

## Thoughts on 944 Spec Rules

Posted by loftygoals - 10 Nov 2012 23:56

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Let me first say that I am not currently a 944 Spec owner. I do think it is the finest spec racing class, around. I sold my car earlier this year because my focus shifted from driver development, which 944 Spec is great for, to car development which has no place in the series.

I do continue to support a lot of the 944 Spec racers in the Texas region and want to see the series continue to grow and prosper. When my focus shifts again, I fully expect that I will return to 944 Spec.

One thing I feel this series does really well is controlling the costs of racing. The cars are cheap and the consumables low. It's crazy, but I can build a nationally competitive 944 Spec car cheaper than I can a nationally competitive ChumpCar!

So here are my thoughts. I'm posting them here instead of the new rules thread, because I'm not suggesting rules changes, just my thoughts and opinions.

### 1. The HP Cap

I had to think about this a bit. I have and could all day build spec motors that are class legal that would make well over 140hp. But, what's the point? I'd rather see this class stick to what it is good at--fun, cheap, racing on a level playing field.

Anyone can throw together a motor that makes 138ish. A fresh head gasket, a compression ratio that is close to the limit, and decent AFRs are all it takes. If someone gets lucky, a motor assembled like this will make 140--which is still legal from my reading of the new rule (138 +2).

Keeping the class from becoming one where you have to have a pro motor to win is important. I know it isn't there yet, but it very well could have become that way if changes weren't made now.

Policing this is what sucks. Eric has done a great job with coming up with a methodology that is sound and repeatable. Is it perfect--nope. Could it be perfect--nope. Will it stop cheaters from cheating--nope. But it does make a strong statement about what this class is about--YES. Great job, Eric!

### 2. Tires

I'm happy the RR won't need to be shaved. I'm also happy with Toyo's support of the class.

What I don't like is having separate completely different rain tire. Despite my hatred of the RA1, it was great in this regard. I only needed 4 race tires and 4 rains. If I killed or flat spotted a dry tire I could run a rain. When my rains were getting old, I could shave them and have dries. I hated shaving, but at least it made sense.

Now what would I do? Take take 6 rains and 6 dries? I don't know.

Honestly, from a low cost perspective the best tire for the class is the R888. I know everyone hated them, but they don't need to be shaved, are still low cost, and would keep it to one tire for the class. I'm also convinced that the problem with the R888 was the size, not the tire.

Which brings me to my biggest point of frustration--the 255/50-15 tire size. Why can't we be like the other spec classes and run the 205/50-15? If we all used the same tire in the same size it would lower costs. It would also make it easier to find tires in a pinch. Most of the tire warehouses stock 205/50-15, but very few have 225/50-15. If I needed a tire at the track, I could also get one from a SM or SE30 if none of the 944 guys had an extra.

Additionally, a 205 is a better size for our rims. A 225 on a 7" wheel is pinched. These cars feel better with a 205 on them. I think if we would have run the R888 in a 205, we would have been much happier with them.

No matter what tire is run, a 205 is the most cost effective size. The R888 is the most cost effective tire.

### **3. Suspension**

I could write a book on early vs. late offset, but that's not where I'm going to go. My biggest gripe about these cars is the shock/spring package.

Torsion bars suck! I've never heard anyone say, "I love the torsion bars on my 944." When I talk to new guys wanting to build cars, they are scared of them. They are a PITA to index. I don't even like doing it when I get paid to do it. My business partner at the shop wants to stop working on 944 so we don't have to do torsion bars any more. I had a customer tow his car over 3 hours to me because I was the closest shop that would do it. The guy that bought my 944 spec car wanted to change the ride height. The shop he took it to is known for setting up race cars. They battled the torsion bars, even after

I gave the shop advice and pointed them to the articles on this website.

Also why are we running street shocks? Koni Sports are fine shocks--for the street. They don't belong on a race car. Bilsteins are great too, but they need to be revalved to be a good race shock.

