SERPENT COBRA 811 COMPETITION 1/8TH RALLY X KIT

WORDS: SPEEDY STEVE ALLEN IMAGES: SPEEDY STEVE ALLEN

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CAN YOU BE CHARMED BY A SNAKE?

QUICK SPEC

Manufacturer Serpent
Type Nitro Rally X Kit
Price £449.99 (excluding engine, exhaust, radio gear, wheels and tyres)
www.serpent.com

Scale 1/8th
Power 4WD Nitro
Length 470 mm
Width 300 mm
Wheelbase 322.5-327.5 mm

When I finished my last Nitro review for RRCi it really made me want to take things a big step further and go from bashing just for fun to a full season's serious racing with a buggy that I knew would be competitive and manufactured to a very high standard. With this in mind I felt really honoured to be offered the opportunity as part of the 30th Anniversary of RRCi to review the new Cobra 811 kit. As last month's magazine showed with the history article, Serpent aren't a new company in the world of R/C, they have been around almost as long as RRCi!

They don't just source products from a third party manufacturer and brand them as their own, or keep releasing the same car year after year just changing its name slightly. Serpent design, manufacture, race and continually develop everything in their range for optimal performance, durability and something not talked about often enough in these days of mass production... 'quality'.

RESEARCH FIRST, BUILD LATER...

As ever I was straight online to do some searching to see what people were saying about the 811, as it's been around now for just over three months. I was very happy to read how well people were doing with them, and with the Rally X Worlds in Thailand still fresh in everyone's mind, I was keen to see how well Serpent's buggy had handled the event against the best out there. Billy Easton, the Serpent Designer/Racer took an impressive 5th place in the hour-long final, although he was in 4th for most of the race, eventually dropped a place in the later stages as his tyres wore and struggled to maintain grip.

There had been early reports of the throttle servo getting too warm in its placement next to the engine but a new revised radio tray came out just in time for the Worlds and Serpent were glad to report that they had no servo issues during the whole meeting. A nice touch if you have already bought an 811, then go to the retailer that you bought it from and Serpent UK will send you the new radio tray FREE, yes FREE (always a plus! And shows Serpent's commitment to their customers, driver feedback and the continued development of all their products).

I believe that all the newer kits are now coming with the new trays as standard, but if you were an early adopter, I'm afraid to say there is one downside to the change, be it a very small one. In the old radio tray the battery was a stick style and on the new V2 tray it's now using a hump pack style. So although you have to go out and buy a new battery, it's not really the end of the world and I'm sure you won't complain. As this isn't an entry-level kit by any means, I'm sure you won't mind too much. I fell foul of this myself, as when I heard I was getting the Cobra 811 I immediately went out and first bought a stick pack. To then be told a week later the V2 tray was also on the way, and had to get a hump pack as well!

A NICE DISTRACTION

When the box turned up at my work I opened it and... well let's just say I didn't get much work done that day! Going through the parts I was very happy with the overall finish and quality of everything. It's as good if not better than a certain other European brand that I reviewed many cars for last year (yes it really is that good!) Finally getting home that evening I just had to get started on the build, although I had no engine, exhaust or servos at this time, at least I could build the rolling chassis up and get it ready.

Starting on the diff's, I had been trying to decide what oils to use and then after searching Serpent's website and various forums, found Billy's set-up sheet for Neo 2010, so thought I would go along those as a starting point for my set-up. The gear diff's go together nice and easily, but one thing I would note is to make sure you do the screws up nice and tight, I did find that if they weren't they would leak just a little. Both front and rear diff's were filled with 5000cst oil supplied in the kit and the centre was filled with 3000cst. With the diff's filled and butter smooth I was amazed at how physically light they were.

The next step in the build is the centre diff and brake assembly, which I have to say, was a little tricky at first to put together. A good tip is to use an M3 bolt and pre-thread the brake and plates assembly, otherwise it can be very awkward to get this together first time.

NOTE

If you are putting the V2 radio tray straight in, the plastic levers that are part of the brake assembly are different to the stock kit items, so swap them over! (Most people have found out, if you rush this job and don't swap these when going to the version 2 tray then you won't have any brakes!)

