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November 1980 Price 60p
Vol. 2 No. 8

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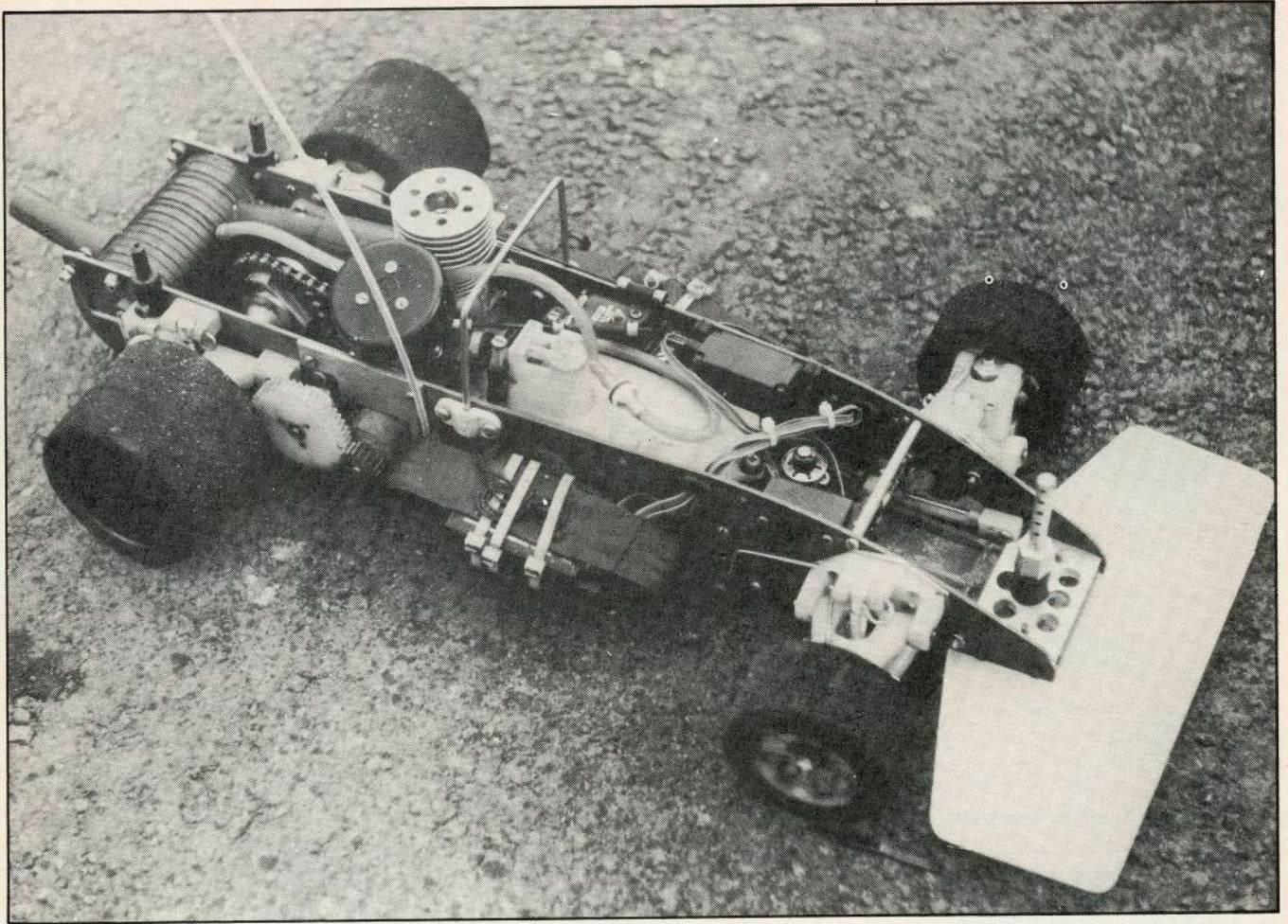


**British Nationals Final
Associated's R/C 12E**

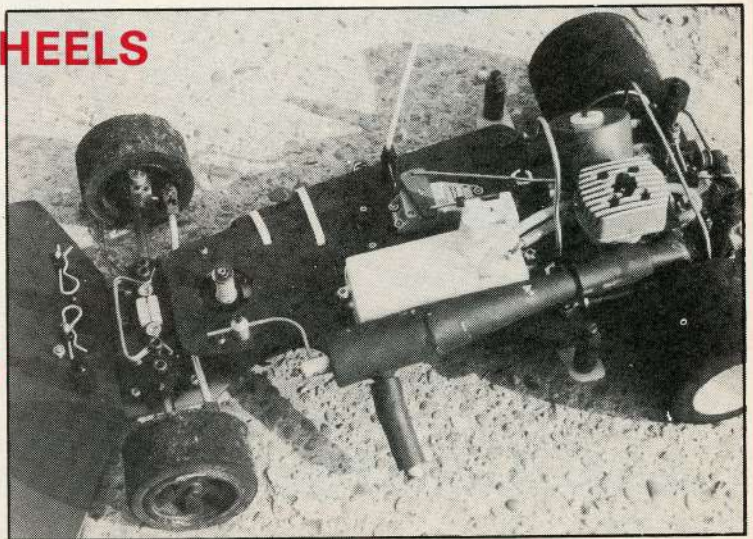
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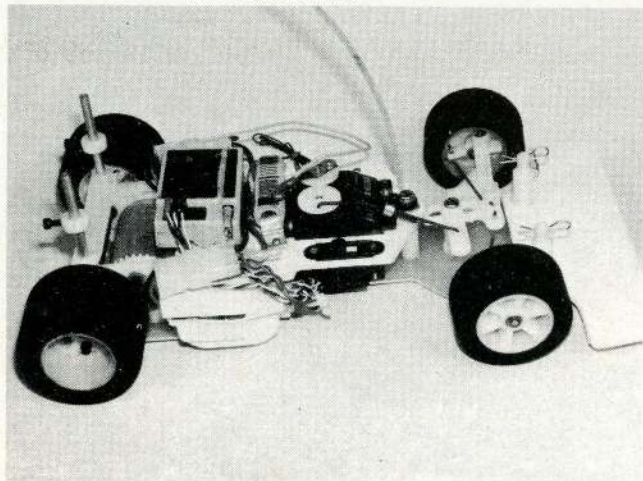
- DAY OF THE WOBBLY WHEELS
- CLUB & TRACK REVIEW
- BRITISH NATIONALS
- RC/12E ASSOCIATED
- MALVERN GRAND PRIX
- FOUR WHEEL DRIVE
- THE AMPS RAPIER



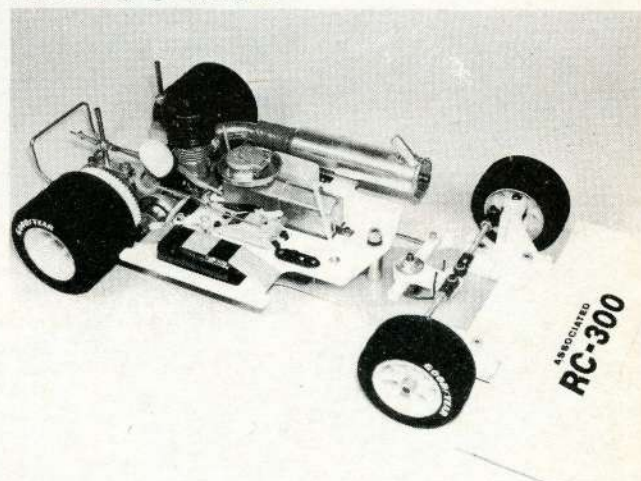
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- | | |
|-------------------|------------|
| 1. Mike Lavacot | Associated |
| 2. Curtis Husting | Associated |

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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WINS Modified Class with
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car powered by a REEDY
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Debbie Preston

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- | | | |
|-------------------|------------|---------|
| 1. Rick Davis | Associated | USA |
| 2. Debbie Preston | Associated | England |
| 3. Franz Groeschl | Scratch | G'm'n'y |
| 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 WIESBADEN, 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 Semi's.

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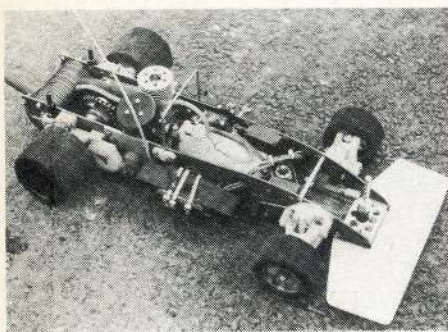
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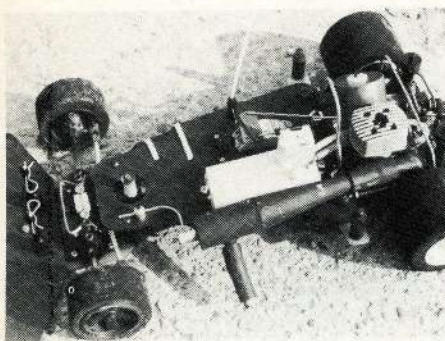
Available from IRVINE ENGINES

Editorial

THE DAY OF THE "WOBBLY WHEELS"



The PB Racing Products prototype independent suspension car. Note chain drive, mid engine location, stout box chassis and spur gear drive to chain take-up. A further description is expected for next issue.



The Booth-Preston semi-independent suspension. In this version a modified de Dion system of rear suspension has been employed, axle links the wheels but does not carry diff. and drive, these being mounted separately this freeing axle from the turning effect of engine and wheel drive. Front axle springing has now been added prior to the Belgian GP win.

ONCE AGAIN a new development in 1/8th scale racing in the shape of 'wobbly wheels' an affectionate description of the latest independent suspension cars which have suddenly repaid the work spent on them to point the way to even better racing. Once again too, the firm of AMPS Ltd., in Hertford has led the way with the first production run of such a car in the shape of their 'Rapier' ... I hear that this first run has already been taken up in full and another production line laid down. Hard on their wheel treads in all senses of the word come the all round independent suspension cars of PB Racing Products Ltd., of Havant with their Prototypes No's. 1 & 2 (I don't know if they followed the Italian system of labelling them Provo 1 and Provo 2).

It is a joy to see that the PB design is entirely different from AMPS, with their engine placed more nearly amidships (no — up the chassis) driving the rear wheels by chain drive. Motorcycles go very fast this way and it allows for considerable and speedy gear ratio changes. We hope to be describing this system in detail in our next issue. Meanwhile we have already visited the nearby Hertford works for an eyeball to eyeball talk with Ian Agnew included this month, together with Tom Martin's enthralling account of the British Nationals.

But there is still a third contender in the 'wobbly wheels' stakes — the Phil Booth/Dave Preston car. This appeared at Wombwell as semi-independent (rear wheels only) in De Dion style on fullsize lines. It

performed well for a first outing, but, with modifications has since won the Belgian Grand Prix in Ghent from Keith Plested's wobbly. It now has all round suspension using a similar front end arrangement to the PB. We have lots to look forward to next season.

24 HOURS OF LE MANS (1/12th scale)

Midland Modelling Association will probably have already run their ambitious 24-hours Le Mans Race on 25th and 26th October by the time this appears. It will be run in Birmingham during the Motor Show (fullsize) and take place in the City Centre on the Central Library concourse — under cover but open on sides. Six in team, floodlit at night — imagine it with at most eight minute runs before changing cars to re-charge ... probable real mileage about 200 plus miles covered in the period! Look out for press mentions!

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.



