2012 Rules Change Proposals Decisions

Posted by Sterling Doc - 10 Nov 2011 20:22

While the wording is still in progress, I wanted to get a draft of the decision on the rules change proposals out there now. The intent is to have the final wording of the approved changes off to NASA by Dec 1st.

1) Ram Air

-No change to current rule.

There was a lot of discussion on this, as many good points were raised on both sides by the drivers on the threads. There was clearly divided opinion on this on the forums. Interestingly, the comments when this was clarified last year were uniformly positive. In the end, it was felt that there was not enough evidence that this would be problematic to warrant overturning what is now an established rule. We thought through the case of the 924S, and decided that any potential disadvantage (if any) of not having the foglight to duct through is offset by the 924S's known aero advantage. If there is significant data to the contrary, we will look at that next year.

2) Header coating

-Denied

There was little support for the need for this (outside of the requesting driver) on the forums, or elsewhere. Cost and performance concerns outweighed the claim of improved engine longevity, which was deemed doubtful

3) Castor block mount repair

We decided to allow repair of this, just as crash damage can be repaired. It is incumbent on the racer that the end result retain OEM geometry, and alter the original structure in the minimum way required to

effect the repair. Phil's specific proposed fix to his car was thought to be reasonable, as a guide. No new rule required

4) Turbo valve springs

-Allowed

[i] After further research to establish no reasonable performance benefit from turbo valve springs, the cost savings was thought to warrant a rule change (Apologies to BJ, who requested this last year!)

5) Urethane in windows of the transmission mounts.

-Allowed

Some research indicated that does this may improve CV joint life. While this research was not conclusive, the minimal cost of this modification was not thought to be prohibitive. Also noted was that this modification may save the cost of a new trans mount, which is quite expensive

6) Enlarge oiling hole for crank.

-Allowed, but definition needed

Rod bearing failures, while much less common with cross drilling the crank, are still seen. A simple modification to improve oil flow to this problematic area was thought to have merit

7) Lexan Hatch

-Denied

The cost for implementing this class wide far outweighs the potential benefits, which were deemed to be minimal. There was little support for this outside of the requesting driver. This ruling is highly unlikely to change in the future

8) Turbo Oil FIlters

-Allowed, no rule change needed

Oil filters are not regulated

9) Allow replicating plastic ducting to radiator

-Allowed

Many times these plastic parts are missing, or broken on donor cars, and are critical to maintaining cooling. Replicating this ducting is encouraged if it is missing. No restrictions on materials for this

10) Allow Turbo Axles

-Approved

Late turbo axles are both stronger, and cheaper than the N/A ones. Some suppliers, such as Paragon, have superseded the N/A part with the Turbo one. Dimensions, and performance potential, are the same. The turbo axle has 25 splines, and the N/A, 33 splines. Many of you may have turbo axles in, and not realize it. This rule makes that clearly legal.

Further discussion points among the series directors for future rules consideration:

We have been collecting data from the best motors at Nationals, and elsewhere.

There is increasingly solid evidence that shaving the head on a 9.5:1 piston motors does not allow the same performance *potential* as the 10.2:1 compression motors. The increasing scarcity of of '88 pistons is also becoming an issue. Over the next year, we will be taking a close look at defining the difference in performance potential, and considering options to bridge that gap.

We will also be looking at ways to alleviate issues in parts availability, possibly through aftermarket suppliers, and possibly through rules adjustments. It is too early to go into details about this, but we want to be proactive on dealing with these issues.

None of this impacts next year directly, including the 2012 Nationals.

Expect these bigger issues to be tackled for the 2013 rules.

Keep in mind, that if you are spending extra money building an '88/10.2 compression piston motor this year, the advantage of doing so, may be short lived.

Let me be clear that we will *not* be outlawing '88 motors. They have been, and will remain legal.

However, a carefully executed performance adjustment on the '88 motors, or allowance for the low compression motors is very possible for 2013. We will be looking into, and testing options over the next year.

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Re: 2012 Rules Change Proposals Decisions

Posted by Sterling Doc - 15 Nov 2011 05:56

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loftygoals wrote:

One item not listed is the cold start idle systems that were discussed before the rule change period opened. I would still like to see clarification of this. Can we delete the venturi and idle control valve to simplify the vacuum system?

-bj

BJ- here's the proposed wording on that rule:

ISV / Auxillary air valve can be deleted or disabled. Associated lines must be plugged if deleted. It is recommended to maintain factory idle control.

