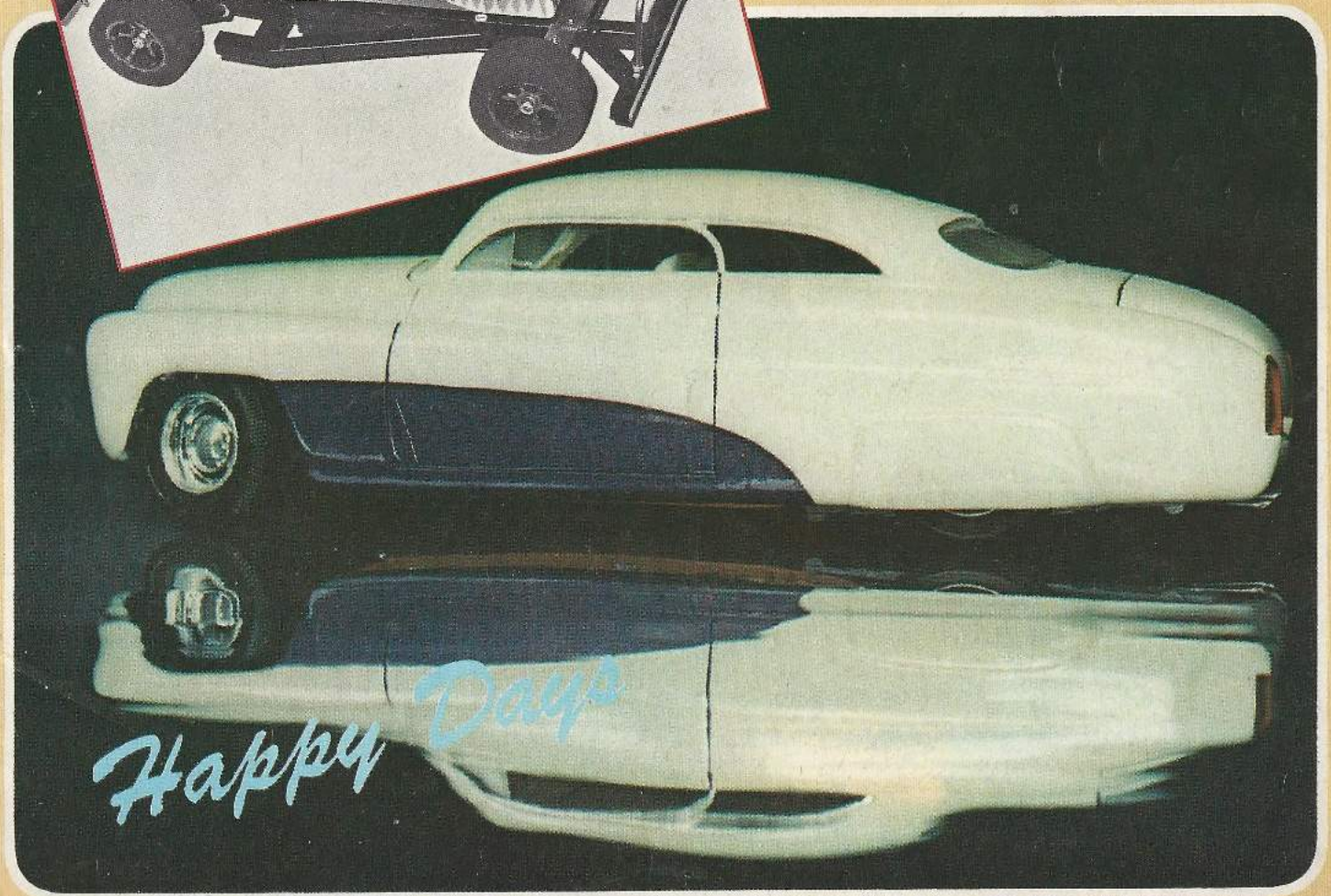


AUTO Modeller

Sept/Oct 1981
Vol. 3 No. 6
Price 70p



- MARDAVE'S MARAUDER
- SWOPMEET DIARY
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- ECRA NEWS COLUMN



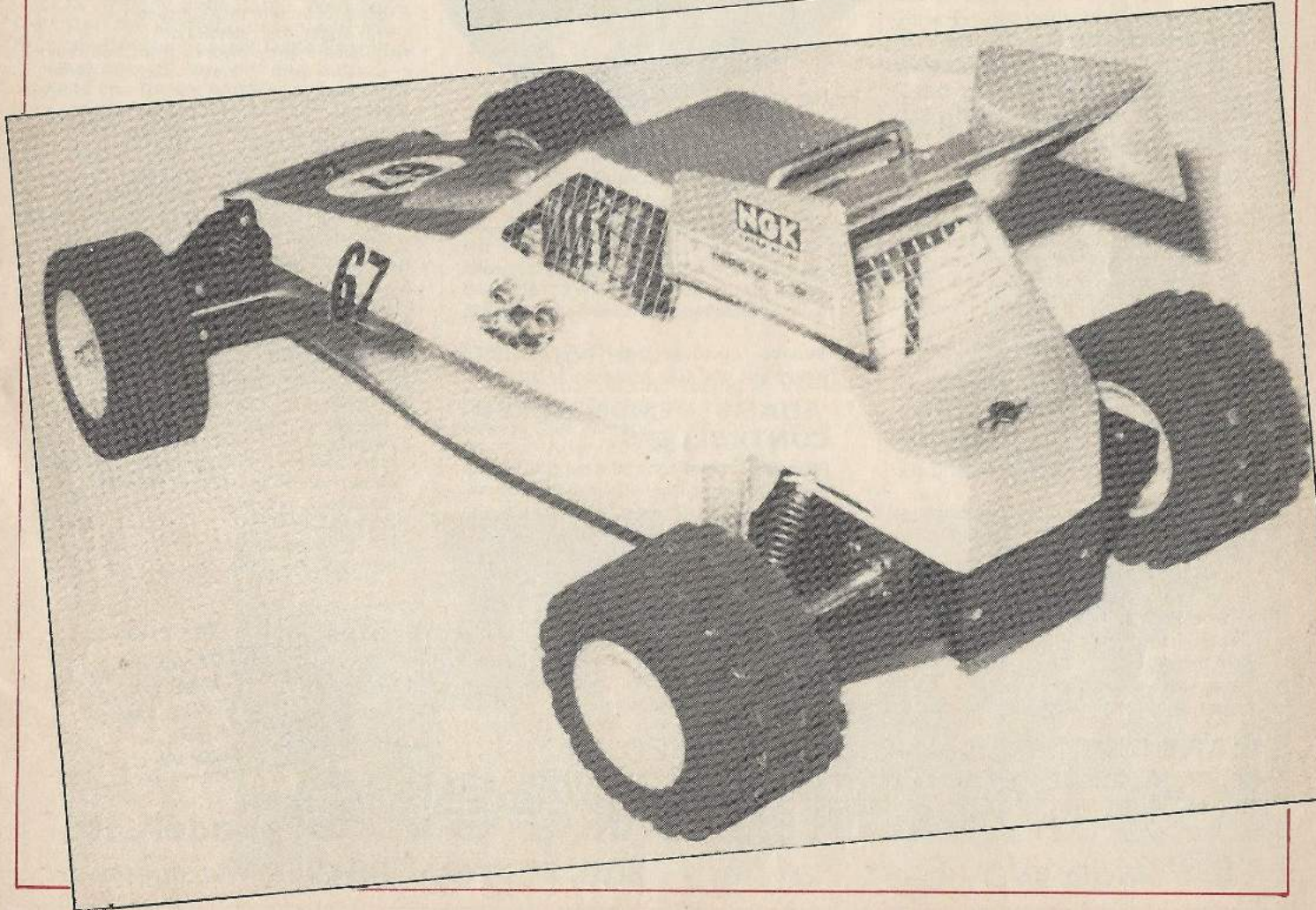
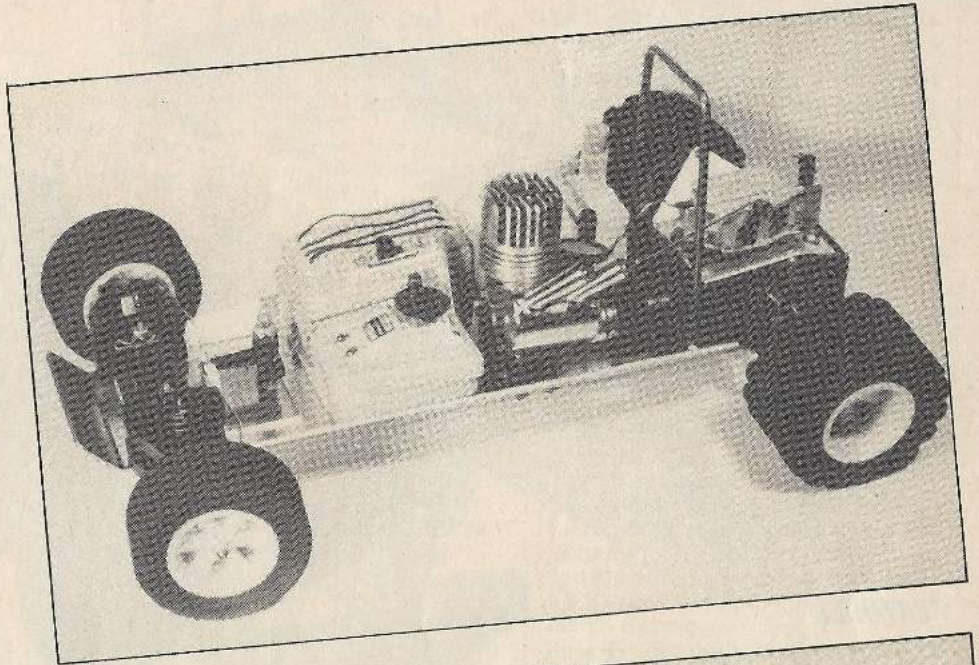
M radio control MODEL CARS

**CLUB &
TRACK REVIEW**

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WORLD CHAMPIONSHIPS FINALS 5th July 1981 Held at Indianapolis USA

1.	Arturo Carbonell	Delta Super J	USA
2.	Emes Tadiello	SG Monaco VCS	Italy
3.	Katsuori Kondo	Kyosho	Japan
4.	Naoki Ishihara	Delta Super J	Japan
5.	Gary Culver	PB Alpha	GB
6.	Roberto Bartolomasi	SG Monaco VCS	Italy
7.	Steve White	PB Alpha	GB
8.	David Lecat	PB Alpha	France
9.	Pieter Bervoets	Serpent Proto	Holland
10.	Ralph Burch	Associated 300D	USA

FTD Kondo and Steve White.

Editorial

Arturo Carbonell
winner of World
Championship
1981 driving a
Delta poses with
his car and
trophies at an
earlier meeting.



World Champs

Phil Greeno has given me a foretaste of the Champs — more to come with Roberta Moody's report hopefully in next issue. Winner Arturo Carbonell driving a Delta Super J is certainly one of the nicest fellows to have won if it could not have been one of 'ours.' It goes to prove that long and steady development of a basic car, driven by an expert and dedicated driver not too far from enjoying the logistics of his home works plus that essential bit of luck is virtually unbeatable. Well done Art! And the splendid back up of the Campbells who operate Delta Systems!

Weather was very hot and humid playing the deuce with European notions of engine set-up. Ten car heats made fast time a matter of getting clear and avoiding interference. Rain stopped play from time to time: the final itself being stopped for a long time about one third through and re-started where drivers were placed at break. Traction was so good that the benefits of the suspension car were at a discount. Nevertheless three PB Alphas made the final and the car got a very enthusiastic reception from the American public. However, the first four cars were all non-suspension designs. Surprise was that only one Associated car made it — this one driven by 13-year old Ralph Burch in 10th place. Well done Ralph in making the big time!

The Campbells are Coming! Hurrah!

The Delta is designed and manufactured by a comparatively small family firm in USA and I make no bones about reprinting what I wrote in 1978 about them: "The Campbells have been in the r/c model car game — business? — almost since the beginning, their first catalogue appeared in 1969, and they can justly claim, to be the oldest firm still going strong (one earlier firm has not lasted). Ken plus wife Gloria and Ken's brother Bill form the triumvirate, hence 'Delta' the Greek D forming a triangle. But we must not forget that other Delta 'great' who has been driving their cars to victory over the years none other than Art Carbonell, a legend in his lifetime!"

Looking at that 1969 catalogue full of useful bits and pieces, kits, and loads of good running advice it is surprising what they offered — things now commonplace. For example their 'Hooke' universal coupling — exactly like that used by Tamiya on their latest Holiday Buggy. Then there were such things as rear suspension (too soon then!) in-line engine, exhaust tuned pipes, you name it they had it!

