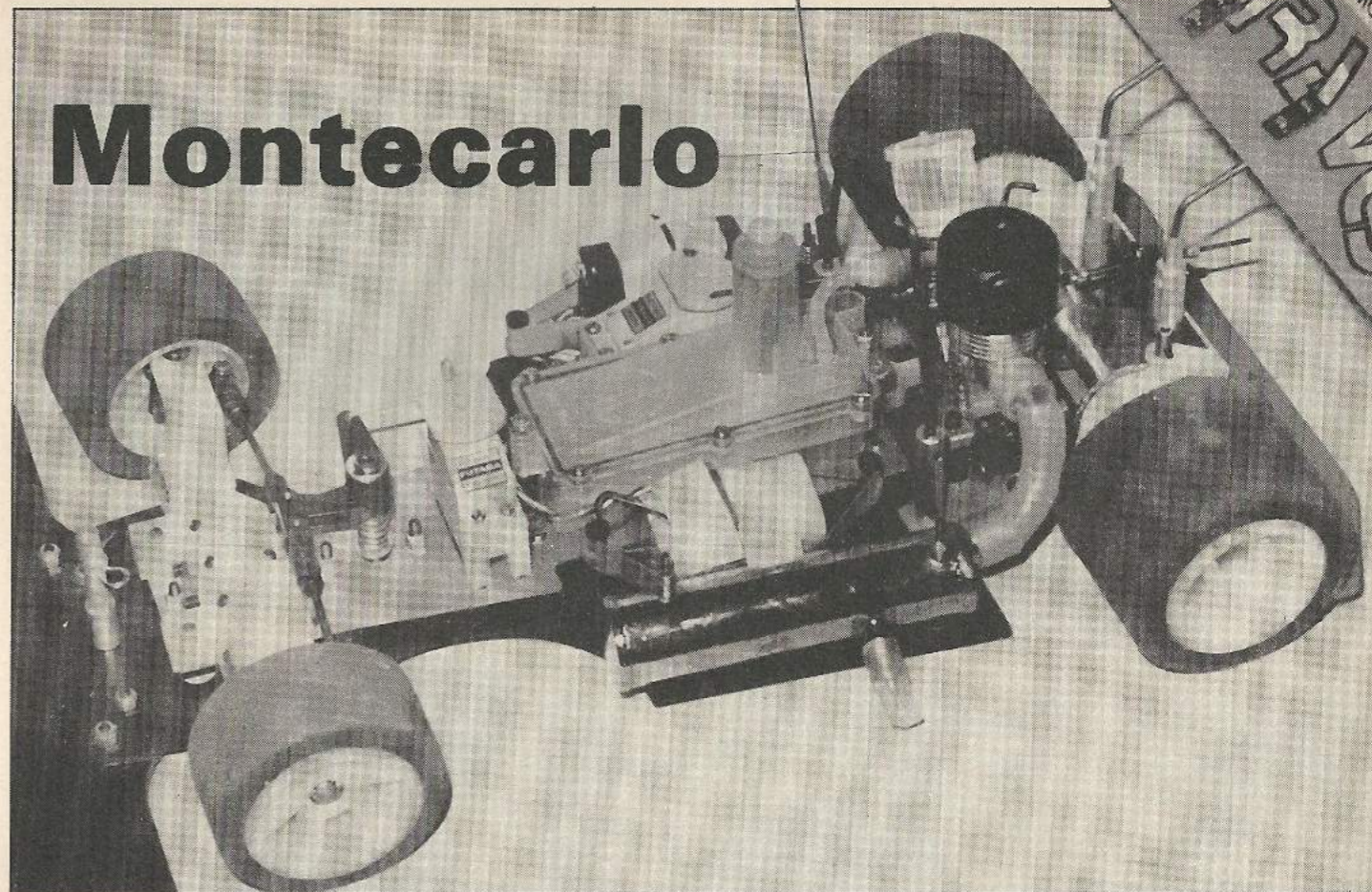
First task is to remove the swinging front end in order to get access to the servo fixing for front steering servo. This gives one an opportunity of studying exactly what this swinger does. It is balanced on the centreline and attached to the chassis by five bolts and nuts. The three forward bolts of which two come under the steering crossbeam and the other just behind

