

Radio Control Cars for

DIRT & TRACK

NUMBER 8

OCT-NOV 1988

AUSTRALIA: \$2.70



THREE REVIEWS:

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THUNDER
SHOT**

**1/8th GAS
PB PHOENIX**

**BETTER IS
BIGGER:
1700mAh
BATTERIES**



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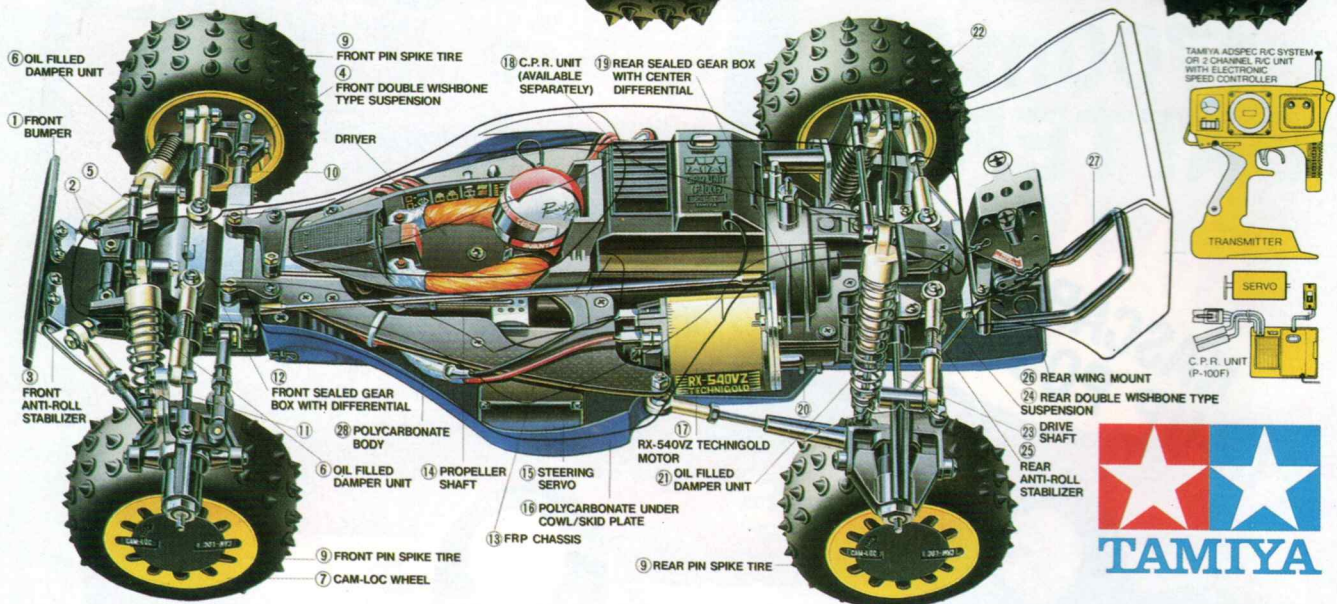
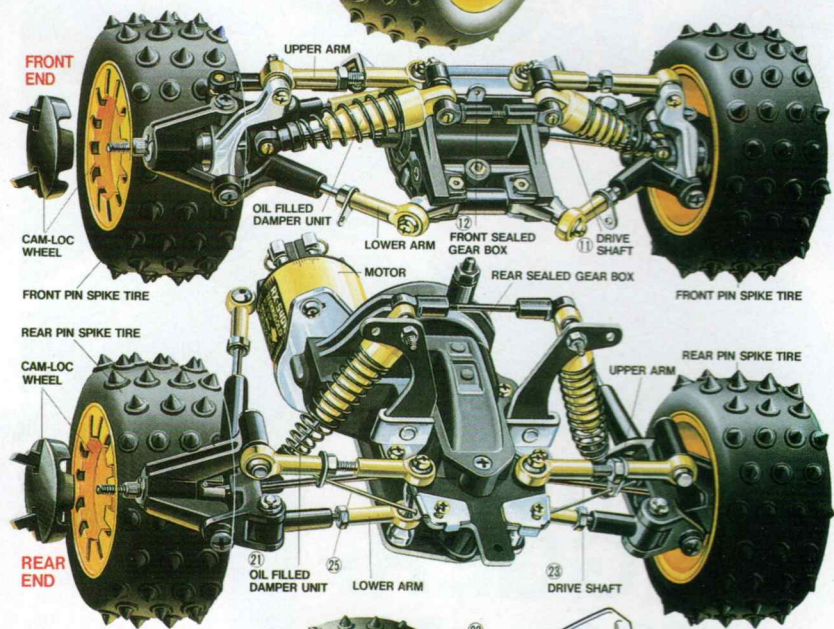
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You Wanted to Know



Q: I am looking for a good 4WD buggy that is brand new and is cheap. As I want to race it, I was thinking about an Optima Mid, but I thought I'd ask your opinion.

Lee Q, Warilla, NSW

A: The consensus here at Dirt & Track is that the Mid Optima is undoubtedly a good 4WD buggy for racing. As regards price, it's a case of getting what you pay for. If you buy a cheap buggy, and there are a few available, you could find you'll end up paying out a lot more to make it competitive, whereas the Optima Mid is competitive right out of the box, provided you're running a good motor and good Ni-Cads.

Q: I own a Falcon, and would like to know whether or not to invest in a 'gasser'. Are they expensive to run? Do most clubs in Queensland have a class for these cars at racing meets?

Lloyd A, Park Ridge, Qld.

A: Gas cars are a lot of fun Lloyd, and while they're a little dearer than an electric buggy to buy, their running costs are slightly lower. Cost wise, it's probably much of a muchness. Usually, clubs running 1/8th scale gas cars run separately from 1/10th clubs, because the tracks need to be much bigger for the bigger cars, and they need to be further away from houses as well to counter the noise problem. I don't know if

there any 1/8th off-road clubs running in Australia, but there are some good 1/8th circuit car clubs in Queensland; try getting in touch with the Queensland R.C. Car Racing Association (1/8th scale) on (07) 205 6160.

Q: I've decided to sell my Tamiya Falcon and invest in a 4WD. There are only two 4WD's in my price range — the Tamiya Boomerang and the SG Coyote. Which one would you suggest? Can the Coyote run a Technigold RX540VZ motor?

Daniel H, Randwick NSW

A: We don't recommend any one car over any other Daniel. Both the Boomerang and the Coyote have good reputations, and either would do you proud as an entry buggy into 4WD class. Of course, you might want to save for a bit longer and buy something more up-market, or perhaps look at buying a second-hand car through our reader classifieds. The Technigold motor is very quick indeed and can be fitted into almost any electric powered buggy, but remember to adjust your gear ratios for that extra power!

Q: I've been into R/C cars for almost a year now, and have a Tamiya Wild One, which I haven't raced yet but plan to. That's why I read your magazine, to give me an idea on how to race and win. But I hardly ever see the Wild One mentioned. If I upgrade it with ball races and a black or technitune motor will it be able to keep up with the RC10's, Ultimas, etc? Or do I have to buy a new car to have the competitive edge on the track?

Julius R, Sth Penrith, NSW

A: Julius, the Wild One is a fairly old buggy, and very heavy by today's standards. However, I have seen them being raced competitively. Installing ball races, fitting a hot motor and doing some lightening work will make it competitive, but I'll be very surprised if you're able to catch cars like the RC10 or the Ultima. I'm sorry, but if you want to win you'll more than likely have to get a different car. But don't let that stop you racing. Learn your race craft and skills with the Wild One, and then upgrade — it'll help you become a better driver.

Q: At the moment I have a Jet Hopper and although I'm on a tight budget, I would like a Salute, Shadow or similar. Do any clubs race Jet Hoppers?

Steven C, Epping, Vic

A: All the cars in the Kyosho range are excellent choices Steven. The only way to get current prices of these, or any other cars, is to go to your local hobby shop and ask, as prices do vary between shops. The Jet Hopper is a great way to start R/C car racing, but very few clubs run a class for them, as they just don't have the speed of the other buggies, however, Jet Hopper's have been run at the Bendigo Club in Victoria, and nobody seems to mind.

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Q: Which tyres would best suit the Hornet on the St Ives track? e.g. Oval Block, Pinspike, Sand Scorcher. And which battery pack do you recommend for around \$50-\$70?

Nicholas J, Cordon NSW

A: Nicholas, although I've driven on the St Ives track, I'm not going to recommend any particular tyre pattern, because the tyre pattern to use will change depending on the track surface. For example, you would use one tyre pattern when it's dry and dusty, and a different one after it's been raining. So, it's really a matter of getting to the track early on race day and experimenting. As for battery packs, it's wise to shop around the different hobby shops and see who's selling what on special. You can buy quite reasonable 7.2 volt packs for around \$70, but they are not SCR cells, and most competitive racers are now using either SCR or SCE packs.

Q: When reading one of the speed controller reviews it said that the speed controller could take 60 Amps continuously, or 240 Amps momentarily. How is this possible when a 7.2 volt Ni-Cad produces 1.2 Amps and the wires wouldn't be able to cope with that many Amps? Also, could you explain what the term 'wet magnets' means?

Paul T, Nedlands, WA

A: The rating on a 7.2 volt 1.2 Amp/hour Ni-Cad means that it's capable of delivering a current of 1.2 Amps for one hour, but the Ni-Cads are actually capable of delivering much higher currents over a shorter period, which is why Ni-Cads will sometimes dump, or go flat, in less than 5 minutes. When you first start up your buggy in a race the motor can be drawing as much as 35 Amps, and 35 Amp fuses have been known to blow in velodrome racing, indicating that the motor is using more

than that amount of current. The amount of current the motor draws is dependant on a variety of things, like gear ratios, track surface, and especially the number of winds on its armature. The rating on a speed controller is simply the manufacturer's way of telling the user what type of application the controller can be used for. A 60 Amp continuous controller is designed for stock motors and some of the milder modifieds in off-road use. For super-hot motors in short sprints, drags or oval racing, you'd need a controller capable of handling at least 100 Amps continuous current. It's confusing and complicated, so we'll look at doing a detailed article in the near future, but I hope this answers your question for now.

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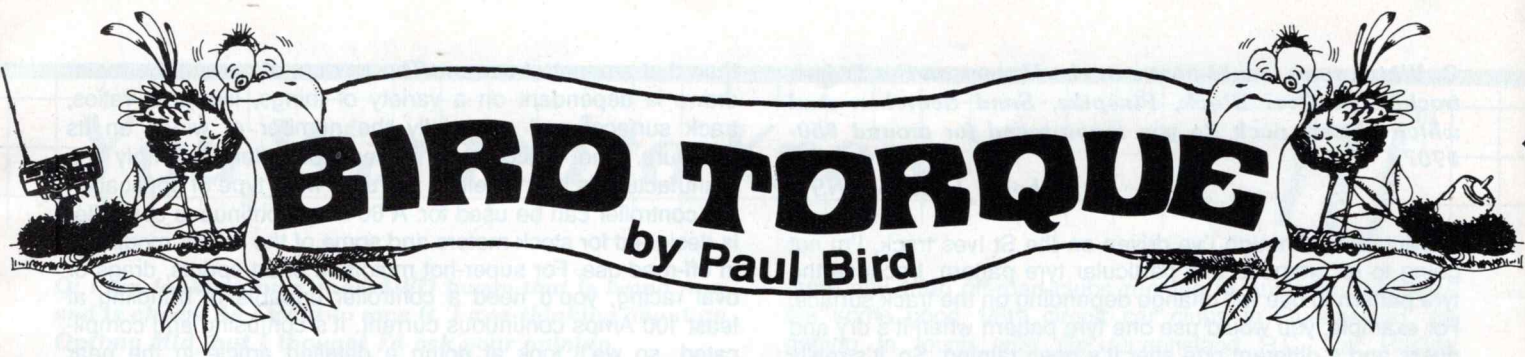
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Firstly, an apology that this edition's column isn't about electronic speed controllers, as I indicated last edition. The speed controller article is being held over for a while, as the circuitry I intend to publish is still undergoing testing in our electronics lab. I'm sorry, but it just wasn't finished in time.

AERODYNAMICS

Instead, I thought it would be helpful to take a look at a very important aspect of radio control car racing, which can affect a car's handling and performance — aerodynamics.

With full scale cars, aerodynamics affect the performance, and the same is certainly true with model cars. It's perhaps not so important for off-road buggies, but for circuit cars and speed bowl or velodrome racers, it's a critical science.

The most important aspects of aerodynamics are drag, lift and down force. To explain the terms, drag is the amount of resistance the car has to moving through the air and lift and down force are concerned with whether the car will lose contact with the ground at speed, or whether it will sink closer to the track surface as it goes faster.

DRAG

The amount of drag a car has is determined by three things:

- the car's frontal area;
- the car's aerodynamic shape;
- the dynamic pressure of the airflow.

The frontal area is calculated by looking at the front of the car, and measuring the flat plane area. This includes the body and any exposed tyre area, but not any open space under the chassis, and between the tyres.

Obviously, the lower and sleeker the body is, the lower the frontal area will be.

Aerodynamic shape is rather harder for most of us (me included!) to be able to work out, but it involves looking at the various panel shapes which make up the car.

The amount of drag is calculated by multiplying the frontal area by the mathematical value of the aerodynamic shape.

LIFT/DOWN FORCE

Lift and down force generally refer to the body shape, and what can be done to it to change how it reacts to air pressure. Wings and spoilers can be added, as can air dams. Of course, some of the additions can add to a car's frontal area.

For the purposes of this article, a spoiler is either attached or moulded to the car's body shell at the rear, while a wing is suspended over the body.

An air dam, or diplane, is fitted to the lowest part of the front of the body shell.

PRACTICAL IMPROVEMENTS

The scientific theory out of the way, let's look at practical ways of improving the aerodynamics of your car.

The first thing to do is to mount the body as low as possible. Remember to allow for suspension travel, and make sure the body doesn't actually scrape the track surface, but other than that keep it low. The reason is that the lower the body, the less drag, (less frontal area) and lift is also reduced because a low body reduces the amount of air going under the car.

Keep the body posts as short as possible so only the bare minimum extends through the shell. Excess body posts create air turbulence, and this increases drag.

When mounting the body shell, it's important not to make any more holes than you absolutely need to. Extra holes all increase drag by creating airflow disturbance.

However, mounting the antenna at the rear of the car can help to reduce lift by allowing air to escape from under the body. You'll notice that with some velodrome cars, the entire rear panel of the body is missing, so air can flow through freely. This reduces drag quite significantly.

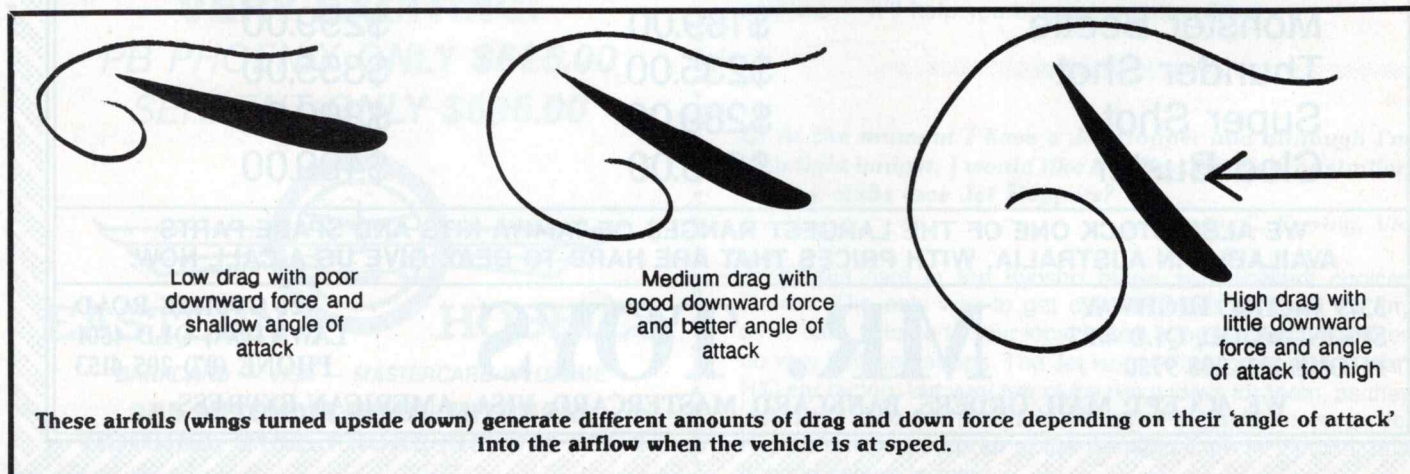
Try to set your wheels so they don't stick out past the body on a circuit car. It may look 'trick' but it's no good for reducing drag as there's a lot of air turbulence around the wheel arches, and when setting the suspension, keep the front as low as possible.

DOWN FORCE

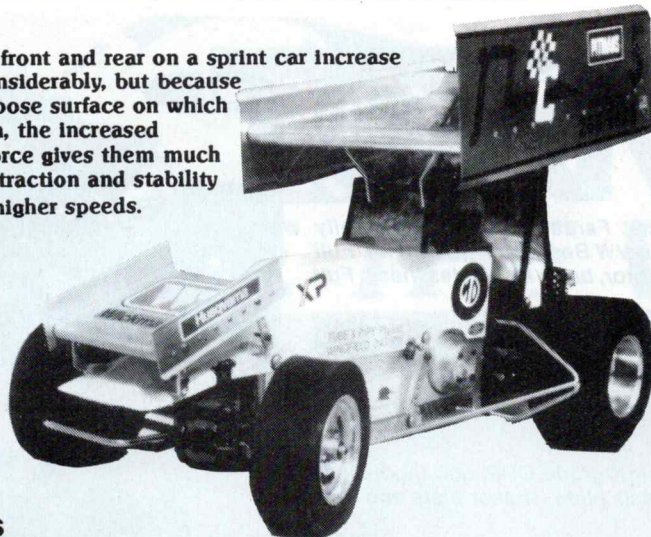
Down force is directly related to traction, and the easiest way to keep maximum down force is to put something heavy on the roof of your car. You'll get bulk traction, but lousy performance!

No matter what you do to increase the down force, the drag will also be increased, but it's very easy to increase traction without adding weight to the car. It's all done with aerodynamics, which only affect the car when it's at speed.

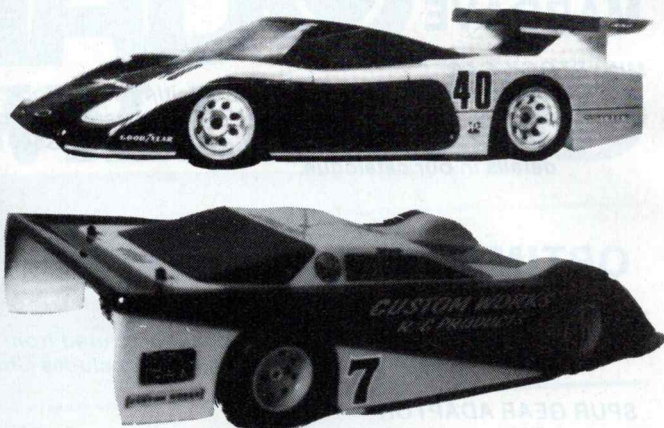
Wings and spoilers are what's used to add down force. Of course, you'll need to check the rule-book for the maximum wing or spoiler size, and the legality of side dams.



Airfoils front and rear on a sprint car increase drag considerably, but because of the loose surface on which they run, the increased down force gives them much greater traction and stability hence higher speeds.



A typical high speed body and wing incorporating low wind resistance and drag with better traction at high speeds.



WINGS

Side dams are quite important, as they can increase the effectiveness of the wing by channelling air flow across the wing surface, rather than allowing it to spill off the sides.

Wings are generally regarded as being the most effective available means of creating down force, but they need to be mounted high enough to avoid being affected by any turbulence over the body.

If you're using a wing, make sure it's adjustable for height above the body, angle of attack, and fore and aft positioning.

The steeper the angle of attack, (that's the angle of the wing from horizontal) up to 45 degrees, the better the down force, but with a corresponding increase in drag. If you go much past 45 degrees you're just building a massive airbrake which will slow the car down.

The down force can be moved around by moving the wing forwards and backwards. Setting it as far forward as it will go will increase down force on the front end, while taking it as far backwards as possible steps up the traction on the rear wheels.

With the rear of the body shell removed, air that would have been trapped under the car and caused lift, is allowed to escape. Low frontal area, wheels inside the body shell and side skirts make for a more efficient low drag body.

EXPERIMENT

Wings and spoilers are easy enough to add to any R/C car and it's really just a case of putting something on your car, putting the car on the track and trying it out.

You will only find out what works for you by experimentation, which is why you'll often see the experienced drivers out on the track before a race meeting, making sure their cars are handling exactly the way they want them to.

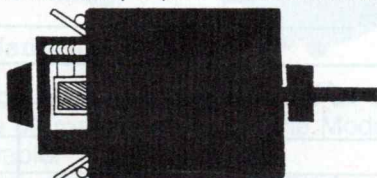
Add a wing, or a spoiler, or even an air dam, and have a play with your car's aerodynamics — who knows, it might even knock a few seconds off your best lap time!



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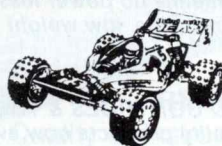
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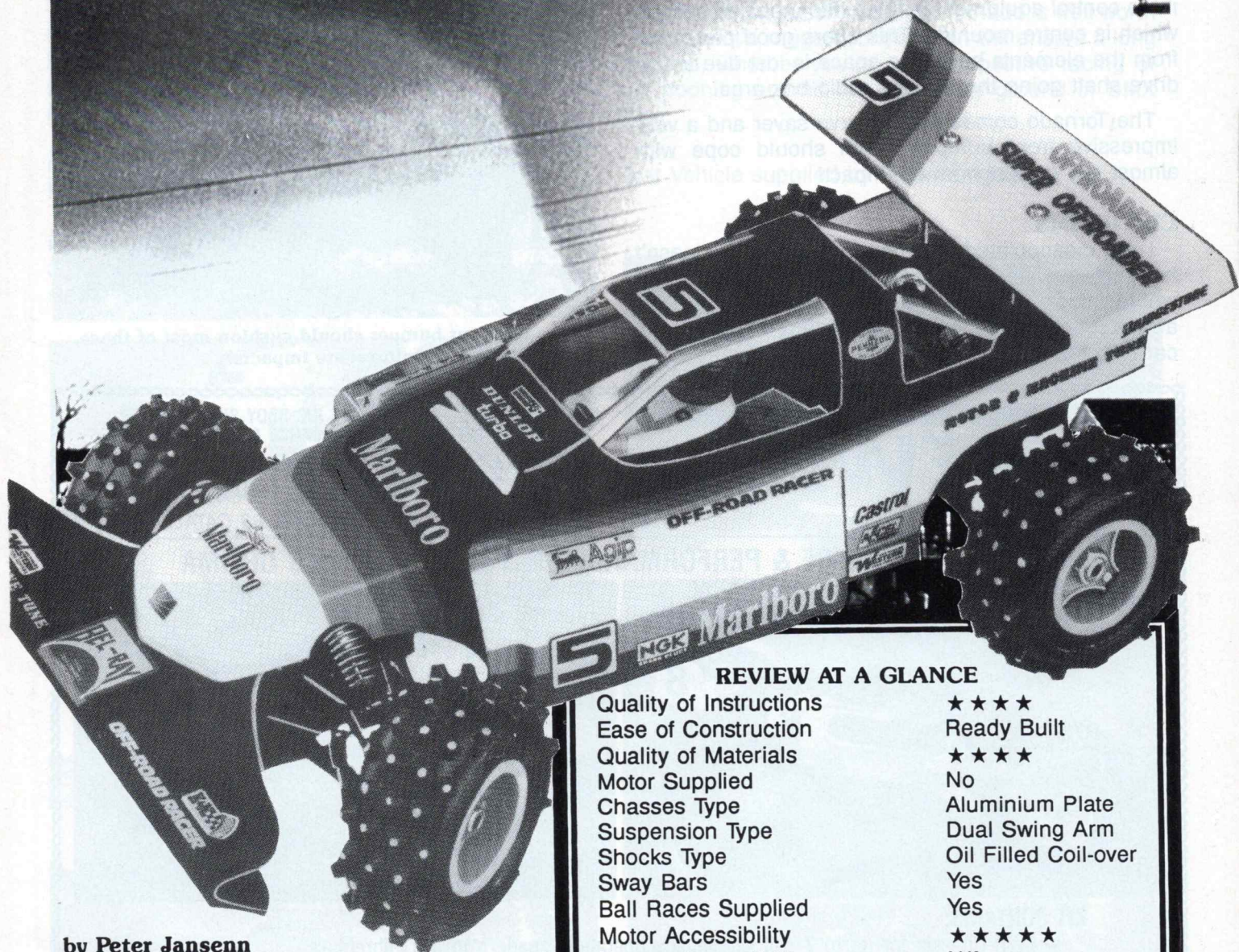
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**2
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TORNADO

DRIVE THE WILD WIND



by Peter Jansenn

The Tornado is an appropriate name for this 1/8th scale off-road gasser from the Model Engines stable.

The buggy comes ready assembled — it's just a matter of putting the wheels on, fitting radio gear and a .21 I.C. engine, and painting the body to have this high powered machine ready for the nearest track big enough to take it.

REVIEW AT A GLANCE

Quality of Instructions	★★★★★
Ease of Construction	Ready Built
Quality of Materials	★★★★★
Motor Supplied	No
Chassis Type	Aluminium Plate
Suspension Type	Dual Swing Arm
Shocks Type	Oil Filled Coil-over
Sway Bars	Yes
Ball Races Supplied	Yes
Motor Accessibility	★★★★★
Battery Accessibility	N/A
Speed Controller Supplied	N/A
Steering Servo Saver	★★★★★
Body Shell	Lexan
Balance of Car	★★★★★
Handling on Track (as tested)	★★★★★
Ease of Setting Up	★★★★★

WHAT YOU GET

As you'd expect, the Tornado features an aluminium alloy plate chassis on which is mounted the heavy duty dual swing arm suspension.

