



# New Horizon

PORSCHE'S 997 GT2 INSTALLS ITSELF AS THE COMPANY'S TOP PRODUCTION 911, AND THE FIRST ONE RATED FOR OVER 200 MPH

STORY BY JEFF GLENN PHOTOS COURTESY OF PORSCHE AG







For many years, upping the performance ante on the 911's rear-engined architecture has, in so many ways, defined Porsche — and the enthusiasm surrounding it. So can the new 997 GT2, essentially a road-going track star on street-legal race rubber, make a strong case for the title of Best Yet? I hadn't given it much thought until the phone rang and Editor Stout offered to twist my arm with 530 horsepower. He had me at GT, but then he said something about Launch Assistant and six pounds per horsepower. Before Stout and I hung up, my bag was already packed for Germany.

From its inception as a 993-based car, the GT2 has held court as the ultimate turbocharged version of the 911. Porsche knows there's a place for a rear-drive 911 Turbo that lifts a little DNA from the glory days of endurance-racing 934s and 935s with big power and that familiar shape. Hot on the heels of the oft-underrated 996 GT2, the 997 GT2 makes a compelling argument that it deserves to be crowned the ultimate 911. It may even convince a few, Walter Röhrl included, that it's the ultimate Porsche. Skeptics may say, "Come on, the exotic Carrera GT is mid-engined, with a V10 — a road-going Le Mans racer with more horsepower and less weight."

That may be true, but the new GT2 — with two-time world rally champion and Porsche test ace Walter Röhrl behind its wheel — has lapped the Nürburgring's Nordschleife loop in an astounding 7 minutes, 32 seconds. Not only is that time a few ticks faster than his time in a Carrera GT, it's *14 seconds* faster than the previous 996-based GT2 and some 10 seconds faster than the current GT3 RS. How can that be, you ask? Well, the 997 GT2 offers more torque than any previous or current production Porsche sports car and the rear-end grip to put it to work.

Even without unpacking the GT2's serious torque advantage, it's obvious that the 997 GT2 is a serious tool. Giant air scoops envelop the front corners. The standard Turbo's foglights are gone. And a longer spoiler reaches for the ground. On the forward edge of the trunklid, a grill expels air on the topside of the nose after it has passed through the central front radiator, adding downforce over the front axle. Special GT2 wheels look similar to those on the GT3, but they have wider spoke spacing for improved brake cooling. They offer a fairly unobstructed view of the new GT2's standard Porsche Ceramic Composite Brake setup, with its cross-drilled and vented 14.96-inch front and 13.78-inch rear rotors grabbed by six-piston front and four-piston rear calipers.



As a result, the thin-spoked wheels seem almost too delicate for such a serious speed weapon. They're wrapped in 235/35ZR19 front and 325/30ZR19 rear tires designed specifically for this model. The GT2's aggressive, bi-plane rear wing features scoops which feed intakes below the decklid. Weissach spent a lot of time on this wing, its engineers planning for a replaceable rear splitter on the upper element to vary downforce. Extensive work in the wind tunnel proved that a changeable wicker added no downforce or measurable gain to the aero package.

Form follows function all the way to the lower edge of the rear bumper, where slotted gills extract air through the intercoolers. Overall, the package reduced the coefficient of drag from 0.34 on the previous GT2 down to down to 0.32 on the 997. That's a figure that would combine nicely with targeted power numbers to make the 997 GT2 Porsche's first 200+mph 911.

"When the business case was first made for the GT2, we targeted 520 to 530 horsepower," says GT2 project manager Alan Lewin. "But we didn't have a particular area of engine development in mind to raise that figure." The engine is largely similar to the standard 3.6-liter unit in the 997 Turbo, a dry-sump, water-cooled, twin-turbocharged flat six with nine separate oil pumps and variable camshaft geometry. Reveals Lewin: "We looked into larger turbochargers, but that always comes with the penalty of turbo lag."