The complete car. Note on/off switch for Rx just by the steering servo, r/c aerial by rear wheel. Rx rests between the supporting posts.

the servosaver are stood off with rubber buffers. The two rearmost bolts are much longer and serve also to support the fuel tank which fits into a suitable cutout in the plate. They come up through short locating pillars which in turn rest in floating pivots thus enabling the whole plate to swing sideways. The degree of swing is dependent on the rubber buffers at the front. If these are loosened the swing is increased, tightened and reduced. Amount will be determined by the nature of the circuit on which car is running. A lesser degree of flex is also obtained for the rear wheels with the power pod located on the full length metal chassis.

Fuel tank is of nylon and requires to be assembled. It is exactly the same as supplied with the Futura III and has a springloaded filler cap, not, as shown on the box, a fliptop filler cap. Doubtless this can be obtained as an accessory if required. Its main parts consist of base and top which are screwed together with ST screws and made fuel-tight with a thin rubber ring. Inside an X-shaped baffle is fixed in

Montecarlo



Car from the silencer side. This rests on rubber buffers on main chassis, attached by bolts coming up through the pipe. A stout silicon tube connects with Picco engine. Armoured tubing or a purpose made metal pipe might be better.

place and a short length of tubing leads into a sump which ensures all fuel is used to the last drop. Filler cap is fixed to a spring fastened at the base of the tank. Two ears align with the swinger bolts and distance pieces to fix tank in place. The bolts will *not* go through the holes in the tank which must be drilled out to take them. Do not try to force them through: they will stick half way which is a nuisance!

A roll bar is provided and is attached via the two outer fixing holes securing power pod to chassis. These holes too have to be drilled out to take the larger bolt that screws into the roll bar securing pillars. Wing mounting posts are erected behind the rear axle and these have countersunk fixing screws, so that it is worthwhile to countersink holes for full security, though not essential since most of the other bolts have hex heads. I took the opportunity of altering the rear bumper from my Futura III to fit at this time, since a rear bumper is not provided.

Excellent screw-in type steering connections with plastic end caps are

supplied. If these are screwed right in as far as they go they are just right for the amount of toe-in desired: more of course if you untwist them a turn or two. Unusually, they attached to servosaver and wheel connections with ST screws. These are screwed up from underneath to the servosaver and from on top to the other ends. It will be necessary to remove the wheels to screw them on.

This provides the occasion to see how neatly wheels are attached. A small allen screw is undone and the stub axle slides out complete with wheel. The axle goes through the kingpost and secures it in place. A suitable flat on the axle ensures a firm fit. Probably the quickest wheel change in the model car world!

Front wheels are double ballraced: races are unshielded and I would keep them well greased up to prevent dirt getting in. I tried my earlier Futura III wheels for fit and see that the later stub axles are much more robust so immediate compatibility is not possible. However, if the earlier ballraces are eased out and ones with a larger hole for the axle substituted you would have a spare pair right away. You can often get quite cheap ballraces from Ken Whiston at New Mills, Stockport. Send for his "Cat" as he describes it.

Engine installation is next task. Happily the engine blocks are already drilled out to take the Picco engine and suitable socket head screws and spring washers provided to fit it. Stout screws

with purpose designed washers attach the blocks to the power pod/chassis and allow some degree of adjustment. Flywheel, bellhousing and clutch follow a conventional pattern with PTFE clutch shoes already cut in two. These will require a little shaping so that they do not foul each other. Here comes a small matter for thought. The shoes are not grooved to take an O-ring, but two, what appear to be, rubber O-rings are supplied. In some cases these days the shoes are allowed to swing out free without any controlling springs. Alternatively, shoes are grooved and have O-rings which resist the centrifugal force pulling them into contact with the bellhousing. I have played safe and grooved my shoes by putting the whole clutch assembly less bellhousing in the 3-jaw chuck of the lathe and taking out a groove with a parting-off tool, holding the two halves of the shoes in place with a winding of Sellotape. By the way, as is usual, crankshaft must be shortened by several threads in order to screw clutch assembly firmly in place.

