

Autobahn Ambition

The PORSCHE Tuner Magazine

2009 Winter Issue



Feeling the Need for 254mph?

9ff GT9

997

2009 with DFI and PDK ■

eRuf

An Electric 911 ■

928

Racer and Collector ■

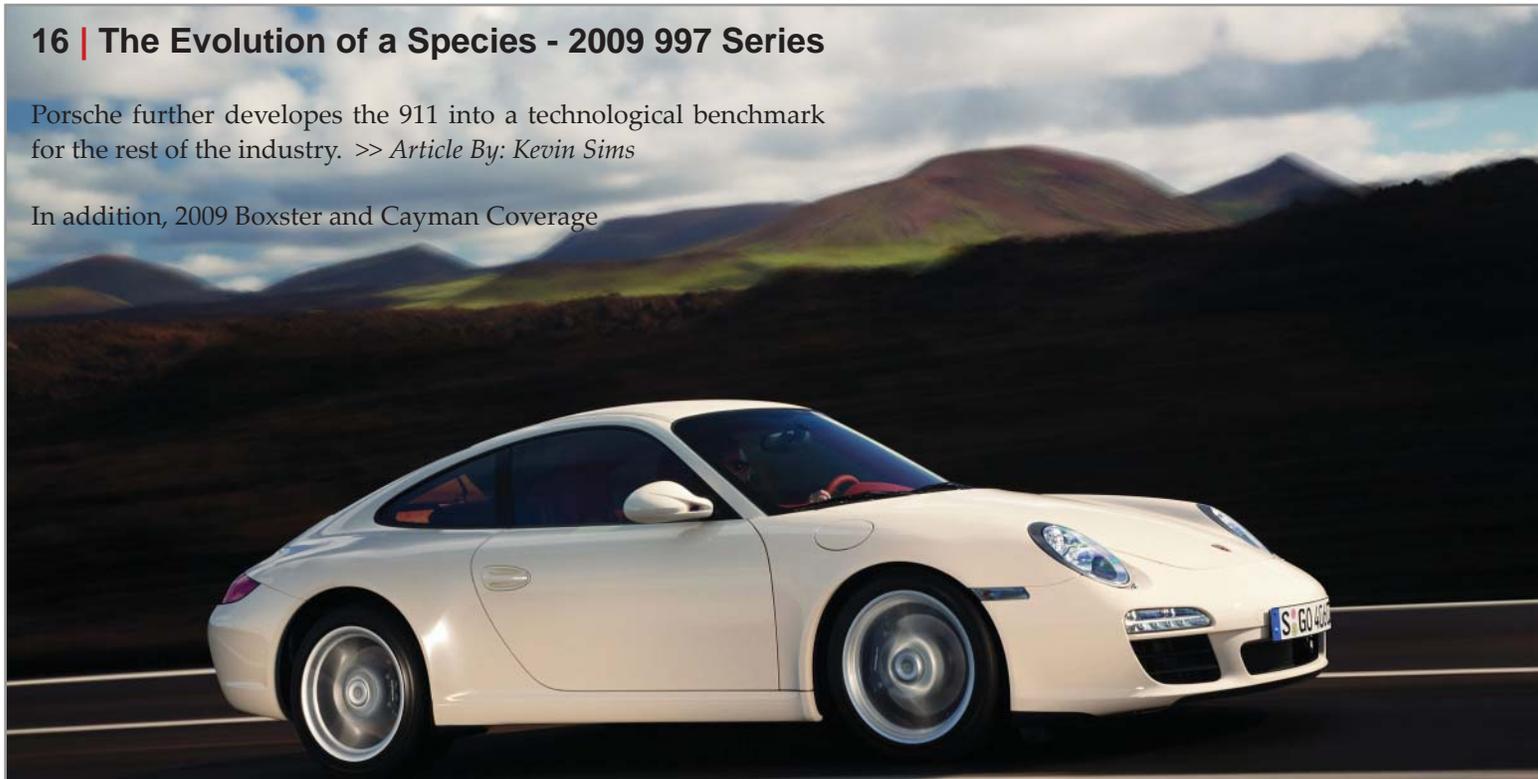
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9ff GT9

One for the Purists - 254.14 MPH and Climbing

By: George Kaplin
Photos By: 9ff Press



Top: The 9ff GT9 is not your average speed machine, its a world record chasing 911 derivative for the purest at heart. Bottom: The GT9 breaks the 409 kph (254 mph) barrier.

Jan Fathauer and his team at 9ff pushed the envelope at the ATP test center in Papenburg, Germany by breaking the top speed of the Bugatti Veyron. At a reason defying 254.14 MPH, the GT9 scorched the oval track with the vigor of a fire breathing dragon. The only car that stands in its way for the title of the fastest street car is the 257 MPH Shelby Super Car (SCC) Ultimate Aero TT. But, 9ff isn't satisfied as of yet since they last after the title. At the 2008 Essen Motorcar Show, 9ff displayed the GT9R which they believe will give them the honor they deserve: World's Fastest.

The original 9ff GT9, a 245.14 MPH machine, started its existence as a Porsche 997 GT3. As the photographs indicate, the resulting car is radically different. Since drag is an obstacle of speed, the car has a lower roof line giving the car a "chopped" appearance. Only the front portion of the GT3 is actually used in the GT9, consequently eliminating the need for a crash test. Behind the cockpit the GT9 is all new and a 9ff design. A steel

tubular space frame garnishes support for the GT9's rear body panels, while it simultaneously provides crash resistance. 9ff chose to extend the GT9's wheelbase by 30 cm, as compared to the stock GT3, to provide improved high speed stability. The engine is not behind the rear axle; rather, it has been turned around into a mid-engine format – a feature inspired by the Porsche GT-1. The car's GT3 derived 6-speed manual gearbox has been internally and externally fortified and is used as the mounting point for the GT9's rear suspension. H&R partnered with 9ff to assist in the suspension. The rear's five-link, push-rod operated coil over shock design is pure race car. Up front follows the GT3 design using McPherson struts and lateral links. The whole suspension is electronically adjusted and features aluminum bodied dampeners all around. The body and frame utilize the lightest in composite materials to ensure that weight is to a bare minimum. Under-body elements are integrated with an enormous rear diffuser to generate downforce for speed stability. If you haven't noticed the GT9 is as pure as a car gets these days. No luxury crap here, its all business and no fluff.

The speed demon's heart is its engine and is based on a 996 Turbo engine that's bored out to make it a 4.0 liter unit. The 987 horsepower unit has upgraded twin-turbos, superlight titanium connecting rods, a custom steel crankshaft, specially designed forged pistons, and dry-sump lubrication system. To top it off, the car's induction system is made from 24-carat gold. The "glamour" design is intended to maximize airflow and heat insulation from the turbos. Giant intercoolers are mounted at the car's rear and each have an electric fan to assist in pulling air. With 711 lb\ft of torque on tap, the GT9 is far from subtle in performance. The 2923 pound German cruise missile roars to 184.4 mph or 300 kph in a heart stopping 16.1 seconds. The 60 mph mark is dashed in less than 3 seconds. Heart resuscitation maybe required after a blitzkrieg run to its recorded 254.14 MPH, or 409 kph, top speed.

