EURO CHAMPS 1981

Bill Burkinshaw describes the first 1/12 scale electric European champs meeting held at Brugg, Switzerland.

IT COULD BE ARGUED that the English language was largely responsible for the domination of the first 1/12 scale electric European Championships by UK drivers, was largely as a result of cross-fertilisation with USA drivers, that UK technological advantage won the event. Drivers of course figure, but it was not lack of driving skill which held back the foreign competition, the whole outcome of electric car racing at top competition levels is dependent on very small percentage differences — a single tooth difference in final drive ratio, a few Amp/minutes of charge, or wheels 1/8in. too large in diameter and the picture changes. No amount of pure driving skill can prevail when drive batteries flag and the car slows down, for at this point, the driver who has it all right sails on past to the winning flag.

Inevitably the demands of eight minute heats put the accent very firmly on good batteries, well and correctly charged, and absolutely the right gear ratio. Cars just will not run at a constant speed for the full time, batteries run down, the car slows, the driver with the lightest car has an immediate advantage, for the laws of physics demand that to move a given weight a given distance in a given time demands a quantifiable amount of energy. Vary any of these, and the energy requirement changes, decrease weight and it diminishes. Finding just the right balance of gear ratio that provides a match to the motor torque. rpm and current consumption is a matter of experience, knowing how to get the batteries to perform is hard won knowledge.

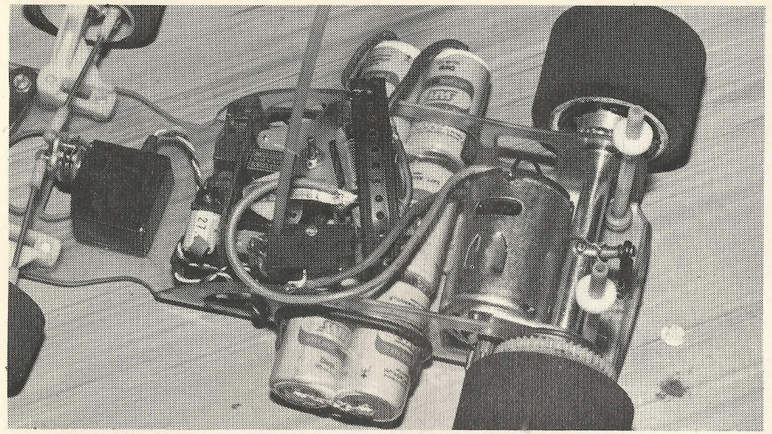
Battery charging techniques in the UK have improved immensely over the past 12 months, few competition drivers would think of charging without accurately monitoring the voltage with a digital volt meter, most agree on the benefits obtainable from only fast charging cool batteries, and keeping them cool during the charge. These techniques pioneered in the USA and UK, the former for 1/12 scale car racing, the latter for fast electric boats paid handsome dividends for Neal Francis in Brugg, Switzerland on March 2 when he drove his *Saft* battery powered super lightweight car to victory.

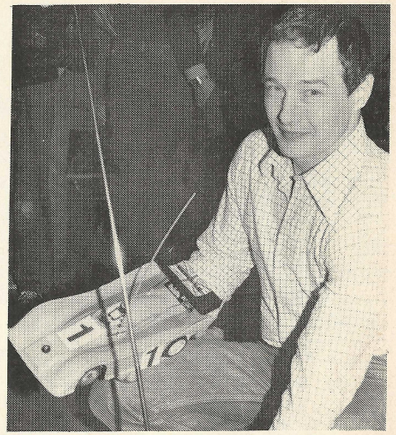
The combination of top quality Ni-Cads properly charged, lightweight car and superb driving proved unbeatable, Neal's qualifying time was nearly a full lap faster than the closest opposition. The winning car was designed by Tom Morgan as a response to the reduction in the minimum weight limit for 1/12 scale. A polycarbonate sheet chassis, formed into a semi-monocoque, well fretted out for weight reduction, forms the basis. Power is provided by a modified *Mabuchi* 540 type motor. The black end type was used, fitted with ball races and balanced — no exotic wind or diamond trued commutator. A tubular spacer crosses the monocoque at the rear, within this the axle runs supported at either end with a lightweight ball-race. An *Associated* driving differential with thinned down gear (to reduce weight) and aluminium motor mount integral with the axle tube, completes the drive train.