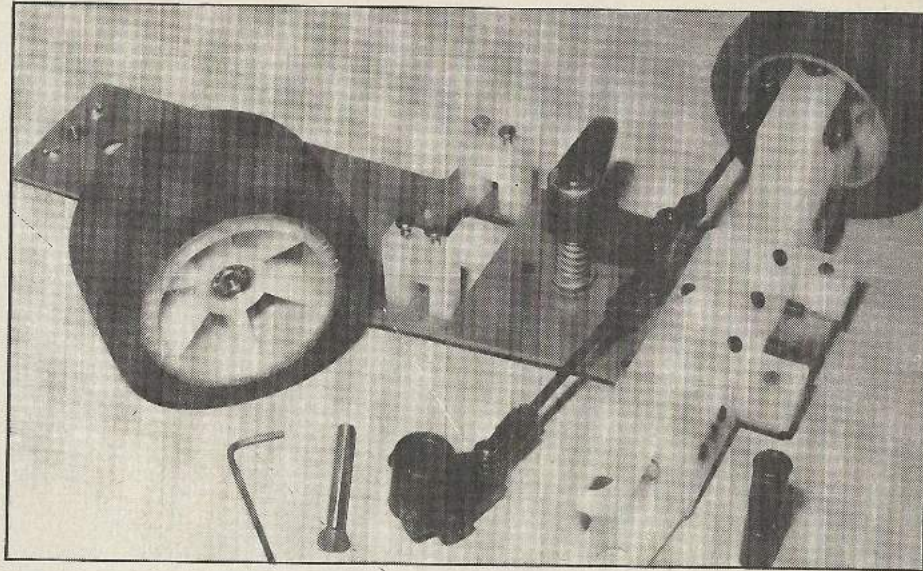
I have fitted a Delta concertina-type paper air filter but there is a specific SG filter if so desired. Do not neglect the fuel filter — again there is a wide choice available and your "favourite" filter can be used.

Not included in the kit is the SG tuned pipe silencer which I have fitted thanks to the generous Model Rectifier UK parcel. A couple of holes must be drilled in the main chassis (they come at 87mm