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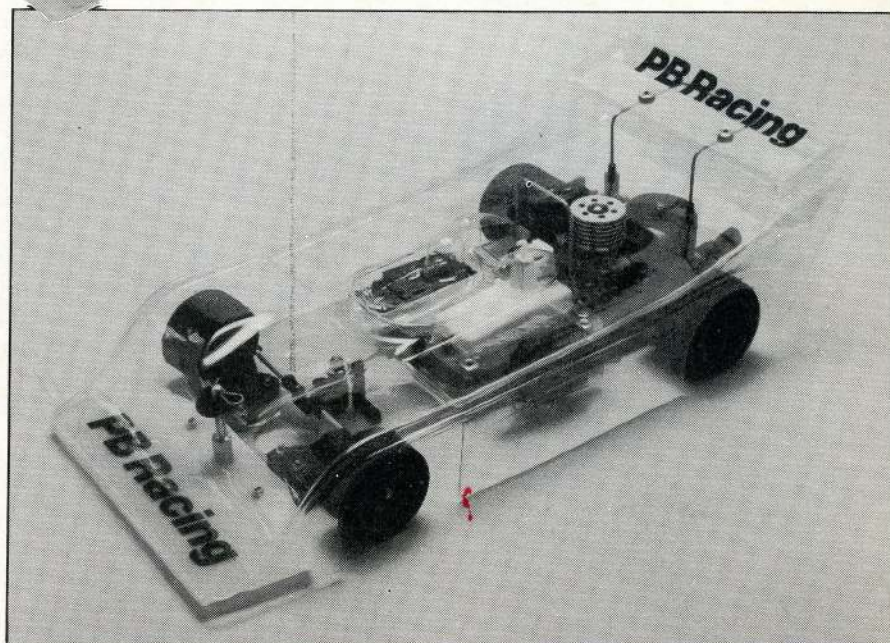
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NERCC track including re-fuelling area.

Club & Track Review

WORLD CHAMPIONSHIPS are looming up again — this time hosts will be ROAR the American governing body (it stands for Radio Operated Automobile Racing by the way) and takes place in Indianapolis, where better indeed, from June 27th to July 5th 1981 with 120 drivers taking part. European share will be 48 drivers plus reigning World Champion Phil Booth (GB) with perhaps seven or eight places for GB drivers. So we can't all go; but it is probable that arrangements will be made for a special spectators and supporters flight, hence this early warning. Folk wanting to go can start stuffing their piggy banks with folding money right now. As any information comes to hand I will announce it. Certainly a better and more suitable site for the event could hardly have been chosen.

NORTH EAST R/C CLUB

Public Relations Officer: Bill Gordon
(Tel: 0632 - 887218)

Three cheers for the NERCCC! The club provides the best pics in black and white and a good report of its meetings. I am only sorry we can use so few of them, but we can give their report — an excellent example of how to do it: The smell of high performance fuel, cars accelerating nose to tail and jockeying for position — not Brands Hatch but the 1980 Dutton Forshaw sponsored meeting for 1/8 r/c cars, the venue being a car park adjacent to Dutton Forshaws showrooms at Blaydon, the kindly sponsors.

The days racing began at 11 am with five minute heats to determine the top twelve drivers for the two six-car finals. From the early leader Les Bailey with 22 laps in 5.08 times improved to FTD provided by Jim Brown 24 laps in 5.07. At the start of the B Final (7th to 12th fastest) Brian Coombs who had completely re-built his engine (60,000 rpm bearing 'blown') rushed to the start line only to find he had forgotten to fuel up and then lost 28 laps by flooding the engine. Meantime, Gordon Kell built up a commanding lead, followed by junior member Mike Loftus. In the A Final Jim Brown proved to be unstoppable, finishing over 20 laps ahead of the field.

Finalists received their trophies from Dennis Blogg of Dutton Forshaw, plus a special trophy for FTD presented by Mr Swan of Shell Oils. Entry fees for the race

of £22 were donated to the British Heart Foundation. B Finalists: (1) G. Kell 90 laps (2) M. Loftus 74 (3) I. Cowie 57 (4) J. Clark 56 (5) B. Coombs 56 (6) G. Bourn 49. A Finalists: (1) J. Brown 142 laps (2) K. Thornton 124 (3) A. Clark 122 (4) L. Bailey 115 (5) D. Coates 110 (6) J. Calrk 97.

CARDIFF RED DRAGONS R/C CAR CLUB

Secretary: Tony Jones
10 Wavn Lee Court
Bryn — Pinwyckle
Pentwyn CARDIFF

The Cardiff club previously listed as Mid. Glam Carrefour CC, is now coming towards the end of its first year. With a pretty successful racing season in both ic and electric, a seventy strong membership and still on the increase. One eighth scale racing takes place at John Williams car park, Curren Embankment, Grangetown between 2 - 7 pm on most Sundays when not competing in any BRCA or club meetings. Electric racing is at Cathays Community Hall, Cathays, Cardiff every Wednesday and Thursday between 8 - 10 pm. Visitors and new members always welcome.

RADIO STOCK CARS LEICESTER

Secretary: Stewart Busby
72 Rosmund Avenue
Braunstone (Tel: 898683)
Leicester

Membership stands at time of writing at 93, with expectation of topping the century by the end of the year, representing about one fifth of current total Radio Stock Car Association membership! A very full programme has been operating during the season, and it is encouraging to note that a number of racing drivers from the 1/8 ic. scale stables have been enjoying stock car racing, names to note being Andy Digby, Paul Ekins and others.

Another sign of this cross-fertilisation is the Lilford Challenge Cup meeting held on August 31st at the very centre of Formula and Sports/GT racing. Certainly any drivers finding the pace too hot, could well enjoy the less demanding and friendly atmosphere of stock car racing.

The Radio Stock Cars Leicester newsheet is an excellent club effort with hints and tips, news, and the useful inclusion of trade adverts to help along costs plus informing members of current prices and opportunities.

ESSEX ROWDIES RC CAR CLUB

Secretary: Diane Coggins
6 Alcester House
Northallerton Way
Harold Hill (Tel: Ingerbourne 74752)
ROMFORD, Essex

Club Chairman/Organiser Tony Coggins sends this encouraging message: 'After the unfortunate closure of the London RC Car Club (ground wanted for building Ed.) we are pleased to announce that we have now acquired a new track in Essex. The track is situated at the North Weald Aerodrome. It is a purpose built track made or laid in about 1969, at the moment in slight disrepair. However, with enough interest and backing it can be made into a very good track.

If there are any people interested in this new club please phone or write to the above address. At the present time we have fifteen members and are still accepting applications. I would like to point out that this is NOT an extension of London RC Car Club so that we cannot accept old London memberships which were paid shortly before its closure. Here's to the rest of the 1980 season and racing (hopefully) on a new laid track in 1981'.

SUSSEX ADDERS MODEL CAR CLUB

Secretary: Gerry Hooper
12 Bramble Crescent
Durrington (Tel: Worthing 62013)
WORTHING, West Sussex

Another nice newsletter by the Adders entitled 'Short Circuit'. This recounts their improved showing in the Southern League third round, where instead of their customary fifth position they made it to No. 2 behind the home team Swindon. The club has also been showing the flag with demonstrations, including a lunch break spectacular at the Worthing Stock Car fiesta meeting when they demonstrated Electric Car Racing. They are organising the South of England Grand Prix for 1/12th Electric Cars on Sunday November 2nd at the Corn Exchange, Church Street, Brighton starting at 10 am. Happily this is also the 'Old Crocks' (shame on us for so calling them!) London to Brighton run, so that visitors not too engaged in racing can have another interesting event to watch. Spectators welcome entries forms from Sec. as above.

MENDIP MODEL MOTOR RACING CLUB

Secretary: Terry Tawton

Probably the most consistent of the News Letter clubs, Mendip is enjoying a splendid season with the circuit in fine shape, grass cut, and kindly rain to keep it green, plus a regular renewal of track surface from last week's burnt rubber! We must pass on the compliment paid to member Julie Coles who handled the heavy mower as one to the (wo-) manner born! The club would dearly have loved to take over that cancelled British Grand Prix meeting but we will hope to be putting in for at least some national events in 1981. They certainly have everything to offer now that the track surface is so smooth — caravanning, good hotels nearby and offer of expert additional assistance from nearby Bristol club.

The Big Winners: Left to right Dave Martin and Gary Culver, first and second in Sports/GT; in the middle Steve White who scored a double with his PB in Saloon and Formula Championships 1980.

*Tom Martin
reports on ...*

The British Nationals Final

THREE DAYS OF near perfect weather, a full entry of 120 drivers each day, organisation second to none in British racing, the battle of independent suspension versus the rest for technical interest and the year's national championships were guaranteed success.

In the pits on the first day much interest centred around the 'wobbly wheels'. AMPS took space in the programme to announce production of the Rapier, the all independent car which they have developed in open competitions this season, and, hot on their heels PB Racing Products had a second prototype of their full suspension on show in the hands of Paul Pagdin.

Under Saloon bodies with no previous practice (The Rapier left the factory at 4.00 am on Saturday!) suspension showed few of its advantages and in the qualifying rounds, both AMPS and PB cars appeared to have little or no advantage over the rest. The very fast, resurfaced, straight and approach bend, with the uneven twisting inner circuit made choice of tyres and chassis stiffness difficult. Steve White showed that he knew the answers on his home circuit and his very fast eleven-lap qualifier took the FTD trophy and a straight through place to the final where he was joined by Fred Martin, Walt Bailey, Bob Errington and Chris White as fastest qualifiers.

Not far behind in qualifying times M. Newman, J. Russell, A. Sturgess, A. Stafford and A. Gilbert took the straight through places for the Association (non-sponsored drivers) final to be joined from the Association semi-final by Paul Leach, Graham Wildgoose and Rob Winstanley to make the eight finalists.

In the Open Semi-final the Rapiers of Dave Martin and Gary Culver began to show their advantages as the AMPS pit found more suitable suspension settings, but they could still only manage second and third places behind Debbie Preston to make the final. The Handicap final once again gave the lower handicap and scratch drivers a chance to show their improvement, with Northern Ireland well represented by John Campbell and 'Doc' Patterson, and the ladies represented by Leeds housewife Maggie Broadbent, the highest handicap qualifier. However, it was newcomer Jim Brown with his 10% handicap after his startling appearance as an Open finalist at West Burton a few weeks earlier, who took the day's first championship, after a keen chase by runner-up Neil McLeod.

In the Association final Rob Winstanley took a lead he was never to lose to become the sport's first Association Saloon Champion. In the Open Final those Rapiers of Dave Martin and Gary Culver showed further improvement and though they couldn't quite make sufficient impression on fastest qualifier Steve White, they made him earn that Saloon Championship by driving into close second and third places.

In many ways Saloon racing took on a respectability which previously it lacked. They didn't look like dodgem cars, they didn't run like stock cars, and, as later racing showed, they were barely slower than the cars with open wheels in the Formula class. Spectators certainly enjoyed the day's racing and so did the drivers!

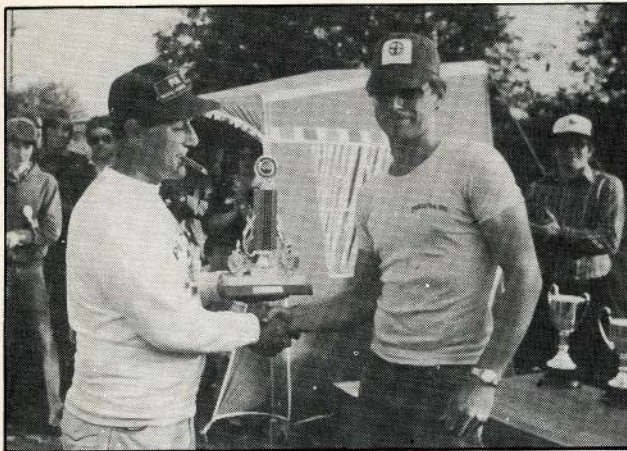
In the first round of heats on Sunday the suspension cars gave notice that they had advantages. Paul Pagdin put in a very fast run with his chain drive PB prototype and

Keith Plested now in the field with PB No. 2 (or is it No. 1?) drove most impressively, albeit somewhat noisily, to emphasise the challenge. The two Rapier cars were now clearly suspension matched to the circuit and going well and established drivers were having to show all their skills to stay on terms. In round 2, Dave Martin put in the day's fastest eleven laps, and three suspension cars went on straight through to the final joined by Steve White and Bob Errington.

