
STR 001 107 06

Product Information 911 GT2

PORSCHE


# Product Information

## Porsche 911 GT2

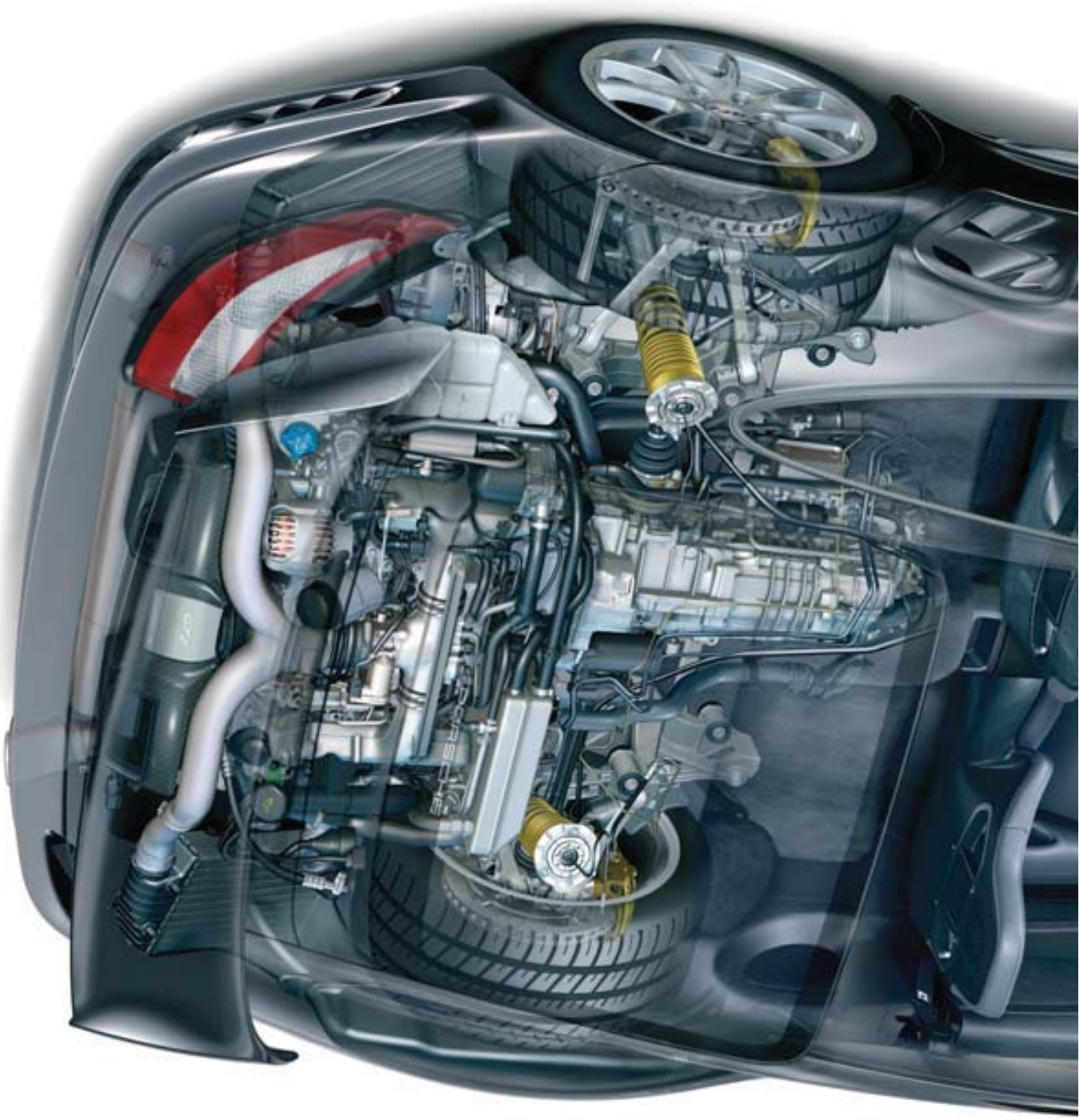
## Foreword

The new Porsche 911 GT2 of the 997 generation embodies outstanding performance. Just as its predecessors did, it convinces through output and improved driving dynamics that have been improved yet again. This training brochure provides detailed information on the new Porsche 911 GT2 and also looks at the vehicle's strategic competitors.

The aim of this brochure is to provide Porsche sales organization staff with the ability to advise customers extremely competently concerning the new GT2.

For this purpose, the information is extremely detailed. Besides descriptions of the technical realization, the resulting product advantages are also outlined. Thus, this Product Information includes all information tailored to the customers' needs and purchasing motives.
This knowledge should, of course, be used selectively - that is, tailored to the individual customer's needs - when offering professional advice to customers.

Dr. Ing. h.c. F. Porsche
Aktiengesellschaft
Global Training



## Contents


Fig. 1: The new 911 GT2

Note:
All information provided in this document is correct as at May 2007. Porsche reserves the right to alter the design, technical specification, prices, equipment and final scope of delivery at any time prior to the market launch of the new 911 GT2. The basis of the descriptions in this chapter is the EU model.

The main focus of the features and equipment described here is on the new developments and modifications compared with the 911 GT2 (996) and the current 911 Turbo (997), and on the unique selling points of the new 911 GT2. Features adopted from the current 911 generation (997) are identified by a note. For detailed basic information, please refer to the appropriate Marketing Concept and/or Product Information release for the current 911 Turbo and the 911 GT3.

## 1 Entire vehicle

The current 911 product family of the 997 generation has already proved, in the 911 Turbo and 911 GT3 models, that it has sportiness and a high performance as well as individuality of design and character. An addition to this family, the new 911 GT2 is a model that surpasses the performance of the 911 Turbo and the sportiness of the 911 GT3 model.

The new 911 GT2 is the absolute top performer with street credentials in the Porsche sports car range, and a real top performer in the high-performance sports car segment. As well as its classic 911 silhouette and characteristic design, the new 911 GT2 provides exceptional performance, especially on race circuits.

### 1.1 Development objectives

The development objectives of a new model in the range of Porsche motorsports models, and especially of a new top model for the entire sports car range, naturally concentrate on the features relevant to the driving dynamics. The main challenge was to implement the objective of “pure driving dynamics” at the highest level.

It was only possible to implement this objective by developing well-known technologies intensively and consistently, and by using new technologies. This enabled us to increase the performance while maintaining high efficiency in power generation and during implementation in the driving dynamics. A further focus of development was to make the high performance potential available to ordinary as well as racing-oriented drivers, and at the same time to meet the high requirements of professional

racing drivers with individual requirements for extreme driving performance on the race circuit.

In order to meet these objectives, the following **development objectives** apply especially to GT vehicles:

- Unique visual differentiation from the current 911 models, and a clear indication that it is a motorsports vehicle

- Efficient, balanced aerodynamics (downforce)

- High engine power at moderate fuel consumption, paired with a low vehicle weight for the lowest possible power-to-weight ratio

- Perfectly coordinated overall system with maximum traction for efficient power transfer and exceptional performance

- Chassis tuning with direct feedback to the driver, for precise vehicle handling and individual performance requirements

- Overall motorsports-oriented concept, taking into account high day-to-day usability with a high level of road comfort and safety, and a large range of personalization options

This has resulted in the following **development focus**:

- Development of GT-specific body parts with improved aerodynamics, based on the empirical values from the 911 GT2 (996) and the current 911 GT3/GT3 RS, with noticeable downforce across the entire speed range.

- Enhancement of the 911 turbo engine with **variable turbine geometry (VTG)** and 3.6 l displacement with an optimum-efficiency power kit. For high performance, taking into account the fuel consumption and the globally valid regulations on exhaust fumes and sound emissions, including US legislation.

- Redesign of the turbocharger, for increased performance requirements. Development of an **expansion intake system** with an innovative operating principle and a titanium rear muffler (incl. tailpipes) to reduce the vehicle weight.

- Adaptation of the **transmission** to increased loads, and tuning of the transmission ratio (transmission and dynamic scrub radius), in order to transfer the available engine tractive force into the best possible acceleration, and to make the performance even more dynamic, especially at high speeds.

- Use and sporty tuning of an active chassis with the **Porsche Active Suspension Management (PASM)** adjustable shock absorber system. For the highest requirements of driving dynamics and agility on the road. Design of individual components to suit use on a race circuit (e.g. adjustability of the axle geometry).

- Development of a unique **wheel/tire combination** with a tire width on the rear axle that is even greater than that on the current 911 Turbo.

- Development of the sporty stability system **Porsche Stability Management (PSM)**, for the first time with a function for switching off the lateral and longitudinal dynamics in two stages or completely; for individual, motorsports-oriented driving dynamics with an extreme performance on the race circuit.

- High braking performance due to the use as standard of the **Porsche Ceramic Composite Brake (PCCB)** with large brake disks on the front axle.

- Differentiation of the **interior** to the current 911 Turbo through an enhanced concept of ergonomics, color and material, and through the use of high-quality functional materials and components.

- Offer of a comprehensive **personalization program**.

These focal development points make the new 911 GT2 the top model of the 911 series, and enhance the “best in class” claim in relation to technology and innovation among the competition.

### 1.2 The main highlights

| Overview | |
|---|---|
| **Entire vehicle** | • **Best power-to-weight ratio** among the current Porsche standard production vehicles and the competition<br>• **Best performance** among the current Porsche standard production vehicles |
| **Body** | • **Unique GT2 vehicle design with large rear wing**<br>• **Aerodynamic downforce on the front and rear axles** |
| **Drive** | • **Highest engine output** among the current Porsche standard production sports cars (530 bhp)<br>• **6-cylinder biturbo engine with variable turbine geometry (VTG)**<br>• **Expansion intake system**<br>• **Rear silencer and tailpipes of light-weight titanium**<br>• **Launch Assistant** |
| **Chassis** | • **Porsche Stability Management (PSM)** (with sporty tuning and, for the first time, a two-stage complete switch-off function)<br>• **Porsche Active Suspension Management (PASM)** adjustable damper system (sporty tuning)<br>• **Porsche Ceramic Composite Brake (PCCB)** – as standard equipment |
| **Interior** | • **Sports bucket seats** (Racing bucket seats with folding backrest and integrated thorax airbag and manual fore/aft adjustment) |


Fig. 2: The new 911 GT2

The main highlights and product features are summarized briefly below.

### 1.2.1 Design

The design of the new 911 GT2 is in keeping with its intended character as a thoroughbred standard production sports car and the top model among the current sports car models. The striking design with the large air intakes in the front end and the characteristic wing design makes a statement about the performance potential of the new 911 GT2 from the very outset. In respect to visual dynamics, the aerodynamic function and the unique form, the new 911 GT2 provides ideal conditions for continuing the successful tradition of the 911 GT2.

**Front**

The new front end of the 911 GT2 takes up the design language of the current 911 Turbo and integrates the enhanced, GT-specific characteristics of large air intakes and additional air vents. The powerful appearance of the new 911 GT2 is enhanced by the broad exterior cooling air intakes. Thanks to the removal of the fog lights used for the 911 Turbo, it is possible to ensure the supply of cooling air required for the high engine power by using openings with the largest possible cross-section. Vanes, horizontally integrated in the air intakes, add to the unique design of the new 911 GT2. A broad spoiler lip concludes the front end and adds to the downforce on the front axle by its low position.

The additional air outlet in front of the luggage compartment lid is another striking design feature. As in the 911 GT2 (996) and the current 911 GT3 models, this air outlet allows the air from the central radiator to escape upwards. This makes it possible to improve the radiator through-flow and make cooling more efficient, and to additionally support the aerodynamic downforce on the front axle.

**Side view**

The new 911 GT2 is instantly recognizable as part of the 911 model series through the classic 911 silhouette. Its side view is differentiated mainly by the vehicle height, which is approximately 25 mm lower than that of the 911 Carrera, the muscular GT2-specific rear wings with sideplates and the GT-specific wheel design.

Fig. 3: The new 911 GT2

Fig. 4: The new 911 GT2

The side air inlets behind the doors have been redesigned and are different to those on the 911 GT2 (996). They have the same shape as those on the current 911 Turbo, and enable an efficient supply of cooling air to the charge-air coolers. In addition to this functional benefit, the proportions and the dynamic contours of the air inlets are perfectly adapted to the shape of the rear wing. The horizontal trim strip, which is integrated elegantly into the air inlets, gives the side view an even more dynamic look and continues the design theme begun with the strip-shaped LED direction indicator lights on the front end. The rigidly designed surfaces of the front wings and aluminum doors emphasize the new rear side panels, which are wider compared to the previous model. A black plastic sill cover designed specifically for the new 911 GT2 protects the lower edges from stone impacts and lends the side view a more muscular appearance.

The new redesigned 19-inch GT2 wheels provide an especially stylish accent. Their 10-spoke design with the large cross-sections between the spokes not only makes brake cooling more efficient, but also provides an unimpeded view of the standard ceramic brake system PCCB with large brake disks and yellow brake calipers.

The exhaust channel openings for the charge-air coolers are integrated in the sides of the rear apron, and their gill look was designed specifically for the new 911 GT2. They round off the dynamic overall impression of the side view and support an efficient through-flow of the charge-air coolers.

**Rear wing**

The dominant fixed rear wing is a traditional component of the 911 GT2 models, and together with the front end is also the most striking design characteristic of the new 911 GT2. The old 911 GT2 (996) wing design with large sideplates has been re-developed completely, and a unique integrated spoiler lip added to the rear spoiler completes the design.

The enhanced wing profile plays an important part in the aerodynamic performance by adding downforce to the rear axle. As well as the functional shape, the rear wing provides the new 911 GT2 with the typical powerful appearance.

The form and position of the ram air boxes, which provide the engine with combustion air, are a new feature. In the 911 GT2 (996), they were integrated vertically in the rear wing supports. In the new 911 GT2, they were horizontally integrated in a striking manner in the lateral wing supports in order to improve


Fig. 5: Rear wing


Fig. 6: The new 911 GT2

efficiency. This new form and positioning of the ram air boxes not only improves the use of the aerodynamic air flow around the vehicle for increased ram air, but also provides a visual differentiation for the new 911 GT2.

**Rear**

The new muscular rear apron was developed specifically for the 911 GT2 and is fitted with two GT2-specific single tailpipes in a round design, which are integrated laterally in the rear apron in the same manner as on the 911 Turbo. The bottom section of the new rear apron is painted Black and fitted with an integrated and striking lip to finish off the design and emphasize the horizontal lines of the broad rear of the vehicle.

The additional air vent openings around the tailpipes are another characteristic design feature. They take up the stylistic theme of the gill-like vent openings of the charge-air coolers and continue it laterally up to the tailpipes. These additional gill-like vent openings are also painted black, and support the dissipation of heat from the engine compartment, which is subject to substantial thermal loads, and the new titanium rear muffler.

**Interior**

The interior of the new 911 GT2 is based on that of the current 911 GT3, with the addition of a black leather interior and some features borrowed from the Carrera GT.

The steering wheel of the new 911 GT2 has a rim that is lightly upholstered with Alcantara, and is the same as that in the current 911 GT3. The gear lever, handbrake lever, center strips of the sports bucket seats, roofliner, door handles, door panels, lids of the door storage boxes and the storage box in the center console are all finished with Alcantara. This consistent material concept is not only a visual upgrade of the interior with motorsports associations, but also increases the functionality by improving the grip, especially of the steering wheel, gear lever and handbrake lever.

Another upgrade for the new 911 GT2 is the instrument cluster already used in the 911 GT3, but given a unique new color concept. As in the Carrera GT, the pointers and increment markings are yellow, while the central rev-counter catches the eye with its titanium instrument dial and “GT2” logo.

The new sports bucket seats are a special highlight, and the 911 GT2 is the first Porsche vehicle to feature them as standard. They are light racing bucket seats with folding backrest, integrated thorax airbag and manual fore/aft adjustment. These seats thus combine the excellent lateral support potential of a racing bucket seat with a high day-to-day usability and protection of the occupants. The seat shell is made from a combination of glass and carbon fiber-reinforced plastic (GFRP/CFRP) with a surface of exposed carbon. The seat

Fig. 7: Interior

covering in the new 911 GT2 is made of leather with a center strip in Alcantara.

A Clubsport package is available at no extra cost for the new 911 GT2, as it was for its predecessor (not available in the USA, Canada and Mexico). It contains a bolted-on rear roll-over frame, a 6-point belt on the driver's side, a fire extinguisher with holder and the preparation for a battery main switch. In combination with the Clubsport package, the sports bucket seats are upholstered in flame-resistant fabric instead of leather/Alcantara.

In addition to the Clubsport package, the following parts are available from the Porsche motorsports department for use at motorsports events with FIA-GT regulations: the battery main switch, and lateral bars for the roof and A-pillars (to complete the safety cage).

The passenger-compartment ergonomics are improved by the new interior design and by elements from the current 911 generation. Examples include the pedals that have been moved forward, and the additional height adjustment for the steering wheel. Another improvement on the 911 GT2 (996) is the enhanced side impact protection system POSIP with individual head and thorax airbags.

Thanks to the range of individual options which has been further extended since the predecessor model, the new 911 GT2 can also be personalized to an even more individual level.

Fig. 8: Sports bucket seat

### 1.2.2 Performance

The new 911 GT2 is the most agile vehicle with the best performance of the entire range of Porsche models, especially on race circuits. Alongside an exceptional chassis, a very low vehicle weight and a dynamic drive concept are also crucial for achieving this high performance. Another important aspect is that the individual components are coordinated to provide efficient aerodynamics.

