

## Baja King (Tamiya #58301) Mods



Actually, having titled this Baja King, many of these may well be applicable to other cars, both 2x4 and 4x4, electric as well as nitro buggies, but the Baja King is what I've got so that's what they're based on. Now don't upset yourself Mr

Tamiya, this is great kit straight out of the box: fast, sturdy and a heap of fun and I wish I'd thought of it. I didn't though, but I did think I could make it just a little better...

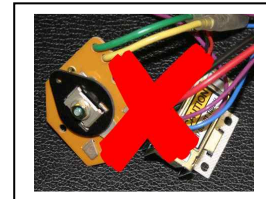
### ESC...

Electronic Speed controller to you and me. The supplied mechanical controller is OK to get



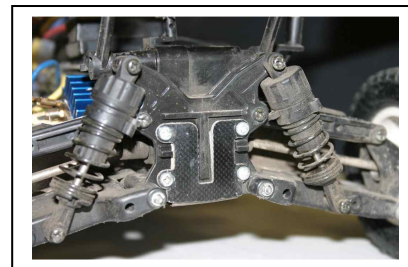
you going, but an ESC is far, far better. Really, it is. Yes, I know it costs a bit, but a cheapy is not really that much. I got a 20 turn controller, fully sealed (ie waterproof). **(Order code: MTECO20)** The turns thing is all about what sort of motor you have. Most standard kit motors are 27 turn units. The golden rule here is don't use a controller with a higher turn rating than your motor. Twenty turn ESC + 23 turn motor=OK but 23 turn ESC + 20 turn motor=smoke and as we all know, all

electrical and electronic things run on smoke: if you let the smoke out, they won't work anymore! An ESC increases your battery life, improves your running time slightly and gives you infinitely fine speed control through the whole forwards range. Some ESC's don't let you go backwards – if you do a lot of reversing, check before you buy! One last thing, which foxed me for a while. A decent ESC whines when you use it, quite loudly actually. This is normal! Something to do with the clever bits inside it or something, I don't know, but don't panic – it is meant to do this!



### Shocks...

Not the electric sort (at least I hope not!), but the damping sort. The kit came with friction dampers, which were OK I guess, but the oil filled replacements were brilliant in comparison. Suddenly I had real damping, which worked, instead of real looking dampers which didn't.



### Motor...

The standard 540 was pretty blooming fast as far as I was concerned, being used to a 380 on an ancient (20+ yrs old Subaru Brat 2WD). But after a while I began to crave more speed. Having already fitted a 20 turn ESC, I decided on a 20 turn motor, but was persuaded to go for 23 turn instead. Why? If you use a 20 turn motor on a 4WD buggy with grippy tyres with a 20 turn ESC, you'll be using the ESC right at it's limit – give it a break, it'll last longer before it fries! The 23 turn motor? Straight into a pallet of steel, snapped both front shocks, so yes, it did go faster!

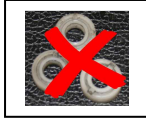
### Pinions...



Little silvery gear on the motor shaft, yeah? I tried them all and I have to say that with the 23 turn motor I'm back to the kit supplied 19 tooth. The 21 tooth did give a higher top end, but acceleration wasn't as sharp and I only race

around a short-straight technical course for which I need acceleration more than ultimate speed. Basically, the bigger the pinion, the slower the acceleration but greater top end speed for any given motor/controller. I guess if I went for an unlimited ESC, 11 or 8 turn specialist motor and 22 or 23 tooth pinion I'd have a pretty quick buggy, but then again, I'd most likely end up with a shovel full of plastic which used to be a pretty quick buggy!

### Balls...



I mean ball bearings, obviously! If you haven't done this yet on yours, do it. It really is worth it: it runs smoother, faster and lasts longer with no grit and sand rapidly wearing those white nylon bushes away.

### Diffs...

Diffs? So what? So quite a lot I reckon. The King comes with a pair of ordinary gear diffs front and rear and there's nothing wrong with them. However, I drive/race/play mostly on a dusty concrete floor (factory) or on gravelly and sandy concrete (waste ground). Both these surfaces are very slippery, affording little traction leading to lots of wheel spin. I replaced both the original gear diffs with ball diffs as the latter offer a limited slip type action. In practice what this means is that all four wheels spin, rather than just one side leading to you ending up pointing not in the direction you were planning! I haven't tried a ball diff at the rear and a gear diff at the front, but I plan to as soon as I get time to strip it all apart because I reckon such a set-up might give sharper cornering under power.

### Tyres...



Those pin spike affairs are certainly OK, especially if you like buying tyres! Admittedly, I run mine on dusty concrete, gravel and tarmac, but I found I could wear a set of tyres out in about 8 hrs (say 2 weeks of lunchtime bashes). I searched all over and found several possibilities, but most were too big, too wide, wouldn't fit Tamiya's hex drives etc. Then I found the tyres off Tamiya's Blazing Star (#58204) amongst others. The code is 9805561 for a pair. They fit standard touring car type rims (I've got Focus ones, code 51021 for a set of 4). They are very hard

wearing, give good levels of grip while allowing the back end to break away quite controllably and they actually have a realistic tread pattern, which doesn't really matter, but I kind of like that.

