

BY DEZ CHAND



# BACK ON TRACK!

Main pic: Tyres cut to 46 mm front and 51 mm rear get the chassis nice and low for 5 mm ground clearance once the front arms are inverted

↙ **New 1/12th Mardave V12 VRX,  
from Oval to Circuit!**

A FEW MONTHS AGO RUMOURS WERE RIFE THAT THERE WAS A NEW CAR BEING DEVELOPED BY MARDAVE, THE FIRST FOR MANY YEARS. UNDER THE NEW OWNERSHIP OF 2006 HOT ROD WORLD CHAMPION CHRIS WILKINSON THIS QUINTESSENTIALLY BRITISH 1/12TH SCALE CAR HAS SEEN SUCH A RESURGENCE THAT THERE IS EVEN A MARDAVE GP ONCE A YEAR, POPULAR WITH DRIVERS FROM ALL CLASSES AND ABILITY LEVELS. UNTIL RECENTLY MARDAVE V12'S HAVE MAINLY BEEN CONFINED TO SHORT CIRCUIT OVAL RACING BUT ARE GRADUALLY FINDING THEIR WAY ONTO THE CLUB SCENE, ON CIRCUITS ACROSS THE COUNTRY, THANKS IN PART TO THE RELEASE AND STAGGERING POPULARITY OF THE GENTLEMEN'S RACER, THE MARDAVE 'CATERHAM 7'. WITH THEIR INCREDIBLY LOW PRICE, IN COMPARISON WITH OTHER FORMULAS, MORE CLUBS ACROSS THE UK HAVE BEEN RUNNING THESE AT CLUB LEVEL. MOST ARE FINDING THAT THE V12 SERIES CARS ARE IDEALLY SUITED TO CIRCUIT RACING IN THE SMALLER VENUES ACROSS THE UK WHERE THERE IS INADEQUATE SPACE TO RUN 1/10 TOURING CARS. AS A BONUS DRIVERS ARE DISCOVERING THAT THEIR INHERENT STRENGTH AND SIMPLICITY, ALONG WITH THE KEEN PRICE OF THE KIT AND SPARES, HAS SUBSTANTIALLY REDUCED THEIR RUNNING COSTS WITHOUT DIMINISHING THE FUN AND EXCITEMENT OF COMPETITIVE RACING.



The new front-end sporting a cross brace for camber adjustments. My front arms are upside down to run smaller diameter front tyres, and I rounded off the front corners of the chassis plate

## Company Spotlight

Way before the BRCA was formed or RRCi began publishing, Mardave produced a range of 1/8th and 1/12th cars that people will always remember, starting with the first commercially available European car, the 1/8th nitro powered Matra Simca Formula 1 car which went on to win the first properly organised race meeting in the UK, held at Berk Hampstead in 1971. Competitors 'Lectricar Racing' sprang from a number of former Mardave employees that set-up their own company to just beat the first 1/12th electric BRM F1 and Lola Sport kits to market.

Mardave also built the first permanent radio controlled model car race circuit in 1972 at New Bridge in Leicester, promoting both oval and circuit racing in 1/12th and 1/8th scale. Mardave founder Wes Raynor had a long career in model race car design and manufacture beginning with slot car bodyshells back in the '60s, and after 20 years striving to manufacture cars and spares to keep up with demand, sold the Mardave company to one of his employees Lee Bishop, in order to pursue a dream of opening the 'Louis Scott' restaurant in Leicester. Wes has since gone back to his roots to reinvent slot car racing with a unique slot-less system with internally powered, radio controlled highly detailed 1/32nd model racing cars, whilst squeezing in the odd round of golf these days. Check out [www.magracing.co.uk](http://www.magracing.co.uk) to see his latest developments!

Mardave has flourished by offering robust, affordable cars that were competitive and with a level playing field the results were down to the driver's thumbs rather than the size of his wallet. Picking up the gauntlet from Wes, Lee Bishop ran the company for ten years before eventually selling the company to another Mardave enthusiast and then Hot Rod World Champion Chris Wilkinson in 2006. Chris had been involved with model car racing for around 40 years, so his knowledge and experience meant he was sure to provide an excellent service to his likeminded customers. Who better to understand the market than one of the exponents of the class?! Chris saw the opportunity to take the Mardave brand into the next millennium and we owe him a debt of thanks for keeping probably the oldest name in R/C manufacturing alive to this day. The majority of Mardave drivers are simply looking for a good day's racing and a less financially painful season, but through continual improvement we have seen an evolution of the machines through the years to the point where high profile race car drivers are taking a serious look at the class. The Mardave V12 is no longer exclusively an Oval banger but thanks to its heritage in the full contact arena we have a rugged chassis design as a basis for the latest range of 1/12th circuit cars.