The engine is essential for the delivery of high performance. In the new 911 GT2, it is based on that of the current 911 Turbo, with the tried and tested turbocharging with variable turbine geometry (VTG). This technology facilitates both a high maximum power and a dynamic responsiveness of the turbocharger, with high torque values even at low revs.

With a maximum output of 530 bhp the new 911 GT2 delivers 50 bhp more than the current 911 Turbo. The maximum torque of 505 lb ft is 45 lb ft above the base value for the 911 Turbo. While the 911 Turbo in combination with the optionally available Sport Chrono Turbo package can also achieve 505 lb ft, this utilizes the overboost feature which has a time limit. In the new 911 GT2, the maximum torque of 505 lb ft is available over a rev range between 2,200 and 4,500 rpm without a time limit.

The increase in performance compared to the current 911 Turbo is achieved mainly by the redesign of the turbocharger with a turbine optimized for flow and with a larger compressor, and by a newly developed expansion intake system. It is also assisted by the newly constructed titanium rear muffler with a reduced flow resistance, and by the fine tuning of the engine control, including the injection and ignition.

The completely newly developed expansion intake system with an innovative operating principle is a unique selling point and a special highlight. It has revolutionized the existing processes for providing the engine with air. In intake manifolds, the air flows as well as vibrates. These vibrations consist of a compression phase, during which the air is compressed, and of an expansion phase, during which the air expands. It has always been assumed that an increased amount of air increases the performance. The compression phase of the air vibrations in the intake system is

**Performance data** (changes compared with the 911 Turbo are marked in **bold**)

| | **new 911 GT2** (997) | 911 Turbo (997) | 911 GT2 (996) | |
|---|---|---|---|---|
| | **MY 08** | MY 08 | MY 04 - 05 | MY 01 - 03 |
| **Engine power** | | | | |
| Max. power<br>at | **530 bhp**<br>**6,500 rpm** | 480 bhp<br>6,000 rpm | 483 bhp<br>at 5,700 rpm | 462 bhp<br>at 5,700 rpm |
| Max. torque<br>at | **505 lb ft**<br>**2,200** – 4,500 rpm | 460 lb ft<br>1,950 – 5,000 rpm | 472 lb ft<br>3,500 – 4,500 rpm | 472 lb ft<br>3,500 – 4,500 rpm |
| with overboost (optional)<br>at | – | 505 lb ft<br>2.100 – 4,000 rpm | – | – |
| Specific output | **147.2 bhp/l** | 133.3 bhp/l | 134.2 bhp/l | 128.3 bhp/l |
| Specific torque | **140.28 lb ft/l** | 127.78 lb ft/l | 131.1 lb ft/l | 127.78 lb ft/l |
| with overboost (optional) | | 140.28 lb ft/l | | |
| **Performance** | | | | |
| 0 - 100 km/h<br>with Tiptronic S | **3.7 s**<br>– | 3.9 s<br>3.7 s | 4.0 s<br>– | 4.1 s<br>– |
| 0 - 200 km/h<br>with Tiptronic S | **11.2 s**<br>– | 12.5 s<br>12.2 s | 12.5 s<br>– | 12.9 s<br>– |
| Top speed | **204 mph** | 193 mph | 198 mph | 196 mph |

used to press more air into the combustion chamber. The disadvantage of this principle is that the charge effect heats the air while it compresses it. This means that the fuel-air mixture cannot be ignited with the best possible efficiency.

The new expansion intake system utilizes the air vibrations in a completely different way. It takes advantage of the expansion phase, during which the air cools down while it expands. This principle means that the mix in the combustion chamber is slightly cooler and can therefore be ignited in a more efficient manner. As a result, the efficiency of the engine increases, thereby improving the engine power and reducing fuel consumption at high loads and engine speeds.

The principle of the expansion intake system can only be applied in turbo engines. The cylinders are filled with slightly less air during the expansion phase than during the compression phase. This effect is compensated in the new 911 GT2 by a slightly increased boost pressure. At maximum power output, fuel consumption when using an expansion intake system is up to 15% lower than for turbocharging with a conventional intake manifold.

The titanium rear muffler is another special feature. The tailpipes are also made of very light titanium. The new 911 GT2 is the first Porsche vehicle with road traffic approval that contains this material in its exhaust system. Titanium was selected because it weighs little and has high temperature stability and material strength. The weight advantage vis-à-vis the stainless steel rear muffler of the 911 Turbo is approximately 30% (approximately 20 lb).

As in its predecessor, the propulsion force is transmitted to the rear axle in the new 911 GT2 via a reinforced 6-speed manual transmission with steel synchronizer rings in the second to fifth gears. This drive concept which is characteristic of the GT models is compact and light, and thus offers the best prerequisites for racing-oriented performance potential. The shift throws in the new 911 GT2 were also reduced to support dynamic gear changes.

Just like the 911 GT2 (996), the new 911 GT2 also features an asymmetrical differential lock as standard. The locking values are 28% for acceleration and 40% for deceleration. These values have been reduced from the previous model (40% for acceleration, 60% for deceleration), and enable more neutral handling, especially for load changes on bends. In extreme driving situations, the asymmetry of the differential lock provides good traction on varying road surfaces, and increased driving stability for deceleration during load changes. Overall, it improves cornering agility with high lateral acceleration.

For the first time, a chassis with actively adjustable shock absorbers is used in a 911 GT2. Porsche Active Suspension Management (PASM) is used as standard and was tuned specifically for the new 911 GT2. It enables extremely sporty driving with superior handling, even on race circuits. The basic tuning of the new 911 GT2 (PASM in Normal mode) is similar to that in the current GT3 models. This basic tuning creates the right preconditions for good driving dynamics, e.g. on wet public roads and race circuits. The new 911 GT2 can also be set to Sport mode by pressing the PASM button. The characteristic map of this chassis setting was made harder for the 911 GT2, and enables extremely sporty driving with superior handling on dry race circuits.

As in the 911 GT2 (996), it is possible to tune the anti-roll bars, the height, the track and the camber separately for an individual chassis setting on the race circuit. (Note: These changes are not permissible for driving on public roads).

The steering corresponds to the current 911 generation and has a variable steering ratio with an increasingly direct ratio from approximately 80% steering angle. This increases agility on winding roads and improves driving stability at high speeds. For outstanding deceleration, the new 911 GT2 like its predecessor boasts the Porsche Ceramic Composite Brake (PCCB) as standard. However, the brake disk chamber on the front axle is made from aluminum instead of stainless steel, and the front brake disks have been enlarged from 350 mm to 380 mm in diameter.

The wheels have also been enlarged. As compared to the 18-inch wheels on the 911 GT2 (996), the new 911 GT2 has wide 19-inch wheels using the GT design. The type and width of the rear tires have also changed. The standard tires on the previous model have been replaced by performance-oriented sports tires, and the width of the rear tires has been enlarged from 315 mm to 325 mm.

For the new 911 GT2, the familiar vehicle stability system Porsche Stability Management (PSM) will be available as standard for the first time in the GT models of the 911 line. Thus, the new 911 GT2 avails itself of a control system that provides a significant increase in active safety. This system was specially modified anew for the 911 GT2 and, in

particular, to the driving dynamic demands of extremely sporty drivers. A new shift strategy for deactivating PSM has been developed especially for **sports use on race circuits**.

In the new 911 GT2, the system is not deactivated using a PSM OFF button, as in other Porsche models, but in 2 stages using an SC OFF and an additional SC+TC OFF button. As for the familiar PSM OFF button, these buttons are located in the front center console. The SC OFF button (SC = Stability Control) deactivates the lateral dynamics control and hence the wheel-selective braking when over- or understeering. The SC+TC OFF button (TC = Traction Control) additionally deactivates the longitudinal dynamics control for spinning drive wheels. Traction Control uses the ABD (automatic brake differential), ASR (anti-slip regulation) and MSR (engine drag torque control) systems.

Another special feature concerns the reactivation of the deactivated stabilization systems. In the case of the familiar PSM OFF function, the lateral and longitudinal dynamics control is automatically reactivated when braking in the ABS control range in order to stabilize the vehicle. In the new 911 GT2, the lateral and longitudinal dynamics control is not reactivated during braking when either SC OFF or SC+TC OFF is operated. This function and shift strategy, especially developed for the new 911 GT2 is an enhancement of PSM for GT vehicles and hence for **drivers with extremely sporting ambitions** who place extreme and individual demands on performance and driving dynamics.

This is also the first Porsche vehicle with road traffic approval with an assist system for maximum acceleration from 0 mph. This system, called Launch Assistant in the new 911 GT2, achieves this effect together with the 6-speed manual transmission fitted as standard. The system is activated when the clutch pedal and the accelerator pedal are depressed, without any additional buttons being pressed. The engine speed increases and is limited to approximately 5,000 rpm. The boost pressure also increases to approximately 13 PSI within a short time. Once these preconditions have been fulfilled, the vehicle moves off at maximum acceleration through the fastest-possible release of the clutch. The Launch Assistant is easy to use and enables the best possible move-off performance that can be repeated easily.

As in its predecessors, the objectives for the new 911 GT2 were a low weight for high performance, and a great range. This was affected by placing the drive in the rear axle and by the box-shaped body shell of the current 911 Turbo. As in the 911 GT2 (996), this combination enables both a low vehicle weight and the use of a fuel tank enlarged to 90 l {(911 GT2/996: 89 l) not for US or Canada]. The weight is also reduced by the aluminum luggage compartment lid (as in the current 911 generation) and the aluminum doors (as in the 911 Turbo and 911 GT3); the entire weight is 3,175 lb (DIN empty).

The aerodynamic tuning of the new 911 GT2, especially of the new front, the exhaust air outlets in front of the luggage compartment lid and the new rear wing with the additional spoiler lip, has improved the aerodynamic down-force.

**Conclusion**

The new 911 GT2 is a real top performer in the high-performance sports car segment. It is the top model in the entire sports car fleet and offers extraordinary performance and maximum power. As a result it ties in seamlessly with the successful concept of the GT2 model, last offered some two years ago with the 911 GT2 of the 996 model line. The recipe for the success of the 911 GT2 was low weight paired with a high engine output, racing-oriented chassis components including outstanding braking performance, extremely efficient aerodynamics and attractive styling. The new 911 GT2 based on the overall concept of the current 997 line has again raised the bar for road-suitable racecars. Like its predecessor, the new 911 GT2 also offers extraordinarily good preconditions for use as a competitive racing machine.

### 1.2.3 Product description

The following pages describe the most important details of the new 911 GT2. The product description is based on the EU model and shows the changes from the 911 GT2 (996). Subject to changes in offering, technical data and availability until start of production.

| **911 GT2 (997)** | Changes compared with the 911 GT2 (996) are marked in **bold.** |
|---|---|
| **Offering** | • 2-seater Coupé<br>• Offered worldwide. Results of measurements on the meeting of sound emission limits expected 08/2007) |
| **1. Engine** | • 6-cylinder horizontally-opposed biturbo engine, 3.6 l displacement,<br>• Maximum Horsepower: **530 PS @ 6,500 rpm**<br>• Maximum Torque: **505 lb ft @ 2.200** - 4.500 **rpm**<br>• Volumetric efficiency: **147.2 HP/l**<br>• Specific torque: **188.9 Nm/l**<br>• Max. engine speed: 6,750 rpm<br>• Aluminium engine block and cylinder heads<br>• Water cooling<br>• Four-valve technology<br>• Forged pistons and connecting rods<br>• 2 turbochargers with **variable turbine geometry (VTG),** 2 charge-air coolers<br>• Camshaft control and valve lift adjustment VarioCam Plus<br>• Hydraulic valve clearance compensation<br>• Dry-sump lubrication with external engine oil tank<br>• Electronic engine management (Motronic **7.8.1**)<br>• Electronic throttle<br>• Hot-film air flow sensor<br>• Sequential fuel injection (multipoint)<br>• Cylinder-specific knock control<br>• Two 3-way catalytic converters<br>• Stereo lambda control circuits<br>• Individual ignition coils, static high-voltage distribution system<br>• Upper shell of the air cleaner housing made of **carbon fiber (exposed carbon)**<br>• **Expansion intake system**<br>• **Rear silencer and tailpipes made of titanium**<br>• Round, GT2-specific tailpipes **integrated in the rear end**<br>• On-board diagnosis for monitoring the emission control system<br>• Double oil extraction in the crankcase |
| **2. Transmission** | • 6-speed manual transmission with dual-mass flywheel and transmission oil cooling<br>• Steel synchroniser rings 2nd – 5th gear<br>• **Short shifter**<br>• Rear-wheel drive<br>• Locking differential with asymmetrical action **(28% acceleration, 40% deceleration)**<br>• **Launch Assistant** |
| **3. Chassis** | • 8.5J J x **19** GT2 alloy wheels with 235/**35 RO 19 sports** tires at front,<br>• 12J x **19** GT2 alloy wheels with **325**/30 **ZR 19** tires at rear and **5 mm wheel spacers**<br>• Wheel hub cover with GT2 logo<br>• Anti-theft protection for wheels |

| **911 GT2 (997)** | Changes compared with the 911 GT2 (996) are marked in **bold.** |
|---|---|
| **3. Chassis** | • **Tire Pressure Monitoring System (TPM)**<br>• Tire sealing compound with electric compressor<br>• Power steering with **variable steering ratio**<br>• McPherson strut suspension with special spring and damper tuning, support bearings with ball joints<br>• Rear multi-link suspension axle LSA with fixed bolted axle carriers and special spring and damper tuning<br>• Aluminum rear cross member<br>• Specially tuned front and rear anti-roll bars, can be tuned for race track use<br>• Adjustable chassis for race track use (height, track and camber)<br>• PSM (Porsche Stability Management) with sportier tuning including ABS, ASR, ABD and MSR<br>• **PASM (Porsche Active Suspension Management)** adjustable damper system (sporty tuning) |
| **4. Brake system** | • Porsche Ceramic Composite Brake (PCCB) with 6-piston fixed monobloc brake calipers at front, 4-piston fixed monobloc brake calipers at rear, brake discs internally vented and cross-drilled, **aluminum brake chamber on front axle**<br>• The diameter of the brake discs is **380 mm** at the front, 350 mm at the rear.<br>• Brake calipers painted yellow<br>• Vacuum-controlled brake system with **9-inch tandem** brake booster<br>• ABS **8.0** (integrated in PSM)<br>• Brake pad wear indicator on each brake pad<br>• Additional cooling air ducts for the brake system at the front axle **and rear axle** |
| **5. Body** | • Two-seater Coupé with wide body and specific side skirts<br>• Sheet steel hot-dip galvanized on both sides<br>• **Body features preparation for roll-over frame** (fastening plates)<br>• Front end with **front lights, direction indicator lights** and additional exhaust air vent in front of the luggage compartment lid<br>• Rear side sections with air inlets for charge-air cooling<br>• Rear end with air outlets for charge-air cooling and **raised integrated tailpipes**<br>• Reduced underbody protection<br>• Rear lid with fixed rear wing incl. **spoiler lip** and wing supports with integrated ram air boxes<br>• Black GT2 logo on the rear lid<br>• Underbody panelling<br>• **Aluminum luggage compartment lid**<br>• **Aluminum doors**<br>• **Bow-type door handles**<br>• Door stops with **3** stop positions<br>• Front side windows with **hydrophobic coating**<br>• Fuel tank refill volume 67 l (USA)<br>• Metallic paint |
| **6. Electrical Equipment** | • Power windows with one-touch operation and short-stroke lowering<br>• Front wiper system with 2 wiping speeds, adjustable intermittent wipe and heated washer jets<br>• Electrically adjustable heated exterior mirrors **(double-arm)**, aspherical on driver's side<br>• Heated rear window<br>• **Porsche Communication Management (PCM)**: information system consisting of 5.8-inch color display with twelve buttons, double tuner with antenna diversity, integrated CD audio player with MP3 play function, on-board computer with extended functions and parallel display of basic information on the instrument cluster<br>• **Audio system 2 x 25 Watt and 4 loudspeakers**<br>• Uniform lighting concept for the entire interior with variable dimming in **white**<br>• Interior orientation lighting<br>• Footwell lighting |

| **911 GT2 (997)** | Changes compared with the 911 GT2 (996) are marked in **bold.** |
|---|---|
| **6. Electrics** | • Central locking system with remote control including luggage compartment lid release<br>• Electric unlocking of the luggage compartment and engine lids<br>• Weight-optimised battery (70 Ah) |
| **7. Lighting system** | • Bi-Xenon headlights with headlight cleaning system<br>• (Note: **Without** automatic headlight levelling system<br>• **separate auxiliary lights in nose with LED turn signals (note: no fog lights)**<br>• Rear fog light on driver's side<br>• High-level third brake light **in LED technology**<br>• **Automatic coming home light** |
| **8. Instruments** | • Cluster of five dial-type instruments integrated into cockpit<br>• Instrument cluster with **yellow pointers and increment markings** and multi-function display in dot-matrix technology<br>• Central rev counter with **titanium-colored background**, GT2 logo and **shift indicator**<br>• Analogue displays for revs, speed and oil pressure, oil temperature, coolant temperature and fuel level<br>• Continuous digital display of total mileage, trip mileage, time, outside temperature and speed<br>• On-board computer with boost pressure gauge |
| **9. Passive safety** | • Full-size airbags for driver and passenger<br>• Porsche Side Impact Protection System (POSIP), comprising side impact protection in the doors, **thorax airbags integrated in the side sections of the front seats** and head airbags for driver and front passenger integrated in the door panels<br>• 3-point automatic front seat belts, with buckle on seat<br>• Seat-belt height adjustment, seat-belt pretensioners and force limiters at front<br>• **Preparation for retrofitting the ISOFIX child seat anchoring system on passenger seat** and switch-off function for passenger airbag<br>• Engine immobilizer, safe lock system, alarm system with radar interior surveillance<br>• Deformation zones at front and rear with integrated alloy bumpers |
| **10. Air conditioning** | • Climate control with integrated active carbon filter<br>• Green-tinted heat-insulating glass |
| **11. Interior equipment** | • Black leather interior with plastic components painted in Black soft-touch paint.<br>• Interior equipment in Alcantara: **steering wheel rim, gear lever and handbrake lever**, roofliner, **door handles, exterior mirrors, lids of door storage boxes and center console**<br>• Interior equipment **painted Volcano Grey**: Trim for steering wheel spokes, gear lever and shift pattern.<br>• **Sports bucket seats** with folding backrest, integrated thorax airbag and manual fore/aft adjustment. The seat shell is made from glass and carbon fiber-reinforced plastic (GFRP/CFRP) with a surface of exposed carbon. Leather covering with seat center in Alcantara, without rear seat system<br>• **3-spoke GT3 steering wheel with upholstered steering wheel rim in Alcantara** and upholstered airbag module, spoke trim painted in Volcano Grey, with manual reach and **height adjustment**.<br>• Lockable, large glove box<br>• Three storage compartments in the center console<br>• Cup holder located **above the glove box** (integrated in the switch panel behind the decorative trim)<br>• Illuminated vanity mirrors in both sun visors<br>• Door sill covers and rear carpet with GT2 logo |
| **12. Colors** | • Solid colors – exterior: Black, Guards Red, Carrara White, Speed Yellow<br>• Metallic colors – exterior: Basalt Black Metallic, Arctic Silver Metallic, Midnight Blue Metallic, **Macadamia Metallic, Meteor Grey Metallic**<br>• Interior color: Black |