Off Road Racing

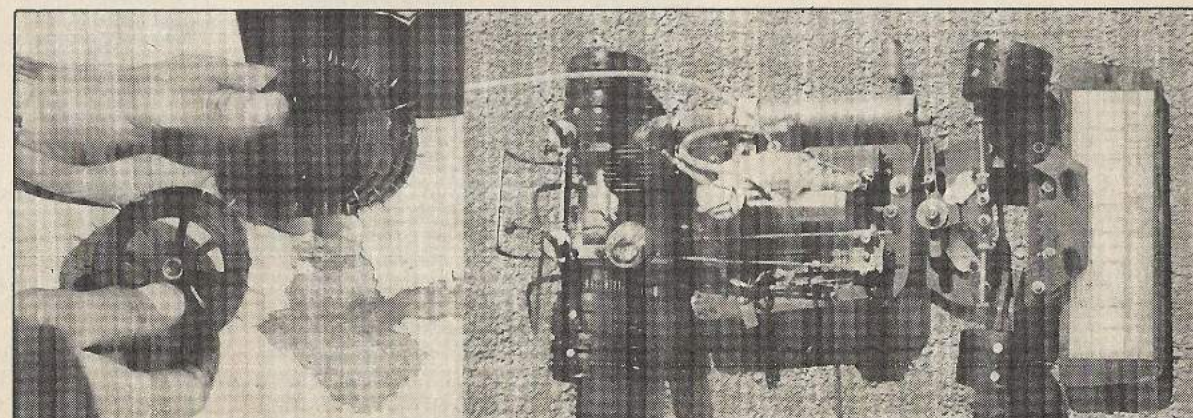
I learn that off-road racing is now the big thing in California. A cutting I have claims that twenty two hobby shops in the Los Angeles area alone are organising off road events. National

Championships for both 1/12th and 1/10th cars are expected to attract 150 entrants and some 2000 spectators. Circuit for this event is all dirt with a lap length of 400 feet. An Editorial comment to the cutting adds that one Ice Skating rink is even proposing to run r/c Ice Racing.

Ice Racing from Sweden

This makes a note from my friend of Expo Norr in Ostersund especially apt. They have been racing in National events at Bollnas in a snow hurricane and send me pictures of their ice racing cars. They are equipped with about 64 sharp spikes in the rear wheel and 16 to 20 in front wheel. Guards are fitted over the rear wheels to protect eyes and fingers. They add 'We hope you will start this type of r/c racing too: there is traction you never can get in the summer.'

Well, what about it you ice rink proprietors? I have even seen temporarily installed artificial rinks in our nice temperate climate so there is no excuse... What about it Wembley? An r/c ice spectacular during the Model Engineer Exhibition.



Winter is a'coming! This is how they race on ice in Sweden... "Mind my spike!"

CLUB & TRACK REVIEW . . .

This is a composite picture of the North East Radio Control Car Club circuit at Lambton Park.



South Yorkshire Outdoor Racing Club

Phil Maxfield reports the club's official opening meeting over 13th and 14th June. The racing complex, as earlier reported, consists of a tarmac surfaced circuit based on the Tamiya track in Japan and an adjoining off-road layout. These are both permanent and purpose built and can be varied to provide a variety of routes. Saturday provided an interesting comparison of the Tamiya 1/10 comp specials with standard motors and lowest gear ratios against 1/12th open class with modified motors. Eddie Hawkins of Chesterfield managed 23 laps of the 96 yards long circuit, with the Tamiya cars not much more than a lap slower. On the shorter circuit Eddie managed 26 laps with a Tamiya driven by Trevor Kersey on 25.

Sunday was devoted to off-road racing and attracted 61 entries and run on the newly built off-road sections with concrete lined water splash, sand pit and several hills with very loose dry sections. Six minutes heats were run the first two clockwise and the second two anti-clockwise, as were the finals. Final qualifiers were decided by adding best heats in each direction together, plus A, B, and C classifications, so that everyone had a chance of making a final according to skill and car category.

Brief results: 13th June
Tamiya 1/10 F/1 Final
1 T. Kersey 22 laps 6.14
2 Phil Maxfield 19 laps 6.19
3 Barbara Kersey 18 laps 6.07

Tamiya 1/10 F/2 Final
1 B. Carter 18 laps 6.11
2 K. Pacey 17 laps 6.16
3 I. Carter 17 laps 6.18

1/12th Open Final B
1. David Bailey 17 laps 6.08
2 R. Stocks 16 laps 6.30
3 C. Thomson 16 laps 6.36

1/12th Open Final A
1 E. Hawkins 22 laps 6.03
2 Derek Bailey 22 laps 6.14
3 G. Bott 21 laps 6.02

OFF-ROAD Results 14th June

1/12th Open

1 N. Whitbread
2 M. Lee
3 A. Blessed

1/10th Holiday Buggy

1 B. Perkins
2 P. Hopkinson
3 M. Sendal

1/10th Open B

1 Derek Bailey
2 G. Griffiths
3 D. Blades

1/10 Open C

1 S. Perkins
2 S. Goldthorpe
3 G. Harrison

1/10th Open A Main

1 R. Harrison
2 K. Wright
3 T. Clough

Cambridge Racing Electric Car Club

Secretary: Mick Flack
125 Kelsey Crescent
Cherry Hinton
Cambridge (Tel: Cambridge 40122)

Please note change of secretary. The club is now well established with a membership of 40 of which 25 really active members, many of whom regularly visit other clubs for a wider experience. Club Championship racing is proving of a higher standard than normal club meetings. Interest is such in the area that there are hopes of forming an East of England league for the next season. Interclub meetings are already taking place on a friendly basis, notably with Thetford and Ipswich. A recent Invitation Meeting attracted

eight East Anglian clubs and 48 drivers with Hatfield R/C Club taking the top prizes, followed by Ipswich RCMC and Herts MC third, the host club coming fifth. So after seven hours of racing (!) the six finalists came to decide the individual champion in an eight minute contest. This had a noticeable effect on batteries with slowing down, and race leader Carl Stagg had to retire in the 7th minute for lack of urge. Trophies were awarded to the six finalists who finished (1) Ashley Drury (Hatfield) (2) Peter Newell (CAMRECC) (3) Steve Douglas (Herts) (4) Derek Bridgewater (Hatfield) (5) Carl Stagg (Ipswich) (6) John Green (Ipswich). Highest placed Junior Award D. Fenton (Ipswich).

Sec. Mick Flack reminds us that visitors are very welcome at club meetings on Thursday evenings at the Manor School, Abury Road, Cambridge.

Radio Auto's Coventry Electric Stox (R.A.C.E.S.)

Secretary: C. Buckler
14 Boswell Drive
Walsgrave
Coventry

This new club has been running now for several months with an initial membership of fifteen — more would be very welcome. Racing takes place at the Community Centre in Westmoreland Road, Wyken, Coventry on Friday evenings, starting at 7.00 p.m. The first Coventry Championship has been arranged to take place on October 17th using standard 1/12th stock cars — no diffs., no silicone, no electronic speed controls. This gives the younger (and less moneyed) more of a chance. Applications already in hand from Coventry, Nuneaton and Banbury clubs, but more are welcome. Apply to sec. as above with name, address, phone no.

Club, Grade and frequencies available. Trophies for the winners, plus some sponsorship from a local car accessory shop.

Congratulations to the club on thinking up such a splendid acronym!

West Burton Radio Car Club

Keith Davis provides a progress report on the 3rd round of the East Midlands PB Championship held at West Burton. Each driver of the 42 competing was given four ten minute heats to decide points scored (best two to count) The 'braver' drivers elected to run straight through as there was no mandatory refuelling stop. No reports of mid lap stoppages! First two rounds were on a dry track with 55 laps for two fastest drivers Derrick Spavin and Des Snell. Rain slowed down the later two heats only three drivers improving on their earlier figures. Fifteen minute A and B finals were run on damp but drying track with results:

"A" Final	"B" Final
1 D. Snell	1 R. Boulton
2 S. Taylor	2 A. Stafford
3 S. Mellors	3 R. Wylie
4 T. Long	4 D. Brader
5 M. Drury	5 D. Ingram
6 D. Spavin	6 N. McLeod
7 P. Landels	7 K. Davis
8 R. Norman	8 P. Boulton

Team points for the meeting were:(1) Newbridge 89 (2) Scunthorpe 82 (3) Boston 64 (4) Lilford 59 (5) West Burton 30. Overall position (after three rounds) (1) Boston 224 (2) Scunthorpe 218 (3) Newbridge 213 (4) Lilford 202 (5) West Burton 117.

The Clerkenwell Scorpions

Secretary: Brian Parsons (Tel. 01 254 1404)
120 Middleton Road,
Hackney London E.8

also joint sec.

David Lawrence
77 Fields Estate
Middleton Road
Hackney E.8. (Tel. 01 254 2346)

Yes, a new 1/12th scale electric car club in Central London! With twenty eight members including 18 regular drivers meetings are held on Tuesdays between 6.30 and 10.15 p.m. Tea and coffee is served. Present meeting place is St. James Church, Clerkenwell Green, E.C.2 but the club is also seeking a new venue. An electronic lap counter is being made. Still in a formative state, all makes of car are currently raced — Gemini, Associated, Lightning and Mardave. Modified motors are used but members find them little better than standard. New members very welcome: atmosphere described as friendly but noisy. Quote: "One of our members lent Neal Francis his special motor for the A Final at Battersea. This must mean something."

Port Talbot Radio Car Club

Secretary Pam Hare (Tel. 0639 893441)
11 Hafod Street
Port Talbot
West Glamorgan SA13 1AE

Formed in January the club meets every Sunday at 2.00 p.m. and on Tuesdays from 6.0 p.m. to sundown at a local car park, racing both 1/8th scale i.c. cars and 1/12th electric cars. Annual subscription is a family rate of £5 with no charge for racing at the moment.

North East Radio Control Car Club

Thanks to PRO Bill Gordon we have this splendid heading picture of the club circuit at Lambton Park. It is a composite picture of two photos; how it was taken I don't know. Perhaps the local Fire Brigade lent a ladder but it is a fine example of what can be done!

Meanwhile we have a report by Race Director Joe Bourn of their regular Blaydon Grand Prix (Isn't there a song about Blaydon Races?) organised by Dutton Forshaw of that town providing a change of venue, using Dutton's car park.

A very good crowd was there to watch, and the organisers also put on a Scalextric Contest for the 6-12 age group youngsters (won by Martin Cayzer, aged 12). FTD in qualifying heats was taken by Les Bailey on his first run with 25 laps which earned him a trophy donated by Shell. "A" and "B" finals were run with the fastest six qualifiers in "A" next six in "B". In a fiercely contested final with favourite Les Bailey and Dave Coates neck and neck with a last minute fuel stop to let Dave slip through it was really a two group event the leaders ten laps ahead of the rest of the field. Jim Brown was dogged by engine trouble or the result might have been even closer.

Results:

"A" Final
1 Dave Coates 139 laps
2 Les Bailey 138 laps
3 Richard Smith 126 laps
4 Brian Coombs 117 laps
5 Jim Brown 106 laps
6 Alan Clark 73 laps

"B" Final
1 Martin Cook 113 laps
2 Jim Clark 107 laps
3 Pete Watson 100 laps
4 Jonathon Clark 80 laps
5 Paul Cook 67 laps
6 Kevin Thronton 62 laps

Next big event for the club will be the BRCA Invitation meeting organised and sponsored by Newton Aycliffe Development Corporation at Newton Aycliffe on September 13th with a promise of some very fine trophies.