### Protection...

I'd got it going faster and smoother with good acceleration and great ground riding, but after a blast around some waste ground close to work (gravel etc) I noticed the rear half shafts: aaarrgh! They were all pitted and dinged. Not only that but the bottom of the chassis was deeply gouged and the ends of the cross mounted battery pack were shredded – something had to be done...



The half shafts were easy: two small pieces of ali cut and filed to shape were screwed to the front of the lower wishbones. Be careful to allow enough clearance for the suspension movement – I did the second time!

As for the rest, I went for a full length belly plate. I used a piece of paper laid over the underside of the chassis and pressed it down along all the edges

etc, then pencilled in all the creases. I added some width to the plate behind the front wheels to cover the ends of the battery pack, another bit to protect the motor (I'd already managed to snap off



the little plastic motor protection piece!), then cut it all out. I then trimmed it here and there until I was happy, then traced that onto a cereal box (Good old Blue Peter eh?) and produced



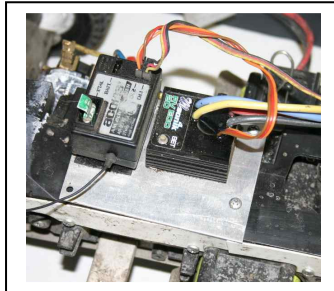
a cardboard one. I could fold bits of this as required to check everything and when I was happy, flatten it all out and trace that onto the final belly plate, a piece of 1.5mm thick ali sheet. It worked brilliantly too. Yeah, I know it adds a bit of weight, but you do save on batteries and motors, and chassis for that matter. To fix it in place, I bolted mine through the front bumper and clamped the rear behind that odd bit of carbon look alike (maybe it is real, I dunno!) stuff at the rear. I later added another

couple of countersunk fittings on the underside just for good measure. My latest belly plate is actually 0.5mm thick titanium sheet, which I just happened to come across for the right price (ie free!) and that is even better as it sparks brilliantly (excuse the pun!) on a heavy landing on tarmac!

I really don't like the idea of the exposed prop shaft on this model and mine regularly picked up all sorts of bits of grit which began to damage the shaft. Some thin plastic sheet cut to shape and screwed into place solved that problem. I used more of this sheet to cover up several more holes in the chassis to stop it from filling up with grit and sand.

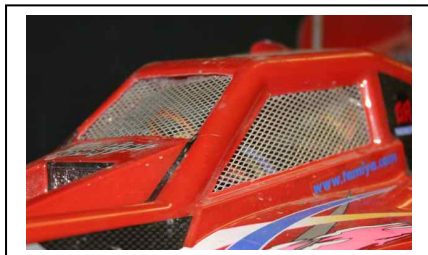
### Cooling...

A couple of key items on any electric car get hot: the motor and the ESC. Most ESC's are fitted with a perfectly good heat sink (metal bit, often finned).



Mine was, but mine now sits on a piece of thin ali plate screwed to the top of the chassis. The ali plate provides a larger heat loss area and also acts as a convenient place for the RX to go as well. Mounting the ESC and RX up high means that you won't fry either of these if you find (as I seem to have a knack for) deeper than you thought puddles! The 2 units sit up inside the cockpit part of the body. To provide a little more cooling, I cut out the windscreen, side and rear windows and glued in some very fine ali mesh (Halfords or

similar, car body repair section). This allows air through but keeps out the bigger stuff...like rocks! It doesn't, of course, keep out any water but you can't have everything. It also doesn't



keep out sharp bits of steel very well as the second pic shows! Teach me to go too wide on a corner, won't it – ouch!

The motor will get hot, if it doesn't you're not trying hard enough! Part of the motor can stick out the side of the car, but my belly plate has a little lip to protect the motor from the worst of the flying debris off the front tyres, so I got a motor heat sink which I cut down and clipped on. I assume it works OK as the heat sink gets hot, so it must be losing heat to the air. I might try and cut the body to put an air duct in to further aid the cooling as a cooler motor is a faster motor, but then again I go plenty fast enough as it is and nothing's caught fire yet.



**Wings...**

The supplied wing on the Baja King is just asking to be ripped off in seconds, or it is with my driving style, which seems to involve quite a lot of skidding along upside down! I had a bit of that titanium sheet left, so I folded up one, about the same size (I doubt that it has much aerodynamic effect) and fitted it. I have no idea how good it is, but I do know that it hasn't come off yet!

**Other stuff...**

Don't use double sided tape to mount anything at all, ever. Understand? You will, stick (bad pun, sorry) with me. Use sticky backed velcro instead. You can buy it in car bits stores like Halfords or similar. Its brilliant: whatever you want held in place is held in place – until you want to take it off, when you can, easily, and stick it straight back again too, even wet and muddy. I use it to hold the RX in place, but not the ESC. My ESC has the heat sink on the base and is bolted through onto the ali plate with some heat sink compound (Maplins, RS, etc) between for better heat transfer.

I'm not trying to say that any of these things will make your car into a world beater: some are pretty obvious, eg ball bearings, some are personal preference eg belly plate. I may well be entirely wrong (though it is unlikely!) about some of the things, but there you go, that's life I guess. All I'm saying is that this is what I've done to my car, for better (Of course!) or for worse (Never!).

*I guess I should point out that all trade names and trademarks used in this waffle belong to their respective owners etc and that the views and opinions expressed in this babble, though absolutely right in every way, may not be those of Time Tunnel, GoldStarStockists and so on!*

**Mike Gardiner**