In the Open Semi-final Phil Booth showed his development semi-independent car was no mean performer and won the event from the second independent car of Keith Plested for places six and seven in the final with Debbie Preston filling the remaining place. Northern Ireland emphasised the improvement which the sport is enjoying in Ulster when John Campbell and 'Doc' Patterson once again qualified for the Handicap Final. In the event proper John Campbell drove impressively to mock the handicapper and take the championship in convincing style with Neil McLeod having to settle for his second runner-up trophy of the meeting.

For a short while Rob Winstanley looked set for a double in the Association Final. But it was not to be. Problems for Rob and a near faultless drive by Martyn Williams saw his SG car take the lead near the half way mark, and so it stayed.

The Open Formula Final exploded from the start line into a battle of the suspension cars. The silver PB driven by Keith Plested went into the lead. Dave Martin's red and silver Rapier swept through the field after a slow start and it was a battle between these two with quite another race behind. The OS powered PB was making fewer pit-stops than the OPS powered Rapier, and



Keith Plested, cherooted as ever, makes the presentation of Formula Trophy (sponsor Broad Oak Garage) to Martyn Williams winner of Association Final.



Derek Hickling of sponsors Leen Valley Engineering makes the award to Rob Winstanley, winner of Association Saloon Champs.



John Campbell receives his trophy for winning sports/GT Handicap from the hands of young Keith Hardiman Jnr., the sponsor's son (Dad was competing!)



"Mrs Hilsborough Motors" gives their trophy to Malc Draycott for winning Sports/GT Association Championship.

although the Rapier showed an edge it looked as though fuel stops might prove the decider. But no! At the half way stage, Dave's Rapier was clearly ahead and after the 15 minute fuel stop went further into a commanding lead, until 20 minutes on the noises went wrong — the Rapier was in trouble! It made another fuel stop and stayed ahead, but then disaster! The tell-tale high pitched scream announced a shortage of gear teeth on the clutch bell; Dave's Rapier was out of the race, and Keith's PB was the clear leader. Steve White from a comfortable third was now second, and then whoops! the PB was weaving wildly leaving corners — no rubber on the rear tyres. The PB pulled into the pits for 'two more on the rear'; it took over a minute — long enough for Steve to make three laps and steal the lead and that's how it finished. Steve had taken his second championship of the weekend, Keith's PB was runner-up and leading lady Debbie Preston took the third spot.

So to Monday — hotter now, with the dust well and truly laid after two days' racing. With round 2 completed FTD stood at 12 laps in 5.002 — Dave Martin's Rapier again. Surely not to be beaten? But in the final qualifying round Dave showed that independent cars really do have an advantage when the traction is in and rounded things off with the only thirteen lap run of the meeting for a pair of FTD tankards.

Straight through to the Open Final went the two AMPS Rapiers of Dave Martin and Gary Culver plus, once again, Steve White, Bob Errington and Walt Bailey. The Open Semi-final saw a win for Paul Pagdin's PB independent and places in the final for Phil Greeno and Debbie Preston.

Paul Leach ran in the Open semi, but finally settled as the fastest Association qualifier with Malc Draycott, Malc Bartlett, Martyn Williams and Andy Stafford in the other four places. The Association semi saw a win for Rob Winstanley, a Scottish place for Ian Cowieson and a well earned third for Paul Bullen to complete the eight for the final.

In the Association final Rob Winstanley once again led the field followed by a pack of seven contesting every yard. But Rob was out of luck; the car faltered and Malc Draycott swept into the lead chased by Paul Leach and that's how they finished. Malcolm was Association Sports/GT Champion for 1980 and first winner of the RCM & E Trophy.

The Handicap Final saw Ulster again represented by John and the 'Doc', and John made it two in a row to take his second win of the weekend with Neil McLeod as runner up for the third time in three days.

The Open Sports/GT Final marked the arrival of independent suspension as big time. Neither of the Rapiers was quickly away and down the first straight they brought up the rear. With comparative ease Dave Martin and Gary Culver slipped their cars through the field, with Dave

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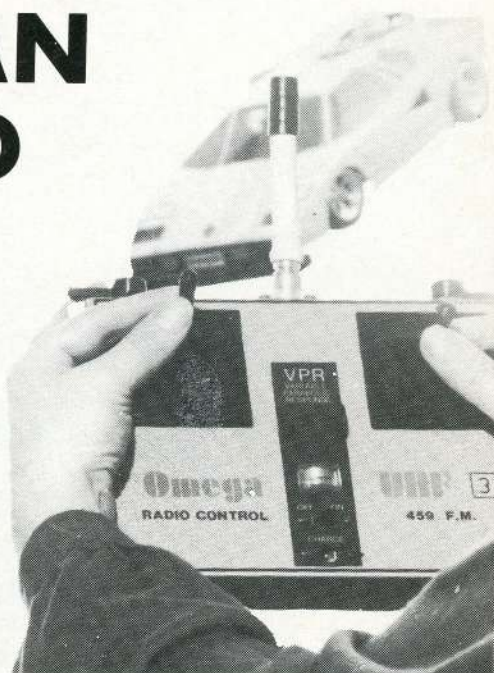
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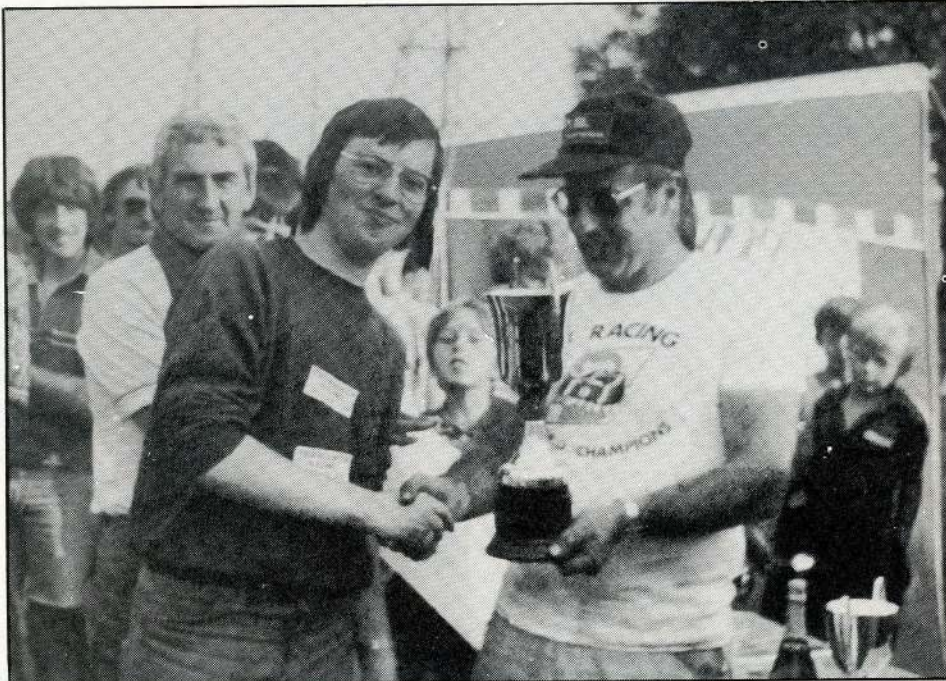
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taking a comfortable lead, and there they stayed. A pit stop at twenty minutes saw the excitement of a stalled engine for Dave's car and we all wondered if we were to see a repeat of Saturday — after all, Steve was in third place! But no — Gary took a half lap lead, Dave was quickly back on the circuit to open the stops and after three laps more was once again in the lead.

Driving to conserve tyres and mechanical wear the Rapiers crossed the line comfortably ahead. Dave Martin was the 1980 Sports/GT Champion, Gary was runner-up, but somehow we felt the real winners were in the pits: Ian and Miller Agnew of AMPS. They have smiled through the many frustrations of development to see the success which opens yet another dimension in the sport.

The Wombwell Club and Eighth Chairman/Race Director Eric White can be proud of their presentation for 1980 — a bigger programme than ever before, a bigger gathering of drivers and families (64 tents and caravans trackside), more trophies and most important more smiles than ever before. Congratulations to everyone who played a part — the next ten years is assured!



Dave Martin receives the first award of the Brian de Boo Memorial Trophy for outstanding performance at the National from Keith Plested.

Results and Awards

British Formula Championships 1980:

Open Champion: Steve White
Open Finals: sponsored by PB Racing Products Ltd.

1. Steve White
2. Keith Plested
3. Debbie Preston
4. Bob Errington
5. Phil Booth
6. Dave Martin
7. Paul Pagdin
8. Gary Culver

British Saloon Championships 1980

Open Champion: Steve White
Open Finals: sponsored by Sheffield Hobby Centre.

1. Steve White
2. Dave Martin
3. Gary Culver
4. Fred Martin
5. Walt Bailey
6. Bob Errington
7. Chris White
8. Debbie Preston

British Sports /GT Championships 1980

Open Champion & Winner of the Brian De Boo Memorial Trophy: Dave Martin
Open Finals: sponsored by AMPS Ltd.

1. Dave Martin
2. Gary Culver
3. Steve White
4. Walt Bailey
5. Phil Greeno
6. Debbie Preston
7. Bob Errington
8. Paul Pagdin

Association Saloon Championships 1980

Association Champion: Rob Winstanley
Association Finals: sponsored by Leen Valley Engineering

1. Rob Winstanley
2. Mick Newman
3. Paul Beach
4. Graham Wildgoose
5. John Russell
6. Alan Sturgess
7. Andy Stafford
8. Alan Gilbert

Saloon Championship Handicap 1980

Sponsored by: White's Domestic Appliance Services

1. J. Brown
2. N. McLeod
3. M. Simpkins
4. B. Patterson
5. Mrs M. Broadbent
6. A. Clark
7. J. Campbell
8. K. Hardiman

Association Formula Championships 1980

Association Champion: Martyn Williams
Association Finals: sponsored by Broad Oak Garage

1. M. Williams
2. P. Leach
3. M. Newman
4. R. Winstanley
5. G. Wildgoose
6. I. Cowison
7. P. Draycott
8. P. Bullen

Formula Championship Handicap 1980

Sponsored by Jim Davis Models

1. J. Campbell
2. N. McLeod
3. P. Francis
4. K. Spencer
5. N. Marsh
6. S. Wragg
7. B. Patterson
8. L. Orriss

Association Sports /GT Championships 1980

Association Champion & Winner of the RCM & E Trophy: Malc Draycott
Association Finals: sponsored by Hillsborough Trophies

1. M. Draycott
2. P. Leach
3. Malc Bartlett
4. I. Cowieson
5. M. Williams
6. R. Winstanley
7. A. Stafford
8. P. Bullen

Sports /GT Championship Handicap 1980

Sponsored by Hardiman Motors

1. J. Campbell
2. N. McLeod
3. M. Simpkins
4. B. Patterson
5. A. Clark
6. K. Hardiman
7. K. Spencer
8. P. Francis

FTD Awards

Presented by: Leen Valley Engineering
Saturday **Saloon** Steve White
Sunday **Formula** Dave Martin
Monday **Sports /GT** Dave Martin