While Porsche did massage the Turbo's Variable Turbine Geometry turbochargers with new turbine wheels, compressors, and housings, it says those changes were mere nuances aimed at improving flow. The majority of the GT2's 50-horse gain over the Turbo comes thanks to a new intake manifold that looks counter-intuitive at first glance, thanks to its short intake runners. When stuffing as much air as

possible into the combustion chamber, you're usually working with a resonance inside the area between the throttle body and head created by the valves opening and closing. Air expands and contracts, so, to shove it in faster, you typically try to push it harder during the compression phase to move more air into the chamber. The by product of compressing this air is heat, and a loss of thermal efficiency in the heated air/fuel mixture.

Porsche's GT2 engine team knew that, during the expansion phase of the resonance inside the manifold, the air/fuel mixture was cooling. By capitalizing on that phase of the valve resonance and amplifying the expansion of the intake air as it travels from the throttle body towards the cylinder, the new manifold uses a longer distributor area and shorter intake runners to keep mixture temperatures down. The lower pressure is offset by additional boost. This keeps the charge about 20° F cooler, which yields quicker ignition in the combustion chamber, less sensitivity with regards to detonation, more horsepower, and a lower fuel-consumption rate under full load. The combination allows for 1.4 bar of boost and a solid 501 lb-ft of torque from 2200 to 4500 rpm.

All of this talk of horsepower and torque has us itching to drive the car, but then there's the weather in northern Germany: wet. Not so excellent for exploring the dynamics of the fastest production 911 ever made — especially since it's rear-drive only. It's rainy enough that the Porsche team decided to alter their plans and lead us by Cayenne like baby ducks directly to the track, which we were scheduled to visit at the end of a full day's drive. Driving past barracks and mysterious grass-covered bunkers, some of the press corps is questioning what sort of "track" is on tap. As it turns out, it's a former Luftwaffe airfield northwest of our





home base in the small town of Dinklage.

Walter Röhrl is already circulating the impromptu airport course, streaking down the main runway with a plume of spray behind his GT2 — like a full-blown land-speed record attempt on a dusty salt flat. As the car streaks across the horizon, even more impressive than the sight is the sound of the 911 literally tearing and compressing the air around it in a shriek louder than the measured wail flowing from the exhaust pipes. Röhrl comes around closer on a short straight, tail out at 30° in a perfect drift. Watching from outside, Röhrl is obviously starting the lap

with Stability Control and Traction Control on, as the motor spools up with little hiccups of interruption as the car leaps forward from a particularly wet 90° corner. Later in the lap, the slip angles increase and the smooth howl of the turbocharged six reveals he has disabled the systems.

Riding with Röhrl is a treat, amplified by the iffy weather. It's one of those situations where you wallow in awe for a few seconds, then shift gears and observe his ballet-smooth technique and start asking questions because it's not like he's going to get distracted and put a wheel wrong. Where it's merely wet and not pud-

**Röhrl (above, left) at the wheel of the new 997 GT2. Wet performance was stunning thanks to electronic stability and traction control systems the 996 GT2 didn't offer...**

dled, the GT2 turns in like it's dry. It's one of Röhrl's favorite attributes of the car, and he says it turns into corners better than the GT3 RS. Through puddles with Stability Control on, it sounds like early 1990s F1 traction control is at work, with the car cutting out but still leaping forward.

It's the first use of Stability Control on a 911 GT model. And, on a mixed wet and drying surface combined with the turbo







3.6's explosive power delivery, it makes sense. The yaw parameters activating the Stability Control functions are higher than those for any other 911's PSM system from which it is derived, allowing the GT2 to rotate further before intervention. To demonstrate, Röhrl starts out with the Porsche Active Suspension Management (PASM) shocks set to Normal with SC and TC on. The GT2 limits the slip angle of his slides and keeps us accelerating across puddles on the slick roadway.