I really liked how the brake bias can be adjusted and fine-tuned, although it is a little tricky to actually get at with the V2 tray set-up! A simple clip-in spacer goes between the two brake levers and then to adjust the bias you can add thin spacers to move the braking forward or use the supplied shorter main link spacer then it can be adjusted more to the rear. Even now I'm still amazed at how simple but smart this is. No screws or Allen keys; just clip in and go test the effectiveness! A spur gear cover is also used as the top brace for the centre housing and this should hopefully mean less dirt is thrown around the inside of the shell and keep things clean. This is then all mounted onto again a deceptively light 3 mm, machined alloy chassis.

IT'S NO RATTLER

The next stage of the build is quite a large one. The whole rear diff housing, arms and shock tower in one fell swoop. Once you've built the rear axle and held it in place in the diff housing it's then a simple case of greasing up the diff gears and closing the two diff housing halves together, as the advert says... "Simples!"

A nice feature is that the shock tower (which is made from 4.5 mm carbon fibre) isn't just bolted on to the housing, but is integrated into the whole assembly too. It means that it is held far more rigidly and puts most of the load it undertakes in use much lower down, so is less susceptible to breakage. Something that made me really chuckle, and again shows how

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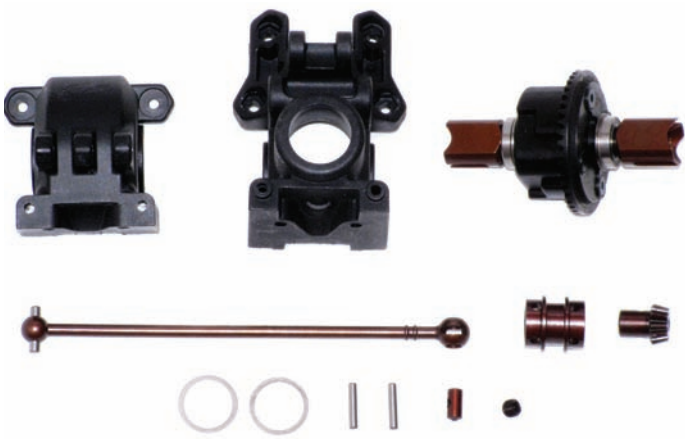
Above: *Front diff assembly ready for the build*

Above: *The front, centre and rear diff's assembled are deceptively light*



Above: *Rear gearbox and drive axle components laid bare...*

simple, but how smart Billy has designed this buggy, is the use of plastic nuts. I know this sounds madness on a 1/8th buggy, but when you look at the design and what loads are put on these nuts you realise nothing more is needed and a plus is you're saving weight, genius!

Again more smart thinking is using the rear pivot brace screws to hold the diff housing together as well as holding the brace itself. Smart thinking, and another example of how to keep the weight down but maintain all the functionality, it's done time after time with this kit. Again another detail that makes the Cobra stand out from the rest of the 1/8th buggies out there is that there are rear mudguards supplied as standard with the kit. Now over here in the UK where we run on grass and mud all year round these will be very handy to keep the rear axles and shocks nice and clean when the dirt is flying.

The rear axles are made out of a nice quality brown spring steel, and are 3.5 mm in diameter on the main shaft, so are lightweight and help reduce rotating mass and increase acceleration (always a plus!) Something that again really shows how much Serpent have thought about the design, is the fact that the sway bars are mounted in bearings so a relatively friction free movement is guaranteed when both arms are moving. I don't know how many other 1/8th buggies/truggies have this feature, but again it really is clever thinking.

The rear chassis brace is made out of plastic and gives just the right amount of flex. Bolting the rear end down is a simple case of 4x M4 x 12 screws for the main diff housing and 2x M3 x 12 for the brace. Both the front and rear hinge pin braces have locating pins that go into holes in the chassis, this is also a bonus as it takes the strain off the screws when involved in an impact so should hold together nicely even under the most demanding race conditions.

WHAT'S BUMP STEER?

