Porsche celebrates 25 years of the 911 GT3

16/10/2024 The motorsport-derived 911 variant debuted 25 years ago.

Atlanta.A quarter of a century ago, Porsche introduced a new model that would go on to become a legend: the 911 GT3. Named after a class of endurance racing cars, the motorsport-derived variant prioritized track performance and a particularly visceral driving experience by offering motorsport technology for the road. A high-revving, naturally-aspirated flat-six engine closely related to the engine used in motorsport, rear wheel drive, lightweight construction, upgraded aerodynamics, and a track-focused suspension and brake systems have been defining characteristics of this model throughout its 25 year history.

The beginnings

The first 911 GT3 model was introduced to the European market in 1999 as part of the 996 generation. It was one of the first production cars to officially lap the legendary Nürburgring-

Nordschleife in less than eight minutes, with rally legend Walter Röhrl going around the famous track in just 7:56.33 minutes – a sensation at the time. The car distinguished itself from rear-wheel drive 911 Carrera models through a 30 mm reduction in ride height, a pronounced front fascia, visible side skirts and a fixed rear wing – all designed to reduce lift while still delivering a very efficient 0.30 drag coefficient. The angle of attack of the rear wing is adjustable for use on closed-course tracks.

The original 911 GT3 was powered by a 265 kW (360 PS) 3.6-liter naturally-aspirated flat six engine that was derived from the Le Mans-winning Porsche 911 GT1 race car and revved up to 7,800 rpm. Mated exclusively to a six-speed manual transmission carried over from the 911 GT2 (993 generation), the first 911 GT3 reached a top track speed of 187 miles per hour. The track-focused model also featured staggered 18-inch wheels and tires, larger brakes compared to the 911 Carrera, a standard limited slip differential, and an upgraded suspension that allowed for greater mechanical adjustment of anti-roll bars and suspension geometry for closed-course track setup. Taking advantage of weight savings measures such as the deletion of air-conditioning and rear seats, the 911 GT3 weighed just 2,976 lbs. (1350 kg).

The successor

Four years later, the 911 GT3 received significant updates, and was offered in North America for the first time. Based on the facelifted 996 generation 911, horsepower grew to 381, torque increased from 273 to 285 lb.-ft., and the redline climbed to 8,200 rpm. This was possible by updating the engine with longer titanium connecting rods, lighter pistons, the VarioCam variable camshaft adjustment system, and lighter intake and exhaust valves. As a result, the 2004 model year 911 GT3 accelerated from 0 to 60 miles per hour in 4.3 seconds and achieved a top track speed of 190 miles per hour. The car remained paired to a six-speed manual transmission, albeit with modified ratios for gears five and six. In addition to restyled fasciae, a new rear wing and updated wheel design, this model featured wider front and rear tires. Underscoring the effort of the Motorsport department to save weight wherever possible, the new wheel/tire combination saved 2.2 lb despite the increase in size thanks to flow-formed wheel technology. Larger front brake rotors, up from 330 mm to 350 mm, and six-piston calipers increased pad-to-rotor contact by about 40 percent. As an option, customers could choose Porsche Ceramic Composite Brakes (PCCB) with carbon-ceramic brake rotors as an option for the first time in the GT3, taken from the 996-generation 911 GT2.

Third generation of GT3 arrives

Based on the 997-generation of 911, a new 911 GT3 model was unveiled in 2006. Still powered by a 3.6-liter naturally-aspirated flat six, horsepower now crossed the 400 threshold, rising to 415. The engine was now capable of revving up to 8,400 rpm. The 2007 911 GT3 sprinted from 0 to 60 miles per hour in 4.1 seconds and reached a top track speed of 193 miles per hour. The six speed transmission offered 15 percent shorter shift throws and a reduction of ratios for gears two through six, pairing well to power delivery of the engine. To make full use of the increase in power, the suspension

was enhanced with divided control arms offering greater camber angle adjustment. Additionally, Porsche Active Suspension Management (PASM) was offered as standard for the first time on the GT3, offering the capability of electronically adjusting the dampers. Wheel diameters grew to 19 inches, the size of the standard rear cast iron brake rotors increased to 350 mm, the optional PCCB rotors grew to 380 mm at the front axle, and Ultra-High Performance tires (UHP) were mounted to further increase grip.

The 997 became the first 911 GT3 model to be equipped with a traction control system (TC), which complemented the standard limited slip differential by giving the driver greater control, particularly on slippery surfaces. The car was also fitted with a "SPORT" button for the first time, reducing backpressure in the exhaust and putting the traction control system in a more dynamic mode. In spite of the added technology and safety equipment such as new Sport Seats with side airbags, the car tipped the scales at just 3,075 lb (1395 kg) thanks to new weight-saving aluminum doors and luggage compartment lid. The 911 GT3 of the 997 generation was characterized by new styling, with cues such as the air outlet in front of the luggage compartment lid designed to extract air from the front center radiator and increase downforce at the front axle. This was also the first model to feature center-mounted tailpipes for the exhaust. The interior offered new features such as an Alcantara-wrapped steering wheel, hand brake lever and gearshift lever.