"It seems pretty stable," I remark as we hurtle down the straight. Röhrl replies by simply taking both hands off the wheel as we pass 250 km/h (155 mph). Just before he touches the brakes, we cross 300 km/h (186 mph) in the wet. Seconds later, the calipers grab the composite rotors and point the nose to the ground, scrubbing off over 100 mph effortlessly. Nice. After reaching down and disabling SC and TC, Röhrl says, "Even with it off, the car is very stable and easy to catch."

Perfectly smooth drifts are no big deal for Röhrl, and — in the middle of one — I ask him why he was faster at the Nürburg-

ring in the 997 GT2 than the mid-engined Carrera GT. Says Röhrl: "Ah yes, it's actually easier to drive. The GT has a long wheelbase and the mid-engine. It is stable, but it takes longer to gather up in a slide. So the GT2 breaks away maybe faster, but is also saved faster, and I'm on the gas sooner." He also mentioned his fastest time was set with PASM on the Normal setting — with SC and TC off.

Suspension chief Karsten Schebstad explains that the setup between PASM Normal and Sport aren't just stair steps of stiffness. For most situations, the Normal setting produces the best results, as the GT2 PASM is more aggressive than the standard Turbo's and the Nordschleife is far too bumpy for the Sport setting — which is meant for billiard-smooth tracks. However, the shock stiffness of the package of each setting can overlap depending upon conditions. In other words, there may be situations such as extremely high speeds where Normal would stiffen the valving to levels within the range of Sport while Sport settings may dip into the upper reaches of the Normal valving.

As for the PSM-like Stability Control system, the GT2 marks the first time Porsche is allowing the driver to disable the electronic safety net in stages, turning off SC while leaving Traction Control on to aid in power delivery. A separate button disables SC *and* TC, which allows the driver to control the GT2 without assistance. Unlike the PSM systems in other Porsches, once it's off, it can only be reactivated via the button or restarting the car. All other versions of PSM can turn themselves back on to intervene should the computer determine that the end is near.

That's not to say there aren't a couple of tricks built into SC, however. Two functions can't be deactivated — Anti-lock Braking and Corner Brake Control. The latter was developed for the track and Röhrl demonstrates it at the end of our laps. Says Röhrl: "Say you've come into this cor-

**Like the 997 GT3, the 997 GT2 comes with Porsche's sport steering wheel wrapped in grippy Alcantara—and a matching shift knob. New lightweight bucket seats have folding backs and are (finally!) U.S.-bound.**





ner too fast, you're trail-braking hard and turning at the same time." He brakes and turns hard. Too hard. With all the weight on the front of the car, the rear begins to come around. Just after it breaks loose, the front end suddenly turns in harder and rotation stops as individual brakes help arrest the rotation. Had the front not been so loaded, CBC wouldn't have intervened. Thus, power-on drifts with an electronic safety net are possible. Clever.

Finally behind the wheel of the GT2, several things strike my fancy. First up is

the driving position. The steering column is height-adjustable and telescoping, making it possible to get the distances between wheel and seat perfect. And the Alcantara-wrapped wheel feels just right. The shifter is wrapped in the same material, with a plastic top cover that looks a little cheesy in such an expensive car. That's quickly forgotten after stabbing the throttle. The power delivery is intoxicating, and it's hard to keep from cracking the throttle open just to feel the shove back into the seat and hear the accom-

panying howl of the motor. The variable-steering boost is identical to the GT3 and Turbo and has the same laser precision.

As a result of the relentless rain, the idea of pushing the GT2 through any twisting roads has frightened the higher-ups, so we're led baby-duck style in convoy again and turned loose on unrestricted autobahn. Heading north, we catch some breaks in the weather and traffic and explore the outer reaches of the engine's ability to hurl the GT2 at the horizon. The scary thing is how stable it is. 155 mph feels like 65 mph. Helping matters is the quality of the roadway — silky smooth and nothing like California freeways. Sixth gear pulls as hard as fifth, which pulls as hard as fourth, and so on.

