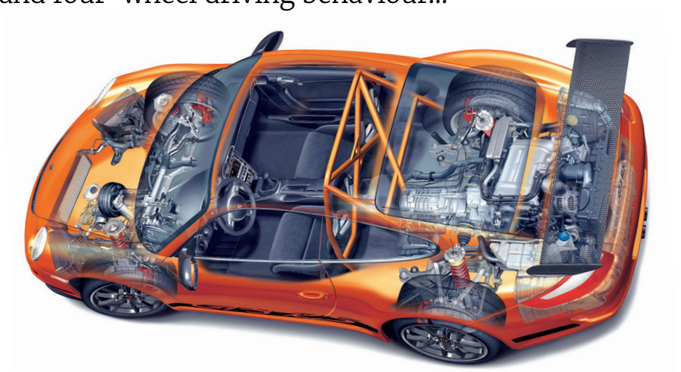
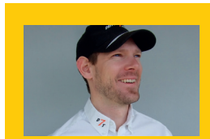
SPOILED FOR CHOICE

Porsche Driving Consultant, Neil Furber, compares and contrasts 911 rear and four-wheel driving behaviour...

In response to positive reader feedback generated by our mid vs rear-engined driver coaching article (*GT Porsche*, Autumn 2019, available by pointing your browser at *bit.ly/issuesgtp*), this chapter in our popular series looks at the 911 in its rear-wheel drive (RWD) and four-wheel drive (4WD) guises. Although the engine is in the same place for both layouts, many owners and enthusiasts will swear by one or the other, and yet it's not immediately clear what makes the difference.





DRIVING FORCE

Neil Furber is *GT Porsche's* resident driving expert. With a background as a mechanical engineer in Formula One, he brings a unique technical insight to driver coaching. Splitting his time between the French Alps and the UK, Neil coaches drivers through his brand, Drive 7Tenths (*drive7tenths.com*) and is also a Porsche Driving Consultant at Porsche Experience Centre Silverstone. Have a question about coaching? Email him at *enquiries@drive7tenths.com*.

ON RAILS vs TAIL FREEDOM

The one thing many people can feel when comparing the two drive layouts is a sense of being really planted or a little freer. In some cases, being planted is interpreted as a noticeably heavier car. Although the front drive system and extra longitudinal driveshaft of the 4WD car does add some mass, it's the driving feel which provides the lion's share of the phenomenon difficult to articulate. If driven in a stable fashion with a balanced throttle (as I covered in our October 2019 article on cornering) or with subtle acceleration through the turn, the 4WD version provides the sensation of being 'on rails'. The RWD version still feels stable during balanced cornering, but delivers 'looser', more noticeable steering effects from the rear as power is varied. The extra sure-footedness of the Carrera 4 seems to be what hooks — and retains — the 4WD advocates. On the other hand, as you'd expect, the full freedom to 'steer on the throttle' provided by RWD has earned devout followers. If a loss of the tail is less of a concern, it can be somewhat addictive.

THE 911 CHOICE: BLACK, WHITE OR GREY (SILVER)?!

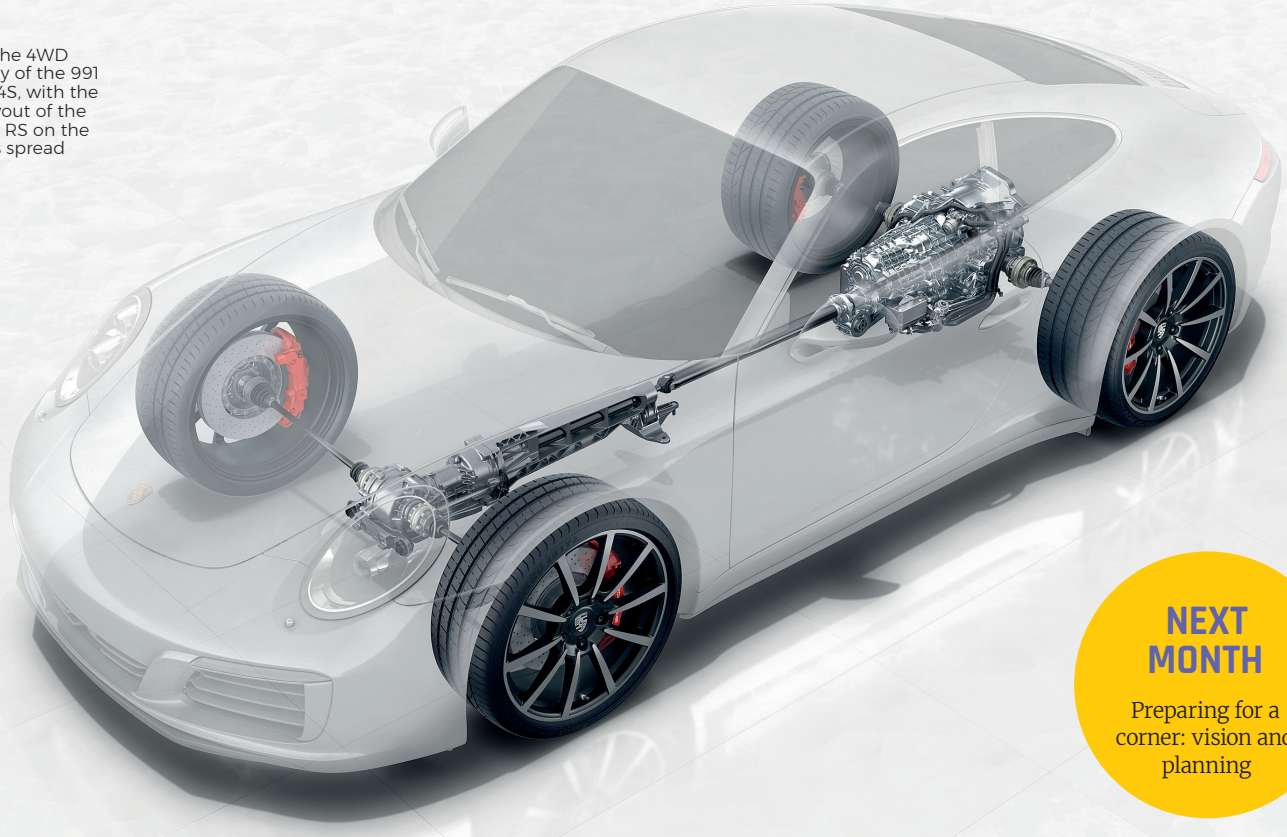
Ignoring the subtle pun in the title above, there's more to choosing your 911 than drive type and the colour of the car's paintwork. The majority of the newer 911s I've seen have been one of the three shades listed, but, personally, I'm a fan of vibrant colour. After all, it seems a shame to camouflage such wonderful machines among the mundanity of commuter vehicle boredom. But each to their own, and back to the point...