### THE VRX

Chris Grainger, multi British Touring car champion, has been instrumental to the design of the new VRX and helped Chris Wilkinson with development and ideas based on his extensive knowledge of R/C dynamics. So when he turned up at Southampton and lapped the entire field three times with the new VRX everyone took notice of the new chassis. Mr Grainger was taken right back to his youth, when Chris Wilkinson first introduced Mr G to R/C cars, at his local Southampton club where he first got hooked on R/C. If it was good enough for Chris G we just had to try one, to see if evolution of the original V12 could deliver the thrills whilst keeping to a sensible racing budget.

Opening the box revealed a lot of very familiar parts and some new additions, most obviously the new blue anodised chassis with a huge VRX logo and a host of parts in a striking silver plastic as opposed to the previous black nylon. Would these new parts be any better, and how?

Having built various V12's before I knew that preparation is the key to a well handling and fast car. Possibly the most important job with any V12 is to ensure that the front suspension is as free as possible, time spent here will pay dividends in the long run. The new, hardened kin pins were duly polished in an electric drill, rubbed up with chrome cleaner on a rag until nice and shiny, for a smoother front suspension action and reduced stiction.

Along with the soft kit springs front and rear the VRX kit includes both medium (Silver) and hard (Matt Black) variations for you to fine tune the suspension to your desired balance of grip front to rear. Softer springs mean more grip, harder springs mean a flatter ride and reduced weight transfer as you turn in. Typically soft front and hard rear springs will give over steer, and hard fronts with soft rears will produce under steer, how you set it up to suit your driving style is entirely up to you. Start with the soft kit springs and work from there, changing one end at a time in order to achieve the perfect balance for the grip on the day, tyre choice and driving style.

Fitting the new silver moulded wishbones showed that they are made from the new harder material, as they required use of a 3 mm tap to get the screws started, and the new hex drive M3 dome headed screws made a great job of anchoring everything to the chassis plate whilst leaving the underside of the chassis a lot smoother than the old pan head screws, though obviously not as smooth as a countersunk chassis would offer, but the next best thing.

Steering parts were a great improvement over the original. Alloy turnbuckle steering rods are included that would benefit from a line to indicate the left hand threaded portions to make quick and simple adjustments that bit easier, but this was soon cut with a drill and saw blade, just a tiny nick (or arguably a marker pen), just so you know at a glance which is left and right handed threads. I then assembled the ball joints onto the turnbuckles and placed them in car line so the left threads were on the left of car centre. I always do that; it's just a good habit to learn!

Front-end with O-rings and washers beneath to get some castor. Kimbrough servo saver is kit supplied



A proper Kimbrough servo saver is included which removes all the slop in the steering by virtue of its tightly spring loaded internals, yet still offers sufficient protection to the servo gears in a shunt.

### TOP TIP

I pinched the ball cup with pliers once fitted, so that they swung on each ball joint under their own weight; any drag here will affect steering and make holding a straight line very difficult.

To allow for some rudimentary adjustment of camber, an adjustable bracing bar is fitted between the lower wishbones, allowing you to tilt the lower arms and induce a degree of camber to give a proper corner entry feeling that is so lacking in the previous Mardave front-end. By including O-rings below the arms the components are securely fixed yet able to pivot slightly, and the racers favourite modification of adding a washer below the front mount to induce some castor is now a standard part of the kit, so everyone can benefit from the improved mid corner feel that castor allows.

For a real steering improvement consider the optional alloy servo mount blocks which not only resist any cornering forces better, but tilt the servo back at an angle to improve the Ackerman effect throughout the steering range.

The motor pod is also moulded in the new high temperature silver material so the fixing screws need their holes tapping slightly to get the screws started. Most vital here is to ensure that the motor pod is built precisely square. This required a lot of detailed attention before finally tightening and securing the entire unit with superglue to stop it moving in use. New additions to the pod assembly are two droop adjustment screws, adding yet more chassis tuning possibilities, which along with the extra rigidity of the new rear pod allow for a much better balanced feel to the rear end of the car. Fitting the rear axle, gears and motor it was great to see no plastic bushes fitted, but instead some high spec ceramic axle bearings included, along with the new improved G2 motor. One little tip when building the chassis is to ensure that the rear pivot ball and rear location post are secured with threadlock as they are both renowned for coming loose at the most inconvenient moment.

