

Hi Ross. "How do I know when I'm driving the limit?" I've been asked that question more than all the other questions combined.

Mike Zimicki is one of the best coaches. Period. (And fortunately, he currently has room for a few new driver clients... catch him while you can!). He's proven his ability to bring out the best in a driver at all levels, from track day drivers to Graham Rahal. So who better to ask this popular - and very difficult - question than Mike?

Enjoy!

Finding the Limit

by Mike Zimicki

For a driver, there is always one question that lurks - could I have gone faster?

When you drive out onto the track, how do you *know* how hard you can push, where to place the car, how to use what you have available to its best?

These are incredibly tough questions to answer and they really go to the heart of how to drive, so instead of trying to distill it all down to a few simple tips, I thought that I would take a different approach. When I started to think about this piece, I wrote some notes to myself - words or partial thoughts to prompt my thinking and now as I look at them, they provide the guideline, the triggers, the baseline of this conversation. The reality is that in order to go fast, you have to think your way through a process of learning and absorbing so rather than saying, "Do this or do that to go fast," I would like to give you some tools on how to think and learn.



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"At the beginning I have to be honest, the right foot, how do you say, had a mind of its own and was not connected with my brain, so I wanted to be flat out, but the right foot has its own life." - Fernando Alonso (after his first day driving at Indy)



Make your mistakes learning-takes.

It's been said that there are two different types of failure:

1. You try something, fail at it, learn from it, and try again. This isn't really a failure.
2. You try something, fail at it, and don't learn anything from the experience. Or, perhaps even worse, you learn the wrong lesson from it. This really is a failure.

I like to think of the first one above simply as a "learning-take." It's a mistake that you learn from.

Of course, it's what you do with a mistake that determines whether it was a failure or not.

Far too often I see or hear of a



Here is what I wrote down in my notes, in the order I wrote them, with expanded thoughts:

Progression - You have to build speed based on you and your car and where you are in your own learning curve. Data and in-car video from someone else is a learning tool, not a definition. With so much outside information available to everyone these days, it seems that there are drivers who think that they can just jump to a higher level because they have watched the in-car, seen some data. The flat truth is that you have to work your way up to speed, the video and data can help you understand, but you still need to *know* what you are doing and why. The same applies to someone riding right seat with you; if you are just doing what they tell you to do without understanding why, then you will struggle once they are absent. I would be remiss if I did not point out that there is a lot of not very good information out there. Just because someone has more experience or has gone faster than you does not make them someone you want to emulate.

Procedure - This, to me, is the first cornerstone of driving well. Find the line, establish exit speed, have a reference for brake points, etc. The Skip Barber procedure taught by the school in 1980 is a great starting point for anyone and the one that almost all car clubs and schools follow today. Find a book, watch a video; if you are just starting, this is knowledge you need. Building basic skills as a foundation of your lap is no less important to a club racer than it is to a top-level professional.

Track/Lap is built of segments - Your job is to put the segments together in a way that yields you the lowest elapsed time. Referring to the procedure above, you start by establishing that exit speed, then begin filling in from the other side with your brake point moving forward. This will build your rolling entry speed and mid-speed until the exit speed starts to drop. Do all this while being precise with placement.

Far too often I see or hear of a driver who tries a new approach to driving, it doesn't work the first time, so the conclusion is "That didn't work." This could be:

- Braking lighter and earlier
- Braking later and harder
- Trail braking more or less
- Turning in earlier or later
- Carrying more corner entry speed
- Changing the line between two corners
- And so on

Any of the above new and different approaches could make you faster, if you give it a chance. But if you try something new, and it doesn't help the first or second time you try it, that doesn't necessarily mean it's not a better way. Instead of considering it a failure, think of it as an opportunity to learn *how* to make it work.

Imagine approaching a corner the same way you have every other time. But you've been thinking you can carry more entry speed, so you brake lighter and roll the speed in... and off the track you go. Is that a mistake? And was the extra speed the real cause of going off the track?

Most drivers, when carrying more speed into a corner than they ever have before, turn in early. It's human instinct: we all feel safer closer to the inside of the track, so if we're carrying more speed and get a little nervous and tense, we turn in early.

If you carry more speed into a corner and go off the track, does that mean that speed can't be made to work? It's possible. It's very possible you just haven't figured out how to make it work - yet. Well, I say "yet" if you don't give up on the approach, think it through - deeply and logically - and gradually work up to making it work.

So, with our example, the

An example of the segment thought process getting more interesting? When you have a big brake zone into a corner, followed by a short- or medium-length straight. Do you gain more by super-late braking and rolling more entry speed, but losing exit speed? If you gain 2/10ths in, but lose 3/10ths down the straight, then, no. But what if you gain 3/10ths in and lose 2/10ths down the straight? Then we have just turned the concept of exit speed being all-important on its head. How do you know? You try it while having references so that what you are doing is repeatable and you *know*. You should look at a track map, not just as a way to see which way the track goes, but as a tool to start you thinking about what part of each corner will be the priority, so as to achieve the lowest elapsed time.