As mentioned earlier, 9ff is not finished. The recently unveiled GT9R promises more pavement punishing may-



hem. Enhancements include a 4.2 liter engine based on the 997 GT2, a reprogrammed ECU, added boost from beefier turbos, and a maximum horsepower of 1,120. Aerodynamic drag reductions are achieved with a new front fascia and air splitters. Improved air venting from wider brake vents and a roof-mounted scoop help keep things cooler. The GT9R's top speed can only be speculated at the time of writing, but we expect it will surpass the SCC Ultimate Aero TT's 257 mph mark. With more power and less drag, we suspect this is a realistic goal. Only an open race track and the bravery of an astronaut are needed to find out. Are there any volunteers? **AA**

GT9 Specs

ENGINE: Mid-mounted, Water-cooled 6 cylinder, horizontally opposed engine, 4-liter capacity, twin-exhaust driven Turbochargers. Steel crankshaft with Titanium connecting rods and Alum. forged pistons. 24 carat gold intake system and dry sump lubrication.
Power: 987 HP @ 7,850 RPM
Torque: 711 Lbs/ft @ 5,970 RPM

TRANSMISSION: Fortified GT3 6-speed gearbox with Limited-Slip and mounted behind the engine. Composite Clutch.

BRAKES: Brembo 6 piston fixed caliper, cross-drilled carbon ceramic rotors. (f) 15-in , (r) 13.8 in

SUSPENSION: (f) H&R MacPherson Struts (r) H&R 5 link rear with pushrods.

PERFORMANCE: 60 MPH - 2.5s
Current Top Speed - 254.14 MPH

9ff GT9



The 9ff GT9R, unveiled at the 2008 Essen Motor Show, pushes for even more speed with its 997 Turbo-based 1,120 HP engine.

The eRuf Project

Kilowatts Instead of Horsepower

By: George Kaplin
Photos By: Ruf Press



Ruf joins the “Green” foray by presenting a prototype of their fully electric 997-derived speed machine. Unlike the mid-engined Tesla sports car, the eRuf project follows Porsche tradition by mounting their AC powered engine in the rear. That’s right! Drivers will still need to feather the throttle approaching tight apexes, even if the engine is merely making a whisper.

Alois Ruf, founder and President of Ruf Automobiles, doesn’t believe that driving enthusiasm and environmental awareness are mutually exclusive. So, two years ago he entered into a partnership with Calmotors located in Camarillo, CA to build what the Porsche factory has not – an electric 911. After an exhaustive gestation period a prototype, the eRuf, has emerged. UQM Technologies provides its 150 kW (approx. 200 HP), brushless AC powerplant that weighs around 200 pounds. As mentioned earlier, the unit is placed in the rear where the gas-powered flat-6 would typically be located. Throttle inputs are managed through a drive-



Alois Ruf believes that sports car driving should not be limited to gasoline internal combustion powered cars. He builds the eRuf, an electric 911, to prove his point.

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The eRuf Project

by wire system. The engine spins up to a maximum of 5000 RPM. And, here is the cool part, produces an invigorating supply of torque at 479 lb-ft the moment the engine begins to turn. Are you beginning to understand why Alois believes "Green" cars can be fun? We are. Such instant torque is not possible in an internal combustion engine.

The eRuf engine has a voltage of 300 to 420 volts at 550 amperes. Axeon of England supplies Ruf with 96 iron-phosphate, lithium batteries to store the needed "zing" for the engine. The weight of all these batteries is cumbersome – 1200 pounds alone. Luckily, the compact engine allows room for power supply. Its batteries are divided between two locations. Primarily, in the front trunk space and, then, in a compartment positioned where the back seats once resided. Splitting the batteries up help in the car's weight distribution, therefore giving the car better handling characteristics than if all the weight was in the back. A full battery charge requires 10 hours at 16 amps and has a driving range of 155 to 198 miles depending on driving spiritedness. Keep in mind, the current eRuf is a prototype and development is progressing. All elements of performance – kilowatts, torque, driving range and charge time – are being improved upon. A production eRuf will possess more of everything. The current eRuf still uses a 997 6-speed manual transmission and clutch. The production version will have a single gear as an electric engine's immediate torque delivery doesn't require multiple gears. Reversing will be achieved by changing the polarity of the engine, thus not requiring a gear.

The prototype eRuf weighs in at a hefty 4200 pounds. With the equivalent of 200 HP on board, its power to weight ratio is not earth shattering. Keep in mind, however, Ruf is making improvements. Just the addition of the single gear driveline alone will reduce weight. Plus, Ruf has many other up their sleeve. In its current form, the eRuf is good for a 0-60 march in less than 7 seconds and a top speed of 160 MPH. In Ruf tradition, this little electric car can hold its own out on the Autobahn. And isn't that the ultimate evaluation of any Ruf product. The era of the speed "Greens" has began. **AA**



eRuf Specs

ENGINE: Rear mounted Brushless, 3 phase, Alternating current electric motor with Permanent Magnets by Calmotors.

Power: 150 kw (204 HP) at peak, 100 kw (136 HP) continuous.

Max Torque: 479 lbs\ft during entire RPM range.

Currency: 300-400 Volts

Current Level: Max 550 A

Max RPM: 5000

BATTERY SYSTEM: Lithium-Ion, Iron-Phosphate base by Axeom.

Stored Energy: 50,72 kWh

Number of Batteries: 96 divided between front and rear seat area.

Battery Weight: Approx. 1200 Lb

Charging Time: 10 Hours

PERFORMANCE: 0-60 under 7s

Top Speed: 160 MPH

Driving Range: 155 to 198 miles depending on driving style.

The Racer's Spirit

James Morrison Living His 928 Dream

By: Kevin Sims
Photos By: Doreen Ruffin and Luis Orozco



James Morrison is the kind of guy that inspires others. In a time when economic troubles have resulted in stock market crashes and a mortgage crisis that requires government bailouts to secure our financial future, James's story reminds us all that big dreams grow brighter during hard times. A dream's light illuminates with resolve giving one strength. James is proof to this notion.

He had the honor of being voted the 'Best 928 Collector' on the Rennlist web forum during the past year. He currently owns seven examples of Porsche's grand touring masterpieces: 6 street cars and 1 racing version. But, there is more to this story. The road

Morrison 928s

to being bestowed with such an honor was paved with adversity. While racing motorcycles at the onset of his adult life, James suffered an accident that permanently damaged his spinal cord. Conventional wisdom held that any hope of racing and an active automotive life was over. James had other ideas. What transpired defies social perception and reveals the adaptability of the human spirit – especially the racer’s spirit.

