What makes a Spec car faster (and slower)?

Posted by Sterling Doc - 13 Oct 2010 10:33

At our last 3 day event, we had a ton of track time - friday T&T, 2 enduros, 2 sprint races, + several HPDE sessions thrown in. I personally put in 100's of laps (burned 50 gallons of fuel!). The MW guys used this as an opportunity to gather some data on various configurations on a spec car. While I still have to dig through some o the reams of data, there are some concrete observations I can make on the data I've seen.

The track (Putnam Park), is a handling/grip intensive track with the track record a 1:22.64 ,for reference.

The best lap of the weekend was set in qualifying = 1:22.7. This car was on Toyos that started at 5/32nds, and had around 20 heat cycles, and were down to about 2/32nds tread (tires lasted 2 more days, including a 100 mile enduro). This car later dyno'd 132/133.

Same car made dozens of laps carrying passengers, varying from 175-220lbs of "ballast." The best time with a passenger on board (180lbs), was a 1:23.1. As there were many laps in both configurations, with a consistant driver, this data seems pretty solid. 180lbs of ballast = 4/10ths at this track.

Put new, full tread Toyo's on the same car. Best lap was 1:25.1. The car was much harder to drive - felt quite soft in turn-in and hard to place as accurately, especially in high-speed corners (which this track has a lot of). So full tread, vs. optimal (worn in) RA-1's was just over 2 seconds!

Car dyno'd at 132HP/133/TQ. Car that dyno'd 138/137 has been mid pack all year, running 1-3 seconds off the pace, depending on who was driving it (rental car). Hard to make much out of this, d/t the variety of drivers in it. Unfortunately, it was rented for HPDE this weekend, and did not get in the hands of the reference driver this weekend.

More to come, as a go through Traqmate data...

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Re: What makes a Spec car faster (and slower)?

Posted by SvoChuck - 13 Oct 2010 14:02

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do you have exact weights as the cars left the track ? if so we could look at TM data to dyno HP

numbers. ...

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Re: What makes a Spec car faster (and slower)?

Posted by Sterling Doc - 13 Oct 2010 14:21

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I have weights for some of the sessions, I can look at the TM data, and see how it compares. Putnam's one straightaway goes downhill, so absolute numbers will be hard to compare. Any idea how to adjust the data for that?

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Re: What makes a Spec car faster (and slower)?

Posted by cbuzzetti - 13 Oct 2010 17:08

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Clearly the driver is the single most important factor in why a car goes fast. Set up and HP are important but first you have to drive it well and consistently.

In CA. Our tracks slow down during the day as the heat goes up. Probably normal for most tracks. So our fastest times are usually during the first session if the driver is familiar with the track.

My particular car (924s) seems to have more lateral grip (when it is working right) than the 944's in so-cal. It has been driven by a few of the so-cal drivers and all seemed to agree with this statement.

I do not know if it is the narrower track or mostly stock bushings that makes this car better. But it is better.

It does not hurt that it makes good power as well. But no more than the other top cars in so-cal. We are generally dead even on the starts.

It would be interesting to know what bushings are in the fastest cars for each region. Just to see if there is a connection.

It would be great to share the info in all of 944spec on suspension setup and motor builds to help equalize the fields.

I am willing to share any info I have.

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Re: What makes a Spec car faster (and slower)?

Posted by 944Racer72 - 13 Oct 2010 19:04

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cbuzzetti wrote:

I do not know if it is the narrower track or mostly stock bushings that makes this car better. But it is better.

It would be interesting to know what bushings are in the fastest cars for each region. Just to see if there is a connection.

I find it hard to believe that stock bushings are "better" than firmer bushings that hold the suspension more firmly from changing under load. However, it is pretty common in my experience to find that the aftermarket bushings are installed incorrectly. Particularly in the torsion tube, if the bushings are too tight, the suspension binds and the car handles very poorly.

I don't know if I'm the fastest but I have all aftermarket bushings to the limits of the rules.

I'm a very firm believer that the driver is about 85% of the equation (if not more) in 944 racing on most tracks.

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Re: What makes a Spec car faster (and slower)?

Posted by Sterling Doc - 13 Oct 2010 19:48

Here's the TM HP plot for dor two cars. Both had best dynos between 131-132 HP. I included the altitude plot, to pick out the flatter part of the track. On the one flat section, one car reads in the mid to upper 140's, the other in the upper 120's. This was taken from their fastest repective laps. Orig picture here: st erlingdoc.smugmug.com/Other/Web-pics/E...7147170_Nh6Nk-X2.jpg