Rule Change Requests for 2016

Posted by Sterling Doc - 12 Oct 2015 19:03

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OK guys, time to hear out RCR's for next years rules. We'll keep this open through the end of the month, and then get the new rules, if any, hashed out.

As always, please bear in mind that rules changes need to be cost effective to existing cars, as well as new builds, and the burden of proof is on why the new rule is needed, not justifying the existing rule - rules stability is key here!

Stay tuned for a big announcement in about a week, as well!

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Re: Rule Change Requests for 2016

Posted by wera44 - 02 Dec 2015 11:50

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At the beginning of the season a handful of the Southeast guys got together and all had our cars done on the same dyno. I'm not quite sure if that fits the rules or how that works but he did provide a reference point my car versus the other cars done that day. Mine was the lowest horse power wise. I just installed an air fuel gauge and I'm going to mess with air fuel mixture to see if it helps any.

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Re: Rule Change Requests for 2016

Posted by dpRacing Dan - 02 Dec 2015 12:20

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Adjusting the A/F is the BIGGEST gainer in my opinion. Originally when Eric Kuhns wrote the power cap rule, he'd spent an entire day trying different things on the cars to control/alter hp output. Restrictors, Hanksville Pipe, oil viscosity, full exhausts, etc etc. Everything he threw at it changed the power levels only slightly (1-3 typically), but adjusting the AFM was the biggest gain by leaps and bounds. My car has started at 131 hp (his 5 year old Pine-Tree 84' race engine in my car (still the same motor today 3 seasons later)) but by the time he'd adjusted the AFM properly on the dyno it'd climbed to 139.5 hp!

My advice is to book some time on a dyno with a bunch of spare parts (AFMs, etc) and fiddle with it til you get it right. Buying parts is money pissed away in comparision to getting the car running as perfectly as possible using its orginal equipment.

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Re: Rule Change Requests for 2016

Posted by FDJeremy - 02 Dec 2015 13:55

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dpRacing Dan wrote:

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Great info Dan!

While I know that each car will differ slightly with which AFR they like, what's your recommendation on the ideal AFR or range?

Sorry about being off topic but this is exactly what I've been trying to nail down with my car and I plan on a dyno session in the coming month.

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Re: Rule Change Requests for 2016

Posted by Sterling Doc - 02 Dec 2015 15:31

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THis is an old post from Joe Paluch, one of the founders of the class - info still applies here:

There are two ways to adjust the AFM. One is to remove the metal plug in the top of the unit. Under here is an adjustment screw. Turn it to adjust the bypassed air flow to shift the curve up or down. The other is to pop of black plastic cover. Under here I believe you can shift the wiper slightly. Again this moves the A/F ratio curve up or down.

Neither of these methods change the curve. What I mean by this is that if you are a little rich at 4000 rpm and little lean at 5500 all you can do is adjust it so you are little richer at 4000 and ideal at 5500 or idea at 4000 but way lean at 5500. You cannot tune the A/F ratio at each rpm to dial in perfect.

Back in 2003 I had my car on the dyno and Chris Cervelli of technodyne (since closed down) adjusted my AFM by poping off the black cover. My motor was a little lean at high rpm due probably to not using

the cat. By richen up the mixure a tiny bit we got 1 more peak hp and more importatly were not running to lean at rpm. This is key to ensure you don't pop a headgasket. Curve was not idea accross the rev band, but since all he could do was shift the curve up/down it was best we could do. Since then I have never adjusted it again. 2-3 years later I dynoed the motor again and A/F ratios seems solid so I did not try to adjust it.

Now...never attempt to adjust A/F ratio unless you are on a dyno. It is very easy to over adjust and either go super rich or super lean. The adjustment is not really designed to be tweaked and while it can be done you really need to be on the dyno to properly make sure it goes where you want it. Checking plugs is good first approxmiation, but cannot tell you if you are lean or rich at certain points in the rev band.

Target A/F Ratio is upper 13's to upper 12's. I think 14:1 is rather lean especially at high rpm. Stocimetric is 14.7:1, but to make good power and limit detonation you want be more rich than that. Turbo cars can run as low as 11.5:1 and run well, but NA cars tend be better in the lower 13's. 12.5:1 is probably about as rich as you want to be.

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Re: Rule Change Requests for 2016

Posted by KLR - 02 Dec 2015 17:35

I've found that 13.0:1 is pretty ideal. Some cars will produce more power a little leaner or a little richer. Most AFM's produce a range of AFR's across the powerband, so you'll have to compromise somewhat -- mine typically varies between 12.7 and 13.2.

You don't have to spring for dyno time to dial in your AFR, you just need to install a wideband and a gauge. I recommend that everyone do this. It's cheap, it's very helpful for diagnosing problems, and if you do dyno the car it gives you more reliable data than the dyno operator's O2 sensor. I have yet to see a stock AFM that yields perfect AFR's on these cars; they're almost always too lean before you adjust them. Even if you're happy with your current power output, it's a good idea to install a wideband and at least make sure that the AFR is safe.

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