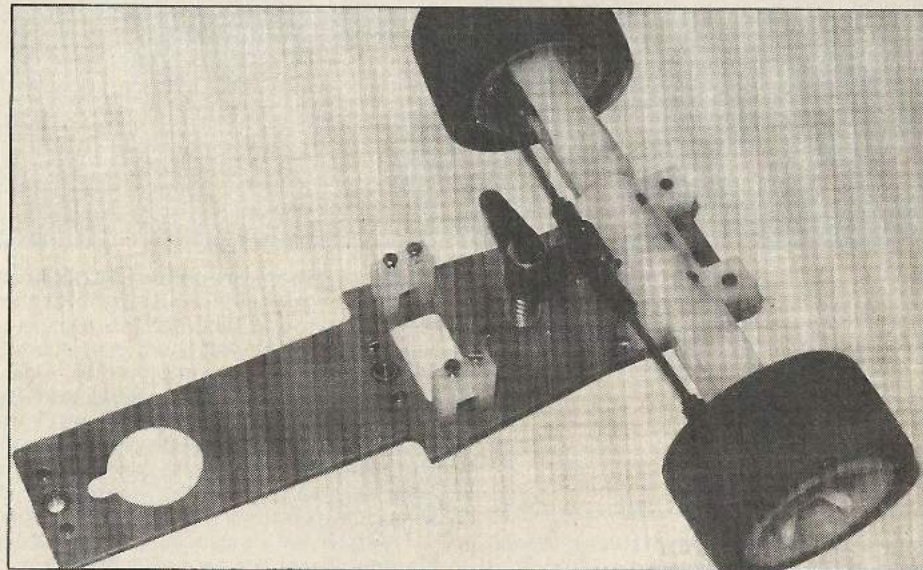
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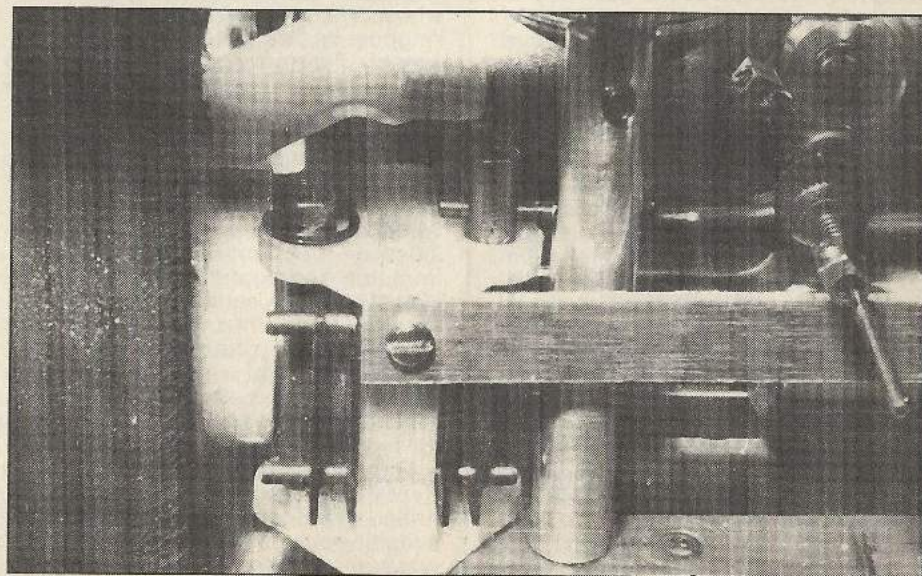
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Swinging section sub-chassis removed. Wheels are ball bearinged, the axle going through the kingpin to secure in place, which an allen screw locks on. "Quickest wheel change ever!"

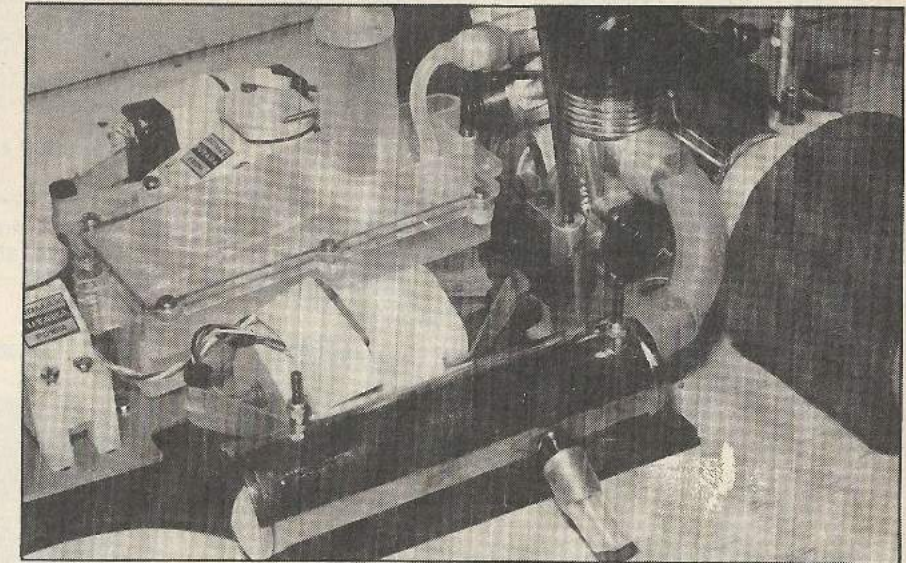


Sub chassis with adjustable steering crossbeam angle of which can be altered via the allen screws at the front. Hole at rear takes fuel tank sump. The two larger holes in line hold the bolts on which this section is allowed to swing.

