

Reaction Time Research, Training & Testing

Reaction Time. It's a tiny number. A couple tenths of a second give or take for both the driver and the car.

In the past when competition was not as close as it is now it didn't seem quite as important. If you were 2 tenths of a second in front of the field it didn't seem necessary to spend a great deal of time, money and energy on improving your year long reaction time average by one hundredth of a second. Likewise if you were 2 tenths of a second behind the rest of the field it was obvious to you that your time and money would be better spent improving your car's performance rather than your reaction time.

But things have changed. We now see bracket like consistency in a wide range of categories from Pro Stock to Top Fuel. This parity demands that the race teams begin looking for smaller areas in which to improve and one of these areas may be on the starting line.

There is a principal which states simply that "the better you are, the harder it is to get better."

I'll give you an illustration of this. Imagine that you want a new pastime. You decide to play golf. Your first embarrassing attempt produces a score of 150. Assuming you are committed to learning this game and you're not too distraught over your first performance you stick with it. You get a coach, equipment, practice two nights a week and play every weekend. It's possible that in a year or so, assuming normal physical skill, you will be able to shoot 100. That's not out of the question. Looking back you notice you've just knocked 50 strokes from your game in one year. Can Tiger Woods, Vijay Singh or Phil Mickelson knock 50 strokes from their score card? You get the idea. Therefore it's important to note that when working with professional drivers we will indeed be looking for very small improvements.

So how do you take the best drag race drivers in the world and make them better?

First the driver must decide if it's possible for him or her to improve. If they think not, then their lives have just become much easier. They don't have to work on it because they are "as good as it gets." But I think their intellect combined with their competitive nature will tell them that they can ALWAYS improve. It will however take a fair amount of time to learn, practice and implement any changes you might make in your driving. And

because of the inherent inconsistencies in our performance and the car's performance, improvements may even be hard to detect in the near term. It takes lots of testing, lots of data, and lots of work.

And it's not just an effort for the driver. The entire attitude of the team and the atmosphere in their camp is important.

And what about the car?

Assuming a consistent stage position (the driver's responsibility) the RT number is roughly split between the driver and the car.

Do all types of cars react in the same amount of time? Super Comp drivers typically run .020 or .030 electronic delay to net a .001 RT. Top Fuel drivers are considered stellar at .060 and Pro Stock is somewhere in between. All of these are on a .370 tree which now reads as a .000 RT.

You could draw two conclusions from this. Conclusion #1: Super Comp drivers are simply quicker than Top Fuel drivers. Conclusion #2: All these cars don't work the same. Obviously it's conclusion #2.

There are a few physiological reasons why a person can be quicker with a transbrake switch in a Super Gas car than a clutch pedal in a Pro Stock car but that's not the entire story. Much of it lies in the Car Reaction Time and Car Rollout Time. Therefore, unlike the Super Category car that is already quick enough and needs only to be consistent, the faster vehicles actually have some time to gain.

What if the average reaction time for a Top Fuel car could be one or two or even three hundredths quicker? Would the improvement be in the car or the driver? "Both" is probably the correct answer.

There are a number of areas we have studied at our racing school that can usually get a driver back on track if they find themselves inconsistent and there are additional steps that can be taken to improve performance through specific rehearsal techniques.

However we know the car also has a reaction time. And when trying to evaluate car Reaction Time one of the problems is the lack of information. With the information available on an E.T. slip, it's impossible to get the detail one needs to do analysis, make changes and evaluate results.

Years ago Bob Brockmeyer and I developed a DRT system which separated Driver Reaction Time from Car Reaction and Rollout Time. There are now new ways to measure more events.

As an example we will be able to determine with laser equipment the exact stage position of a car and the exact distance the car moved before it broke the stage beam. We will have recording devices to show accurate timing of driver movements in the car and be able to correlate them to RT. Also, we'll be adding digital high speed video equipment that can record thousands of images per second. This will give race teams much needed data with which they'll be able to improve performance.

So with a little more technology and a little more work... who knows... we might just be able to shave a hundredth or so off that Reaction Time.

Frank Hawley