Why not run a rear suspension package that includes a coilover rear shock and real adjustability? Then torsion bars could be eliminated and we could have a better suspension package overall. This becomes even more true when you look at the cost of the Spec suspension. For the same money you could have true coilover kit made.

Speaking of money, it's not cheap to have the torsion bars replace and/or reindexed. I guess the price is right if you do the work yourself, but not everyone has the room, time, and/or talent to do it themselves. It adds a lot of costs to the build if you have to have someone else do it. Removing the torsion bars and replacing the rear shocks with coilovers is much easier.

Of course the problem with a suspension change is the investment that current racers have in the kit. I don't have a good answer for this, but I do think that better suspension would make the cars more attractive to potential new racers and more fun to drive.

-bj

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## Re: Thoughts on 944 Spec Rules

Posted by joeblow - 11 Nov 2012 08:16

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I agree with 1, and 3 not having run any of the tires I cant comment on 2.

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## Re: Thoughts on 944 Spec Rules

Posted by rd7839 - 11 Nov 2012 09:06

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Boy you make some great points. I always wondered why we run a different size tire. Maybe that's something we should look into for next season. I know the front running spec miazda's will run very few heat cycles on tires and then get rid of them for cheap. They would still be good for us so I think that's a good idea.

I also liked the r888's but to be fair I wasn't going as fast as those who wore them out but isn't that a NASA decision made with Toyo? Toyo is very good to us with contingencies and pricing so I'm not sure we should make a stink about the new tires unless they wear too fast(plus it doesn't rain that often here so I mostly never have rain tires on the trailer).

If there is a low priced, good quality coil over package for our cars I'd be all for it.

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## Re: Thoughts on 944 Spec Rules

Posted by Big Dog - 11 Nov 2012 13:09

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#1 - No comment

#2 - I do not know about the appropriate sizing of the tire for our rims but have heard this before. As long as we are on the same tire (RR's), I do not care about the size. If 205's are less expensive and they last as long as a 225, fine with me

#3 - I, personally would be fine with this change. Make it an option, not a requirement though.

As for what shock, it would make sense to try to find a better shock, the problem is what a suitable shock is and what would the price be. It would need to have shocks that work for the early suspension (the nut) and the late suspension (the bottom bolt). That can be investigated for next year's rule change period. Of course, allow the current shocks for a year or two so they can be used up.

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## Re: Thoughts on 944 Spec Rules

Posted by Sterling Doc - 11 Nov 2012 13:37

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BJ, as always, good thoughts, even if you are stirring up trouble! You comment on 944 Spec vs. Chumpcar is telling, and very interesting!

1. You summed up the HP cap well, and this is especially appreciated given that your business is in part building motors, and could benefit from guys wanting motors done with your expertise.

2. I tested some 205/50/15 RA-1's on my car a couple of years ago during the Tsunami aftermath. They were a little slower but not not much. I'm sure a 205 RR would be faster than a 225 RA-1. Wear was a little faster, though this is offset by the cheaper cost. I didn't feel that they drove better than the 225's, though.

So why not 205's? Of the spec classes, we're are the only ones that had >205 tires OEM, and standard. Both SM's, and SE30's were built around standard 14" rims, so the 15's are an upgrade. 944's have room for 285 Hoosiers all around, without any modifications (try that on a Spec Miata, or SE30!). Put 205/50's in our giant wheel wells and flares, and they look absolutely lost. The 225's are dinky enough, but at least still look something like a race car. It seems like a silly reason, but there comes a point where the cars look ridiculous enough that it's hard to attract new people.

As far as rim width, the 225 RR was specifically built for our class, and the 7" rim. Toyo's Specs rate the 225 for rim widths from 6" to 8". If you look at the sidewall, it is a bit different than the RA-1, allowing the sidewall to be more square on the 7" rim. I noticed this when they mounted, and sitting next to RA-1's. I'm not sure if they stepped the bead in a bit, or what, but it's different. The RR turns in better, I suspect in part for this reason. R888's were not tested for our setup specifically, and it showed. We are the only reason a 225 Toyo RR exists, and what it was designed for. The RR was specifically built and tested *in our size for our cars*. It is the best tire for our class moving forward IMO.