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457	Parma Group 15	£6.50
R0	Mura Group 12	£4.05
R1 int.	Mura Group 15 (int)	£6.98
R3	Mura Group 20 (New Breed)	£6.82
R3A	Mura Group 20 (Standard)	£4.50
R4H	Mura Group 7 26 single (H/W)	£11.85
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5191/H	MRRC Hotted up (222)	£1.98
8020	MRRC Clubman line motor (12 volt DC)	£4.60
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R13	Mura Group 20 (Newbreed)	£4.00
R13a	Mura Group 20 (standard)	£4.00
R15	Mura Vulcan II 24 - sgl.	£5.00
R15a	Mura Vulcan II 25 - sgl.	£5.00
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R15c	Mura Vulcan II 27-28 sgl.	£5.00
R16	Mura Vulcan H/W 16T-23 sgl.	£7.35
R16a	Mura Vulcan H/W 18T-24 sgl.	£7.35
R16B	Mura Vulcan H/W 25 sgl.	£7.35
R16c	Mura Vulcan H/W 20T-25 sgl.	£7.35
R16d	Mura Vulcan H/W 26 sgl.	£7.35
R18	Mura Cheeta II 27	£6.55
R18a	Mura Cheeta II 27 (for low power track)	£6.55
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108b	Camen select 26 (Plus 5)	£7.25
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R206	Mura super magnum II magnets	£1.95
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C5800	Champion white dot magnets	£2.20

C5900	Champion blue dot magnets	£3.30
C5902	Champion C can only	85p
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5911	Champion spring insulation	15p
R120	Mura 12' spring insulation	36p

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8041	Alfa Romeo	8043	Porsche Coupé
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596	Mono-rail drop arm .040 gauge 1/24 - Parma	60p
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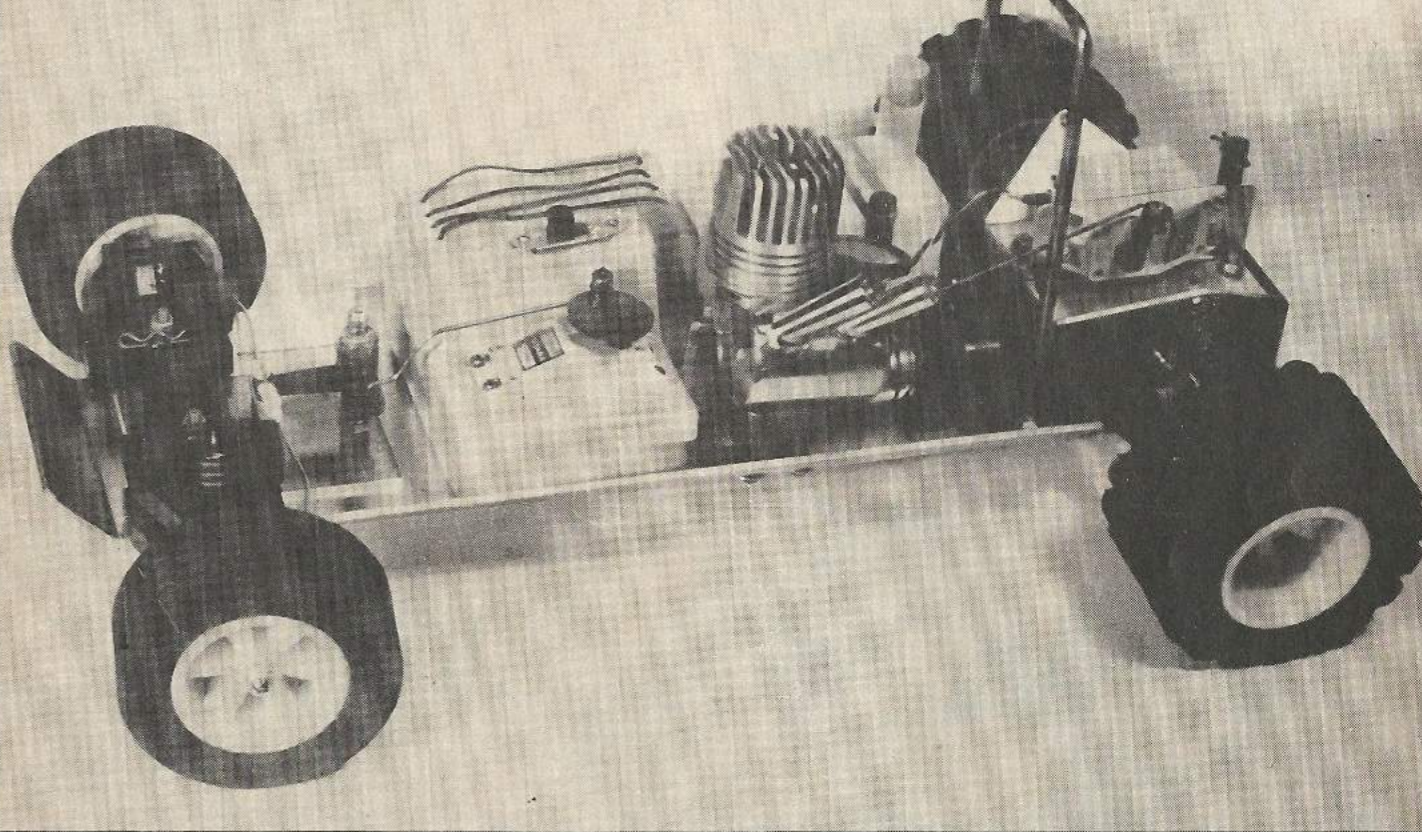
AURORA A.F.X. TRACK

6467	Hairpin banked curve set	£6.99
6501	9" Wiggly	£1.99
6514	9" Radius 1/8 Curve	£1.50
6517	9" straight	£1.15
6518	6" Radius 1/4 curve	£1.35
6519	9" Radius 1/4 curve	£1.50
6524	9" Criss Cross - 2 per set	£4.50
6527	6" Straight	£1.00
6528	12" Radius 1/8 curve	£1.50
6533	15" Radius 1/8 curve	£1.65
6534	9" Terminal	£2.25
6535	15" Terminal	£2.99
6539	9" Squeeze	£1.75
6542	15" Straight	£1.65
6545	Hi Banked curve (Set 2)	£10.99
6550	Flying Start	£5.99
6532	38" Flex Track	£7.99
6513	1/4 curve criss cross (2 set)	£4.99
6503	Double criss cross	£2.50

MARDAVE

MARAU DER

Complete running chassis. Note rear body post, radio box with aerial looped on top and on/off switch, large heatsink may have to be machined slightly to ensure clearance with bodyshell.



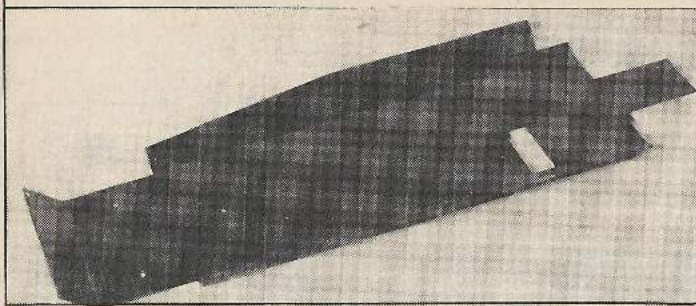
Attractive bodyshell painted in a contrasty pattern with good visibility for the driver.



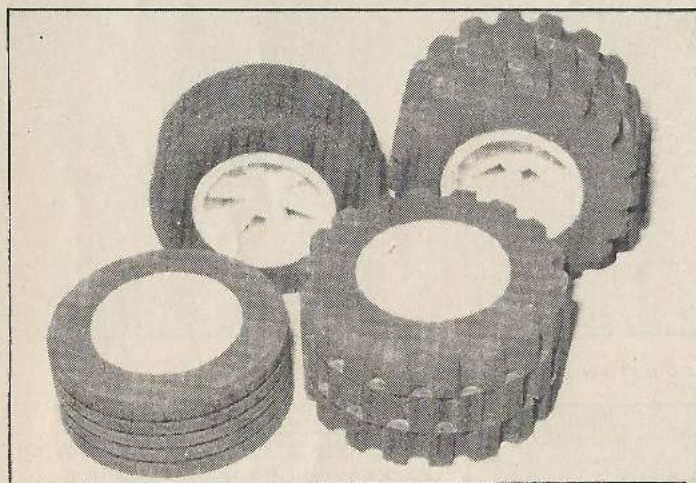
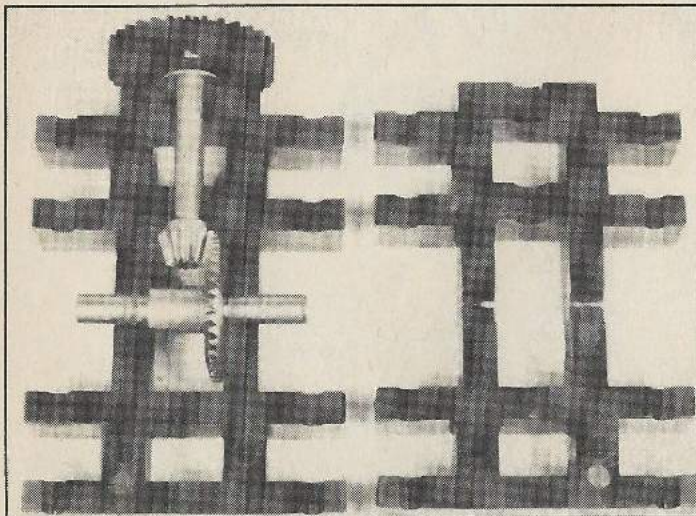
THE MARDAVE MARAU DER represents a breakthrough on several counts. It is the first all-British (yes my flag is waving!) i.c. powered off-road kit: the first off-road car in this category to sell for under £50: the first off-road car to offer full all round suspension and an inline bevel geared drive at the price. It has quite a number of other attractive features as well, including a considerable ease of construction in spite of breaking so much new ground. A splendid cut-away drawing is provided to help the builder.

Until now Mardave has based such kits as their Autocross car on a minor variation of the stock car with its square section welded chassis as the main component. Marauder has a pre-formed and drilled metal chassis bent up from the sheet with sides turned up slightly to provide not only a stout working base but also major protection against the mud and water to be expected in the working life of an off-road car. Radio gear is enclosed in a

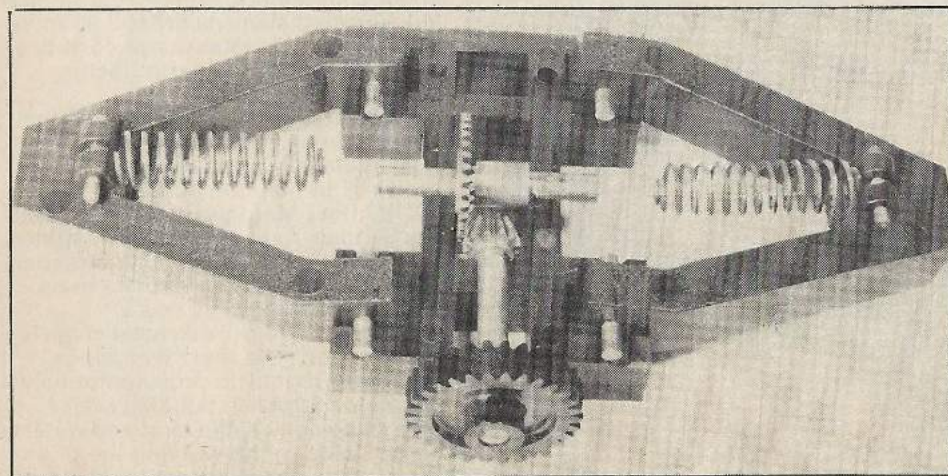
IF YOU WANT IT WE'VE PROBABLY GOT IT ...



Shaped metal base, drilled and pressed.



Sturdy tyres, with all weather treads on rear and ribbed front: wheels in bright yellow plastic



version of the usual Mardave plastic box with the novelty that the on/off switch location comes on top of the car and through the bodyshell for greater convenience. Throttle servo is located high up on top of the gearbox cover plate.

But to work. First task is to stick the tyres on the wheels with Evostik. I do like this approach — getting the dirty sticky job over at the beginning. Tyres for the rear are robust all-weather type deeply treaded as opposed to knobblies in a soft compound. Front tyres are ribbed and of slightly harder though still fairly soft material. Wheels are in bright yellow plastic and strongly spoked. Long stub axles are then press fitted to rear wheels being scored to bind in their axle holes. In the same way hinge pins are pressed through ends of wishbones which will provide the rear suspension. I use a small Woden machine vice to do my pressing whenever possible rather than belt the pins with a hammer.

The gearbox is composed of two identical mouldings. The lower half holds the large bevel gear and shaft, small bevel gear and shaft and nylon spur gear. Halfround recesses are moulded in on each side and the wishbones lie snugly there resting on their hinge pins. Before closing the gearbox with its identical top half, gears should be greased. I used some left over from our recent Holiday Buggy by Tamiya but any highmelting point grease, preferably graphited will serve. Top goes on locking the wishbones in place. The unit is then attached to the chassis with a metal gearbox cover plate on top using four long bolts secured with nuts and serrated washers.

This metal cover plate has upturned ears to which rear springs are attached pushing a slim screwdriver up through each spring length to secure screw and nuts. Other end of spring is fastened to wishbone via a short hinge pin.

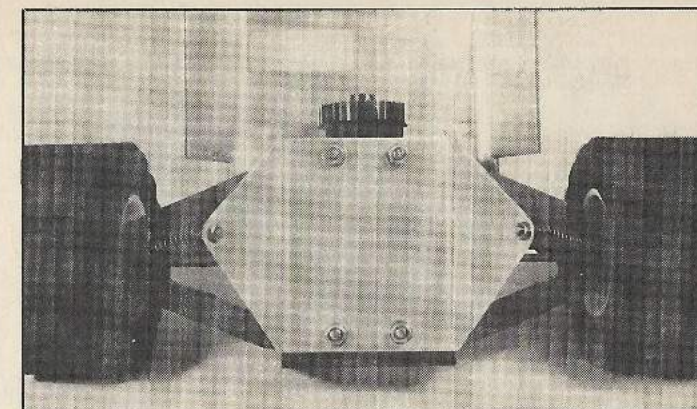
The two universal joints comprise flanged bosses which are attached to flat rubber rings (not really O-rings but flexible Cardan type couplings technically described as rubber doughnut joints). We can now see the point of the long stub axles — half shafts — that go through bearings in the wishbones and are fixed to the universals with two allen screws. Similar allen screws attach the crown wheel shaft on the other side of the universal. Springs provide an excellent degree of movement and the drive is

Bevels and their shafts rest on lower gear box half with rear wishbones slotted in place

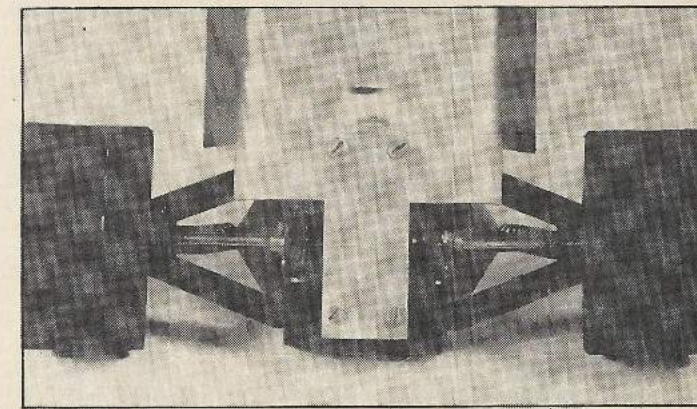
Part of the detailed cut away drawings provided

astonishingly free. Under very hard unkind treatment it is possible these rubber couplings will split as they serve in some degree as a fail safe to the unit, but rejoice, they only cost 33p to replace and Mardave will supply, in case of difficulty, direct from 7 Heanor Street, Leicester; remember to add postage. Or you can always fabricate your own replacements from rubber soles sold for d.i.y. shoe repairs.