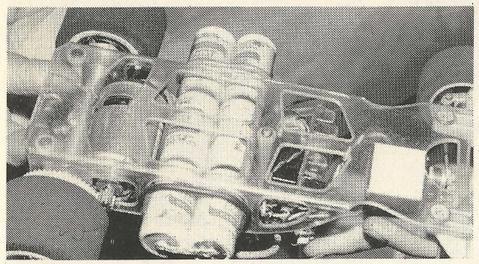
Neal favours the resistor type controller, undoubtedly lighter than the electronic type — particularly if the latter is fitted with full forward bypass relay and reversing relay, but arguably less efficient in overall power transfer capability.

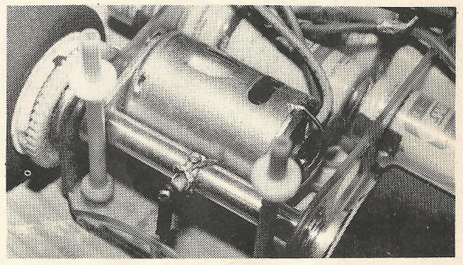
Intermediate speeds do burn off power, and contact resistance of the wiper has to be considered. Front suspension units are

Left: Jorgen Andersson of Sweden took fourth place, the only non-British driver to make the finals. Right: scrutineering was efficient, even down to tyre diameter checks on the start line.









Top right: Neal Francis collects his car at the end of his winning drive. Above left: the winning car - chassis is formed from polycarbonate sheet into a rigid channel shape. Left: flex is controlled by the size of the cut-outs. Right: rear axle runs in a tube which cross braces the chassis.

modified Associated units, the bases are machined to increase the kingpin inclination — also reducing weight as a bonus. Futaba 30M miniature servos and an uncased Futaba receiver control the car.

Of the 'standard' kit cars driven, Associated were by far the most common, few however were run totally out of the box, most drivers making some attempts to bring the weight as near to the minimum level as possible. Such items as carbon fibre rear axles, thinned down drive gears, fretted out suspension units and uncased R/C equipment being most common. Phil Greeno's Gemini and fellow driver John Chamberlain drove new lightweight versions of the car weight saving fully machined motor mounts, uncased Demon speed controllers and receivers, carbon fibre axles, were all used in lightening moves. Lightning cars were there too — the Lightning 2000 looks to be one of the best out of the box competitive drives around at the present time, as evidenced by Dave Tonge's second place and George Land's sixth, backed up by Jose Rosas and Patrick Blanc in ninth and tenth place respectively. On a points for places basis the Lightning 2000 must come out near to the top, that is if one feels that such statistics are very meaningful.

Pundits attempting to put together the ideal car from the accompanying table would be hard put to choose which successful formula to adopt; there are so many different routes to success, so much to choose from with regard to battery type, motor speed controller etc. In the final analysis, it was that unbeatable combination of a top driver and immaculately prepared car which topped the results.

Heats

Three rounds of heats were planned, the first round on Saturday 28 during the evening, the remaining two on Sunday March 1. Round 1 brought with it the usual crop of triumphs and disasters, as the pressure of competition brought to light weaknesses in preparation, and