Running along at 300 km/h (186 mph), the GT2 feels just as planted as it does at 200 km/h, and the speed of the scenery whipping by is the only indication that we're really hauling. On a few sections, I'm able to stay in it longer and we actually see 331 km/h on the speedo — two clicks faster than the advertised 329-km/h (204-mph) top speed. We might have gone faster, too, as there were still a few revs left before redline and the motor was happily pulling with an indicated 1.4 bar.

Even at such stupendous speeds, there is no drama, no light feeling at the front, nothing to indicate only 38 percent of the weight of this car rides on the front wheels. All that's there is a peripheral-vision blur of the high-speed railing. The PCCB brakes are more than up to the task of scrubbing 120 mph quickly without any sign of fade, taking you from 200 mph to 80 confidently and quickly — a necessity at these speeds.

Much as we want to dive into the handling dynamics of the package, the marginal weather spoils the few opportunities we have. On a slick onramp, SC allows a 25° tail-out slide before putting the brakes on the fun. Stay in it, and you're moving forward with the aid of TC before you can nurse your own throttle. Turn everything off in the wet and you have a mountain of





responsibility under both feet, as wheel-spin can catch and catapult you forward. Generally, I have a measured distrust of stability systems (*the author is an ex-pro WSC racer—Ed*), but, on the GT2, they're calibrated towards the intent of the car. And, when you push the button, you're pretty much on your own, as it should be.

In bumper-to-bumper traffic, the GT2 is as docile as any road-going Porsche in every way save the clutch, which is stiff because it lacks the hydraulic booster of the standard Turbo in an effort to gain better feel. As with the GT3 and GT3 RS, the standard short-shifter is precise but takes a bit of conscious effort on the first pull. You quickly acclimate to it, though. With the suspension set to Normal, the calibration for European roads is stiff but not jarring. Press the PASM Sport button and the suspension clamps down. They're not joking about the smooth-track thing. In fact, the suspension development team found the GT2 completes a slalom faster in Normal than in Sport, as it needs a little roll to get the tires to grip when transferring weight so quickly.

The GT2 posts an impressive 0-62 mph time of just 3.7 seconds and gets to 99 mph in 7.4 seconds. While a 911 Turbo Tiptronic is quicker through the 62-mph gate, the GT2 puts a second on it by 100 mph. With the Launch Assistant feature, GT2 owners have the ability to replicate maximum acceleration without mutilating clutch discs. With TC on, simply depress the clutch with the shifter in first gear and floor the throttle until the boost gauge indicates 0.9 bar. The motor automatically limits itself to 5000 rpm. Side-step the clutch and the GT2 does the rest — until you need to shift up to the next gear.

The real reason Tiptronic Turbos are

now faster than the manual versions is that you can artificially load the Tip's motor up by using the brakes to spool some boost before launching. The same cannot be done in a manually-shifted Turbo, as you have no ability to load the motor up until you let the clutch out. Porsche bypasses this issue with a little wizardry from the engine management system. The GT2 fires on just two cylinders when Launch Assistant is triggered. While your right foot is on the floor, the throttle bodies are open wide, running much like the heat-dissipating idle mode on an F1 car. Inside, it sounds like a slow, bouncing rev limiter. Spinning the motor at 5000 rpm under these parameters allows the variable-vane turbos to cycle air and build boost for a full-power take-off.

Standing on the clutch and throttle pedals together is weird, but dropping the clutch comes more naturally than you'd think. As soon as the clutch pops, full ignition returns, and TC keeps wheelspin in check. It feels like an initial lurch and a soft bang as the clutch does its thing, but then the car *explodes* forward. Before you know it, you're pulling the gear lever into the next ratio. In slightly damp conditions, the experience is similar, with TC working harder to keep you moving forward by pulling ignition timing and using all of its tricks to keep wheelspin to a minimum. The feature wasn't on the engineers' must-have list, as Lewin recalled the possibility of adding it came relatively late in the development phase of the GT2, during engine management setup. Surprisingly, no transmissions or axles were broken during the development phase — so the only variation from the Turbo's driveline are new bolts for the inner axles.

