



Ross Bentley's High Performance Driving Tips - #3

THE IDEAL LINE

Generally speaking, the quickest and safest way through a corner is to drive as straight a line as possible - taking the largest possible (allowable) radius. But this is not necessarily the correct route to drive down the road - not the ideal line. It's not the safest, nor fastest way to drive.

A driver is not dealing with one particular corner, but rather many corners connected by straightaways. Considering this, and the fact that a car's brakes are more powerful than the acceleration capabilities, superior exit speed and balance is far more important than corner entrance speed. In other words, it is far better to go into a corner slow and come out fast than vice versa.

All corners can be divided into four segments: *Approach*, *Turn-in*, *Apex*, and *Exit*. Each segment can be dealt with in detail separately, but the ultimate goal is to combine all four into a smooth, fluid line through a corner.

The Approach to the corner is the time to make decisions about and preparations for the corner. You'll decide the safe speed to enter the corner, then do the necessary braking (or just easing off the gas pedal), downshifting (if necessary), and setting the car on the correct path to enter the corner.

The Turn-in is probably the most important part of a turn, as this will dictate all that follows: where, how fast and how balanced you exit. This is the part of a road where you have *completed* your downshifting, and most of the braking, and now begin your turn into the corner. The initial Turn-in point is determined by where you want to Apex the corner.

The Apex of a corner is actually an area of the corner, not just a point, where the inside wheels run closest to the inside of the road. The Apex can also be thought of as the area of a turn where you are no longer driving into the corner, but are now driving out.

Where you Apex is directly related to where and how you enter the turn, and it will affect how you exit it. As a general rule, the apex for most corners are approximately two-thirds of the way through the turn. This means you do practically all of your turning in the first one-third of the corner, and then begin unwinding the steering wheel out to the exit point, clipping past the apex along the way.

The way to tell if you drove the correct Apex is very simple. If you come out of the corner having to apply more steering to keep from running off the road, then you had *too early* an Apex. If you drove too late an Apex, the car will not be using all the road on the Exit. It will still be too close to the inside of the corner. This is safer than an early Apex line, but not ideal.

As I said, you'll want to drive all corners on the street with a late Apex. Late Apexing will allow you a little extra room at the Exit if the corner is tighter than you thought (or there is an obstruction on the roadway). The late Apex also allows you to better see, or "peek", around the corner.

Think of this as making two-thirds of your turn in the first one-third of the corner. In other words, drive deep into the corner, turn the steering wheel the required amount of steering lock in the first part of the corner, aiming for a late Apex approximately two-thirds of the way through the corner, and then begin to unwind the wheel as you drive through to the Exit.

To properly Exit the corner, you'll want to use up *all* the road (obviously, "all the road" means what is legally available to you within your lane). Allow the car to come out wide to the edge of the lane or roadway (again, on the road, give yourself a good cushion to be prepared for the unknown). This allows the car to smoothly and gently balance its weight and achieve controlled acceleration.

Now, I can't stress this point enough - slow the car down *before* the corner. It is always better to brake early, get the car well balanced and then accelerate out onto the straight. And this doesn't necessarily mean full-throttle acceleration. Even a light acceleration helps balance the car to give you more control.

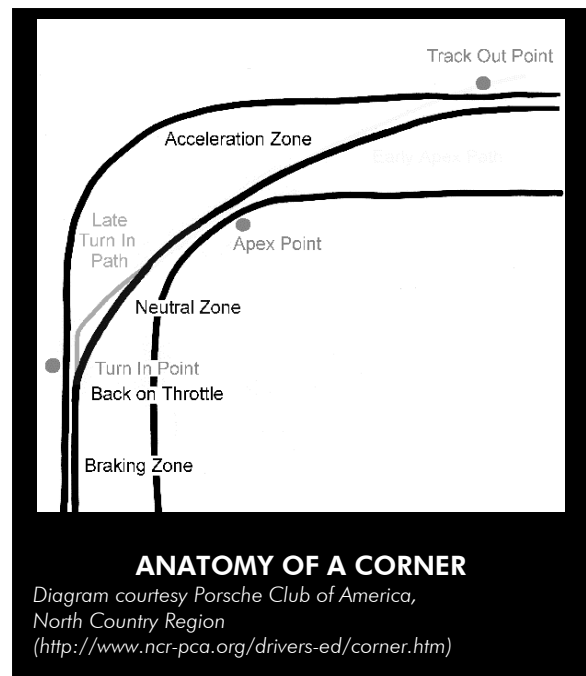
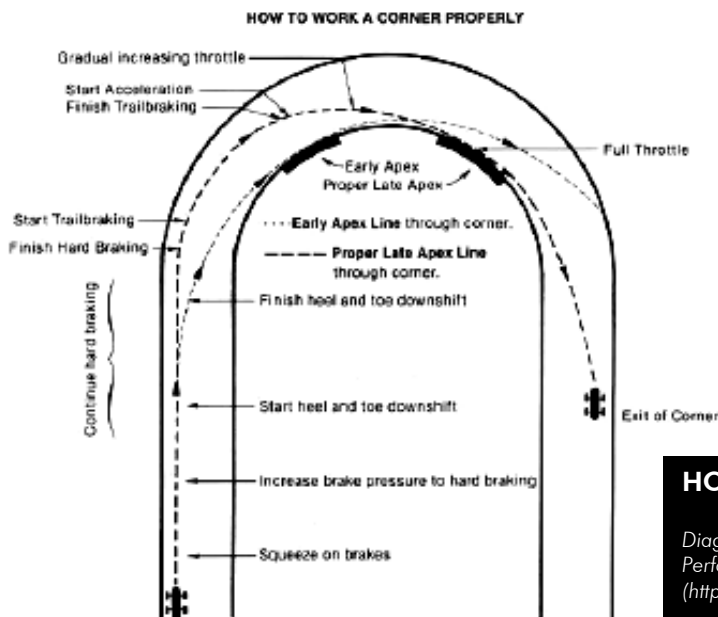
Some corners are deceiving. Mountain bluffs or trees may obstruct your view of the complete turn; or the corner may just seem to go on and on. In either case, you have to pick an Apex on the inside of the corner at the furthest point you can see from the Turn-in. When you reach this "temporary Apex", hold the car into the inside of the turn until you can finally see what you determine to be the Exit point. Then unwind the steering to let the car run out to the Exit. By using this line, you'll be giving yourself some insurance, in case the corner tightens up more than you first thought.

And remember, let your vision lead the way - sight your line well in advance and let the car flow through the corner. Do not drive from point to point. Practise this the next time you are driving a winding road - look well ahead, visualising the line you want the car to drive on, and it will automatically follow.

These cornering techniques apply to all corners, whether on a twisty country road, a freeway entrance or exit ramp, a city street, or a racetrack. The key is using your vision and reading the road ahead.

Once you've begun perfecting the art of cornering, a drive along a twisty country road will be extremely rewarding. It's in the corners that a driver really gets the rhythm and flow of driving. Every corner becomes an enjoyable challenge. It's not necessarily how fast you drive through it, but instead, how smoothly and accurately you execute the car control techniques and the ideal line. Enjoy the challenge of driving *the ideal line*.

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HOW TO WORK A CORNER PROPERLY

Diagram courtesy BMW Car Club of America, Rocky Mountain Chapter
Performance Driving School Manual, Revised 03/03
(http://www.rmcbmwcca.org/DrivingSchool/DS_manual.pdf)