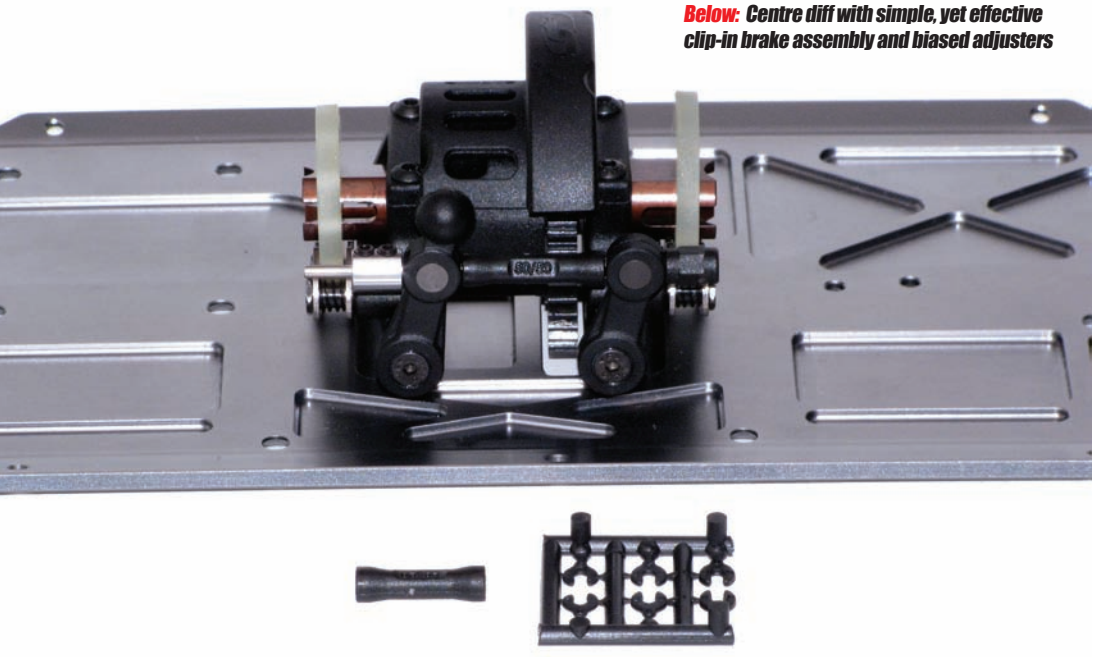
The whole front-end sub-assembly goes together in a very similar fashion with the main drive shaft from the centre diff being exactly the same length as the rear, so from that we can safely say the centre diff is perfectly centrally mounted!

The twin bell crank steering is angled back to reduce the difference in angle between the 10° of caster and the actual steering plane. This in turn reduces bump steer through the full range of travel of the suspension, which can only be a good thing with a buggy of this size as it's not going to be driven on the smoothest of surfaces. The two bell crank towers are braced by a 3.5 mm thick carbon fibre plate that fixes to the front diff housing, and also has a composite brace that then goes down to the chassis.

At this stage I had to jump a section in the manual as I didn't have the electrics yet or my chosen engine so it was straight onto the shocks. These have got to be the biggest shocks I've ever built, with a 16 mm body and a 4 mm shaft. I was a little disappointed in the fact it came with stainless shock shafts and not ultra smooth TiNi ones, (which are an option). But maybe that's me being used to seeing Nitrided shafts on most team spec or pro spec kits in the past? Looking into it, it seems that the idea of the larger O-rings in the shock bodies is supposed to put less pressure on the shaft and still give a great seal. It should still be smooth and silky in use, upon building the shocks up it was soon proven when I felt just how smooth they really were. If the system works why use nitrided versions? Only time will tell, but as with every other aspect of the kit, I'm 100% sure Serpent have done all their homework!

Of course as I do with all my shocks, a nice coating of Green Slime is applied to the O-rings to just help the build and get them smooth and sealed. Piston

Below: *Centre diff with simple, yet effective clip-in brake assembly and biased adjusters*