The shocks are also heavy duty. They're oil filled with the usual adjustable coils to allow setting of ride height, etc.

The Tornado is four-wheel drive, using a central drive shaft to transfer motor power to the front and rear wheels through a differential at each end.

As is the case with almost all gas cars, a disc braking system is supplied, and works from an operating cam connected to the throttle linkage. Front stabiliser bars are also standard.

A fuel tank is also supplied with this buggy. The radio control equipment is fitted into a sealed section which is centre mounted. This offers good protection from the elements but some space is lost due to the drive shaft going through the radio box area.

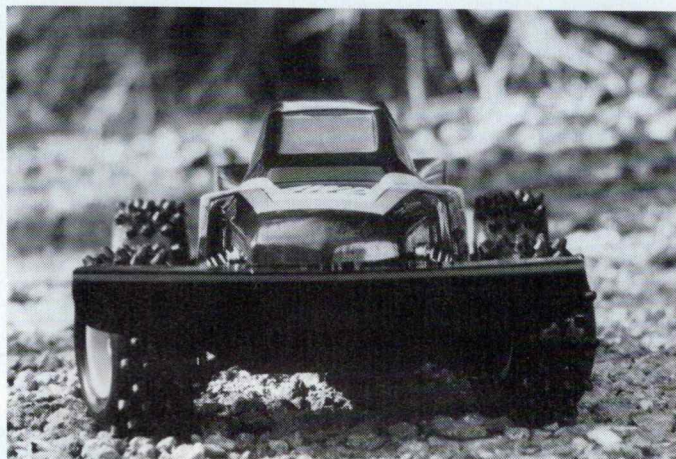
The Tornado comes with a servo saver and a very impressive front bumper which should cope with almost any type of front-on impact!

CRITICISMS

I was disappointed that a car of this calibre doesn't have any provision for adjusting castor and camber. It would seem to me that those are obvious adjustments for changes in handling and dialling the car in for any given track.



Fitted with a Lexan body, the Tornado shows clean lines.



The big front bumper should cushion most of those unfortunate impacts!

FREWER

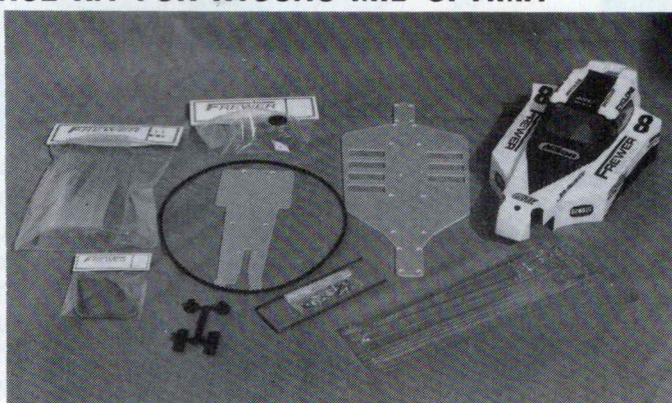
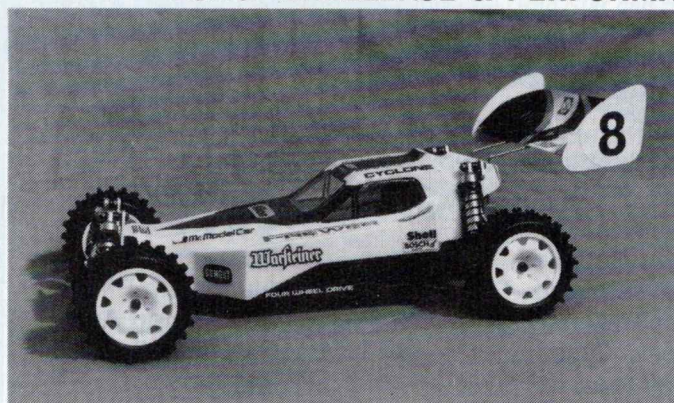
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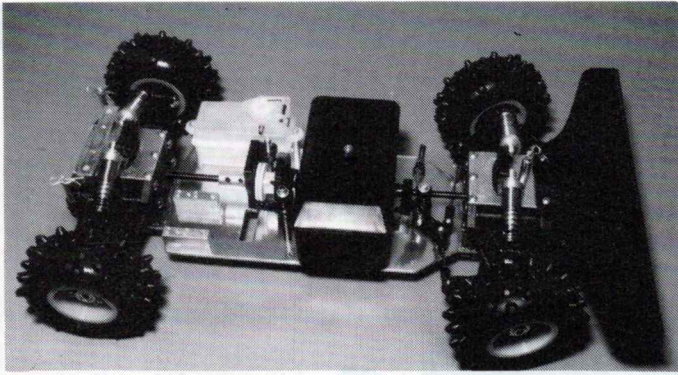


KIT CONTAINS:

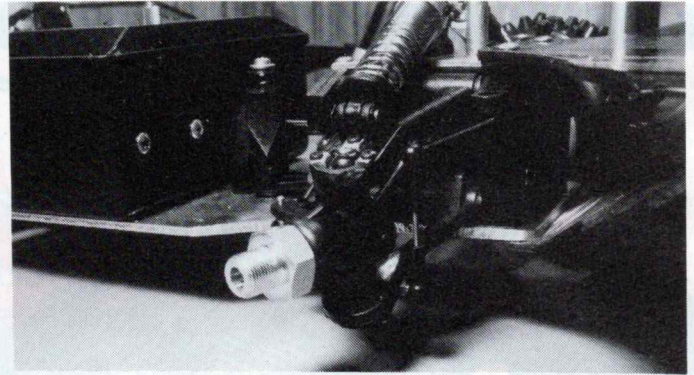
- ★ LWB Chassis for up to 7 cell saddlepack operation, made from GIO fibreglass.
- ★ Wide radio plate to accept radio gear ★ LWB Midi Bodysell and 3 Belt covers
- ★ LWB Belt 1" longer wheelbase than standard Mid Optima ★ Gear cover with adjustment plug.
- ★ Competition wing wire type fully adjustable aerofoil kit with 7" wing and sidedams.
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- ★ Body and wing kit for Kyosho Turbo Ultima and Ultima. ★ Mid Optima wing kit (as above)
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The rolling chassis is clean and simple and built up on a flat alloy chassis plate.



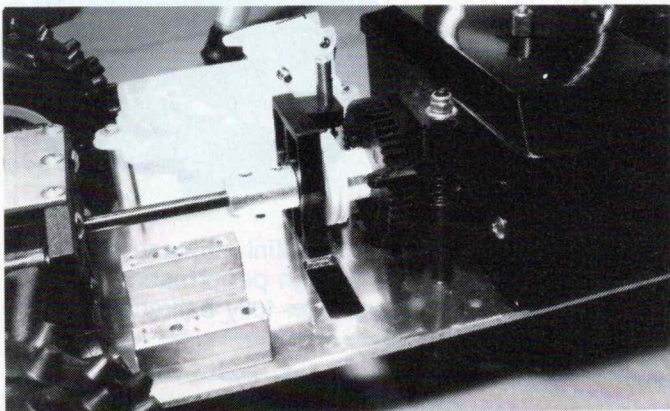
Everything about the Tornado is heavy duty, including the king pins and wheel hubs.

ON THE TRACK

The Tornado lives up to its name and certainly handles like a dream. The suspension is equal to the buggy's overall performance and provides for good stability in a straight line and real predictability under power in the corners.

The teflon shoe clutch, which is supplied, is reliable and durable and should stand-up to even the harshest punishment.

Geared well, and with a good engine, the Tornado is a real head turner and a joy to drive. Because of its 3.2kg weight it sits well on the ground and is very stable in the air off the jumps.

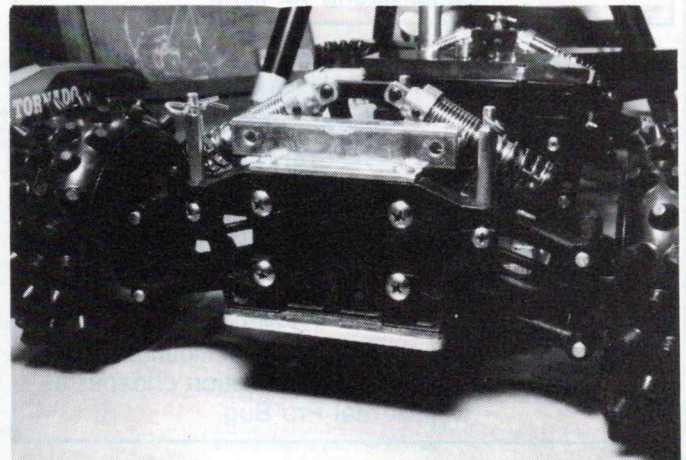


The Tornado is shaft drive and features disc braking on the drive shaft.

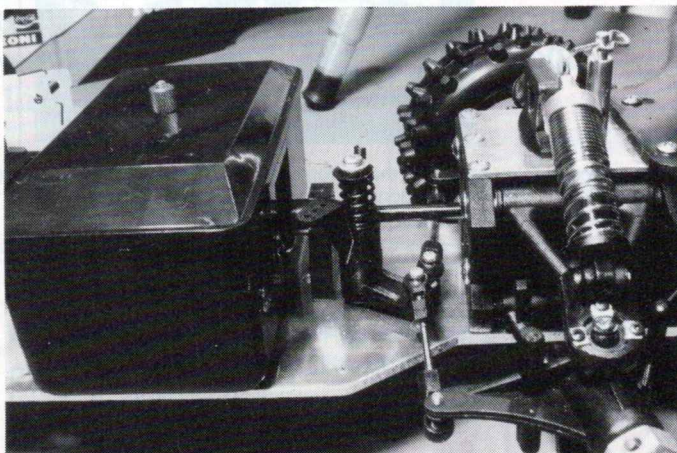
CONCLUSIONS

If you're into gas off-road, the Tornado is well worth looking at. It's rugged construction will ensure a long life time, whether you're into competitive racing or just hooning around the local footy ground or BMX track.

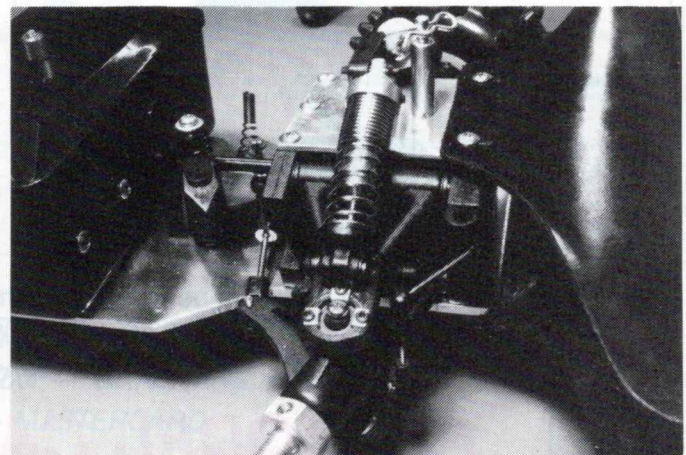
Test Vehicle supplied by Model Engines.



The rear-end is very solid, but it's a pity there's no provision for castor/camber adjustment.



The steering servo saver is easily adjustable and it's an excellent idea being able to enclose all the radio gear.



Note the use of progressive damping springs on the oil filled shock absorbers.

PB MODEL CARS AUSTRALIA

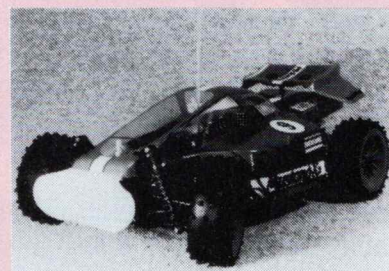
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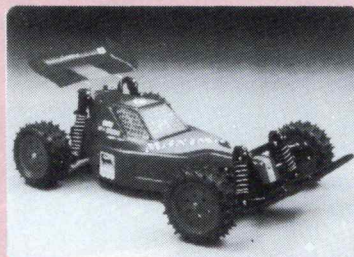
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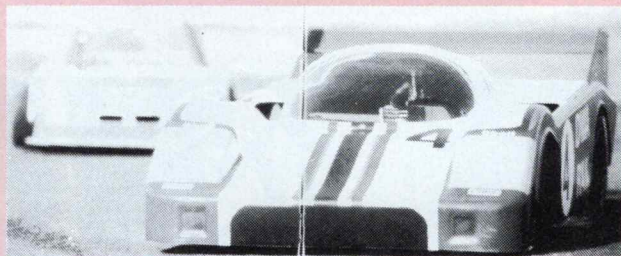
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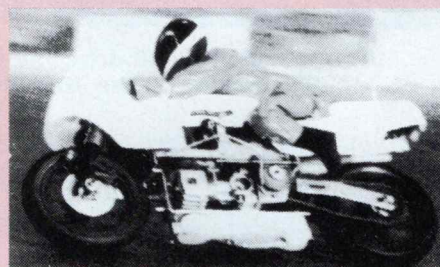
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Mini Mustang

TECHNICAL SPECIFICATION

Overall Length: 410mm
Overall Width: 241mm
Wheelbase: 267mm

Track - Front: 212mm
Track - Rear: 204mm
Max Ground Clearance: 45mm

Suspension Movement: 50mm
Weight (depending on equipment)
1.36 to 1.47kg (3 to 3 1/4 lbs)

Based upon our many years of model car design, and developed as a result of many, many races the Mini Mustang offers that very rare combination of an easy-to-drive car with supreme speed and performance.

The range of three cars: 2 wheel drive, 4 wheel drive and 4 wheel drive-2 speed, is based upon the same components. You can change from one specification to another at minimum cost and with maximum simplicity.

We are sure that you will be delighted with the speed, reliability and handling which the Mini Mustang's unique blend of light weight, innovative design and high technical efficiency, has to offer.

FEATURE

Single stage primary drive using fully enclosed spur gears.
Two speed automatic gearbox may be utilised on high grip tracks.

Single belt secondary drive, again fully enclosed, the H.T.D. belt construction is selected for its low power loss and high power transmission capabilities.

Genuine bevel gear differentials (three pinion) are provided at both front and rear.

Quick change battery location and connection.

2 wheel drive or 4 wheel drive up gradeable.

Double wishbone suspension used for all four wheels.

Hydraulic shock absorbers with high strength, light weight cases. Three 'O' rings.

Wheels and tyres are fully interchangeable with Hot Shot range.

Wide range of gear ratios available for both single and two speed cars.

Readily available spares.

Adjustable toe-in at both front and rear plus rear roll induced steering effect.

Fully ballraced.

Spring rate and ride height are separately adjustable.

Glass filled precision moulded chassis backbone and epoxy glass undertray.

Anti roll bars are fitted front and rear.

Hi-tech (no-bend) driveshafts.

BENEFIT

The Mini Mustang's drive system means that you normally use pinions in the 16 to 22 tooth range giving better efficiency than the commonly used smaller pinions. The Mini Mustang will run faster and longer.

Your Mini Mustang has the potential to run longer (faster) gear ratios and still have power to spare at the end of the race. Range of gears 54, 56, 58 and 60. Range of pinions 11 to 22 tooth.

Free differential action gives minimum power loss during cornering - your battery charge lasts longer.

Light weight and positive location. Now you can practice between heats!

The change from 2 W.D. to 4 W.D. can be achieved at minimum cost.

The low component count means fewer spares and the suspension geometry means precision handling.

The three 'O' ring design gives super smooth no-leak operation and simplicity of assembly and filling.

You can upgrade to a Mini Mustang at minimum cost.

The Mini Mustang's low weight and high efficiency may be fully used to give you a faster, longer-running car.

You won't be sidelined waiting for a part. PB understand the importance of keeping you racing.

With these simple adjustments you can "tune" the Mini Mustang to suit your driving style and the particular track conditions.

You don't need to spend a fortune on ballraces after you've bought the kit. The Mini Mustang's ballraces give it long life and high efficiency as standard.

You can raise the car for rough tracks or lower it for smooth ones without affecting your chosen spring rate.

Maximum chassis strength and rigidity give best handling. Integral servo and receiver mountings are additional bonuses! and save weight.

The Mini Mustang's smooth handling will compliment your driving.

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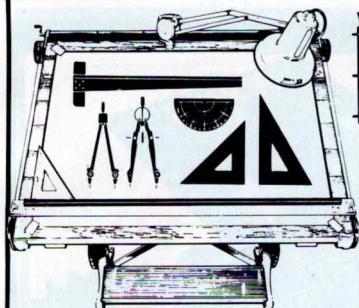


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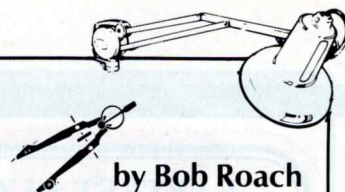
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BOB'S TECH CORNER



by Bob Roach

This issue I will explain about steering geometry.

If we ignore slip angles and assume no skidding, in order for a four-wheeled vehicle to negotiate a corner of any given radius, the geometric centre of the vehicle's path of curvature must be located on an extension of the line of the vehicle's rear axle — otherwise the rear tyres must skid. Due to track width, the front wheels must follow arcs of different radii and, if the steering linkage is so arranged that the front wheels remain parallel to each other as they are steered, one front wheel must skid (see figure 1).

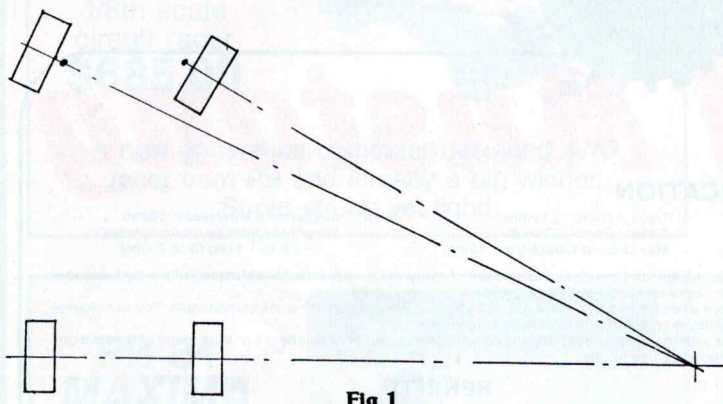


Fig 1

You may have heard of Ackerman steering and this is merely a simple method of links so that as the front wheels are turned, both wheel axle centre lines intersect at a common point on the rear axle centre line or just in front of the axle.

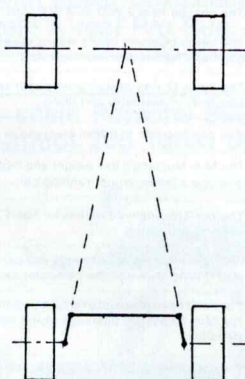


Fig 2

Draw a line from the centre of the king pins to the centre of the rear axle. At a point behind (or in front) of the king pin, connect these points with a link. This link is often called the tie rod (see figure 2).

As the wheels turn, you can see in figure 3 that the action of this link produces correct or near-correct steering angles of both front wheels. As the steering angle continues to increase, the geometry runs out and the inside wheel will not turn further.

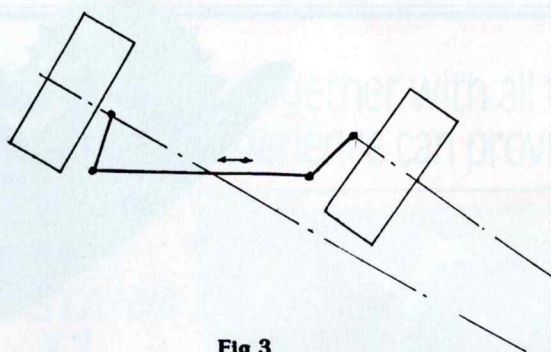


Fig 3

Slip angles of the tyre adhesion to the ground will affect this picture. If we want the front tyre slip angles to be similar to those of the rear tyres and similar to each other, then the front wheels are going to end up more nearly parallel to each other than in true Ackerman set-up. In addition, lateral force transfer during cornering assures us that the outside front tyre is going to run at a higher slip angle than the inside front and will do almost all of the steering.

Back to the tie rod. As all of our cars have independent front suspension (there are none, if any, model cars with old fashioned beam axles), this tie rod must be broken up into three lengths. The centre section moves left to right, usually between pivot arms with a vertical movement and the two outer sections that move left to right and pivot up and down with the wheels. See figure 4 where the inside wheel track rod arm and the short tie rod link form a flat angle and further extra movement would lock the wheel and prevent its returning when the steering is straightened.

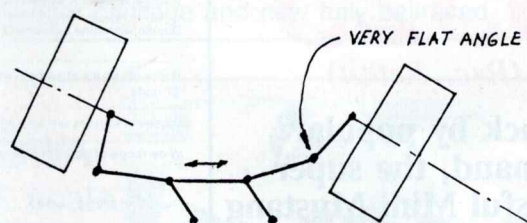


Fig 4

The position of these inboard pivots should, with the wheels straight ahead, be in line with the inboard pivots of the suspension wishbones. (Last issue I explained about wishbone geometry). This will ensure that as the wheel moves in an arc, the steering will not alter. This is called BUMP STEER if this happens ie. if the wheel moves up and the steering geometry is not correct, the wheel will move either in or out during its travel. Have a look at your own car and see if this is so.

What it means also is, as the car goes over a bump, the wheels will turn and steer the car off course. This effect can make the car difficult to control on bumpy ground. Obviously, a well designed car will take this effect into its design, so that is another reason why they go better on the track.

Toe in between a pair of wheels at either end of the vehicle,

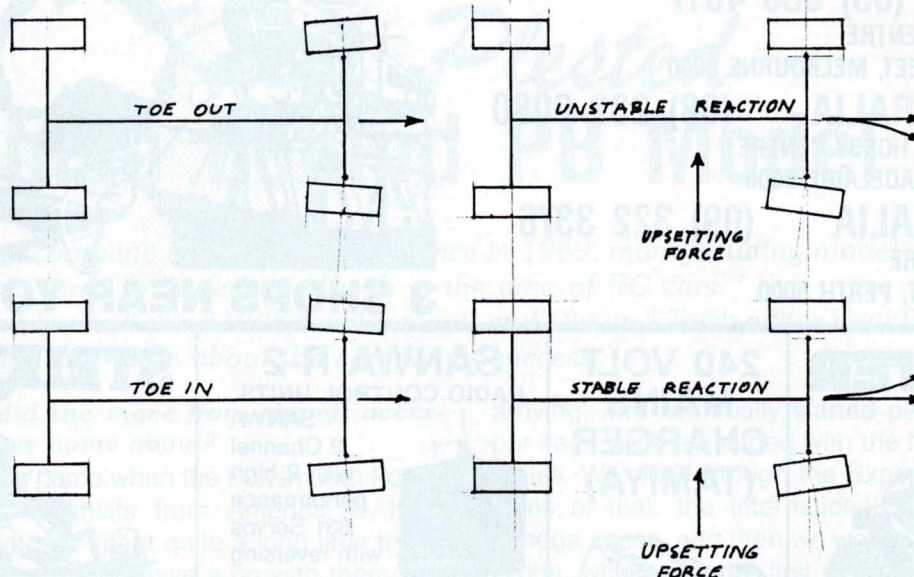


Fig 5

is a dynamically stable condition. If load is transferred laterally between a pair of wheels (by a bump, for instance), the load transfer will cause a relative increase in the slip angle of the more heavily laden wheel. If the wheels should be toed out when this occurs, then the deflection will cause the car to steer towards the inside wheel which is pointed towards the upset to begin with, and away we go. This can be most upsetting at the front of the car. At the rear it is downright vicious.

On the other hand, if the wheels are toed in, the vehicle still steers towards the inside wheel, but that wheel is pointed in

the direction that we want the car to go and the vehicle is self-correcting or dynamically stable (see figure 5). Too much in either direction is unstable. Some cars have adjustable rear wheels, such as Mini Mustang and others like the Optima have fixed rear toe in.

The only way to learn first hand is to try the effects, vary the toe in or out a little and observe carefully the car's reaction. Hopefully, you will learn why things are so.

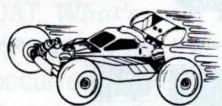
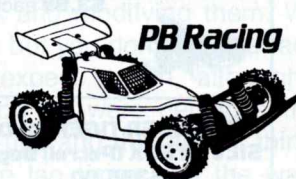
Bye for now, Bob Roach.

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Keith Plested - the man behind PB Model Cars

The English model company PB came into existence in 1969, manufacturing model aircraft accessories, but these days is a force to be reckoned with in the area of RC cars.

Keith Plested is the brains behind PB's development, and Dirt and Track editor Paul Bird caught up with him recently to find out more about the company's success.

D&T: Keith, how did the move from aircraft accessories to model cars come about?

KP: The move to cars came when the Portsmouth Power Boat Club bought Heathkits from America in 1970, started running them and spent quite a long time trying to persuade me to come and have a go with them.

D&T: Obviously they succeeded?

KP: Reluctantly, because quite frankly I couldn't really see there could be any possible potential in cars. Basically, they tried to talk me into going down there because being a radio control flyer I'd already tried boats and been twice round the pond in each direction and I couldn't see anything left in that, and I couldn't really see that cars were going to offer any more.

They were running on one of these bomb site car parks in Portsmouth; I went down there and watched it for a bit and quite frankly the impression I got was exactly what I thought I would — dead boring.

D&T: What changed your mind?

KP: Well, the guy who persuaded me to go down there was driving this car around which looked absolutely abysmal and suddenly I found myself with a transmitter in my hand and the car still going. It really all started because I thought, "I'll drive the thing around because there can't be anything to it", except it didn't quite go as planned; which I decided in my modest way was because the car was a heap of rubbish, and if I couldn't do better than that.....

D&T: What's your background?

KP: All my life I've been a development engineer and it occurred to me that it would not be difficult to do a car that was better than that, so I went away and hand-built a moderate replica of the Heathkit to have a square one to start from. Fairly rapidly from that developed something which was our very first car, which was on the market in 1971, PB1.

D&T: What sort of success did it have?

KP: It was very good! It instantly took over because at about this time the first race meeting was held in England, put on by Radio Control Models Magazine. Nobody knew how to race cars or anything like that. We came out of that with a very good result and the car became really quite popular. From that we went on to our next model, lighter.