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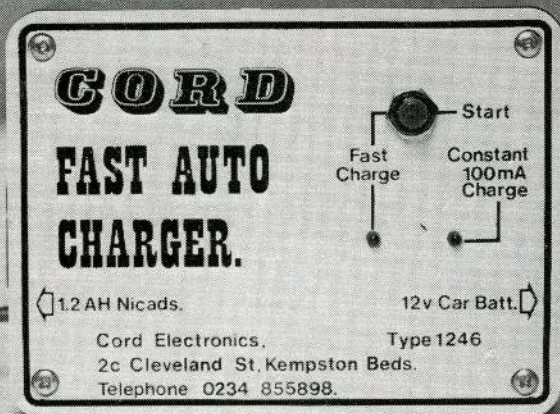
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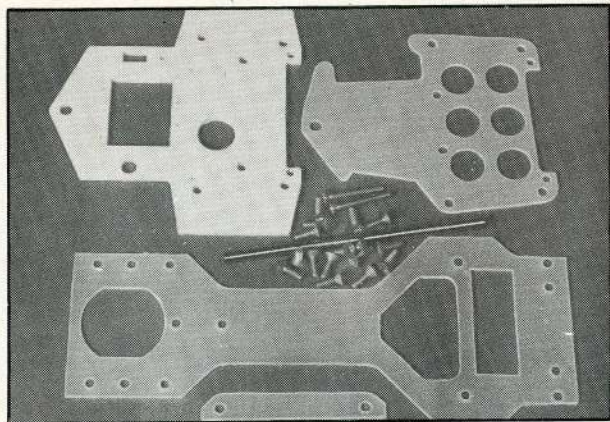
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| Starter switch | £ 1.30 | Sullivan Starter | £28.92 |

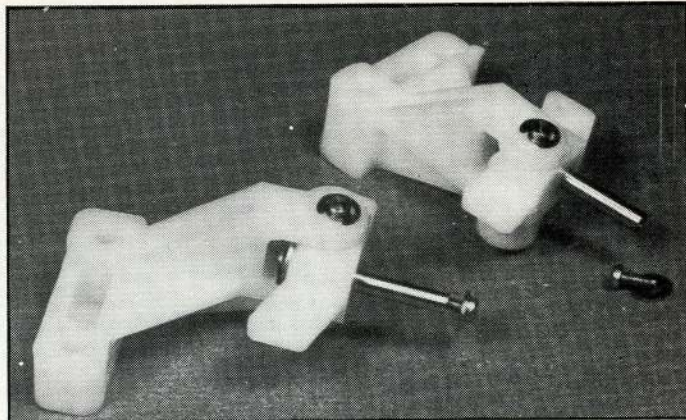
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Threaded stub-axes in place of circlips as offered by Hobby Spot.

RC/12E

ASSOCIATED COMP KIT

IT IS NOW SOME TWO YEARS since the Associated R/C 12E electric car was first introduced to Britain and Europe on the wave of a series of US National Championships wins. In spite of this the car never seemed to make its expected impact over here. Perhaps this was because the initial kits were equipped with tyre set-ups more suitable for outdoor racing on good traction surfaces rather than for the slippery indoor tracks then in almost 100 per cent use. Of course drivers could have changed the tyres ... but ...

Added to this the form of speed control differed radically from the essentially British style of printed circuit boards with both forward and reverse, being wiper type rheostat reminiscent of slot racing hand

speed controllers. This is indeed what they are; wound ceramic coils across which a button head wiper arm attached to a servo output disc sweeps.

The Lightweight R/C 12E

However, there was a very different version in the offing. This I first saw in the winter of 1979 in the respective hands of World Champion Phil Booth and Walt Bailey of Jim Davis, Mansfield. I should add that Associated's favourite girl Debbie Preston had been running an example of this works special clad in a bright shocking pink bodyshell for some time. (The car I mean!)

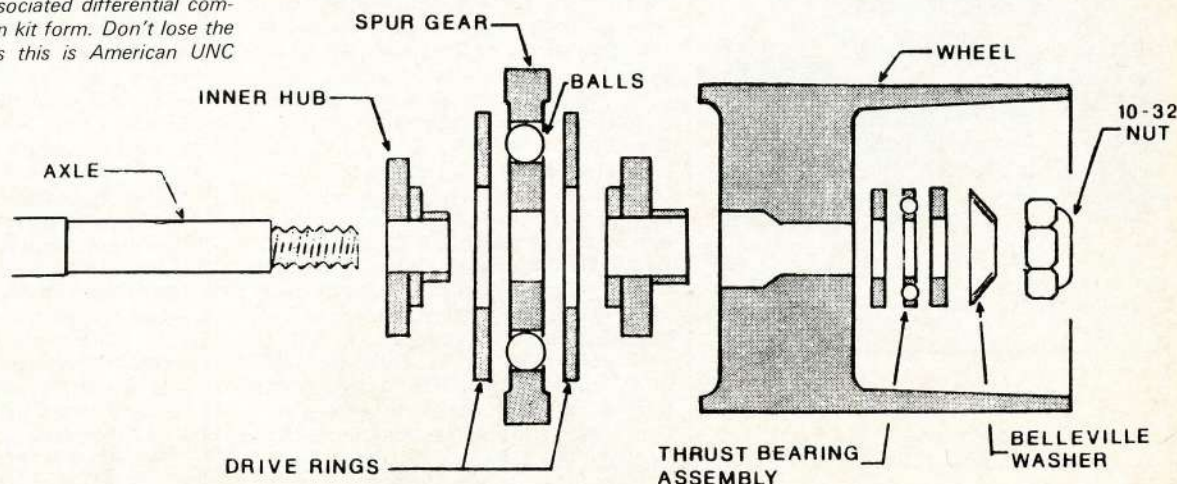
The lightweight kit is now to be had in England and makes up into a formidable opponent for any design on the market. But

let us be entirely objective: it is not for everybody. It comes as a kit of parts to which the builder must add his own accessories and finishing touches. As such it should make a special appeal to be the would-be scratch builder. (That eminently successful Gemini kit contains a number of Associated parts which the special genius of Phil Greeno has made into a fantastic 'out of the box' winner).

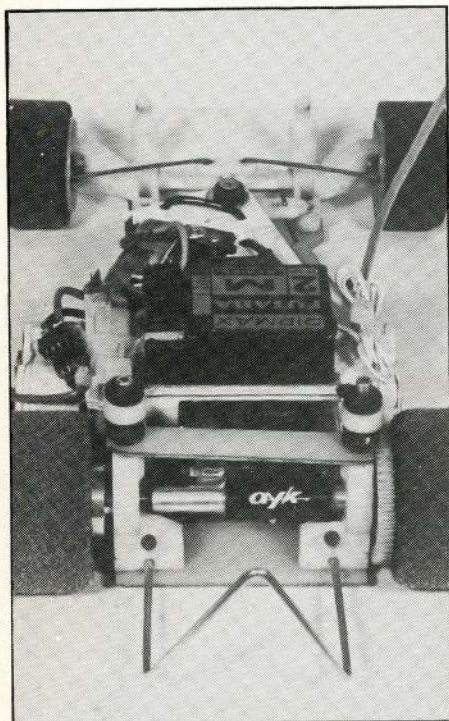
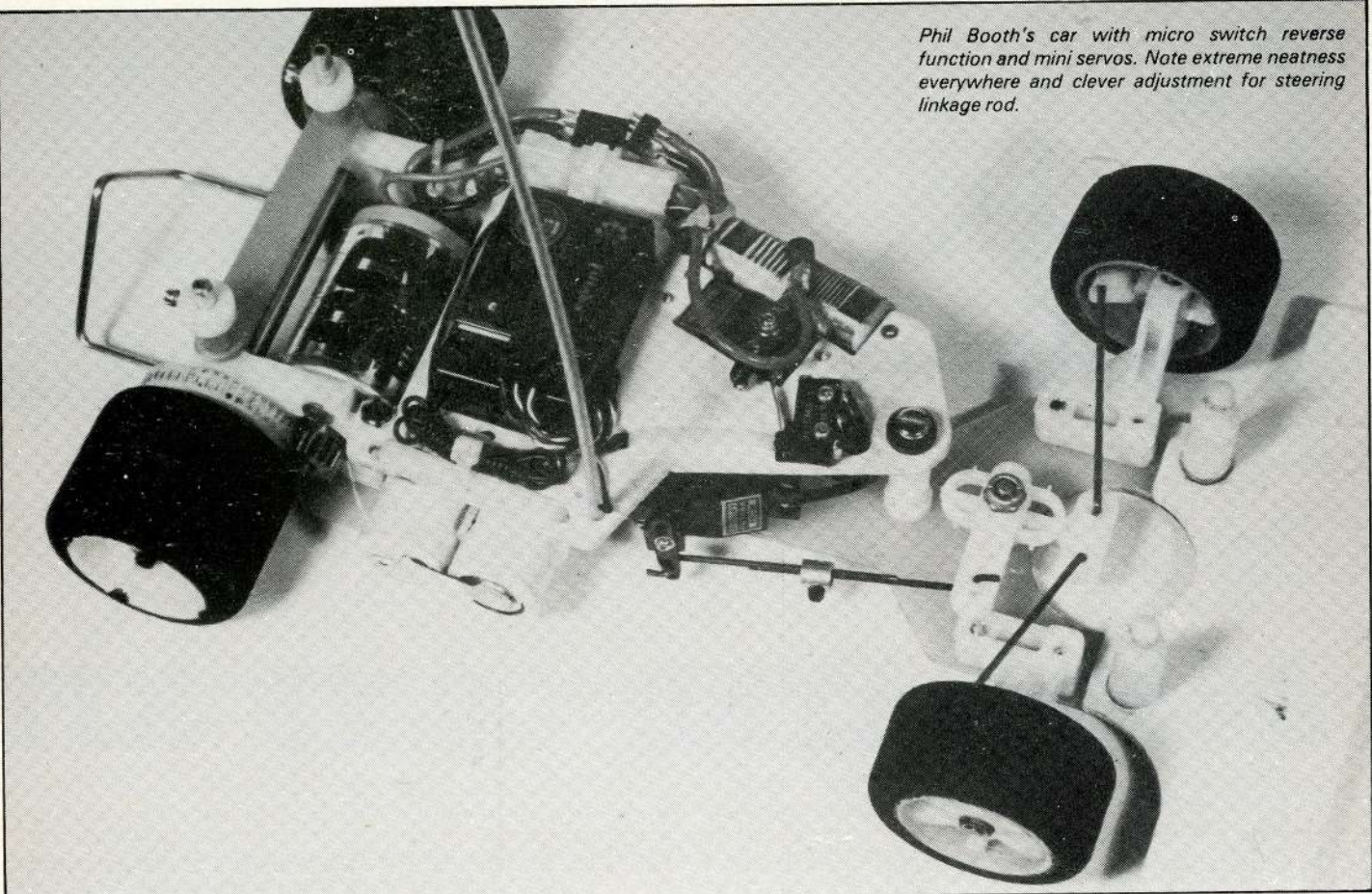
What the Kit Contains

Basic parts comprise: lightweight chassis in GRP, radio plate ditto and brace across plummer blocks. Small front bumper and additional radio plate in ABS. Csk alloy screws, plummer blocks, lightweight steel axle tube, servo saver and

Assembly order of Associated differential components which come in kit form. Don't lose the 10-32 securing nut as this is American UNC thread.



Phil Booth's car with micro switch reverse function and mini servos. Note extreme neatness everywhere and clever adjustment for steering linkage rod.



The neat little AYK differential on Walt's car — at time it was built the only one in the country!

steering blocks, kingpins etc., trued and glued tyres and wheels, nicad tray, miscellaneous cable ties, circlips etc.

You will need as essential components motor, charger leads, speed control, bodyshell, nicads. You can add with advantage Associated (or Schumacher) differential, replacement stub axles with screw retaining wheels in place of circlips (Hobby Spot), rear bumper wires, wing and wing wires. You will need, as usual, receiver and servos.

Perhaps this does not seem a very formidable array. What it does in the first place is to save some 2 ½ ozs of weight. This is made up of the actual GRP board with its lightening holes, ally screws etc. Further saving up to another 1 ½ ozs can be made by fitting mini servos and/or by installing a proportional transistor type speed control such as Demon, Unitrol, Smoothtronic, or LM.