### 1.2.4 Product differentiation

The new 911 GT2 is sold as a 2-seater Coupé with 6-speed manual transmission. The main differences between the product features of this model and the current 911 Turbo Coupé are described below.

| | **Package 911 GT2** |
|---|---|
| **Design/Body** | • GT2 front end with additional exhaust air vent for center radiator in front of the luggage compartment lid<br>• GT2 rear end with air outlets for charge-air cooling and unique rear apron<br>• GT2 rear lid including wing supports with integrated ram air boxes<br>• Fixed rear wing with separate spoiler lip<br>• GT2 side skirts<br>• Underbody panelling with additional cooling air ducts for the brake system at the front axle and rear axle<br>• Reduced PVC underbody protection<br>• Body featuring preparation for roll-over frame<br>• Black GT2 logo on the rear lid<br>• Lighting system with Bi-Xenon headlights without dynamic headlight levelling system, without fog lights |
| **Interior** | • 2-seater with sports bucket seats including seat center strips in Alcantara.<br>• Interior equipment in Alcantara: steering wheel rim, gear lever and handbrake lever, roofliner, door handles, exterior mirrors, lids of door storage boxes and center console<br>• Interior equipment painted Volcano Grey: trim for steering wheel spokes, gear lever and shift pattern.<br>• 3-spoke GT2 steering wheel with steering wheel rim upholstered in Alcantara<br>• GT2 instrument cluster with yellow pointers and increment markings, rev-counter with titanium-colored instrument dial and shift indicator<br>• Door entry guard and rev-counter with GT2 logo<br>• Reduced sound damping<br>• PCM (Porsche Communication Management) with amplifier 2 x 25 Watt and 4 loudspeakers<br>• Optional navigation module and BOSE Surround Sound System |
| **Engine** | • Max. power output 530 bhp, max. torque 505 lb ft<br>• Max. speed 6,750 rpm<br>• Modified turbocharging with variable turbine geometry (VTG)<br>• Air cleaner housing with carbon fiber (exposed carbon) upper shell and sticker with GT2 logo<br>• Expansion intake system<br>• Titanium rear silencer and titanium tailpipes specific to GT2<br>• Battery 70 Ah |
| **Transmission** | • 6-speed manual transmission with short ratios and transmission oil cooling<br>• Steel synchronizer rings 2nd – 5th gear<br>• Short shifter<br>• Rear-wheel drive<br>• Locking differential with asymmetrical action (28% acceleration, 40% deceleration)<br>• Launch Assistant |

| | Package 911 GT2 |
|---|---|
| **Chassis** | • McPherson strut suspension with special spring and damper tuning, support bearings with ball joints (Uniball)<br>• Rear multi-link suspension axle LSA with fixed bolted axle carriers and special spring and damper tuning, aluminum rear axle cross member<br>• Specially tuned front and rear anti-roll bars<br>• Adjustable chassis for race track use (height, anti-roll bars, track and camber)<br>• PASM (Porsche Active Suspension Management) active damper system (sporty tuning) lowered by approximately 25 mm as compared to the 911 Carrera<br>• Vehicle stability system PSM (Porsche Stability Management) with sporty tuning<br>• PCCB (Porsche Ceramic Composite Brake) with yellow brake calipers and aluminum brake chamber on front axle<br>• The diameter of the brake discs is 380 mm at the front<br>• Brake system without brake assist and pre-filling of the brake system<br>• 19-inch GT2 wheels including wheel hub cover with GT2 logo<br>• 5-mm wheel spacers and tires 325/30 on the rear axle<br>• Sports tires |
| **Options** | |

### 1.2.5 Dates

| | |
|---|---|
| **Lifting of press restrictions** | **17.07.2007** |
| **1st trade fair introduction** | IAA (Frankfurt): 11. - 23.09.2007 |
| **Presentation to the press** | 24.09. - 05.10.2007 |
| **Start of production (SoP)** | • 10/2007 (LHD)<br>• 01/2008 (RHD/USA) |
| **Market launch**<br>**(PoS – Point of Sale)** | • Left-hand drive worldwide (except for USA) -> market-specific from 11/2007<br>• Right-hand drive worldwide and USA -> market-specific from 02/2008 |

## 2 Engine

### 2.1 Overview

The 6-cylinder horizontally opposed engine of the 911 GT2 is a performance-oriented enhancement of the current 911 Turbo engine with 3.6 l displacement.

Like the current 911 Turbo, the new 911 GT2 now offers turbocharging utilizing the Variable Turbine Geometry (VTG). It is well-known that this technology provides for extremely fast boost pressure build-up with good responsiveness, high torque values even at low engine speeds across a broad rev range, as well as facilitating a high maximum power output at low fuel consumption. For basic and detailed information on variable turbine geometry, please refer to the Product Information for the 911 Turbo (997).

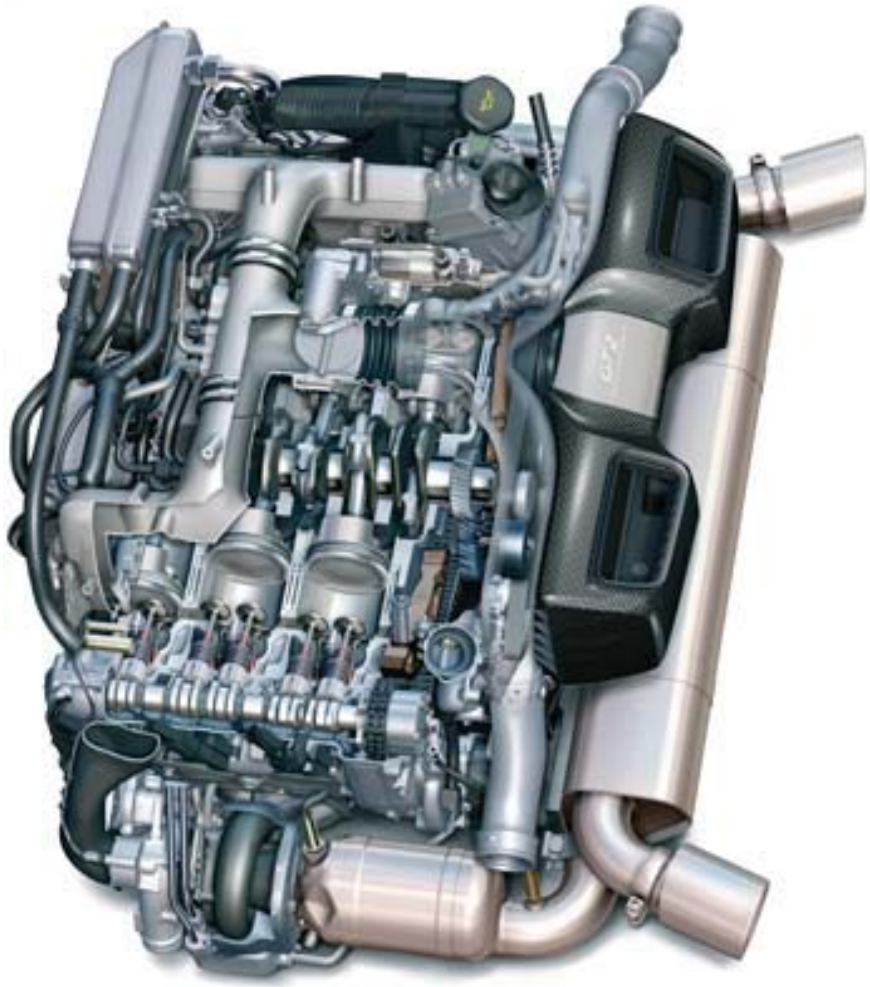
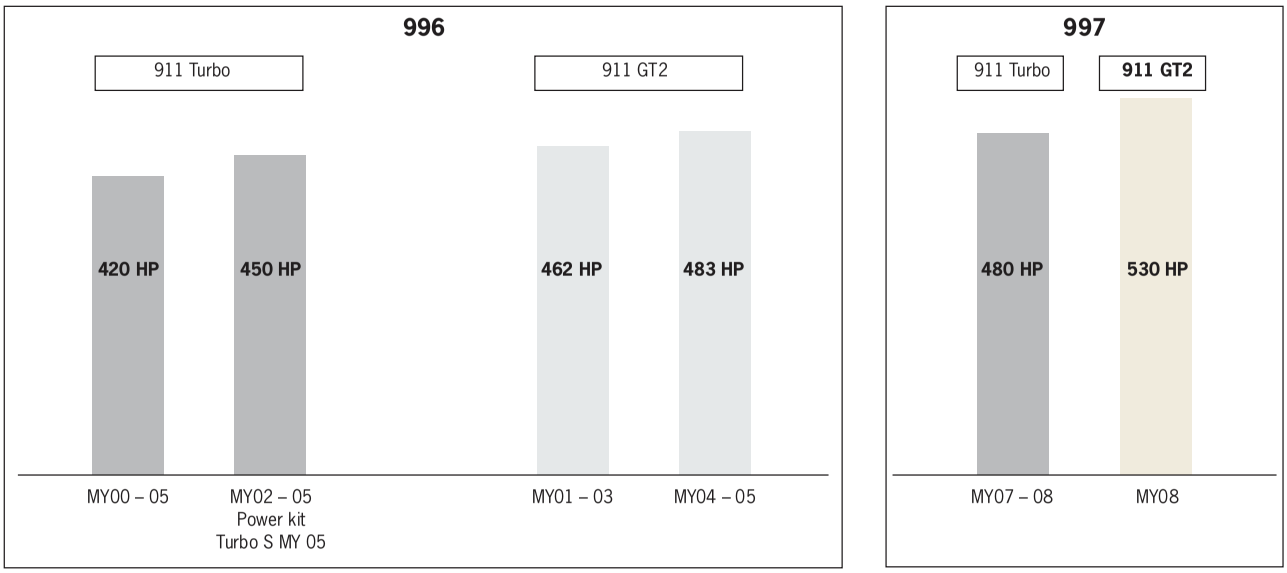


Fig. 9: Engine

**Technical data** (changes compared with the 911 Turbo are marked in **bold**)

| | **new 911 GT2** (997) | 911 Turbo (997) | 911 GT2 (996) | |
|---|---|---|---|---|
| | **MY 08** | MY 08 | MY 04 – 05 | MY 01 – 03 |
| Max. power<br>at | **530 bhp**<br>**6,500 rpm** | 480 bhp<br>6,000 rpm | 483 bhp<br>at 5,700 rpm | 462 bhp<br>at 5,700 rpm |
| Max. torque<br>at | **505 lb ft**<br>**2.200** – 4,500 rpm | 460 lb ft<br>1.950 – 5,000 rpm | 472 lb ft<br>3.500 – 4,500 rpm | 460 lb ft<br>3.500 – 4,500 rpm |
| with overboost (optional)<br>at | –<br>– | 505 lb ft<br>2.100 – 4,000 rpm | –<br>– | –<br>– |
| Specific output | **147.2 bhp/l** | 133.3 bhp/l | 134.2 bhp/l | 128.3 bhp/l |
| Specific torque | **140.28 lb ft/l** | 127.78 lb ft/l | 131.1 lb ft/l | 127.78 lb ft/l |
| with overboost (optional) | – | 140.28 lb ft/l | – | – |

**Engine power** (as compared to the 911 GT2 (996) and the corresponding 911 Turbo basic model)




**Engine features shared with the 911 GT2 (996)**

Like the previous model, the engine of the new 911 GT2 has the following basic features:

- 6-cylinder horizontally opposed biturbo engine, water-cooled
- Displacement 3.6 l
- Forged pistons
- 4-valve technology with hydraulic valve clearance compensation
- Camshaft control and valve lift adjustment with VarioCam Plus
- Dry-sump lubrication with external engine oil tank and 9 oil pumps
- Individual ignition coils with static high-voltage distribution system
- On-board diagnosis (OBD II)

**Engine changes compared to 911 GT2 (996)**

The following features have been developed or enhanced from the previous model (type 996) and correspond to those in the current 911 Turbo (997):

- Turbocharging with variable turbine geometry (VTG)
- Higher power output and torque values
- Enhanced VarioCam Plus
- Improved cooling performance including 2-level oil cooling (like in the current 911 Turbo)
- Improved charge-air cooling
- Exhaust system with single tailpipes integrated in the rear apron.
- Improved emission control and monitoring for the USA (LEV II and improved OBD II, with monitoring via CAN bus) and for Europe (EU4)
- Changes to the materials and components for reinforcement and weight reduction
- Attractive engine compartment design

For detailed information on the changes mentioned above, including those to the basic engine, please refer to the Product Information for the 911 Turbo (997).

**Performance increase compared to the 911 Turbo (997)**

The following features have been enhanced for the new 911 GT2 to

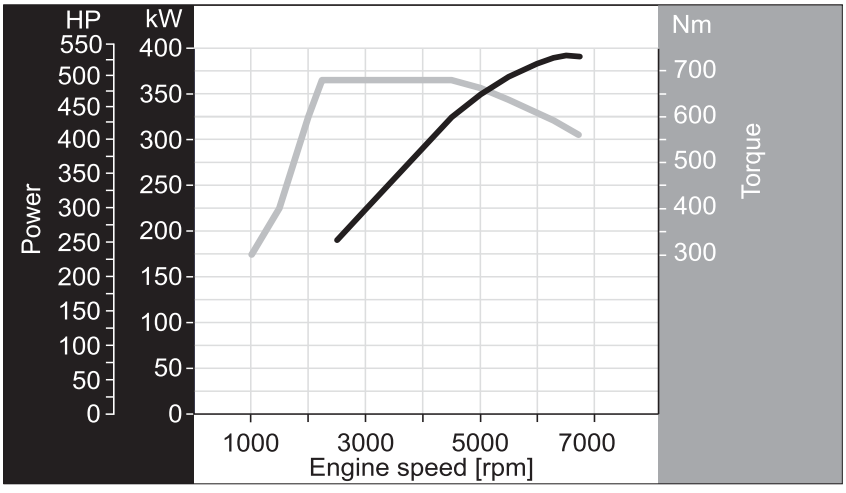



Fig. 10: Performance and torque curve

increase the performance from that of the current 911 Turbo:

- Modified turbocharger
- New expansion intake system
- New rear muffler and tailpipes of titanium

As well as having an increased performance, the new 911 GT2 meets all applicable sound and emission laws worldwide (still testing for Taiwan).

### 2.2 Turbocharging

In order to increase the performance compared to the 911 Turbo, the new 911 GT2 turbocharger has a larger compressor and a turbine optimized for flow. The enlarged compressor ensures that the maximum boost pressure for the new 911 GT2 is approximately 20 PSI. This is an increase of approximately 6 PSI on the standard boost pressure of the 911 Turbo (14.5 PSI), and an increase of 3 PSI on the overboost optionally available for the 911 Turbo (max. boost pressure: 17.4 PSI). The turbine housing has been modified to improve flow, and its flow resistance is lower than that of the 911 Turbo.

### 2.3 Air intake

Like the previous model, the engine of the new 911 GT2 has two ram air boxes to supply air. In the 911 GT2 (996), these openings were integrated in the vertical wing supports and guided the incoming air to the air filter via a shared air box integrated in the rear lid. In the new 911 GT2, this system has been enhanced and improved. The openings are now contained in separate air boxes that are integrated laterally into the wing supports. The openings now have a better position in the air flow and thereby increase their efficiency by increased ram pressure. After the air boxes, the incoming air is guided through two separate intake ports and directly to the air filter. This reduces flow resistance.