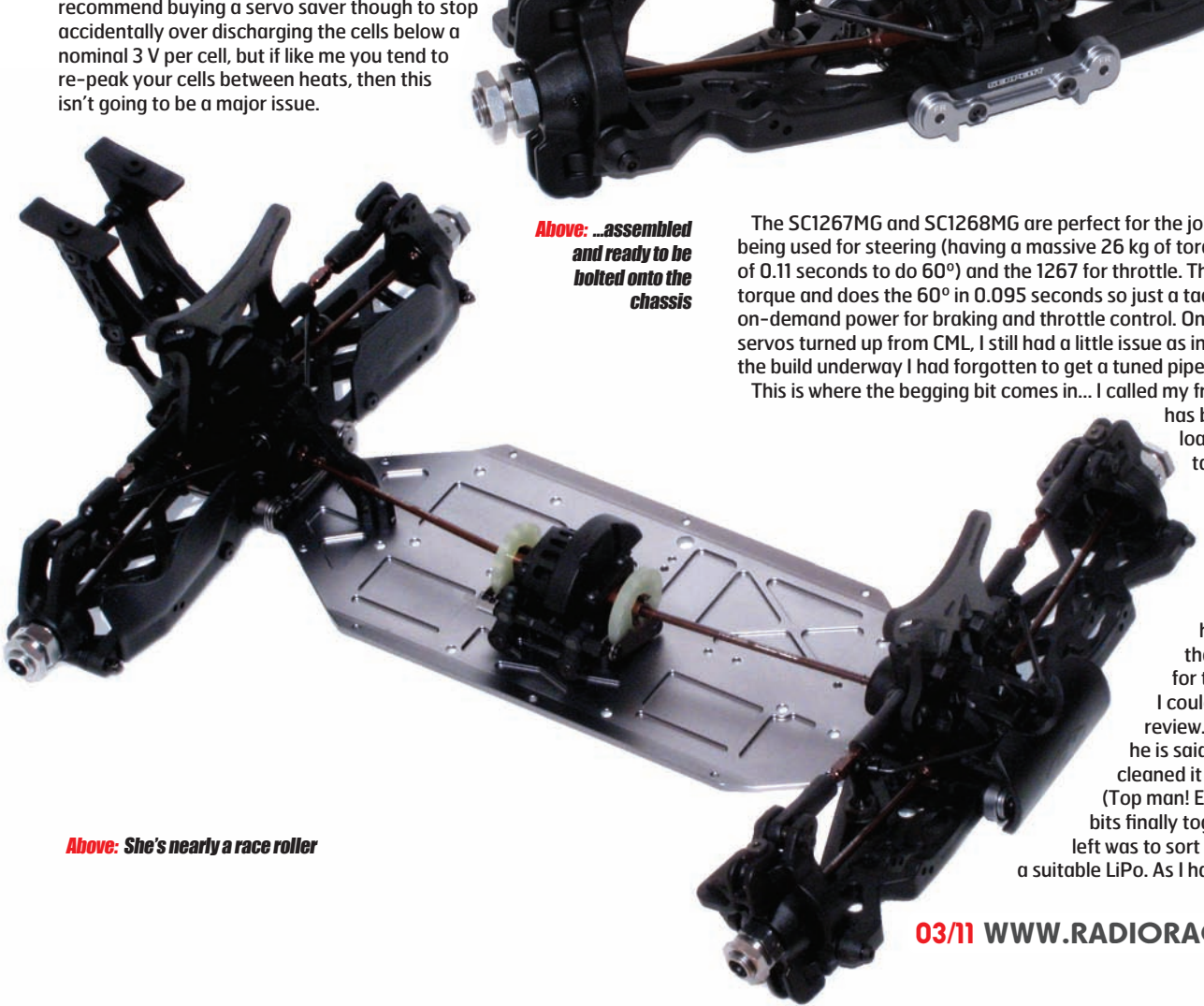
wise you get four choices in size ranging from 6x 1.1 mm holes to 6x 1.4 for the fronts, I went for 1.4's and the rears 1.2 and then filled the fronts with 30wt oil and the rears with 25wt. Putting the caps on and bleeding them was a breeze. A tip is to always put too much oil in so it squirts out otherwise you can get air in them and have to rebuild them over again. Nice rubber boots are also supplied to keep dirt off the shock shafts, and they also include a built-in bump stop, so doing two jobs in one. The supplied springs are the softest Serpent do with 4.8 lb on the fronts and 2.8 lb in the rears. With the springs in place you put the spring buckets in to hold them in place, nothing new about that, but the rod end has a locator on it which helps hold the bucket in place... very clever! The buckets also have holes in to reduce weight and also to help any dirt fall straight through.

Above: *Frontal components ready for assembly...*

BEG, STEAL OR BORROW?