We are truly privileged to have a conversation with James about his experience and the love of his oil pumping heart – collecting and racing the Porsche 928.

>> What began your interest in racing?

James Morrison: I was always a speed demon and started riding motorcycles when I was about six. After college, I started racing motorcycles in my 20’s. I road raced my Hurricane 600. I broke my back racing moto-X in 1990 and shifted to cars a few years after. I did a whole bunch of DE’s as a driver and instructor. I attempted to do a few autocrosses but they were a bit hard to do with hand controls.

>> Your story is immensely inspirational. If you don’t mind sharing, could you tell us about the accident?

Thank you for the compliment. I am just doing what anyone would do I think. I was already married and working for a few years when I broke my back during motocross practice. It was an immediate and permanent spinal cord injury at the T5-6 level. The break was around the mid chest area. I spent about 2 weeks in ICU and then had spine surgery to stabilize the broken vertebra. I spent another 2 weeks on the floor and then I did rehab. I was finished with everything in about 8 weeks, but spent another 2 weeks as an in-patient. I went right back to work part time for the same company as a sales representative in the same territory I had been working. I installed hand controls in my company car and off I went. I was back to full time in 3 months. I have been blessed with good health, great friends and family.

Always the speed freak, I had to sell my motorcycles and my beloved 1980 Triumph Spitfire 1500 after the accident. In 1996, I bought my first Porsche. It was an



James Morrison was voted 2008’s Top Porsche 928 Collector on the Rennlist forum. Top: Since winning, James added this blue ‘82 928 to his collection.



‘88 928 S4. Fell in love with the car and it mushroomed from there. I currently have seven 928s and am always looking for another. I did my first track event 4 months after buying the first 928. I have been into track driving from the beginning. I love driving them as much as possible and I take them to the track whenever I can. They are great cars and work fine stock or modified. I use fixed hand controls in my racecar and company car, but in my street 928’s I use a removable set of hand controls that can be easily taken from car to car. An automatic transmission assists me in driving the car as it is easier for me.

>> After the accident, how did you feel your attitude toward racing and collecting cars mirrored your attitude toward life?

My view toward life was one of vibrancy. I didn’t take the attitude as being a victim of what had happened. What would be the point? My love of cars and racing never changed or wavered. There was no doubt that I would be back up to speed sooner rather than later. There have been various studies of individuals with Spinal Cord Injury and the findings show that those with a racer’s mentality tend to have far fewer problems accepting or

Morrison 928s



Top: The Morrison garage is home to seven Porsche 928s, six street cars and one converted race car. **Bottom:** His '81 928 in light blue metallic.



dealing with this severe injury. They tend to adjust quickly to their new lives. This is the approach I took. Since the injury, I have also taken flying lessons. You only get out of life what you put into it.

>> How did you discover the Porsche 928?

My first Porsche driving experience was in my uncle's '84 911 Cabriolet. I loved that car. I always thought I would get a 911, it has always been the "classic" Porsche. After the accident I needed something with an automatic transmission and the first 911's with a tiptronic gearbox were still out of my price range. So, I looked around and considered the 944, but with an auto transmission it couldn't even get out of its own way. Then, I remembered a doctor I knew who had an '88 928 S4 5spd. When we talked about it, he mentioned that the auto transmission version was pretty awesome too. So, I looked into the 928's. When new a 928 was 50% more expensive than a 911 of the same year. As a used car 928s were 10% to 20% less expensive. They had enough room in the cockpit for a wheelchair and another person. In more recent years, 928s were faster and quicker than the 911s sitting on the showroom floor. It was really a no

Morrison 928s



brainer of a decision. Plus, Anatole Lapine's styling has a timeless appearance. Even today, the 928 S4's and GTS's look modern. Let's not forget, even by today's standards they are still good performers and will put a smile on your face every time you drive one.

>> What 928 models do you own? What about each car appealed to you?

I have never sold a 928 that I bought with the exception of the two parts cars. I would regret selling one. I have the race car which is based on an '80 Euro S, an '81 928 in light blue metallic, an '84 928 S in Ruby Red metallic, my first 928 - an '88 928 S4 in dark blue, a '92 928 Euro GTS in polar silver, an '94 GTS in Grand Prix white, and my newest - an '82 928 with the competition package in royal blue.

The new car was featured in an article in Excellence Magazine when owned by its previous caretaker. They are all great cars possessing their own personality and feel.

After I got my GTS I figured having one of each body style would be easy to achieve so that was kind of my goal. A 928 friend of mine in the military, stationed in Germany, hatched the idea of bringing in the only 1992 GTS in the US. We did that in 2000. It was priceless to drive my own 928 GTS on the autobahn between Austria and Munich. Imagine driving two lanes winding up a river valley at 165mph.

To me, the original body cars were more balanced as they have the same size tires front and rear. They're less opulent in gadgets by today's standards, but this helped reduce weight. Their steering

tends to be a bit lighter but still direct. It feels good in your hands. In my opinion, the S cars are not quite as well balanced, but they did get better brakes that require less effort. The steering is still pretty sharp. They have a touch more power so they are marginally quicker and faster in US trim.

The S4 cars are well appointed and extremely fast. They did gain some weight and the tires sizes were staggered. The S4 suspension is tuned toward understeer more than I would like in stock form. However, performing alignment alterations with a competent shop can even that up. I believe the S4's are the best 928 buy out there. The S4 is an excellent bang for the buck. I lump the GT in with the S4 as its only real differences are its manual transmission and a bit more power.





The GTS cars are the last of the breed. Fewer than 425 were ever brought into the US. I would bet that there are only 350 or so left on the road today. They were the fastest of the breed and had 346HP with 369 LB\FT of torque. They would top out above 175mph and are still fast even by today's standards. They were the best equipped and had the beautiful flared rear fenders and body colored rear wing. You can't do any better than a GTS, but a really nice one will set you back more than \$40k where as a really nice S4 is around \$15k.

>> How do you feel the 928 represents the "Porsche" concept?

In Germany and other countries with no speed limits, the 928 could be used as intended - for high speed comfortable drives at upper triple-digit speeds for hours on end. American drivers really didn't get to experience the car in this manner. As an unfortunate result, Americans viewed the car as not being a real Porsche. Germans have a completely different view. They see the car as a top-end, grand touring machine that possesses the Porsche driving feel and connectedness to the road. In its day, there were no cars similar to the 928. Owners could drive from one end of Germany to the other at a speed challenging that of a small aircraft in complete



luxury. Autobahn drivers quickly learned that a 928 behind them with flashing lights meant they had to move over as a land missile was heading their way. The cars were a breed unto their own.