What I'm really trying to say, is that the choice of drive type isn't black or white. The idiosyncrasies and similarities of both the RWD and 4WD 911 mean both cars offer great things to all drivers. And there's plenty of overlap! For starters, let's not forget that the 4WD starts with a rearward bias. This means the majority of engine torque starts off driving the rear wheels, with a smaller portion sent up front. Generally, as further power is applied, a greater share is shifted progressively forwards. The 4WD system of the Carrera 4 (and Turbo) models has developed over the years and, through research or discussion, you'll come across viscous couplings and multi-plate clutches, among other things. For the later models, the share of torque front-to-rear is a constantly evolving computer-controlled masterpiece with many sensors helping to choose what is optimal at the time.

In my experience, a persistent excess of power during a turn near the limit creates two distinct behaviours. At least, if we avoid the potential for understeer (a tendency to go straight on in a bend) and the helpful support of Porsche Stability Management (PSM) driver aids for a moment. For RWD, you're looking at that famous 911 spin. It's a huge build-up of momentum until the rear tyres have had enough. Then the sledgehammer follows through, unless you're ready with some very fancy wheelwork. And remember to get off the throttle! For the 4WD, it's a little different. Things start in a similar fashion. The rear will start to step out wide as it receives most of the torque, but then things feel quite different. As power is fed progressively forward to prevent fully overloading the back end, the rear seems to stop its rotation and it's the front that builds up to overload. You'd experience a tail-out move and then a lateral crabbing, where all four wheels sideslip together.

Of course, this is one pair of outcomes for a similar driver input in both cars. Less extreme use of the throttle pedal can provide a very similar feel for the rear of both cars, with the added 'on rails' experience of 4WD as engine power 'pulls' the car in the direction of the steered wheels. With high steering angles applied, it's still possible to spin a 4WD 911, but I can't see why you'd want to under normal circumstances. During regular driving conditions, below the limit of grip, there's much overlap between models, with just a slight difference in character. And not all drivers will feel it.

911 RWD vs 4WD



Below The 4WD assembly of the 991 Carrera 4S, with the RWD layout of the 997 GT3 RS on the previous spread

NEXT MONTH

Preparing for a corner: vision and planning

GETTING SQUIRRELY... OR NOT

As you can tell, it seems the core difference between 911 RWD and 4WD comes down to a subtle feel for normal situations and then the 'opportunity to play' versus the 'extra safety and security' argument. Much of this is a result of perceived driver ability or whether the car is used all year-round, as opposed to being kept as a leisure tool for warm, dry, summer weekend blasts.

The most important thing to remember if you're making the choice between RWD and 4WD is that good driving technique is what'll keep both cars on the road. 4WD is not infallible and still relies on the laws of physics, despite the huge traction gains for acceleration and the improved power-on mid-corner stability. Speaking of traction gains for a moment, once you've experienced launch control in a 991 Turbo S, you'll struggle to remain impressed by most fairground rides. It's *that* spectacular!

You may remember me mentioning the illusive trail braking in the aforementioned mid vs rear-engined driver coaching article. During this process (or the sharp lift-off behaviour worth avoiding wherever possible), both 4WD and RWD versions of the 911 provide the positive rotation that's truly Marmite. For some, it's the worst fear of 911 ownership. For others, it's one of the best features of the risk-and-reward tightrope. There's still a subtle difference between drive types, though. Since RWD engine braking is on the rear wheels only, a strong lift-off or sharp down-change can be akin to pulling the handbrake. Not great for stability, and yet, the 4WD version will have a front-rear split of the engine braking helping to spread this load across all four tyres.

In my experience, if you've got plenty of brake applied as you trail it off into a racetrack hairpin, the torque split has far less effect than the dynamic weight transfer and 4WD can still be loads of fun. I still remember my first time developing trail-braking oversteer with a Guards Red 997 4S on track. Magic.

EXTRACTING PERFORMANCE

Once we start focusing on performance, the choice brings us back to a distinctly grey scenario. Since the 911 is a powerful, albeit not-quite-flyweight car, one of its core strengths is acceleration. The engine location, thankfully, provides loads of grip to get you out of a corner and up the next straight. Extracting true on-track performance requires a nice positive rotation with plenty of weight on the nose and then transitioning to lots of power with the engine sat down hard on the rear tyres.

The Carrera 4 range provides extra traction to make the exit easier, particularly in damp conditions. The RWD of the classic 911 format enables just a little more flexibility on the turn-in and mid-corner direction changes on/off the throttle pedal to get just the right angle for the exit. Is one faster than the other? In reality, it comes down to the individual driver, their ability and their preferences for manipulating the car at the limit. Ultimately, the choice is yours...