Don't forget, in those days all of our cars were suspension cars but then, slowly, the American influence came in with the flexi flatbeds and the foam tyres started

arriving, and eventually started performing better than our cars. We then started with the first of our flatbed car series. We went through the Expert series, several versions of that, the International series and finally the Omega series, and then we went in for the big one - the Alpha, which was the first what you might call modern suspension car that actually worked and absolutely swept the field for some two years.

D&T: By that stage it must have been taking up a fair amount of your time.

KP: It's always been a full-time, seven day a week job. We're a relatively small company and I do all the development and tool making and to develop you've got to race, which meant virtually every weekend through the season is a race meeting.

D&T: In the past PB has been very successful in the gas area, but the last car had a reputation for being a bit fragile.

KP: Yes, I would agree with that, with hindsight. It didn't seem it when we launched it but you can never totally tell how the public will handle what one has developed.

D&T: The Phoenix is the new gas car being launched and there's obviously been a pretty intensive design program gone into it.

KP: We virtually retired from serious racing for the last season and spent the entire season preparing prototypes and modifying them. We went to the races with them but you don't go to a race with a one-off prototype and expect to win, although towards the end of the season we were getting some non-car failures, motor blow-ups and that sort of thing.

The lap times and the way the car was going was getting pretty impressive by the end of the season, that was with the hand-built prototypes. The car as it comes out in production has come out some half a kilo lighter and as it's made in the proper materials we're pretty confident it's going to be tough, pretty bullet-proof.

D&T: You're confident we're going to see PB cars back in the winners' circle again?

KP: Yes, I think we can be certain the new car is going to get up there within a month or two of its launch.

D&T: When did the move to electric cars come in?

KP: This was something that was obvious that we ought to do for financial reasons, quite a few years before we actually did it. But I'm not prepared to sit at a drawing board for commercial reasons to manufacture something, I've got to be into it, I've got to live it and I've got

to believe in it before I can produce something that is going to perform; and I don't like losing. I always like to run a bit off the opposition, and then build something that is going to beat them and this is what we did.

In terms of the electric car, it started off, because we'd only been in the 1/8th off road side for a couple of years, and now having two cars to keep developed I really couldn't see how I could do a great deal in developing an electric car.

Now Cecil (Schumacher) at that time was in a situation where the 1/12th scene had gone pretty flat; that was all he had as a product; and he had all the time in the world to get into the 1/10th scene but he didn't have the manufacturing capacity at that time. He had his double garage at home and that was it, so we basically agreed that we would do a joint development on the car and we would manufacture the bulk of it and he would manufacture the bits for which he was equipped.

We got the first prototype half made, very much around his design. Eventually, it came that it was no longer practical for him to carry on with his small scale production at home and he had to go into industrial premises which meant that he was going to be obliged to consider the manufacture of it as well. By mutual agreement we decided that he needed to make it, and we needed to make one.

So we got a prototype running in about three weeks and over the next six months we had some pretty hefty development going and we actually got on the market with our Mini Mustang about two weeks after he got on the market with the Schumacher.

In England, the Mini Mustang became an absolute instant success; for the first six months after it hit the market it was the only car to drive.

D&T: What gave it the edge over the CAT?

KP: It was driveable! Quite simple.

D&T: Driveable or easy to set up?

KP: It didn't need setting up, it worked out of the box. All the cars that I do are easy to drive cars because, in my opinion, a car that is excessively tricky to drive is not going to get Mr Average winning races with it. The car won everything and of course the top drivers could make it go that bit better and they were all happy with it.

It wasn't till the following Easter that Cecil came out

with a longer version which dampened down some of the rather 'nervous' characteristics of the early car and made it a little more driveable. There was then a steady switch over to that car. It showed it had more drive efficiency, so we started doing a lot of work on drive efficiency and with the Maxima, we have well and truly reversed the situation.

D&T: Can the Mini Mustang be updated to Maxima specifications?

KP: Absolutely. It comes in three stages. To do a total upgrade there's a drive stage, drive shaft stage and a suspension stage and it can be done all or partially. The whole thing is aimed at producing a car that can be built in any combination that suits the local conditions.

D&T: What about the future? You've got a successful 1/10th off-roader in the Mini Mustang, a potential success in the Maxima and also in 1/8th with the Phoenix, so what does the future hold for PB?

KP: It's just on-going. You race them, you learn and you make them better. I can't crystal ball it any more than that.

D&T: What's your design technique? Do you make much use of CAD CAM?

KP: You compose with computers, but you design in your head. You design by development really. You can draft things out and calculate as much as you like with a racing car, but "sod's law" says it won't work! You've got to get out there, put it on the track and see how it goes. No amount of logic will guarantee anything working, the only guarantee is trying it.

D&T: So the serious design is done on the track?

KP: Yes, it is. The manufacture, the nice looks, the frills, that's all done in the computer and parts are cut by computer machines. Things would look pretty crude if they were done by conventional tooling type engineering.

D&T: So PB cars are really the result of race-proven design.

KP: Yes, it's the only thing that really works. I've spent months working on things that have just got to be the "bee's knees", but under testing they don't reduce race time, or improve handling. Good ideas, but a pity they didn't work.

D&T: Keith, thanks for your time, and for letting the readers hear your story. Good luck in the future.

WIN!

**a PARMA PEAK DETECTION CONVERTER
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Simply read this issue of Dirt & Track to find the answers to the questions below.

Write the answers on the back of an envelope, include your name and address and post to Dirt & Track Answer Search Competition, P.O. Box 30, Tullamarine 3043 Vic. The prizes will be awarded to the first three neat and correct answers drawn. So hurry!

1. Who won the 2WD Mabuchi class of the 1988 Templestowe Cup and what sort of car did he drive?
2. The three most important aspects of aerodynamics in your R/C car are (1), (2) and (3)?
3. Who won the A Main at the 1988 1/12th World Titles?
4. Of what alloy is the PB Phoenix 1/8th scale chassis made?

Competition closes 4/11/88. Entry is open to anyone. Judges decision is final and no correspondence will be entered into. Dirt & Track cannot accept responsibility for entries lost in the mail. All entries remain the property of Dirt & Track.



ULTRA SERIES

A new motor from the motor labs of Yokomo and Reedy, the ULTRA SERIES, incorporates the following:

- ★ all new, high strength magnets;
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"RED DOT"

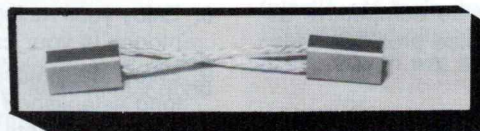
For high speed tracks.

This motor delivers top-end power with both 6 & 7 cell battery operation.
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"PINK DOT OVAL ENFORCER"

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Requires good batteries, and on 6 cell use it is "awesome!"
#6523



1/12 SCALE

"BLUE DOT"

Standard 1/12 on-road motor.

Broad power band which adapts to any type of race track.
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"GREEN DOT"

Developed from the 'World Wind'.

This motor is made for medium to long tracks where a lot of power can be used.
#3521

"ULTRA BRUSH"

This brush has been improved with a new compound that delivers more power to the commutator. It is primarily for 1/12 scale. It may be used in 1/10 scale but requires frequent replacement.
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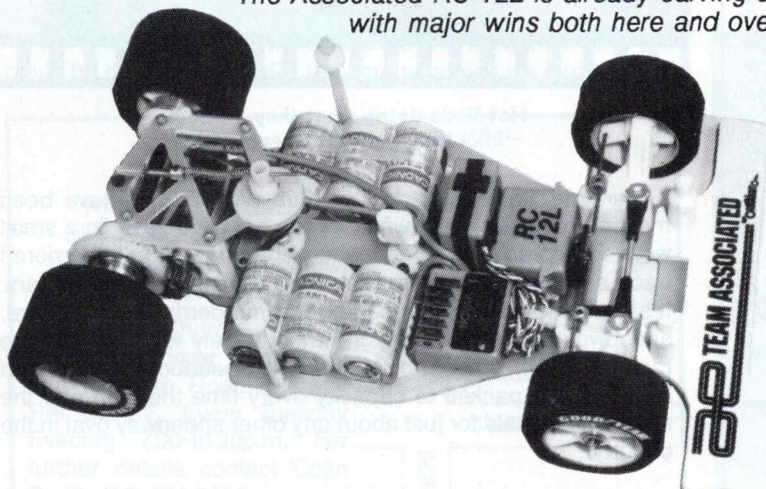
RC 12L COMPETITION KITS

Associated 1/12 scale competition car is now available in two configurations

Kit #4301 — Complete FIBREGLASS rolling chassis kit, including four rear end ball bearings (does not include body, motor or batteries).

Kit #4302 — Complete GRAPHITE rolling chassis kit, including eight ball bearings (does not include body, motor or batteries).

The Associated RC 12L is already carving a name for itself with major wins both here and overseas.



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DAWN TRADING

"The House of Hobbies"

W.R.E.C.K. IT!

BY COLIN SMITH

Reading the editorial on page 12 of D&T #7 or rather 'reading between the lines' it appears that the win at all cost syndrome is still alive and kicking, kicking other cars off the track by the sound of it. GOOD! GREAT! that's what I like to see, plenty of spills and great fun for the spectators!

Elsewhere there was a report that a meeting had to be called off due to a deluge of the wet stuff despite the fact that an illustrious visitor was over from England (maybe the rain was put on just to remind him of home). Oh what a shame! A race meeting called off due to rain, I seem to have heard that time and time again.

Johnathan Borthwick's column said in not so many words that the 1/12th scale racers had really stuffed themselves by going too quick with cars that hugged the road too well, and in effect the price of technology required to be competitive at 1/12th racing demanded vast acres of carpeted area. (Sounds like megabucks to me).

Ice racing seems like a step in the right direction — it's unfortunate that you can't get a suitable pile on the ice only a pile up!

HOLD IT! HOLD IT! HOLD IT! WHAT?

I thought this toy car racing was a hobby? You know — a hobby — something you do for enjoyment and as an escape from the stresses of every day living, the kids, or even the mother-in-law. I didn't think you had to break the bank to pay for it or resort to underhand methods to win. Maybe I'm on the wrong track (pun not intended) but as sure as eggs are eggs it looks and sounds as if we are on the right track and our relaxation, sport, call it what you will is still a hobby.

OK, if you've got this far you deserve an explanation as to what the hell this bloke is on about and where this article is leading.

Well, first if you'll answer the following questions honestly, I think you'll find out.



Almost indestructible. The Mardave Mini is a perfect and inexpensive car for indoor oval racing.

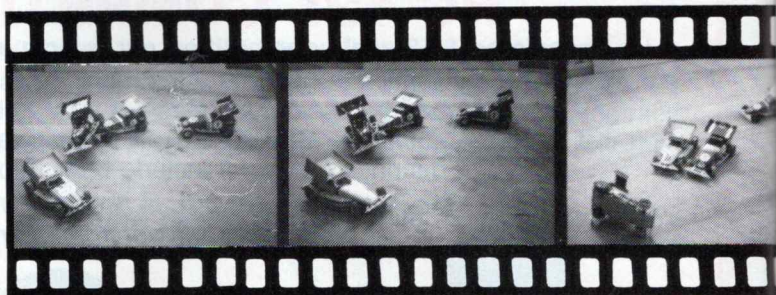
DO YOU WANT TO:

YES/NO

- | | |
|---|---|
| 1. Race every week — regardless of weather. | <input type="checkbox"/> <input type="checkbox"/> |
| 2. Have competitive racing, graded according to your skills. | <input type="checkbox"/> <input type="checkbox"/> |
| 3. Compete, on a monthly basis, for trophies at all levels. | <input type="checkbox"/> <input type="checkbox"/> |
| 4. Compete on level terms with all other drivers. | <input type="checkbox"/> <input type="checkbox"/> |
| 5. Be able to 'carefully' remove other drivers from the track without damage to your car and at full speed? | <input type="checkbox"/> <input type="checkbox"/> |
| 6. Race regularly, and be competitive, on a very limited budget? | <input type="checkbox"/> <input type="checkbox"/> |
| 7. Spend time at the beach at weekends, or with your friends? | <input type="checkbox"/> <input type="checkbox"/> |
| 8. Enjoy your racing without constantly throwing money at your car to try and improve it? | <input type="checkbox"/> <input type="checkbox"/> |
| 9. Enjoy the atmosphere of a well run and long established club with 'helpful' advice from senior members, plus regular 'FUN' nights racing caravans or other innovations which allow your creative talents to be used? | <input type="checkbox"/> <input type="checkbox"/> |
| 10. Race at a club where there are no sponsored teams, extra power is a disadvantage, high tech innovations are banned, age is no barrier, and the club motto is: | <input type="checkbox"/> <input type="checkbox"/> |

*"KEEP IT SIMPLE, KEEP IT CHEAP
BUT KEEP IT FUN!"*

Why not come along and see us on a Tuesday evening — any Tuesday evening?



Hot Rods doing what they do best — knocking hell out of each other.

Wantirna Radio Electric Car Klub (W.R.E.C.K.) have been meeting regularly every week for the past five years in a small wooden floored church hall where they have a fully barriered track and ample space to race their own type of racing cars. It's called oval-track, speed-bowl, thunderdome, hells-oval, speedway racing, probably the most widely followed full size racing style in the world. Melbourne Speedbowl and Avalon Raceway are packed to capacity every time they run and the same can be said for just about any other speedway oval in the country.

Sometimes it is done on a very big scale and called Indianapolis but its still the same — pounding round and round the same old circuit. Now it may sound boring, it may even look boring, however the thrill of nipping past somebody on a cor-



Hot rod body on lengthened mini chassis to get a dragster.

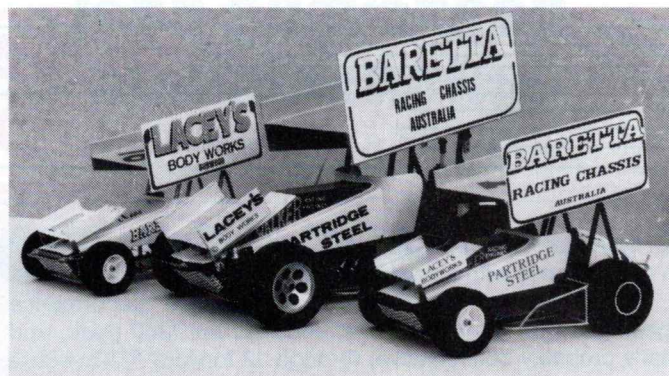
ner or even better, nudging him off the race track cannot be surpassed and basically its what its all about. The two types of car we run makes all cars identical — be it the Mardave Mini or Mardave Stock Car or Hot Rod with the same motor, batteries, etc, etc. We don't even run 6 cells — we used to and found we were doing 30-35 laps in 6 minutes so we de-tuned the cars to 4 cells, put our special tyre treads on (its similar to table tennis bat rubber but no silicone in its make-up) and hey presto, using an enclosed brush gear, non fiddleable Mabuchi 540 motor we broke 70 laps for 6 minutes.

Our track is, as I have said, a rough wooden floor which needs a damn good sweep at the start of the night plus a good soaking with magic track fluid (water) to bring the grain up on the wooden boards. Our slot together barriers slide under the stage which, being raised, makes an ideal drivers platform and the whole race meeting is tape controlled. Everybody has to take a turn counting the laps which with 6 cars can be very frustrating but we've solved that by using 'tally' (sheep) counters. A regular monthly trophy series is held for both types of cars followed by a champion of champions evening.

The mini drivers always reckon they can outdo the hot rods — some hope! In fact, they haven't got a hope in hell of beating a hot rod 'cos I reckon they are the strongest car ever to cut a corner but then, I'm biased. I drive one.

At a champion of champions evening, the top three mini's try to beat the top three hot rods. Other non-contest nights involve caravan racing destruction derby's using cardboard and tape vans and home made saloon car bodies and are usually great fun. Another crazy thing we do is balloon bursting — water bomb balloons filled with air tied to the back bumpers of our cars, football teams of three or four each end — really crazy that one, and hard!

Now if all this sounds as if we are trying to ruin our cars you could be right, but in reality they are so strong we can't. In fact



we'll issue a challenge — if you've got a 1/12th scale car, come and race it but don't complain if it gets damaged. We scratch painted lexan bodies (think about it) and if you've got a buggy you want destroyed we'd be only too glad to oblige!

Seriously though, the cars are built like brick dunnies and even if you do need a spare it won't break the bank.

Bodies: there are many styles to choose from all in ABS (plastic not resin as quoted by the editor in the Mini Review D&T #7) and all painted on the outside. You can even rub the paint off with wet and dry and re-do it if necessary.

We have recently started running 1/12th scale sprintcars — these are made in Australia and are as close to scale as can be.

Well, that's about it — why not come along on a Tuesday evening and have a look — its harder than you think in more ways than one. There is no charge for spectators.

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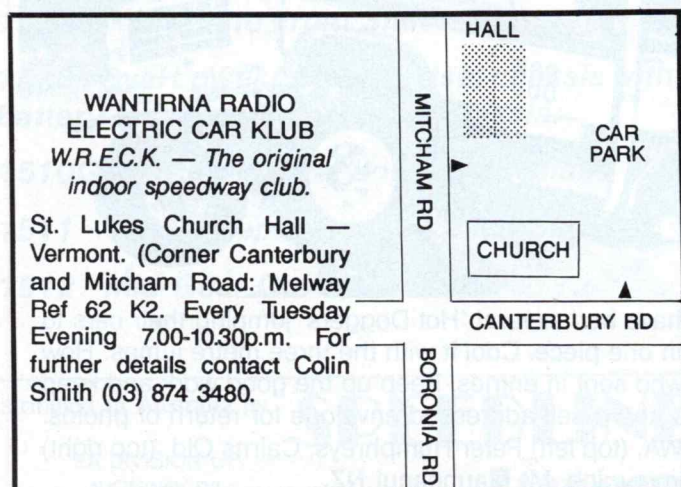
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NOVAK 1X SPEED CONTROLLER

The Novak NESC-1X electronic speed controller is unusual in that it comes with a very comprehensive instruction booklet.

This controller also has very impressive performance specifications: 156 Amps continuous current (360 peak, and that's probably conservative) through 12 forward FETS with a voltage drop of only 0/0025 volts per Amp. It will handle from 4 to 10 cells, and at 7.2 volts its power consumption is just 20mA.

Both forward speed and braking are fully proportional. The controller also provides a 6 volt supply to the receiver (1.5 Amps) and the manufacturer, Novak Electronics in California, claim the receiver supply is short-circuit proof.

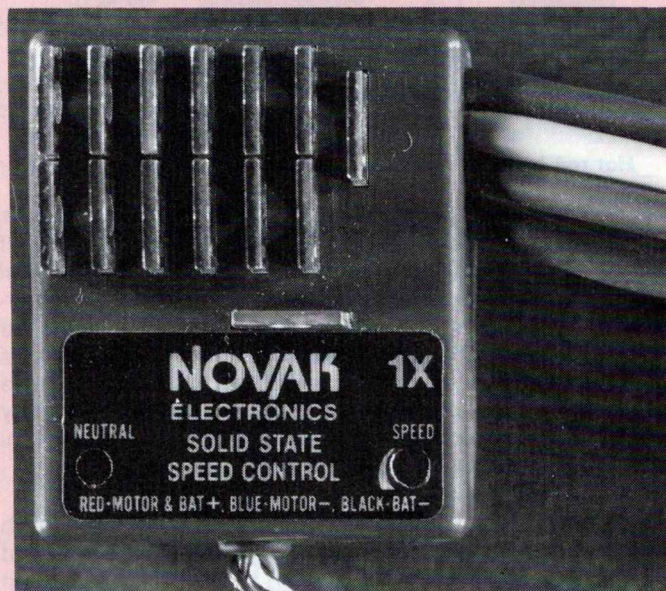
The instruction book explains how to set-up and adjust the controller to suit almost all popular brands of radio used with R/C cars, and suggests the best place to install the unit in a buggy.

The NESC-1X comes with a 30 Amp blade fuse, and the instructions are most specific that failure to use the fuse will void the warranty!

Heat sinks are an optional extra, and with 12 forward FETS, a heat sink should only be needed with the hottest of hot motor winds.

The Novak NESC-1X is reliable, responsive and very durable in use. It's small and light, and should easily fit any 1/10th car or buggy, and 1/12th cars as well.

All in all, probably the best speed controller on the market at present.



With 12 forward FET's the Novak 1X has both forward speed and braking fully proportional and can handle 156 Amp continuous current.

Action Photo Competition



This issue the 'Jumpers' seem to be predominant. We have had several 'Hot Doggers' jumping their cars to dizzy heights. Hey guys, we want you to keep those cars in one piece. Cool it with the three metre jumps. How about some real track action as well. Thanks to all those who sent in entries. Keep up the good work and keep trying. To enter, send us your on or off road action photos and a self-addressed envelope for return of photos.

This issues winners are (left) Stuart Weeding, Karratha WA, (top left) Peter Humphreys, Cairns Qld, (top right) Stewart Marfleet, Rockhampton Qld and (bottom right) Jimmy Joe, Mt Maunganui NZ.



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1500 - Big Front Bumper.

1501 - Mini Front Bumper.

**1502 - Wide-Flat Chassis with battery cut outs
and battery hold down kit.**

**1502G - Wide-Flat Graphite Chassis same as
above except made of Graphite.**

**1503 - Wide-Flat Chassis without battery cut
outs.**

**1503G - Wide-Flat Graphite Chassis same as
above except made of graphite.**

**1504 - Upper Chassis Radio Tray re-designed
tray for mounting speed control and receiver.**

**1504G - Graphite Upper Chassis Radio Tray
same as above except made of graphite.**

**1505 - Rear Body Mount Bracket & Body
Post.**

1506 - Rear Shock Mount.

1506G - Graphite Rear Shock Mount.

1507 - Oval Front Bumper.

1508 - Oval Rear Body Mount.

1509 - Front Shock Mount.

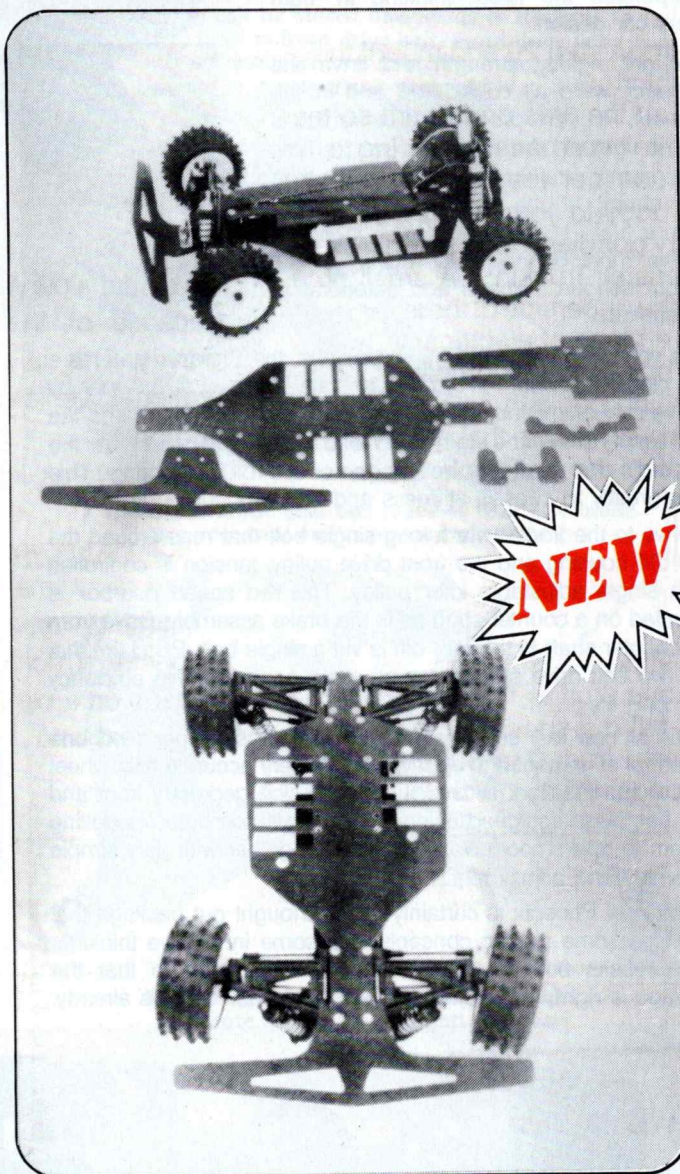
1509G - Graphite Front Shock Mount.

**1510 - Oval Lower Chassis offset chassis with
battery location on inside of chassis.**

1510G - Graphite Oval Lower Chassis.

1511 - "Midi" Replacement Lexan Body.

1512 - Mid-Gear Cover.



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PB PHOENIX 1/8

By Laurie St. John

For dedicated or aspiring 1/8th scale circuit racers worldwide, PB have released a brand new model called the 'Phoenix'.

Starting with a clean sheet of paper this model has been designed as a four wheel drive car from the start and as such incorporates the latest thinking in 1/8th circuit car design.

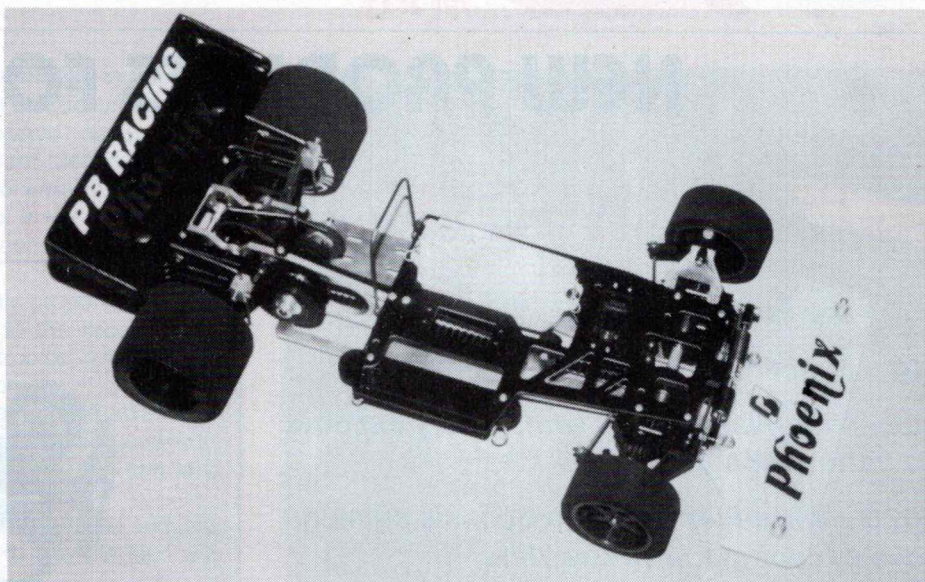
Weight, rigidity, strength and drive line efficiency were all considered and in the Phoenix, PB have produced a car which is almost right on the minimum weight limit (260 grams) straight out of the box, yet is very strong at the same time. PB also claim a high 'knockability' factor, ie. it can survive most of inevitable racing knocks without serious damage and deterioration of handling.