After a call from the ED, I was told a sample of the new Picco .21 Eco 6 port engine was winging its way to me from CML, designed as the perfect upgrade for a RTR or as a cost conscious alternative for your first true race spec power plant. It was up to me to sort out what servos I wanted to use, so with LiPo's being used more and more with Nitro's as receiver packs I just had to go this way. A quick phone call to CML and a nominal deduction from my bank balance later (there's the steal!) I was now the proud owner of a pair of the new Savöx LiPo ready servos. They are capable of being run at 7.4 V directly off a LiPo pack, without the need of a regulator. I would still recommend buying a servo saver though to stop accidentally over discharging the cells below a nominal 3 V per cell, but if like me you tend to re-peak your cells between heats, then this isn't going to be a major issue.

Above: *...assembled and ready to be bolted onto the chassis*

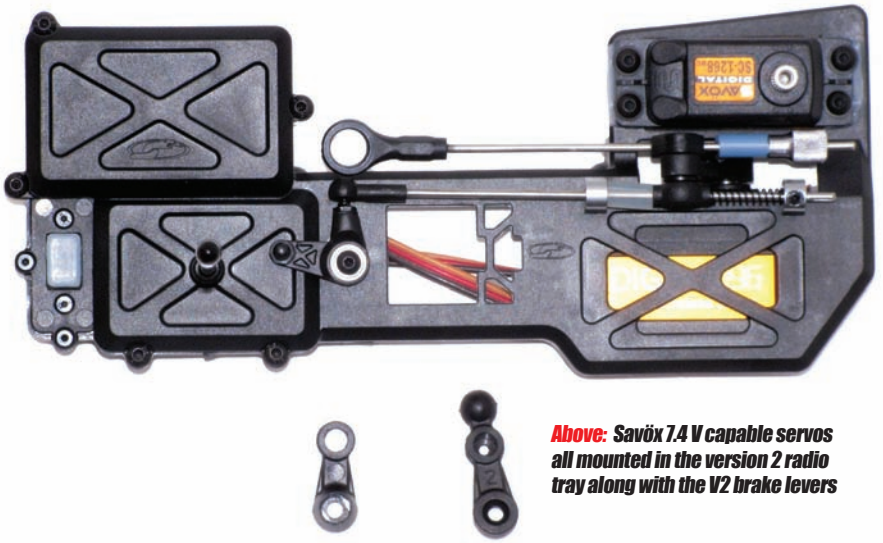


Above: *She's nearly a race roller*

The SC1267MG and SC1268MG are perfect for the job with the 1268 being used for steering (having a massive 26 kg of torque and a speed of 0.11 seconds to do 60°) and the 1267 for throttle. This has 21 kg of torque and does the 60° in 0.095 seconds so just a tad faster and bags of on-demand power for braking and throttle control. Once the engine and servos turned up from CML, I still had a little issue as in my haste to get the build underway I had forgotten to get a tuned pipe!

This is where the begging bit comes in... I called my friend James who has been helping me loads recently when taking my review photos and driving the cars (it is very difficult to drive and hold a camera at the same time!) I knew he had a spare pipe that would be perfect for the job and asked if I could borrow it for the review. The kind man that he is said yes and he'd even cleaned it for the photos! (Top man! ED). So with all these bits finally together all that was left was to sort wheels, tyres and a suitable LiPo. As I have previously said

Below: Shocks laid out and ready to be built



Above: Savöx 7.4 V capable servos all mounted in the version 2 radio tray along with the V2 brake levers

Below: Completed shocks with rubber boots to keep shafts clean

I ended up buying both a stick 2400 mAh and a hump style LRP 2500 mAh LiPo. If you are going LiPo yourself I would recommend these larger capacity packs as in testing they lasted far longer in comparison to my older NiMH 5-cell humps, and gave a steady power delivery throughout without the tail off associated with NiMH cells.

PICCO TIME!

Finally I got to fit the engine. The first stage was assembling the 4-shoe clutch, the springs supplied from Serpent were medium, with a soft, hard and X-hard being also available to help you tune the clutch feel. I was a little confused by the picture they have put in the manual, but after a little head scratching it soon went together and was being bolted on the Picco engine. Once fitted loosely it was nice and easy to set the gear mesh, and making sure I thread locked everything metal to metal to ensure nothing rattled loose during testing!

