Opening Shot

Photograph by **Alisdair Cusick**

A stunning Guards red Porsche 964 sits among the picturesque scenery south of Munich. However, all is not as it seems. Underneath this unmistakable silhouette lies a whole new concept, and the hills are about to be awoken by the sound of a 997 GT3 RS engine. Our full feature begins on page 28.

The Game Changer

Total 911 visits the Neunelfer's homeland to drive a classic Porsche with a clever, modern twist

Written by **Lee Sibley** Photography by **Alisdair Cusick**

At face value, it looks like a normal Porsche 964: a quintessential Guards red example of the third-generation 911. A knowledgeable enthusiast may then spot the fact that it's been lowered, running something akin to RS-spec in its ride height; or the fact there are two exhaust exits rather than the usual one. A very keen eye may also take note of the wheels which, although their five-spoke appearance mimics the 17-inch Cup wheel found on 964 RS's, deviates from factory spec thanks to the presence of a centre-locking nut.

However, it'll be a connoisseur who notices the addition of a third vent running horizontally across the car's front bumper, where a curious peek through those vents will reveal the presence of radiators cooling not oil, but water. So what on earth are we looking at?

This is the RSGT concept, pioneered by German outfit, REEN Cars. Based around an hour south of Munich, REEN (a play on words from re-engineered) was founded by Dr Philip Hoffmann, a lifelong Porsche enthusiast born into a family of petrolheads, and whose technical approach to innovation includes connections to, among other things, the Hyperloop team at the Technical University of Munich.

The RSGT is Philip's own car and, to look at it, you wouldn't believe it's one of the most innovative and game-changing projects we've seen for years. But as you'll soon find out, there's much, much more to this project than meets the eye.

Philip describes the RSGT as, "An homage to the Porsche 964 RS, to 50 years of Porsche RS history, and to the late Hans Mezger," which is ➲

why you'll find Mezger's revolutionary engine design in its final stage of development housed in the rear. That's right – this thing is powered by the flat six from a 997 GT3 RS.

As you'd expect, a raft of modifications were necessary to get the water-cooled 997 engine to fit into a 964, but there are some benefits. For example, the 997 engine is 50mm shorter than a 964, which brings a more favourable distribution of weight.

The most noticeable change in appearance is the induction system, which now sits on top of the flat six rather than in front of it. Philip says this is the fourth iteration of the induction system, which has been crafted to optimise not just airflow and temperature, but also noise, while honouring the 964's original look by keeping the factory decklid and active spoiler system.

The oil and fuel plumbing systems have undergone a substantial reworking, as has the wiring – the visibility of those harnesses prompting Philip to point out this is still very much in the prototype stage of development.

The engine is mated to a five-speed 964 manual transmission with short ratios, with power fed to the rear wheels only. Suspension, bushings, steering and braking add to the list of upgraded componentry, to create what Philip says is his dream car: "We've re-engineered the 964 with the heart of an icon, the charm of a classic... and the flexibility of two cars into one." We told you there's more to the story.

That's because if the beating heart of this unique 964 is a 997 GT3 RS engine, its brain is an entirely new electronic system called REEN Drive. Offering a mode-select system of a modern supercar, REEN Drive adapts the character of the car according to the driver's needs, be it through the electro-hydraulic power steering, the engine's power development, shift support, adjustability of traction control, or the volume of the sports exhaust. In short, the technology controls the core emotions of driving through power, sound and driver aids, offering a groundbreaking 'one car fits all' solution to the juxtapositions of race car or grand tourer... and anything in between.

Philip explains further: "A click on the steering wheel sets a razor-sharp throttle response at the track, a rev-match for extra emotions on twisty roads, traction control as a safety net in wet conditions, or a muted soundtrack for a school run."