As you can see from the photographs, the Phoenix features a one piece aluminium (T7) chassis plate stiffened at the rear by two vertical aluminium plates that carry the drive system and the rear suspension. The right hand one goes forward to form the rear radio tray mount as well as one of two roll bar mounts. This adds greatly to chassis stiffness and strength.

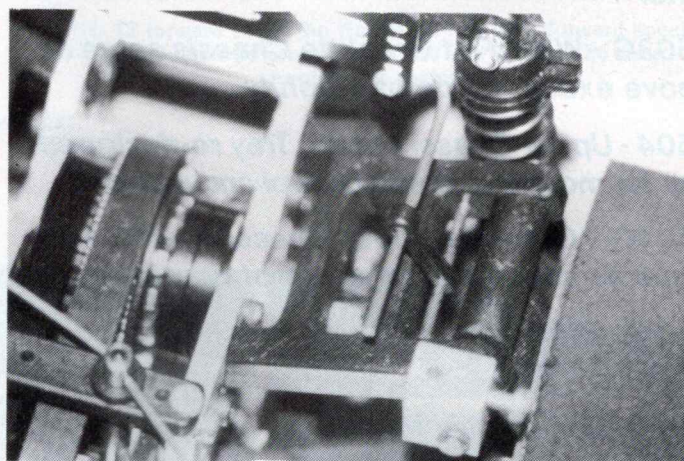
Drive to the front is via a long single belt that runs around the rear diff housing and the front drive pulley, tension is controlled by a single adjustable idler pulley. The two speed gearbox is mounted on a counter shaft as is the brake assembly. Drive from the counter shaft to the rear diff is via a single belt. PB claim that this two belt drive system overall offers superior drive efficiency and long life.

The all new rear suspension has a wide base upper wishbone to control alignment and should provide very accurate rear wheel control and location. In fact, the suspension geometry front and rear has been designed using PB's unique computer modelling system to give smooth stable handling together with very simple assembly and adjustment.

The new Phoenix is certainly a well thought out package that balances some proven concepts with some innovative thinking. Race results both in Europe and Australia indicate that the package is right, with numerous wins and track records already.

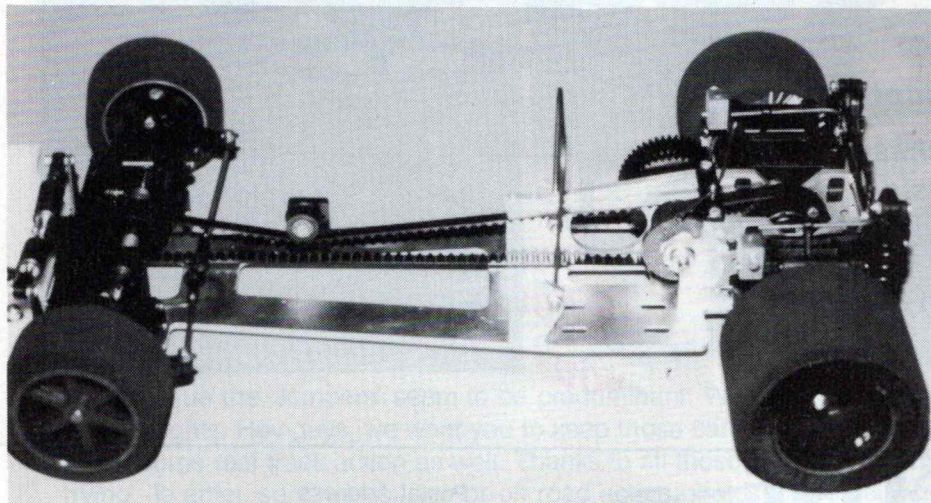


Phoenix overall view showing extensively milled out black epoxy glass radio tray.

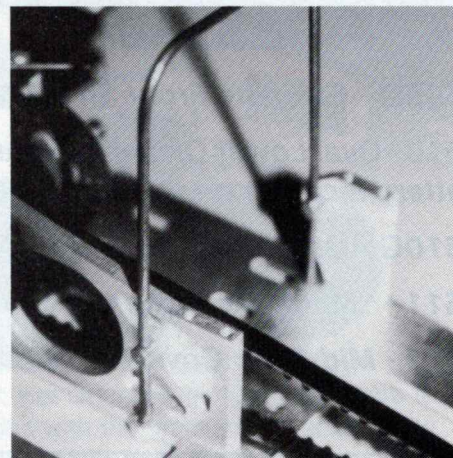


A first for PB in a 1/8th race car, an adjustable ball diff! Note robust rear suspension arm.

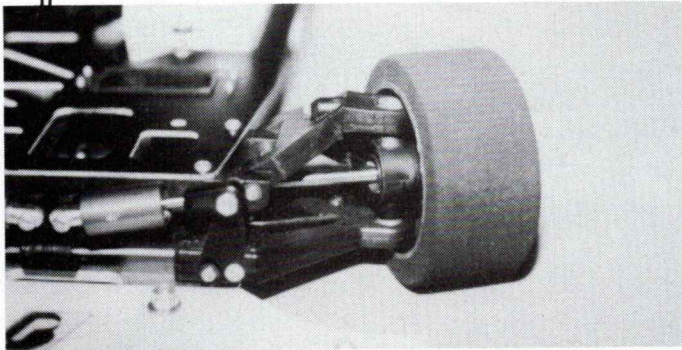
Available from PB Model Cars Australia phone (08) 356 8698 or all PB Stockists Australia wide.



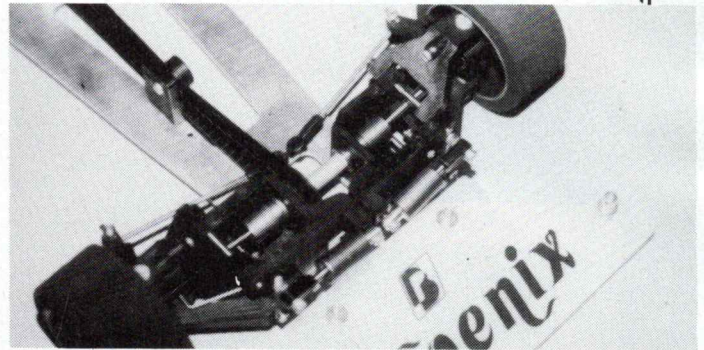
Chassis is aircraft quality T6 alloy. The two drive belts can be seen along with the disc brake mounted on the gearbox lay shaft.



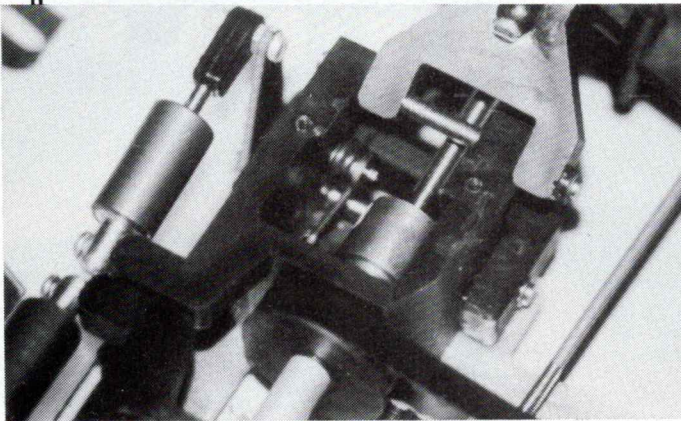
Engine clutch passes through the opening in the long rear side plate with drive belt passing above and below clutch bell.



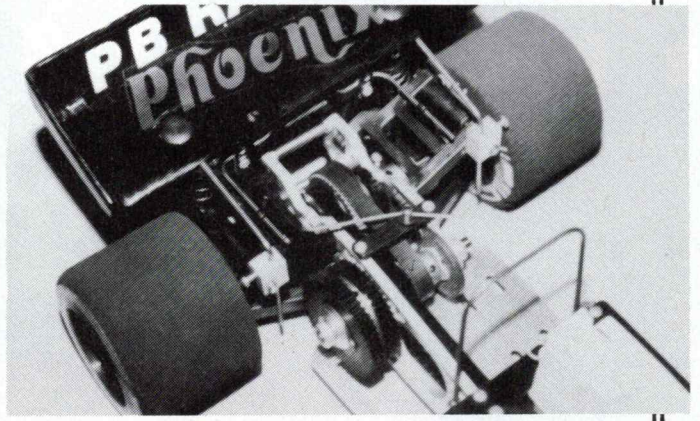
Front assymetric shock absorbers lie almost flat. Note beefy front suspension arms with front camber being adjustable via top wishbone.



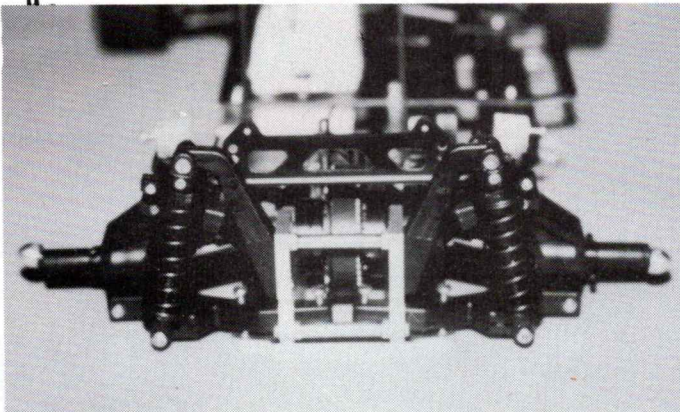
Idler pulley can be moved backwards or forwards to correctly tension front drive belt. Front drive is by inboard mounted one way drive bearings.



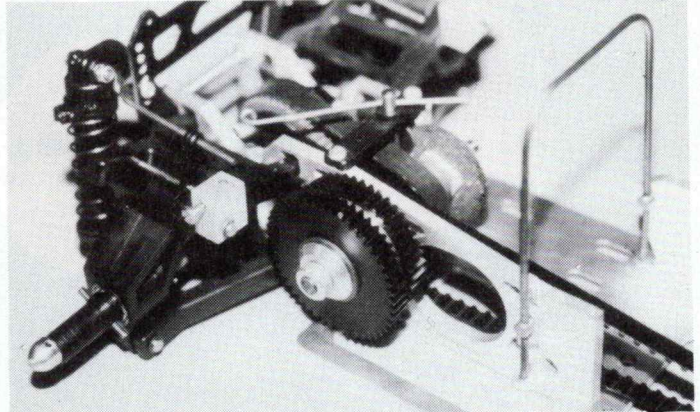
Another view of front shocker location adjustable length top suspension arm and front drive system.



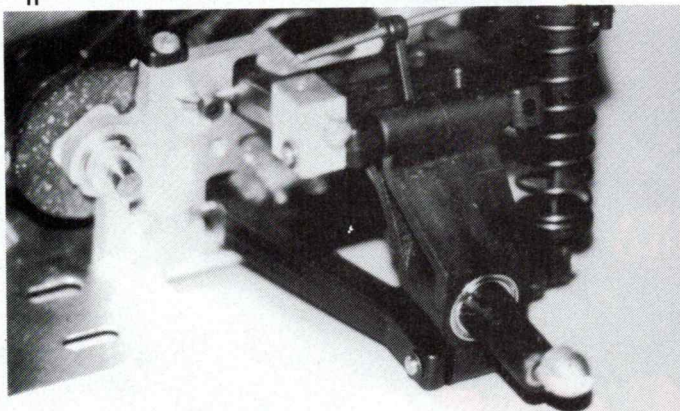
2 speed automatic gear box together with disc brake is a very neat and compact installation.



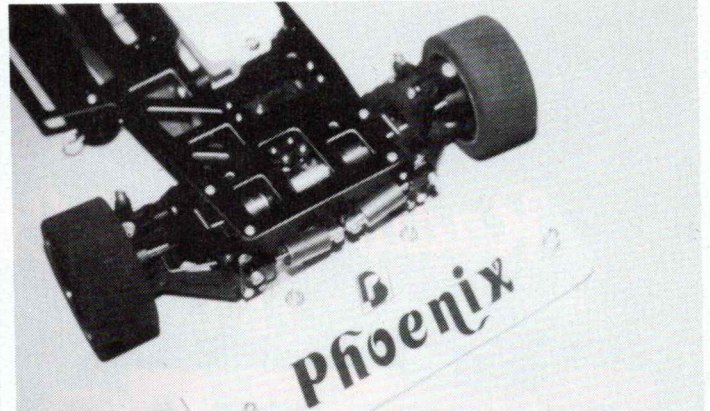
Rear view of Phoenix showing rear coil over shock suspension system. Angle of spring/shock units can be changed for softer or harder springing.



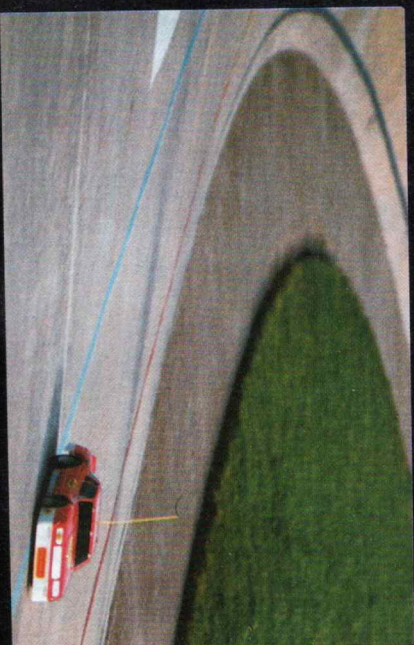
Rear body mount is adjustable for height, also note adjustable rear anti sway bar.



Quick change rear wheel system. Tyre changes are sometimes necessary in long races.



Front suspension castor angle is adjustable, steering track rods connect directly to a servo mounted servo saver for very positive and precise steering.



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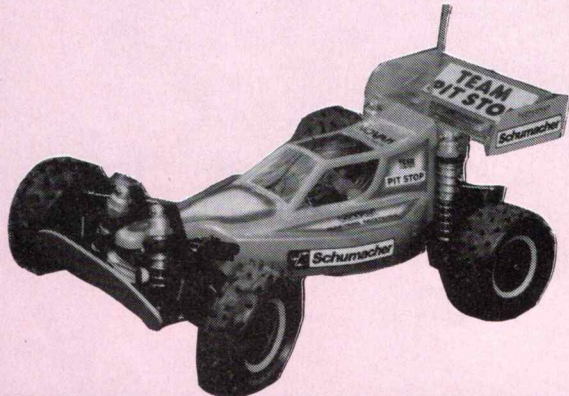
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Schumacher



New for 1988 is the 'XLS' Cat 4WD World Champion Kit. The kit enables you to build an exact replica of the World Championship winner and Top Qualifier. The Schumacher CAT has won almost every major International event in 1987 and it has done this without the use of expensive 'Hot-up' parts. The World Championship Winning car was built from totally standard, off-the-shelf parts.



FREWER MARDAVE



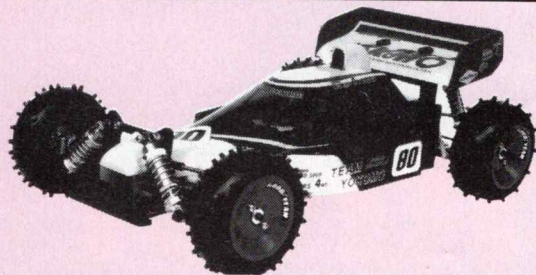
This model is based on a full size low cost class for circuit or oval tracks. 1/12th scale ministocks have proven even more popular, being the cheapest form of competitive R/C racing and being suitable in small halls or on smooth outdoor areas. Up to 12 cars can race together by using different frequencies. This kit includes 540 motor and speed control and all major items required with the exception of the radio control equipment.

MINI STOCK CAR

1/10 SCALE ELECTRIC COMPETITION
R/C OFF-ROAD 4WD RACING MACHINE

Super Dog Fighter

4WD YOKOMO "YZ-870C"



TEAM YOKOMO

FREWER MARDAVE

Meteor
2WD



COMES COMPLETE WITH:
BALL DIFF, MECH S/CONTROL & 540 MOTOR.

CELL-MATE,

The Ideal Mate for your Cells

Most people have heard the term "Computer Matched" applied to Ni-Cad packs, but what does it really mean, and can you do it yourself?

To answer the second question first, yes, you can computer match your own Ni-Cads at home, with a Lavco Cell-Mate from the United States.

WHAT IS "MATCHING"?

Matching Ni-Cad cells is the process where a large quantity of individual cells is assessed for performance, and all cells with similar performance characteristics are put together into battery packs.

Any pack is only as good as its weakest cell, but if the pack is made up of six cells which all have the same, or very similar, discharge capacities it will deliver more power than a pack comprising cells of wildly different discharge capacities.

HOW IS MATCHING DONE?

Matching cells is a reasonably simple operation, although it can be time consuming. The process involves charging each individual cell and then discharging each cell to measure its capacity, which is where the Lavco Cell-Mate comes in handy.

The Cell-Mate discharges a single cell at a constant current rate of 10 Amps. At the same time it provides a reading measured in seconds. When the cell is completely discharged, down to .95 volts, the Cell-Mate shows how many seconds the discharge has taken.

Once all the single cells have been through the process, it's possible to make up packs of cells with similar Cell-Mate readings or, in other words, a matched pack.

ADAPTOR

The Cell-Mate has other functions too. By using the adaptor box, it's possible to take a capacity reading of either a 4, 6 or 7 cell pack. The discharge rate is a constant 10 Amps, and the read out is given in seconds.

Because the Cell-Mate uses a constant current discharge, and uses a quartz locked clock, it can be used to accurately compare packs to determine which pack has the highest capacity, and because the unit of measurement is in seconds, the read-out for each pack is directly comparable to its running time on the track. Unlike some other types of battery measuring devices, the Cell-Mate reading reflects the Ni-Cad under test, and its read-out will always be in seconds, not just a set of numbers which don't relate to anything.

This unit can also be used at the track to measure the amount of running time left in a battery after a race. This is one very accurate way of deciding whether to increase the pinion size, or advance the motor.

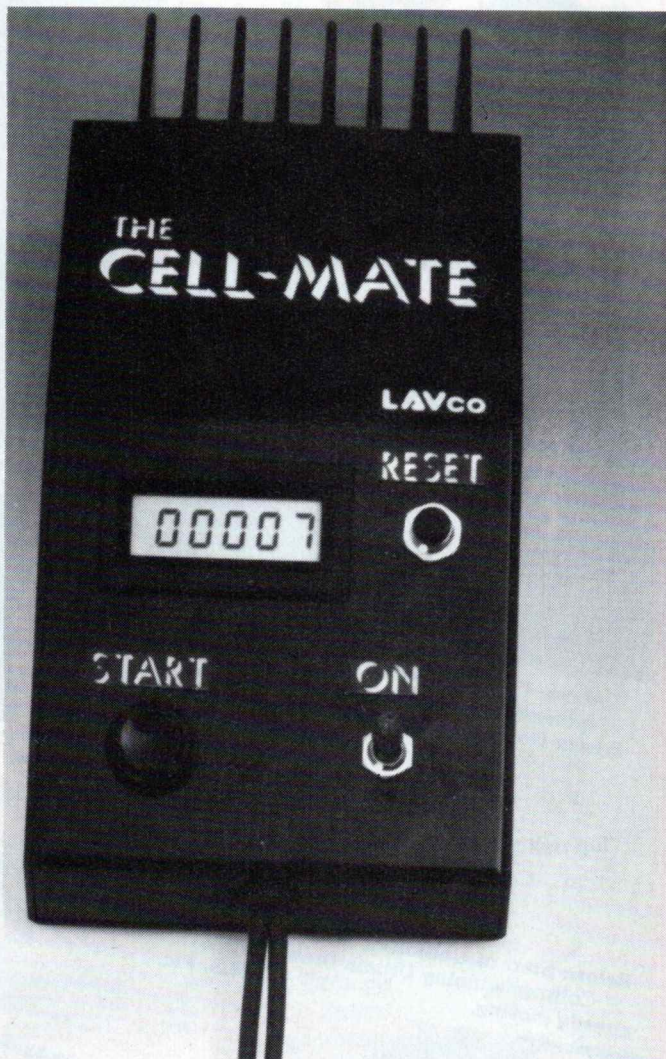
SUMMING UP

The Cell-Mate is a very useful tool if you're serious about good battery performance. If you want to make up your own Ni-Cad packs from single cells, it's essential. In America, the Lavco Cell-Mate has become the industry standard for measuring Ni-Cad capacity.

In fact, many matched packs are sold with their Cell-Mate readings written on the side of each cell, so the customer can see how well the pack is matched.

The Lavco Cell-Mate is available through some hobby shops in Australia, and also direct from the manufacturer in Santa Ana, California.

Incidentally, the Cell-Mate's inventor, Mike Lavacot, should have some idea about Ni-Cads, he's one of the top R/C car racers in the States!



Pic supplied courtesy of Performance Hobby Supplies.

Dirt & Track Classifieds

For Sale Thunder Tiger The Challenger 83 1/8th scale off road racing buggy powered by OS 21 FSR-C (includes some gearbox spares) \$450.00. Phone Kel Pearson (03) 338 4265.

For Sale AE Team Associated RC500 1/8th scale off road racing car kit, unassembled \$200.00. Phone Kel Pearson (03) 338 4265.

For Sale Tamiya SuperShot includes technipower motor, 1 battery pack, fast charger, tyres, 1 wheel radio system with servos, receiver & over \$128 of spares all in excellent condition \$275.00 must sell. Ocean Grove Vic. Phone (052) 55 2520 after 4pm weekdays.

For Sale: Tamiya SuperShot 4WD, controller, 2 batteries, charge leads, Yokomo motor, spare body, box of spares, A1 condition, recently overhauled, \$230 ono will deliver Sydney metro area. A. Chin, 84 Kambala Rd, Bellevue Hill, NSW 2023 or phone (02) 327 7059 weekdays; (02) 327 1455 weekends.

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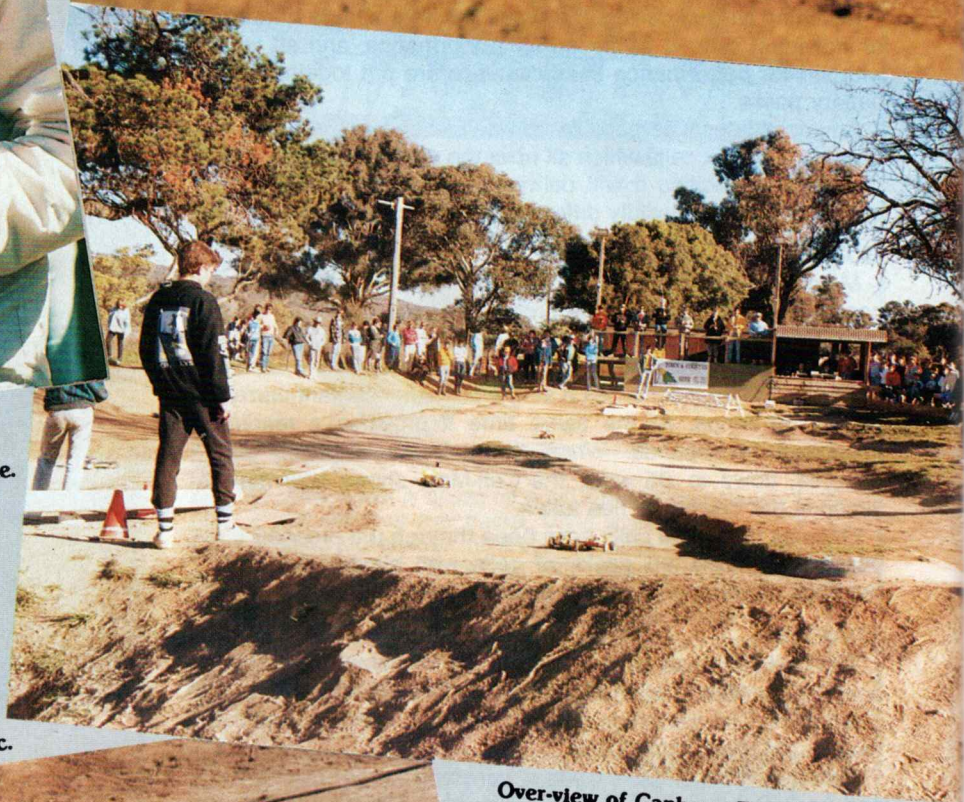


Above: Concours winner Darryl Laffan is sponsored by Mr Toys, Springwood. The Frewer Dog body took 40 hours to complete.



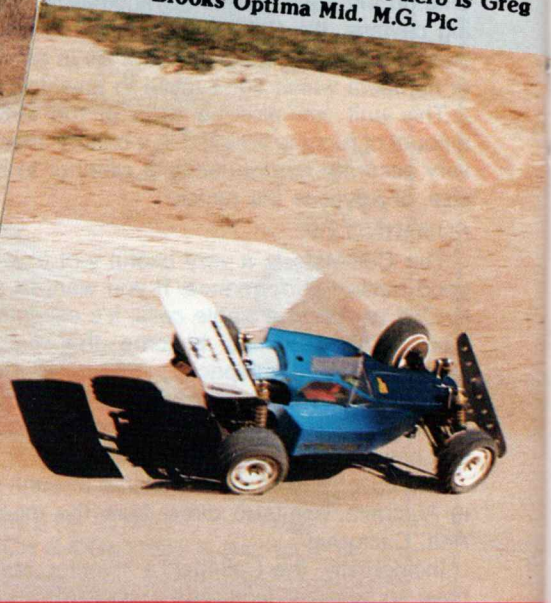
Top right: super fast RC10s duelling in 2WD Open.