Ram air technology supports the engine's air intake, especially at high speeds, by accumulating the air flowing around the vehicle. In the new 911 GT2 turbo engine, some strain is taken off the turbochargers by the slight increase in pressure in front of the compressors, and the exhaust gas backpressure and expulsion work of the pistons is reduced. As a result, the engine power is increased slightly. The new 911 GT2 has additional air inlets integrated into the rear lid underneath the rear wing to provide the engine with fresh air and thereby cool the engine compartment.

**Air filter**

The new 911 GT2 air filter is basically the same as that of the current 911 Turbo. The top of the air filter housing (supply air housing) of the new 911 GT2 is made from carbon fiber-reinforced plastic (CFRP) in attractive exposed carbon to reduce weight and make the engine compartment attractive. The weight advantage vis-à-vis the conventional plastic top of the air filter of the 911 Turbo is approximately 19%. The engine compartment is visually improved even more by an aluminum trim like that in the current 911 Turbo. There is a note on this trim referring to the variable turbine geometry; this note is based on the 911 Turbo. The model logo was adapted for the new 911 GT2.

The function of the air filter with reduced suction resistance compared to the previous model corresponds to that of the current 911 Turbo. This is achieved by a new air filter insert and twin-branch air intake from the air filter via two separate hot-film air flow sensors. The 911 GT2 (996) has a one-branch air intake with a single hot-film air flow sensor.

Fig. 11: Expansion intake system 911 GT2

## 2.4 Expansion intake system

The expansion intake system of the 911 GT2 is an enhancement of the existing resonance intake manifold for turbo engines. The unique and special feature is the operating principle, which has revolutionized existing processes.

At the first glance, the expansion intake system hardly seems to differ from existing intake manifolds. It has no unusual design features such as additional resonance flaps or other moveable components. Nevertheless, its unique operating principles are exceptional and open up new possibilities of use for existing systems.

Like a traditional intake manifold for 6-cylinder horizontally-opposed engines, the expansion intake system consists of a distributing pipe, two accumulators and six individual intake ports. The decisive and revolutionary approach consists of the geometric dimensions of the distributing pipe and the individual intake ports. Compared to a classical intake manifold, the distributing pipe of the expansion intake system is longer and has a smaller diameter, and the intake ports are shorter.

Existing intake manifolds, e.g. the resonance intake manifold, utilize the air vibrations in the intake system to fill the cylinders with as much fuel-air mixture as possible. The compression effect (compression of air) arising during the air vibrations is used for this purpose. The disadvantage of a resonance intake manifold, especially in turbo engines, is that the air is heated up when it is compressed. This means that the fuel-air mixture in the combustion chamber cannot be ignited with the best possible efficiency. For this reason, the current 911 Turbo uses a resonance intake manifold that is constructed so that, unlike naturally aspirated engines, this effect only occurs at higher rpm ranges. At maximum power at the highest rpm ranges, this effect is neutralized.

Fig. 12: Expansion intake system 911 GT2

| | | Expansion intake system | Resonance intake manifold |
|---|---|---|---|
| Distribution pipe | - Diameter | Small | Large |
| | - Lenght | Long | Short |
| Intake ports | - Lenght | Short | Long |

The expansion intake system of the 911 GT2 turns the resonance charge effect around completely at higher engine speeds. The principle of expansion (expansion of air) is used instead of that of compression. During expansion, the air is cooled, and not heated like during compression. This effect results in a lower fuel-air mixture temperature in the combustion chamber, which means it can be ignited in a more efficient manner. As a result, the efficiency of the engine increases, thereby improving the engine power and reducing fuel consumption at high loads and engine speeds. The name of the expansion intake system is derived from the physical effect of expansion.

The principle of the expansion intake system can only be applied in turbo engines. The cylinders are filled with slightly less air during the expansion phase than during the compression phase. This effect is compensated in the new 911 GT2 by a slightly increased boost pressure.

The increased boost pressure increases the temperature of the air downstream of the compressor. This effect may seem to be a disadvantage, but the raised temperature level means that a larger amount of heat is discharged by the charge-air cooler, which in turn means that the air temperature downstream of the charge-air coolers is only slightly higher than after conventional charging. This share of thermal energy is accommodated by using the expansion intake system which, through the expansion of the air in the subsequent intake system, causes noticeably lower temperatures of the fuel-air mixture in the cylinders at a practically equal air flow rate.

As described above, these functional coherences, together with a perfectly efficient ignition, improve engine efficiency and result in a high engine

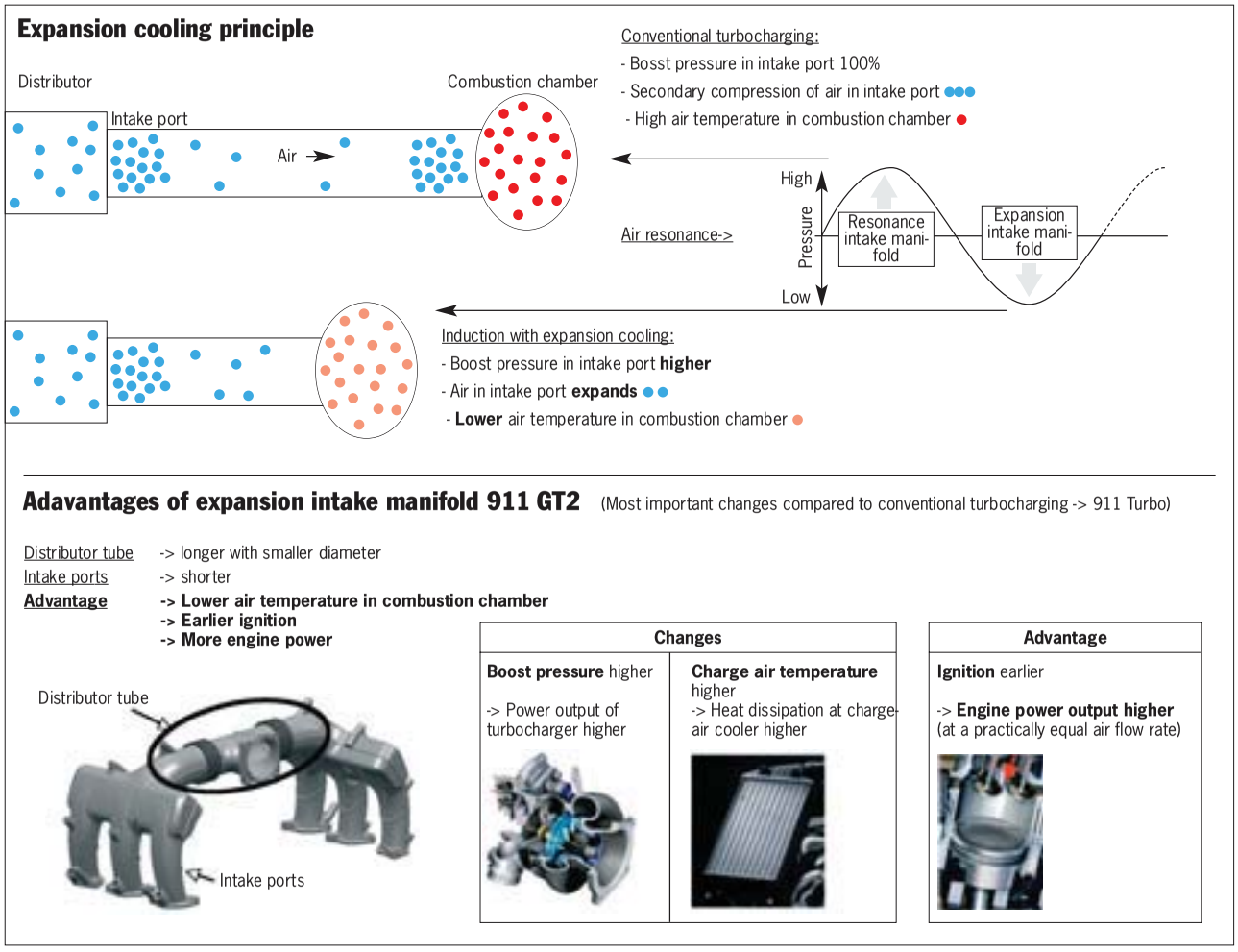



Fig. 13: Expansion intake system, operating diagram

output with low fuel consumption at high loads and engine speeds. At maximum power output, fuel consumption when using an expansion intake system is up to 15% lower than for turbocharging with a conventional intake manifold.

### 2.5 Exhaust system

The exhaust system of the new 911 GT2 is identical to that of the current 911 Turbo, apart from the rear muffler and tailpipes. The manifolds have a shape that is advantageous to flow, and have short pipes that are advantageous for the responsiveness of the turbocharger. The improved catalytic converter technology with one catalytic converter for each cylinder bank, and the improved secondary-air injection at cold start, improve the exhaust gas values from EU3, LEV and Gas Guzzler for the 911 GT2 (996) to EU4, LEV II* and no Gas Guzzler Tax* for the new 911 GT2 (*provisional values; confirmation expected during emissions classification for the USA at the end of 08/2007).

Fig. 14: Titanium rear muffler

### 2.6 Rear muffler

The new 911 GT2 is the first Porsche with road traffic approval that features a rear muffler and tailpipes made from titanium. The low weight and high temperature stability and material strength make titanium an impressive material. This measure not only reduces the entire vehicle weight of the new 911 GT2. The weight reduction on the rear axles has a positive effect on the weight distribution between the front and rear axles, and therefore on the vehicle balance. As a result, driving dynamics are further improved.

Existing exhaust systems in high-performance vehicles are usually made from stainless steel that is resistant to high temperatures. No other material is able to withstand the heavy strains. The more light-weight titanium could not be used until now for this temperature range. Now that a new titanium alloy has been developed especially for use in exhaust systems, it is possible to use this material for high temperature ranges. Titanium alloys are already used in aerospace designs. However, their limited plastic deformation and extremely high production costs have so far meant that they were unsuitable for economic use in motor vehicles.

Thanks to titanium and the modification of the entire rear muffler, it was possible to reduce the weight of the entire exhaust system including tailpipes by approximately 30% (approximately 20 lb) compared to the current 911 Turbo. The weight advantage vis-à-vis the rear muffler is approximately 50%.

This weight reduction has also been assisted by modifications to the shape and interior design of the rear muffler. Taking into account the legally applicable sound emission limits, it was possible to make the system even smaller than that of the current 911 Turbo. The pipe diameter of the rear muffler was increased from 60 mm (911 Turbo) to 65 mm (911 GT2) in order to implement lower exhaust backpressure and therefore increase engine power.

## 2.7 Engine sound

The engine sound of a vehicle is mainly defined by the sound of the gas cycle and therefore by the intake manifold and the exhaust system. In a turbo engine, the intake sound is muffled by the compressor and the charge-air cooler, and the exhaust sound is muffled by the turbocharger. As a result, the sound development faces a special challenge.

The aim for the new 911 GT2 was to develop the highly dynamic sound typical for Porsche for both the interior and the exterior sound, while meeting all applicable sound emission laws worldwide. A main focal point was the implementation of a powerful sonorous standstill sound that would acoustically underline the dynamic potential of this vehicle even at idling speed.

This objective was reached by developing the titanium rear muffler. The twin-branch exhaust system separately directs the exhaust flows from the two turbochargers and the catalytic converters downstream of them to the shared rear muffler. Perforated pipes then carry the two exhaust flows through pre-chambers and to a mixing chamber. When the two exhaust flows are combined, they result in the typical Porsche sound, which is uniquely dynamic and strident.

## 2.8 Engine management

Like the current 911 Turbo, the new 911 GT2 features the ME 7.8.1 engine management. This is based on the ME 7.8 of the 911 GT2 (996) and the enhancement of the current 911 generation.

The ME 7.8 has the following basic functions:

- Hot-film air flow sensor
- Static high-voltage ignition distribution with individual ignition coils for each cylinder
- Sequential fuel injection
- Idle-speed control via throttle valve
- Throttle valve control via electronic throttle

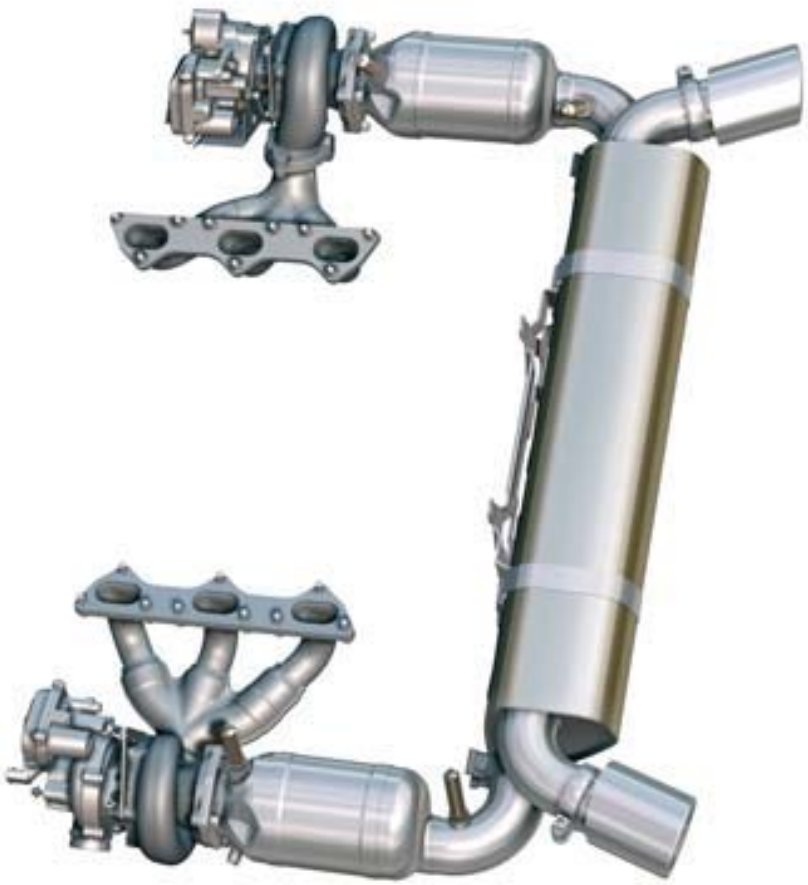


Fig. 15: Titanium rear muffler

- Stereo lambda control circuits with one lambda sensor upstream and one downstream of each catalytic converter
- VarioCam Plus control (continuous)
- Knock control with automatic fuel mix adjustment for fluctuating fuel quality

The ME 7.8.1 of the new 911 GT2, like that of the current 911 Turbo, has the following additional functions:

- Variable turbine geometry (VTG) control.
- Exhaust temperature control for protecting components of the variable turbine geometry using additional temperature sensors in the turbine housing
- On-board diagnosis via CAN bus
- Continuous lambda control circuits

The Launch Assistant (see chapter "Control systems") acceleration function is used specifically for the new 911 GT2, and is ensured by existing input and output control factors of the ME 7.8.1. The main factors used are the input values for load signal and clutch pedal switch, and the output values for injection and ignition timing.

### 2.9 Oil Supply

Tried and tested dry-sump lubrication with a separate engine oil tank is used to supply the new 911 GT2 with oil. This classic technology is used for especially high-performing engines, such as the current 911 GT2 and 911 Turbo models, and ensures sufficient oil supply even at extreme and continuous longitudinal and lateral acceleration. The amount of oil in the entire oil system is approximately 11.6 quarts, as in the 911 Turbo.

Like the 911 GT2 (996) and the current 911 Turbo, the new 911 GT2 has nine oil pumps (eight oil extraction pumps and one pressure pump). There are two oil extraction pumps for the turbochargers, four oil extraction pumps in the cylinder heads (two per cylinder head), and two extraction pumps and one pressure pump in the crankcase.

## 3 Transmission

### 3.1 Transmission

Like the previous model, the new 911 GT2 is only available with a 6-speed manual transmission. The transmission has already been used in the 911 GT2 (996), and in the 911 GT3 CUP (996) and 911 GT3 RSR (996) racecars. In its basic form, it is also used in the 911 GT3, the 911 GT3 RS and the 911 GT3 CUP (997) racecar.

Fig. 16: Transmission

The ratios and gear wheel sets for gears 1 - 6 have been adjusted in the new 911 GT2 to adapt them to the torque curve and improve acceleration capability. All gear wheel sets have been widened to ensure component strength when the engine power, increased from that of the 911 GT2 (996), is transferred to the road via the wider rear wheels. The same as for the previous model, durability is increased by the steel synchronizer rings for the 2nd to 5th gears in the new 911 GT2.

The new 911 GT2 also features the current 911 generation selector housing, for high shift dynamics and short shift throws. Together with the low ratio on the transmission input lever already used in the 911 GT2 (996), the entire shift ratio of the new 911 GT2 is approximately 22% lower than that of the 911 GT2 (996) and the current 911 Turbo. In addition, the shift cables and stop on the selector housing and the transmission input have been modified and made stiffer in order to improve shift precision. The spring and slot forces in the transmission have also been modified to improve the bounce of the gearbox.

Key features:

- Control cable shifting with direct actuation through low shift lever ratio
- Pressure-fed oil spray lubrication supplied by oil pump
- Transmission oil cooling through transmission oil/water heat exchanger to ensure durability even under extreme strain
- Steel synchronizer rings for 2nd to 5th gears for more exact gear changes even under very high strain
- Adjustable gear ratios thanks to gear wheels that are slotted into the transmission shaft rather than molded on (only for use on race circuits)
- Dual-mass flywheel
- Clutch control without servo support

### 3.2 Rear differential lock

Just like the 911 GT2 (996), the new 911 GT2 also features a mechanical rear differential lock with asymmetrical action as standard. The locking values are 28% for acceleration and 40% for deceleration. These values have been changed slightly from the previous model (40% for acceleration, 60% for deceleration), and adapted to the specific handling of the new 911 GT2 with improved driving dynamics.