Even without this latter embellishment (Phil Greeno prefers a Demon) weight saving can be made by the usual elimination of separate RX battery by tapping into the motor nicads. There is no danger of losing control by running down batteries as the car stops running (out of power) before this happens.

Now what else can we add to make this a really super job? There is the Associated differential which works using a similar hollow steel tube axle as supplied with the lightweight kit. It is a variation of the popular Schumacher differential (which has a RC 12E version). In my case I had an Associated diff., and found that it was

necessary to run a ¼ in reamer through the alloy rear wheel rims to obtain clearance. If you lack reamers a ¼ in drill will do the job instead.

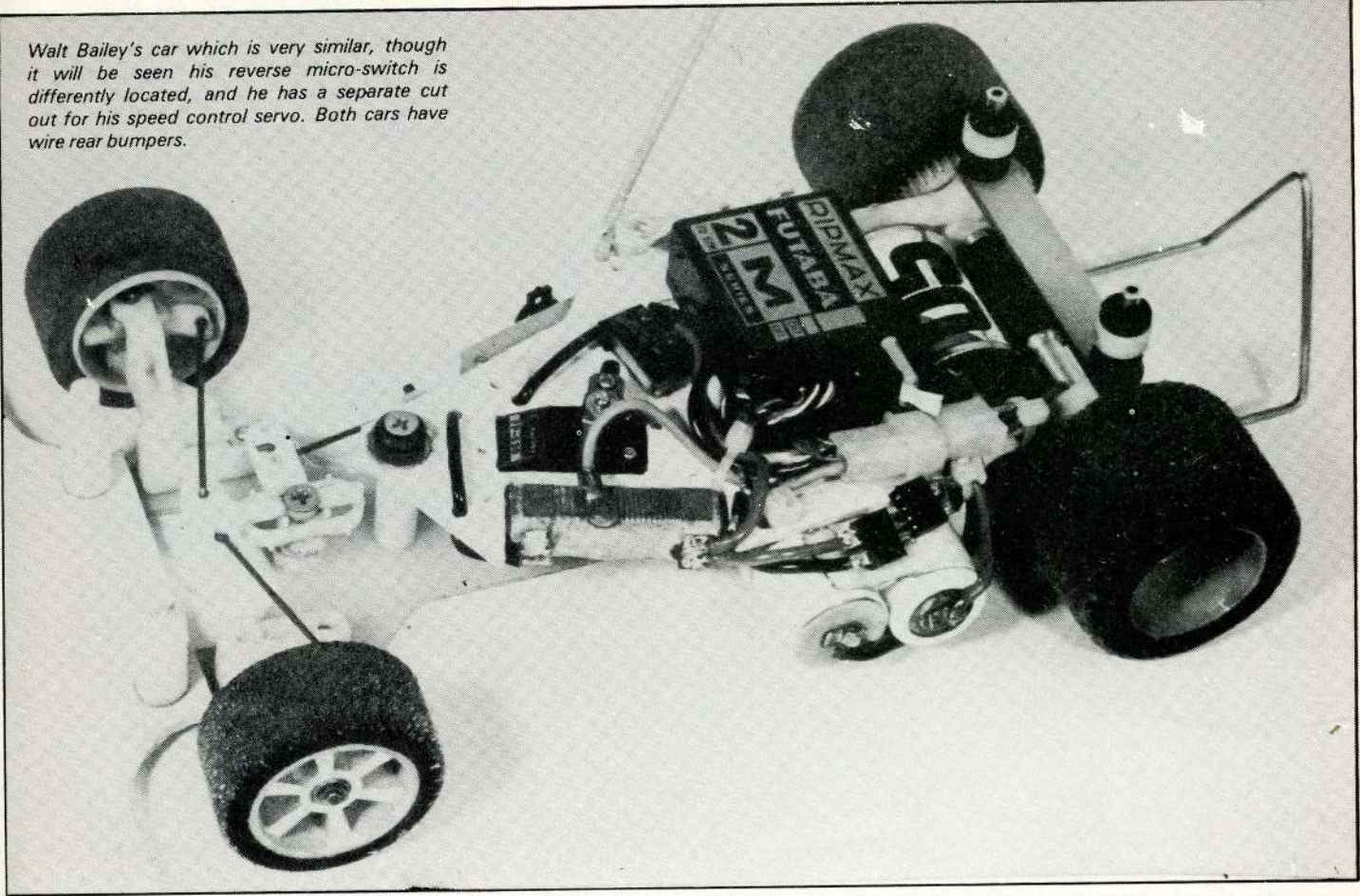
Follow instructions on how tight to fit the diff., holding the axle with other wheel, temporarily fitted in your hands screwing down until it feels just right. No diff., will work miracles but it will be kind to your errors. (What? You don't make mistakes? Never? Well, hardly ever). On slippery surfaces it can be very helpful — with really good traction not so much — so that the expert may feel he can manage with a standard rear axle.

Just another little touch. Hobby Spot have produced some nice stub axles for the car which have been drilled and tapped to take wheel retaining screws in place of circlips. A small virtue but much appreciated if wheelchanging in a tense contest atmosphere.

Speed Controller

To help those who have not as yet tried the ceramic wound type of speed control, a diagram from Associated's splendid instruction manual is included. Two needs are to anchor the resistor firmly on the radio plate by means of small metal clips that can be easily cut from a sheet, drilled and held in place with small nuts and bolts, rather than self-tap screws; the other need is to be sure the lead wire to the swinging arm contact button is thread bound in place. Do not rely on the solder joint to hold it, make sure that the button is in contact with the windings. Note that there is

Walt Bailey's car which is very similar, though it will be seen his reverse micro-switch is differently located, and he has a separate cut out for his speed control servo. Both cars have wire rear bumpers.



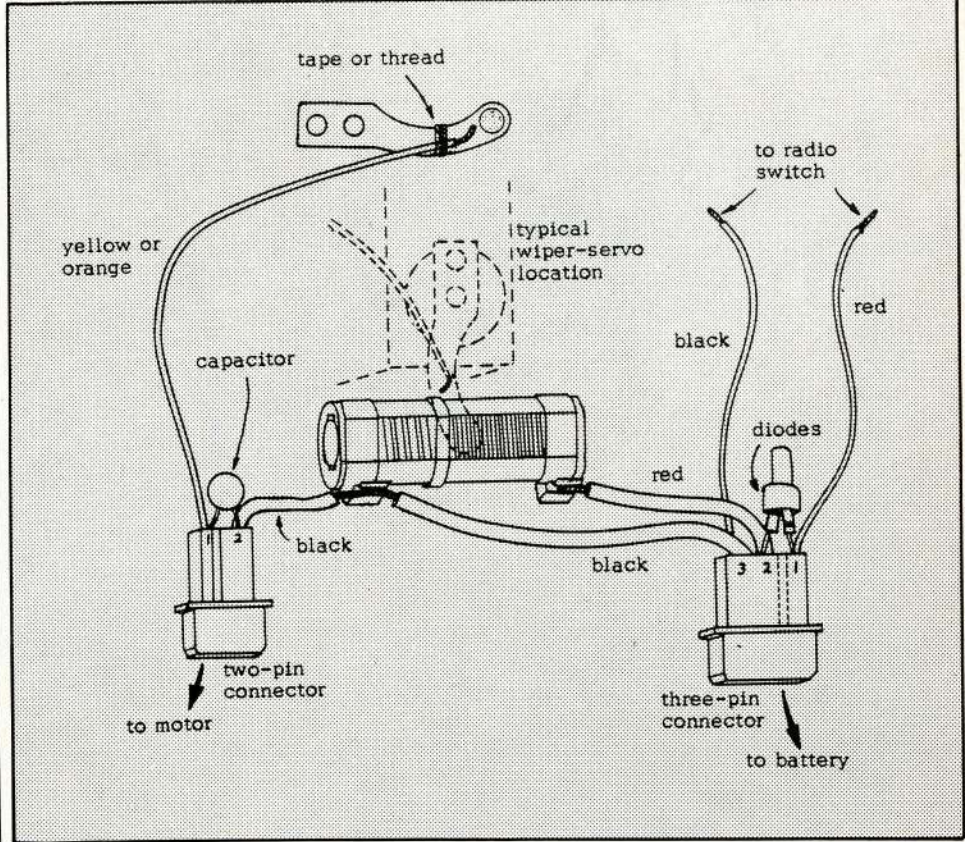
dynamic braking after the neutral point on the windings. Braking is dynamic in the sense that by shorting out the motor it is converted into a kind of dynamo.

Two examples are shown in the illustrations — each with its special points. Note that Phil Booth's car enjoys the best of both worlds with ceramic resistor and reverse. This is done with the little micro switch seen on the radio plate, which reverses the current flow. I do not see it listed on Associated's spares list, but it can be obtained from a good Bo-Link stockist. The other car (Walt Bailey's) enjoys what must be the neatest little 1/12th scale diff., from Japan. It is by Ayk, whose accessories and kits are now being imported by Riko.

Radio Gear

The recently introduced Futaba extra mini size servos help to keep weight down and take up little space. They are, alas, quite expensive so drivers might like to try some other small servos such as those available from World Engines in their Talisman range. Mick Wilshire the proprietor will always be happy to make up a set to suit special needs, so don't be afraid to ask.

All this is intended, of course, for the more expert builder and driver, so that very detailed steps have not been given; but I do hope it has enthused a few people to go ahead with Competition Associated or make them the basis of their scratch built cars.



Wiring layout for wound ceramic type resistor. The wider spread winding to left of thick strap is the dynamic braking section.

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FOUR WHEEL DRIVE?

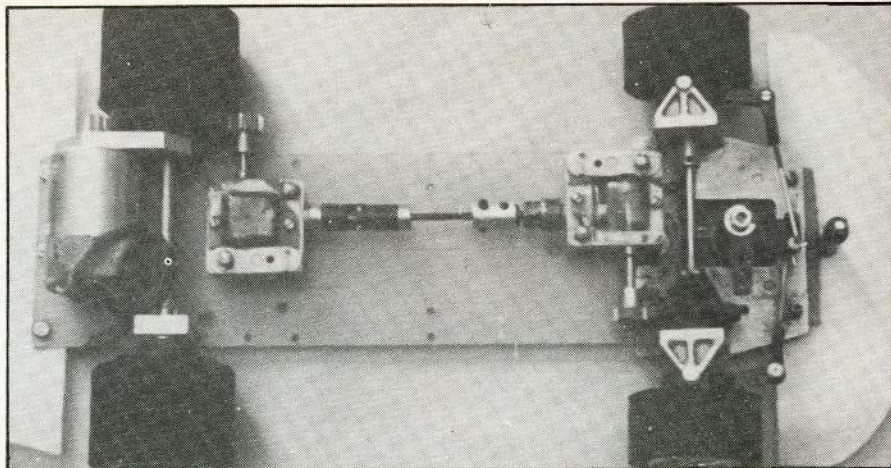
by Philip Cottrell

WHEN I STARTED racing here in Edinburgh, the popular kit car was the Graupner front wheel drive car. After making some minor modifications to Graupner I decided to design something completely

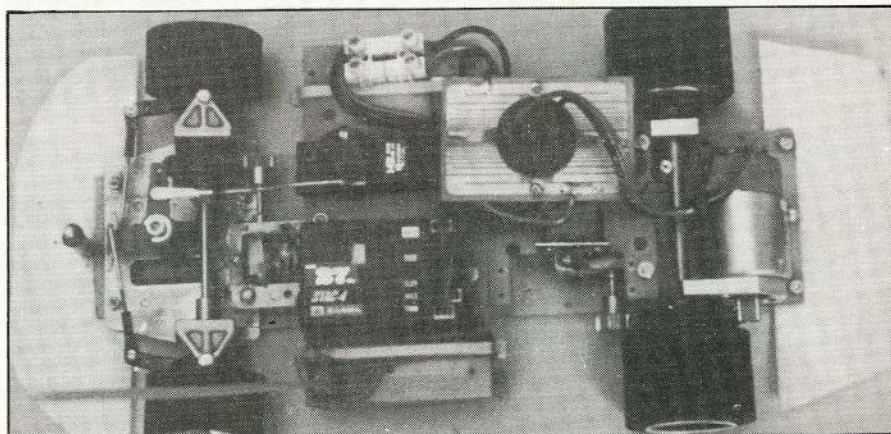
different to improve overall performance. Lacking workshop facilities the resulting creation is a hybrid of various manufacturers parts.