Below: Start of Unlimited 2WD 'A' Final and Collings winning Ultima (front, left) is already moving. M.G. Pic.



Over-view of Canberra Track. Note race control at side of drivers stand. Great weather! M.G. Pic

Below: Two wheeling over the kerb is Greg Brooks Optima Mid. M.G. Pic



A.C.T. 1988 TITLES

by Gary Davey

The A.C.T. 1988 Titles were held on 13th and 14th August. As the event held World Championship Qualifying Status, a good turn-out was catered for by the Canberra Offroad Model Car Club. The entrants list in Open 2WD and 4WD read like a who's who of buggy racing in Oz. If you weren't there you missed a big one and a darn good weekend.

A total of 136 drivers, with a massive 56 looking to be one of the magic top eight in 4WD Open, together with impressive starters in 2WD Open and 4WD Stock provided the right mix for a memorable start to the quest for gold — and the World Titles team.

Mere words can only sketch the atmosphere as drivers sought to come to grips with the newly revised Rose Cottage track. As usual, criticism was plentiful as the demanding circuit tested and broke many dreams. The track itself did not hold up well with rapid surface deterioration making several areas very difficult to all but the most skilled and daring. To be fair to the Club, the very best effort was put in and most drivers accepted conditions and set about mastering them. In fact the layout was praised by many, as was the venue. As usual the most whinging was done by a very small number of people.

The program consisted of three heats, two graded heats and finals. There were three A finals (with best two counting) and singles in the other grades.

In stock 2WD a small but keen group did battle with local driver Barry Leech going on to straight wins in the A Final after showing the boys how to drive an Ultima.

The 4WD Stock Class saw 40 drivers with A, B and C finals. When the dust had (almost) settled, the top eight did battle. marques included three CATs, three Optima Mids, a PB Maxima and a Dogfighter, Justin Watts took first from Greg Brooks by one point with Rick Bartolozzi TQ'ing and taking third using a newly assembled Dogfighter. Other fine efforts were put in by Scott Blair from Canberra and Bob Burbage who finished on equal points with Scott taking fourth on countback. The pace generated by these super stockies is incredible.

Open 2WD had 28 entrants and to even look at A Finals high 14 laps were needed. Ten drivers made 14 with eight taking their place on the drivers stand for a quick three stabs at the Canberra dirt. After two stabs Greg Collings of Performance Hobby Supplies had slashed them dead with his Ultima. Reece Birtles did well with TQ and overall second while Pitstop's Colin Grenenger took another RC10 to third.

Open 4WD, the big one, saw 56 drivers trying to fill eight places and the pace was dizzy. The new Dogfighter made an impressive showing and promises to be a real force once developed. By coincidence the A Final line-up was the same as for Stock with three CATs, three Mids, a PB Maxima and a Dogfighter!

Peter Philibossian TQ'd and won all three A finals — simple as that. Paul Marlan took second with his Mid while Colin Grenenger gave CATs two in the top three. Other Finalists included Andrew Bolton and Brett Willoughby using Optima Mids. Canberra local Adam Davey (PB Maxima) made his first major A final — despite an arm in plaster! Guy Evans used his new Dogfighter with skill and Greg Collings made his final appearance with his CAT — Greg is going to the dog, get it?

Concours was won by Darryl Laffan from Logan City, Brisbane with a very pretty CAT. Around 40 hours of preparation went into achieving what the photo cannot hope to reproduce. A minor stir was effected by the organisers ruling that show cars must be go cars. One exhibit was actually presented minus front shocks!

In summary, the meeting had a few problems including a computer failure and these niggles tried hard to spoil the Canberra Clubs' fine effort. However, in the end the meeting was judged a success. Lessons to be learned and noted by others:

1. If possible avoid the two-day format for such large events. Three days are needed, provided a date can be set.
2. Find out who are the biggest whingers and ask their opinion. Of course don't ask them to help or be constructive — they will always be too busy or too anything else but tolerant or intelligent.
3. Understand the limits of computers and be ready for failure. Nothing can replace humans — especially not a fragile computer system.

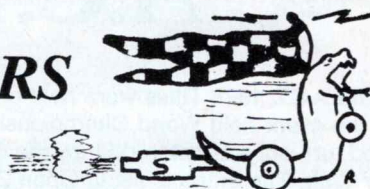
Special thanks to the organisers for a top job and to Barbara Bolton and several others who lent a hand — you have our gratitude.

The Finalists:			Final		
Class	Final	Name	Qualified	Position	
2WD Stock	A	Barry Leech	TQ	1	
		Rick Holland	4	2	
		Jeff Matthews	3	3	
		Mark Phelan	2	4	
	B	Gavin Wheatley	2	1	
		Allan Pallister	1	2	
		Ilmars Znotins	3	3	
		Andrew Goodwin	4	4	
4WD Stock	A	Justin Watts	2	1	
		Greg Brooks	3	2	
		Rick Bartolozzi	1	3	
		Scott Blair	5	4	
	B	Chris Bugden	4	1	
		Chris Brown	6	2	
		Andrew Whyte	2	3	
		Stuart Blaney	7	4	
	C	Graeme Moore	6	1	
		Simon Blaney	3	2	
	2WD Open	A	Greg Collings	2	1
			Reece Birtles	1	2
Colin Grenenger			3	3	
Andrew Nelson			5	4	
B		Scott Salter	2	1	
		Craig Pincott	5	2	
		Andrew Jackson	1	3	
		Danny Kerr	7	4	
C		Darren Campbell	4	1	
		Anthony Backhouse	5	2	
		Dallas Gardiner	8	3	
4WD Open		A	Peter Philibossian	1	1
	Paul Marlan		2	2	
	Colin Grenenger		5	3	
	Andrew Bolton		6	4	
	B	Reece Birtles	1	1	
		Stefan Frahm	6	2	
		David Spinney	7	2	
		Andrew Jackson	4	3	
	C	Mark Anderson	2	1	
		Andrew Nelson	1	2	
		Darryl Laffan	6	3	
	D	Chris Reade	2	1	
		Michael Farnan	3	2	

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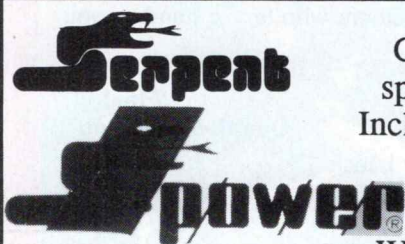
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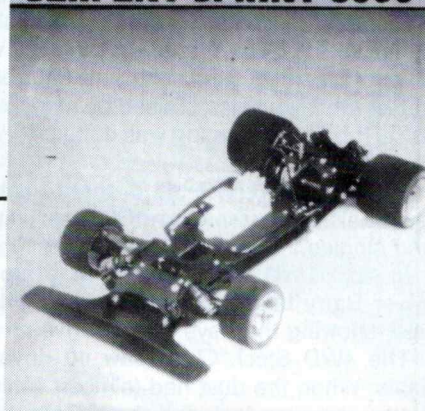
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* Ford Sierra Cosworth

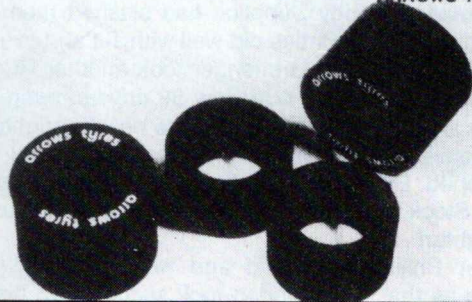
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BETTER IS BIGGER!

July 1st has come and gone and 1700 mAh batteries are now legal for ORRCA sanctioned 1/10th scale buggy racing.

**This brings forth the inevitable questions; Are they any good?
Are they better than computer matched or pushed 1200 mAh SCR's?
How should they be charged?**

Dirt and Track asked Chris Young and Tony Haseler their opinions on the new 1700 mAh batteries....

CHRIS YOUNG

I'm sure I don't know all the answers, but based on our experience I do believe that 1700 mAh batteries provide a tremendous advantage.

During the early part of the season, in 2WD modified, Clifton was snapping at Reece's heels and occasionally ahead, but as winter set in and the Templestowe track became heavier, dumping became the order of the day. Clearly the type of motors he was using to get a sufficiently competitive zing were taking more power than 1200 mAh SCR's were able to give.

Changing to 1700 mAh batteries completely solved this embarrassment. When the 1700's dump they gradually fall off in power and you always finish the race even if speed is somewhat reduced.

With the help of Peter Crowe from Knox, we comparatively tested some 1200 SCR and 1700 batteries, taking readings of amps and volts every 60 seconds. The test results were quite definitive. The 1700's give more power (amps x volts) right across the range and last 20% to 30% longer than the 1200's. The real shame, I believe, is the rapid introduction of these batteries to buggy racing and the enormous costs involved in remaining competitive.

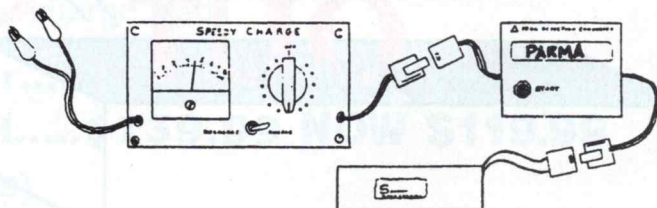
Technically there is a catch to using the 1700 mAh batteries — they should not be charged at more than 3 amps — contrary to the instructions given with some packs. Martin Dykers learnt early on that you cannot charge the 1700's at 7 amps or more and has a horribly cooked battery to prove it. At the ACT state championships Rob Bishop had one of his 1700's vent following a 4 amp top up prior to racing. So the message is clear — don't try to charge too quickly. At 3 amps it takes about 50 minutes to fully charge the 1700s, so plan ahead if you're racing competitively.

For the 1700's it's advisable to use a peak detection charger the same as for the early SANYO SC cells. 1700's are clearly not able to take high amperage thermal charging like 1200 SCR's. Fortunately for us we came across the newly released PARMA peak detection converter, that's right a converter, which is perfectly compatible to the Century Systems thermal charger we use and which simply converts it to the peak detection mode.

The PARMA peak detection converter is not a full charger — to keep it simple, the converter does not incorporate expensive current control circuitry. In its simplest form all you need for



The Parma Peak Detection Converter is a brilliantly simple device that will convert your clockwork timer into a 'Peak Detection Charger' (see diagram below).



use of the converter is a set of standard wire charging leads. Yes that's right, simply connect up the converter and you have a fully functional peak detection charger based on the old 'throw-away' charging leads, and it works!

We modified our Century Systems charger with the addition of a \$20 Dick Smith 0-10 amp meter, so it is simple to monitor the charging rate. One of the benefits of this charger is a switch which allows us to drop the charging rate by about 30% to a nominal 0.8 A/h. At this rate the battery is charged at close to 3 amps, dropping to about 2 amps when almost fully charged.

Coupled to the PARMA peak detection converter we have the optimum system for the 1700 mAh batteries and Clifton is now back into top form with a second place in the Templestowe Cup behind Reece Birtles.



Left to Right: batteries reflect changes in battery technology, SC, SCR & SCE

Because of its intricate circuitry the converter cannot handle alternating current frequencies introduced from a transformer and to work as designed needs a simple DC current source, such as a car battery — we don't find this much of a drawback. When accidentally (as usual) tested with reverse polarity, a small part of the circuit board burnt out — which was easily repaired by bridging with solder. The converter then worked as new testifying to robust circuitry and in fact a built in fail safe.

All in all a timely and efficient product from PARMA — and for us the simplest and safest way to charge 1700 mAh batteries.

TONY HASELER

Since the Sanyo KR-1700SCE batteries are now available from retail outlets around Australia, it would be appropriate to see how they compare with the more familiar batteries such as the 1200SC, 1200SCF and the 1200SCR.

All the batteries that are the subject of this test are good examples of thier type and all are identical in terms of packaging, i.e. lead lengths, gauge of wire, intercell connections and type of connector.

All batteries were charged on a constant current, peak detection charger at a charge rate of 5.2 Amps. They were then discharged into an electronic constant current load at 7.33

Amps to an end point voltage of 5.7 volts, and pack voltage was recorded at one minute intervals during this discharge. The results are an accurate indication of the relative performance of these different types of batteries. See Table 1.

A further test was devised to measure the relative ability of these batteries to furnish large amounts of energy instantaneously. During the 'plateau phase' of the discharge (between the 5 and 8 minute marks) the discharge current was suddenly increased to 16 Amps and the voltage drop due to this increase in load was recorded. This gives a relative indication of the 'punch' the battery will deliver on the track. The lower the voltage drop under load, the more 'punch'. See Table 2.

To sum up:— the Sanyo KR-1700SCE is an excellent battery of significantly greater capacity while retaining the power delivery characteristics of the familiar 1200SC 'yellow'.

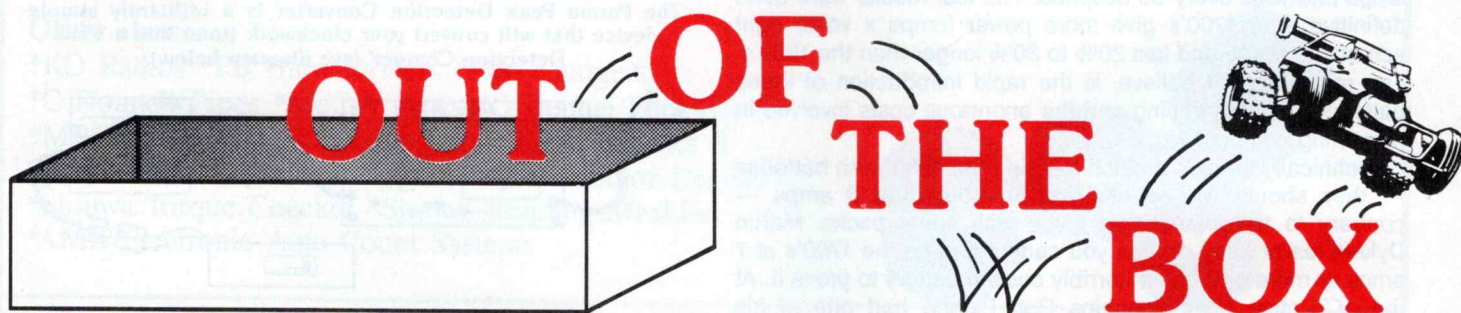
The new SCE batteries used in this test were supplied by 'Bolt-on Performance' and were imported from the U.S. under the 'Peak Performance' label.

TABLE 1

TIME Minutes	1200SC volts	1200SCF volts	1200SCR volts	1700SCE volts
1	7.56	7.50	7.67	7.67
2	7.29	7.32	7.34	7.34
3	7.16	7.20	7.23	7.27
4	7.13	7.18	7.21	7.25
5	7.10	7.16	7.19	7.22
6	7.07	7.13	7.17	7.18
7	7.02	7.07	7.13	7.14
8	6.97	6.98	7.09	7.09
9	6.90	6.86	7.03	7.03
10	6.80	6.78	6.93	6.96
11	6.60	6.69	6.69	6.88
12	Capacity 1.409A.h.	Capacity 1.46A.h.	Capacity 1.452A.h.	6.78
13				6.63
14				6.40
				Capacity 1.79A.h.

TABLE 2

Load Test	.73v	.63v	.5v	.7v
-----------	------	------	-----	-----



I am a keen reader of your magazine and have all issues. I have noticed that in almost every issue there is an item on sponsorship. While reading Issue No. 7 the following comment took my interest — "Remember, for our sport to grow we need to attract the beginners — the youngsters. If we don't the sport of radio controlled racing will die." (D&T #7, p12, Editorial)

The reason I would like to comment is that I am one of the youngsters who strayed away from R/C buggy racing caused by sponsorship.

Back in 1984 a friend of mine had a great wizz bang of a car. It was a Frog and was vastly different from my toy Porsche which travelled at less than walking pace. I immediately fell in love with the Frog. Not long afterwards I went to a club meeting

to watch these dream cars go along on short grass with a track outlined with planks and rubber hose. I was amazed at what I saw and when my friend told me his Frog was up for sale I was delighted. After quite a bit of arm twisting my parents agreed to buy it for me and when I started racing the Frog was still quite competitive but it was not long before it started being phased out by the RC10s.

By this stage I was an OK driver, but my problem was money. I was running on a small budget and after entry fees I was left with very little to keep my Frog in competitive condition. I ran the year with only 3 sets of tyres and barely had enough to cover any breakages. Whereas the competitors whose parents had large wallets were running a minimum of several sets of tyres per meeting.

By now sponsorship was also beginning to appear and the Frog was almost completely outdated and now surrounded by well equipped RC10s, etc. With my Frog, second last was the best result I was able to achieve. I didn't have enough money to buy an RC10 and even if I had enough money to purchase one it would have been of little use as I wouldn't have had enough money to install a mini servo, electronic speed control, latest US motor, plus fabulous rubber. It didn't seem right to me, I had a non competitive car on a non competitive budget.

All the drivers with a steady cash flow were OK trying to outdo each other with the latest US motors and speed controllers while I with my poor old Frog watched on with envy, dreaming about what they had.

It was not long after that I left the Club a rather demoralised person.

Sometimes I go by the Club and see those same faces with the latest equipment not only testing each others ability, but wallet size, and in the novice class I see people with their Christmas Foxes having a great time, but as they get into stock when they try as I did, they eventually end up with a back yard basher — more than a toy but less than a competitive vehicle (no offence Fox owners but you are the best example I can think of).

To save the sport and get the average backyard racer involved at club level once again, he needs his own class (as was once the case) and encouragement — not dejection.

Racing should be something to be enjoyed ★FUN★ not one upmanship. Leave that to those who want it.

I am not suggesting that we "burn the minority at the stake", although that could make things easier! I would rather suggest the creation of a whole new class for Tamiya and like vehicles.

You may think a class for Tamiya vehicles is totally absurd but if you think about it, it would indeed be feasible. We see

many faces in novice with Tamiya cars but few of these faces are seen in stock let alone modified. Wouldn't it be worth setting up a class just to hold these up and coming members?

This class shouldn't necessarily be limited to Tamiya but all those cars with the same limited problems like Hunters and cars that can't quite keep up with their more expensive counterparts. To make this type of category easier and cheaper you could make it an "out of the box" competition with only minor modifications allowed.

JOSHUA REDFERN

Aged 14 years.

Joshua, thanks for your letter. Your points are only too valid. There has been some concern to us here at Dirt and Track at the falling numbers of "out of the box" racers for some time. The Tamiya Challenge did a lot to promote this type of racing and I believe that clubs should take a closer look at their membership profile to evaluate why numbers have fallen over the past two to three years. As technology progresses it is natural for racers to want that winning edge — this has always been the case and should remain so. What some people lose sight of is that for one to be competitive at a higher level, the basic ground work must be learnt further down the ladder. If this basic ground work is not enjoyable then the net result will be a drop off in numbers and the sport will suffer as a whole.

Bearing this in mind I would invite all clubs to take a look at the reasons behind falling membership numbers and consider the benefits of "out of the box" racing.

Ed.

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by
**Jonathan
Borthwick**



1988 1/12th WORLD TITLES

This event, the premier race for 1/12th racers and manufacturers, was held in Baarn, Holland in August.

The Worlds are held every two years, and for the first time there was no Australian representation at this biggest of carpet races.

The winning car again was the Associated RC12L which took the first four places, headed by Japan's Masami Hiro-saka, following on from Tony Neisinger's win in the 1986 Worlds in Las Vegas. This in turn followed Neisinger's win (with an Associated RC12i) at the Denmark Worlds in 1984.

This year, Neisinger finished second overall, oh so close to a phenomenal hat trick of World Titles.

Of the winner, 1987 1/10th 4WD World Champion Hirosaka, the word was that as an off road racer, he was brilliant. To carry this obviously abundant ability through to win the World Titles for 1/12th is phenomenal and puts him in the same league as Arturo Carbonell who is the only other dual world champion in the one two year period, winning for Delta in 1/8th (1981) and 1/12th (1982).

What makes Hirosaka's win even more creditable is the fact that he is the first Japanese racer to make a 1/12th Worlds final, let alone win it!

Looking at the results of the A Main, 6 Associated RC12L's, 3 Corally's and a lone Schumacher made the top grade.

Surprisingly, after their performance in the 1988 Australian 1/12th Nationals, no TRC cars made the top ten.

In motors, the choice was clear (as in 1986), with Reedy/Yokomo Ultra motors taking the top 6 places and a total of 7 (of 10) in the Main event. Trinity motors made up the balance with the remaining three representatives.

All finalists used Sanyo SCE cells, the majority (including first and second places) being Associated/Reedy cells, while Novak Electronic speed controls were the dominant force with 6 of 10 in the Main.

Interesting, and a point I would like to take up with Mike Reedy, was the use of Yokomo rubber (in conjunction with Yokomo tyre conditioner) on the top placing cars.

In the radio department, it was all square with KO and Futaba having four representatives each.

The U.S.A. was again the most successful nation in terms of representation in the A Main with 5 racers. Europe (including England) contributed 4 while Masami Hirosaka was the sole Japanese finalist.

Hirosaka top qualified by only .3 of a second from Neisinger, but overall was the more consistent, running 9 (out of a possible 12) 33 lappers. Neisinger only managed 4. After winning the U.S. Nationals in Detroit in June, Neisinger was keen to keep the momentum going and did this, winning the first of three finals.

Apparently Masami hadn't been running a rollover mast for the event as he felt it affected the handling of the car. This did not present a problem until the first final when he was dropped on his lid and had to wait some time before being righted. Guess what. Masami's RC12L sported a mast for the next two finals.

Masami lead the third (and last) final all the way, but Neisinger just sat there within his three second safety buffer. Masami couldn't pull out enough of a lead and it was down to the wire. Masami crossed the line to start his 34th lap. Neisinger was just coming up and the hooter hadn't blown when he tangled with a lapped car. The horn went and Neisinger had to watch as Masami finished his 34th lap and took Neisinger's crown.

Next issue, I hope to have more details for you, but at this time will leave you with the results of the A Main.

RESULTS OF THE 1988 1/12th SCALE WORLD CHAMPIONSHIPS HELD AT BAARN, HOLLAND

	Name	Car	Motor	Battery	Speed Control	Tyres	Tyre Conditioner	Radio
1.	Masami Hirosaka (Japan)	Associated RC12L	Reedy/ Yokomo	Reedy/ Sanyo SCE	Novak	Yokomo	Yokomo	KO
2.	Tony Neisinger (U.S.A.)	Associated RC12L	Reedy/ Yokomo	Reedy/ Sanyo SCE	Novak	Yokomo	Yokomo	Futaba
3.	Christian Keil (Germany)	Associated RC12L	Reedy/ Yokomo	Keil/ Sanyo SCE	Novak	Yokomo	Yokomo	KO
4.	Kent Clausen (U.S.A.)	Associated RC12L	Reedy/ Yokomo	Reedy/ Sanyo SCE	Novak	Yokomo	Yokomo	Futaba
5.	Phil Davies (England)	Schumacher	Reedy/ Yokomo	Schumacher Sanyo SCE	Schumacher	TRC Green	Paragon	JR
6.	Shawn Ireland (U.S.A.)	Associated RC12L	Reedy/ Yokomo	Reedy/ Sanyo SCE	Novak	Yokomo	Yokomo	Futaba
7.	Oscar Jansen (Holland)	Corally	Trinity	PK/Sanyo	PK SCE	PK	Paragon	Futaba
8.	Chris Doseck (U.S.A.)	Associated RC12L	Reedy/ Yokomo	Reedy/ Sanyo SCE	Novak	Yokomo	Yokomo	KO
9.	Anders Nilsson (Sweden)	Corally	Trinity	PK/Sanyo SCE	PK	TRC Green	TRC Trucklight	
10.	Joel Johnson (U.S.A.)	Corally	Trinity	Trinity Sanyo SCE	PK	TRC Green	Trinity	KO

SOAPBOX (AGAIN)

Last issue, there was a rather emotional editorial concerning (in part) the alleged "win at all costs" attitude.

It is inevitable that, given the rivalry between States, car brands and some individuals, not to mention the prestige of winning the major race in the country, that tensions might be pretty high.

Add to that the competitiveness of racing and things get very close. I can recount many occasions in the past where it seemed that one driver was going out of his way to make things tough for me to get past. I then attempted (in practice) to try and delay other people and found that this is so difficult that to have the skill to do so would probably be enough to win a Nationals anyway!

Another problem is that some racers who get a bad start, consider that all traffic, whether on the same lap or five laps down, should move off the track and let them pass.

I gave up a long time ago telling the red, blue or yellow car in front that I was coming up to pass as I found I lost concentration, made him nervous, and usually lost time.

As for Editorials describing hard, fast racing as 'shameful', I believe this is less than responsible journalism. The Nationals is the Nationals and not a local club race. If there is a problem with team driving or bad driving, referees should be used to control the situation. I guess people may have tagged me a 'win at all costs' racer in the past, however I have never run anyone off the track, suppressed information on how to set something up or berated a Marshall. I may have displayed frustration at a slower driver a few laps down who didn't make life easy for me, but always went over and apologised afterwards.

To be quite honest, the worst driving I have ever seen was at the 1/10th Off Road Nationals in Brisbane a few years back where the fast way past was over the top. 1/12th racers pride themselves on getting round their opponent as neatly and quickly as possible.

1988 1/12th NATIONALS

As mentioned briefly last issue, someone has finally broken Team Associated's eight year domination of this event. Ironically the man to do so was former Team Associated driver, Colin Grenenger, who drove his TRC Pro 12 to a hard fought victory on carpet at the Yennora Wool Centre in Sydney, June 24 to 26.