The asymmetric locking values are tuned and designed for the specific construction and driving characteristics, e.g. weight distribution, traction requirements, engine drag torque, driving stability including load change and suitability for cornering.

High locking values result in good driving dynamics with stable load alteration behavior, but increase understeering in acceleration. Low locking values enable more neutral handling for increased driving dynamics. The precondition for reducing the locking values is an improved basic stability of the chassis and its connection to the body. This is achieved in the new 911 GT2 especially through its modified front axle with modified control points for the wishbones and special tuning for suspension, shock absorbers and anti-roll bars.

The differential lock gear wheels of the new 911 GT2 are under more strain because of the increased engine power, and have been reinforced as compared to the previous model.

## 4 Chassis

For the first time, a chassis with actively adjustable shock absorbers is used in a 911 GT2 as standard. The Porsche Active Suspension Management (PASM) system familiar from the current 911 generation was specially tailored to the requirements of the new 911 GT2. The characteristic performance features, such as extremely sporty driving with superior handling even on race circuits, and high driving safety, were taken into account.

Key features:

- Vehicle lowered by approximately 25 mm (compared to the 911 Carrera), lower center of gravity
- Adjustable shock absorber system Porsche Active Suspension Management (PASM)
- Adjustable anti-roll bars at front (4) and rear (3), adjustable height and toe for adjusting to individual handling requirements on race circuit
- Axle geometry adjustment range for use with race tires and the resulting requirements (e.g. camber settings) on race circuit
- Front wheel carrier with newly positioned control points for tie rods and wishbones, to stabilize handling particularly at high speeds
- Improved wheel guides (particularly rear axle)
- Aluminum rear cross member
- Variable steering ratio (same as current 911 generation)
- Porsche Ceramic Composite Brake (PCCB) with large brake disks on the front axle and improved disk technology.
- 19-inch wheels
- Sports tires
- Tire Pressure Monitoring System (TPM)

### 4.1 Front axle

The new 911 GT2 is based on the Mc-Pherson front axle concept of the current 911 GT3. It has been adapted to the increased performance potential through stiffer suspension/shock absorbers/anti-roll bars. The wheel carriers have also been enhanced especially for the new 911 GT2 to improve driving dynamics and stability.

The Porsche Active Suspension Management (PASM) with unique shock absorber struts was not used on the 911 GT2 (996), but is used on the new model. It has exterior coils and a height-adjustable spring carrier, which enables the vehicle to be lowered and the individual wheel loads to be adjusted if necessary. This was the same for the 911 GT2 (996). The traction and pressure stage of the single-tube gas-filled shock absorbers has a sporty tuning similar to that of the 911 GT3. The cylindrical coil springs with linear

Fig. 17: Front axle

characteristic are arranged axially to the shock absorber struts (as in the 911 GT3). Their geometric arrangement and spring carrier are based on standard racing coil springs, so that adjusted chassis tuning can be used during motorsport events on closed-off tracks at relatively low effort.

For precise shock absorber bearing and therefore low interference with the axle kinematics during spring deflection, the support bearings are fitted with a uniball joint, like on the 911 GT2 (996).

For the first time, the 911 GT2 has toe-in that can be fine-tuned. This is done through adjustment plates on the bottom wishbone, and results in high steering precision and a stable straight run.

Like the previous models and those in the current 911 GT3 models, the shock absorbers of the swivel bearings in the new 911 GT2 are fastened with a double clip. The control points for the tie rods were adapted to reduce the impact of the lowered vehicle height, which is approximately 25 mm lower than that of the 911 Carrera, on the overall geometry of the axle.

The new 911 GT2 has a 4-level tube-type anti-roll bar on the front axle (911 GT2/ 996: 5-level) with more rigid tuning than the current 911 Turbo. The adjustment is done via the various bolting points of the anti-roll bar on the pushrod between the anti-roll bar and the wheel carrier. The adjustment changes the lever arm of the anti-roll bar and thereby adjusts the effective stiffness of the anti-roll bar. Anti-roll bar adjustment makes it possible to individually fine-tune the chassis if necessary. The anti-roll bar suspension gear was redesigned to reduce the steering influence of the anti-roll bar.

The front axle wheel carrier was redeveloped for the new 911 GT2 in order to improve driving stability. The new position of the control points for wishbones and the corresponding kinematic changes in spring deflection made it possible to improve the steering and cornering behavior. The advantages are high straight run and track stability, particularly at high speeds, and neutral cornering behavior.

### 4.2 Rear axle

The new 911 GT2 rear axle is an enhanced version of existing 911 GT2 (996) multi-link suspension LSA (light, stable, agile). Its basic design is the same as that of the current 911 GT3. As on the front axle, the rear axle has been modified for increased performance potential through stiffer suspension/ shock absorber/anti-roll bar tuning. The tube-type anti-roll bar can now be adjusted in three stages, like in the current 911 GT3 and unlike in the 911 GT2 (996), which is adjusted in four stages. In addition, individual chassis fine tuning is now possible for both the front and rear axles if required.
The rear axle was also modified in

Fig. 18: Rear axle

several ways to meet the specific requirements of the 911 GT2 for motorsports purposes. As in previous models, the rubber bearings have been replaced by metal liners, which are also used in the 911 Turbo. This was done in order to stiffen the connection of the trailing links to the body and fit in with the overall vehicle character. As a result, steering precision and driving dynamics are improved. The wishbone and wheel carriers were adopted from the current 911 Turbo.

As on the front axle, the shock absorber struts with PASM on the rear axle also feature an additional exterior coil and a height-adjustable spring carrier. The traction and pressure stage of the single-tube gas-filled shock absorbers has a sportier tuning than on the 911 Turbo. The coil springs are cylindrical, arranged axially to the shock absorber strut axle and have progressive setup options. The upper spring carrier is made of aluminum and mounted on stiff bearings. The support bearings are the same as those in the current 911 GT3 models and feature a ball joint to support the suspension strut.

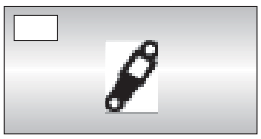
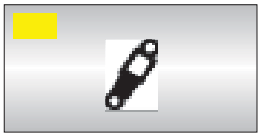
Like the previous models and the current 911 GT3 models, the new 911 GT2 features an aluminum rear cross member that reduces the weight and supports a balanced weight distribution between the front and rear axle. At comparable load limits, the aluminum version requires slightly more space than the steel rear cross member. As the 911 GT2 is only available with manual transmission, there is sufficient space for the aluminum version without affecting ground clearance. In the 911 Turbo, this space was required for the optional Tiptronic S transmission.

### 4.3 Porsche Active Suspension Management (PASM)

The PASM adjustable shock absorber system familiar from the current 911 generation now features special tuning to meet the increased driving dynamics requirements of the new 911 GT2.

Like the current 911 models, the new 911 GT2 has two characteristic maps. These have special tuning and program contents in the new 911 GT2 (like in the 911 GT3 models):

PASM combines two chassis variants, both in the new 911 GT2 and in other models. However, unlike in the 911 Carrera/Turbo models, the system is not used to increase the level of comfort. Instead, it offers the sportiness and agility already known from the previous 911 GT2 model without neglecting everyday comfort. This tuning already provides the new 911 GT2 with high driving dynamics on public roads and on wet race circuits.

| Programme | | **new 911 GT2** (997) | 911 Carrera/Turbo models (997) |
|---|---|---|---|
| **Normal mode** | PASM button not pressed  | Sporty and stiff<br>Tuning for driving on wet public roads or race circuits | Sporty and comfortable<br>Tuning for more comfort |
| **Sport mode** | PASM button pressed*  | Racing-oriented and stiff<br>Tuning for especially high driving dynamics and reduced body movements, particularly for race circuits with dry roads | Sporty and stiff<br>Tuning for increased driving dynamics. |

* including “PASM Sport” in the instrument cluster display

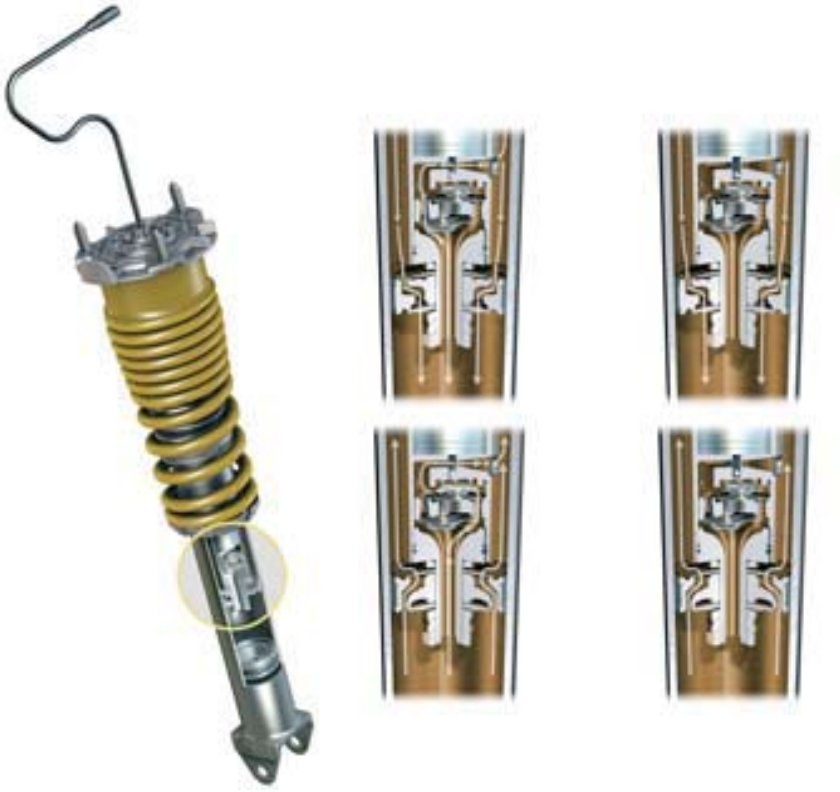


Fig. 19: PASM shock absorber, operating diagram

As the body movements are reduced to a minimum in Sport mode thanks to PASM, handling becomes particularly precise and targeted. This increases the driving dynamics potential of the new 911 GT2 even further, particularly on dry roads. PASM corresponds to existing features and gearshift strategies of the current 911 Carrera/Turbo models regarding the design and operating principles.

**4.4 Vehicle height**

The vehicle height of the new 911 GT2 is 25 mm lower than that of the 911 Carrera.

The vehicle level is approximately 5 mm/0.2" higher than that of the 911 GT3 models, mainly because of the larger wheel circumference and corresponding tire diameter on the rear axle and the resulting space requirements of the rear wheel housings. The new 911 GT2 has the same 19-inch wheel size, but has broader tires on the rear axle (325 mm instead of 305 mm as on the 911 GT3 and 911 GT3 RS). At equal tire cross-section of 30% (tire designation 325/30 -> relationship between tire height and tire width = 30%), this results in raising the tire edges and thereby increasing the tire diameter by approximately 12 mm/0.5".

When calculated from the center of the tire to the road (half the diameter increase), this automatically results in raising the vehicle level on the rear axle by approximately 6 mm/0.2". When calculated from the center of the tire to the body, this results in additionally raising the vehicle position due to the additional space requirements of the larger wheels in the wheel housing when taking into account unchanged spring travel.
The vehicle position was also raised slightly on the front axle to compensate for this measure. This ensures not only the aerodynamic balance, but also a sufficient approach angle on the front axle. In total, this results in a vehicle height of 1,285 mm/50.6", which is 25 mm/1.0" lower than that of the current 911 Carrera.

**4.5 Steering**

The steering of the new 911 GT2 corresponds to that of the current 911 generation.

Differences to the 911 GT2 (996):
- Variable steering ratio
- Additional height adjustment for the steering wheel
- Electrical steering wheel lock
- Longer tie rods

The advantages of a variable steering ratio are increased agility, particularly on bendy roads, and driving stability at very high speeds. This is made possible by the adoption of the existing steering ratio for the center position at small steering

| **Overview of vehicle heights** | | | |
|---|---|---|---|
| | **Vehicle height** | **Difference** | **Comments** |
| 911 Carrera | 1,310 mm/51.6″ | | without PASM |
| 911 Turbo | 1,300 mm/51.2″ | -10 mm/0.4″ | with PASM (as standard) |
| **911 GT2** | **1,285 mm/50.6″** | **-25 mm/1.0″** | with PASM (as standard) |
| 911 GT3 /GT3 RS | 1,280 mm/50.4″ | -30 mm/1.2″ | with PASM (as standard) |

wheel movements. Particularly at high speeds, the vehicle remains calm and does not react in a jittery manner should a driver inadvertently oversteer on bad roads, for example.

The steering ratio becomes increasingly direct at steering wheel angles above approximately 30°, and the steering wheel revolutions from lock to lock are reduced from 2.98 (for 911 GT2 (996)) to 2.62. The variable steering ratio results in increased agility on bendy roads, particularly in tight corners. Handling when turning corners in city traffic is also improved. Steering reacts far more spontaneously. Parking also becomes easier, as the wheels turn more strongly as the steering wheel angle increases. In spite of the larger wheels, the turning circle is 10.9 m/35.76 ft, which is a similar level to that of the 911 GT2 (996), where it is 10.6 m/34.8 ft.

The manual height adjustment for the steering wheel is another improvement. In addition to axial adjustment by 40 mm/1.6", the steering wheel height can now be adjusted by 40 mm/1.6" in the new 911 GT2. This is the same as for the current 911 generation. Thanks to this feature, it is possible to further personalize the ideal seat and steering wheel position as well as the view of the instruments.

Like the current 911 generation, the new 911 GT2 has an electrical steering wheel lock instead of a mechanical one. It is a component of the networked engine immobilizer system and provides particularly high protection from theft.

**4.6 Brake system**

Like the previous model, the new 911 GT2 is fitted with the Porsche Ceramic Composite Brake (PCCB) as standard.

Differences to the 911 GT2 (996) MY 2005:
- Larger brake disks on the front axle
- Aluminum brake disk chambers on the front axle

The brake-disk diameter on the front axle has been increased from 350 mm/13.8" to 380 mm/15.0" in order to further increase braking performance on the new 911 GT2, in the same manner as on the current 911 GT3 and 911 Turbo models (PCCB optional). These dimensions correspond to those of the Carrera GT (front and rear), and to those of the 911 GT3 Cup (997) front axle.

| **Overview of the brake system**<br>(changes compared with the previous model are shown in **bold**) | **new 911 GT2** (997)<br>MY 2008 | 911 GT2 (996)<br>MY 2005* | <br>MY 01 – MY 04 |
|---|---|---|---|
| Disc technology | Enhanced ceramic | **Enhanced** ceramic | Ceramic |
| **Front axle** | | | |
| Brake calipers | 6-piston monobloc fixed calipers | 6-piston monobloc fixed calipers | 6-piston monobloc fixed calipers |
| Brake disc chamber | **Aluminum** | Stainless steel | Stainless steel |
| Disc diameter (mm/in) | **380/15.0** | 350/13.8 | 350/13.8 |
| Disc thickness (mm/in) | 34/1.3 | 34/1.3 | 34/1.3 |
| Pad area per pad ($cm^2$/$in^2$) | 112/17.4 | 112/17.4 | 112/17.4 |
| **Rear axle** | | | |
| Brake calipers | 4-piston monobloc fixed calipers | 4-piston monobloc fixed calipers | 4-piston monobloc fixed calipers |
| Brake disc chamber | Stainless steel | Stainless steel | Stainless steel |
| Disc diameter (mm/in) | 350/13.8 | 350/13.8 | 350/13.8 |
| Disc thickness (mm/in) | 28/1.1 | 28/1.1 | 28/1.1 |
| Pad area per pad ($cm^2$/$in^2$) | 62/9.6 | 62/9.6 | 62/9.6 |
| **Brake booster** | **Tandem 9-inch** | Single 10-inch | Single 10-inch |

*last year of production

Like the current 911 GT3 models, the new 911 GT2 also features an aluminum brake disk chamber on the front axle. Aluminum replaced steel for the first time in the new 911 GT3 Cup (997) in March 2005. The new 911 GT2 adopts this technology to further reduce the unsprung masses. Aluminum brake disk chambers weigh approximately 50% less than steel ones. Together with the light ceramic brake disks, this has reduced the unsprung masses for the entire vehicle by approximately 1.8 kg/4 lb

The enhanced Porsche Ceramic Composite Brake (PCCB) system on the new 911 GT2 has the following advantages over brake systems with gray cast iron disks:

* Quicker responsiveness
* Very high fading stability through constant friction values
- High safety reserves at high loads
- Mass approximately 50% lower than that of gray cast iron disks of the same type
- Brake disks that are resistant to corrosion

The previous model, 911 GT2 (996), was already fitted with enhanced disk technology in its last model year, 2005. The most important changes to the disk technology used for the 911 GT2 (996) up to model year 2004 are: the shape of the interior cooling channels increases the ventilation effect, brake cooling and rigidity of shape, and the material mixture is more resistant to corrosion. These characteristics have increased the performance and lifespan of the brake disks.

**4.7 Wheels/tires**

The new 911 GT2 is fitted with 19-inch light alloy wheels and sports tires as standard. In order to improve driving dynamics, steering behavior and lateral stability, the wheels and tires are larger than those of the 911 GT2 (996). The tires on the rear axle are also wider in order to improve traction, and therefore acceleration and braking potential. In addition, 5-mm wheel spacers are used on the rear axle in order to utilize the largest-possible lateral acceleration and anti-rolling stability.