Inside the gearbox, the GT2's track-

use intentions are made clear by the fact the gears are inserted on the shafts so that ratios may be adjusted and swapped for particular tracks. Synchronizers are made of stronger steel instead of non-ferrous metal to stand up to more abuse than their street-tailored counterparts. The fluid temperature is also kept in check by a dedicated gearbox cooler. The final ratio of 3.444:1 is identical to both the standard Turbo and the GT3, while the limited-slip differential features "asymmetric action," or variable locking points for load and overrun. The rear-mounted engine weight allows for a rather light 28-percent locking action during acceleration. But, to keep the GT2 in check while entering corners off throttle, the deceleration locking action is set for a more aggressive 40 percent.

The overall suspension layout was created with adjustability in mind. Threaded spring perches for the coil-overs allow accurate corner-weighting and ride-height adjustment. The front anti-roll bar features four positions of adjustment, the rear bar three. For improved directional stability, minor adjustments have been made at the front by moving the pivot points of the tie rods and the outer connection points of the track-control arms by approximately 10 mm. Also new to the GT2 is an adjustable camber plate on the lower track-control arms. Track setups and increased directional stability were the driving force behind these changes.

Porsche says the GT2 tips the scales at 3,175 pounds, or 320 pounds lighter than the standard Turbo. Several key factors are involved in the savings. Besides deleting the all-wheel-drive system and making the lighter PCCB brake system standard, the GT2 adds a titanium silencer and tailpipe setup that saves roughly 20







**Business end of the GT2 is busier than all previous versions, but packs more power, too. Trick bits such as a titanium muffler setup and ceramic-composite brakes are standard equipment on Porsche's range-topping GT2, which commands nearly 2x GT3 money. Unique wheels are shod in R-compound rubber, but the real news is that the roll center has been altered up front.**

pounds at the rear. Because the normal 997 Turbo's larger Tiptronic transmission would not be available as an option, the GT2 team was able to cast a dimensionally larger rear-axle subframe in aluminum instead of steel to save even more weight at the rear. Inside, the Alcantara headliner is a single layer of material — poke the roof through the fabric and you'll ping the

metal. Even the Bi-Xenon headlights have been lightened, losing the moving "range control" function that copes with the pitch and dive of more softly sprung 911s.

The exposed carbon on the new sport seats — destined for the U.S. — is no mere aesthetic gesture to indicate the serious nature of this 911. Not only do these seats do a fantastic job of holding you in, they are fully equipped with side airbags and fold forward on a high pivot point to allow more side support where it's needed. The non-adjustable back angle is comfortable but keeps you in an alert driving position. They feature holes for six-point harnesses and shave nearly 40 pounds from the curb weight, as they're 20 pounds lighter than standard Turbo seats. Creating a lightweight, road-legal race seat complete with airbags and four connection points at hinges that allow access to the rear cabin area was no small feat for Porsche, and was only given the green light because they will find their way into other 911 models. Wider adjustable Turbo sport seats can be fitted at no extra cost for buyers who prefer them.

For nearly every country but ours, a no-cost Clubsport package for the GT2 consists of a rear roll cage, fire-resistant



#### 2008 GT2

CHASSIS	Steel unibody, rear-engined, rear-wheel-drive two-seat coupe
ENGINE	3.6-liter, DOHC flat six, water-cooled and twin-turbocharged with twin intercoolers
HORSEPOWER	530 bhp at 6500 rpm
TORQUE	501 lb-ft from 2200 to 4500 rpm
COMPRESSION	9.0:1 (static)
REDLINE	6750 rpm
TRANSAXLE	Six-speed manual
CURB WEIGHT	3,175 pounds
LENGTH	175.9 inches
WIDTH	72.9 inches
0-62 MPH	3.7 seconds (factory claim)
TOP SPEED	204 mph (factory claim)
PRICE	\$191,700 plus options + destination



WHAT IS STRIKINGLY OBVIOUS to an experienced Porsche pilot about the way the new GT2 goes down the road is that all its control weights are slightly heavier than those of a 997 Carrera. This is deliberate, to ensure the GT2 is not nervous at the high speeds it is capable of. Crucially, all control weights are evenly matched and perfectly progressive. This creates a synergy in the driving you'll notice only by default — as nothing is out of balance. Linear and progressive are the GT2's watchwords.