At this stage I am still waiting on results and notes concerning the event, so will have to hold it over to next issue. If anyone has any photos from this event that could be used, please send them in (preferably colour) and I may be able to use them.

1988 QLD STATE TITLES

After a long layoff, your columnist dragged himself away from a round of golf to dominate the 1988 Qld 1/12th Titles with his Associated RC12L. Eventual third placegetter (and third qualifier) Ross Enticknap (AYK), must have been writing his victory speech before the event as his two main protagonists Barry Corfe and myself hadn't entered until about 5 minutes before the deadline.

Those nice people at Futaba had sent me a brand new radio and this was enough to motivate me into entering, dragging Barry Corfe along.

The Kensington Village track is very demanding and always attracts a good turnout. This year was no exception, with some 30 racers turning out.

Concourse was first up and won by Graeme Day with his Kyosho.

Qualifying then commenced and it was a battle between Ross Enticknap (AYK) and Barry Corfe (Associated).

As the event was running so smoothly (a tribute to Trevor Kerr and a group of people from both 1/8th and 1/10th racing, it was decided that a fourth round would be run.

I made a few changes to my RC12L and promptly took the TQ position with Corfe relegated to second, 12 seconds behind.

It wasn't just the A Main that drivers were slogging it out for. There was some tremendous racing right through the field which put the pressure on those in the top eight to stay there. Notable efforts were those of Chris White (Associated), Gavin Ward (Parma) and Cameron Ellwood (Associated) who made the hotly contested A Main.

To the C Main first, and off road racer Greg Aplin did it easily, winning by almost three laps from Murray Smithson.

The B Main came to the line and made more of a fight of it, Scott Guyatt and Ken Pitts racing all the way to leave Graeme Day languishing back in third.

And so to the first leg of the A Main. I got a great holeshot to race off in the distance and win easily by two laps, leaving the rest to scrap over the minor placings.

The second leg was much the same, with Ross Enticknap following myself home in second and giving the Associated driver an unassailable lead. John Turner filled a fine third place, while second qualifier Corfe had all sorts of problems.

Come the third leg with myself out of reach of the rest, Corfe had to win to take second overall. This he did, charging to the front on the first lap with me second. Barry had set his car up a little loose and it really worked as he found traction on the cooling track. I got a little closer in about the third minute through traffic, but Corfe pulled out again to record a fine win and take second overall.

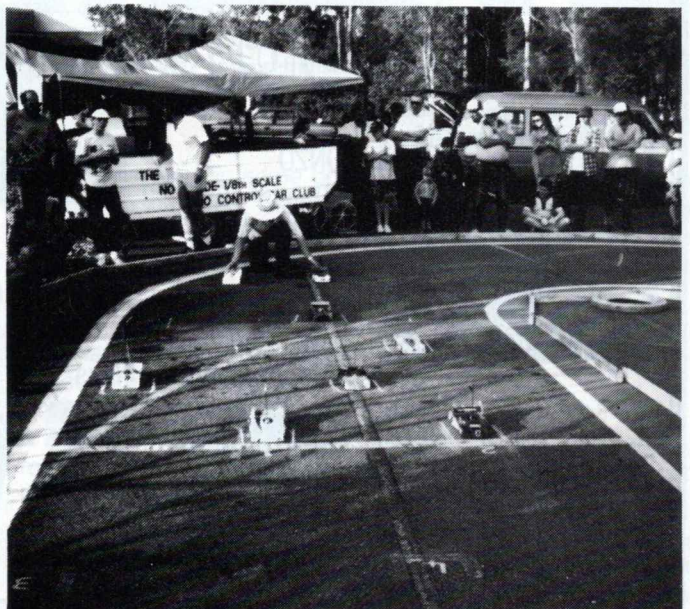
Ross Enticknap drove well all day to come third with his AYK and must have wished us two Associated drivers had preferred the golf course to racing electrics!

Once again, the standard of racing continues to improve in Queensland. It is a shame that more racers from this State don't make it to the Nationals as that is one more step on the learning curve that any aspiring racer requires.

The meeting ran very well and the fact that racers from other branches of the sport assisted bodes well for on-road racing in Queensland as work commences on the joint purpose built 1/8th and 1/12th track. Thanks very much.

A MAIN

Johnathan Borthwick (TQ)	Associated RC12L
Barry Corfe	Associated RC12L
Ross Enticknap	AYK
John Turner	Scratchbuilt
Chris White	Associated RC12i
Gavin Ward	Parma Euro Panther
Trevor Kerr	Associated RC12i
Cameron Ellwood	Associated RC12L



A Main line up at Qld State Titles with Johnathan Borthwick's winning car on the right. 8 cars made for exciting racing on a tight and demanding track.

QUEENSLAND TRACK NEWS

While speaking of the purpose built road racing track, I spoke to Trevor Kerr who is one of the driving forces behind the venture and he assured me that it should be up and running late '88 or first up in the new year.

The money has all been raised and at time of writing, the land is being graded and foundation work is due to start. There is talk of putting an off-road track within the facility as well, so all classes will be catered for.

For those coming to Brisbane, the location is the corner of Leitchs Road and Strathwyn Street, Brendale (near Strathpine) so come and have a look.

FUTABA MEGATECH WHEEL RADIO

As mentioned last issue, it has been a long time since Futaba brought out a new wheel radio. While KO and others have been making a lot of changes for the better, Futaba seemed to rest on their laurels and just bring out new radio sets for aircraft.

What Futaba have been doing is waiting and learning. The end result is one of the nicest radios on the market as far as being compact, effective and just plain nice to use. Some wheel radios (no names) have been somewhat less than 'user friendly'. Not the Megatech. Everyone (regardless of radio used) who has handled the set commented how readily it fell to hand and could they have a go please?!

Unfortunately, it is not known when this radio will hit the Australian market. For this reason, I will hold my review over until such time as stocks are close to our shores. Be patient.

THUNDERDOME FEVER HITS QUEENSLAND

We have all been reading with a lot of interest reports from 'down south' on the hottest thing to hit on road racing. Reactions ranged from 'they did what(!) in a Velodrome' to 'when can we give it a try?'



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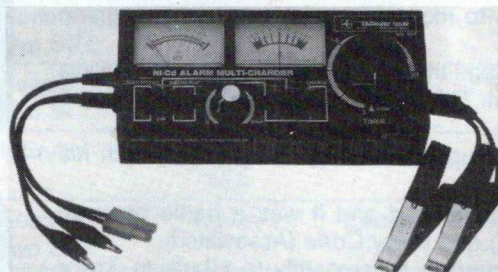


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Well fortunately one John Low decided that we should give it a try and what a buzz it is. The venue was the picturesque Chandler Velodrome, used for the 1982 Commonwealth Games in Brisbane and not a lot else. Since our City Council is anxious to see these facilities shared as much as possible. John wasn't greeted with strange looks at the prospect of racing toy cars around the place.

A trial run with a few selected 1/12th, 1/10th off road and 1/10th on road cars proved highly successful and has provided the stimulus for a major race to be held December 11 and open to both 1/12th and 1/10th scale.

If anyone would like an entry from John, please send a S.A.S.E. to 32 Mordant St, Doomben, QLD, 4007.

The events include a two lap sprint open to all comers including 7 cell 1/12th scale. Look out!

The surface is very smooth, although a little hard to get started on with a Red Dot Reedy and a 15 tooth pinion. But once running, it is easy to change lines on the track. There are few things to rival watching your car moving up a steeply banked wall and then swooping down onto the straight-away.

John is expecting a large entry, so anyone interested in attending would be well advised to contact him as soon as possible and we'll see you December 11.



QUEENSLAND 1/8TH STATE TITLES

1/8th scale racing doesn't get a lot of exposure in this magazine so I feel it is time this was rectified, given that 1/8th was the start of the whole R/C race movement and is currently going through something of a mini-boom with a plethora of new cars and a number of racers from other scales willing to drive them.

1/8th has something that other forms of our racing don't. Noise and smell. And these two ingredients, particularly the former, drag the spectators out as evidenced at the Qld State Titles, held September 10 and 11 at Westfield Shopping Centre, Strathpine.

A modest, but enthusiastic entry of 22 made up the 2WD and 4WD classes, bolstered by Ray and Jo-anne McArthur from Canberra (Ray defending the Title he won in 1987) and 'new' Queenslander, Rob Lowe. Rob and Ray were running the new Serpent Sprint and were going to be the ones to catch.

Locally, Robert Watt (Associated RC500) looked a safe bet in 2WD, while 4WD local heroes were Les Canfield and Peter Cooper (PB Phoenix), and Barry Corfe (Associated RC500 4WD).

1/10th racer, Darryl Laffan, ran last year's Serpent and looked pretty quick, given he has little experience with this class of car.

Saturday was quite mild, while Sunday was magnificent and the crowd were there in droves.

Ray McArthur won Concourse and went on to take top qualifying honours in 4WD, while Robert Watt was TQ in 2WD.

After a 20 minute consolation final, the 2WD A Main commenced, Watt driving away to win by 16 laps in the 30 minute final from David Richardson, having his first ever run and Trevor Kerr, both with PB Novas.

The 4WD final was a lot closer, with McArthur and Lowe right with each other until the 20 minute mark when Ray's Serpent lost a front wheel. This gave Lowe a chance to pull out a 5 lap lead which he kept to the finish with McArthur second and Barry Corfe third.

One point of interest is that Robert Watt scored 137 laps in the 2WD final, while Rob Lowe did only 136 in 4WD. The traction was very good and the layout didn't favour either type of car.

The weekend was a big success on a track that offered good spectator value and driver challenge. This is the last time that this event will be held on a car park, as 1989 will see the 1/8th and 1/12th drivers battling it out on their new purpose built track. The organisation was very good and the standard of driving and reliability (particularly in 2WD) continues to improve.

RESULTS QLD 1/8th STATE TITLES

2WD A MAIN

Robert Watt	Associated RC500	137
David Richardson	PB Nova	121
Trevor Kerr	PB Nova	118
Bruce Ahearn	SG	109

4WD A MAIN

Rob Lowe	Serpent Sprint	136
Ray McArthur (TQ)	Serpent Sprint	130
Barry Corfe	Associated RC500	121
Les Canfield	PB Phoenix	107



The winners! On the left, Robert Watt (Associated) TQ'd and won 2WD comprehensively, while Rob Lowe (Serpent) had to fight a bit harder in 4WD.

LATE NEWS

It seems there is some doubt as to the way 1.7 amp cells should be charged. Talking with Mike Reedy (fresh from scooping the 1/12th Worlds with these cells) and Fernando Belair in California revealed the following.

1. Charge at 3-3.5 amps until peaking (about 1 hour).
2. Remove from charge (don't trickle them).
3. Cells should be warm. NOT HOT.
4. Let cool before peaking.
5. Peak at last moment before use to luke warm only.
6. After use, place on discharge resistor until fully discharged, remove resistor and leave to sit for at least 2 days. The longer the better.

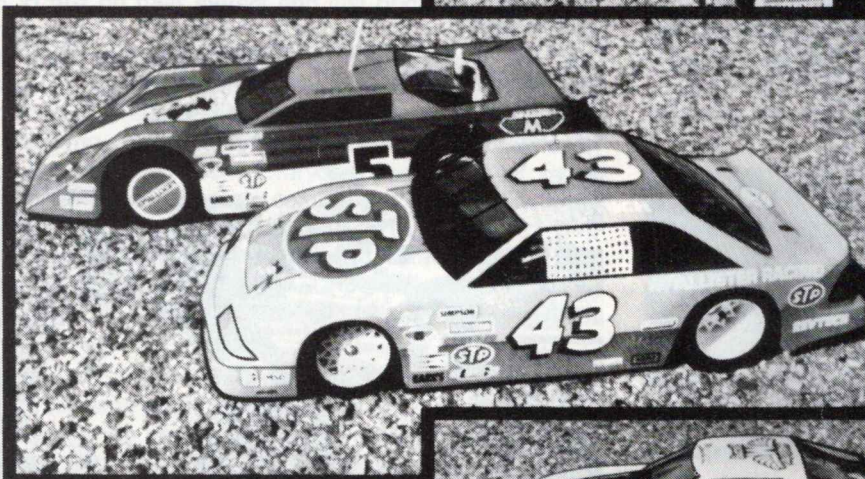
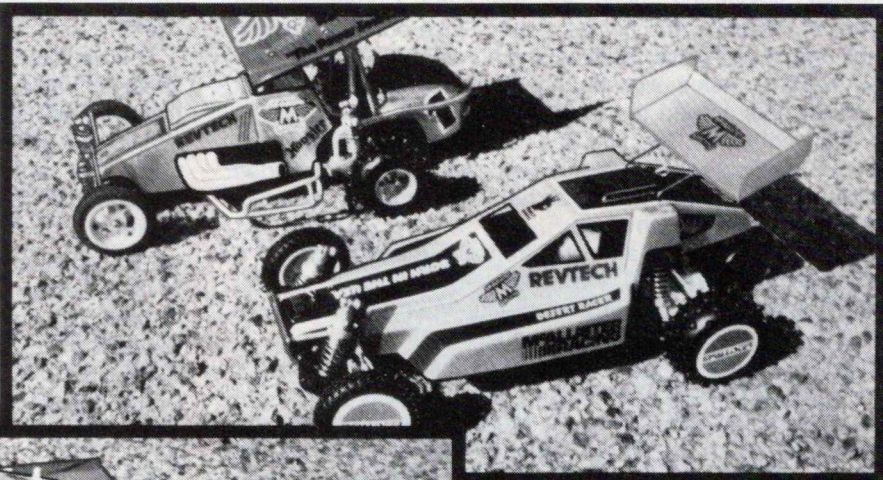
While talking with Reedy, I questioned him on their 1/10th road car. He stressed that it is not an enlarged 1/12th car, but rather a purpose built vehicle. Apparently the prototype, which Tony Neisinger used to TQ at the recent U.S. 1/10th Nationals (He finished 2nd in the final), boasts a single rear monoshock and t-bar arrangement. Release date is (hopefully) early in 1989.

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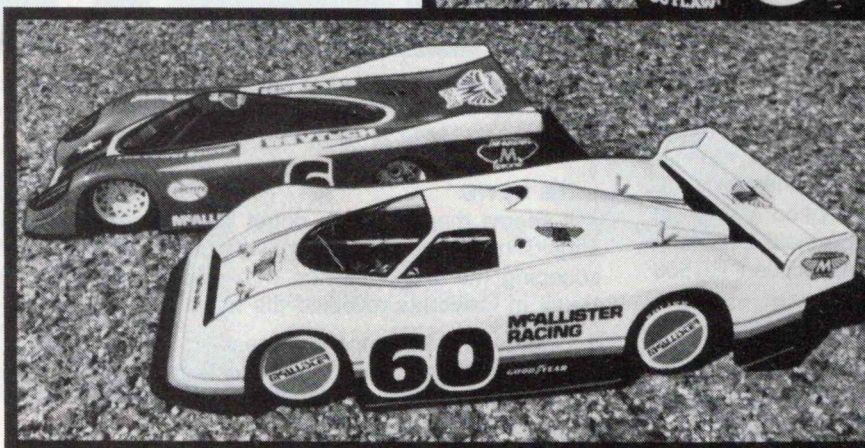
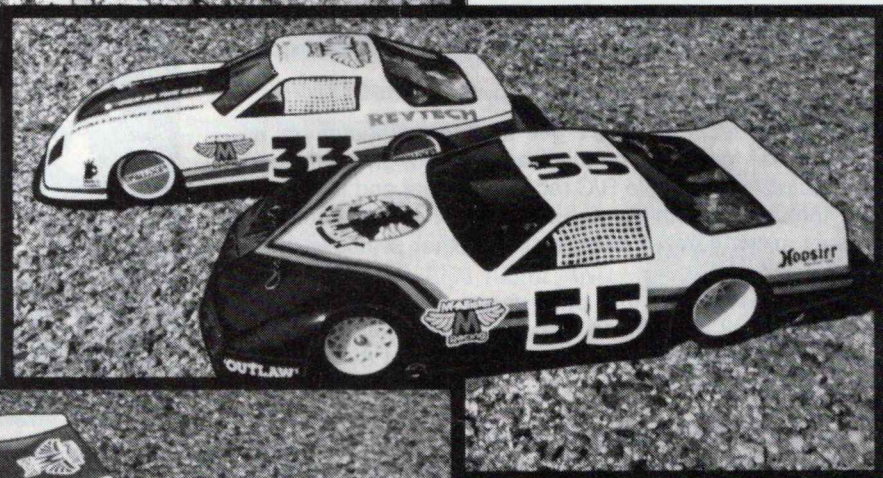


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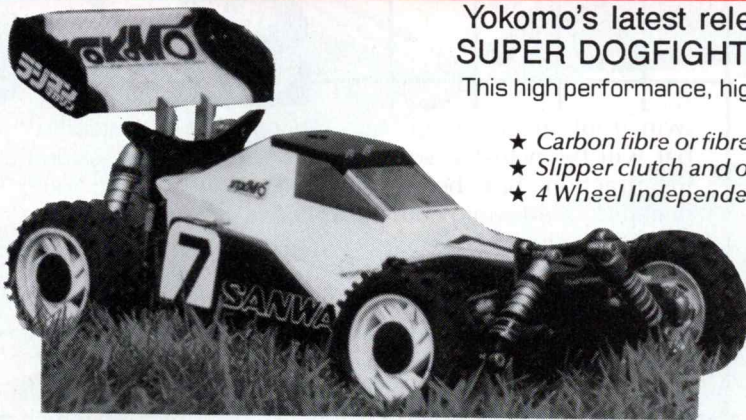
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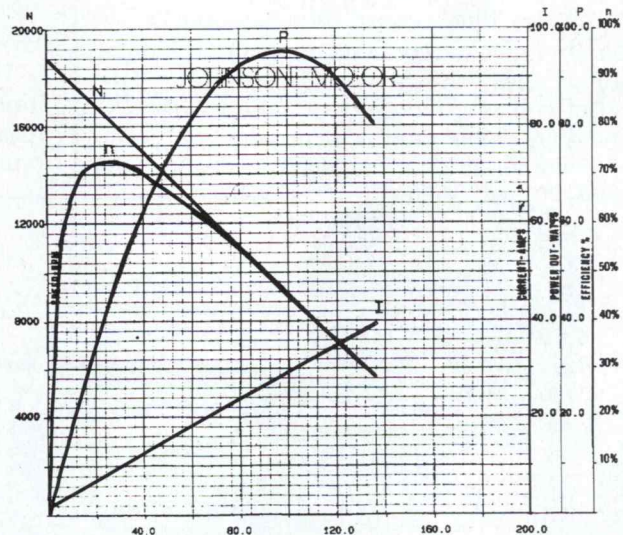
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All the previously released 4 wheel drive buggies, from the HotShot through to the Super Sabre, were basically variations on the same theme: they all had the same internal gears and gearboxes, slight differences in suspension arms and drive shafts, but overall they had the same basic parts. However, the Thundershot is a totally new product from Tamiya's 4WD section.

The basic principles of the drive train are still the same, but there are such things as cleverly changing the position of the bevelled counter gear in the rear gearbox, allowing the centre prop shaft to revolve in the opposite direction, thus eliminating one of the gears from the front gearbox housing. This obviously makes for a more efficient car. The gear cases themselves are a new design, and the back one has been moved further to the left of the car to allow the right hand side mounted motor to sit more evenly in the centre of the vehicle, for much better weight balance.

The car still runs geared differentials, but now the gears of the differential are in their own little casing screwed to the side of the main differential spur gear, both front and rear. This totally eliminates the problem of bevelled gears being pushed apart under load and wearing out. The drive shafts, axles and gearbox output joints are all much smaller in size, lowering the overall weight of the vehicle, and again, of course, making for better efficiency.

Suspension arms on this vehicle are the same on all four corners. Newly designed, low profile, semi-pneumatic rubber spike tyres fit onto these rims, and are the same size front and rear on the vehicle. Dampening of the suspension is achieved by two oil-filled, coil-over shock absorbers on the rear and one mono-shock and anti-sway bar on the front. Four pick-up points for the shock absorbers have been accommodated into each of the lower suspensions arms, while at the rear of the vehicle, three upper mounting points are already supplied to give a very large range of positioning and dampening rates on the rear suspension. Even though the front end is a mono-shock set-up when you first build the car, upper and lower mounting points have already been supplied if you want to change to a

ThunderShot

twin front shock set-up. Also, an optional rear stabiliser bar will be available soon after the car's release. Overall the traction has been improved by designing more negative camber into both the front and rear ends.

Thundershot comes with a standard 540 Mabuchi motor and a full complement of plastic bearings which can be upgraded later to a full set of optional ball races to improve duration and speed, as well as lowering the wear rate of all the moving parts in the car.

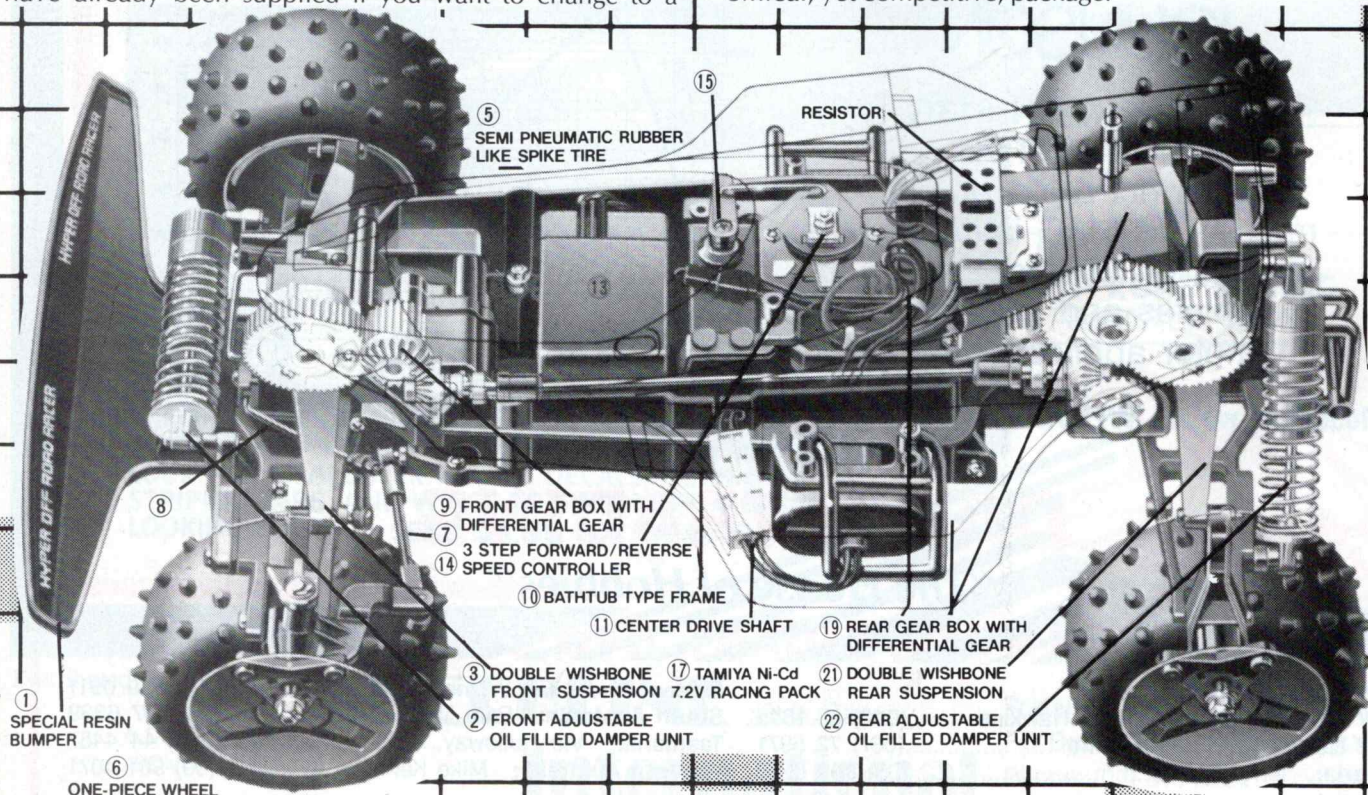
A very spacious polycarbonate body and a driver figure have been included, the aerodynamics of which are very sleek indeed. A new re-inforced special resin bumper is incorporated into the car and should prove to be just about impossible to break, and will give very good protection to the front end.