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Re: 2012 Rules Change Proposals Decisions

Posted by Sterling Doc - 15 Nov 2011 06:03

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loftygoals wrote:

Sterling Doc wrote:

One of the other things we'll be looking into is the 6R head, vs. the 8R head.

I need to look at the stampings to make sure we are talking about the same things, but I would guess that the 6R, or early head, will never make the power of the 8R head because the intake ports are so much smaller. I think when I measured them, the early head had a intake port volume of 10cc less than the 8R. When you shave the head and leave the timing in the closest to stock setting, it retards the cam timing. This would move the powerband and peak power higher. My guess is that the 6R head can't get enough air to make peak power that high.

-bj

BJ, this is interesting. Anyone ever had a flow bench on a 6R vs 8R head? My motor at Nationals had a max shaved 6R head, and it made great torque, but really fell off at high RPM vs. the cars with 8R heads. I'm not sure my results are typical, but they seem to fit with your theory.

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Re: 2012 Rules Change Proposals Decisions

Posted by dmdirks - 15 Nov 2011 06:41

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I ended up having to use a 6R head on my engine. Seems to work fine.

My guess is that the combustion chamber shape of the 8R head is slightly better, but I don't have any data to support this.

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Re: 2012 Rules Change Proposals Decisions

Posted by loftygoals - 15 Nov 2011 09:11

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joepaluch wrote:

The issues of spinning rod bearings is complex...

Great summary of the issue, Joe. I should have mentioned that I agree that #2 gets the least oil and it is the most commonly effected when there is a problem.

Sterling Doc wrote:

ISV / Auxillary air valve can be deleted or disabled. Associated lines must be plugged if deleted. It is recommended to maintain factory idle control.

Sounds good, but why is it recommended to retain? Is the deletion of the venturi valve covered under updating and back dating? I don't believe the 88's had the venturi.

Sterling Doc wrote:

BJ, this is interesting. Anyone ever had a flow bench on a 6R vs 8R head? My motor at Nationals had a max shaved 6R head, and it made great torque, but really fell off at high RPM vs. the cars with 8R heads. I'm not sure my results are typical, but they seem to fit with your theory.

OK, just rummaged through the heads in the shop. 6R heads are off of 83's (all the 6R's I have have an 82 casting date). On the 8R heads, not only are in intake ports larger, but the exhaust ports are larger. I never took the time to measure the difference in CC's though.

There's a lot of data to support my theory about power:

1. Decking to minimum will retard the cam timing.

2. Retarding cam timing moves the torque curve higher in the RPM range, and thus peak power occurs later.

3. To make power at higher RPMs, you have to have the air flow to support it.

4. The 6R head has lower volume ports which should lead to less total CFM.

5. Choking the intake increases torque.

This would explain why the motor makes great tq, but not top end hp. To confirm all this, your dyno would be helpful. The peak tq should be higher than stock. Also, your should see the A/F getting richer as RPMs increase. If both these things are true, we have a pretty good explanation of what is going on.

Assuming everything above is true, your motor would really benefit from advancing the timing one tooth. This would move the torque curve and peak hp lower. This should be optimal for the minimum thickness 6R head. I would guess that peak tq would stay about the same, but you might pickup as much as 5 hp. With that kind of curve, you would have fewer usable revs, though. I would expect to shift at 6k or before, not redline.

-bj

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Re: 2012 Rules Change Proposals Decisions

Posted by loftygoals - 15 Nov 2011 09:33

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Upon further reflection, I misspoke above. "Optimal" was not the right word. Advance would be better. For optimal we need adjustable cam gears. Honestly, adjustable cam gears may be the only way to truly equalize the performance between the minimum thickness head with low compression and the 88 high compression motors.

The real cost associated with the adjustable cam gear is not the gear itself, but the tuning associated with it. Of course the real problem with performance differentials is created by the rules in several places:

1. Raising compression via milling the head has been allowed for a number of years. There are quite a few cars built this way already.

2. Dyno tuning is already allowed using AFM and FQS adjustments.

3. 88 motors and/or high compression pistons are allowed and there are a number of racers using them.

4. Updating and backdating of parts from 83-88.

Thus, big expenses are already a part of the rules.

I'm not arguing for adjustable cam gears, just presenting it as an option for solving the problem of keeping the power equal across all the motors. I'm having a lot of fun figuring out the best combination of parts and the optimal tuning under the rules as they are.

Another option for adjustable gear would be to allow them, but require all cars to have the cams indexed at a predetermined setting relative to TDC. The problem with this is that it is hard to index a 944 cam because of the cam tower configuration.

-bj

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