>> What about the 928 makes it a competitive car in racing?

Well, I admit that the 928 has not been particularly competitive in the past. PCA Classes have been determined by displacement, thus placing all 928s in higher classes. Yes, there have been successful 928 racers who have made big horsepower cars to compete against the top class 911 based racecars. Luckily, PCA has changed the rules making weight an important role in what class a car will compete. As a result, I think the typical 928 will actually become more competitive in the classes in which they compete. The 928 is a wonderful car to learn racing skills because of its balance, high speed stability, and relative high horsepower. It's important to note that the biggest factor to success is a driver's skill, especially since tightened power to weight ratios will make competition tighter. PCA Racing's broad differences between the front and back of the pack make it easy for anyone to find a race. The fun is finding someone out on the track that can challenge you and make you a better driver.



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>> What modifications were made to your race car's engine, fuel system, exhaust, and transmission?

The engine is a stock CIS 928 engine. We built a custom exhaust for it with a Flowmaster 40 series at the back and MSDS headers. I'm gaining a few more horsepower as a result, but it is running close to the stock 230 HP at the crank. I'm guessing it is generating in the neighborhood of 200 HP at the rear wheels. The transmission is a 1990 S4 speed automatic with a limited slip differential that has been locked. We put a make up tank in the ATL fuel cell and various fuel pumps to handle the fuel delivery, but nothing exotic. We are using braided stainless steel lines with beautiful anodized fittings in the fuel system.

>> What body mods have been made?

The body and roll cage were built by Mark Anderson of 928 International and purchased as a rolling chassis. Mark did a great job. It included big wide fiberglass front fender flares, blown out rear fenders, custom fiberglass doors and a nice custom aluminum dash with Autometer gauges. To me it really looks like a racing machine. As far as I know, the front fender design was conceived by a guy named Devore, also known as the Arizona High-

wayman. He was big in the 928 tuner world in the 1980's. In fact, the molds are still in the possession of the current owners of Devek. We did update the remote fire suppression system to comply with safety regulations. In addition, we modified the cage to allow me to enter and exit the car. Mark Anderson used to climb in and out through the window; but for obvious reasons, I'm not able to do that. David Moore of Moorespeed in Austin, TX had to cut the fixed side impact bars out of the cage to allow entry into the cockpit. David then built a really nice door/cage set up. A roll cage section is attached to my door thus creating an open space for easy entry and exit when the door is open. It's very slick! Anyone who sees it is amazed. Most people wish they had the same set up.

>> What modifications have been made to the suspension, brakes, and wheels?

Suspension components are stock, but the springs and shocks have been upgraded. The wheels are 16" X 12" and I use Good-year racing slicks on them. I enjoy driving the car on the slicks. They are very progressive and you can really feel them work. They give a lot of warning before anything really crazy happens. If worn

out though, they transition from cornering grip to spinning quite abruptly. I'm currently running stock S4 brakes all the way around. Due to the positioning of the roll-cage, we were not able to employ the stock power brake booster. We had to locate vacuum operated power brake master cylinders remotely. At first, we used a non powered dual Tilton MC system; however, I just didn't have enough power during braking.

>> What PCA class do you run your 928 race car?

When I first finished my car it ran in the GT2 class, because of its engine displacement. At the time, the rules really did not take weight into consideration. I was running a 230 HP car weighing a bit less than 2700 lbs with 911's weighing less than 2400 lbs and running horsepower in upwards of 375. In some cases, 911's were running closer to 425HP! Needless to say, I was tremendously out classed. To really run in GT2 competitively, I would need at least another 250 RWHP. The current rule changes will allow me to compete in a class that would more fit my car. I'm guessing that I should fit into the GT3 or GT4 ranks. I would be happy to run in the GT4 group. Since the car will be more

Morrison 928s

competitive, my driving skills should allow me to run in the thick of things. Some 928 racers run their cars in NASA and SCCA as well as PCA. When running in different sanctioning bodies, one takes the toughest rules to meet and builds the car to those specs allowing the car to race anywhere.

>> How is the performance of the car since the modifications?

Let me provide a point of reference. My race car is 1000 pounds lighter than an S4, but has 100 less horsepower. It has a suspension that is stiffened and tuned for the track with big wide tires. In my race car, I am a couple of seconds per lap faster at Texas World Speedway, than with my S4 when running R's. However, the car is more predictable than a S4 and easier to drive on the track. The car is a total blast. In more capable hands the race car is probably 10 seconds or so faster per lap than my S4.

>> What shops assist you with your car?

David Moore of Moorspeed in Austin, TX built the racecar. He took it from a rolling chassis to a fully functional racecar. His normal work includes Porsche 911's and Ferraris, but he has a real strong knowledge of building race cars. His experience includes running cars from prototypes like the Ferrari 333SP to historic classics as the 962, 911R's and RSR's. They know race cars.

Matt Hazlett of TPWS in Austin, TX is a big 928 fan and works on all my street cars. I had him do a final tune up on the race car when I was having some starting problems. He took the brilliant work that David had completed and rounded out the project. Matt's engine tune work brought the car's performance to another level. TPWS also performed a track alignment making the car feel more solid. I have been impressed with the work from both shops.

>> What advice would you give to anyone wanting to campaign a 928 in racing?

Have you heard the saying, "How do you make a small fortune in racing? Start with a large fortune." Racing is expensive and one needs to understand that prior to



getting involved. There is an impressive amount of 928 performance parts on the market as compared to years in the past. However, it still costs a big amount of money to make a grand touring car into a competitive race car. This fact can not be ignored. In the 928's defense, it isn't cheap to race a stock converted 911 either. One must decide what car really turns them on and pursue that direction. Racing whatever car brings a smile to your face is the most important factor. For me, it's the autobahn commanding 928 that makes me excited.

>> What have you learned in life that you would want to pass on?

As for racing, be sure you go into it with the right attitude. There is no one waiting in the paddock to give a fast club racer a contract to run in the big leagues. Be a

gentleman to your other competitors and enjoy the experience whether you win or lose. Club racing is all about having fun. As for life, I would say to find what really excites you and don't let anything stand in the way of doing it. I'd like to be remembered as a person who never gives up. Some would consider my injuries as a barrier; I didn't and don't! I saw them as an opportunity to adapt and to learn. I'm doing everything that I have always wanted to do. I'm racing and collecting cars while having a job and wife that I love. Life is good. I also feel it's important to give back to people and I try to live my life in this way. Hopefully, my story will inspire people to bring out their best. It's within all of us to strive for our dreams and to be positive in society. We are who we present ourselves to be, so be a positive influence. **AA**

The Evolution of a Species

2009 Porsche 997 Series

By: Kevin Sims
Photos By: Porsche Press



The engineers at Stuttgart endowed the new 997 with technological advancements that will guide the development of all future Porsches. From the exterior, however, the car hides this fact. Keen Porsche-philes will notice a revised front nose with enlarged radiator vents for improved air flow, horizontally mounted L.E.D daytime driving lights, and upgraded BI-XENON headlamps. Side mirrors were enlarged to comply with new EU regulations and feature aerodynamic twin-arm mounts. The rear integrated light clusters are expanded delivering a more dramatic look.