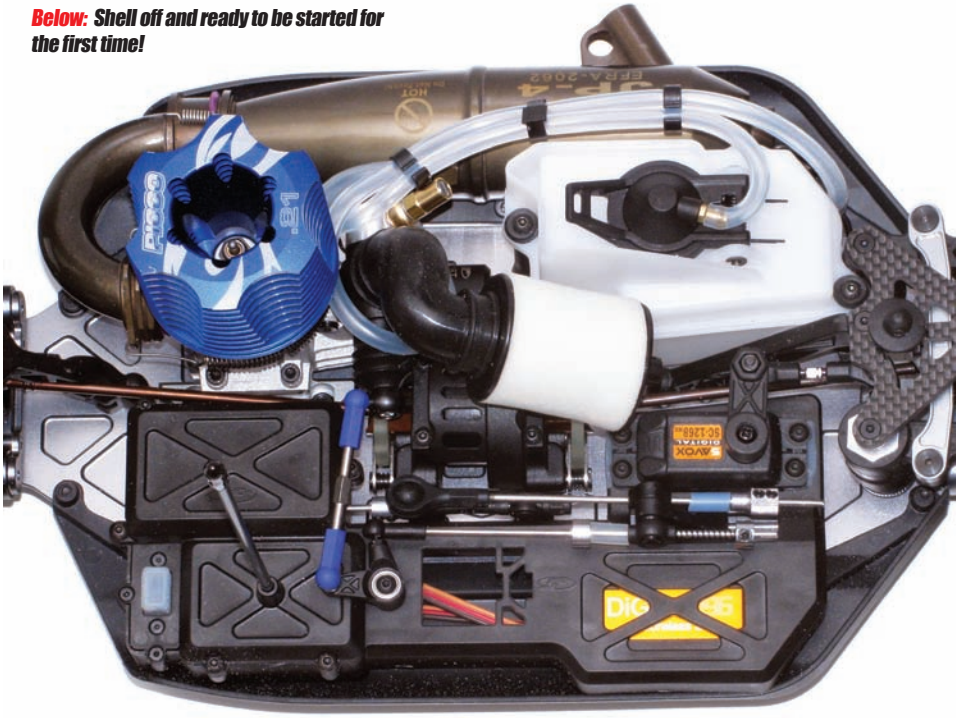
Next up was the radio tray and fitting the servos, now I could have put in the version 1 tray and tried both but with the guys at Serpent having good results at the Worlds with the V2 it made sense to go straight for this one. A bag with all the parts needed for the new tray was opened and it quickly went together. The only real niggle I had was on the mounts for the throttle servo, on the Savöx servo the cable comes out a little higher up the side than on most, so this meant it was catching on the mount and wouldn't fit. A little trimming with my trusty Dremel and all is good with the world. This did mean however that three bolts only held in the servo. This isn't a problem as my comp rock crawler's servos have far more power and deal with higher loads and these are only held by two! So I wasn't overly worried.

A great thing about the radio tray is it has a mounting for a Personal Transponder. Now me being me, I was using a Spektrum SR3500 micro receiver so I could get my new smaller footprint PT inside the receiver box with it and not worry about it getting dirty or wet. The final thing to do before I could run the engine in was fitting the tank. This is 125 cc in size and has some nice little design features. Firstly the nipple at the bottom of the tank swivels so it helps with the running of the fuel line to the carb. Also on the other side (still in the tank) there is a length of fuel tube and then a brass filter. The idea is if you roll over and the buggy is inverted the filter can fall into the fuel and should keep the engine fed and going for longer without having to have masses of fuel tube running around the buggy.