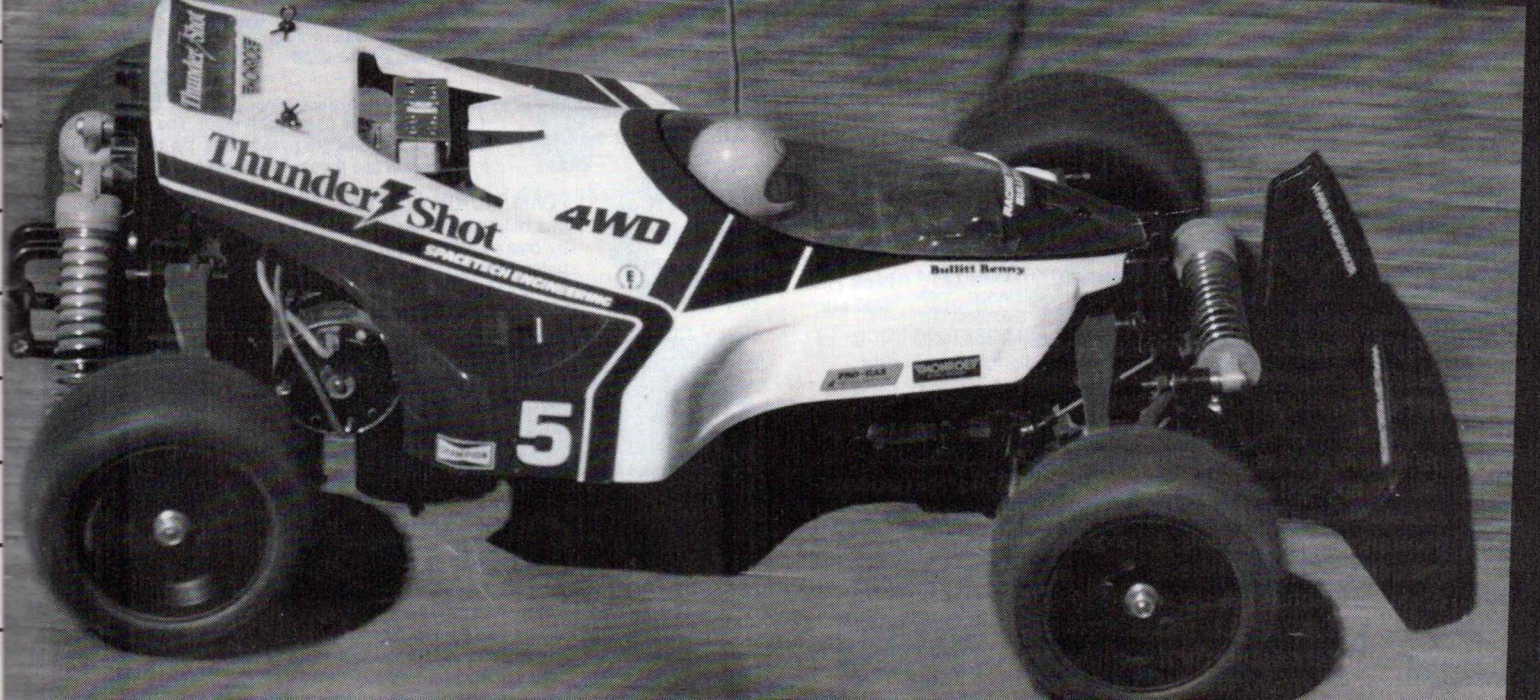
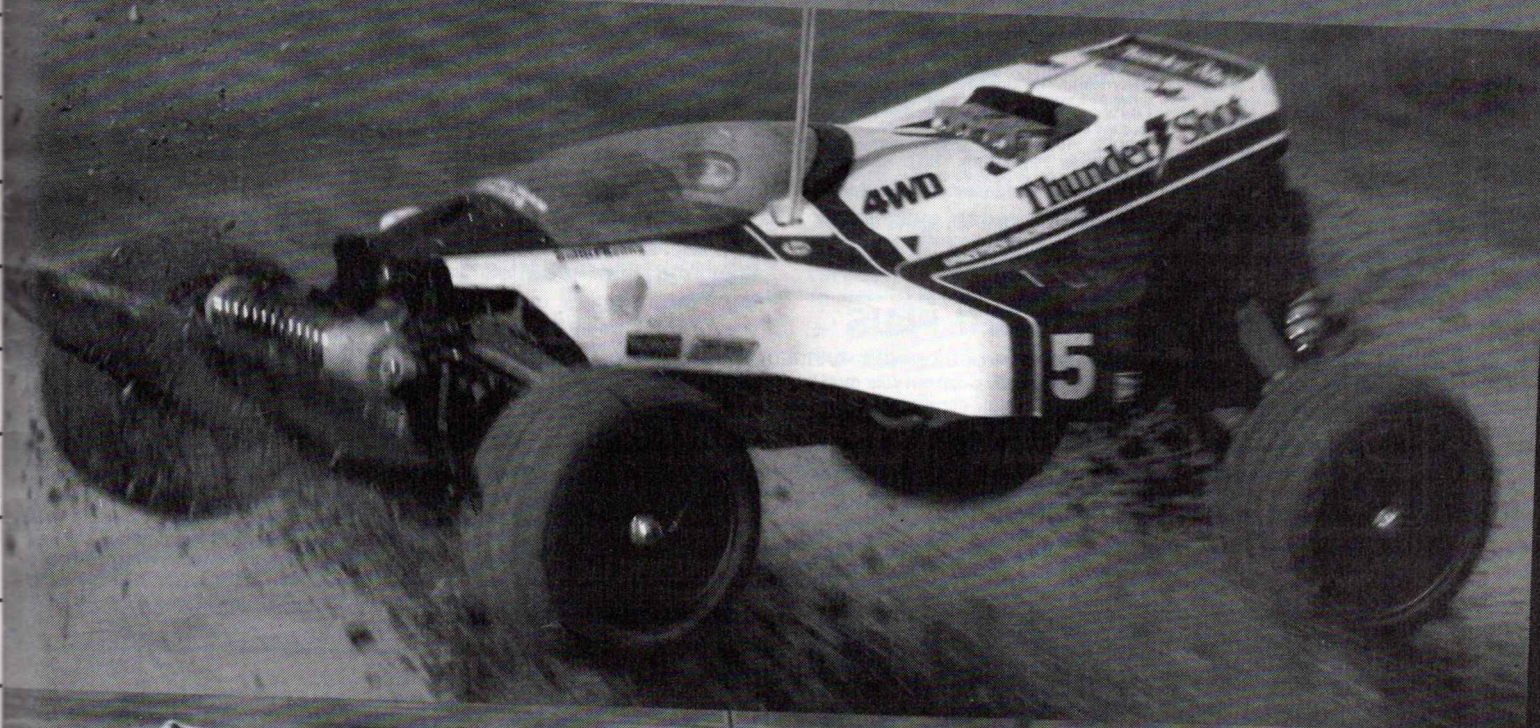
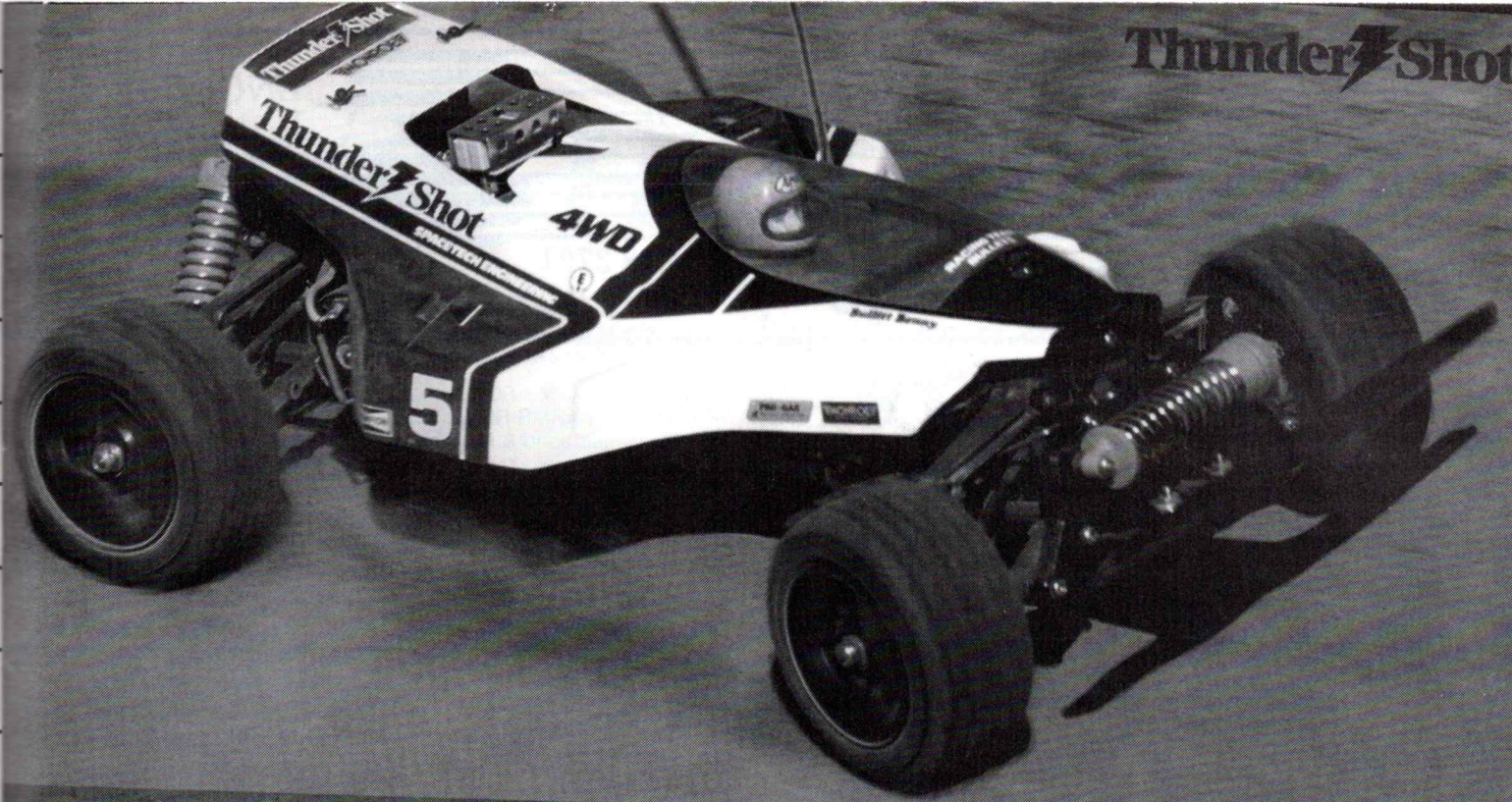
Twin bell cranks built into the chassis eliminate all bump steer from the front suspension, so the car should be very stable in corners. The chassis itself is a bath-tub type configuration which allows easy and quick access to all radio gear for such jobs as crystal changing.

The car will accept either 6 cell racing packs or hump packs, as well as the 7 cell 8.4 volt battery packs. The battery pack is held in place by traditional Hotshot retaining ends as well as large black nylon ties, ensuring that the battery will not move in any shunt that may occur during a race.

If you want to go in at the deep end, then a full set of optional ball races, a Technigold motor, Gold Power 8.4 volt 7 cell nicad pack and a Tamiya Adspec radio system would make a very gruesome off-road race package indeed.

The Thundershot comes standard with Tamiya's traditional three speed forward and three speed reverse resistor type speed controller, which makes an economical, yet competitive, package.





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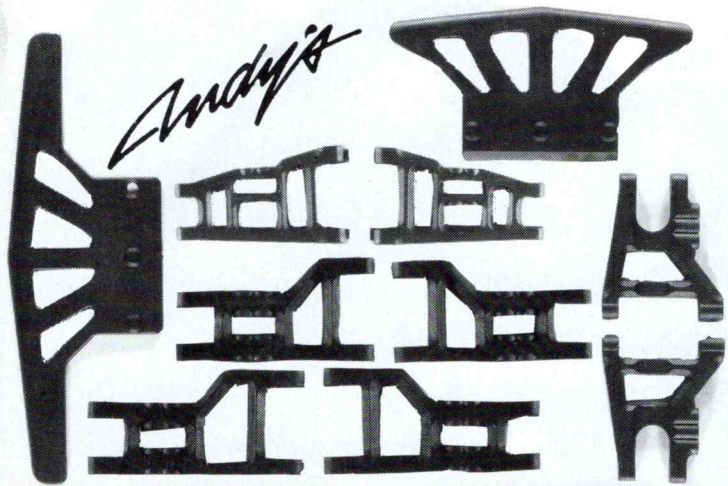
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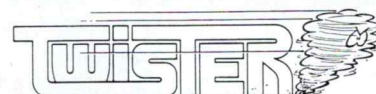
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MODEL #201 — 2 Wheel Drive "Kris Moore Special" 19 Turn. Incredible speed with maximum tractability in the corners. Winner, 1988 Trinity Shoot-Out, 1988 Hawaiian Open and 1988 North American Indoor Championship.
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MODEL #501 — 4 Wheel Drive "SCE Special" 14 Turn. Take advantage of the new SCE1700 batteries with the hot 501. A real expert's motor, the 501 is incredibly quick and lightning fast, particularly in 6 cell 4WD.

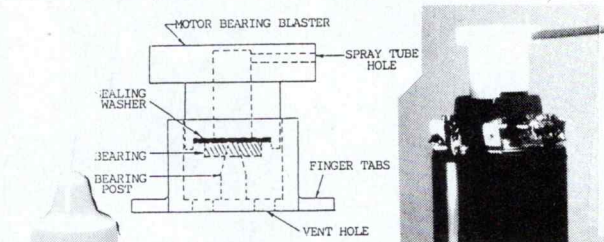
MODEL #402 — 2 or 4 Wheel Drive 16 Turn. Even hotter than #202. For 4WD cars that can handle the extra punch and speed or for 2WD on super high-bite tracks.

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MODEL #702 — 2 Wheel Drive "Cyclone" 13 Turn. Super-radical oval motor. 40,000rpm for 3 or 4 minute ovals only. Requires expertly prepared car. Winner, 2WD Mod, 1988 NORRCA Nats. Great drag race motor.
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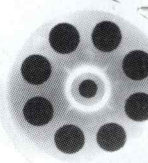


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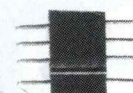
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\$7.50 pair.**



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Silver shunt wire (hard compound) for all offroad motors stock motors increase revs and drop 5% in amps just by putting this brush in. "N.B. not to be used in 1/12 scale motors. Different compounds available. **Recommended Retail Price \$6.30**

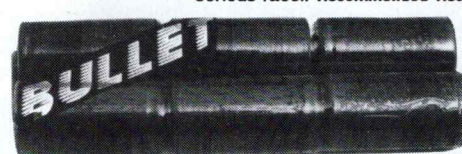


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4 gold plated pins (2 for each lead). The most popular battery and motor plugs available. All the top drivers in 1/10 scale use these. **Recommended Retail Price \$6.30**

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that breathe. Increase the life of your valuable motors by popping on a foam cover. Just spray it with water before you race and it keeps out the dust and grit and at the same time keeps the motor cool. A must for the serious racer. **Recommended Retail Price \$1.95.**



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YES Finally a battery pack available at a reasonable price that gives you the very best value for money. These packs have been tested at an individual cell basis and every battery is matched to each other. They are then hand wired by hand and assembled in clear heat shrink so you can identify the cells. These batteries are not the rejects from other countries they are matched and assembled here in Australia which saves you paying high duty rates on somebody's labour. At **Recommended Retail Price of \$99.00** you won't buy a better battery pack. Only available in SCR cells. For 1/10 off road. For modified and stock motors.



M.M.S.



REVTECH INTRONICS



**NOVAK
ELECTRONICS**



RC10 Hot-up Tips

or

2WD Fast Lane to Success (Part III)

by Geoff and Reece Birtles

Part Two of our series explained how to upgrade your Associated RC10 to a PHASE TWO serious racer. If you are ready to build a top contender for winning at State or even National level (PHASE THREE) then read on....

PHASE THREE

For those 'Stock Class' competitors with National or state aspirations and/or 'Modified Class' interclub and ORRCCA racers.

The sky is the limit here (depends on your wallet and imagination) but you can build a very serious machine capable of winning a State title for about \$100 more than a PHASE TWO car (exclusive of electronics, batteries and motors) but you will probably want to spend more.

At this stage you probably don't need us and in any event we have to keep some secrets! We will simply list what Reece and I consider to be mandatory and optional additions to the PHASE TWO buggy.

Mandatory PHASE THREE additions and changes:

- ★ Lighten chassis by cutting down side walls and using a hole saw to drill 3 to 5 cm holes in base. Do not sacrifice structural integrity! It is important to get your all-up weight down to at least 1550 grams. (Until recently Reece raced at 1520 grams — we now add weight to get it up to 1474 grams.

- ★ Large diameter (2") front FOX rims with Schumacher 2 spike narrow (Red Dot, hard) front tyres. Do not use these for slower stock class speeds. Small diameter gives greater turn-in which is needed at slower speeds. Large diameter washes out some steering but improves high speed handling in rough conditions.

- ★ Light weight electronics including a high speed steering servo and FET speed controller — if you don't already have them.

- ★ PARMA ball links throughout. (A 'phase three' car has to be 'bullet-proof' for Victorian racing conditions. The cars are 1/10th scale but the bumps are 1/2 scale!)

- ★ After market speciality stock motor or a modified motor such as the Reedy (Wet Magnet) 'Pink Dot' (We use a Pink Dot).

- ★ Good quality gears — and careful gear selection. Change them often.

Optional PHASE THREE additions and changes for those with a fat wallet! Remember. Once you start, the sky is the limit. The PHASE THREE car as just described can win you a State title (and is a lot less expensive than competitive buggies prepared to a similar standard) so be sure you need this.

- ★ Carbon fibre chassis. (Not necessarily lighter or even better than a properly cut down stock chassis — but it seems to be the thing to do. We use a Parma.)

- ★ Carbon fibre shock towers. Primarily for cosmetic/prestige reasons but a whisker stiffer and a whisker lighter. Not

stronger — ask Reece. A fractured front shock tower cost him an ORRCCA A final when one lap up on the field at Melton recently.

- ★ Losi bell cranks with bearings. These are good news and just about essential although you can sleeve stock servo savers with copper tubing to achieve a similar effect. Solid bell cranks require a Kimborough servo saver.

- ★ 'Andy' wide-track front A frames. We currently run these but are still not sure. Perhaps more forgiving but require a wider racing line which is not good in tight track conditions.

Note: We do not favour rear Andy A frames. They do cut down weight (4 grams) but flex too much on our rough Australian tracks and cause handling aberrations. (But the Andy front bumper is good news!)

- ★ 20 to 25° optional Associated front castor blocks. This counters the effect of reduced castor arising out of use of a carbon fibre chassis. Use only if you find your car is over sensitive. (Castor is the lay back angle of your king-pins from vertical.)

- ★ Losi Diff tube (bearinged). These provide a more stable diff. and allow you to run fine pitch gears.

- ★ Fine pitch gears (64dp or 48dp). More efficient, smoother acceleration and de-acceleration. But costly to run — they wear quickly. We run them sometimes.

- ★ PARMA EAGLE body. Looks good, very light and aerodynamic. We run 'Eagles' both on our off-road and Thunderdome racers.

- ★ MIP Gear Box. Reputed to be more efficient and widely used overseas. You decide. We currently run a stock RC10 box in both cars and they are beautiful!

Tuning your PHASE THREE.

Suddenly we have very little to say! Possibly the most important points are:

- (i) Make the car very responsive (ie. twitchy) so that you can move it around the track.
- (ii) Balance front end grip to back end grip. In fact this is the key to a well behaved predictable 2WD buggy. And just when you think you've got it right it will need changing. Eg, understeer doesn't necessarily mean you need grippier fronts or that you should soften the front spring ratio. You probably need less grippy rears, assuming that your front end camber, toe-in and castor are right! Confusing isn't it? But at least with an RC10 everything's adjustable.
- (iii) Tune the car to your driving style. Don't just copy others. Eg, Peter Orchard's trophy table was ample evidence of his ability to set up a car for his 'point and squirt' driving style. (Slow in, tight cornering, point and power on.)

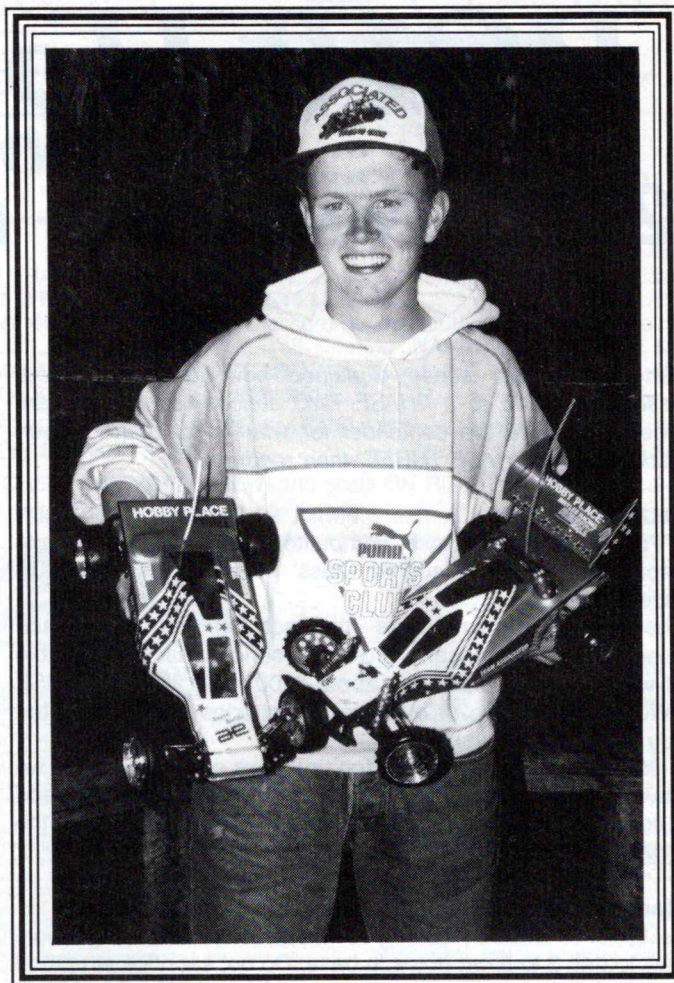
One of his better kept secrets was the enormous amount of extra castor he dialed in to make the car very stable out of turns. (Optional 25° castor blocks — stock is 15°, plus layback on the shock towers.)

This just doesn't work for Reece's hard charging style of cornering. Flat out charge to the corner, break tail prior to entry, hold slide through the corner with power and countersteering to exit the corner sideways at full power. The corner is apexed on the exit just as you see Wayne Gardner do.

Too much castor for this style of driving is disastrous. No top-end steering in slippery conditions. The trouble is, the less castor you have the more 'fish tailing' you experience on exiting so this creates another set of problems.

FINALLY

Learn to drive! Be brave in practise and conservative in competition until your skills develop. Good racing!



THE MEAN AND THE LEAN

On Reece's left. A PHASE THREE RC10 (refer text) fully race prepared with a Parma body and Reedy Pink Dot motor ready for the 1988 Nationals.

On the right. Reece's new 'Thunderdome' racer. Absolutely stock RC10 parts apart from the body shell and shocks. A 13.1 sec lap for a timed 84 kmph, took out Keilor's 1/10th section 'Top Gun of the Night' to once and for all prove that the RC10 is still the car to beat! (Since this, it has recorded 12.7 sec in practice and there is more to come!)

BOLT-ON

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PEAK PERFORMANCE

1/10 STOCK MOTOR — Orrca approved. Broken in and dyno-tested for maximum horsepower.....	\$54.00
1/12 ON ROAD — The PP-15 provides a smooth power band and increased straightaway speed.....	\$139.00
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1/10 OFF ROAD BUGGY 4WD — Excellent acceleration and straightaway speed make this motor hard to beat.....	\$149.00
1/10 OVAL BUGGY — Fastest motor made by Peak Performance. Can be used in all off-road buggies.....	\$149.00
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SILVER TAIL MOTOR BRUSHES — \$5.90 pair.

As a result of many test hours, these brushes provide improved motor performance and brush life.

DEANS PLUGS — \$6.30 PAIR 48DP PINIONS FOR DOGFIGHTER

Made of hard wearing steel

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All spares and trick bits.
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LETTERS TO THE EDITOR



Dear D&T,

I read R/C Cars for Dirt & Track all the time, and find a major lack of ads from large distributors and suppliers which display recent and up-to-date prices. When reading other R/C car magazines I notice ads from worldwide distributors show prices, but of course they're in foreign currency.

Darren Holmes, Stoneville, WA.

Darren, glad to see you're an avid reader, and your comments about prices are noted. Quite a few of our advertisers do show prices, although they won't always be up-to-date because the magazine has a two month shelf life. Prices in overseas mags can be deceptive, because of course they don't reflect freight and customs duty which you'd have to pay if you bought from overseas advertisers. It's much better to support your local hobby shop, and if there's something you want to buy, just make a phone call to check on the price, and tell them you saw the ad in R/C Cars for Dirt & Track.

Dear D&T,

Is there any way of getting a copy of D&T #1, because I missed it. Could you please put in a review of the Tamiya Fast Attack Vehicle and the Associated RC10. Keep up the good work.

Cameron McDonald, Park Ridge, Qld

I've checked with the guys in the front office Cameron, and unfortunately issues number 1 and 3 are both sold out. All our other issues are available as back numbers for \$2.50 each, plus \$0.80 postage. We will certainly look at doing the reviews you've suggested, but as you can appreciate we don't have enough space to review every buggy requested by our readers.

Dear D&T,

I really enjoy reading your magazine and liked the article called 'Off-Road Buggyng from a beginner's point of view', (D&T #4). Could you please put more of these articles in the magazine, and would you be able to do a review of the Bulldog?

Chris Haynes-Smart, Canberra, ACT

Thanks for your letter Chris, it's good for our ego to get lots of praise, and we love it. Most of our articles are aimed at the beginners to help them gain the knowledge of more experienced racers, and if you've got any tips which might help someone else, please send them in to us.

Dear D&T,

After reading issues #5 & #6, and in particular, comments about 1/10th off-road racing by Jonathan Borthwick, and Ross and Barry from Queensland, e.g. motors and sponsored drivers, I am stunned and shocked. I have raced a 1/10th off-road car for two years, yet I've never seen an off-road track.

I went to the first round of the South East Queensland Off-Road Championships, held at the Ipswich track and, except for a 3 inch bump in the middle of a 50 foot straight, the track was

dead flat, just like a lot of tracks in Queensland. I read that one track, Templestowe in Victoria, has banked corners!

I thought off-road meant hills and rough tracks with different surfaces and obstacles where manoeuvring and driving skills win the race, and where hot motors and driver sponsorship wouldn't be of any help. It has got to the stage where cars are built for speed and handling, not for endurance and reliability.

What we race now is 1/10th speedway or circuit racing, and if people want to race fast cars there are on-road tracks, but if you want to race off-road, lets build proper tracks.

Danny Laws, Bundall, Qld

Up to a point Danny, I tend to agree with you. Off-road tracks are meant to have jumps, hills and bumps, along with tight and twisty corners to test a driver's skill, but we certainly aren't racing speedway in 1/10th Off-Road.

Speedway is something like the Thunderdome - a concrete or bitumen surface with high banked corners, and circuit racing uses smooth surfaced bitumen tracks. If you're looking for more of a challenge, why not design your own track, and try to get your club to build it. Les Bone has given some good tips for track building in D&T issues #3 & #4.

