

A number of years ago, when I was still driving, I became increasingly aggravated by the lack of understanding many racers, including crew chiefs and crew members, had concerning the topic of reaction time. Drivers were under constant pressure to leave first every time and it seemed to be almost the only thing a driver was expected to be good at. I had given the topic a lot of scrutiny, researched it to extremes, and became convinced that drivers were getting too much "credit" and too much "blame" for good and bad reaction times respectively.

Well that was 15 years ago and I don't think much has changed. Since then however, I have written numerous articles on the subject, conducted many seminars and clinics on reaction time and along with my friend Bob Brockmeyer of Compulink developed equipment that can differentiate between "Driver Reaction Time" and "Car Reaction Time". I thought almost everyone would be up to speed on this important subject.

I was wrong. I got a call from a well known fuel racer this past week. He was asking for some advice on reaction times and he asked if I could talk with him and his crew chief to explain a few things so they could hopefully work together a little better. I was surprised that these particular individuals seemed to be missing a basic understanding of the Reaction Time number.

So for all the personnel, race fans, crew chiefs, and crew members that think they could driver better than their drivers, lets have a short review.

The reaction time number that is displayed on the ET slip or your TV screen is a combination of periods of time for a variety of events.

First: The Driver Reaction Time. This is the time that elapses between the instant the bulb is turned on and the instant the driver tells the car to go by releasing a transbrake button, releasing a clutch pedal or flooring the throttle. Although this is a relatively short period of time, there are an amazing number of events taking place in the

human body during this time. Vision, nervous system, muscles, body position, focus, physical motion, concentration and more combine into an intricate series of events that result in driver reaction time. It's rare that both drivers will react at exactly the same time, however in many cases we simply don't have enough information to accurately determine which driver reacted first.

Second: Car Reaction Time. Nothing is instant and there is a measurable amount of time between the moment the driver gives the signal to go and the car actually starts forward motion. This "car reaction time" varies tremendously from category to category. It also varies from car to car within a particular category and from track to track or run to run for the same car! Car reaction time is the major reason (although not the only reason) Super Comp Dragster drivers use delay boxes to prevent red lights while Nitro Funny Car drivers are hard pressed to go .100 (or .500, I still like the old numbers better).

Third: Rollout Time. This is the length of time it takes the car to go from where ever it's sitting (stage position) to the point it leaves the stage beam thereby stopping the reaction time clock and starting the E.T. clock. For every one inch the driver rolls into the stage beam (i.e. deeper) his reaction time will get approximately .01 second quicker AND his E.T. will get approximately .01 second slower. The trade off between reaction time and E.T. is close to an equal mathematical trade off. In other words, you're not gaining anything. The only real advantage a driver has in staging deeper is that he is a certain distance closer to the finish line. As an example, at 330 mph the real time advantage a driver has in a Top Fuel race if he was to stage say 3" deep would be about one-half of one thousandth of a second. This time advantage is not of much benefit to the driver but in staging deeper and gaining this insignificant amount of time he has just hammered his E.T. by .03 of a second!

When one looks at all of these items individually and then collectively you begin to understand that the thing we'd

really like to know, that is, the "drivers reaction time" is only a part of what is being measured by the reaction time number. Therefore one should be careful when discussing who "left on" whom. Additionally, my discussion here may relate to fuel cars more than anything else. They are without question the fastest, slowest reacting vehicles in our sport. They have a centrifugal clutch, they leave at an idle, the chassis twists, the tires wrinkle and it simply takes them a long time to get going. If you ever get to see some super slow motion video of a Top Fuel car you'll be amazed. The throttle is wide open and the car hasn't moved! The process of getting the fuel car moving is very clutch dependent and the clutch is set based on track and power conditions and not for optimum reaction time. Of course they have to do this. It would not serve a team well to find out that a certain clutch set up would produce better reaction times but the car always smoked the tires. So the crew chief's job is to set the car up for maximum performance (best E.T.)

under current conditions and the driver simply gets the car he's given.

In addition to driver reaction time, the driver also controls stage position. The driver should be as shallow as possible every time, every round to produce the best elapsed time. Of course the driver wants a good reaction time but he should never sacrifice elapsed time to get reaction time! If this means that other drivers may have better reaction time numbers than he does and he may be accused of being late by the crew or the media ... then so be it. Hopefully he can educate the people that matter and not worry about the others.

Like most things in life, the Reaction Time topic can be a complicated one and it is one of the many topics we work on at our racing school.

So be careful when commenting on a driver's performance based solely on the reaction time number on an ET slip. You simply may not have enough "accurate" information to form an opinion.