QUICK MOD – I noticed the rear body mounts are located in the rearward chassis holes, but as the one hole falls on a crease it means



Below: All new high temperature mouldings offer multiple improvements

the body mount doesn't sit flat on the chassis plate, and it is so far forward it fouls the pod's lower plate. You have two choices to get a clearance, nibble away a bit of the lower pod deck and/or the body mounts themselves, or as I preferred to do, re drill some holes in the far corners of the plate to seat the body mounts properly on the deck. As I haven't drilled the holes in my bodyshell yet this is the best option for me, fitting the bodyshell to suit the new post locations. If the body mounts are allowed to foul the pod lower deck it will affect the handling badly by overriding the spring pre load and grub screw settings for sure.

Included in the kit is the same lexan battery tray and securing strap first used on the latest Mardave 7 Caterham model that we reviewed previously in RRCi so we knew this would be effective and reliable. For a speed controller we decided to fit the latest version of the Speedmaster V12 'R', as I'd seen Chris Wilkinson use to good effect at the last Mardave GP and the Autosports demo races. In a simple black box, it looks nothing flash with just a simple set-up button and twin colour LED to guide you through end point adjustment, so I was intrigued to see what it had to offer. This speedo has a tiny footprint



Above: Polish your hardened king pins for a better suspension action

Left: New 32 DP spur gear tooth form runs quieter, lighter optional pinions are more efficient and have numbers stamped on rear face



Above: Stiffer rear pod mouldings now sports droop grub screws and high speed ceramic axle bearings

**Below:** If using a lexan shell, protect that paint job with a front bumper!

**Right:** How do they pack so much in such a small box? By stacking it higher!

**Right:** Options available include a motor heat sink and new Speedmaster V12R' Speedo

**Right:** New range of Mardave rims offer ever more choice of style

**Above:** Three sets of springs, front and rear supplied for fine tuning

**Left:** Turnbuckle steering system supplied, I added rings to indicate left hand threaded sections

**Fully wired there's plenty of space on the chassis to keep it tidy**

and no heat sinks to worry about, so I just had to open it up to see how they did it. The triple decker PCB stores the brains above and the power FET's below on two separate levels, in a triple decker sandwich to allow air to circulate which keeps the footprint to just 30 x 45 mm so it will fit in almost anything. A 10T motor limit and a continuous 40 Amp capability means it will perform well within its optimum efficiency zone driving the BRCA legal G2 motor.

The V12R is an impressive little reversing speedo (reverse is recommended in the Mardave GP rules to minimise marshalling) that limits reverse to approx 60% to reduce collisions with other drivers by giving more feel when backing up in a hurry. The triple frequency drive system supplies maximum acceleration and optimum retardation when needed by juggling the FETS being utilised. The V12R can handle anything from 4 to 10 cells, and features a 1 Amp 5 V BEC supplying the radio and servos with power, so when selecting a steering servo be sure to look at the 4.8 V specs and not the usual 6 V spec. I selected the Scanner RC SSV-9866DMG which might seem a little over specified for a 1/12th Mardave but let me tell you, without a metal gear train you aren't guaranteed a race finish, and if you can't finish you can't win. The speed of the Scanner RC servo at 4.8 V is an impressive 0.11 sec to 60 degrees and the 6.4 kg-cm of torque available will handle any

cornering loads the Mardave can generate and maintain cornering accuracy, responding quickly to the helm to get me into corners and out of trouble in a blink. I would have fitted the slim line version to save space on the chassis plate, but with the V12R speedo and a tiny Spektrum receiver I didn't need to make that choice.

With no delay at all between forward and reverse, or vice versa, you can get out of trouble just as fast as you got into it. I found that the brakes operate over the first 50% of the reverse travel, after which the LED changes intensity and starts to glow brighter as reverse kicks in more and more. Judging the braking point before hitting enough reverse was tricky, and could spin the car out, but by limiting the brake end point on my DX3R Spektrum transmitter to 75% I found I could hit full brakes and not spin off. Adjusting that with my thumb throughout a race allowed me to dial it into perfection, but was affecting the amount of reverse available, so by the time I had the car under control on the brakes I had a very limited reverse speed indeed, but thankfully just enough to see me back away from a track marker before progressing.