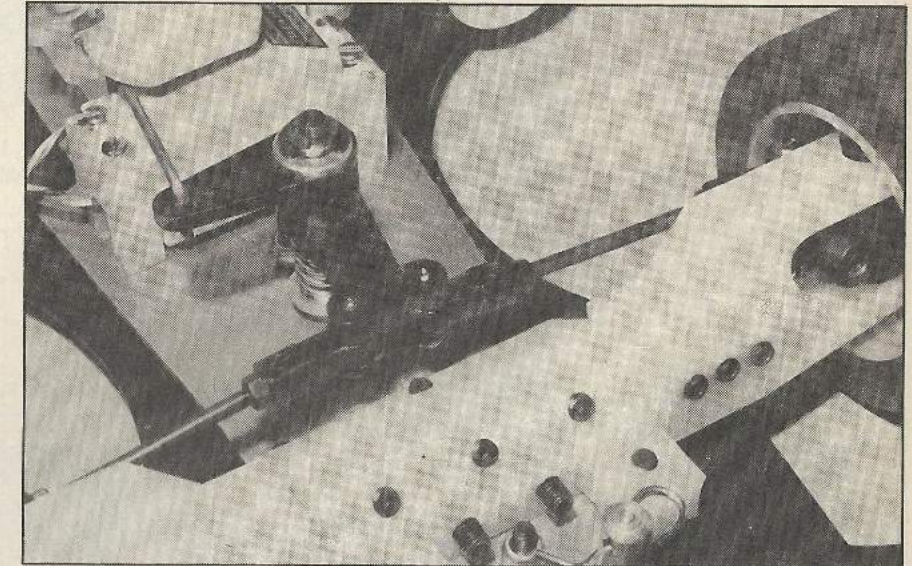


The double disc brakes, one fairly soft the other of metal reinforced material which provide a controlled and even braking facility.

radio control



Detail of silencer attachment. Holes are drilled through the chassis to take the attachment bolts.



Detail of the adjustable steering crossbeam. Inclination can be exchanged to suit conditions at the circuit. Note also secure attachment of ball jointed steering arms with long ST screws.



Alternative silencer pipe with built in bend to meet straight tube to manifold (Robbe). This set-up has also been pressurised to tank.

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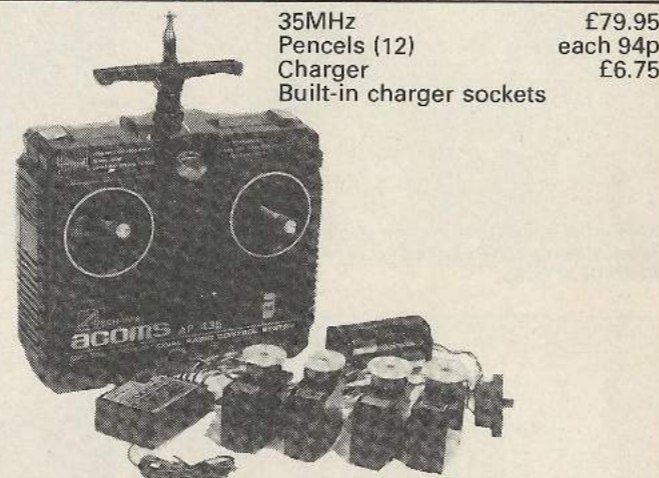
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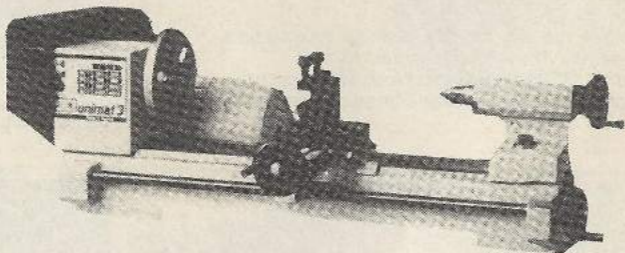
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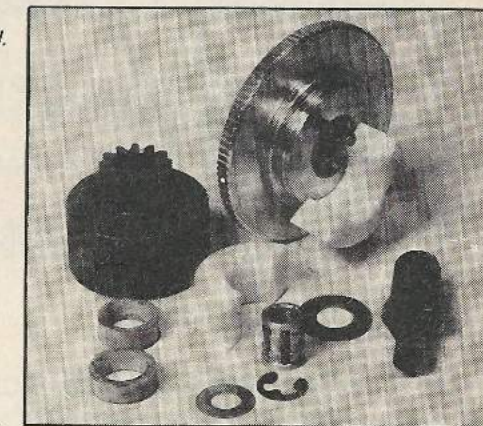
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radio control