Dear D&T,

I am writing to suggest that in your magazine you could have more reviews of cars as they come out, and have more reviews of the top cars, e.g. CAT XLS, Optima Mid, Mini Mustang, Ultima and RC10. I'm sure many people are looking around for new and competitive cars, and if we could have a review of the top cars that would help us with our choices. I have also noticed that my home club, St Ives in Sydney, isn't listed in the Club Directory.

Ben Trinder, Turrumurra, NSW

Thanks for your comments Ben. Club Directory listings are compiled from information sent in by the clubs themselves, so perhaps you could get the President or Secretary to send us the details. Regarding buggy and car reviews, we are always trying to get access to the latest cars, preferably before they actually hit the market, but that isn't always possible. Some of the ones you mentioned aren't, strictly speaking, new cars but are improved versions of existing ones. In those cases, we try to review the improvements to the original specs.

Dear D&T,

Why don't you have more petrol powered R/C cars in your magazine? I would like to know more about them. I would also like to know which controls are better, the new trigger control, or the old normal ones?

B Maxwell, Launceston, Tas

We would like to write more about gas cars, as the 1/8th scale machines are known, but we only have a limited amount of space. However, if members of the 1/8th scale racing fraternity would care to send in material, we'll look at giving it a run. How about it guys? Regarding your ques-

tion about transmitters, it really appears to be a matter of personal choice — some drivers like stick radios and other prefer the wheel, or trigger, type. Why not try both and then decide which suits you best.

Dear D&T,

I was very excited when I saw and read the article on the radio controlled motor bike (Wayne Gardner, D&T #6). I would like to know if \$210 is just the price of the bike, or the whole set up. If it isn't, what is the price of the bike when it's ready to go?

Kristian Waugh, Aroona, Qld

The recommended retail price of the kit is \$210, Kristian. For that, you get the kit, but not the radio gear and batteries. Check your local hobby shops for the best price on radio equipment and Ni-Cads.

Dear D&T,

I would like to thank Bob Beniston for his article on "race craft" (D&T #5). The part about keeping your cool when being overtaken, or when you overtake someone, was very interesting and helpful. I think more articles like this will make myself, and hopefully everyone else, a better driver.

Lloyd Audsly, Park Ridge, Qld

Well put Lloyd, and a noble ambition. The sport can only benefit from drivers who want to improve, and you can learn a lot from very experienced racers like Bob Beniston.

Dear D&T,

I have a Marui Galaxy, and I would like to know where to get parts in New South Wales.

Mathew H, Gosford, NSW

Mathew, just go to your local hobby shop, and if they don't carry parts in stock, they should be able to order what you want from the Marui importers, which is J.R. Remote Control in Victoria.

Dear D&T,

Firstly let me congratulate you on your fine magazine. I hope it continues to be a success as it is refreshing to be able to pick up an R/C car magazine which relates to the Australian dollar.

You wrote wise words in your editorial (D&T #7). I have been into R/C cars since 1980. In those days the cars were raced basically 'out of the box' and our 40 or so members had a lot of fun and close racing in those early years. Now the club does not even exist due to the high cost of forever going faster and the other reasons that you mentioned. Let us hope that other R/C racers will take heed.

Paul W, Toowoomba, NSW

Dear D&T,

Regarding your story on the Vortex motor in the March-April edition (D&T #5), I came away from reading it with a tad of suspicion.

I mentioned it to my Science teacher and he was very interested so I showed him the article. He told me that the Vortex principle was impossible.

Then I noticed that the motor was protected by a patent registered on April 1st. Was it an elaborate April Fools joke? If so, it was a fantastic idea.

By the way, I love the magazine, especially the centre-fold. Keep 'em coming.

Brett O, Hamilton, Vic

Well done Brett! It sounds as though you have a future in mechanical/engineering sciences. Our undercover reporter is currently overseas chasing yet another scoop and is unavailable for comment. You can expect to see more of his articles early next year.

AROUND THE CLUBS

1988 BICENTENNIAL OFF ROAD GRAND PRIX

On 26th and 27th November, the Kempsey Off Road Model Auto Club is holding its inaugural Buggy Spectacular featuring the 1988 Bicentennial Off Road Grand Prix.

The two day meeting, to be held indoors on a concrete skate rink at the local Squash Centre, has several unusual features.

Instead of the normal ORCCA class structure the event will consist of five divisions with competitors being graded based on their experience and type of car.

Each competitor may contest eleven six minute races with the best three being totalled to determine the results.

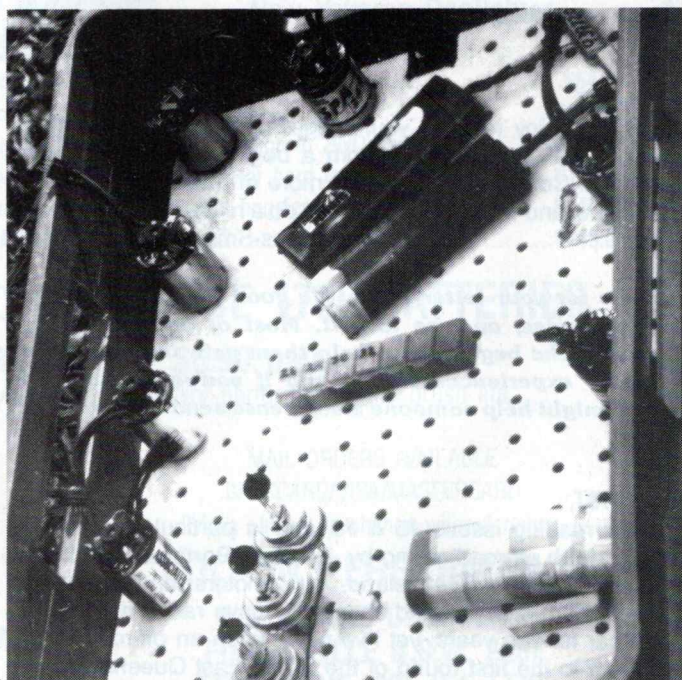
No finals will be held however the top six competitors will be invited to participate in a special half hour race which has been endorsed by the New South Wales Bicentennial Council.

Trophies valued at more than \$300 are to be presented to competitors in the Buggy Spectacular with in excess of \$200 in trophies riding on the outcome of the 1988 Bicentennial Off Road Grand Prix.

A cash prize of \$100 will also be awarded to the winner of the Grand Prix event.

The Kempsey Club has set a maximum field of 50 for the Buggy Spectacular with entries at \$12 each closing on Wednesday 16th November.

For further information contact: Rod Thurgood, 11 Perrins Lane, West Kempsey N.S.W. 2440. Phone (065) 62 8209.

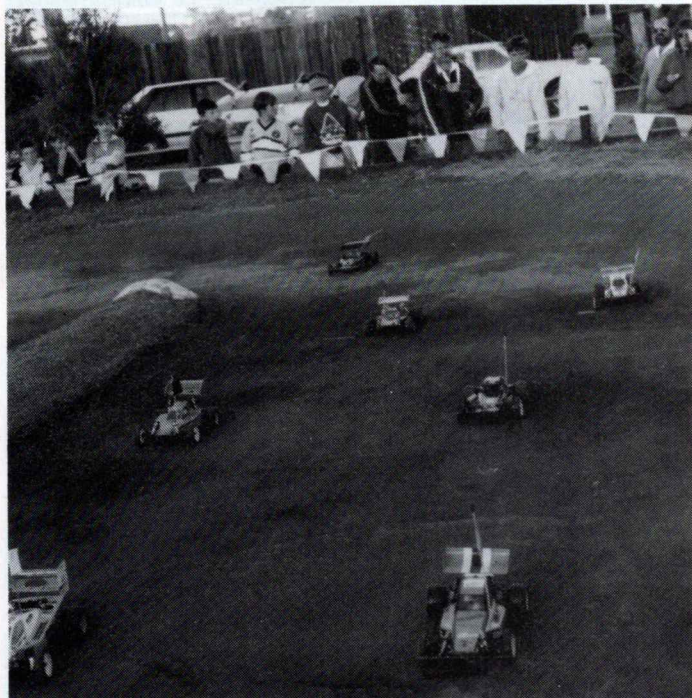


Tony Glanville is keeping the cost of racing down by storing gear in a plastic crate. More stuff is under removable pegboard cover which neatly holds motors, batteries, discharge globes, etc. M.G. Pic

ILLAWARRA BUGGY SPECTACULAR

Mel Gillott

Illawarra is the Aboriginal name meaning Land Between the Mountains and the Sea and is the name given to the picturesque coastline around Wollongong in NSW. But the local RC car club weren't playing Trivial Pursuit on the weekend of 18th and 19th June — they were hosting the first Buggy Spectacular at their recently revamped Dapto track.

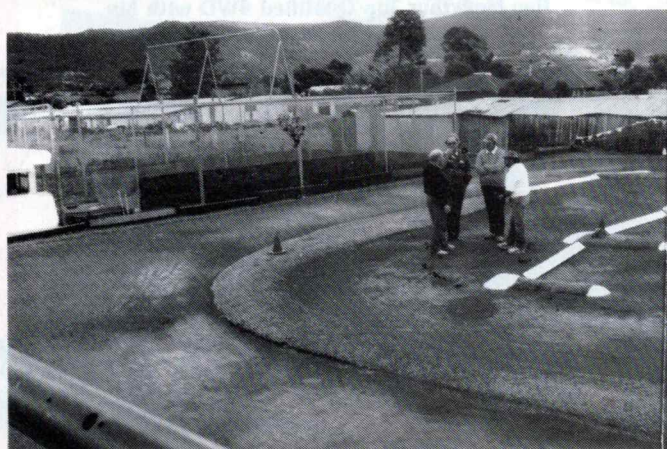


2WD Open 'A' final on grid at the Illawarra Buggy Spectacular. Reworked RC10 and standard RC10 of Salter and Kramer on front.

For their first foray into independent organising of a major event the IRCECC voted the Spectacular highly successful. The 70 competitors and Lord Mayor, Frank Arkell who presented the 30 trophies, all seemed to agree.

The usual 4 classes were run and most of the states top drivers were in attendance. Andrew Bolton continued his winning ways (see D&T #6 for interview) in 4WD Open with team mate Mark Anderson and another Optima Mid in second. In four wheel stock USA visitor Johnathan Morgan just pipped all the Aussies in a very tight race. Father Roberts immaculate presentation of John's CAT no doubt contributed to the success and also to the success of the Pit Stop team in general. In 2WD Open, Scott Salter garnered yet another win for PitStop from local ace Ross Kramer; RC10's of course. In Stock the Illawarra juniors with their Tamiya Foxes dominated.

In between races you could check out the static displays, browse at the local model shop display or feed from the extensive menu at the track canteen. Unfortunately you could not view the entries in Concourse d'elegance as advertised since there weren't any. Seems that nowadays folks only want to race.



Thanks to Dirt and Track magazine it wasn't just the winners that took away the loot. All those entered in the IBS were eligible for the free draw for prizes courtesy of this magazine. Lucky winners were; EK Speed Controller — Axel Pollock. Pro-Series Open Motor — Daniel Kerr. Free subscriptions to Dirt and Track — Scott Salter and John Morgan.

IRCECC would like to thank Ropomod Productions for the prizes, and all the hard working members that made the event so successful and enjoyable for all. Put this one on your calendar for next year and in the meantime come between the Mountains and the Sea for the NSW titles in November.

Illawarra Buggy Spectacular Results:

4WD Open A final: 1st Andrew Bolton, 2nd Mark Anderson, 3rd Colin Grenenger. **B final:** 1st Adrian Harlor, 2nd Paul Osmond, 3rd Tony Haseler. **C final:** 1st Jason Walsh, 2nd D. J. Gordon-Smith, 3rd Axel Pollock.

2WD Open A final: 1st Scott Salter, 2nd Ross Kramer, 3rd Craig Pincott. **4WD Stock A final:** 1st Johnathan Morgan, 2nd David Spinney, 3rd Justin Watts. **B final:** 1st Cameron Sautelle, 2nd Simon Blaney, 3rd Robert Roxburgh. **C final:** 1st Tony Glanville, 2nd Byron Reid, 3rd Mathew Spain.

2WD Stock A final: 1st Mathew Brown, 2nd Russell Brown, 3rd Dennis Entwistle. **B final:** 1st Barry Rodgers, 2nd Mark Lewis, 3rd Peter Ready. **C final:** 1st Brendon Santalab, 2nd Alison Moon, 3rd Tim Brown.

WARRNAMBOOL CUP

Les Bone

On the weekend of 10th and 11th September, Warrnambool Club held its run-up practice to the Victorian Titles in October.

The rain, however, kept attendance low. All day on Saturday the heavens opened, the track was awash; it was only the drivers who had nothing to do but clean their cars who risked a practice run. My five year old son was one who did but he wasn't stupid — he knew it would be left up to Dad to clean the car!

Sunday morning dawned to find not only rain but a 30 knot wind. Fortunately the wind blew away the rain, dried the track in half an hour and allowed the drivers to get down to some serious racing. Just as well really, the Wodonga boys drove 700kms to attend (just on the subject of Wodonga, watch out for Craig Langman he came 2nd in 4WD Mod. quite convincingly).

The racing and organisation went well all day and literally 10 seconds after the last race of the day down came the rain again causing mad panic and a rush to the Club rooms for the trophy presentation.

Still on the subject of rain, the pommy magazine 'Radio Race Car' had an article on methods of water proofing and drying out speed controllers as well as rain protection for your transmitter. This is under the heading of *when driving in the rain not if*. We in Australia should think ourselves lucky that our problems are generally confined to dusty conditions.

WARRNAMBOOL CUP RESULTS:

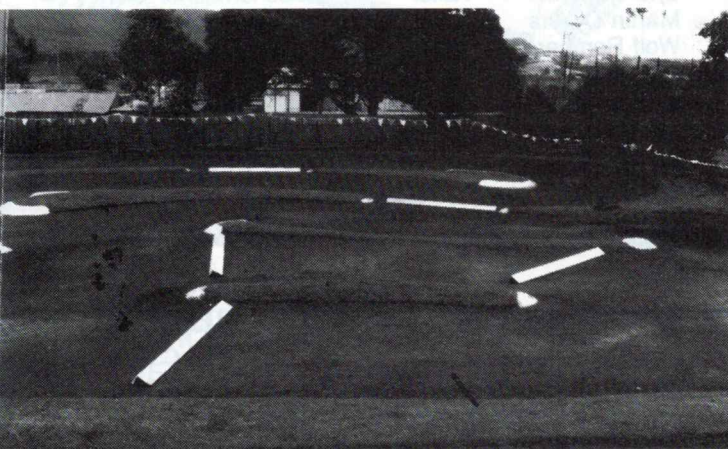
Mabuchi Stock: 1st D. Fisk, 2nd C. Couch, 3rd R. Amphlett.

2WD (Stock): 1st G. Williams, 2nd A. Sutherland, 3rd A. Williams.

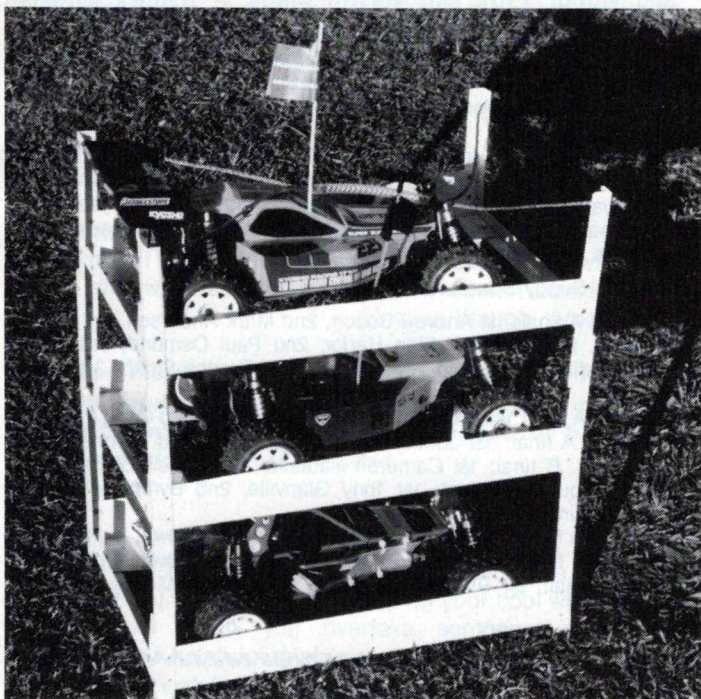
2WD (Modified): 1st V. Riches, 2nd D. Beilby, 3rd C. Marshal.

4WD (Stock): 1st J. Roger, 2nd P. Anderson, 3rd B. Day.

4WD (Modified): 1st D. Fisk, 2nd C. Langman, 3rd G. Edwards.



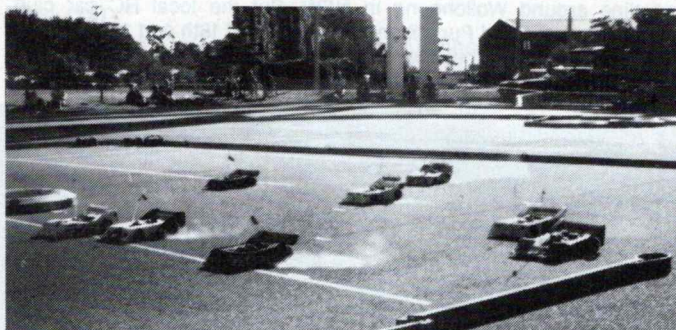
Revamped Illawarra track is compact but long and wide. Venue for Illawarra Buggy Spectacular plus NSW Titles in November.



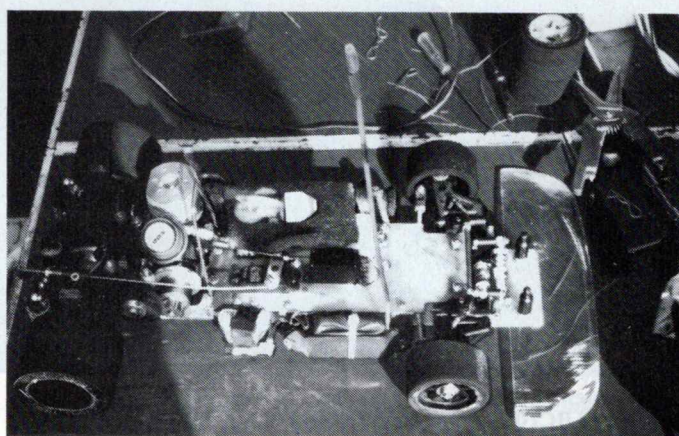
Triple tiered car transporter by Peter Sawtell. Made of plastic angle and strip from hardware shop. Neat and light!

QUEENSLAND 1/8TH STATE TITLES

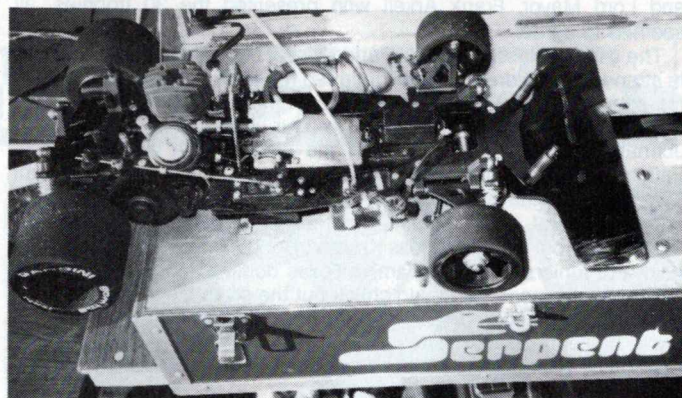
The Queensland 1/8th scale State Titles were held at the Westfield Shopping Centre, Strathpine on 10th & 11th September. More information and results are on page 41 in Tweaked and Dumped.



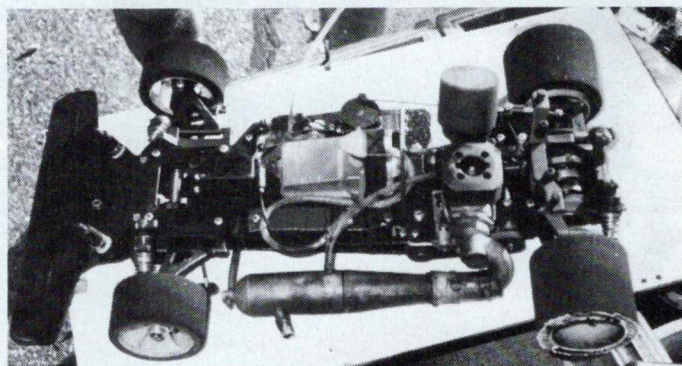
Start of the 4WD A Main, with (R to L) Rob Lowe (Serpent), Ray McArthur (Serpent), Ray McArthur (Serpent) and Peter Cooper (PB) making clean starts.



Robert Watt's Top Qualifying and winning 2WD Associated RC500.



Ray McArthur Top Qualified 4WD with his near new Serpent Sprint.



Rob Lowe took a popular win with his Sprint, after fighting McArthur most of the way. These things are fast!

1988 TEMPLESTOWE CUP RESULTS

Results of the Dirt and Track sponsored 1988 Templestowe Cup are as follows. The Cup attracted 73 entries.

2WD Mabuchi

1	Russell Bryant	G/Valley RCC	Ultima
2	Ross Amphlett	Keilor	RC10
3	Dennis Armstrong	Knox	Ultima

4WD Mabuchi

1	John Dykers	Templestowe	Schumacher CAT
2	Steven Godfrey	Templestowe	Schumacher CAT
3	Dean Fish		Yokomo Dogfighter

2WD Stock

1	Steven Ferriggi	Keilor	RC10
2	Brett Ford	Templestowe	RC10
3	David Ferriggi	Keilor	RC10

2WD Modified

1	Reece Birtles	Templestowe	RC10
2	Clifton Young	Templestowe	Ultima
3	Val Riches	Knox	Ultima

4WD Stock

1	Lyle Harbour	Keilor	Schumacher CAT
2	Martin Dykers	Templestowe	Schumacher CAT
3	Wolf Remberg	Templestowe	Schumacher CAT

4WD Modified

1	Brett Willoughby	Altona	Mid Optima
2	David Seckold	Keilor	Schumacher CAT
3	Rob Bishop	Templestowe	Schumacher CAT

ROCKHAMPTON QLD TITLES RESULTS

C. L. Ryan

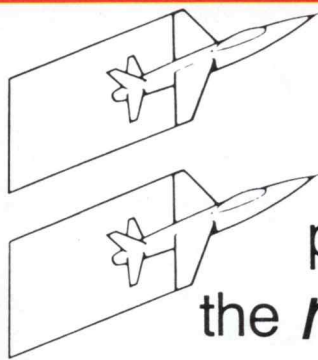
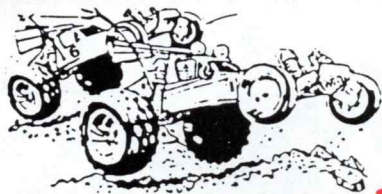
380 Class: Janice Seib (Wynnum Club) 1st.

4WD Stock: Peter Beckett (Eagleby) 1st.

2WD Stock: Michael Ryan (Rockhampton) 1st.

4WD Modified: Colin Grenenger (N.S.W.) 1st.

2WD Modified: Chris White (Wynnum) 1st.



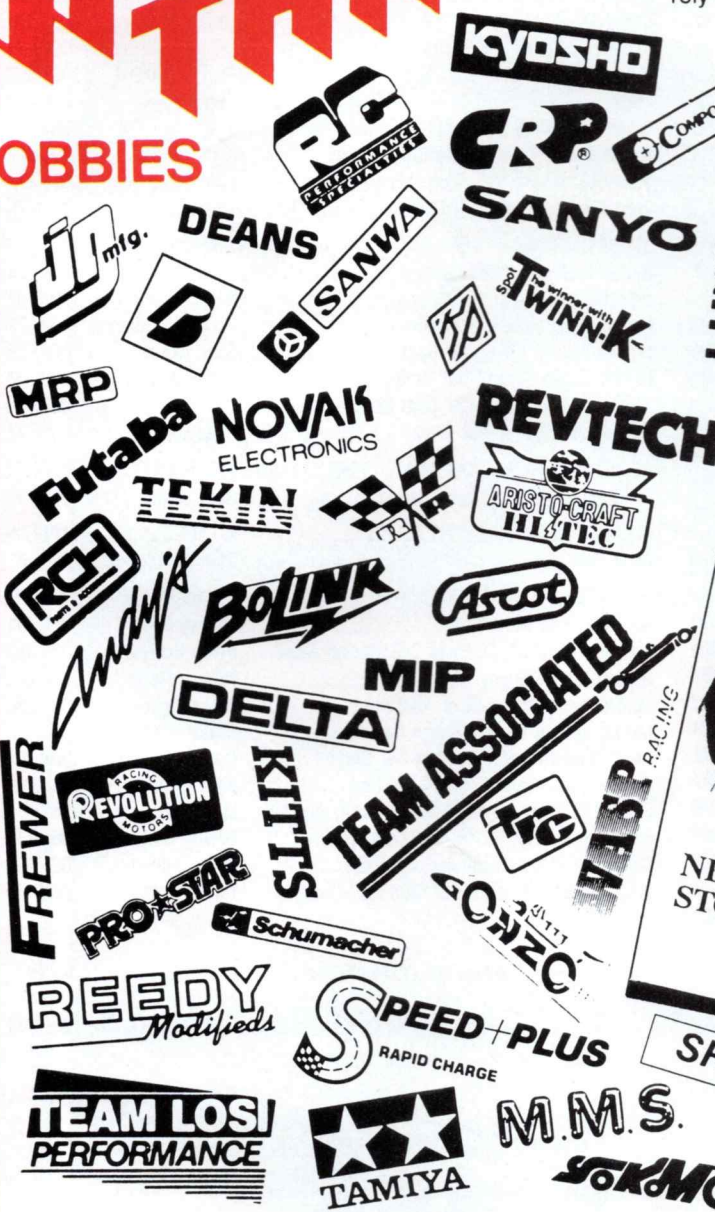
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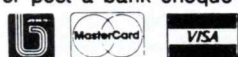
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