Porsche is making the new 997 available in all body configurations right from the start, unlike when the 996 or former 997 were introduced. Customers can choose from Coupe, Cabriolet or Targa. The coupe and





2009 997's are available in Coupe, Cabriolet or Targa. Above: A Targa Carrera S. Below: An interior featuring PDK.



cabriolet versions are relatively the same; however, the Targa option has a couple of new twists. Along with its sliding glass roof top, the new Targa's rear window section opens up in a hatchback fashion in order to provide easy access to the rear seats for luggage stowage. In addition, the glass roof has a new sunblind system designed to prevent unwanted glare on those sunny days. With the flick of a switch the sunblind can be deployed or retracted, which allows the driver better control of the lighting within the interior as opposed to previous Targa models.

As with the 997 of old, the 2009 Porsche is available in several driveline flavors. The traditionalist will prefer the Carrera or Carrera S variants as they utilize rear wheel drive. Their Direct Fuel Injection (DFI) engines defer from each other in engine displacement (3.6 vs. 3.8 liters) and power output. For those desiring additional sure-footedness, buyers can purchase the all wheel drive Carrera 4 or Carrera 4S models with the same engines. The new 4 models feature a more dynamic electronically controlled PTM (Porsche Traction Management) system to manage the application of torque to the wheels. The PTM system was developed for the 997 Turbo and replaces the previous viscous multiple-plate clutch torque splitting approach. Porsche is providing

the new 4 models with an enhanced mechanical locking rear axle differential to further enhance driving stability. The observant will notice that the 4 models are endowed with a wider rear wheel arch to give the all-wheel drive models an increased muscular stance.

At first glance, nothing about the new styling and product offerings screams a majorly revised design. Looks, however, can be deceiving. Hidden under the conservative exterior and option changes are aggressively evolutionary, if not revolutionary, steps forward.

A NEW HEART LURKS BENEATH

For a year Porsche has been teasing us with reports on adopting DFI to the 911 for 2009. Porsche discovered DFI required such a major redesign that they decided to get the most out of their investment and produce a new unit. The 9A1 engine series shares no parts with the previous M96/M97 engines. In addition to DFI, the new 997's standard 3.6 and "S" 3.8 liter powerplants feature a new 2-piece crankcase design. Each crankcase has a set of three cylinders. The crankshaft is then sandwiched between the 9A1's two crankcases. This differs from the M96\M97's three-piece design which featured two outer cylinder casings that housed a separate internal crankshaft case. Porsche

believes the new 9A1 design should solve the M96/M97's rear main seal leakage problem.

Further 9A1 improvements incorporate a higher compression ratio of 12.5:1, integrated crankshaft and camshaft bearings as opposed to bolted units, and an upgraded VarioCam Plus intake-valve timing and lift system. The result is a more responsible engine that generates more power while using less gas and emitting lower emissions. Al Gore would love it, but let's get back to the important topic - pavement pushing ability. Power is up! The 3.6 liter engine cranks out 345 HP, up 6.2%, and twists 288 LB-FT of torque - a 5.5% gain. On the upwardly powered 3.8 liter engine, maximum output is at 385 HP, an 8.5% increase, with a 5% nudge in torque at 310 LB-FT.

The new engine involves 40% fewer parts than the previous 997 engine with the aim of advancing efficiency. The 9A1's cylinder heads are a one-piece design that reduces the number of parts as compared to the previous M96/M97's three-piece heads. Additional development includes a narrower intake and exhaust tappet width to minimize mass. A factor that allows the engine's redline to be raised from 7,300 RPM to 7,500 RPM. Traditional 911 enthusiasts will notice the absence of a long time engine component - the intermediate shaft. A new, beefy timing chain material eliminated the need for an inter-

mediate shaft as the latest chain is strong enough to cope with load. By deleting the shaft the 9A1 engine benefits from a reduction in rotating mass, accordingly helping efficiency and shedding unnecessary poundage. You know the axiom - Add Lightness. Cutting the component also solves the intermediate shaft failure problems experienced in the M96/M97 engines. Porsche's component diet yields a flat-6 engine in either 3.6 or 3.8 configuration that is roughly 13 pounds lighter than the retired M96 engine.

Both 9A1 engines received adjustments in displacement to exploit the effectiveness of the DFI system. The 3.6 liter engine received a 1.04 mm widened bore and a 1.3 mm elevation of stroke to create a 3614 cc displacement - an increase of 18 cc. Alterations within the 3.8 liter engine include a 3 mm stretched bore and a 5.3 mm descent of stroke to allow for improved revving capability. As a result, the 3.8 engine has an exact displacement of 3800 cc. The top of the 9A1's cylinders have been changed from an open-deck design as in the M96/M97 engines to a closed-deck configuration featuring a connected top plate housing. Porsche redesigned the deck to finally end the M96/M97's infamous 'D chunk' cylinder wall cracking that self destructed some 996 and 997 powerplants.

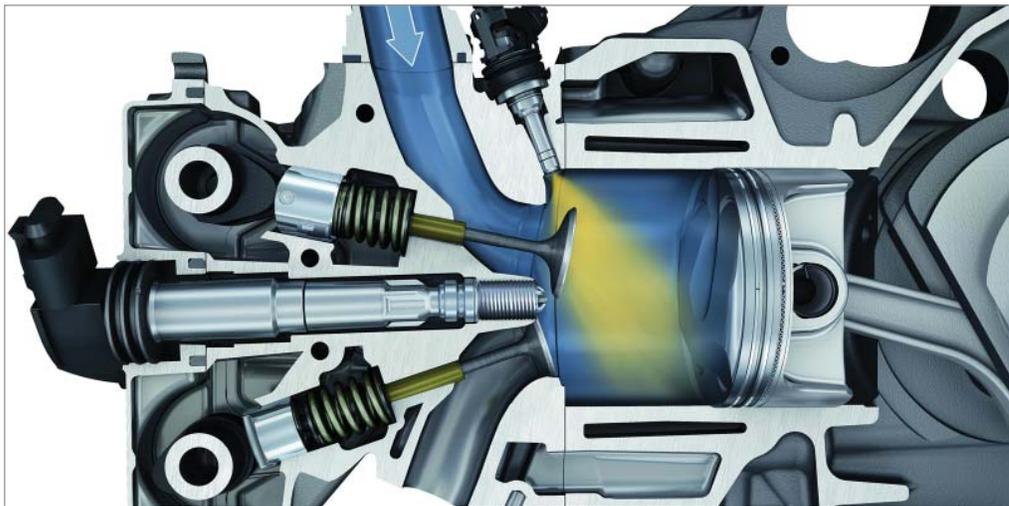
To improve reliability during the most extreme cornering situations, Porsche

improves upon the M96/M97's integrated dry sump lubrication system. Track hounds will be ecstatic by the cancellation of concern over lubrication starvation during high G apexes. The new 9A1's integrated dry sump features four intakes, a new baffle plate that separates the crankcase from the sump, and one variable oil pump operated by the engine's electronic management system. The oil volume pumped is adjusted by altering the width of the unit's mesh section through a hydraulically activated, axially moved gear. As the meshing section widens the pump delivers more oil volume at a greater pressure. The design reduces the amount of energy consumed through the oil pumping function, which provides an estimated three horsepower gain.