SG Futura VCS Montecarlo . . .

Clutch/bellhousing parts. Needle bearings neatly enclosed in cage; flywheel lightened.



The very attractive Picco engine with slide carb. Crankshaft will have to be shortened to take the clutch parts. Manifold shown is suitable for rear positioned "dustbin" type silencers.

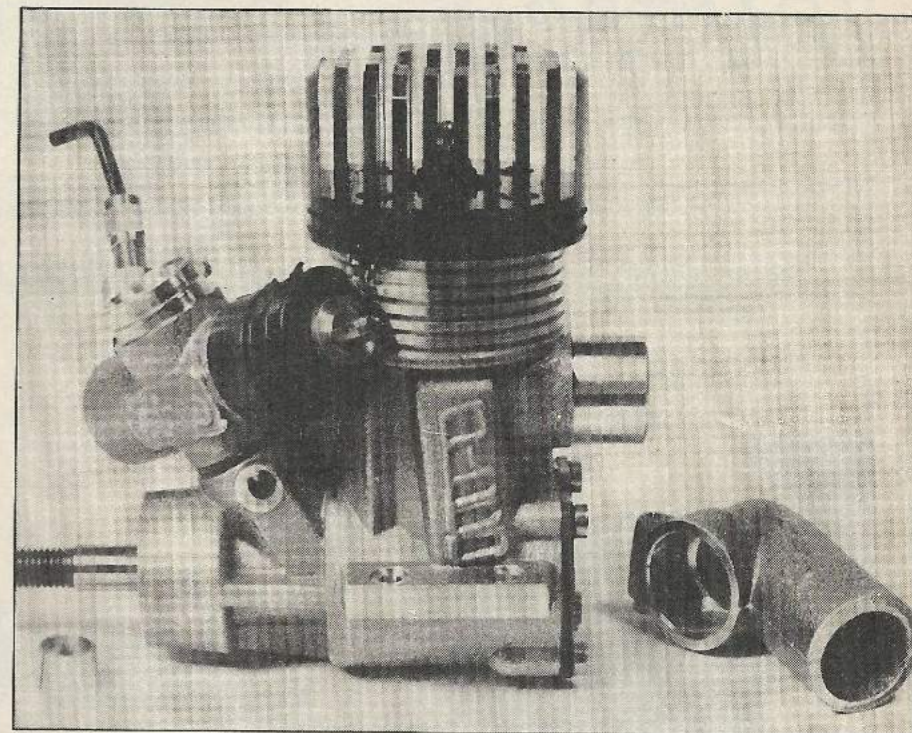
centres) to fix this in place with long screws that go right through the tube. The pipe rests on little rubber bumpers and fits very firmly and snugly. If you wish to pressurise the fuel you must drill for a nipple connection. Make it tapping size for your nipple and ST in place with Loctite to secure it. A suitable connection duly marked will be found on the fuel tank. If this is not to be used it can be blanked off.

Attaching the silencer to the engine is not so easy. Picco provide a manifold but it is so angled that it is impossible to connect to a forward placed pipe silencer. However, the engine has a useful round extension to take silicon tubing directly. Good stout tubing is essential as the sharp turn required makes it prone to kinking. After a struggle I have got mine to work, but, on looking at the SG 1980 Catalogue I see an armoured silencer connection is listed (Art. 0846) specifically for the Picco or SuperTigre X21 RE, although the silencer itself shown is different from the one I have.