Adapt – You need to be always learning, always looking for what has changed, and how to extract the best from what you have. Ambient temp, track temp, tire wear, car adjustment, and many more things are always changing, so you need to always be on a learning curve and adapting as “what works” changes. This is not only weekend to weekend, but day to day and session to session, and eventually, as you get more and more precise, lap to lap. Yes, you might *know* what was working before but that knowledge base is a constantly-growing thing.

Car: what it does well and what it doesn't do well – What is the balance of braking, cornering, and acceleration of your car? Does it do one thing really well? Two things? When you look at a track map, look at it broken down into what you can do to exploit your car's strengths. Is your car underpowered for the cornering grip it has? Does it have great top speed? The default is to start by establishing exit speed, but then you need to work on what your car does well.

References – Mentioned above, but having references gives you repeatability and consistency through *knowing* what you are doing. A reference can be something definite, a bump, a crack, a mark on the pavement, a shift point, or it can be a more overall visual picture. It just needs to be something that helps you be consistent with what you're doing.

No perfect lap – I have been coaching and analyzing driving for a very long time and have yet to see a perfect lap. Mistakes will be made; the goal is to catch them and fix them when they're small, so that the effect is minimal and

increased entry speed may not be what caused the off. It may be turning in early. But without the proper thought and analysis, the conclusion might be “the speed caused the off-track excursion.”

The key to making this work is the deep and logical thought process, prior to trying a different approach - and after. If you play through as many scenarios as you can before you go on track, you'll be better prepared, and more likely to make what you're wanting to do work.

If you take the time to think through what happened afterward, you may discover that what you initially thought was the cause of the problem really wasn't.

Yes, the key to going faster is often looking at mistakes as a learning opportunity.



But Wait, There's More...

I just got back from an amazingly memorable trip to the Nurburgring with twenty-two amazing people. This is the second year in a row that I've helped put a group of drivers together to experience driving the famous Green Hell.

Everyone agreed that driving the Nordschleife was even more than they expected - in every possible positive way. And what they also didn't expect was the fun of meeting, spending time with, and getting to know each other over our group dinners. Of course, this event could not have happened without Ben Simons and his team

then you learn and adapt from them. The key to achieving this is to make small steps, to build speed by *knowing* what you are doing and why, so when you do step over the line, it's catchable, and has a very small impact on your lap.

Line First – Car placement, the art of being on the line is the true cornerstone to a great lap. You should constantly be fighting to place the car as accurately as you can to maximize the radius in the right place to carry speed. Out lap, in lap, mid-stint, your goal is to place the car with accuracy.

An important side note is that with modern cars - track day cars to formula - the line variation is very small in most corners.

100% of tire – “Use the tire at 100% as much as possible over the lap.” This is a good concept, but with the caveat that you want to use that tire at 100% in the right way on the right line. If you go back to the track/segment thoughts above, we see it is possible to use the tire at 100% and go slower, so use the tire in the right place and in the right way over the lap, as much as you can.

Active hands – By "active," I mean hands that are not just turning and being held steady through a corner, but rather hands that are making small corrections through the corner. This is a great reference but once again it should be in the right way. If your hands are active because your feet are abrupt, then it is not a good indicator of being close to the limit. But if you have built speed in small steps with references, then when your hands get active, it will be with small corrections and is a great indicator both in the car and later with video and data.

If you watch a car that's being driven well and fast, it often looks like a smooth task from the outside, but inside the car, the driver is making small corrections with hands and feet to keep that car right on the verge of moving about. I think there can be a disconnect, as some drivers are too focused on being smooth. The car should look smooth - **you** should be busy.

Guidance – There is no substitute for good guidance; it can come from a book, video, other drivers, instructing staff at events, etc. Like all of life, there is a wide variance in the quality of what is offered. Look at the source with a critical eye and build a *knowledge* base off as much quality as you can. As someone who has made

without Ron Simons and his team (and cars) at [RSRNurburg](#).

With two years under our belts, I guess we'll need to continue the tradition! Details about next year's trip won't be available until late this year, but if you're interested, drop me a note by email.



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my living as a coach for thirty-six years, I can say that there is a lot of not very good information out there. However, there is some fine information available and there are excellent coaches to be hired. You just need to seek it (and them) out.

Stuff I feel I need say

In my perfect coaching world, everyone would start in a slow car, but I realize you will drive what you have. That is part of the appeal to be able to use your fantastic road car and a fast car has more appeal than a slow one. Try to make sure that things are happening at a pace at which you can absorb what is going on. If things are happening quickly to you and you are not thinking but rather reacting, then you will, at best, stall in your learning curve and, at worst, damage your car.

If you look at the above thoughts, it should be apparent that I believe that driving a car well, racing a car well, is a thinking person's activity - it really is. Your desire to go fast can and will only get you so far. If you want to get good, then become a student - read, take notes after you drive, write on maps, ask questions with a critical eye, be patient - it is not going to happen right away. Find a mentor, find three mentors, hire a good coach if you can, and always approach driving with a brain that wants to learn and never forget that a great lap - and finding the limit - is built on good basics.

- *Michael Zimcki*

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