Mechanics will be happy to see that Porsche has changed the previous internal water pump with a new externally mounted component making servicing much easier. The new pump drives 20% more volume to aid in engine cooling. The combined improved pump efficiency and air flow at the front end allowed Porsche to eliminate the center radiator, used on the previous car, to further reduce overall weight.

Since an internal combustion engine is essentially an air pump with spark plugs, enhancing breathability affects all aspects of engine performance. Porsche completely agrees with such thinking as they furnish the new 997 with a dual chamber air-box design to create a freer-flowing intake path. It has two openings with separate funnels in the rear cover lid that feeds two independent, circular air filters. Not only does the technique reduce air flow resistance, Porsche claims filter replacement intervals will raise from 37,000 miles to 56,000 clicks on the odometer. Continuing the efficiency mission, Porsche develops the new 9A1's intake manifolds out of a distinctive synthetic material designed to improve airflow while reducing weight. As in the previous 997, the 3.8 features a vacuum-controlled butterfly switch that adjusts the oscillation of incoming air to maximize torque at lower RPMs while acoustically changing the engine sound.

As one can see, the 2009 997 engine represents Porsche's tradition of engineer-



Above: The new 9A1 engine featuring DFI. Notice how the injectors directly infuse fuel into the new engine's combustion chamber allowing for greater efficiency and power.

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THE DIRECT APPROACH

For those not versed in Gasoline DFI, the technology is not new. Mechanically operated DFI was pioneered in World War II on the Messerschmitt Bf 109 fighter and a series of Russian fighters. Later, it was deployed on the 1955 Mercedes-Benz 300SL. The cost and complexity of the system delayed its adoption into higher volume cars. Porsche is among the first companies to bring electronic DFI to a modern sports car. DFI played an important role in Porsche's win of the 2008 American LeMans Series's LMP2 Class championship with their RS Spyder.

In traditional Electronic Fuel Injection (EFI), injectors that deliver low fuel pressures are placed outside of the engine's head within the intake port. Thus, EFI delivers fuel to the air\fuel stream prior to the cylinder's intake valve. The design has the disadvantages of fuel loss along the intake port walls, an inefficient placement of air\fuel mixtures that prevents truly optimal ignition, a reduction of combustion efficiency and less throttling control. Basically, the 997's DFI is a better mouse trap as the injector is strategically placed between the two intake valves and sprays fuel straight into the combustion chamber.

The 997's DFI system varies fuel pressures based on engine load that provides a more accurately measured and appropriately timed fuel induction to improve on fuel consumption, emission reduction, and greater power deliverance. Fuel pressure varies from 1,015 psi to 1,750 psi by alternating delivery patterns between stratified bursts and solid pulses based on three load conditions. During low load conditions, such as limited acceleration or steady throttling below 3,500 RPM, fuel is sprayed during the engine's compression stroke and in a leaner air\fuel mixture through many small bursts. The piston's crown had to be specially shaped to allow for such ultra-lean mixtures during combustion. A leaner mixture means consuming less fuel. During normal driving below 3,500 RPM, regarded as moderate loads, DFI injects fuel during the intake stroke in a more typical air\fuel ratio



Trickle Down to 987 Models

The 997 is not the only model benefiting from Porsche's "more with less" development philosophy. Porsche unveiled at the 2008 Los Angeles Auto Show revised versions of the adored 987 sports car line featuring Direct Fuel Injection (DFI) and PorscheDuelClutch (PDK) technology.

"Our mantra at R&D is that every new model has to outperform its predecessor and offer significant fuel savings," said Wolfgang Durheimer, Board Member in Charge of Research and Development, Porsche AG. "Both Boxster and Cayman pass this test with flying colors."

Despite not featuring DFI, the "basic" Boxster and Cayman models sport a power boost as displacement of their 9A1 engines are increased to 2.9 liters. The "basic" 987 engines differ in their horsepower ratings - 255 HP for the Boxster and 265 for the Cayman - due to variations in their ECU coding. Additional changes to the "basic" models include half inch wider wheels, upgraded front brakes from the "S" 987, and a standard 6-speed transmission. The results are base cars that are not only perform quicker, but provide the customer with greater value.

The "S" 987's 9A1 engines are graced with DFI similar to the 997. As explained in the 997 article, DFI injects fuel directly into the engine's combustion chamber allowing many benefits such as a higher compression ratio which is at a staggering 12.5 to 1. Engine displacement remains the same; however, the advantages of DFI yield the "S" 987 models with improved blacktop pushing ability. The Cayman S cranks out a heady 320 HP, while the Boxster S serves up a fun 310 HP.

Porsche's innovative PDK transmissions are available on all 987 models. As in the 997, the Sports Chrono enhancement of PDK shifting for track situations is also offered. In addition, the roadster and coupe receive updated front and rear bumper designs. Aerodynamic enhancements were focused on both car's rear diffusers and wind deflector plates. All 987s receive updated wheel designs specific to each version to provide distinction across the line. Each car's shock valving was altered to better match the engine's increased power. Lastly, steering effort was reduced in all the 987s by adjusting the control mapping in the multiple-ratio steering box.



through less stratified pulsing. Next is for the spirited driver.

During heavy loads, or RPMs above 3,500, the fuel is injected upon the intake stroke in a solid burst with a heavier mixture that reduces engine knock while providing more power. It's important to note that DFI's more precisely monitored fuel allows for improved coordination between Porsche's VarioCam Plus intake valve timing and lift system. What's more, the 3.8's variable length intake manifolds enjoy improved operation. Further aggressive ignition curves are allowed as a result of DFI's more evenly dispersed air/fuel mixture within the combustion chamber. Additional power and torque throughout the RPM range is a clear advantage from such improved control.

DFI's merits continue. Injecting fuel directly into the combustion chamber provides a denser, cooler air/fuel mixture as the fuel spray cools the incoming air being drawn in by the engine's intake stroke, so as to permit higher compression ratios in comparison to traditional EFI engines. Thanks to DFI's more direct application of fuel, the driver feels a quicker throttle response as compared to the traditionally injected 997.