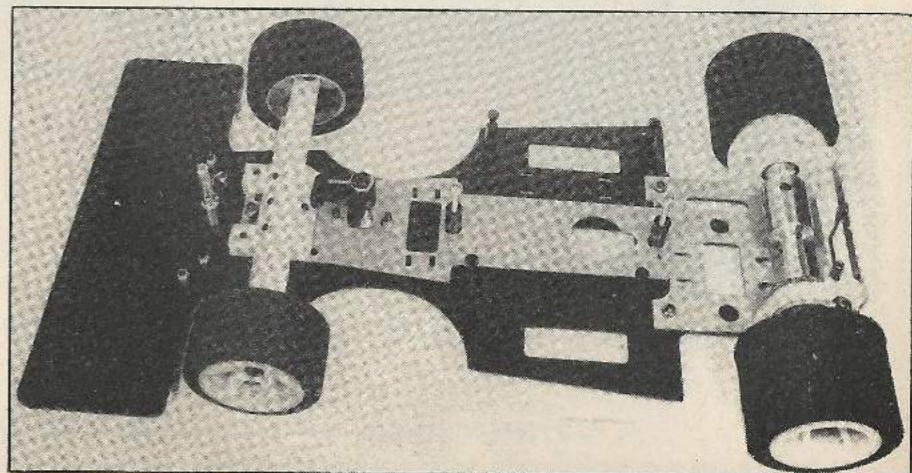
No trouble should be had installing servos and radio equipment. In spite of the silencer there is ample room to sling the battery beside it and it goes happily on the other side. On/off switch I have placed just in front of the slung Rx. SG provide an excellent whip aerial and a suitable fixing bracket which can be fitted just behind the Rx. Steering servo is the smaller size which beds down well on the shorter fixing posts, and has a very short convenient run to servosaver. Throttle is also a short pull to the slide carb; only the brake rod is any length at all and just goes through between engine and carb.

A lexan wing is included with suitable fixing wire. Attachments are the same as provided for adjusting brake rod length and should be slid up the wires before bending them to the angle desired. Small metal plates and rubber washers provide adequate seating for the attachment screws.

Attractive SG decals complete the job after painting to suit the body. A body is not included. However, I would venture to say that Italian cars always seem to me to look their best in the international Italian racing colours of bright red.



How the kit comes. Convenient for boxing but swinging section must be dismantled to attach steering servo mounting blocks.