The new wheel size, combined with the sports tires specially tuned for the vehicle, including larger wheel contact surface, has the following advantages:

- Very high lateral acceleration at high cornering speeds

| **Technical data**<br>(changes compared with the 911 GT2 (996) are marked in **bold**) | | **new 911 GT2**<br>(997) | 911 GT2<br>(996) | | 911 Turbo<br>(997) |
|---|---|---|---|---|---|
| **Wheels/tires** | | **MY 08** | MY 04 – 05 | MY 01 – 03 | MY 08 |
| Designation | | **19-inch GT2 wheel** | 18-inch GT3 wheel | 18-inch Turbo Look II wheel | 19-inch Turbo wheel |
| Front axle | Wheels | 8.5J x 19 | 8.5J x 18 | 8.5J x 18 | 8.5J x 19 |
| | Rim offset | **53 mm** | 40 mm | 40 mm | 56 mm |
| | Tires | 235/**35 ZR 19** | 235/40 ZR 18 | 235/40 ZR 18 | 235/35 ZR 19 |
| Rear axle | Wheels | 12J x **19** | 12J x 18 | 12J x 18 | 11J x 19 |
| | Rim offset | **51 mm** | 45 mm | 45 mm | 51 mm |
| | Wheel spacers | **5 mm** | | | |
| | Tires | **325**/30 **ZR 19** | 315/30 ZR 18 | 315/30 ZR 18 | 305/30 ZR 19 |
| Tires | | **Sports tires** | Standard tires | Standard tires | Standard tires |
| Wheel hub cover | | GT2 logo | GT2 logo | Monochrome Porsche Crest | Monochrome Porsche Crest |
| **Track width** | | | | | |
| Front axle | | **1,515 mm/59.7″** | 1,495 mm/58.9″ | 1,495 mm/58.9″ | 1,490 mm/58.9″ |
| Rear axle | | **1,550 mm/61.0″** | 1,520 mm/59.8″ | 1,520 mm/59.8″ | 1,548 mm/60.9″ |

Fig. 20: 911 GT2 wheel

- Exact handling and steering behavior
- Optimum acceleration and braking potential

The 911 GT3 RS (996) was the fist vehicle equipped with sports tires as standard. Like the current 911 GT3 models, the new 911 GT2 will be equipped as standard with a new generation of tires, which was developed to be suitable for the entire chassis and vehicle development. It has a very high performance potential with high traction, lateral acceleration and short stopping distances, particularly on dry roads. (Note: There is increased danger of aquaplaning on wet roads due to reduced tread depth)

**Run-flat systems**

Like the 911 GT2 (996) and the current 911 generation, the new 911 GT2 will be equipped as standard with a tire repair kit containing a tire sealing compound and a tire pressure compressor with integrated tire pressure monitor. Like the current 911 GT3 models, the new 911 GT2 also features two guide bolts that protect the ceramic brake disks (PCCB) during wheel changes. The elements of the tire repair kit are located in a storage bowl in the bottom section of the luggage compartment floor, along with the vehicle tool kit.

**Tire Pressure Monitoring System (TPM)**

Like the current 911 Turbo models, the new 911 GT2 will be equipped worldwide as standard with the well-known Tire Pressure Monitoring System (TPM) with permanent air pressure monitoring for each tire.

Not only does the Tire Pressure Monitoring System provide additional protection from possible tire damage; it makes it possible to monitor the correct air pressure as well. This makes it possible to avoid creeping loss of pressure in individual tires, and thereby prevents irregular tire wear and increased fuel consumption.

## 5 Control Systems

### 5.1 Porsche Stability Management (PSM)

For the new 911 GT2, the vehicle stability system Porsche Stability Management (PSM) will be available as standard for the first time in the GT models of the 911 line. This system was specially tuned for the new 911 GT2 and now enables the deactivation of individual function components. In turn, this means that even extremely sporty drivers are offered a sufficient number of variations for personal dynamic requirements. Thus, the new 911 GT2 avails itself of a control system that provides a significant increase in active safety and takes full advantage of the dynamic potential.

**Basics**

Since its introduction in 1998, Porsche Stability Management (PSM) comprises the following: longitudinal dynamics control Traction Control (TC) with ABD (automatic brake differential), ASR (anti-slip regulation) and MSR (engine drag torque control) systems, and ABS (anti-lock braking system) and the Stability Control (SC) lateral dynamics control. Stability Control is the lateral dynamics control function for stabilizing the vehicle. It does this by wheel-selective braking when the vehicle oversteers or understeers, and through specific intervention in the engine control (throttle valve) to reduce load change reactions.

For detailed basic information on PSM, please refer to the Product Information releases for the Carrera 4 (996) or the 911 Turbo. The anti-slip regulation integrated in PSM has been tuned specifically for the new 911 GT2 and results in more dynamic and faster adjusting behavior. This improves acceleration, e.g. when the wheels are spinning on loose surfaces or wet roads. This happens because the throttle valve remains open for as long as possible during the adjusting behavior (unlike existing tuning), and because the power is reduced by reducing the ignition angle and fuel injection instead of closing the throttle valve. This adjusting strategy means that hardly any boost pressure is lost, improving acceleration.

The brake system of the new 911 GT2 has been designed for sporty use with high dynamic and performance requirements. It achieves a highly sensitive brake system control with an exact pressure point and finely controlled brake intervention. The new 911 GT2 achieves quick responsiveness of the brake system and high brake performance through its ceramic brake system PCCB, which it features as standard.

**PSM system overview**

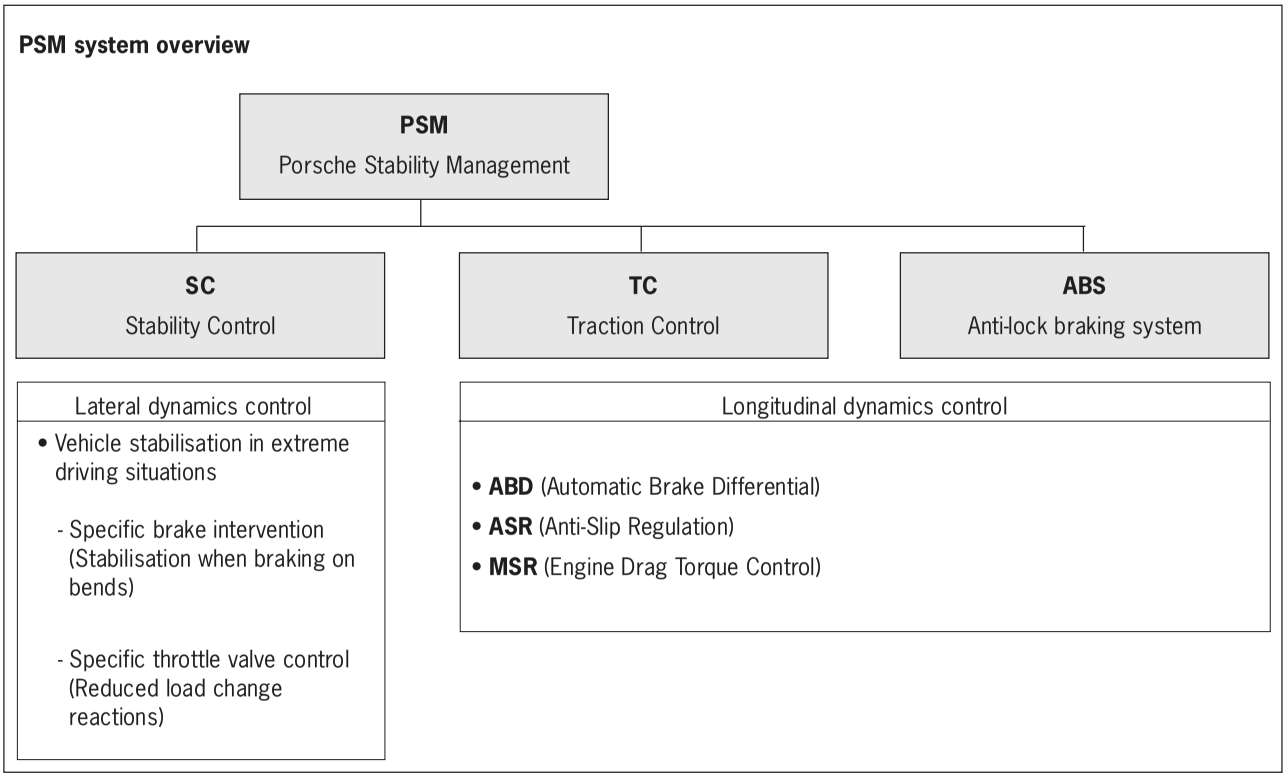



Fig. 21: SC OFF and SC+TC OFF buttons in the control panel/center console

**Enhancement**

A new function and shift strategy for deactivating PSM has been developed for the new 911 GT2, particularly for sporty use on race circuits. This is based on the longitudinal dynamics control Traction Control (TC) used in the Carrera GT and 911 GT3 (997) models, and is an enhancement that integrates the Stability Control (SC) lateral dynamics control and its deactivation for motorsports-oriented dynamics.

In the new 911 GT2, the PSM is not deactivated using a PSM OFF button, as in other Porsche models, but in 2 stages using an SC OFF and an additional SC+TC OFF button. As for the familiar PSM OFF button, these buttons are located in the front center console.

The SC OFF button deactivates the lateral dynamics control and hence the wheel-selective braking and targeted throttle valve control when over- or understeering, or during load changes. The SC+TC OFF button also deactivates the longitudinal dynamics control for spinning or locking drive wheels with ABD (automatic brake differential), ASR (anti-slip regulation) and MSR (engine drag torque control) systems.
Note: Pressing the SC+TC OFF button automatically activates the SC OFF function, so that all systeMs. are deactivated.

Another feature concerns the reactivation of the deactivated stabilisation systems. In the case of the familiar PSM OFF function, the lateral dynamics control (Stability Control) is automatically reactivated when braking in the ABS control range in order to stabilize the vehicle. In the new 911 GT2, the lateral dynamics control (Stability Control) is not reactivated during braking, even in the ABS control range, when either SC OFF or SC+TC OFF has been selected. This function and shift strategy is an enhancement of PSM and enables personal racing-oriented dynamics for an extreme and personal performance on the race circuit.

The ABS (Anti-lock Braking System) function remains active in all function levels and switch settings, as it does not affect racing performance.

| PSM function overview | | 911 GT2 (997) | 911 Turbo (997) |
|---|---|---|---|
| **Basic setting** | | **(PSM ON)**<br>SC OFF<br>SC + TC OFF | **(PSM ON)**<br>PSM OFF |
| Lateral dynamics control | Stability Control (SC) | active | active |
| Longitudinal dynamics | Traction Control (TC) | active | active |
| control | ABS | active | active |
| **Switch-off level 1** | | **SC OFF**<br>SC OFF<br>SC + TC OFF | **PSM OFF**<br>PSM OFF |
| Lateral dynamics control | Stability Control (SC) | deactivated | deactivated |
| Longitudinal dynamics | Traction Control (TC) | active | deactivated |
| control | ABS | active | active |
| Reactivation | Stability Control (SC)<br>Traction Control (TC) | No reactivation of SC and TC during braking | Standard or Sport mode[1] off: SC[2] reactivated during braking when ABS control threshold is exceeded on at least one front wheel |
| | | | Sport mode[1] on: SC[2] reactivated during braking when ABS control threshold is exceeded on both front wheels |
| **Switch-off level 2** | | **SC+TC OFF**<br>SC OFF<br>SC + TC OFF | not available |
| Lateral dynamics control | Stability Control (SC) | deactivated | |
| Longitudinal dynamics | Traction Control (TC) | deactivated | |
| control | ABS | active | |
| Reactivation | Stability Control (SC)<br>Traction Control (TC) | No reactivation of SC and TC during braking | |

1) In combination with Sport button from Chrono Turbo package option

2) SC with targeted throttle valve control for reducing load change reactions -> feature also included in TC function MSR PSM function overview

| Area of operation/analogy | | Area of operation | Enhancement/analogy |
|---|---|---|---|
| Basic setting | (PSM ON) | Public roads | PSM, introduced for GT standard production sports cars with the new 911 GT2 |
| Switch-off level 1 | **SC OFF** | Race circuit for drivers with sporty ambitions and racing drivers on wet roads | Function like that of Carrera GT and 911 GT3 (997) in basic setting (TC ON) |
| Switch-off level 2 | **SC+TC OFF** | Race circuit for high performance and racing drivers on dry roads | Function like that of Carrera GT and 911 GT3 (997) with traction control off (TC OFF) |

The following sections describe the customer benefits of the individual switch settings.

**Basic setting (PSM ON)**
Noticeable increase in active safety. Traction Control (TC) for longitudinal dynamics, with ABD (automatic brake differential), ASR (anti-slip regulation) and MSR (engine drag torque control) systems, and ABS (Anti-lock Braking System). Stability Control (SC) for lateral dynamics, particularly through wheel-selective braking when over- or understeering.

**SC OFF**
Increases dynamics on race circuits by deactivating Stability Control. This enables the vehicle to be steered around corners with the required drift using targeted steering movements and/or accelerator pedal control  Sportily tuned Traction Control remains active and has high traction through ABD and active safety through ASR and MSR.

**SC+TC OFF**
Complete deactivation of dynamic control systems. This enables personalized racing-oriented handling, e.g. fast and controlled cornering with defined drift through targeted destabilizing of vehicle in front of corners by short sharp braking.

## 5.2 Launch Assistant

The new 911 GT2 is the first standard production Porsche vehicle with manual transmission with an assist system for maximum acceleration from 0 mph. The Launch Assistant, as it is known for the new 911 GT2, is easy to use and enables the best possible move-off performance that can be repeated easily.

**Function**
The Launch Assistant is activated by depressing the accelerator pedal completely when the clutch pedal is depressed and the vehicle is stationary. The engine speed increases and is limited to approximately 5,000 rpm. The boost pressure displayed in the instrument cluster rises to approximately 13 PSI after a short time. Once these preconditions have been fulfilled, the vehicle moves off at maximum acceleration through the fastest-possible release of the clutch.

The acceleration process itself is mainly automatically controlled for optimum traction through intervention by the engine management. The clutch remains closed. This reduces the load and avoids high clutch wear during the pulling-away process, which always applies a high load.

**Function description**
The Launch Assistant functions are embedded in the software of the engine control equipment (Motronic) and the anti-slip regulation (PSM). Control and adjustment are performed via the CAN bus.

When preparing for start by completely depressing the accelerator pedal, and when the throttle valve is opened completely, the engine speed is limited to approximately 5,000 rpm by disabling individual fuel injections. After the accelerated start, control is performed by comparing the actual torque map (determined from Motronic data and wheel rev speed in PSM control unit) to the target torque map, which is stored in the PSM unit and was determined by experiment. Differences between the actual and target maps result in control signals to the engine management. The engine uses these to vary the injection moment and disable or enable fuel injections for specific cylinders, resulting in the largest-possible transferable torque for optimum traction and acceleration.

In case of irregular wheel slip, anti-slip regulation supports the control system by using the electronic braking differential for wheel-specific braking. This ensures the best possible wheel traction.

As a result, the control units responsible for the fastest possible accelerated start are controlled in the best possible manner.

**Combination with the PSM, SC OFF* and SC+TC OFF* control systems**
(*for a description of these functions, see PSM in the chapter “Control systems”)

For maximum and reproducible accelerated start, PSM should be activated (buttons SC OFF and/or SC+TC OFF not pressed), or lateral dynamics control (SC) be deactivated via the SC OFF button. With these switch settings, the engine control unit (Motronic) is active for maximum pull-away engine speeds of approximately 5,000 rpm, and anti-slip regulation with Traction Control (TC) is active for optimum longitudinal dynamics and traction.

Anti-slip regulation is completely deactivated when the SC+TC OFF button is pressed. With this switch setting, Stability Control and Traction Control, which is responsible for optimum traction, are both deactivated. This also deactivates the functions responsible for a simple and reproducible acceleration process: ABD (Automatic Brake Differential) and ASR (anti-slip regulation), and hence wheel-selective braking (ABD) and additional varying of ignition times and fuel injection modulation.

Even though pressing the SC+TC OFF button deactivates all assist systems, for optimum acceleration, a professional driver can control the acceleration process by sensitively controlling the acceleration and clutch pedals.

**Summary**

For maximum acceleration from 0 mph:

- PSM activated (buttons SC OFF and/or SC+TC OFF not pressed) or SC OFF button pressed
- Clutch pedal completely depressed
- Accelerator pedal completely depressed (-> engine speed approximately 5,000 rpm)
- Boost pressure displayed in the instrument cluster rises to approximately 13 PSI after a short time
- Quickly release clutch pedal completely
- Continue depressing accelerator pedal completely
- Change gear when shift indicator lights up in instrument cluster.

The Launch Assistant of the new 911 GT2 provides maximum acceleration from 0 mph and is easy to use. It also enables reproduction of short acceleration times and maximum acceleration at reduced load on components (clutch).

