Ram Air Rule Clarification Issue

Posted by Sterling Doc - 14 Nov 2013 21:33

Guys,

Since the rule change discussions, I've had several emails questioning the routing of ram air, and what is OK, and what is not. Specifically, if, and where holes can be cut for routing the ram air. This came up about 9 months ago, here: www.944spec.org/944SPEC/forum/race-car-b...old-air-intake-on-87 .

It has been pointed out to me that the provisional allowance made then seems in conflict with one reading of this rule:

17.3 Body Structure

The chassis structure must remain intact and stock except as noted

17.3.1 Headlights and headlight motors may be removed. If the headlights are removed, the

stock covers must be installed in the front body work in the stock location in a secure fashion.

Headlight cover gaps may not be filled in or taped over. ***Headlight positions may not be used for ducting of air in any way.*** .

"Headlight positions" can be read in multiple ways, but in the end it's just not clear as is, and needs to be fixed.

The ram air rules proposals did not address the routing of ram air or cutting holes, just where it came from, or getting rid of it entirely (which were voted down).

As we did not clarify this in the rules debate, and it is a source of confusion and contention, it need to be dealt with, even at this late date.

So moving forward, we need to decide if cutting holes in the headlight buckets (or elsewhere) to allow for straighter/cleaner ducting of ram air should be allowed. We should also address cutting holes for ducting oil coolers, etc for clarity.

Ram air has become such a headache, that it may need to be done away with if we can't sort this out.

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Re: Ram Air Rule Clarification Issue

Posted by Bottoz - 15 Nov 2013 14:08

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Option 4... only allow Ram Air (extra HP) if you're dyno proven to be less than 130hp.

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Re: Ram Air Rule Clarification Issue

Posted by RacerX - 15 Nov 2013 14:26

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KLR wrote:

2.) Allow only elimination of the flat, triangular bracket/sheetmetal near the A/C dryer. It's not clear that all 944s came with this item installed on the unibody. Many cars don't have it before we turn them into race cars. This is the only ram air routing solution that I've seen before today (other than option 1 above). It allows for a pretty direct shot for the air hose. This is arguably already permitted in the rules, depending on whether you consider that piece of sheetmetal to be an unnecessary bracket.

Sterling Doc wrote:

Ken, good post on illustrating this.

Even the triangular part is a grey area, though a reasonable person could make the case for it.

We'll make this more clear moving forward.

This triangular bracket that I cut out is a bracket that holds the horns. It is the same part number on

924's and 944,s. Each and every late model 924 came with the same part number bracket. Each and every 944, early and late, all the way through till the end in 1991 had the same bracket with the same part number. Many were probably removed by rice burner kids getting ready to install that huge turbo! LOL

You can see the bracket here in the break down reference number 9.

This bracket holds the horns. Once I remove the horns it becomes unused.

Rule number 17.3.10 Unused wiring, brackets, nuts, bolts and studs may be removed.

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Re: Ram Air Rule Clarification Issue

Posted by FastTater - 15 Nov 2013 15:23

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I took some pictures of my setup. The hose access is basic. This was very simple to do with no great cost. Simple and low cost - it is just a hole. Spec should not equal "stock" and be the hard fast rule. I like driving a low cost race car, it I want to drive stock then I would just track my BMW and stay in DE4.

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Re: Ram Air Rule Clarification Issue

Posted by Sterling Doc - 15 Nov 2013 17:59

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KLR wrote:

My understanding of the situation is that eliminating ram air or mandating stock airboxes is not on the menu as both those proposals were voted down in the prior thread. The question we're being asked here seems to be what restrictions/clarifications we wish to place on how ram air hoses or oil coolers can be installed in the front of the vehicle.

It seems like modifications to the inner sheet metal in the front of the car to allow for improved oil cooling are pretty well supported here.

The options for ram air hose routing would appear to be:

1.) Allow no modification to any of the stock front inner sheetmetal. Essentially requires that ram air hoses are routed through the hole in the inner fender that the stock airbox snorkel uses.

2.) Allow only elimination of the flat, triangular bracket/sheetmetal near the A/C dryer. It's not clear that all 944s came with this item installed on the unibody. Many cars don't have it before we turn them into race cars. This is the only ram air routing solution that I've seen before today (other than option 1 above). It allows for a pretty direct shot for the air hose. This is arguably already permitted in the rules, depending on whether you consider that piece of sheetmetal to be an unnecessary bracket.

3.) Allow a large hole to be cut in the headlight bucket area -- as in the picture that Eric posted. I'd never seen that before and I wouldn't do it myself.