I fitted four high voltage Reedy cells with Corally style gold tubes and cut the Tamiya connector from the Speedmaster V12R speed controller for maximum efficiency and minimum losses. I wired it carefully so that one wire is shorter than the other and I can never reach across to plug

it in backwards. I soldered it directly (we'll have no bullet connectors here!) to the new spec G2 motor included in the kit, having first run it on my Orion MPM in 'motor break in mode' to bed the brushes nicely into the commutator so that the first few races didn't burn the comm first time out. A nicely bedded brush is essential for good current flow and minimal arcing. The new spec G2 motor measured 12,450 rpm at a 1.7 Amp draw, far more impressive than the old spec G2 motor used previously, and apparently the construction and materials used maintain a longer working life so long as it is geared correctly; being a higher revving motor it likes to be geared slightly lower in order to pull properly without overheating.

Mardave recommend that the new G2 isn't water dipped or messed with in any way, simply recommending that you add a single drip of WD40 to the comm before each race, something I was sceptical of when I first heard it, but I'm totally convinced as I tried it for myself. Spot a Mardave racer in the pits and there will be a small can of WD40 hidden somewhere in his pit box, that appears just before each race. This speed secret is out, so you can leave the can of WD40 on the pit table in plain view because everyone does it now.

Fitting the optional 'G4 Worlds' motor heat sink I noticed I needed longer 14 mm M3 screws in order to get a decent sized washer under the screw heads and pass through both the motor mount and heat sink plate, so I chose some hex head cap bolts to keep the metric hex theme across the car for simpler maintenance.

After fitting the Spektrum radio gear and speed controller, attention turned to fitting a foam front bumper to protect the bodyshell. Having had a superb paint job by TelsShells in my favourite red and white scheme, I was glad to see Mardave have developed a range of bumpers to suit the lexan shells range, supplied with mounting bolts and chassis spacers, all you need do is drill chassis holes to suit.

### UP AND RUNNING

Mardave fan Ian Billett took the car trackside for its initial shake down for us.

*"With the V12 VRX built and running, it was off to a local club to test the car for the first time. Friday night meetings at Horsham are quite well attended with 1/10th touring cars, 1/12th scale circuit cars and V12's racing on a small technical carpet track. Smaller front diameter tyres off improved cornering so the front lower arms were inverted to get the ground clearance back, and the front springs were cut down from 12 mm to 10 mm for just a hint of droop rather than having the front suspension topped out like an oval driver might prefer. Adding a drip of thick diff oil or grease to the king pin sliders offered some dampening action and the same at the rear, where the pivot ball and the slide guide need lubricating. The rear springs were tensioned for a 1 mm droop under its own weight and the handling was transformed.*

*Initial testing felt good, and in the first round of qualifying it set the fastest time!*

*In its original home, the short circuit oval, the V12 VRX has the edge on the original V12, but on a circuit with a succession of left and right corners the car's ability to transition better from left to right and the chassis geometry choices available to the driver to tune the response to corner loads and weight transfer the VRX really comes into its own. Things to try would be removing the front cross link for a race, and then removing the O-rings and just bolting the front arms to the chassis solid to feel the difference the new design actually makes on track. The cross link helps the front stay planted and prevents the rear snatching round as it fights the solid rear axle."*

*Thanks Ian! Sounds like fun!*

*We'll find out just how good it is ourselves at the Mardave GP on September 21st, as I'm sure all the top drivers will be using this latest VRX version, and maybe we'll even see a few celebrities from other BRCA sections.*

*My thanks go to Ian Billett and Chris Wilkinson for their help with this review. RRCI*

### QUICK SPEC

**Class:** 1/12th 2WD  
**Electric On Road**  
**Type:** Self assembly chassis kit  
**Manufacturer:** Mardave  
**Price:** V12VRX **£89.99**  
 (V12 to VRX conversion Kit **£44.95**)

### REQUIRED AND RECOMMENDED

**Radio:** Spektrum DX3R  
**Servo:** Scanner RC SSV9866MG  
**Battery:** Reedy VMX4200 NiMH  
**Charger:** Eagle Racing CDC V6  
**Lexan Paint:** TelsShells

### OPTIONS FITTED

Speedmaster V12R ESC: **£59.95**  
 G4 Worlds Motor Heat Sink: **£17.95**  
 Front bumper

### DISLIKES

Rear body mounts on chassis crease  
 Front springs too long

### LIKES

Kimbrough servo saver  
 Alloy turnbuckles supplied  
 Simple design concept  
 Evolution of the species  
 Rugged and robust  
 Grassroots racing  
 Shells with scale appearance

### CONTACT

Visit [www.mardave.com](http://www.mardave.com)  
 or Tel: 01489 799163



**Left:** Back to my roots. The Mardave V12 has come full circle with the VRX