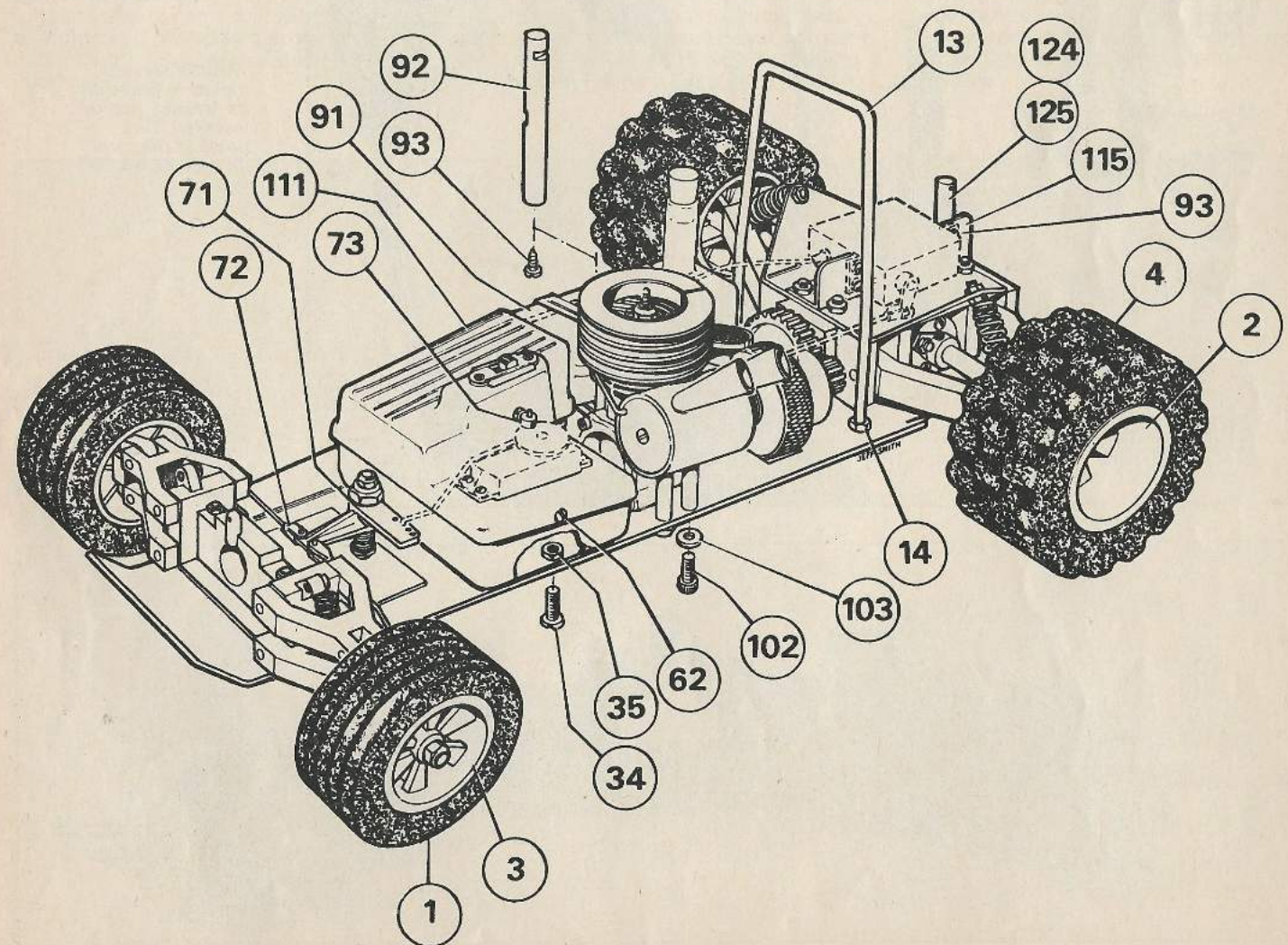
Front sprung steering comprises a further set of wishbones, four of them this time, again with springs connecting them. Front steering blocks are made up by pressing through the stub axles into the plastic moulding, which in turn is held between the wishbones by a further block which takes the king pins. A central cross beam holds the two wishbones and also contains a built-in front body mounting post. The whole unit rests on a strengthening plate which also seats the servo-saver. Very usefully the track rods are shown dimensioned with bending diagram to provide the exact amount of bend to clear the wishbones at all times. Note that the bent ends going into the steering arms are 18mm long and do not require to be colleted. This allows for the up and down movement. Ends attached to servo saver have the usual plastic slip-in retainers provided, as is the track rod wire.



A step further. Gearbox assembled on chassis base with rear box cover screwed on and springs affixed

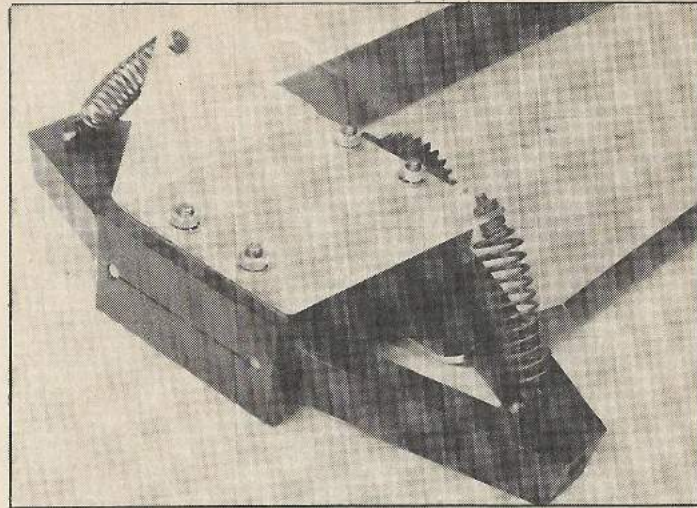


Underside of rear springing with wheels in place showing couplings and half shafts

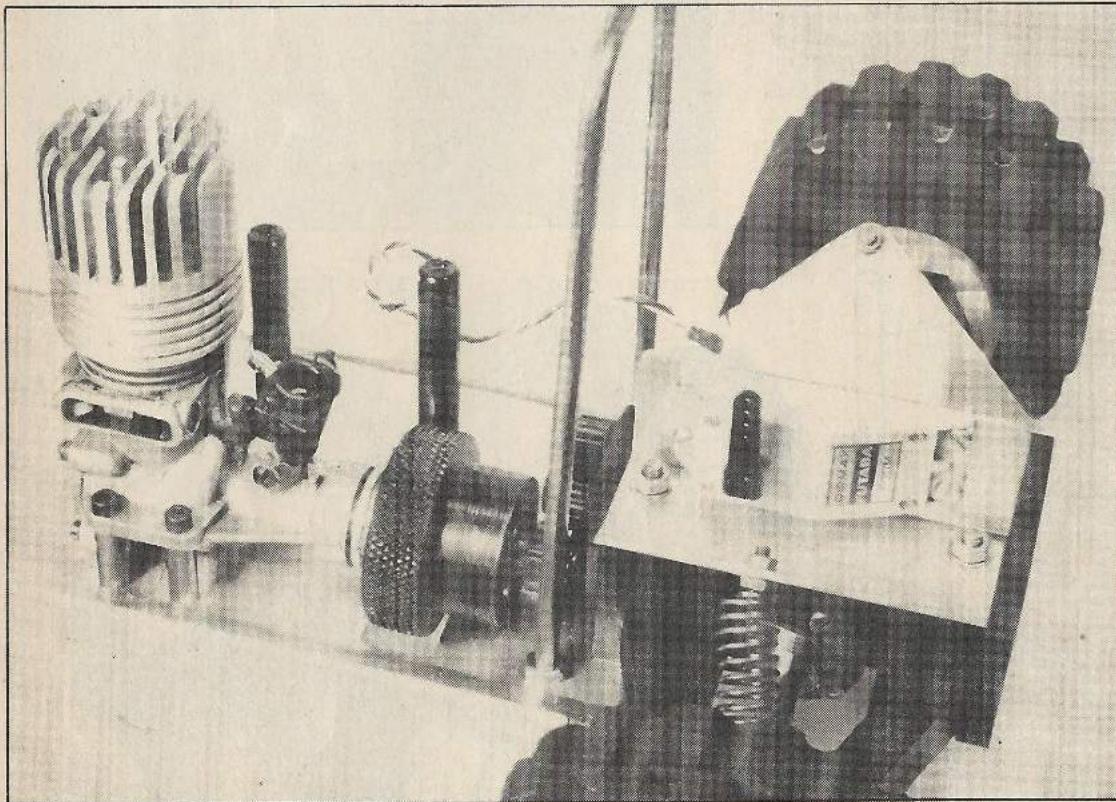




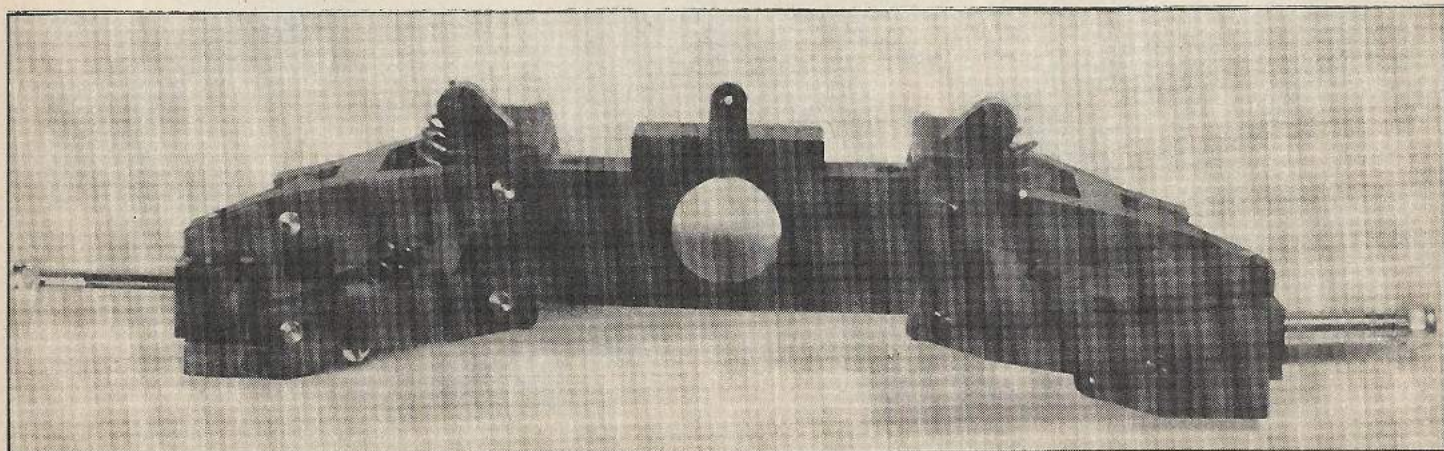
The 'doughnut rubber couplings' with bosses attached.



A top view of rear end.



Throttle servo mount in place on its bracket, engine installed. Two posts at rear are for attachment of fuel tank.



Front springing with wishbones attached to cross beam, and stub axles in place

Recommended engine is either Veco or HB. I used a Veco as I already had a turned heatsink for it — a relic from the days when PB used to machine heatsinks individually before demand led to automation — but very pretty when Gunked and polished up! Less fortunate builders can obtain the Mardave circular heatsink still at £1.80 which presses down over the head. Installation is trouble free: four little threaded posts secure engine to chassis with short socket head screws. It may be necessary to enlarge mounting holes on engine to take the screws to 3.6mm diameter. If engines other than recommended are used chassis mounting holes may require a little slotting.

The clutch unit is already put together and can be assembled straight away on the crankshaft when the retaining circlip (don't drop it) is eased off. With all nicely tight this is of course then replaced. Engine and large nylon spur gear mesh happily, as a test will show.