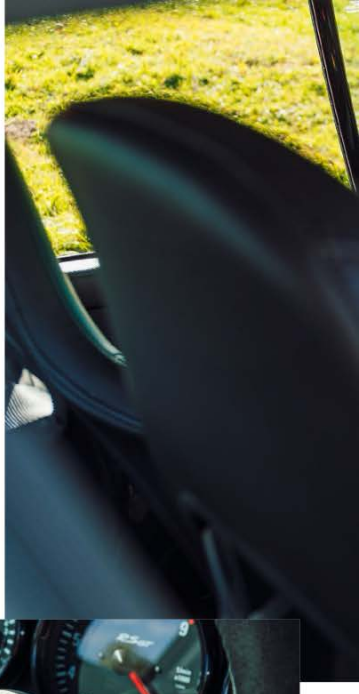
Adjustability is the buzzword then, and that's not a concept associated with a classic car – which is often why our use of them is limited to spirited Sunday drives or weekend events. However, that could well be about to change. To take a further look and witness the technology in action, we'd better step inside the car.

Settled into the driver's seat, in front of us is a Prototipo steering wheel with four rotary dials. A single cable sits at the back of it, disappearing into the dashboard – that's it. That's all you can see from this highly advanced motorsport system, which featured on racers at last year's Le Mans.

Back to those dials. They're labelled R, S, G and T. The R stands for Roar, meaning exhaust noise, with up to eight settings available from maximum closed, to maximum open. It's worth pointing out that the RSGT's exhaust flaps are controlled via the car's ECU system; this is merely an override. "With most other companies, the exhaust flaps are normally pressure-controlled, so they're on or off. With this car, the flaps are like throttle bodies, so they are moving all the time, interacting in a millisecond according to throttle position," explains Philip.

On to the second dial, which is marked with an S for Sensory. This is throttle mapping, again split into eight settings. At its lowest setting, the maximum throttle opening is limited to 80 per cent. "You can do much more than throttle mapping with the technology available," says Philip. "For example, you can limit the power to below 400bhp if you're in traffic, or tune for different applications such as turbocharging."

The third dial is labelled G for Gearing. This enables the driver to modulate the degree of automatic blip shifts by four stages. It achieves this by calculating the rpms needed at a certain speed to receive the next gear, holding the engine speed until you've shifted – all in the fraction of a second, of course. This ultimately makes it possible to fine-tune the feel of the car. The phenomenon of ➲



LEFT The familiar cabin of a Porsche 964, featuring an unusual-looking steering wheel with four coloured dials

FACING PAGE Those dials enable the driver to adjust exhaust noise, throttle mapping, auto blip shifts and traction control, all on the fly

BELOW The RSGT concept is fascinating, but the magic lies in how seamlessly the REEN Drive technology has been implemented to this classic

"This could be the genre-defining future of the restomod movement"

auto blip-shifting isn’t new in modern cars, but the caveat is this doesn’t feel authentic. The REEN Drive system enables you to fine-tune the sharpness of blip-shift according to your personal preference.

Lastly, T stands for Traction control, which is split into eight stages, but isn’t ready for us to sample today. Philip says it’s calculated and variable according to many factors, from wheel size, to how wet the road is.

“Of course, with this electronic system you can put different variables in, or combine them. The possibilities truly are endless,” Philip says, which causes the mind to wonder...

It’s been some journey to get to this point, and Philip concedes it hasn’t been without pain. “Our testing has been rigorous... this engine and gearbox has taken a lot of punishment, mainly from me. For example, we did program in flat shifting, but have taken it out as we decided for its current application it wasn’t necessary.”

On top of the different incarnations of airbox deployed, REEN has worked hard with the exhaust packaging too, to ensure no power is lost from the factory 415bhp that’s offered by the 997.1 GT3 RS flat six, despite the fact that the space to work in with the 964 is very different. “We really did have to look for every available inch,” Philip says. Pleasingly, the team has managed to maintain the original characteristics of the engine, with peak power delivered at 7,800rpm.

Indeed, the whole package is breathtaking, particularly when you consider that, in being made in Germany, Philip and the REEN team have always had strict TÜV safety legislation to consider. This ensures high standards of engineering though, and seeing as Munich is a European hub of engineering and technical excellence, the big question is, will the drive live up to the hype?

A twist of the single-piece billet ‘REEN’ key in the ignition sees this unique 964 bark to life, although its soundtrack is, of course, very different. Gone is the 964’s customary baritone rumbling, replaced with the iconic, coarse bellow of a Mezger motorsport flat six on idle.

Strapping in and slotting into first gear, the first sensation is how short the shift feels, despite the lever being so long, its knob sitting near to the steering wheel rather than down near my knee.