My vote would be for number 2, but I think #3 is probably harmless. If we went for #1, we'd need to be clear about what the expectation is for people missing the flat sheetmetal piece (must they replace it or only not run a hose through the empty space?). This would also require virtually every competitor now running ram air to buy a new hose ($10-15) and reroute it. Not a big deal, I suppose, but an annoyance to a large % of our competitors (I would think more than 50%?). Would be an annoyance to 100% of Midwest and Great Lakes region competitors.

I'd agree these are our options. Working through them:

#1 This is the most "Spec", though requires the most cars to make changes. We'd have to decide if we'd Spec air entry only from the turn signal housing, or still allow the hose to run to the foglight. It seems the easiest way to deal with the "Ken Bracket" (to coin a term) is to just make a ruling/precedent acknowledging Ken's (Racer X) reasoning, and declare it a bracket. No rule change needed. [Edit: probably better to spell it out in the rules for clarity moving forward]

#2. This is a limited option. It gets around the headlight issue, but leaves the 924S out to a degree (no foglights to run to). It would require FastTater, and others to make changes, but less than #1

#3. Open season. No one has to redo. 924S now has a direct route to the turn signal. housing. Cars with headlights could use the foglight ducting option, which is effective. It is the least Spec option. That said, the variations between Ram air routing is slicing up a pretty small pie to begin with, in terms of power.

Anyone have any other suggestions options/before we take it to a vote?

P.S. CJ, even with "option 4" we'd still have to decide on the above. Also, I don't think we'd have many takers for the sub 130HP option, when we'd have to DQ them if they went over 130 on a random compliance dyno w/ a ram air setup.

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Re: Ram Air Rule Clarification Issue

Posted by Big Dog - 15 Nov 2013 19:05

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It appears that Fast Tater's set up uses option 3 and cuts out part of the front of the bucket of the head light well and uses the turn signal opening in the bumper rather than the fog light opening. In my opinion, that solution has less potential for "ram air" due to the shape and location of the opening but it has been decided that either place is OK. I have mine coming from the turn signal opening, as well. It is not very practical to do that by going around the fender and through the stock hole in the fender, as Neil described, so this is a good solution for using that opening and one that the 924's have to use as they have no fog light bucket.

We all seem to agree that cutting parts of the front bucket on the passenger side, to allow for an oil cooler, is fine so there is no reason that a similar opening in the identical, opposite side should be any issue at all and seems "harmless".

It, therefore, seems like both option 2 and option 3, from Neil's list, should be OK for everyone to do. Number three allows everyone with their intake from the turn signal opening to leave it where it is and that is a good thing.

Eric, sorry this thread got off on the "NO RAM AIR" path after that had been decided but it is a good catch to resolve, once and for all, the ability to cut some interior sheet metal for both oil coolers and, to a more limited extent, for air intakes.

Jim Foxx

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Re: Ram Air Rule Clarification Issue

Posted by norman#99 - 16 Nov 2013 09:15

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For this class, these questions have to be asked for EVERY potential rule change, Does this increase performance or does this increase safety or does this increase longevity. Fast Tater, Sorry if you didn't know this before getting into 944spec, we have found in years past when getting a little power here and little there.....it can add up to not being equal cars pretty fast, so I hope that you will find this a positive so that when you win a race, it was your driving and not the cars after market design.

Neal's number:

#1 was voted down unanimously, so no need to rehash it, it IS AN OPTION, with hind sight was the best one to keep ALL CARS dead nuts equal.

#2 There is no performance, safety or longevity advantages with or with out the Ken Bracket, so I Don't see a reason to replace it. The other positive to going that route to the fog light is you CAN have head lights. I don't see why 924's can't put a hole in their spoiler in the exact position of the 944's to make them equal, after 12 years we just truly equalized LC motors with HC motors with the 2% woodruff key, so this one seems simple to fix.

#3 This is a performance advantage that can't be proven at this time due to not being able to calculate hp/tq when going faster than 87.???mph:) It sure would make sense that 2 feet of 3inch hose in a straight line is better than 3 or 4 feet of 3 inch hose with bends in it, But the real proof is that the guys that started doing this to their cars are THE smartest in the business of maximizing their car's potential, so if they really didn't think it makes a difference they would NOT have done it and if they really don't think it makes a difference, then it should NOT be big deal to re-route the hose to one of the other locations so that cars with head lights can have the same opportunity.

To be clear with my vote

#1 yes as an option

#2 Yes without having to replace any sheet metal, even if a hole is cut in the bucket area, there is no advantage to leaving the hole there if there isn't a hose ramming air to the box or what ever you have in the boxes place.

Good thread, thanks

norm

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