The direct injected 997 is not strained by a secondary air-injection system to combust unburned fuel in the exhaust. Its emissions are cleaner in lieu of DFI's ability to heat up the catalyst converter faster. During start-ups the engine is in-

jected with multiple high pressure bursts of fuel to increase exhaust gas temperature. Ignition timing is retarded to further reduce start-up emissions.

In short, the DFI system in the 2009 997 represents a legitimate step forward in fuel delivery technology. With all its improved abilities it seems logical that the Porsche tuning community is just jumping all over themselves to get a new 997 in their tuning shops. One can only imagine the tuning promise of DFI. More power everywhere seems like a realistic expectation. And let's not forget, other Porsche 911 models will be getting the illustrious

kudos of DFI. The 911 Turbo and GT3 are obvious candidates for Porsche's direct approach to injection. In all actual fact, a new era has begun. More power with less fuel is not a dream, it's a reality.

PUTTIN' IT TO THE GROUND

Porsche's reputation for never changing just one aspect of a car is continues in the 2009 997. All 997 variants are equipped standard with an upgraded six-speed manual transmission. To handle the motor's increased ponies the synchro-rings are made of carbon-coated steel as opposed to brass as in the prior



gearbox. Triple synchronizers are employed in first and second gear to ease shifting, while third gear uses a double set of synchronizing rings. Since spirited driving typically punishes the first three gears, Porsche opted to use a single ring system on gears four through six. The shifting linkage has been redesigned to shorten the shifting throws making shifts quicker and more precise. Thicker shafts and wider gears round out the new transmission's fortification. Weight is reduced by narrowing the walls of its aluminum oil chambers. Engineers made 3rd gear 3% taller to improve fuel economy while zipping around town running errands.

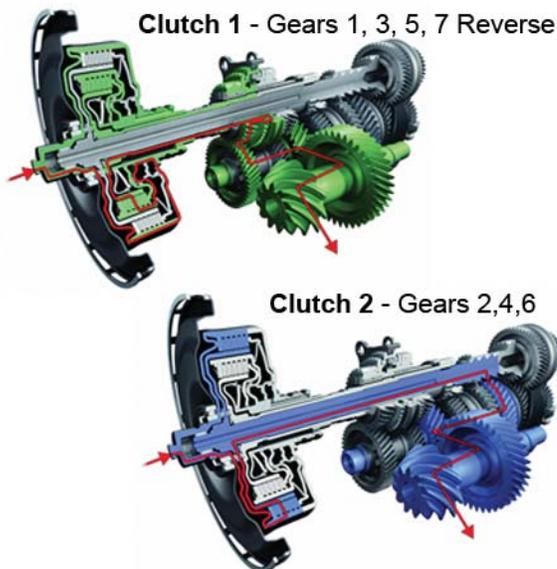
The Tiptronic transmission option is replaced with a new system called PDK featuring seven gears. Like Tiptronic, it enables drivers to either shift between gears themselves or to have gears selected automatically. The driver selects shifts through a console-mounted lever or by steering wheel-mounted paddles. This, however, is where the similarities between the new and old end; PDK is a leopard with different spots. PDK stands for Porsche Double-Clutch Transmission and, as the name suggests, sports two separate multiplate wet-clutch packs, each with their own gear set. That's right; PDK is two gearboxes combined in a single casing. One clutch operates gears 2,4,6 and the other clutch operates gears

1,3,5,7, Reverse. How can you have two separate gearboxes? Simple; the even gears are clustered in the forward section of the transmission while the odd gears are clustered at its rear. The upper shaft that delivers torque from the engine is actually two units integrated together; an internal and outer shaft. The outer shaft, which extends half of the transmission length, powers the even numbered gear set positioned up front. The internal shaft, which runs the full length of the transmission, powers the odd numbered gears placed in the rear. Only one clutch is engaged at a given time, thus delivering power to its gear set. This means that the other clutch is disengaged and its gear set receives no torque.

This brings us to the most fascinating aspect of PDK. It anticipates your next gears change and pre-shifts the gear, whether in manual or automatic modes. How can it do that? It has two gearboxes in one; nice, huh? In an upshift situation, say from 2 to 3, PDK engages the next gear and waits for the clutches to switch. Wham-Bam! The external clutch disengages as the internal clutch engages, therefore switching gears. Easy, right? Well, maybe not, but this is where Porsche technology is at. The computer studies the driving situation and determines what the most likely driver action is going to be then stages for that situa-

tion. Since drivers often downshift multiple gears at a time, let's say from 6 down to 4, PDK will stage and pass through a gear in the opposite set to expedite the multiple gear succession. Holy leap frog, Batman! In other words, during the 6 to 4 gear swap, it passes through 5th gear. All these operations, including the electro-hydraulically shifts, are completed concurrently. Gear changing is wickedly quick and smoother than those of the best race driver. It's no wonder why PDK equipped cars have a quicker acceleration time than their manual counterparts.

Porsche engineers provide PDK cars with two shifting styles; Standard and Sport. In Sport mode while manual shifting, the shift points immediately adjust to aid in performance driving. While in Sport Mode during automatic shifting, PDK evaluates that you're driving with some 'spirit' by reading your car's lateral acceleration and road speed. It then prevents an automatic upshift when the driver lifts the throttle quickly to improve cornering performance. Porsche's Sport Chrono Package Plus, an option, gives the driver an additional shifting mode called Sport Plus. It integrates control of PDK shifting, launch, throttle response, and suspension adjustment under a single program. The result is the ultimate in situational adaptability. Sport Plus also provides more aggressive shifting for track usage.



PDK - Porsche Double Clutch Transmission - Cut Away -



Is it TWO transmissions in one? As a matter of fact, PDK is. Whether in manual or automatic mode, PDK anticipates your next selection & pre-shifts the gear. Once its time to make the gear change, PDK switches between clutches to finish the job.