Two other aspects stand out: 1) the supreme tractability of its 530-bhp motor in normal driving and 2) the new sports seats. This 911 is docile around town, but decimates autobahns. Summon all the GT2's horses and you'll find its well of power and torque is broad and deep. Its flat six revs quickly and enthusiastically to redline. After a slick shift to second, letting the meaty but progressive clutch in again squats the rear end down as a tidal wave of power returns. As for those seats?

They're seriously comfortable and supportive while fixing two problems with the fixed-back chairs found in 996 GT2s and GT3s: their side airbags make them U.S.-legal and their folding backs make accessing the rear-cockpit storage far easier.

The new car handles well and, keen to learn just why, I cornered Karsten Schebstad, chassis development engineer in charge of the GT2. Says Schebstad: "We wanted to make the new GT2 as user friendly and progressive as possible, so we literally pulled out every trick we know. The first thing we did was lower the roll center of the front axle. This slows down the turn-in response slightly and makes the handling more stable and less nervous.

"Then we raised the rear roll-center height by 20 mm, which makes the rear end follow the front more quickly," he continues. "By slowing the front end and quickening the rear by the right amounts, we created a balance with the right amount of stabilizing understeer coupled to good turn-in

response." He uses the term "characteristic velocity," which I haven't heard before. "This is a term that we use to describe the amount of response or nervousness of a car. We measure this by step-steering into a turn with a given steering angle and then measuring the response in terms of yaw as the velocity increases.

"In an ideal situation, after the point where yaw peaks, you want a situation where the quicker you drive in the turn, the lower the yaw gain should be," continues Schebstad. "What we were aiming for was a constant level of characteristic velocity where the increase is linear. Our target was the maximum amount of linearity so that the dynamic handling should be consistent at all speeds. What you feel on the production car is the fruit of that work."

By all early indicators, the new 997 GT2 is the fruit of not just significant labor but also of immense talent. The result is one of the most spectacularly capable sports cars yet conceived. —Ian Kua



cloth seat material, a six-point seatbelt for the driver, and a prep-kit for a main-battery cut-off switch. Unfortunately, the U.S. forbids manufacturers from installing roll bars in street cars. Porsche says all GT2s will be prepared for full cages, with hard mounting points in the floor, but one wonders why other Clubsport items can't be made available to U.S. buyers.

The \$191,700 GT2 should hit our shores in January, 2008. We'll see between 200 and 300 of the 1,300 Porsche plans to build over the course of the production

run. It's pretty hard to find fault in a 911 that breaks the 200-mph barrier with no drama and can literally turn around and idle in traffic like a commuter. I hate to mention it, but the GT2 even has the standard retractable Porsche cup holders in its dash. And that left leg will toughen up with more miles, I'm sure of it. Finally, being a 911, the GT2 has a certain stealth factor the exotic Carrera GT can't match.

Unfortunately, the rain hindered my ability to toss the car around the twisties, so I'm eager to see how the chassis reacts

in the dry. Riding with Röhrli, however, demonstrated the car's potential. Lewin tells the story of Röhrli's first drive in the GT2: "He did several laps, then came in. He was silent, and I thought, 'Oh no, what horrible oversight have we made?' After what seemed like an immeasurable amount of time, he said, 'This is the best car I've ever driven.'" I'm not going to argue with Röhrli, as the man seems to know his stuff. ■

Visit [www.excellence-mag.com](http://www.excellence-mag.com) to see a short clip of Jeff Glenn's autobahn testing in the GT2.