With Graupner FWD experience it seemed that a 4-wheel drive car could have the best handling characteristics of both front and rear drive in one car. The final result is very simple. Chassis is Lectricar GRP narrowed at the front to take the Graupner FWD assembly, standard ballrace rear axle blocks (Lectricar II) and a Schumacher differential (54T) is used. Motor is mounted behind the back axle using 11-13T pinions. Wheelbase 7 $\frac{1}{4}$ ins. The Graupner front is standard, except of course, no motor is fitted here and the servosaver and linkages are positioned in front of the front axle. Because of this the hub carriers have to be turned through 180° and the steering linkages from the opposite holes on the servosaver (to retain Akermann).

Now, the most difficult part, to transfer the driver from rear to front with the minimum of friction losses. After toying with the ideas of chains or belts I decided on a gear system using two Micro-Mold Lark helicopter tail rotor gearboxes to transfer the power. The gearboxes are bolted directly to the chassis using brass tube spacers. Slotted holes enable pinion drive gear clearances to be adjusted. Remember to use both lock washers and lock nuts to ensure that gearboxes cannot move.



Car showing the two gearboxes and their connection, steering and motor arrangement.



Car complete (less body). Nicads are under radio plate. Sanwa radio equipment used with printed circuit speed control board as generally available.

The drive shaft consists of a Lark helicopter universal at the rear and a modified Graupner universal wheel drive at the front with a 7/64th steel drill as the connecting shaft. This arrangement allows for any misalignment and also the Graupner universal allows the chassis to flex without putting any strain on the shaft. The pinions used at front and back depend on the wheel diameters used but it is best to match the ratios so that the front and rear travel at the same speed to avoid wasting power. At the moment I use a 17T pinion driving the rear gearbox from the 54T rear dif. driver gear and a 20T pinion driving the standard Graupner 56T diff. drive gear. The wheel and tyre diameters used are 1.85 in. front and 2.15 in. rear. Both front and rear tyres are of soft neoprene.

The rest of the car consists of a GRP shaker plate with two 3-cell ni-cad packs slung below at each side to clear the central drive shaft. The battery packs and radio installation should be adjusted to give a 50% balance. A printed circuit resistive board speed controller is fitted. The shaker plate is mounted on three brass pillars, one at the front and two at the back, using 4BA bolts with lock washers. I have found it best to bolt the front of the shaker plate tightly without grommets as excessive chassis flex caused the gearbox pinions to disengage. Two body mounting pillars are used with a Bo-Link body but obviously any body mounting system can be used.

With regard to performance I find the 4-wheel drive car is not the fastest on the track but it will be unbeatable on the corners. The car has very predictable neutral to slight understeer and I have not been able to get the rear end to spin out. Acceleration is impressive due to the grip of all four tyres and altogether it is the easiest car to drive I have experienced.

One piece of advice is to avoid dynamic braking, which is vicious due to the lack of wheel slip but just to use the slight braking effect of the car's gear train to slow you down. The method of driving is more of continuous power application, unlike rear wheel drive, and, on our club circuit, I find the power can be used most of the time.

Our club sceptics thought that gear losses would result in reduced running time but in practice 6/7 minutes racing is quite possible. It is in fact, much more efficient than FWD on its own. This probably because there is almost no wheel slip and all the power is converted into forward motion. Keep the gearboxes topped up with oil and you will have a car that is competitive and above all goes where you want it to go.

Ed: Author Cottrell is ex-aeromodeller and helicopter flyer, hence perhaps use of model helicopter parts, but certainly a groundwork of training in a very tricky field of flying so that this design merits very confident appraisal.

AMPS Rapier

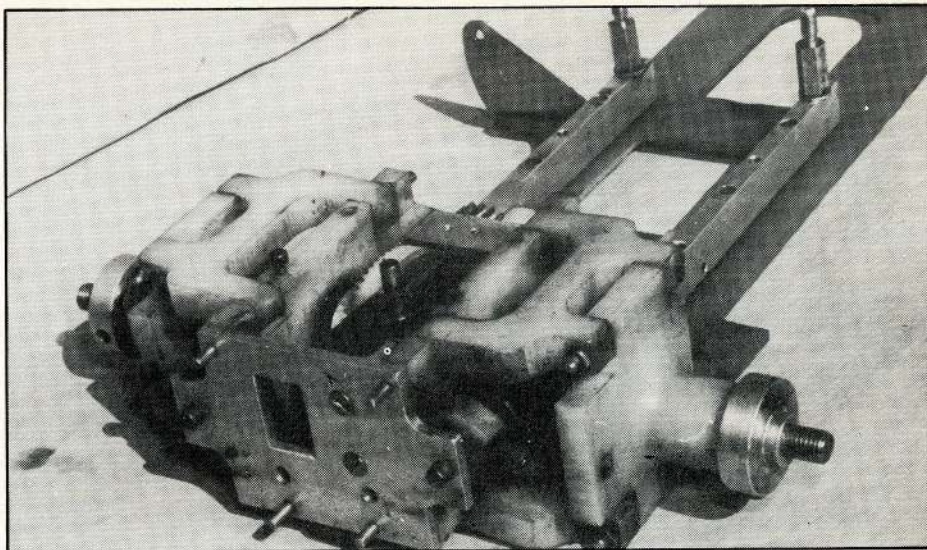
Dickie
Laidlaw-Dickson
interviews
Ian Agnew

THERE'S ALWAYS SOMETHING new, and this season AMPS, who surprised the model car world with a highly effective differential two seasons ago, came up again with another novelty in the shape of a fully sprung car. This is a notion that was toyed with in the early days of r/c model cars (remember the Heathkit and PB's Racing Double?) but abandoned in favour of adding more simplicity. Well here it was again, developed from a notion of that inventive driver Ted Booker, and taken up by AMPS. The AMPS of Dave Martin and Gary Culver have been racing steadily through the season; with early successes and hopes at Bournemouth, FTD and tenth place for Gary at Monaco against the world's best, a double win at the first Aldershot Open for Dave Martin with Gary in close attendance, and a repeat first and second in the Sports/GT Final at the British Nats.

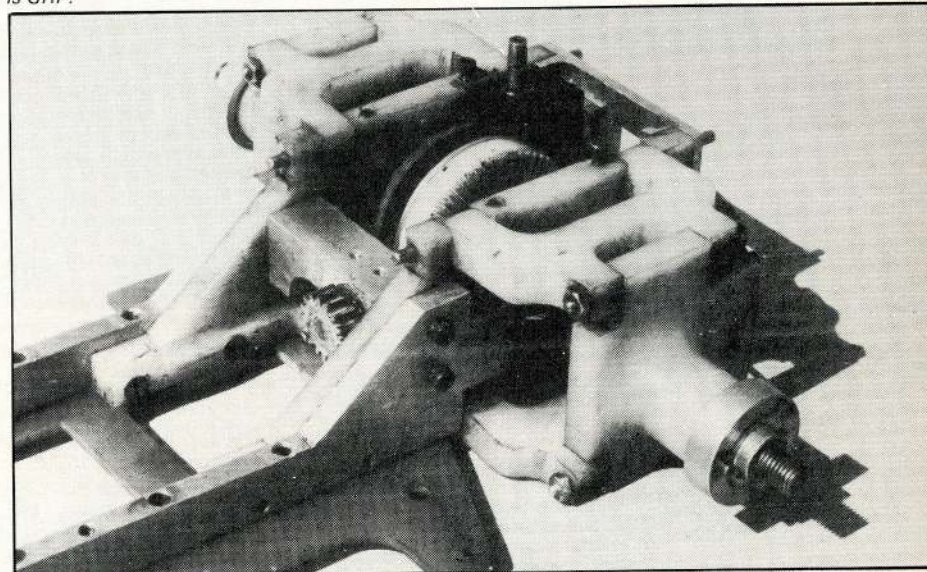
Basically the car is sprung at the front with a conventional wishbone layout in stout nylon mouldings. Double failsafes assist in preserving steering reliability and geometry.

At the rear we have an in-line engine supported on extended mountings to ensure central immobility. Spur gears from the crankshaft lead to a bevel gear which in turn drives the crown wheel.

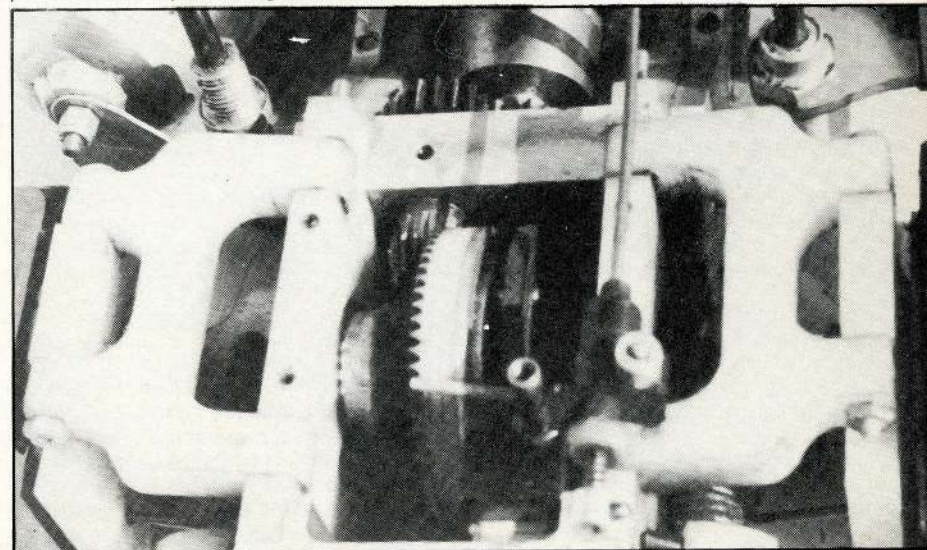
From this rigid centrally placed engine universal couplings connect to the driving wheels which enjoy maximum ground contact on the most uneven surfaces. Happily, although I have seen only an early marque in operation, it ran on the Tubary Park circuit at Bournemouth (regarded as a somewhat bumpy circuit) and gave the impression of being glued to the ground.



Rear end of Gary Culver's car. This shows the stout metal backplate and the extended engine bearers. The bracket forward left is one of the two holding and AMPS silencer in place. Chassis here is GRP.



Another shot of the engine bearing block, gear train, crown wheel assembly. Note the three hinge points for the coupled driving wheels.



Above and opposite page: A selection of shots of Dave Martin's car. These serve to show adjustments in detail.

A certain amount of re-positioning of other components has been necessary. The AMPS silencer locates amidships (where a lot of USA and Continental silencers are now to be found) and the fuel tank is well up forward. Although at first sight a rather complicated layout, the whole engine mounting unit can be unbolted and slid out for inspection in a few minutes and replaced without any loss of precision.

I have now had a chat with prime mover Ian Agnew of AMPS during a photo session and this is the question and answer interview:

Dickie: *How many years have you been developing this fully sprung car?*

Ian: *The project started as I was talking to Walt Bailey when we went to Florida in 1979. He mentioned that Ted Booker was playing with rear suspension. I had spoken to Ted on previous occasions for building him a diff. so we all got together and when we returned from Florida Ted presented us with his back end. I was so impressed by the robust nature of that that I said all right we'll take this up.*

The first thing we did was to put a diff. in Ted's car with boat couplings which we thought would be all right. The car had terrible understeer and the only way to get the grip all round was to go for a fully independently suspended car which we tested up at Lilford on the club circuit.