Throttle servo mounting plate is provided as an angled alloy unit. It is ready drilled to take the bolts holding the gearbox together. There is also another little hole drilled in it with countersunk. This is to take the single countersunk screw in the kit which holds the rear body post and must be fitted before fixing to gearbox cover plate. The mounting plate must be cut to receive servo and drilled for the retaining self tap screws provided. Size depends on your servo. I used my Futaba 17M.

The usual Mardave plastic radio box comes into its own for an off-road vehicle. This version is shaped to give space for the inline engine and only encloses the steering servo a suitable hole for which is cut out and drilled to take the securing st. screws. Connection to servo saver is direct and needs only a little kinking to clear box.

Two mounting posts are provided to take the fuel tank. They are notched half way up to take the tank 'rib' which holds it firmly in place when two rubber bands are adjusted round it. There are two more notches on the posts to prevent the bands from slipping.

Distance to carb is short, so be careful in connecting up — with fuel filter inserted of course — to avoid any kinks.

No silencer is provided in the kit but the usual "stock car" type which clamps directly onto the exhaust manifold is required. For those wishing to have a specially attractive car Mardave offer a de luxe version which I have fitted. This has two exhausts pointing rearwards and upwards and comes through the bodyshell via an oval opening cut out for it. This chromed twin pipe silencer costs £3.75 and adds a finishing touch. I have fitted the little Perry carb air filter to complete the engine attachments.

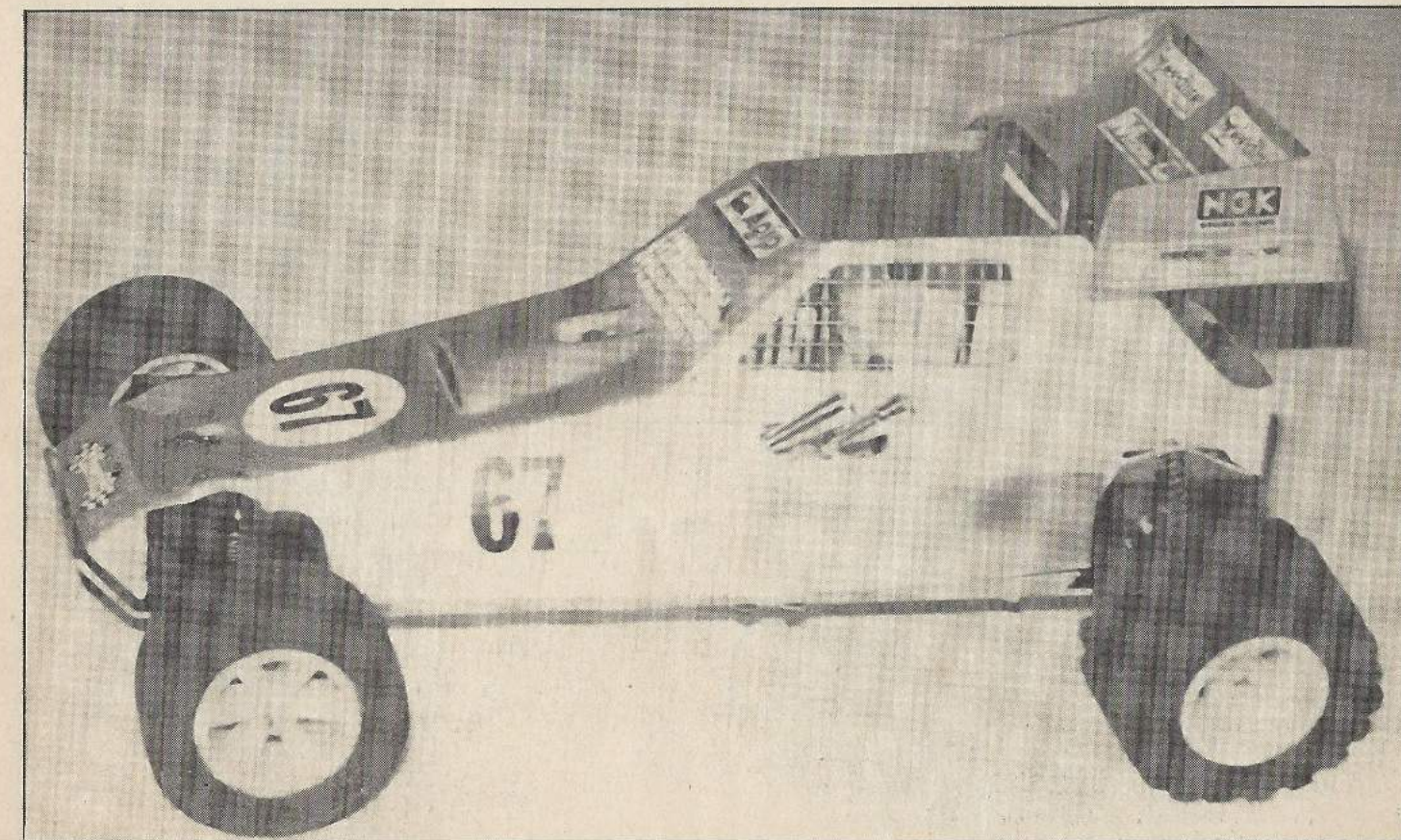
Last item to install is the roll over bar.

Bodyshell is in white ABS with window openings and cutaway parts scribed, so that this part is just a matter of time — either using drill, modelling knife etc or taking a hot iron to parts to

be removed. Either way finishing requires file and glass paper. Note the slot required for the roll bar to come through. Another small hole must be made for the on/off switch where indicated on top of the bonnet. This is part of the body design and does not look out of place. Window openings are covered with wire mesh provided. The sheet is just enough to do them all, but try your cutting pattern out on a sheet of paper first! I attached mine with Evostik, but hot glue or epoxy will do the trick equally well. If you expect to adjust car with body on leave tankside window uncovered as this will also enable refills to be made body-on. An airfoil is also included and is screwed and stuck in place on top of the body. Note that roll bar will not protect this part.

Colour scheme is up to you. ABS takes kindly to retouch aerosols so quite elaborate schemes are reasonably simple. Masking tape can be used to separate colours in a big way, or for smaller items I have just been trying Winsor and Newton's Art Masking Fluid from art shops. This can be peeled off with a finger, or use a soft rubber.

Further decoration can be added with Letraset (sheets are quite expensive so it pays to share a sheet in a mutually agreed typeface — there is enough for several modest letterings). I see that Screenprint are offering personalised names decals as another useful additive.





TAKING STOCKS

WITH
STU BUSBY
... No. 2

Steering Problems

I'VE RECEIVED A LETTER from Roy Crowson who is experiencing understeer on his Mk 11 Mardave. Understeer, by the way, is when a car tends to drift wide in corners and doesn't seem to have enough steering movement. The opposite is oversteer when steering is very sensitive and can result in spins etc. Under and over steer can be controlled in various ways. The choice of tyres I believe to be one of the most critical. Note the many different types of tyres for sale: have a look at the top drivers' kit boxes and I think you will see that most have quite a variety to choose from, especially those that travel to different tracks which in themselves vary in surface.

The general rule for tyre choice seems to be a softish tyre on the rear to give plenty of grip with harder ones on the front that don't grip too well and won't dig in and cause spinning as Roy has found when he tried softer tyres. I believe you can in fact have *too much* grip on the back. This in itself tends to push the car wide when accelerating out of a corner. It depends on your driving style — a harder tyre on the rear will perhaps cure this.

A little more toe in, i.e. front wheels point inwards slightly will perhaps help an understeer problem. Failing this, experiment with weight distribution. More weight forward to cure understeer or backwards to cure oversteer. Avoid adding extra weight, if possible reposition existing components such as battery pack and receiver etc.

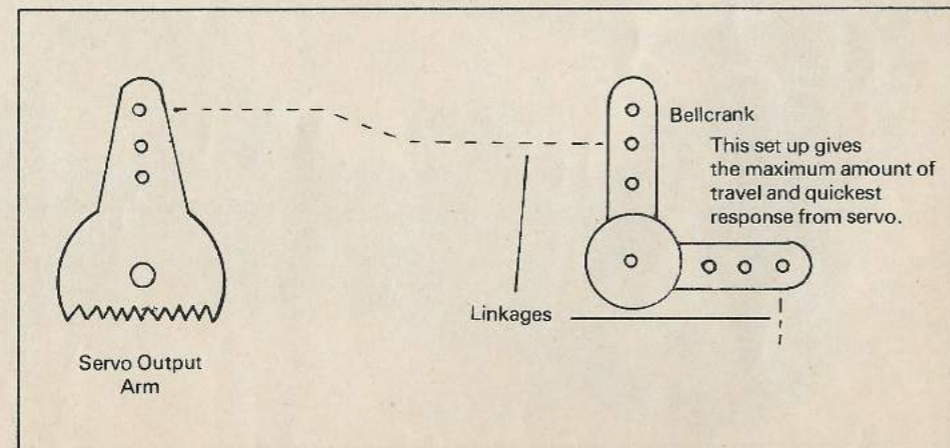
The amount of rear suspension movement can also affect a car's steering attitude as can the friction of the rear radius arms on their pivot points. If your car is the type that has Nyloc nuts that hold the radius arms on these pivots the friction can be varied by loosening or tightening these nuts.

I am reliably informed that fullsize cars in America that race on oval circuits, e.g. Indy 500 etc, are angled so that they are biased in the direction of travel with a turn inwards. American r/c modellers racing on ovals, although not with our type of stock car, also incorporate a bias. Anybody tried it over here? I would be interested in any observations if you have.

In the Wet

Of course getting a car to handle well on a wet track is another matter. Here the tendency is for harder tyres on the rear and softer on the front to cut down understeer. Grooves in the tyres also seem to help as they dispel the water to some extent. Harder tyres don't seem to soak up and retain water as much as soft ones.

Finally — although if you are having steering problems the obvious should be checked first — make sure that linkages are not binding in any way and that you have all the movement available through servo arm and/or bellcrank adjustment and that both rear wheels are tight and front ones running free.



Linkage Movement

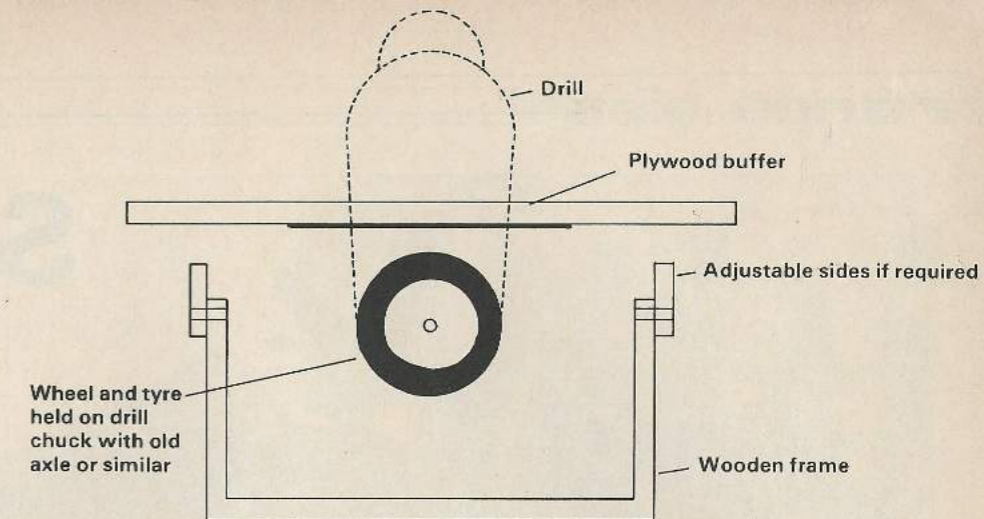
At this stage, although it may seem obvious to the more experienced modeller, a brief explanation of how to obtain more or less movement from linkages using bellcranks etc. may be useful. Starting at the servo use the hole furthest away from the centre of the servo arm; then the hole nearest the pivot point of the bellcrank. Then, on the other side of the bellcrank the furthest hole, continuing this way until the last linkage hole which would be the carburettor or steering block hole. This set up would give the maximum amount and/or quickest response from a servo. Reversing the above will give less movement.

Truing up Tyres

Lastly, Roy tells me he uses rear race car tyres cut in half for the rear tyres on his stock car. A good idea as there is a greater variety of compounds available and you can almost always be sure that there will be plenty of grip in them. The only drawback though is that not all race car tyres come ready trued, in fact some have to be glued together as well.

If you have a lathe this won't present too much of a problem as they can be glued on to wheels, put in the chuck, and trued up. This can be messy with the rubber dust flying around. The majority of readers however may not own lathes but probably own or have the use of an electric drill. This can be used with a *horizontal stand* to act in a similar way.

A wooden framework is made up to support a piece of plywood or similar material which has coarse emery paper glued to it. This is gently passed over the spinning tyre, using the sides of the box as a level until it is true and the correct dimension required. This set up can also be used for grooving tyres using a hacksaw blade.