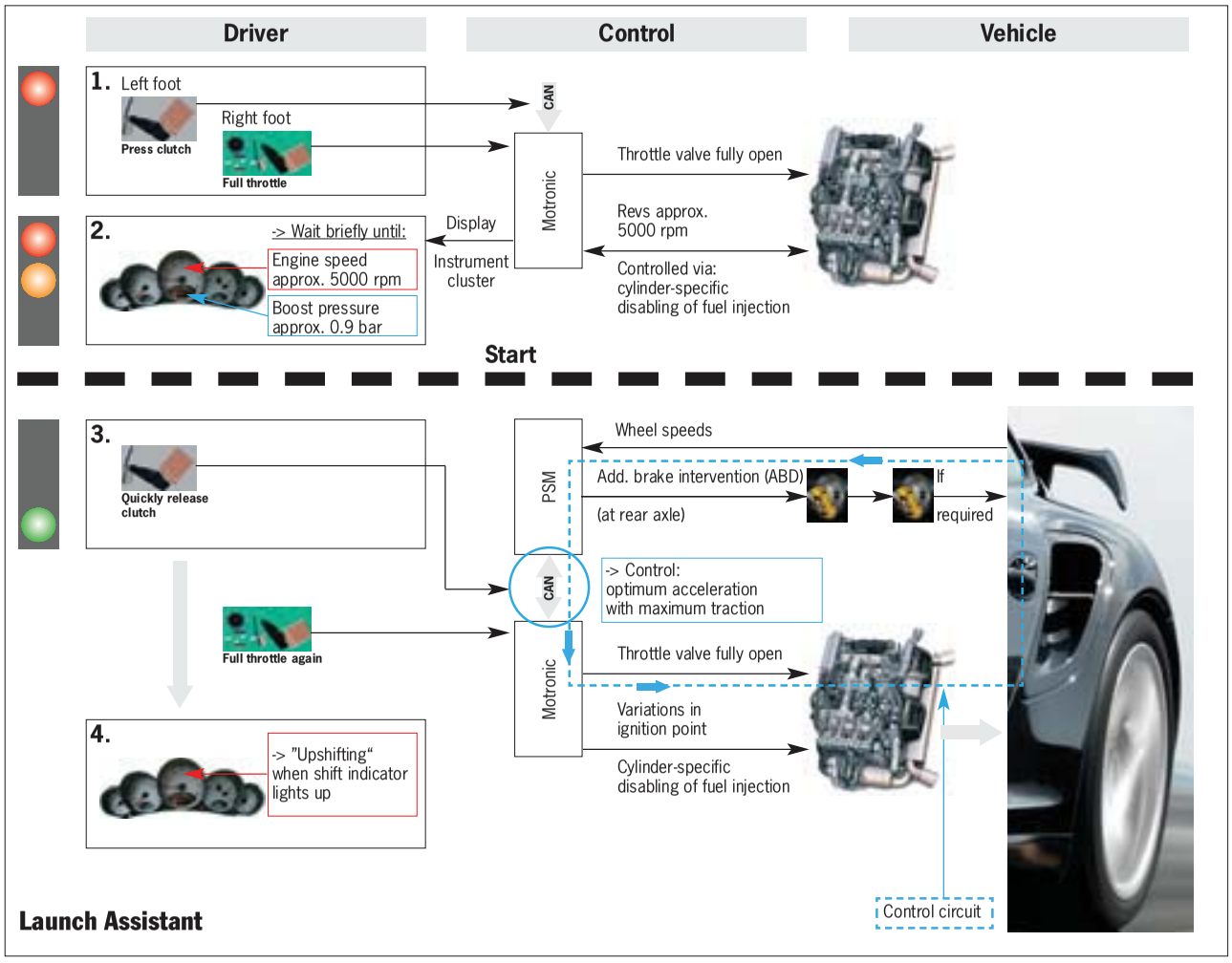



Fig. 22: Launch Assistant function processes

## 6 Body

The broad body of the new 911 GT2 is based mainly on the current 911 Turbo. The most noticeable changes to the 911 GT2 are the modified headlights, the strip-shaped LED direction indicator lights at the front, and the tailpipes integrated in the rear apron.

It is differentiated from the current 911 Turbo and from its previous models by unique elements, such as the front apron, the rear apron with unique tailpipes, the individual sill covers, and a rear lid with large rear wing and integrated ram air boxes.

All sporty vehicles require a low weight for high performance. This applies particularly to the 911 GT models. The body of the new rear wheel drive 911 GT2 meets this requirement through the use of aluminum, plastic, and glass and carbon fiber-reinforced plastic.

### 6.1 Bodyshell

Like the current 911 GT3 models, the new 911 GT2 also features additional welded sleeves for engine bearings on the rear cross member. This leads to a more regular distribution of the load forces transferred to the body from engine and transmission via the engine bearings. Springs and shock absorbers are tighter than on the 911 Turbo, making these forces stronger in the new 911 GT2.

Based on the body measures mentioned above, and like in the current 911 Carrera models, torsional rigidity was increased by 8% and flexional resistance by 40% compared to the values of the previous model for the new 911 GT2.

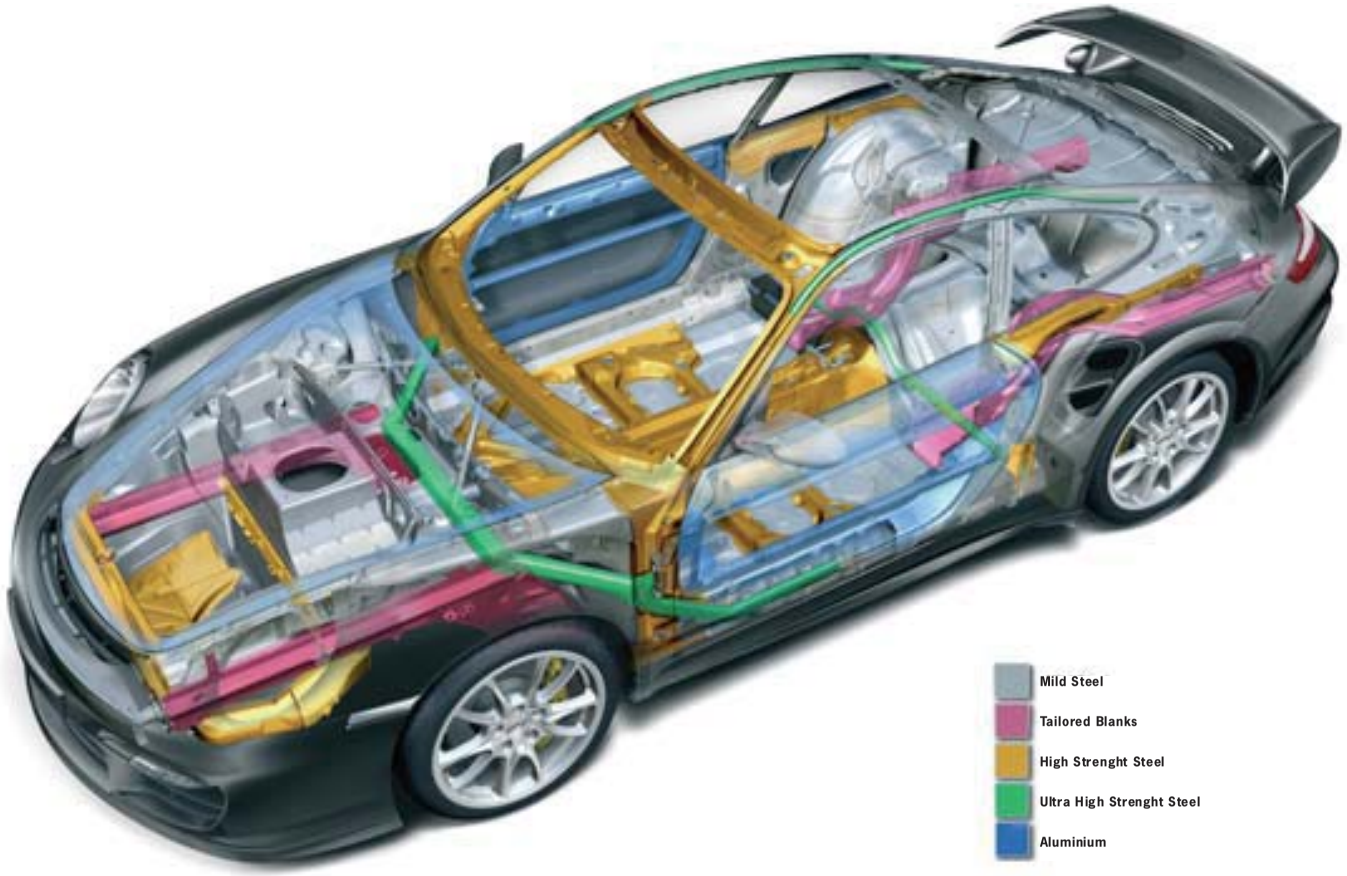



Fig. 23: Bodyshell

### 6.2 Doors and lids

Unlike in the previous model, the luggage compartment lid and doors are made of aluminum for the lowest possible vehicle weight. Like in the current 911 Turbo and 911 GT3 models, the luggage compartment lid is approximately 13 lb lighter and the doors are each approximately 15 lb lighter when made of aluminum instead of sheet steel.

### 6.3 Front apron

The new 911 GT2 front apron with integrated LED direction indicator lights has been newly developed while incorporating characteristic design features of the current 911 Turbo. As well as the striking styling, obvious differentiation and aerodynamic and thermodynamic optimization, the following features differ from the current 911 Turbo:

- Enlarged air openings for increased cooling requirements
- Additional exhaust openings ahead of the luggage compartment lid (like the 911 GT2/996 and 911 GT3 models/997)
- Air ducts with improved flow
- Modified lattice structure on the air openings
- New black front spoiler lip (unpainted)
- Newly positioned strip-shaped direction indicators
- No fog lights

The engine power of the new 911 GT2 is higher than that of the current 911 Turbo, requires more engine cooling, and hence makes more demands on the front radiator. These requirements are met by larger air intake openings for the water cooler in the front of the new 911 GT2, and by an additional exhaust air opening in front of the luggage compartment lid (already featured on the 911 GT2 (996). The two lateral water coolers require an efficient air supply to ensure a high engine and cooling performance. In order to ensure the required air flow rate while considering the space and flow conditions, the fog lights featured in the 911 Turbo could not be used for the new 911 GT2. Without this measure, it would not be possible to supply sufficient air to the lateral water coolers.

As in the 911 GT2 (996), the additional air outlet in front of the luggage compartment lid improves the radiator through-flow and cooling performance. It also improves the aerodynamic downforce on the front axle.

The new 911 GT2, like the current 911 Turbo generation, features the strip-shaped LED direction indicator lights. However, their position was raised on the new 911 GT2 because of the lower vehicle level and the legally required minimum height. In absolute terms, they are still on the same height as on the 911 Turbo.

The exhaust air from the radiators laterally integrated in the front apron is guided through specially developed wheel housings and used to cool the brakes. Like in the current 911 GT3 models and the 911 GT2 (996), and to reduce the vehicle weight, the new 911 GT2 does not feature the fan fitted to the left-hand vehicle cooler in the 911 Carrera models.

The new front spoiler lip is black and unpainted. As the vehicle level is approximately 25 mm/1.0" lower than that of the 911 Carrera, the lower edge of the front spoiler lip is close to the road surface for aerodynamic reasons in the 911 GT2 (996) and the new 911 GT2. This exposed position means that damage to the front spoiler lip cannot always be prevented, e.g. when driving up steep ramps or on rough roads. For these reasons, the front spoiler lip of the 911 GT2 (996), the current 911 GT3 models and the new 911 GT2 is classified as a wearing part. The front spoiler lip is unpainted to keep wearing part costs and replacement of the front spoiler lip as low as possible. It is black because the material used is polypropylene (PP).

Fig. 24: Front apron

### 6.4 Rear apron

The rear apron was developed especially for the new 911 GT2. Like in the current 911 Turbo generation, and unlike in the previous models, the tailpipes have been integrated into the rear apron. The two exterior tailpipes of the new 911 GT2 are round so that they correspond to the unique vehicle design.

Other characteristic features include the lateral vent openings for the charge-air coolers, which are gill-like in the new 911 GT2. The lateral vent openings in the rear area for the engine and charge-air coolers are also gill-shaped. The bottom section of the new rear apron is painted black and fitted with an integrated and striking lip to finish off the design and emphasize the horizontal lines of the broad rear of the vehicle.

### 6.5 Side skirts

The new 911 GT2 has unique side skirts on the lower edge of the sides. Like on the current 911 Turbo and 911 Carrera 4 models, they have the typical Black color. They are designed both to protect the sides stone impacts and for visual differentiation while harmonically integrating with the broad rear side panels.


Fig. 26: Rear wing

### 6.6 Rear lid with rear wing

The new unique fixed rear wing is one of the most striking design features of the new 911 GT2. Its position, size and shape are an important factor in realizing the aerodynamic downforce on the rear axle. The wing contours have been completely redesigned for the new 911 GT2, and an integrated spoiler lip has been added in the rear area. This design is based on the rear wing of the 911 GT2 (996) with characteristic sideplates. The position is ideal for the chassis tuning and therefore supports balanced handling at high speed ranges.

Like the previous model, the engine of the new 911 GT2 has ram air boxes to supply combustion air. The ram air boxes were repositioned to take better advantage of the ram air effect. In the 911 GT2 (996), they were integrated vertically in the wing supports. In the new 911 GT2, they are externally and laterally integrated in the wing supports for better flow (for a function description of the ram air box, see the section on air intake in the chapter “Engine”).

A consistent enhancement of the material concept has enabled the weight of the rear lid and wing body modules to be reduced by approximately 36% (10 lb) in the new 911 GT2. In the 911 GT2 (996), the rear lid and wings were made of glass fiber-reinforced plastic (GFRP). The new 911 GT2 also has a rear lid made of GFRP. The rear wing, however, is made of an efficient material mixture: glass fiber-reinforced plastic (GFRP) and carbon fiber-reinforced plastic (CFRP) in sandwich construction.


Fig. 25: Rear apron

It consists of a glass fiber-reinforced plastic (GFRP) core, which is coated in stabilizing and strengthening carbon fiber-reinforced plastic (CFRP) (this structure is similar to that of the new sports bucket seats, see the section on the interior in the chapter “Body”). Thanks to this design principle, the component weighs little and is very strong.

### 6.7 Luggage compartment

The new 911 GT2 luggage compartment is the same as that of the current 911 Turbo and 911 GT3 models. The luggage compartment capacity is 105 l/3.7 cu ft, a similar capacity to that of the 911 GT2 (996), which is 110 l/3.9 cu ft. The slight reduction of approximately 5 l/0.2 cu ft results from changes to the shape of the luggage compartment, increased crash requirements and additional strengthening elements in the luggage compartment floor.

Like the current 911 generation, the new 911 GT2 features the familiar emergency release for the luggage compartment lid (trunk entrapment) for NAFTA countries.

### 6.8 Interior

The interior of the new 911 GT2 is similar to that of the current 911 GT3, with a Black leather interior, is based on the current 911 generation and adopts some stylistic features from the Carrera GT. Its two-seat concept, which means it has no rear seats and therefore a reduced weight, clearly shows that the new 911 GT2 is a motorsport-oriented Porsche model.

The new 911 GT2 displays the following modifications compared to its predecessor:

- Exterior design
- New steering wheel and gear lever generation
- Additional height adjustment for the steering wheel
- New separate side airbag system (door panel: head airbag; seats: thorax airbag)
- Pedals moved forward
- Front center console as standard (911 GT2/996: optional)

The additional steering wheel height adjustment and the pedals moved forward by 10 - 15 mm/0.4 - 0.6 inch have improved the adjustment possibilities for the seat and steering wheel position and provide more space for tall people.

Fig. 27: Luggage compartment

Fig. 28: Interior

The new 911 GT2 has the following equipment to differentiate it from the current basic 911 models and to illustrate its sporty character:

Extensive Alcantara package (standard)
- Steering wheel rim of the standard GT2 3-spoke steering wheel
- Gear lever grip
- Handbrake lever grip
- Seat centers in all available seat versions (except Clubsport package)
- Door handles
- Door panels
- Lids of door storage boxes
- Lid of storage compartment in the center console
- Roofliner (standard for all 911 Coupé models)

The Alcantara material concept is already used in the 911 GT3 RS (996) and the current 911 GT3 models. This concept is not only a visual upgrade of the interior with motorsports associations, but also increases the functionality by improving the grip, especially of dynamic control elements, e.g. steering wheel, gear lever and handbrake lever.

The steering of the new 911 GT2 corresponds to that of the current 911 GT3. The steering wheel rim is upholstered in Alcantara and features a slightly thicker upholstering than that of the 911 Turbo 3-spoke sports steering wheel due to the thickness of the Alcantara. Together with the steering wheel spoke trims painted Volcano Gray, this is a unique differentiation. The 3-spoke sports steering wheel in smooth-finish leather (I 460) and the 3-spoke multifunction steering wheel in smooth-finish leather (I 431) familiar from the current 911 generation are available as an option.

The standard Black leather interior can be replaced by Dark Gray natural leather, and other personalization features can be ordered, e.g. Carbon finish.

Additional Interior equipment:
- Unique new sports bucket seats (for the first time in the 911 GT2)
- Instrument cluster with yellow pointers and increment markings (like Carrera GT and 911 GT3 models), shift indicator and GT2 logo on rev-counter
- Door entry guards and carpeted rear wall* with GT2 logo

  (*not in conjunction with the optional Bose(r) Surround Sound System)

**Sports bucket seat** (standard)
As a world first, the new 911 GT2 features a newly developed sports bucket seat. The new 911 GT2 features this seat on the driver's side and passenger's side as standard in all country variants. Its specific design principle and the combination of its exceptional product characteristics as a sports bucket seat are outstanding.