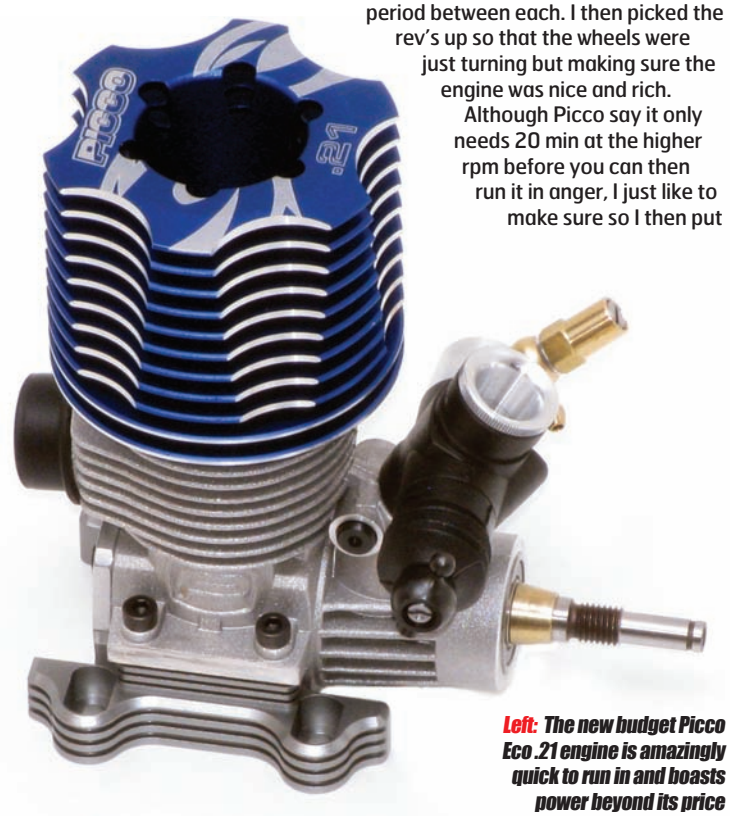
With the buggy built it was time to get the engine run in and ready for the track. I used Byron Race Gen2 25% Nitro and filled the tank up for the first time. A quick blow down the pressure side of the fuel tubing and I saw fuel flowing to the carb. Tubing replaced it was time to drop the Cobra onto my new SMD Evolution starter box to which I had opted to put a 7 Ah

> "I left the Picco on the lowest idle I could without it stalling and ran three tanks through it with a cooling period between each. I then picked the rev's up so that the wheels were just turning but making sure the engine was nice and rich"

Below: Shell off and ready to be started for the first time!



12 V drycell in (just to make sure I had enough power to start the 811). This starter box is a monster and had the engine fired straight away with no problems. I left the Picco on the lowest idle I could without it stalling and ran three tanks through it with a cooling period between each. I then picked the rev's up so that the wheels were just turning but making sure the engine was nice and rich. Although Picco say it only needs 20 min at the higher rpm before you can then run it in anger, I just like to make sure so I then put another two tanks at this slightly higher rpm. While I was doing this I decided to paint up the shell in pearl purple, fluorescent orange and pearl white which I have to say turned out better than I thought, so much so I'm keeping those colours for all my 2011 race cars.



Left: *The new budget Picco Eco .21 engine is amazingly quick to run in and boasts power beyond its price*

FORGET THE ANTIDOTE...

With the engine run in, the body painted and all my batteries charged it was time to hit the track. Picking up James we headed for Coventry to see just how well the Cobra 811 handled some wet, cold Astro. First things first, I let the engine warm up properly so I left it running while we walked the track to see if there were any really wet spots. A couple of puddles and some snow still on the sides of the track would make things interesting so with that in mind I went for Schumacher Spirals in yellow compound as my first tyre choice of 2011! OK, I would have gone with Silvers but couldn't find any to buy in the period between Xmas and New Year so went with the yellows.

First couple of laps I handed the remote over to James, we both noticed how strong the brakes were, it was amazing at the stopping power so I dialled out a bit of travel in the transmitter and started taking some lap times. I was surprised at how much grip the yellows had with it being so wet, but was just a little too loose on some corners. After playing my favourite game of 'hunt the wheel nut' when my front wheel shot off at a rate of knots, we decided to put on a set of HoBao Angle Spikes. These have a very similar tread pattern but are quite a bit softer and wow! Now we had some real grip!

If you really pushed it and got on the power too early you could get it to spin. We were both amazed at how well planted and stable the 811 was, I've run everything from RTR to full team kits since being involved with RRCi, and this was head and shoulders above the rest, it was fantastic. With another couple of tanks through the engine we started to tune it a little more and get a bit more power lap after lap. We were still running a little rich and with the supplied venturi we got just under eight minutes out of each tank. After a little more tuning that should improve and end up around the nine-minute mark. For such a fresh engine it was brilliant how well it performed and more importantly, how it would start so easily. The pick up was still a little slow but I was keeping it rich, as I want this engine to last me at least the next year's racing if I can, so more tuning will be done over time and at my first official race meeting.

POP AND THEN SOME...