Pulling out on to the public road, we follow its smooth asphalt towards the mountains ahead of us, traffic reduced to the odd car or two as the intensity of the curves increases. I leave all dials in their Stage 1 setting, getting used to the paradox that’s a 964 with a 997 GT3 RS engine.

The scenario that plays out in these early miles is highly entertaining, my eyes telling me I’m in a Porsche 964, my ears fooling me into believing I’m in a 997.1 GT3 RS. This is thanks to the guttural howl from behind with every push of the gas pedal. Most pleasing though, as car and driver warm up, is how ➲

ABOVE In place of the 964's original air-cooled flat six is a water-cooled engine from a 997.1 GT3 RS

LEFT The founder of REEN Cars, Dr Philip Hoffmann, explains the thinking behind the converted 964, before Editor Lee Sibley takes the car out for a spirited drive

FACING PAGE To most passers-by this red car looks like an old Porsche... yet it is anything but

polished the ride is, this 964 gliding purposefully over the tarmac without any of the bone-jarring sensations you'd get from a 997 Rennsport.

It becomes clear, as with any Rennsport motor, that this machine likes to be revved, and revved hard. Happy to oblige, I give the gas pedal a firm press, and all hell lets loose. The 964 takes off, the crank spinning relentlessly as the rev needle storms past five, six and then seven grand while a pure GT3 RS sound engulfs the little cabin. A quick shift into third and the power is there again, the pocket-sized Porsche rocketing forward with scarcely believable alacrity.

It takes a while to get used to the shift, with its gear linkage being bespoke. By Philip's own admission, it's not that comfortable because he wanted harsh contact points. It requires a firm shift each and every time.

It's at this point I'm grateful for two things. Firstly, the Brembo brake upgrade including floating discs, which bring this 997 RS-engined 964 back into check with a firm application of the middle pedal. The chassis, too, is incredibly resolved: it's taut and precise, the nose staying glued to the floor as we slip through these fast, flowing curves. It's already the most explosive and, even better, most responsive 964 I've ever driven, so will those driver aids from the REEN Drive system add or detract from the drama?

Resoundingly, it's the former, and its refinement simply blows my mind. Sceptical at first of the eight-stage adjustability in throttle responsiveness, there's a tangible and welcome difference with each turn of the rotary dial. It's the same with the auto blip-shift system, which unleashes new layers of aggression to match a fast, intense driving style that's easily and harmoniously adapted on the fly.

Most impressive is the fluidity of how REEN Drive interacts with the car. The whole system feels natural to use, and provides many welcome layers to the RSGT's character, increasing its bandwidth in capability from outright aggression to something more temperate. The difference in extremities isn't so much Jekyll and Hyde, but brings a sense of decorum when you need it to a driving machine that's animalistic at its most extreme.

Melding these traits into a classic car hasn't been possible before – that it's achieved here, and so resolutely, is a clear mark of its sophistication. If there were any fears prior that the use of technology would detract from the character of this drive, they are comprehensively dismissed.

The RSGT itself is little short of brilliant. Philip has delivered on his promise of melding, in his opinion, the best Porsche engine of all time with the most iconic 911 shape. There will be diehard purists who consider it sacrilege to put a water-cooled unit into an air-cooled Porsche, yet for every purist there's an enthusiast who will admire the innovation. And anyway, 10 years ago when this generation was so unloved, many would have agreed this to be a good use of a 964!

To appraise the car is only looking at half the story, however. Yes, this GT3 RS-engined 964 is a fascinating creation, executed to near-perfection, but the technology behind it is the clever part. It's easy to use and has a profound, positive impact on the driving experience, bringing new layers of adaptability and flexibility to the classic 911 platform. Forget the Rennsport engine: REEN Drive has brought something genuinely new to the 964 platform and, looking at the bigger picture, there's no reason why this technology can't be harnessed by similar outlets offering high-end restorations of Porsche sports cars around the world. Indeed, this could be the genre-defining future of the restomod movement, so seismic is its potential.

The car and concept in our pictures has served up one of the most intriguing road tests we've ever executed here at **Total 911**, and one that didn't disappoint. Where the RSGT and REEN Drive system goes from here is entirely down to Philip and his team, and we'll be watching developments closely. As Philip said, the possibilities really are endless. **911**