That's when Bill Burkinshaw caught us and got those photographs of his. We went to Lilford on that day specifically to avoid everyone; unfortunately Mr Burkinshaw had the same idea! The car has of course come a long way since then.

It doesn't bear too much difference from Ted's back end but has a lot of minor changes to make it handle better. January this year we felt we weren't getting the right performance figures we were expecting; the car had several niggling faults, so we took on a fullsize car designer.

Dickie: *So some of it relates to fullsize design which you have adapted in miniature?*

Ian: *We'll actually the suspension geometry has been designed specially for us. To fill in the brackets it was done on a computer for a fullsize racing programme. We thought if we were to miniaturise fullsize, the suspension travels we would expect to get would be impractical and it wouldn't work. I have always had this theory that basically we're not racing on fullsize racing circuits we are really doing a sort of special stage rally type of thing. The bumps are so large!*

Dickie: *And you of course are profiting from your own rally experience ...*

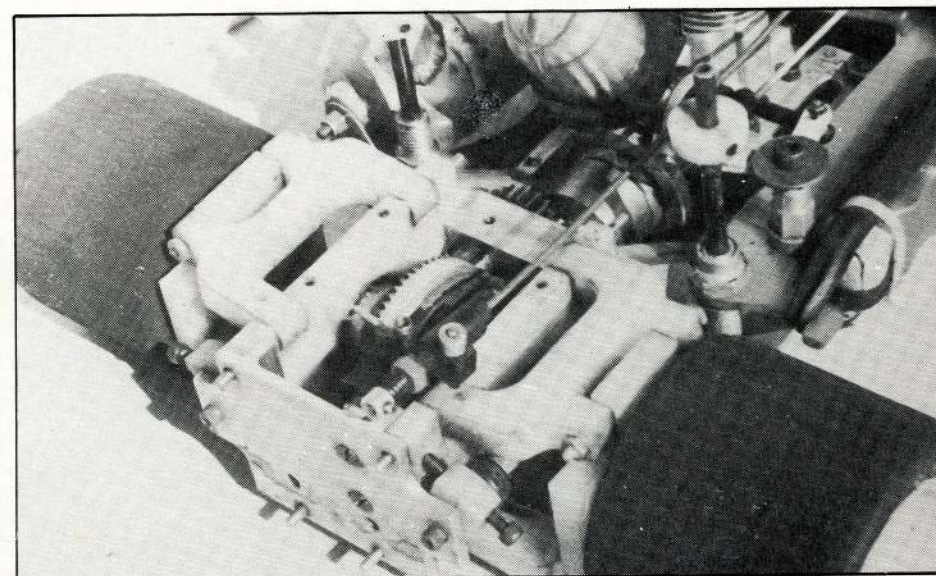
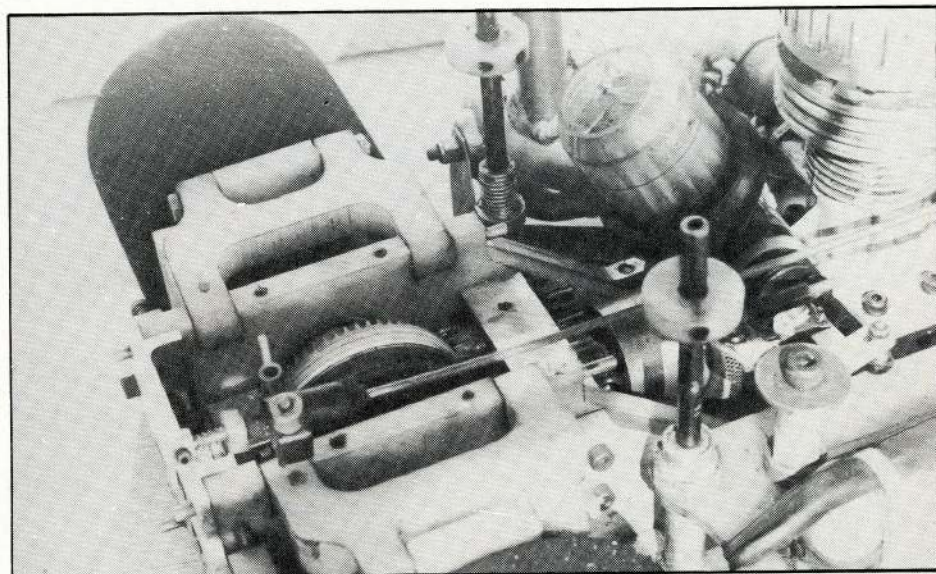
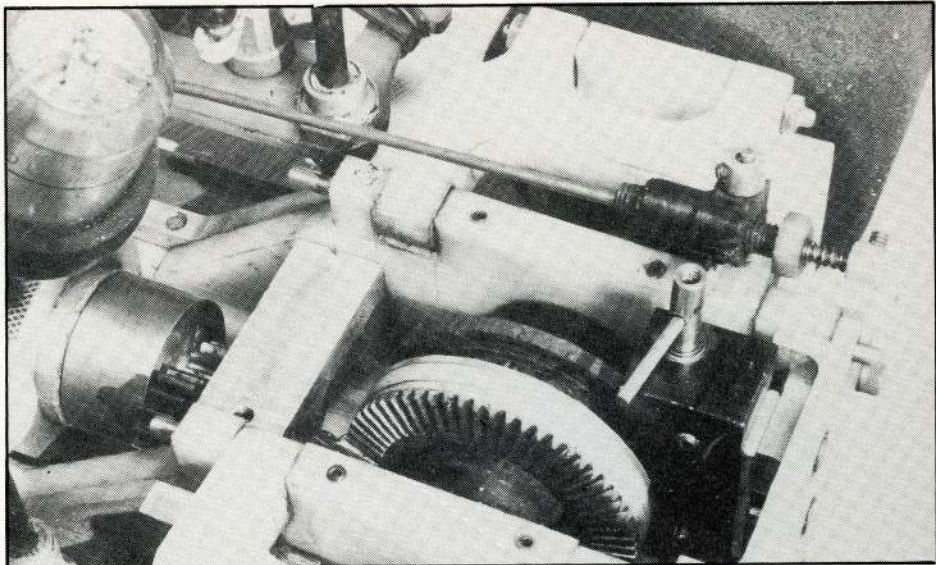
Ian: *To a degree, yes. I spent a long time developing front suspension on my Cortina — a London to Sydney V6 Cortina — and I learned a lot, expecting that when you do so and so this should happen ...*

Dickie: *And on the whole it did happen?*

Ian: *The person who has done the design of our suspension geometry runs his own company and is quite successful with his cars. He has been up to Lilford on several occasions and to our surprise when he suggests: Try this, it performs exactly like a real car.*

Dickie: *Well, that's very, very exciting.*

Ian: *It has indeed been that ... we've got several people from fullsize interested who would like to come and have a look at it. Our designer is Michael Pilbeam of Pilbeam Racing Designs, an ex-Lotus designer and has also designed for BRMs. He did all the BRM cars.*





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Dickie: So we are bringing in — not only you but other model car people are bringing in — the fullsize designers?

Ian: My knowledge isn't sufficient ... you can read all you want in the text books but that doesn't tell you how

Dickie: You know what you want but are not quite certain how you achieve it?

Ian: Mike has been working more from his experience than from textbooks.

Dickie: Textbooks are all very well. It's like swimming, the book 'll tell you how to swim but you don't dive in the water clutching a text book in one hand.

Ian: We've not only had my experience in model cars for a couple of years but Mike's 15 to 20 years experience in fullsize racing.

Dickie: Of course you are in the happy position that if you've got an idea on Sunday night you can start making it on Monday morning.

Ian: Yes, we do have the advantage of quick production; we also practiced regularly once or twice a week all through the winter.

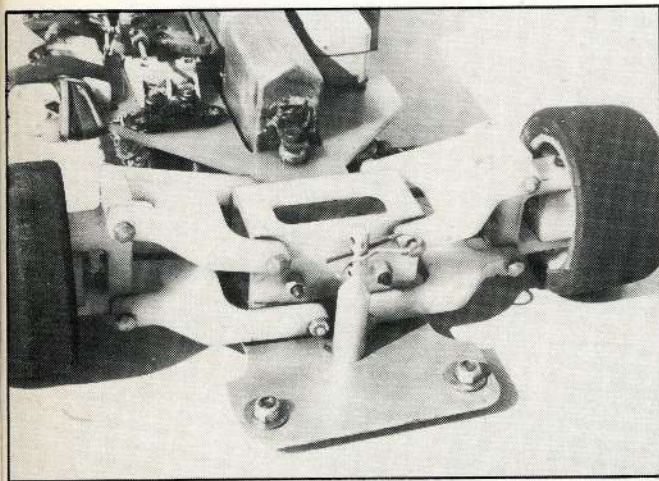
Dickie: And your team now comprises?

Ian: Dave Martin and Gary Culver at the moment. We don't regard either as the Number One driver, they are in it together and beginning to make up some good wins.

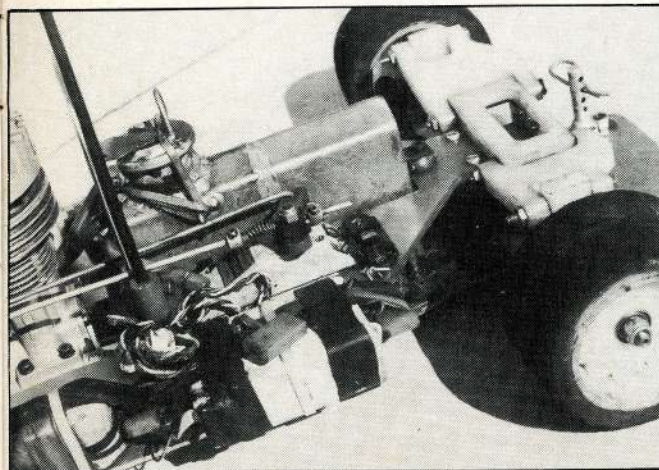
Dickie: Are you ready to market the AMPS Special yet?

Ian: We had originally thought of selling it as add-on parts but it began to involve so much of the car that a complete kit seemed the answer. First thoughts were to have stiffening bars all down the chassis, then with more experience we realised we wanted the ends to

The winning team. Left and right Gary Culver and Dave Martin with their cars: in the middle is Ian Agnew prime mover in the 'wobbly wheels' development. Miller ("Dad") Agnew should also be in the picture to complete the foursome.



Two general views of the front of Dave's car. Note the use of radio plate and its fixing to rigid part of the steering assembly.



be separate for ease of servicing but to maintain as rigid a chassis as possible. This is the reason for the radio plate, apart from making a clean radio layout, it gives us a very stiff chassis by forming a box, ie in (true) monocoque.

Dickie: Do you think you will be able to get rid of the extra weight without other problems?

Ian: Yes! When the nylon parts are moulded they will be lighter without loss of strength.

Hopefully, we expect to lose at least 8 ozs. in the production car which will certainly help on our engine consumption. Dave has stuck to the OPS all along; Gary has been running with an OS Max. Dave has favoured a metal chassis but Gary has been running with a GRP chassis. There is not a lot between them. The kit will have an epoxy chassis but there is still a lot to be done ... we haven't even decided on the name yet. (STOP PRESS: Rapier.)

Dickie: Do you think you have any more power loss having one extra train of gears than the standard car?

Ian: I have had the point raised by one or two top modellers but the amount is negligible. To quote the gear manufacturers design handbook: "When correctly set up both spur gears and bevel gears are 98 per cent efficient!" So a second train only loses two per cent more. Also, in our car the gears are all rigidly held and machine cut whilst the standard cars are moulded gears which are rarely round.