Even at the beginning of the day I was able to clear the massive CMCC double without any problems. I even managed a few wheelies after the landing and getting back on the power, now this showed me two things: The engine was producing bags of torque and

Above: *Cleanly taking the double with ease, time after time...*

the tyres were generating loads of grip, a great combination for racing!

It was now time to put it up against another car so James fired up his with a fairly fresh 7-port race spec engine in and we set about playing cat and mouse lap after lap. I didn't think at this stage I would be anywhere near him, and for years when we raced he was always the faster of the two of us, but I was really happy to be right on his tale straight from the off. After a few laps I settled in and started dicing with him, then cutting inside to take the lead. I kept it in front until I got too eager on the power out of a corner and spun her around on a damp section. Now normally I would have thought that would be it and I wouldn't be able to catch up but there is something about this buggy that gives me so much confidence to push it harder and take tighter lines and it not spit me out.

I did start making some minor changes but to be truthful it was so good using the set-up sheet from the Serpent website I felt most actually had a detrimental affect, it really was that good. I had such a huge smile on my face, it has really put off road racing firmly back into my life and shown me the fun I have been missing out on since it took a back seat a few years back. I didn't want to go home and every time I ran out of fuel it was straight back in, a re-peak of my pack, refuel, start and back out for more of the same! I can safely say I will be getting out to as many Nitro meetings as I can with this buggy in 2011, I have even got the all clear from my better half (as it's now in writing, it's legally binding!)

WEAR AND TEAR? NAH...

After running for most of the day I was happy to just come back with a slightly broken wing from a large tumble when I got fully sideways while trying to take the double and barrel rolled down the track. This hadn't affected the car so I had just carried on practicing. So with the Cobra 811 back home it was time for a clean and make sure everything was OK. A brush and blow over with my airline and I was amazed at how clean it had stayed. Getting the LRP LiPo out and charging it I was shocked that I had only used just under 1000 mAh on average for each full hour of use, so should do a full race meeting and more on one charge, awesome!

So if you couldn't already tell I think the Serpent is by far the best performing Rally X I have ever driven. When combined with the new entry-level and affordable Picco engine, you have a combination that will easily compete at national level let alone at club meetings. If you are looking

Left: *Sitting on my new SMD starter box ready for the off!*

"Getting the LRP LiPo out and charging it I was shocked that I had only used just under 1000 mAh on average for each full hour of use, so should do a full race meeting and more on one charge, awesome!"

at going to the next level from RTR and want a proper PRO spec Rally X, look no further than the Serpent Cobra 811, you will not be disappointed. The Picco Eco .21 is up there with some much more expensive engines, the one I was racing against during testing is over double the price! So it just goes to show the hobby has never been as affordable as it is now, in fact I really feel that as it's growing in popularity again, it gets cheaper every day!

The Savöx servos worked flawlessly with no sign of any heat issues, I really think this is a great combination of components married to a really well designed car. The only real dislike I have for this whole review is that instructions were a little hard to understand at times, and I'm no stranger to weird and wonderful instructions, I've built kits by most manufacturers out there and I service medical lasers for a living! Now you want to read some of their instructional manuals!

But then if that's all I have negative to say then it really just says I'm struggling to find anything bad to say at all! The quality of the parts and machining is definitely up there with the best. My friend James was that impressed that even with just a few laps of him driving it with a pistol transmitter (he's usually a stick man) he was well and truly bitten by the Cobra and now wants one himself! Good luck explaining that to the soon to be wife mate, I just hope she doesn't read this! I really can't wait to get back out on the track with it, and I've not felt like that in ages.
A big thank you goes out to Serpent UK for supplying the kit, CML for the excellent Picco engine, Billy Easton and Serpent themselves for developing a truly world-class Rally X buggy, the only snake I've ever wanted to get bitten by! ***RRCi***

Below: ***Yes that really is a wheelie after landing in wet, snowy conditions***

TECHNICAL SPEC

USED TO COMPLETE
Savöx SC-1268MG high voltage servo
Savöx SC-1267MG high voltage servo
Spektrum SR3500 receiver
Byron Race Gen2 Fuel 25%
Jammin JP-4 tuned pipe
Picco Eco.21 engine
DX3R transmitter

LIKES
World-class design and development
Big bore, super smooth shocks
Innovative features throughout
Quality of all materials used
Fuel tank filter design

DISLIKES
Instructions could be clearer

CONTACT
www.serpent.com