Larger engine, faster lap times

For the 2010 model year, the 911 GT3 received not only a visual update as part of the facelifted 997 generation, but also a number of significant technical changes. For the first time, the engine displacement of the race-derived flat six was no longer 3.6, but 3.8 liters. 435 horsepower and 317 lb-ft of torque propelled the new model from 0 to 60 mph in 4.0 seconds and on to a top track speed of 194 miles per hour while reaching engine speeds of up to 8,500 rpm. The 911 GT3 of this generation featured even more technology directly adopted from motorsport, such as the new center lock hubs for the 19-inch wheels which increased driving performance with lower rotating masses. by allowing deactivation of those systems in two stages The first stage deactivates stability control while leaving traction control turned on, allowing a skilled driver to corner more aggressively on a racetrack. The second stage deactivates both systems. An optional front axle lift system was introduced for the first time, offering an additional 1.2 inches (30 mm) of ride height at the front axle to clear driveways and speed bumps. Ultimately, the most impressive trait of this 911 GT3 was its improved track performance. With the latest generation of UHP-tires and PASM calibration as well as optional dynamic engine mounts, it lapped the Nürburgring-Nordschleife in just 7 minutes and 40 seconds.

The 991 generation GT3

Introduced in 2013 for the 2014 model year, the 911 GT3 based on the newly introduced 991-generation adopted one of the biggest advancements in performance and technology ever seen on a road car: the seven-speed Porsche dual-clutch transmission (PDK). It had already been available on the

911 Carrera and Turbo variants of the previous generation, but was significantly modified to suit the characteristics of this race-bred model and fitted as standard. Lighter gear sets reduced the weight of the unit by about four pounds compared to the standard 911 Carrera models, and the gear ratios were shortened to suit the high-revving nature of the naturally-aspirated 475 hp 3.8-liter flat six which featured direct injection for the first time and revved to an impressive 9,000 rpm. Top track speed was 195 mph, reached in seventh gear. Due to the Launch Control feature and lightning quick shifts of less than 100 milliseconds, the 0 to 60 mph time dropped significantly to just 3.3 seconds.

The track performance of this latest 911 GT3 also benefited from the new 991 platform. Track widths and body stiffness increased, PASM system advanced, and standard center-lock wheels were made of forged aluminum for the first time and increased to a 20-inch diameter. They were fitted with the latest generation of UHP tires, and rear axle steering was added for the first time to the GT3. This innovative technology, shared with the 918 Spyder and 911 Turbo, steered the rear wheels in opposite direction of the front wheels at speeds of up to 31 mph to increase agility and reduce the turning circle. Over 50 mph, the system steered the rear wheels in tandem with the front wheels to promote stability, for example during a lane change at higher speeds. The system was included as standard equipment. The size of the cast iron brake rotors grew to 380 mm front and rear, while the optional PCCB system, now in its third generation, featured 410 mm rotors up front and 390 mm rotors at the rear. Despite the significant expansion in onboard equipment, the latest 911 GT3 kept weight in check at 3,153 lbs. Equipped with all these enhancements, and clad in a new body that provided a significant increase in downforce compared to the 997-generation models, the 2014 911 GT3 completed a lap of the Nürburgring-Nordschleife in 7 minutes and 25 seconds.

Yet, in the subsequent generation (991.2), the team in Flacht continued to find room for improvement. 7:12.7 minutes: The lap time of the 991.2 911 GT3 represents roughly 45 seconds of improvement at the 'Ring compared to the original model. A world of difference. Engine displacement grew in this generation to 4.0 liters, developing 500 hp and a healthy 346 lb-ft of torque. A new crankshaft, larger main bearings, thicker connecting rod bearings, plasma-coated cylinder liners as well as a new oiling system to supply oil directly into the feeder bore of the crankshaft took the durability of the engine to new heights. Like on a racing powertrain, valve train clearance is set at the factory using shims and does not require adjustment.

Breathing of the engine improved thanks to larger ram air ducts on top of the rear decklid cover. Downforce grew 20 percent compared to the previous model to a total of 340 lbs. (155 kg) at the top track speed of 198 mph. This improvement was made possible by a new front fascia featuring lateral air blades, a special front spoiler lip, a new rear underbody diffusor, and a prominent rear wing sitting 0.8 inches higher than before. Special lightweight touches include front and rear fasciae made of lightweight polyurethane and a rear decklid made of carbon fiber composite, including the hinges.

Catering to the purists, a six-speed manual transmission was re-introduced as a no-cost alternative to the standard seven speed PDK. The 911 GT3 with Touring Package was also introduced for the first time as part of this generation. That configuration was available exclusively with the six-speed manual transmission. It retained the engine and suspension from the 911 GT3, but deleted the fixed rear wing

in favor of an automatically controlled rear spoiler from the 911 Carrera Cabriolet models, fitted with an additional Gurney flap. Optional Chrome accents and cloth seat inserts replaced the Alcantara upholstery of the standard model to lend a more subdued touch to the model.