Results

Name	Nat.	Fastest Heat Rd.	Fastest Heat Sec.	Semi Final Rd.	Semi Final Sec.	Final Rd.	Final Sec.	Car	Motor	R/C	Battery	Speed c'ntr'll'r	Diff
1. Neal Francis	**GB**	**33**	**12.8**			**32**	**8.5**	**Scr'tchb'lt**	**Scr'tchb'lt**	**Futaba**	**Saft**	**Resistor**	**Yes**
2. Dave Tonge	**GB**	**32**	**14.8**			**32**	**15.2**	**Lightning**	**Scr'tchb'lt**	**Sanwa**	**Sanyo**	**Demon**	**Yes**
3. Bill Maisey	**GB**	**32**	**15.2**	**32**	**11.3**	**31**	**2.0**	**Scr'tchb'lt**	**Scr'tchb'lt**	**Futaba**	**Saft**	**Resistor**	**Yes**
4. Jörgen Anderson	**S**	**32**	**9.1**			**31**	**7.2**	**Mirage T**	**Scr'tchb'lt**	**Kraft**	**Varta**	**Resistor**	**Yes**
5. Phil Greeno	**GB**	**30**	**2.6**	**31**	**8.8**	**30**	**12.4**	**Gemini**	**MRP**	**JR**	**Sanyo**	**Demon**	**Yes**
6. George Land	**GB**	**31**	**2.3**	**31**	**8.6**	**29**	**5.7**	**Lightning**	**MRP**	**JR**	**Sanyo**	**Demon**	**Yes**
7. John Chamberlain	**GB**	**31**	**3.6**	**31**	**8.6**	**24**	**4.6**	**Gemini**	**MRP**	**JR**	**Sanyo**	**Demon**	**Yes**
8. Graham Davis	**GB**	**32**	**14.3**			**16**	**Retd.**	**Scr'tchb'lt**	**MRP**	**JR**	**Sanyo**	**Demon**	**Yes**
9. Jose Rosas	F	31	5.2	31	10.2			Lightning	BoLink IV	Robbe	Sanyo	Jerobee	Yes
10. Patrick Blanc	F	31	11.1	31	19.9			Lightning	MRP	Futaba	Saft	Jerobee	Yes
11. Mikael Pehrsson	S	31	10.7	30	4.2			Minicars	Scr'tchb'lt	Futaba	Sanyo	Resistor	Yes
12. Christian Royet	F	30	2.5	30	7.2			Gemini	Ferrari	Sanwa	Saft	Resistor	Yes
13. Jakob Böhler	CH	31	14.8	29	5.2			Associated	Reedy	Simprop	Varta	Resistor	Yes
14. Wayne Davis	GB	30	4.4	29	7.9			Associated	Reedy	Futaba	Sanyo	Resistor	Yes
15. Les Pipe	GB	31	17.5	29	12.4			Associated	Ferrari	Omega	Saft	Resistor	Yes
16. Rene Hohl	CH	30	0.5	28	1.7			Associated	B1. Mabuchi	Futaba	Varta	Resistor	Yes
17. Steven Davis	GB	31	4.9	28	11.5			Associated	Reedy	Futaba	Saft	Resistor	Yes
18. Terse Brynhildsen	N	30	9.9	28	14.3			Minicars	Ferrari	Futaba	Sanyo	Resistor	Yes
19. Best Schneider	CH	30	4.4	27	15.9			Associated	B1. Mabuchi	Futaba	Saft	Resistor	Yes
20. Tony Wells	GB	30	2.2	21				Associated	Reedy	JR	Sanyo	Resistor	Yes

emphasised sections of the track still to be properly learnt. The track markers must have caught out every driver in the competition at least once, steeply domed 'dots' flipped over any car putting one wheel wrong and unyielding barriers damaged several chassis as cars spun into them. By the end of Round 1, 11 of the top 20 places were taken by British drivers, Graham Davis leading the pack with just 32 laps, closely followed by Andersson of Sweden. Surprise of the meeting was George Land of the Ally Pally Club, whose 8th fastest time was proof that his choice as team replacement for Tom Morgan, who was unable to attend, was amply justified.

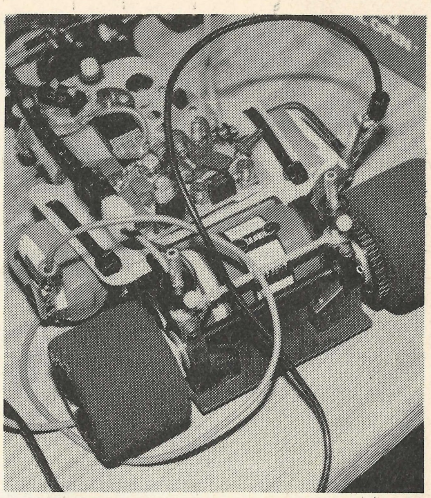
Working to the early hours of the morning paid dividends for neal Francis and Bill Maisey, who although finishing in the Round 1 'top ten' were far from happy. Neal was fortunate in having an almost clear track for his Round 2 drive as retirements dropped the number of runners from seven to four, but clear track or not, the car appeared as if on rails positively flying round to record the fastest time of the meeting, 33 laps in 8-12.77 and although both Grahame Davies (32 laps 8-14.28) and Jörgen Andersson (32 laps 8-09.12) improved their times, could not catch Neal's super lightweight, powered by an ex-Tamiya kit Mabuchi 540 black end-bell motor. Neal's modifications to the motor were very simple — ball-races, trued commutator and as Neal himself said, a crude balancing job! George Land once again turned in a stirring performance, to finish 5th fatest behind Bill Maisey (32 laps 8-15.20) with 31 laps 8-02.30. Others fared less well, Nick Adams could not seem to find the right rhythm for the track, and despite a good start managed only an uncharacteristic 29 laps. Jimmy Davis did not complete the eight minutes, running out of power, and Phil Greeno has some tough opposition with old 1/8th scale protagonists, Per Gustafsson and Ronnie ton, both disinclined to give any quarter. Eventually, Phil was able to draw away, only to have the early tussle repeated when it came time to lap both these drivers.