One of our Leicester club members did just this and is finding he can make all sorts of bits and pieces for his car. Dimensions for 1/4 stub axles are given in the sketch. After fitting to blocks check the kingpin hole: it may need a clearance drill through it.

Glow Plug Modifications

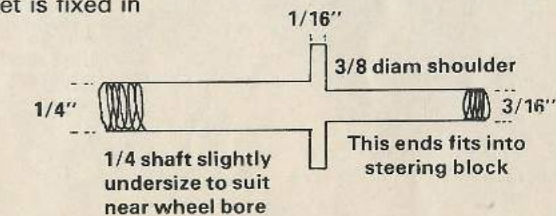
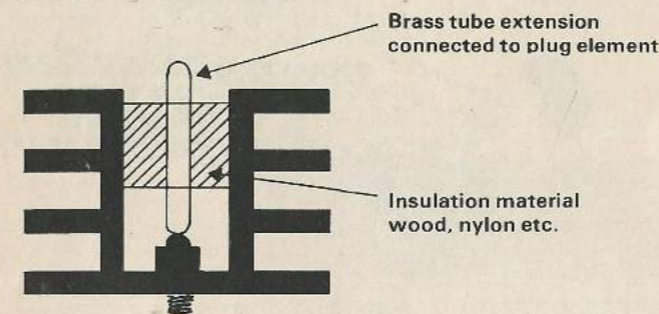
It can sometimes be difficult to get a glow clip on engines fitted with tall heat sinks or heat sinks without removing the body. One way round this when using a crocodile type clip is to use a brass tube to extend the element contact. The tube should of course be insulated from the head/heatsink as shown in the diagram.

Another method is to use a small jack plug and socket. The socket is fixed in

an easily accessible place on the car, one wire will have to go to the engine casing and the other to the plug element. A small crocodile clip, well insulated, can be used here and fixed so as not to be easily dislodged or a small starlock washer with the wire soldered to it can be fixed to the element.

Questions and Answers: Readers tips

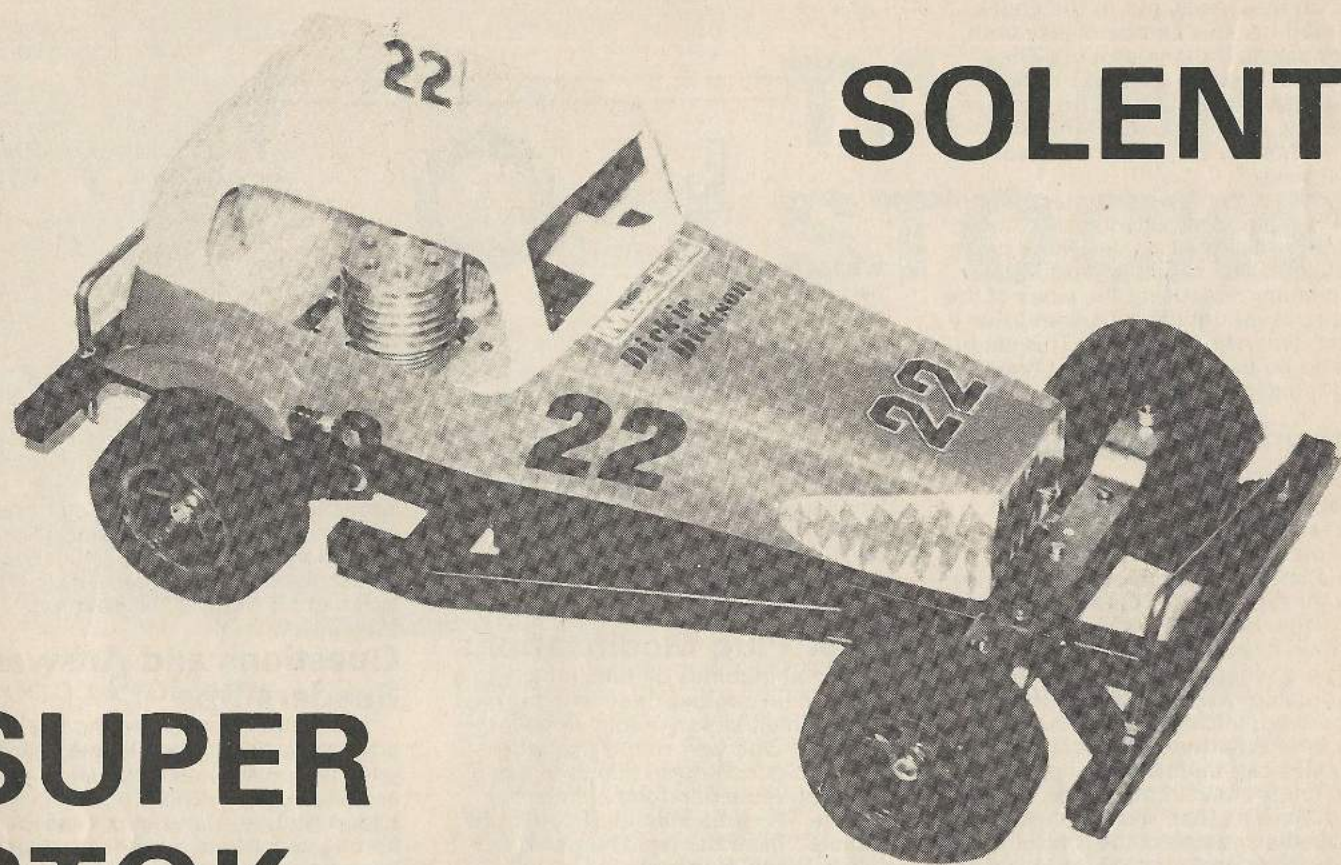
Your questions can be the basis of articles like this, please let me hear from you. Tips, useful gadgets, short cuts, are all eagerly awaited from the more expert section of our stox readers. Items used attract a modest editorial payment and a mention of the provider... Let's hear from you.



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SOLENT

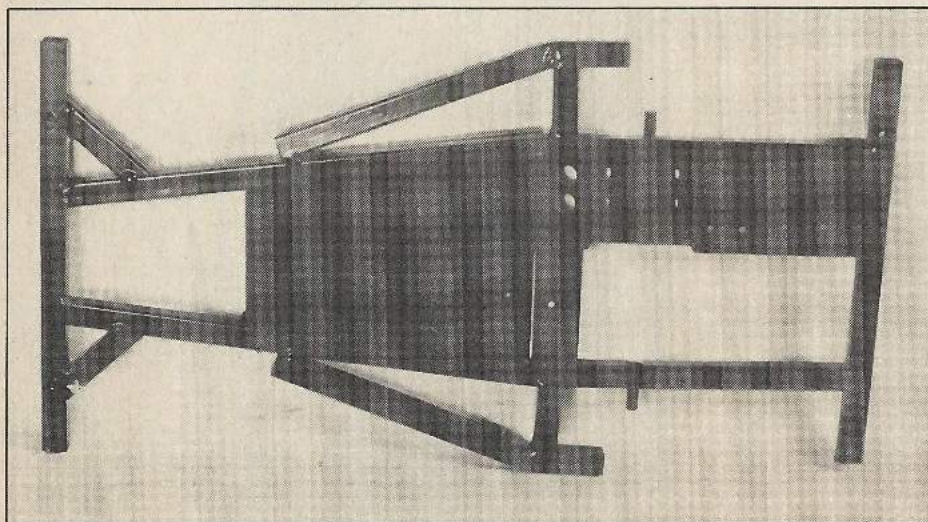


SUPER STOK

Ready to go —
bodyshell painted
and in place.



Welded chassis
with built-in
engine mounting
nerf bars and radio
box platform.



THE SOLENT SUPER STOK is marketed in this country by SoMoSo Products of Southampton and seems to be getting well into the model shops. It will be better known to some as the well established YuCan stock car, a popular model in Holland. It comes with illustrated building instructions both photo and line drawings, plus brief supplementary instructions in English and a new Super Stok box label. A back-up Manual in Dutch and German can be obtained if desired (a good way to enjoy your A/O Level German?)

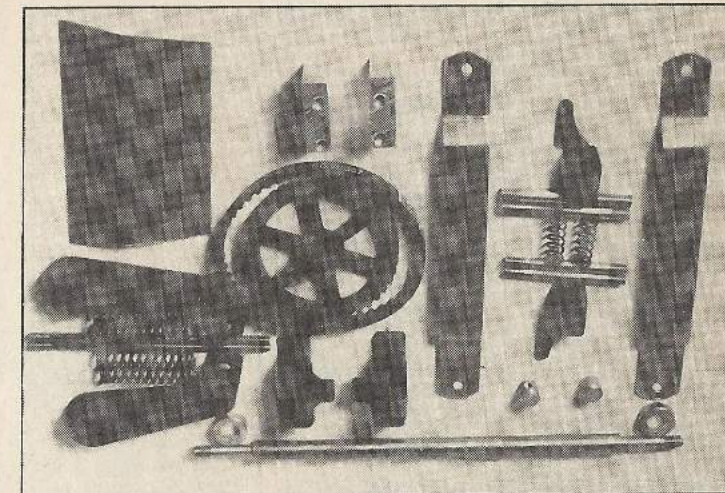
In many ways it follows the established Stok pattern of a stout welded chassis able to take a massive amount of bumping and boring, but then branches out with enough differences to make it interesting. Nerf bars are of same square section tube as

chassis and undertray to support radio box is welded in. So is the engine mounting plate. Rear springing is approached in a novel manner. The moulded trailing arms are sprung by dampers which lie parallel with the chassis sides and have coil springs about a central point. These can be individually adjusted to vary the amount of springing obtained.

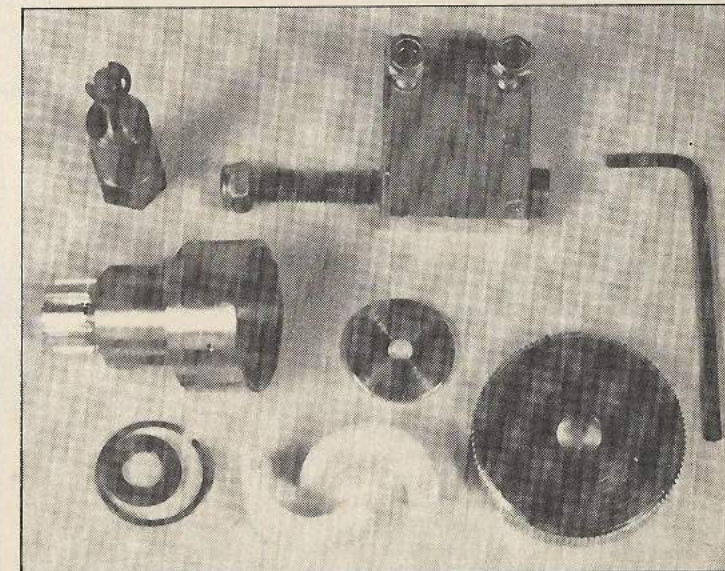
Drive to motor is by conventional toothed belt with large plastic gear mounted on axle and usual small spur gear on bellhousing. However, I have been adventurous and obtained their particular novelty described as 'automatic starting'. This seems to follow the old original method of starting tether or cable cars (i.e. round the pole cars) in days of yore. You just pushed like the very dickens and your motor burst into life. There are some refinements of course. The bellhousing is of brass and has two sets of needle bearings. It is surprisingly small. Shoes are held in tension by a spring clip. Altogether a nice little accessory. Of course if I don't like it then I can always change back to conventional methods, which is the standard equipment provided unless one opts for the auto start (£5 extra). It is designed to suit either Veco or HB specifically, though will probably be effective on most of the other accepted stox engines.