Today

Following a familiar theme, the newest 911 GT3 is even more track capable than its predecessor and, once again, relies on technologies forged in motorsport to achieve that goal. Consequently, the car managed to clock a Nürburgring-Nordschliefe lap time below seven minutes; 6:59.93 on the current, official configuration or 6:55.34 on the historically relevant 12.8-mile configuration. For a sense of where that pace places the current 911 GT3, Porsche 918 Spyder became the first road car to clock a "sub-seven-minute" lap time at the famous German track in 2013. At the time this was a jaw dropping achievement. For the 911 GT3, a car with comparatively modest power, to achieve such a result is evidence of how capable the car is.

Learnings from prior generations – rear axle steering, adjustable camber, toe, ride height, and sway bar setting and an extensive use of rosebud joints in the suspension, among many others – remain a part of the recipe. This leap in performance was possible through a combination of implementing new technologies and continued discipline in avoiding weight gain. The result is a car that weighs 3,126 lbs. with the six-speed manual transmission and 3,164 with the seven-speed GT Sport PDK. In both cases this represents an increase of only about 11 lbs. compared to the prior generation.

Meanwhile, the car gained a new double-wishbone front axle; the first of its kind on a roadgoing 911 and a development based on the 911 RSR LM GTE race car. The new design replaced the MacPherson strut setup of other 911 road cars, offering greatly improved camber stability during high-load cornering.

Aerodynamics are another are of significant improvement in the current GT3. Changes include a redesigned rear wing attached to a pair of swan neck supports. This wing and the pair of corresponding front diffusers are manually adjustable to adjust the amount of downforce the car generates. The car makes between 50 and 150 percent more downforce than its predecessor depending on the position of the manually adjustable front diffusers and rear wing. A revised rear diffuser and underbody air guides also contribute significantly to the overall improvements in aerodynamics.

For the first time on a 911 GT3 (non-RS model), Porsche also offered a road-legal track tire: the ultra-sticky Michelin Pilot Sport Cup 2 R. While these tires are approved for road use, their primary mission is to shave seconds from lap times and are only offered through approved retailers after initial delivery.

Beyond the improvements, the GT3 remained true to its roots with a motorsport-derived, naturally aspirated flat-six. As with the preceding generation, it has a 4.0-liter displacement and revs to 9,000 rpm. But other improvements significant enough to justify a totally separate engine code took place in the years intervening between the two generations. Perhaps most notably, the engine how uses

individual throttle bodies for each cylinder, improving the efficiency of the combustion cycle and achieving a better air-fuel mixture to create more power. The rotating assembly, oiling system and engine mounts all represent weight savings compared to the preceding model.

Starting with the 992 generation 911 GT3, customers in the United States are also able to order a kit from Manthey-Racing for the first time. Founded in 1996 and responsible for running factory GT competition for Porsche Motorsport since 2013, Manthey are based in Meuspath, Germany, beside the Nürburgring. In addition to competing actively in sports car racing, they develop performance kits for roadgoing Porsche sports cars. While the kits differ from model to model, the goal is always the same: they aim to inspire confidence in the driver through targeted changes, generally focusing on aerodynamics, chassis, brakes, and lightweight wheels.

In the 992 911 GT3 that is exactly the case. The kit, which is available for order and installation on any 992 generation 911 GT3 improves aerodynamics and makes the car visually recognizable. A larger spoiler lip and side flaps are fitted at the front of the car. In conjunction with the modified air guide elements on the underbody, they increase the downforce on the front axle. The modifications at the rear are even more pronounced. The swan-neck-supported wing of the 911 GT3 is wider, and now features a Gurney flap. The end plates with their distinctive Manthey logos have also been enlarged, as has the wing's angle of attack. The fins of the rear diffuser are extended and are now made of carbon fiber reinforced plastic (CFRP). Aerodiscs on the rear wheels – also made of CFRP –further enhance aerodynamic efficiency.

Braided steel brake lines help to maintain consistent pedal feel under extreme conditions, and four-way coilover dampers offer compression and rebound adjustment for track specific adjustments without using tools. Optional lightweight wheels save a total of approximately 16 lbs. compared to the standard GT3 wheels to reduce unsprung mass. In the hands of a pro driver, the results were clear: the car – equipped with the PDK - was more than four seconds quicker around the Nürburgring than the standard car.

More capable and diverse than ever before, the 911 GT3 represents the beating heart of Porsche's commitment to building pure, uncompromised sports cars.

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Consumption data

911 GT3 (WLTP)*: Fuel consumption combined: 13.8 – 13.7 l/100 km; CO_2 emissions combined: 312 – 310 g/km; CO_2 class: G

911 GT3 (Predecessor model)

*Further information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch neuer Personenkraftwagen" (Fuel Consumption, CO_2Emissions and Electricity Consumption Guide for New Passenger Cars), which is available free of charge at all sales outlets and from DAT (Deutsche Automobil Treuhand GmbH, Helmuth-Hirth-Str. 1, 73760 Ostfildern-Scharnhausen, www.dat.de).

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