The new sports bucket seat is a light racing bucket seat with folding backrest, integrated thorax airbag and manual fore/aft adjustment. The seat shell is made from glass and carbon fiber-reinforced plastic (GFRP/CFRP). The surface of the seat shell is made of exposed carbon. The seat is always upholstered in leather, and in the new 911 GT2 it features a center strip in Alcantara.

Design highlights of the new sports bucket seat
- Low weight
- High lateral support
- Racing bucket seat with backrest tilting function
- Racing bucket seat with integrated thorax airbag

Fig. 29: Sports bucket seat

The seat shell core is made from glass fiber-reinforced plastic (GFRP) and the outer shell is made from carbon fiber-reinforced plastic (CFRP). Thanks to this design principle, the component weighs little and is very resistant while still being economic. This highly developed technology is emphasized visually by the outer shell being made of exposed carbon. The weight advantage vis-à-vis adaptive sports seats is approximately 20 lb/seat.

Focal points while developing the new sports bucket seat were high lateral support and seat ergonomics and a foldable backrest. High lateral guides are characteristic of racing bucket seats and essential for very sporty driving, particularly on race circuits. The highly dedicated development work resulted in a sports bucket seat whose lateral support potential and seat ergonomics, with wide backrests and seat cushions, are comparable to the familiar lightweight bucket seat of the Carrera GT and the GT3 RS.

The foldable backrest is an outstanding element of the new sports bucket seat. It noticeably increases day-to-day usability and improves accessibility to the rear storage area. The folding function for the backrest is activated using a leather loop located laterally in the shoulder area of the backrest. This design principle provides high ergonomics and functionality as well as very lightweight construction.


Fig. 30: Sports bucket seat

The rotation points of the foldable backrests are located in the upper pelvic area of the side bolsters. This is a unique construction characteristic of the new sports bucket seat. This position makes it possible to combine two opposing functions for the first time, namely high lateral support throughout the whole seat area, and a foldable backrest.

In conventional sports seats with foldable backrests, the backrest rotation points are located in the rear area of the seat cushion. The backrest can only be folded if the side bolsters in this area and in the seat cushion are cut out. This means that the lateral support in the pelvic area, which is a characteristic of racing bucket seats, is impossible.

The backrest rotation points of the new sports bucket seat have been moved forward to the area of the side bolsters, and this results in a new geometric situation. The racing bucket seat characteristics with high lateral support, even in the pelvic area, are ensured despite the foldable backrest.

In addition, a thorax airbag is integrated laterally in the backrest of the new sports bucket seat. It is the same version and size as the thorax airbags used in the current 911 model range. It is part of the Porsche Side Impact Protection System (POSIP) and provides additional side impact protection for the first time in racing bucket seats. The integrated thorax airbag allows a racing bucket seat to be offered in the USA for the first time and meet current safety requirements.

Now that the sports bucket seat is used in the new 911 GT2, it will probably be optionally available for other 911 models as well as for the Boxster and the Cayman from November 2007.

**Adaptive sports seats** (optional)
The adaptive sports seats familiar from the current 911 models will also be available as an individual option in the new 911 GT2. As well as electrical adjustment with a memory function for all seat features, these seats offer lumbar support on the driver and passenger side and 4-way lateral support adjustment. The central strips are in Alcantara to fit in with the rest of the interior in the new 911 GT2.

**Seat occupancy detection**
(USA/Canada/Mexico only)
Like all 911, Boxster and Cayenne vehicles for the USA, Canada and Mexico from model year 2006, the new 911 GT2 will be equipped as standard with a seat occupancy detection using a weight sensor on the passenger side.

Sports seat


Sports buket seat


This technology is also called “Advanced Airbag” and prevents the passenger airbag (front airbag) from deploying if the weight on the seat is lower than a preset limit. The seat occupancy detection is required to deactivate the passenger airbag when removable child seats are fitted and infants (< 1 year) are in the vehicle. The passenger airbag is deployed in case of a front impact if the weight on the passenger seat is above approximately 60 lb.

## 7 Aerodynamics

Like in all Porsche models, exclusive design is not inconsistent with excellent aerodynamic vehicle properties in the new 911 GT2. The following aerodynamic challenges arose when developing the new 911 GT2:

- High cooling air requirements for engine and brakes resulted in large air intakes in the rear area, which interfere with good drag coefficients
- The drag coefficient is further increased in comparison to “spoilerless” vehicles by measures for stabilizing the vehicle at high speeds and resulting downforce on the front and rear of the vehicle caused by aerodynamic aids such as front spoiler and unique large rear wings
- Broad wheel/tire combinations maximize traction but increase the vehicle’s frontal area (A) and hence the drag (cd x A)

Thanks to elaborate wind tunnel tuning and using lessons learned from motorsports, it was possible to achieve a drag coefficient of 0.32 for the new 911 GT2, despite high cooling requirements and downforce on the front and rear of the vehicle (911 GT2/996: cd = 0.34). This positions the new 911 GT2 at the top of its vehicle class.

The design of the front end, wheel housings, rear lid and wings, rear end and underbody were essential to achieving this success. The new front apron with separate spoiler lip, and the upper exhaust air guidance for the central radiator familiar from the 911

Fig. 31: Aerodynamics

GT2 (996), reduce the air flow under the vehicle noticeably. The ideally positioned cooling air openings guide the air emerging behind the lateral radiators directly to the brake system. The aerodynamic measures at the front and rear were matched to each other in order to guarantee optimally balanced front and rear axles.

Lowering the vehicle height by approximately 25 mm/1.0 inch compared to the current 911 Carrera lowers the center of gravity and improves the aerodynamic characteristics. This measure reduces the vehicle's frontal area, which plays a part in the drag index, and the air flow that gets underneath the vehicle and creates unwanted lift forces.

As in the current 911 GT3 and 911 Turbo models, the underbody of the new 911 GT2 has large-scale paneling for good aerodynamics. The main elements correspond to the underbody paneling of the current 911 GT3 models, including the additional brake cooling on the rear axle.

Less obvious details – such as small integrated spoilers in the front end, and the underbody paneled with plastic parts - also meet aerodynamic requirements in the new 911 GT2. As well as meeting aerodynamic requirements, the underbody paneling has vent openings to cool components that are heavily heated. In addition, guide blades ensure that the brakes receive cooling air and make high load capacities possible even under extreme operating conditions.

## 8 Safety

All basic functions relevant to safety in the new 911 GT2 essentially correspond to those of the current 911 Turbo. For details, please refer to the relevant Marketing Concept and/or Product Information release.

### 8.1 Active safety

The new 911 GT2, like previous models, has a good basis for active safety thanks to high acceleration and deceleration values, the Porsche Ceramic Composite Brake (PCCB) as standard, and firmer basic chassis tuning.

Porsche Active Suspension Management (PASM) and Porsche Stability Management (PSM), which is introduced to the 911 GT models in the new 911 GT2, are additional components supporting active safety and further increase the safety standard of the 911 GT2.

### 8.2 Passive safety

The new 911 GT2 meets all laws and approval requirements for passive safety that are presently valid in the markets where it will be offered.

The bodyshell structure was largely adopted from the current 911 Turbo. In the front of the vehicle, energy is absorbed by straight longitudinal members with a cross-section designed for optimum energy absorption. They support the transferred forces in the steel bulkhead cross member and hence reduce footwell intrusion in case of a crash. The fuel tank is located behind the deformation zone and is additionally protected by the front axle carrier. The fuel lines are located outside the deformation zone.

As well as safety features in the bodyshell, the new 911 GT2 (like the current 911 Turbo) features six airbags and energy-absorbing door panels and reinforcement. The airbag system comprises two-stage full-size airbags for driver and front passenger, thorax airbags laterally integrated in the seats for protection of the upper body in case of side impact, and head airbags located in the top section of the door panel.

The new sports bucket seat is a special feature. A real racing bucket seat with additional lateral support in the pelvic area, it now features a thorax airbag and a foldable backrest for the first time.

## 9 Electrical equipment

The electric features of the new 911 GT2 are based on those of the current 911 generation. For basic information, please refer to the Product Information releases for the 911 Carrera or the 911 Turbo.

The following are key changes to the 911 GT2 (996) and features adopted from the current 911 generation:

- New headlight and tail light design
- Front direction indicator light in LED technology (like 911 Turbo)
- New instrument cluster
- New switches and control units in center console
- Additional stopwatch in the switch panel (with Sport Chrono Package Plus option)
- Electronic ignition lock and new ignition key (generation 997)
- Seat occupancy detection (USA, Canada and Mexico)
- Enhanced VarioCam Plus
- Footwell lighting
- Control units networked via CAN bus
- Audio and control data networked via MOST bus

### 9.1 Lighting

The front and tail lights of the new 911 GT2 are mostly based on the current 911 Turbo. This includes Bi-Xenon headlights as standard (like 911 GT2/996) and new high-performance LED direction indicators in the rear. Thanks to the removal of the fog lights used for the 911 Turbo, the lateral air ducts in the rear could be enlarged in the new 911 GT2, ensuring the increased supply of cooling air required for engine cooling.

**Bi-Xenon headlights**

Just like the 911 GT2 (996), the new 911 GT2 also features Bi-Xenon headlights with headlight cleaning system as standard. Like in the current 911 GT3 models (Bi-Xenon optional) and the Carrera GT, and to reduce the vehicle weight, the new 911 GT2 does not feature dynamic headlight leveling. Firm chassis tuning and short spring travel make this possible. The resulting low body movements (e.g. when accelerating) mean that prescribed tolerance levels for changes of the headlight cones (particularly upward movements) are met without headlight leveling.

**Interior lighting**

Just like the current 911 generation, the new 911 GT2 features white LEDs instead of yellow ones for instruments and controls. The instruments are easier to read, particularly in twilight, thanks to noticeably improved luminance. White lighting also lends the interior a high-quality look.

**9.2 Battery**

Like the current 911 Turbo models, the new 911 GT2 will be equipped as standard with a battery with a capacity of 70 Ah to ensure sufficient supply voltage.

Fig. 32: Instrument cluster

**9.3 Instruments**

The instruments of the new 911 GT2, like the current 911 GT3 models, have been specifically differentiated towards the 911 Carrera models. The instruments of the new 911 GT2 are based on those of the Carrera GT, and have the following characteristic differentiation features:

- Yellow pointers
- Yellow increment markings
- Rev-counter emphasized by titanium-painted background

The “GT2” logo in the rev-counter of the instrument cluster is a new feature. For the first time, the new 911 GT2 features the model logo in the rev-counter, as familiar from the 911 Turbo and 911 GT3.

Just like the current 911 GT3 models, the new 911 GT2 features a shift indicator in the instrument cluster for the first time. Shortly before the maximum engine speed of 6,750 rpm is reached, an upward-facing arrow lights up in the rev-counter. During sporty acceleration using the entire rev range, the illuminated arrow requests the driver to shift to the next higher gear. The time at which the arrow lights up depends on the gear and is designed to enable the best possible acceleration.

## 10 Audio and communication

For the first time, the new 911 GT2 features the Porsche Communication Management (PCM) information system as standard worldwide. It has a 5.8-inch color screen with two-tuner frequency diversity, familiar from the current 911 GT3 models, with a total output of 2 x 25 watts, and four loudspeakers.

This combination provides very good display and operating comfort while ensuring low vehicle weight. The new 911 GT2 can optionally be retrofitted with the familiar Sound Package Plus (I 490), the BOSE® Surround Sound System (I 680), and various modules for the PCM, such as navigation, telephone and logbook, in order to meet higher requirements. For detailed basic information on the familiar audio and information components, please refer to the Product Information release for the current 911 generation.

| Changes compared with the 911 GT2 (996) are marked in **bold**. | **new 911 GT2** (997) | 911 GT2 (996 – MY'05) |
|---|---|---|
| Designation | **Porsche Communication Management (PCM)** | Porsche CDR-23 radio |
| Offering | Standard | Optional at no extra cost [1] |
| Tuner | Two-tuner frequency diversity | Two-tuner frequency diversity |
| Loudspeakers | 4 | 4 |
| Switch panel | **2 x 1.9-cm high-range speakers** | 2 x 10.0-cm mid-range speakers<br>2 x 1.9-cm high-range speakers |
| Doors | **2 x 16.5-cm low-range speakers** | – |
| Rear, lateral | – | – |
| Audio electronics | 2 x 25 Watt power amplifiers | 2 x 25 Watt power amplifiers |

1) Basic equipment: without radio, speakers and amplifier


Fig. 33: Porsche Communication Management (PCM)

Fig. 34: BOSE® Surround Sound System

**Loudspeakers**

Just like the current 911 GT3 models, the new 911 GT2 also features four loudspeakers as standard. In the 911 GT2 (996), these were located in the switch panel. In the new 911 GT2, the loudspeakers are located in the switch panel and the doors to improve spatial sound projection.

The switch panel is equipped with a 1.9-cm high-range loudspeaker on the left and right, and each door features one 16.5-cm low-range loudspeaker. The new standard high-quality loudspeakers already provide very good sound performance and high, maximally clear playback volume.

### 10.1 Antenna systems

Just like the previous model, the new 911 GT2 is equipped as standard with a high-performance window antenna, standard PCM and the antenna diversity familiar from the current 911 Carrera generation. The antennas are located in the windshield and improve VHF reception in case of interferences. An external AM-antenna is optionally available at no extra cost to improve medium wave reception. This is located on the rear area of the roof.

### 10.2 Sound Package Plus (optional)

The Sound Package Plus option is available for the first time for the 911 GT2. Its features correspond to the standard equipment of the current 911 Carrera generation and the optional offer for the 911 GT3. Nine loudspeakers and an external linear amplifier create an exceptional sound experience with sufficient reserves. This is achieved through large high-quality loudspeakers. The Sound Package Plus has been adapted to the specific interior acoustics of the new 911 GT2. Like for the current 911 GT3, analog filter levels in the external amplifier create spatially balanced sound even at very high volumes.

| **Sound Package Plus overview** | |
|---|---|
| Designation | **Sound Package Plus** |
| Loudspeakers | 9 |
| Switch panel | 2 x 1.9-cm high-range speakers<br>1 x 7.0-cm mid-range speaker (centre speaker) |
| Doors | 2 x 10.0-cm mid-range speakers<br>2 x 20.0-cm low-range speakers |
| Rear, lateral | 2 x 10.0-cm mid-range speakers |
| Audio electronics | 4 x 25 Watt linear amplifiers in PCM<br>Additional external linear amplifier<br>(in luggage compartment) with:<br>2 x 55 Watt (for low-range speakers in the doors)<br>1 x 25 Watt (for mid-range speakers in switch panel)<br>-> 235 Watt total output |

| Designation | **BOSE® Surround Sound System** |
|---|---|
| Loudspeakers | 13 (including Centerfill as additional loud-speakers in the center of the instrument panel) |
| Switch panel | 2 x 2.5-cm Neodym high-range speakers<br>1 x 7.0-cm mid-range speaker (centre fill) |
| Doors | 2 x 8.0-cm Neodym mid-range speakers<br>2 x 20.0-cm Nd(r) low-range speakers |
| Rear, lateral | 2 x 2.5-cm Neodym high-range speakers<br>2 x 8.0-cm Neodym mid-range speakers |
| Rear compartment | Active subwoofer with 2 x 13.0-cm low-range loudspeakers |
| Audio electronics | 7-channel MOST® digital system with:<br>5 x 25 Watt external amplifiers<br>2 x 100 Watt external TSM switched end stages<br>-> 325 Watt total output |
| Noise compensation | AudioPilot® with dynamic loudness function for noticeably improved adjustment |
| Surround Sound | BOSE® Centerpoint® and SurroundStage® signal processing |

**10.3 BOSE® Surround Sound System** (optional)

The BOSE® Surround Sound System is available for the first time in the new 911 GT2 in order to meet very high expectations of the audio system. Scope and content correspond to that of the current 911 generation.

**10.4 Navigation module** (optional)

A navigation module is optionally available for the new 911 GT2, as it was for previous models. It was only available in combination with PCM for the 911 GT2 (996). For the new 911 GT2, it is available separately as an individual module for standard PCM, as it is for the current 911 generation.

The navigation module for the new 911 GT2 (I 672) comprises the familiar navigation features as well as enhanced navigation features, including an automatic route tracing and subsequent backtracing navigation function, as well as navigation in non-digitally mapped areas, using compass and GPS. These features are the same as those offered by the current 911 generation in model year 2008.

**10.5 Telephone module for PCM** (optional)

A telephone module for PCM is optionally available for the new 911 GT2, as it was for previous models. The system is familiar from the current 911 generation, and features a hands-free facility with improved communication quality and a hands-free microphone on the steering column. The tri-band telephone covers the GSM 900, 1800 and 1900 networks and is therefore also available in the USA.

**10.6 PCM handset for telephone module** (optional)

A PCM handset for the telephone module is optionally available for the new 911 GT2, as it was for the 911 GT2 (996).

**10.7 Chrono Package Plus** (optional)

The optional Chrono Package Plus is a new feature for the 911 GT2. It is based on the corresponding option for the current Boxster and 911 Carrera generation.

The new 911 GT2 is already equipped with sports features, such as sporty engine and chassis tuning, as standard. In the 911 Carrera and the Boxster models, these features are activated via the Sport button in the center console. For this reason, the Chrono Package Plus for the new 911 GT2 features only the following:

- Analog stopwatch in switch panel
- Digital stopwatch in instrument cluster
- Performance indicator in the PCM
- Personal memory