Last chance time, Round 3 and first to go of the GB contingent, Nick Adams, still not finding top form turned in his best time of 30 laps in 8-13.82, not quite fast enough for the semis, however, for only the top 20 were to qualify with the four fastest straight through to final places. Steven Davis did find form and produced a 31 lapper, good enough for a place in the semis, along with Wayne Davis, George Land, Steven Davis, Bill Maisey, John Chamberlain, Les Pipe, Tony Wells and Phil Greeno.

Semi-Finals

Two semi-finals, each of eight cars, were soon sorted out, the four fastest out of both semis were to go through. Three GB drivers lined up for the start of semi-final 1, Wayne Davis, George Land and Steven Davis. Right from the drop of the flag it was clear that Wayne Davis and George land were to make all the running, with Mikael Pehrsson (Sweden) and Christian Royet (France) pushing hard. Royet managed to take 2nd place briefly towards the end of the race but Wayne Davis squeezed past with less than one minute to go, crossing the line behind George Land who held the lead through most of the race.

Semi-final 2 lined up 5 British drivers with two further French and a lone Norwegian. Bill Maisey, John Chamberlain, Les Pipe, Tony Wells and Phil Greeno knew full well that at the very best only four of them could make the final and to do that they would have to beat the times recorded in Semi 1. Maisey, Greeno, Chamberlain and Blanc (France) clearly dominated the race, Bill Maisey leading the group with Patrick Blanc snapping at his heels for the full eight minutes. Blanc took the lead for a short spell of eight laps, but could not match the incredible performance of Bill's super lightweight car. As batteries started to lose their edge and cars slowed around the seven minutes mark, the situation changed as the *Geminis* of Greeno and Chamberlain retained just a small margin of performance over Patrick Blanc. Not until the last 30 secs of the race were the *Gemini* duo able to make the difference tell, but with seconds to go Blanc was squeezed into 4th place.



Above: Les Pipe also discarded the case of his Vendene UHF receiver to try and achieve the lowest weight for what is essentially a Standard Associated RC12E competition car.

Finals

As the dust of the semis died down, a short wait preceded announcement of drivers for the final. When the announcement came, it was apparent that the second semi was the faster of the two, with Maisey, Chamberlain and Greeno going through plus George Land, winner of semi 1. Organisers allowed a 25 minute break for semi-finalists to cool down and recharge batteries before the seven British and lone Swede lined up on the grid for the first European Championship final.

From the drop of the flag it was Neal Francis all the way, a superb start put him 20 yards clear of the pack, who proceeded to sort out amongst themselves the remaining places. Graham Davis, Dave Tongue and Jörgen Andersson fought hard in the early stages with Bill Maisey, well down the field in 6th place. Not for long, however, for he soon worked his way through the pack reaching 2nd place almost at the same time as unfortunate Graham Davies had to retire with a fractured chassis. with Bill Maisey in amongst the leaders, excitement started to increase, for it was apparent that the gap between the 2nd, 3rd and 4th group, and leader Neal Francis was narrowing. Neal, obviously aware of the situation behind him, speeded up the tempo to maintain his lead. With around three minutes to go, John Chamberlain's car stopped dead and was off the circuit for quite some time. Phil Greeno meanwhile had passed George Land and was, too late, beginning to catch the leading bunch. With less than one minute to go, Bill Maisey in 3rd position was struggling to stay in front of Jörgen Andersson and almost lost his position, as his car flipped over on a dot in front of the driver's rostrum. Back on his wheels with only one yard in hand, Bill managed to retain his place, but too little time was left to allow him any chance of bettering 3rd place behind Dave Tongue and Neal Francis.

Below: Phil Greeno's lightweight Gemini JR receiver is removed from the case as is the Demon electronic speed controller which is situated underneath the shaker plate between the battery packs. Unit in front of the receiver is the reverse module.