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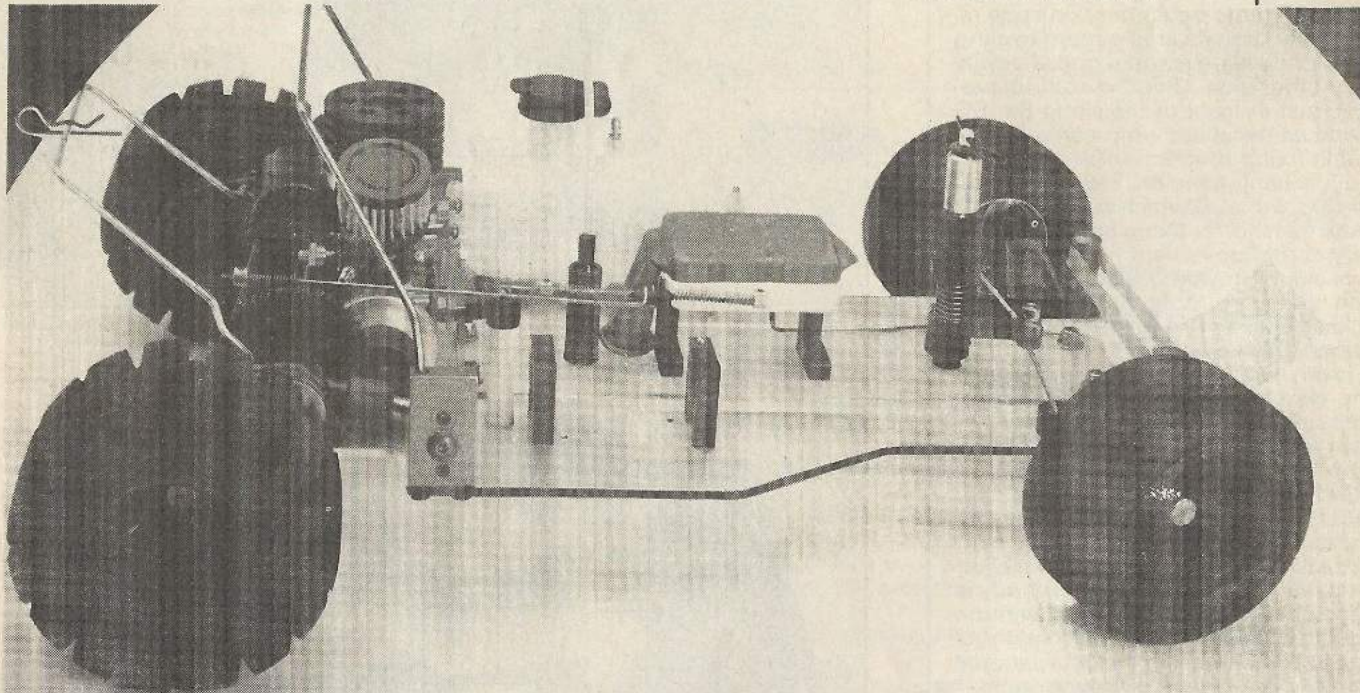
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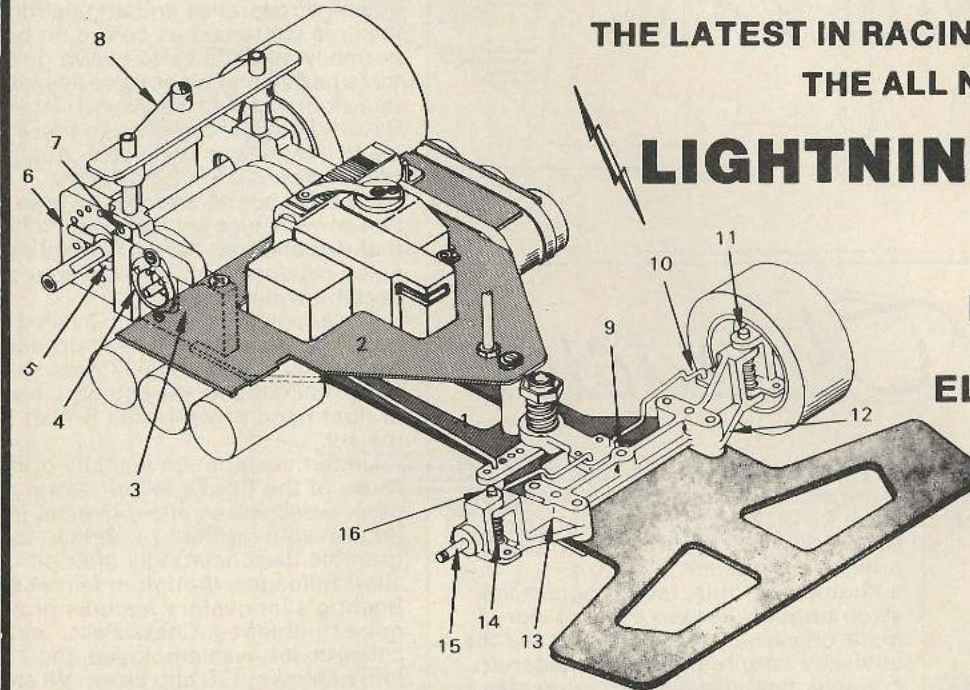
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REAR POD ASSEMBLY

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- 5 * Replaceable oilite bearing (Ball bearing available)
- 6 * Adjustable center of gravity rear axle cams
- 7 * Adjustable wing tube/rear body mount
- 8 * Wing tube tie bar for added strength

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- 11 * Offset kingpin inside wheel on wide wheels
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