Dickie: What about the price?

Ian: That should be somewhere in the region of £150 plus, perhaps about £175. But we do hope to be getting them on sale around September/October as the ultimate quality car.

Malvern Grand Prix

by Les Pipe



FOR ENTERTAINMENT VALUE this meeting must rate 'top of the pops'. The sixth open national twelfth scale meeting of the year and definitely the most ambitious project yet. The visitors to the event had it all. There was on one hand the splendour of the Malvern district, on the other the attractions at the Winter Gardens. This is a beautiful building with elegantly laid out grounds which provided a super venue for racing and drivers' families alike. Attractions galore from Army tanks to beautiful fashion models with £1000 furs! Indeed proximity of the lovelies may even have put a driver or two off his line!

Despite this, racing was of the highest order on what must be the best surface to date. The traction was fantastic and the lack of tape marking on the floor also helped concentration. This was important as seven minute heats were the order of the day and we needed all the assistance we could get with this.

The day began for the organisers at 5.30 am cleaning up from a rather noisy Caribbean party the night before.

Members of the South Birmingham MCC were at it putting up boarding, sweeping up and so on to have all ready for practice sessions which ran from 8.30 - 10.00 am.

Scrutineering took place before the meeting and after each heat. Bill Maisey and Cecil Schumacher took on the job with a band of helpers who kept it steady through the day. Motors (as always) proved to be a stumbling block with some unhappy entrants. Motors were treated as seen — suspicious marks around the back plate lead to rejection, Mabuchi motors wre out if they had the tell-tale trued comm. Some did appear but they could not stand the pace in the seven minute heats long enough to be useful. These longer heats proved a very good leveller for all this motor fiasco.

Pits area proved to be a bit cramped, but people managed by moving out into the adjoining hall or even outside. Circuit proved to be a reasonable test of driving skill with a good straight and just enough tricky bits in between. Scoring and results were handled by Steve Brown of Itomark. Tony Stephenson of Hobby Spot proved a natural on the mike with a constant flow of

RESULTS:

OPEN FINAL

1. Bill Maisey
2. Les Pipe
3. Wayne Davis
4. Steve Tilley
5. Jim Davis Jnr.
6. Dave Tongue
7. Neal Francis
8. Phil Stone

0 - 15% HANDICAP FINAL

1. A. Powell
2. D. Barker
3. M. Istead
4. H. Bannister
5. J. Baynton-Glen
6. C. Price
7. G. Land
8. I. Nash

20% + HANDICAP FINAL

1. B. Evans
2. N. Walsham
3. P. Hobbs
4. T. Gray
5. T. Treadwell
6. F. Tilley
7. G. Wormall
8. N. Dolby

Teams

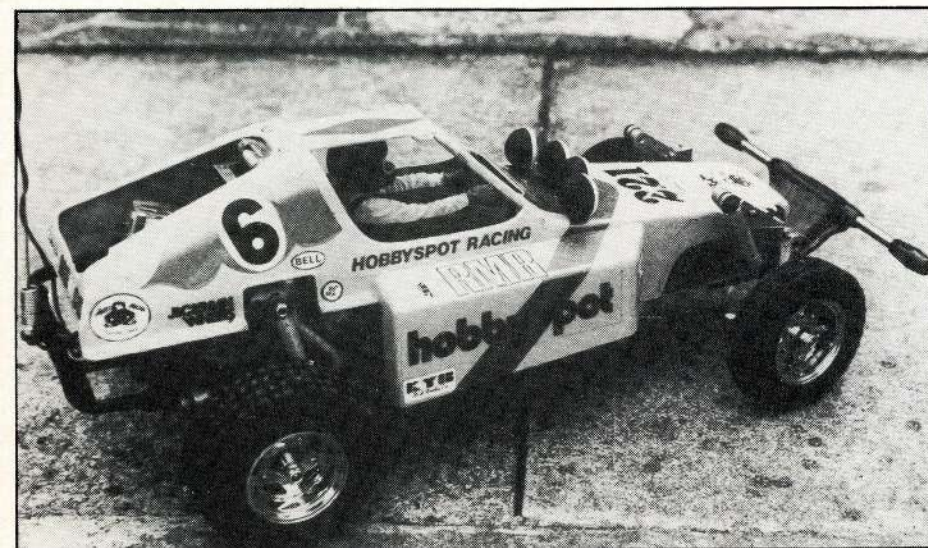
1. Hobby Spot
2. Jim Davis Models
3. Alpha

Under 16 Trophy presented by Hobby Spot

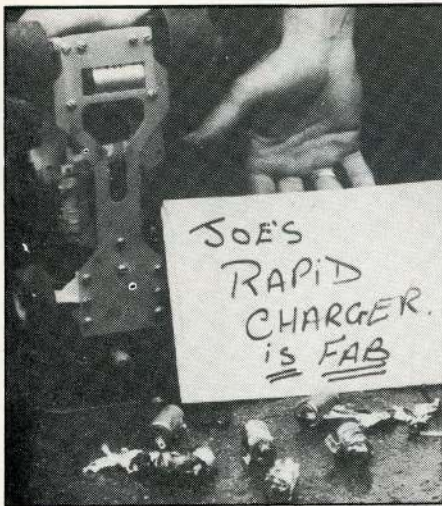
1. Steve Tilley
2. B. Evans
3. T. Wells

Schumacher Trophy for best local driver

Tom Morgan



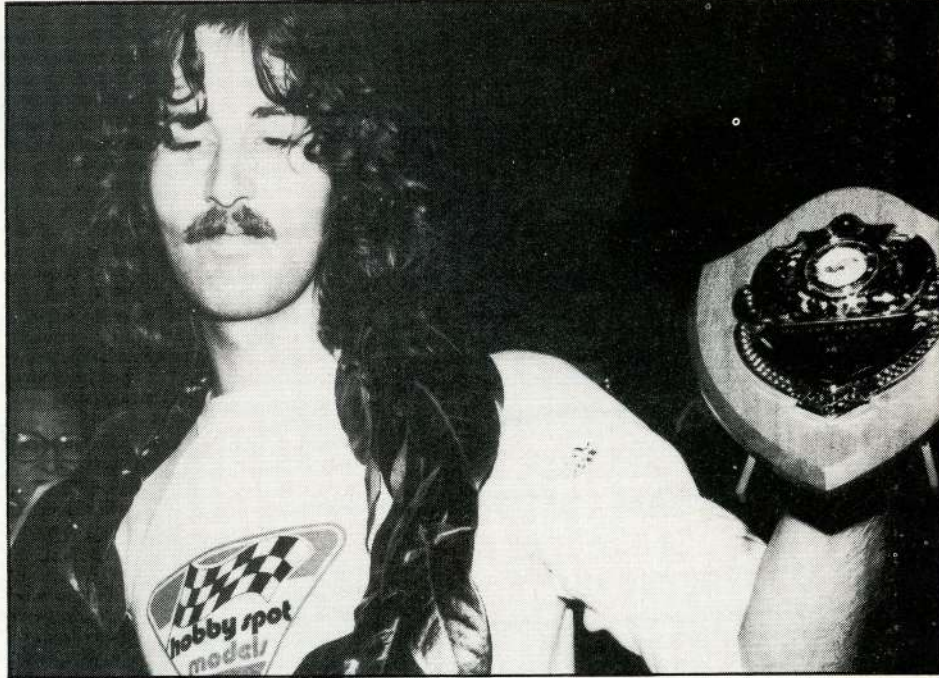
One of Hobby Spot display team. Rough Rider.



Comedy act by Joe Moss. Charging method — not to be recommended.

useful commentary. Nick Adams however, gave a blow by blow account of the final.

Final went to Bill Maisey with Les Pipe (our author) in close attendance and Wayne Davis, son of 'Big Jim' Davis, in third and that remarkable young man Steve Tilley at No. 4. For once, Neal Francis could make no better than 7th place. The Hobby Spot team took the team prize and their recently formed Tamiya Roughrider section provided a number of displays for the general public, even in the pouring



Victor! — Bill Maisey.

rain! Their 'wheelies' were particularly appreciated.

There are a lot of thank you's to hand round for a good day's racing. Let us just add that the South Birmingham Club headed by Tony Stephenson as Race

Director will be staging the British 1/12th Scale Nationals Meeting 1980 at the Winter Gardens on Sunday November 23rd when another sparkling show can be confidently expected.

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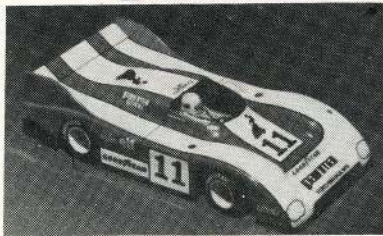
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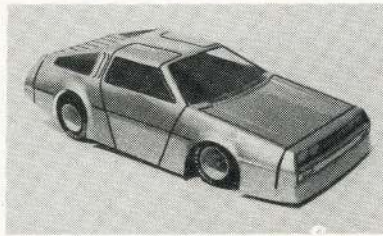
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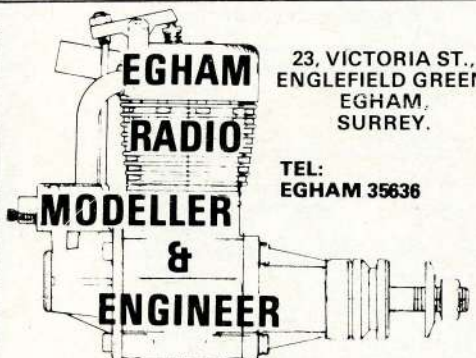
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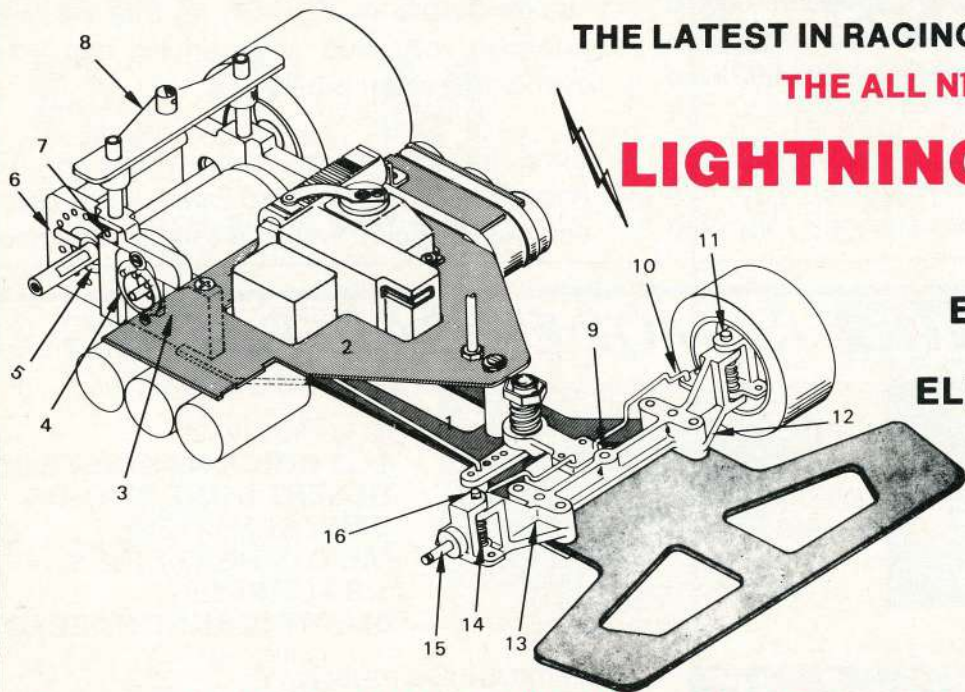
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