Steering crossbeams are angled to give depth for the stub-axle assemblies with steel stub axles going through plastic kingposts with steering arms integral, the whole being lightly sprung. There is no servo saver. A single connection links the two steering arms and a short length of wire then attaches to the bellcrank. No wire or collets for this included in kit. Instructions suggest the angled connection of a couple of bends which I very much dislike, hence

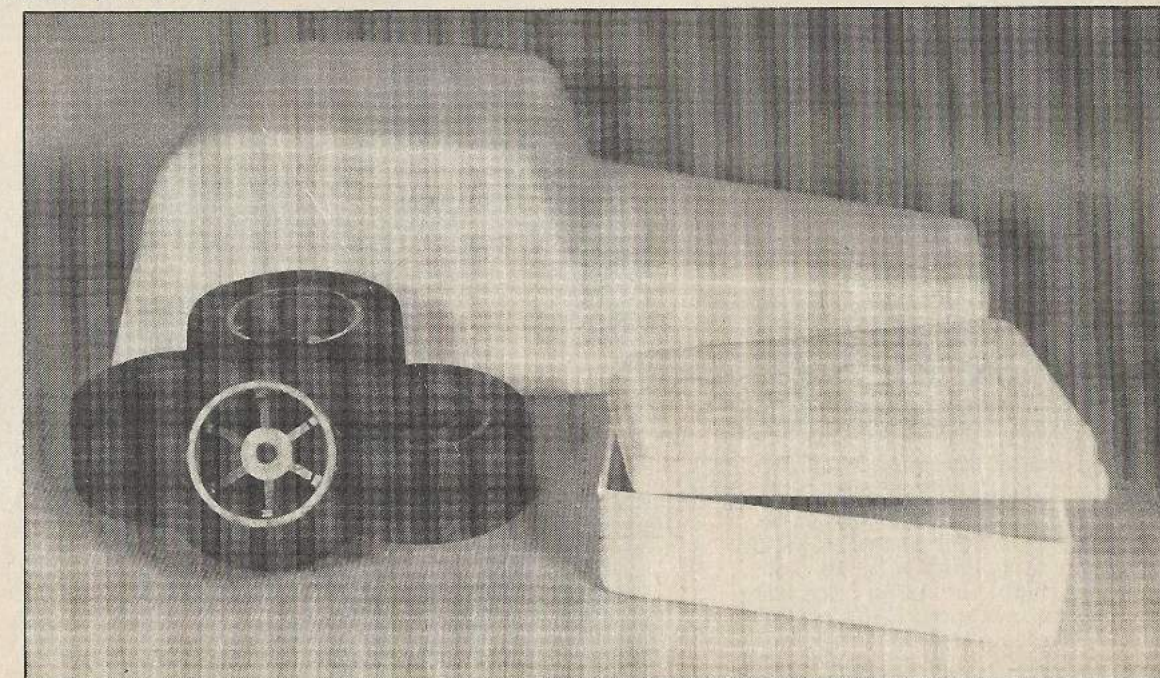
Rear springing
parts, front
steering,
undershield, rear
axle and engine
mounting blocks.

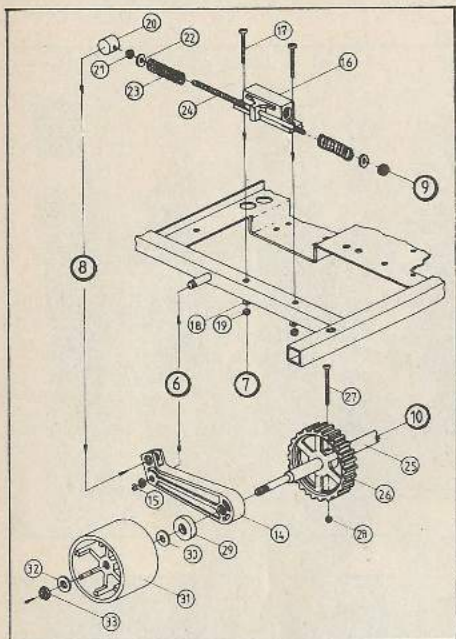


Parts for special
'auto start' clutch
and belt tension
adjuster



Wheels, bodyshell
and radio box.



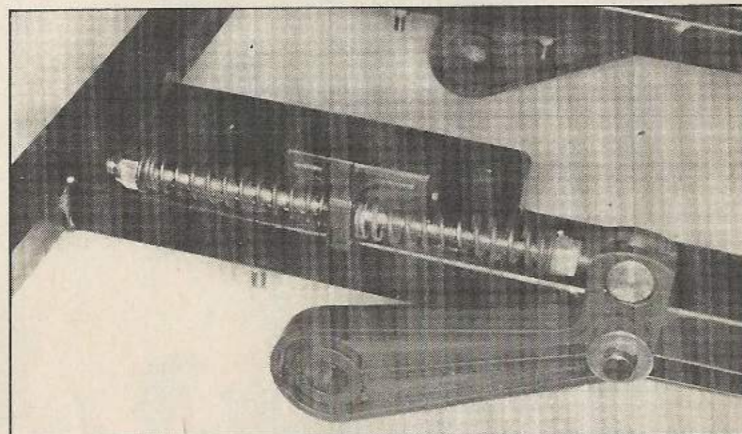


Overrides, fuel tank mounting and miscellaneous screws, bellcranks.

the collets shown in pictures. It is as well to give the allen screws a touch of Loctite on assembly when they will last as long as any other part securely in place. The little moulding for the bellcrank is in two parts and requires to be fitted with its inner sleeve underneath and the arms as low as possible but with clearance for the connection to servo. It is best to do when assembling the crossbeam as fiddling to insert later as I found! Two little things to watch here! Holes drilled for crossbeam attachment did not mate with holes in chassis and required ovaling out to make a fit. Also, if you are using collets as I did, then remember that there is a small underchassis plate to be fitted under the ties, which means that the collets at the steering arms should be facing downwards and only the collet at the bellcrank is facing upwards; otherwise they tend to foul the under plate.

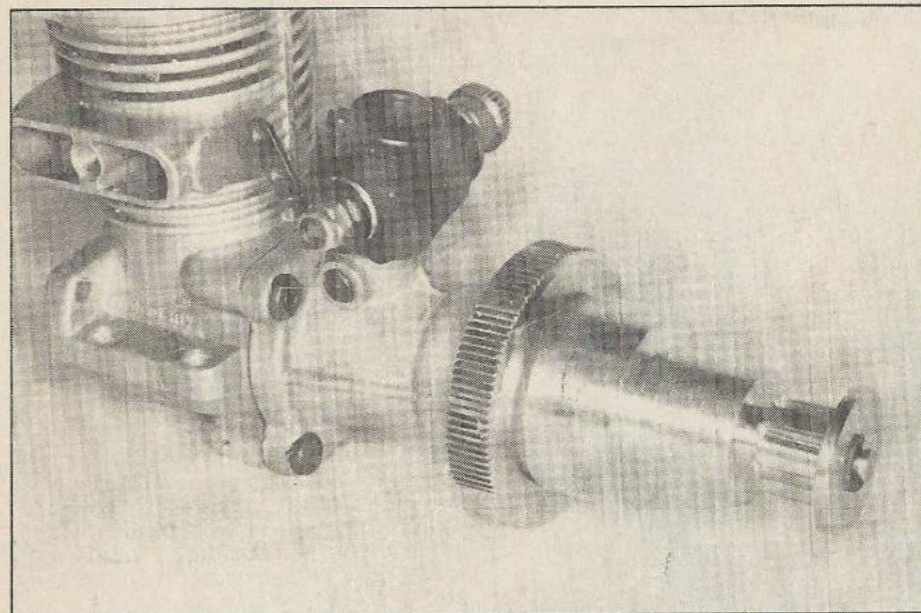
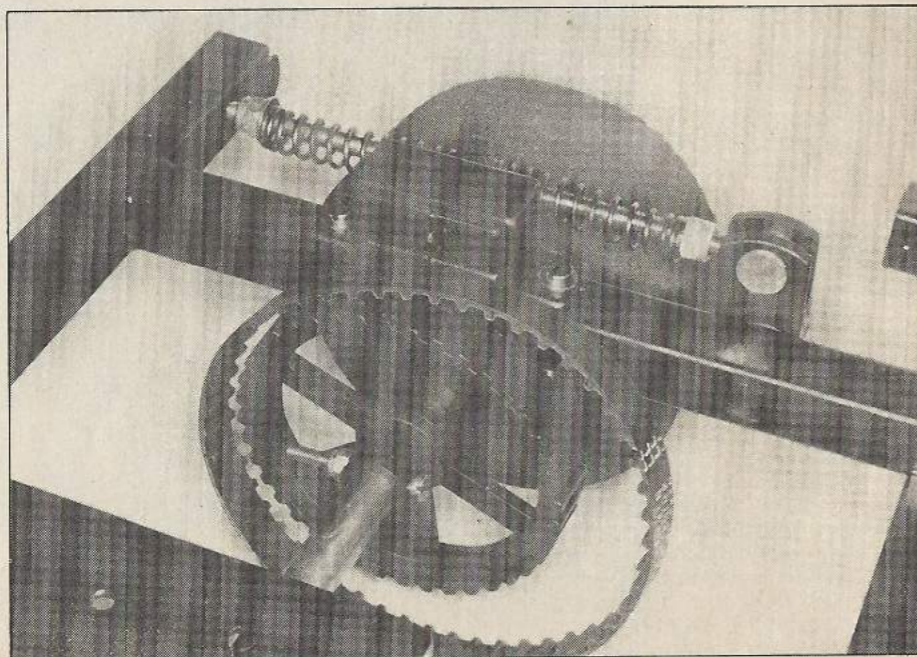
Front and rear overrides go through ready drilled holes in chassis, first running a nut up each thread before inserting them. Nyloc nuts secure them. The protruding ends can be filed sawn or snipped off, as should all bolt ends left in the heat of racing you get a nasty scratch from careless handling.

Radio box can next be considered. this is secured to the chassis by two bolts at the front which also retain the undershield, and two further bolts at the rear. All radio gear can be easily housed inside with wire connections going through the box. I have laid my servos flat and secured with servo tape — the lazy way. In a review of this kit in the Dutch magazine Hobby Bulletin they show alternative set up here using a PB servo saver, stout threaded connections and ball and socket ends, dispensing altogether with the radio box. This might well bring price over the limit for use under RSCA rules. If you use the nice large box then it is ideal for threading or taping the radio

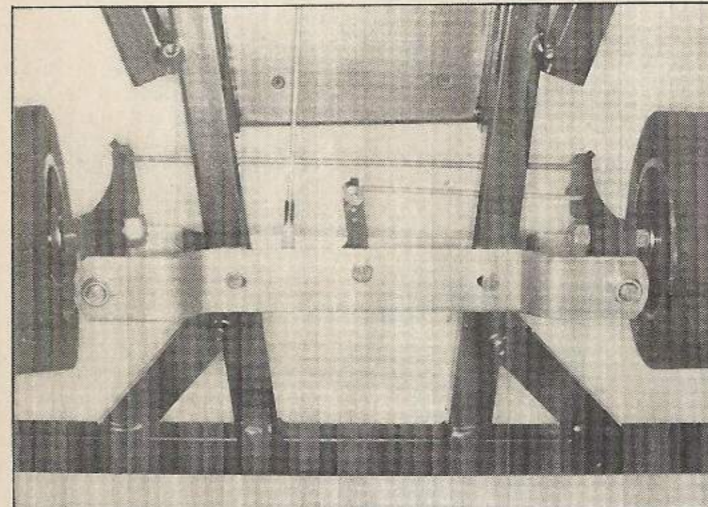


Adjustable rear springing.

Larger toothed gear fixed to rear axle and belt in place.

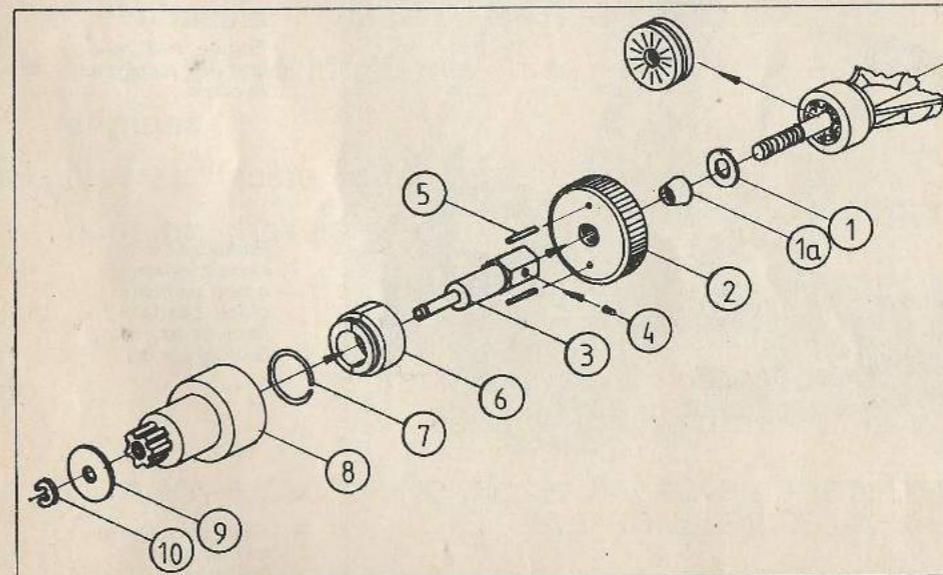


'Auto clutch' bellhousing and crankshaft adapter installed.



Steering assembled. Note track rod collets underneath but bellcrank collet on top to provide clearance for undershield.

Diagram showing parts of the 'auto clutch'. Engine flanged washer is not used.