Once you've driven the RR, any thoughts about the R-888 will vanish. It is just a much better tire to drive. I struggled hard with R-888's, but never came to grips with them (sorry about the pun). It was a very fussy tire. Set up was fussy, you had to be careful not to overdrive them, and they were hard keep at the limit. If everything was just right, and you were especially smooth, you could go as fast (maybe even faster for a lap or two) on them vs. the RA-1. They were a stressful tire to drive, and manage, though. Getting rid of the R-888 was like dumping a high maintenance girlfriend - it felt really good.

For the RR, you can drive it hard, and it still keeps saying nice things to you (great feedback), and coming back for more. No fuss. Each time I bolted on RR's so far, I've gone out, and by lap 2, or 3, I've annihilated the lap record, giggling the whole time. They are that easy to bolt on, and drive hard. The RR is like finding out that pretty, shy, and self sufficient girl is also really good in bed, and can't get enough!

3. Rear coil overs are getting cheaper. Ground Control has a set for about \$650 - \$100 more than I could find torsion bars, and Koni's. If we were building the rules from scratch, I'd probably go there (along with outlawing LSD's, '88 pistons, and a few other issues). Allowing them at this point is a really big deal. They are clearly better than torsion bars performance wise, so it would drive a mass changeover, at \$650 a pop for parts alone. By the time the re-installation, and re-corner balancing is done, this will well cost over \$1,000 to do. I'd guess there is close to 200 944 Spec & Sp1 cars out there now. This works out to nearly 1/4 million dollars! While it's nice, I don't think it's practical at this point. If there was a lot of support for this, we could consider it in the future, but it is a *very* big step.

I do feel for the new guy (having built 5 cars myself), but even with the coil overs, they still have to deal with dropping the rear suspension, and removing the old torsion cars, which is at least 1/2 the pain of this, as they are often stuck. As an aside, I never found indexing the torsion bars to be that bad, though a lift helps a lot with the trial & error method of indexing that I use. Typically you only have to do it once, as well.

We run the Koni's because they are an inexpensive option that has a cheap fitment for our cars. As long as we're all in the same boat, and the cars are fun to drive, it matters less whether it's optimal. We seem to be very competitive with the guys who run cost-is-no-object shocks in GTS-1 (at least sans aero), in any case. Neal was highly competitive, and likely would have won GTS-1 this year at Nationals in a Spec car with BFG R1's bolted on, were he not collected in the aftermath of a punt. I don't see the upside of spending more money here.

Anyway, thanks for the cost, and support - the Texas region was largely built by your hands, and expertise!

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## Re: Thoughts on 944 Spec Rules

Posted by tcomeau - 11 Nov 2012 16:33

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BJ,

The R-888 was rejected because it heat cycled out before the tread wore out and it was inconsistent during a single race. If you slid them too much, they would over heat and not stick for several laps. It was the same speed or barely quicker than the RA-1. Before those three points, the void ratio on the R-888 was way too high. It gave up a lot of possible grip for what? An aggressive-looking tread design? Funny thing is that Yokohama went thru the same thing when they were having great success with the A008, then switched tread pattern to the A032R.

Torsion bars are simple to install and index. You do it once and forget about them. At CRE, we set the torsion bars by measuring the gap between the control arm and the tip and the curved top blade while the system is out of the car. There are 40 splines on the inner end, 44 on the outer. Aluminum arms have one gap measurement, steel arms have another. Set the 36mm ride height adjust bolt in the center, first. When installed, the car is very near where we want. Final adjustment is via the 36mm bolt. Don't set the car too low or you'll lose power going thru an excessively angled CV joint, and you'll kill CV joints and boots sooner.

If we went to springs in the rear, I'd need at least several sets of springs for different tracks.

Remember, simple, cheap, equal.

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