

TAKE A BRAKE

Continuing our series promoting advanced motoring techniques, Porsche Driving Consultant, Neil Furber, demonstrates how to shift gears and brake with finesse

ast month, we explored different steering grips and techniques. Many of you might think the logical next step would be for us to discuss cornering, but braking and gear selection comes first. After all, a well-executed and composed braking phase forms the foundation of good cornering, but rather than simply slamming on the anchors and banging down the 'box, there's an art to braking and selecting a gear.

If you can develop finesse with these techniques, you'll find greater pleasure from your Porsche, especially if you're in charge of a car with manual transmission and can master 'heel and toe' and double clutching. We'll reveal how to successfully execute those tricks by revealing more tips for successful driving techniques in a later episode of this driver coaching series, but for now, let's focus on vision, timing what you might be surprised to hear us refer to as 'fruit under pressure'.



DRIVING FORCE Furber is GT Porsche nagazine's resident lriving expert. With a inical background as

a mechanical engineer in the Formula One industry, Neil brings a unique technical insight to driver coaching Splitting his time between the French Alps and the UK, he coaches drivers through his brand, Drive 7Tenths (drive7tenths.com), and is also a Porsche Driving Consultant at Porsche Experience Centre Silverstone.

VISION AND TIMING

Good vision is the most important part of preparing for a corner. During a session with a professional driving coach, you'll be encouraged to look further ahead and consider more information far earlier than you're used to, regardless of whether you're on road or circuit. We can all look, of course, but it's our ability to 'see' important features in the road and process information ahead of time which creates the basis for good decision making when cornering. If planning is limited, braking



For the moment, we'll assume vision is effective and we have a plan for the corner we're approaching. We've considered sight lines through the bend, its radius and the likely route for the next straight or corner. Perhaps we've even planned for the road surface, other traffic, lane positioning and likely or developing hazards as we prepare for braking. This is where the timing starts.

I'm often asked to reveal the correct time to start braking for a corner. I usually reply by asking when the person posing the question would like to finish braking! The braking period has a pressure profile and a duration. If we have an end point in mind, our start point becomes clearer due to being a function of current speed and how hard we wish to brake. If we start at the other end (the start point) of the spectrum, how hard we should brake or when to let go isn't anywhere near as clear.

Typically, the majority of drivers don't like braking hard. Doing so is uncomfortable due to the high g-forces at play. And yet, for the most part, when I start to work with a driver wishing to learn about piloting his or her Porsche in a more spirited fashion, their initial attempt almost always follows a pattern of overdriving at the entry point to the corner, with late pressure build-up leading to excessive braking when they wish to turn in. A typical example would be arriving a couple of car lengths from the bend with no plan to get around it effectively. The driver brakes too late and then forgets or rushes a gear change. Steering input is required, but entry speed is uncomfortably high.

The driver still has the brakes activated and starts steering whilst worrying about speed. If the car features a manual gearbox, the clutch continues to rise. We're effectively coasting through the bend on the brake. There's absolutely no way the car is balanced. Moreover, there's no chance the driver is planning an effective exit from the bend.



BACK TO TIMING

As you can see, by looking further ahead and planning the braking phase, there's no longer a need to brake late and all the way into the bend, nor is there a need to brake ever harder as we approach a corner. Simply put, we need to start slowing earlier. If we have an idea of speed and the appropriate gear for the point where we'll start turning the steering wheel, we can begin to brake early enough to reduce speed under control. We can take our time with a nice, smooth

BRAKING

becomes rushed, the gear selection fumbled. Preparing for a corner with good vision adequately sets you up for the next part of the process: timing.

If you wish to develop finesse with respect to braking and changing gears, timing is the key differentiator between mastering the art and making a mess of the job. We all have the basic skills to press pedals a set distance or to a given pressure, not to mention deciding which order to press them. It's the timing that needs our attention.



down-change and look to balance the car for corner entry. By 'balance', I mean to drive the car with a light throttle pedal pressure to maintain steady speed.

No matter what we may like to tell others, we're better at performing a single action than we are multi-tasking. In other words, if we can break the corner down into phases and complete each action individually, it's much easier to perform well in the next task.







2 Just like undesirable early braking, late braking follows the same pear-shaped line, but does so in reverse.



3 Smooth braking is what we're trying to achieve, a successful action which produces a lemon-like shape when charted on a graph.

CORNER APPROACH

- Look further ahead and use good vision to plan for the corner
- Start braking with an entry speed, gear and position in mind
- Split tackling a corner into different tasks: main deceleration, gear change(s) towards the end of braking and balancing the car ready for corner entry
- Smooth transitions on and off the pedals, allowing time at the clutch biting point (if applicable)

FRUIT UNDER PRESSURE

We've covered timing, but what of brake pressure? It's common to assume driving on track needs maximum braking, with drivers stamping on the stoppers to get good lap times. For the purpose of this article, we'll ignore how fast you can travel around a circuit, not least because it's unlikely to be the key consideration for *GT Porsche* readers looking to improve their overall driving technique. We'll also ignore braking through lifting-off or down-changing for the time being. After all, most of the time, if you need to slow down, there's likely to be braking involved.

A nice way to illustrate good braking technique is to consider a pear versus a lemon. For the more technical among you, compare skewed distribution to normal distribution (or a 'bell curve'). The pear is thin at one end and fat at the other. This represents low braking pressure early on, building to the higher pressure late in the braking phase. We don't want this to happen under any circumstances. The lemon profile is better: thin at one end, fat in the middle, thin at the other, representing a smooth build-up of brake pressure to a given value before a smooth reduction in pressure before the corner. This process makes it easier to focus your attention on smooth gear changes and, crucially, to bring the nose of your Porsche back up in order to balance the chassis in readiness for the corner.

A further technique considers the pear spun around. High pressure is built quickly-yet-smoothly, with a long tapering-off of pressure. We'll leave this approach for another time, suffice to say the most overlooked contributor to braking finesse is releasing the pedal. Rather than jumping off and feeling your body jolt back into the seat, a progressive release to ease vertical load off the nose of your Porsche is much better. You and your passenger will be eased back into the seats far more comfortably too!