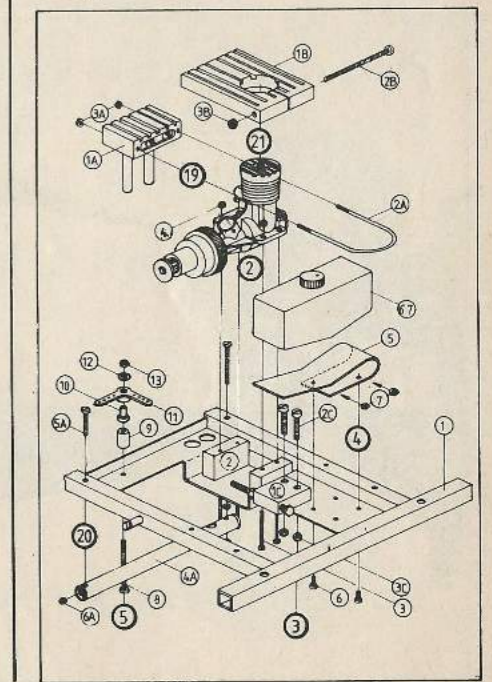


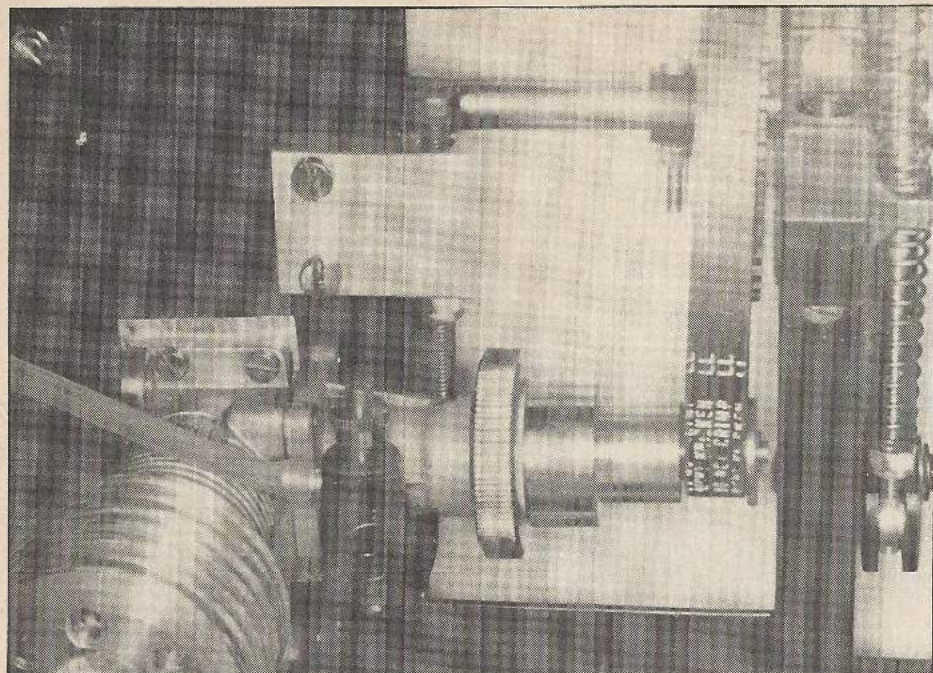
radio control

aerial to it: otherwise use the holes drilled amidships on the chassis to fix an aerial post.

Now comes the great moment of fitting the engine and the 'automatic start' gear. I chose my HB for the job but either of the Vecos will do as well. Note that flywheel opening is tapered so that the two pins to hold shoes in place are drifted in from the smaller opening side. These need to be driven fairly well in as they do not go right through the shoes but into blind holes. A wire spring clip holds the shoes together. Remove the flanged washer from engine and the tapered collar should also be slipped off. Insert the thick washer on the crankshaft end and then replace the tapered collar. This provides clearance for the tapered flywheel which goes on next. Then follows the crankshaft adapter, which, unusually, you will note has in addition to the usual screw threads an allen screw to be tightened. This is presumably an added safety factor so that the abrupt action of the 'self-start' function will not tend to jerk the adaptor loose on its crankshaft threads. Bellhousing is slipped over the shoes making sure that a protrusion of the allen screw is not interfering with their free action. A brass washer goes on the end of the adaptor to retain the toothed belt, and a final circlip holds things in place. Only assembly difference between this and a normal assembly is that the flanged disc on crankshaft is put aside — and the allen screw of course.

Engine is no trouble to instal with two blocks and long bolts to go right through. The next novelty, which comes with the auto start is a belt tensioner device which is attached to the plate which also supports the fuel tank housing. In practice the engine fixing bolts are loosened and the screw

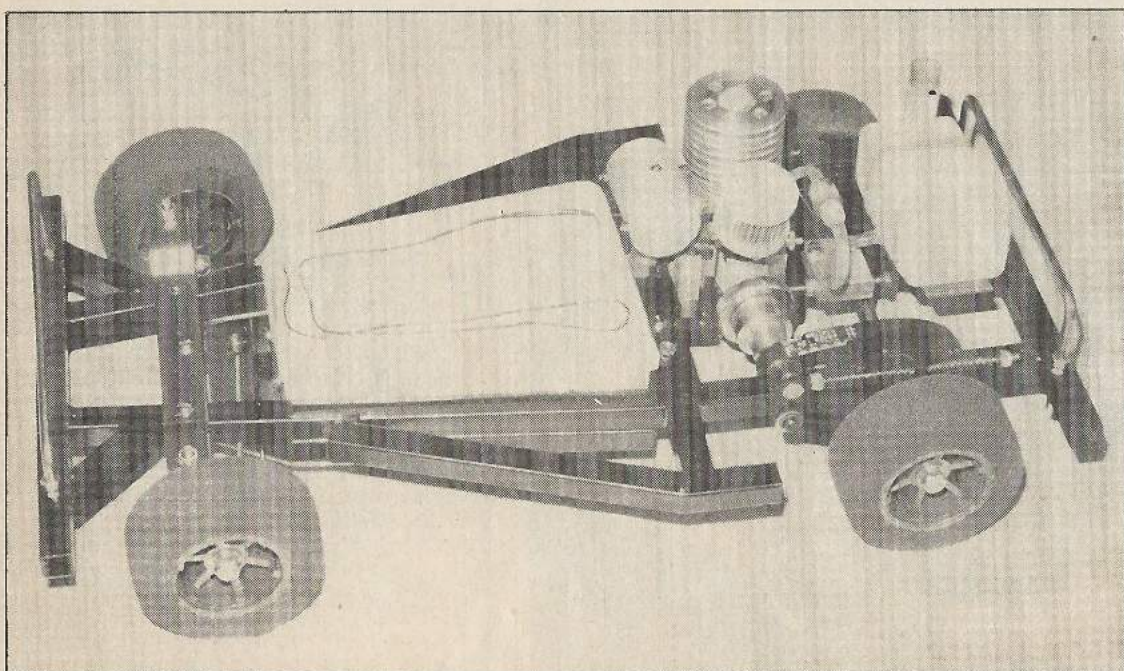
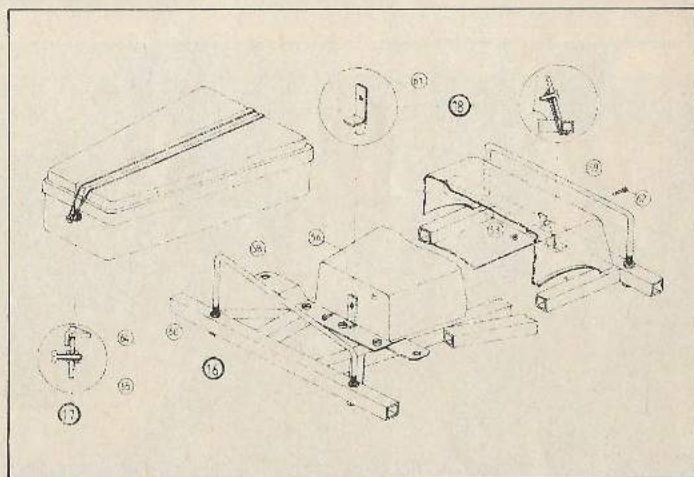
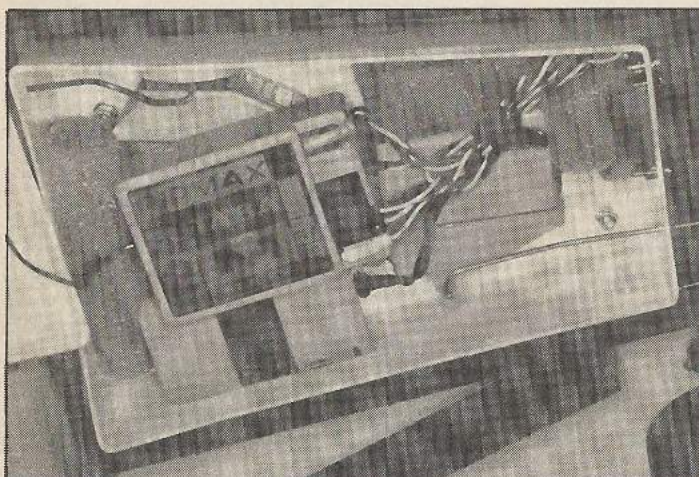




on the tensioner presses the front part of the crankshaft round until right tension is obtained. Of course it provides only limited movement but this should be enough.

A silencer is not provided with the kit so that one of the smaller types that bolt directly against the exhaust opening is required. SoMoSo list one which exits through suitable holes already made in the welded chassis. Otherwise it is necessary to be sure and obtain one with the silencer tube bending down at right angles to the exit, or you will simply be blowing hot exhaust fumes on to the plastic radio box cover with detrimental softening effects. The HB engine has a silencer of its own, but this is not adequate for car use except in very outlying places with no Race Director to warn you off!

The small bracket on which the fuel tank is to rest goes on next. It is a bit fiddling to screw in place, but patience triumphs in the end. No tank is provided in the kit, but the standard ED type with a shallow V-bottom is the intended item and is attached with a couple of rubber bands. Connect up to the carb with a



Engine, belt drive and belt tensioner in place.

Radio box with servos, rx and on-off switch in place. Leads in harness to avoid fouling servos.

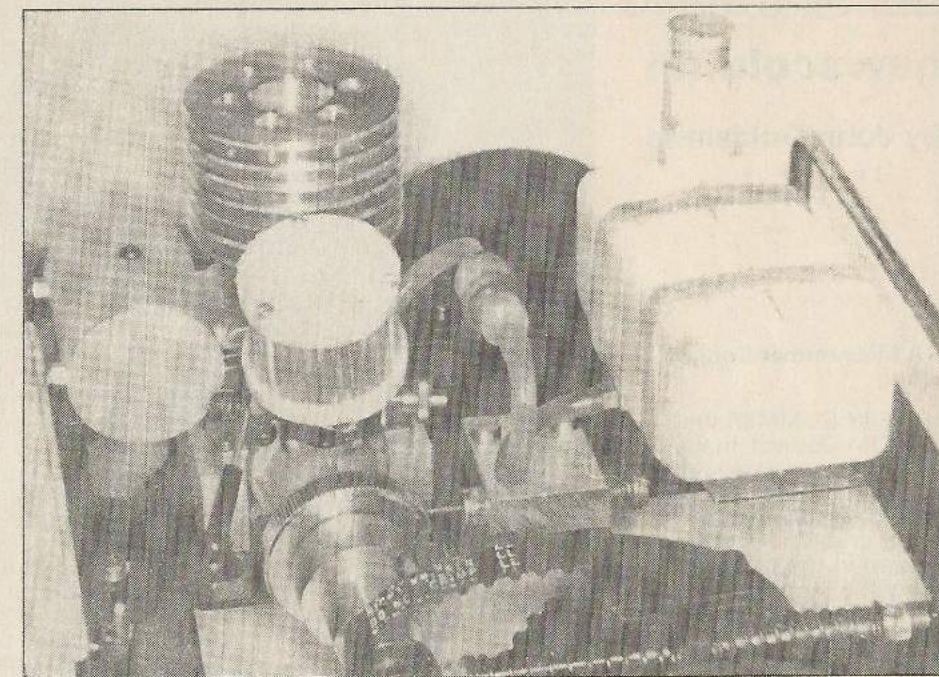
The complete car awaiting only bodyshell.

fuel filter in the line. Be careful since tank is so close to engine that enough fuel tube is used to avoid kinks, but not so much as to foul toothed belt. Last job this end of the car is to fit an air filter to the carb. There are several modestly priced ones on the market from which to choose. Thanks to Delta I still have one or two spare paper type filters and have fitted one of them. Whichever you use be sure it is firmly attached as there is not much depth to the carb opening on which it is pushed so a little epoxy here is desirable. Do not obstruct access to the little adjustment screw and a piece of the filter must be cut away to go round it.

Bodyshell is quite attractive and fits well. Two little plates are provided which are screwed in place front and back so that when bent they hook under chassis at the rear and steering cross beam in front. English instructions suggest attachment to the radio plate with Velcro. It's up to you. You may also find it a convenience to extend the filler pipe on the fuel tank to come up through the roof for convenience of filling without removing body. Be sure the cap is firmly in place. Bodyshell comes very close to engine and silencer without much leeway to cut it away further so that a small piece of flat tinplate could well be Evostik-ed there to act as a minor heatsink.

Once again I cut out windows etc with a hot iron and trimmed up afterwards. Colouring an ABS shell is no trouble

radio control



with aerosol touchups. Beginners please with white tops down to bonnet line and name on body. Then all the fun in the world thinking up a fancy colour scheme . . . and so to the club battle ground with something a little different.

Rear installation of engine, air and fuel filters, silencer and fuel tank.

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