Extra power coupled with a slight weight gain - the Carrera (2 or 4) models gains 50lbs while the Carrera S (2 or 4) 997s carries a mere 12 lbs more - required Porsche to re-examine their chassis set-ups. The 3.6 997s receive 18-inch wheels all around. Up front, it gets 8-inch wide wheels dressed with 235/40 ZR 18 tires. Out back things change with a wider set of wheels, rated at a 10.5-inch width, donning 265/40 ZR 18 tires. The 3.6 models retain its traditional shocks but are revalved and highlight reworked spring rates to improve handling. The front and rear cross-drilled rotors of 3.6 models expand to a 12.99-inch diameter and are pressed together by mono-block, 4 piston calipers painted black. The "S" models are also blessed with the same brake system as the 3.6, but have red calipers to make them stand out. Both 3.6 and "S" models can be ordered with PCCB, Porsche Ceramic Composite Brakes, to trim down unstrung weight and largely illuminate brake fade during extremely repetitive pedal applications. Observers can recognize PCCB 997s as their calipers are yellow. The "S" is bestowed with 19x8 inch wheels featuring 235/35 ZR 19 tires and 19x11 inch wheels wearing 295/30 ZR 19 tires at its end. As with its predecessor, the "S" features dampeners with active control using PASM or Porsche Active Suspension Management and a 10 mm lowered ride height. The 2009 "S" features upgraded spring rates and anti-roll bar diameters to further hone handling. A PASM Sport option is available that further lowers ride height by another 10 mm, stiffens its springs more, and provides a mechanical limited-slip differential. Lessons learned from the 997 GT3 and GT2 are incorporated into the programming of the PASM Sport system to give a more attuned suspension. Such technology helps one's ability to joggle for position at the track or during your commute home.

LAYIN' DOWN SOME RUBBER

Since we have reviewed all the technical goodies of the new 997 cars, let's do some tail scooting in a new Carrera and Carrera S to see if all the new tech stuff for 2009 translates into more tire burning fun. Performance is higher on both 997 cars. DFI contributes more than improv-



ing overall power. It maximizes torque all through the RPMs. The driver notices the difference from the old 997s right off the line. Both the Carrera and Carrera S feel like they have stronger engines. The previous 997 Carrera 3.6 felt short on low-end grunt, especially below 3500 RPM. While the elder Carrera S 3.8 had the opposite issue. It felt like a tiger launching from a gladiator pit off the line, but somehow didn't scream at the top end to meet expectations. These are no longer concerns in 2009.

The new machines possess a more balanced spread of power and torque. In fact, the difference between the two does not feel absolutely great in terms of straight line prowess. The "S" is surely quicker, but not by a lot. The new "S" in manual gear shifting form jumps from 0 to 60 MPH in 4.5 seconds. While the Carrera sprints to 60 in a bit higher 4.7 seconds. As ZZ Top sings, "All I Want is a Little Tush." Well, PDK helps the 997 haul some 'tush' a bit quicker. The PDK "S" nails 60 MPH from a stand still in a pulse pumping 4.3 seconds. The standard Carrera with PDK achieves 60 MPH in 4.5 second - the same as the manual "S". The new 3.8 liter engine is better suited for acceleration bursts while already moving. It has a definite advantage over the 3.6 gathering speed from 60 MPH to 90 MPH.

Driving a PDK equipped 997 is a pleasant shock to one's notion of spirited

driving. Porsche believes the system will win over many manual clients; and after driving a PDK, we understand why. Take a PDK equipped 997 in automatic mode into a hard, hairpin apex and it will amaze you. The system seems to do the "thinking" for you. Come in too hard and need to brake? No problem in Sport Mode. The PDK tranny judges your driving aggressively and knows to downshift to the appropriate lower gear to assist you in launching out. It switches gears faster than it takes to make a "heel and toe" move on the throttle. There is an immediate transfer of power with no loss of momentum. Wham-Bam, its "out of apex" launch time. It shifts so quick that it startles the first time driver. The racing applications of PDK would be revolutionary - no manual or paddle shifted car could shift faster and with such smooth power delivery. Switch to the Sport Plus setting on Sport Chrono equipped cars and the bar rises even more. Throttle response, suspension rebounding, and gear selection speed all tightens up. The experience truly amazes the senses.

In the final analysis, the two RWD 997s are improved sports cars as compared to the 2008 models mostly due to the advantages new technology brings to the table. Brute performance does not tell the whole story. The new cars are well-balanced performers that show their worth in their details. **AA**

2009 911 GT3 RSR

Porsche Ups the Racer's Ante

By: Kevin Sims
Photos By: Porsche Press



Porsche Motorsports presents to the racing world a revised 911 GT3 RSR intended to stay ahead of the additional competition faced in 2009. Only 20 of the Weissach built racecars will be produced. Leading race teams in the ALMS, LMS, and a few other major venues have acquired the entire allotment. The 2009 GT3 RSR receives extensive modifications aimed at improving its competitiveness while complying with rule changes. It is the fastest 911 based racer ever produced by Porsche. With it they hope to improve upon last season's AMLS and Nürburgring 24 Hours race victories.

By the casual observer, the most distinguished change to the new GT3 RSR is the air outlet louvers on its front hood. They help air flow from the front radiators while improving downforce capabilities. Despite their sporty appearance, one must wonder how team sponsors are going to react to a diminished logo display surface. It would seem Porsche Motorsports isn't concerned with how to pay the bills. Winning, however, provides the best marketing return, so engineering consid-



2009 911 GT3 RSR

erations must come first. Regardless, the louvers are an indication of a revised aerodynamic approach. Front air ducting for the radiators and front brakes work in unison with the louvers to improve performance. In addition, aerodynamic enhancements were made to the underbody and the car's rear. The prominent rear wing has a wider range of adjustability. Furthermore, rear diffusion has been upgraded. The sum of its aero gadgetry will improve handling and race track adjustability. Weight optimization further helps the new RSR as its brake system and wiring harness were placed on a diet to trim unwanted pounds.

Changes in ALMS and LMS regulations required air restrictor diameter reductions to tighten race competition. As a result, the 2009 911 GT3 RSR is actually rated at a lower horsepower than the 2008 model – 450 HP vs. 465 HP for the old. Torque output remains at a generous 317 lbs/ft at the same 7,250 RPM. Porsche engineers did a wonderful job at retaining as much of the ponies as possible by increasing engine stroke by 4 mm expanding displacement to 3,796cc – a 201 cc increase. As a positive result, the 4.0 liter engine has an improved power and torque curve. Apex pull away ability and fuel economy should be improved as compared to last year's RSR. Pit service has been made easier with a revised air jack system for superior performance, and from a relocation of the oil refill function to the rear lid. Driver comfort is enhanced on the new RSR with an optional light weight air-conditioning unit.

Considering the rule changes faced in the 2009 season, the new 911 RSR has been modified to convert disadvantage into real-world racing advantages. Porsche Motorsports will be producing two other 911 racing variants for 2009: the GT3 Cup and the GT3 Cup S. The combined Porsche arsenal will pose tough competition for their opponents. As always, excellence is expected. **AA**



GT3 RSR Technical Specs

ENGINE: Water-cooled, 6-cylinder boxer engine; 4 valves per cylinder; dry sump lubrication; individual throttle butterflies; fuel injection; air restrictors 2 x 29.5 mm.

Bore: 102.7 mm **Stroke:** 80.4 mm

Capacity: 3,996 cc

Power: 450 bhp @ 7,800 rpm

TRANSMISSION: 6-speed with sequential shift; oil/water heat exchanger; single-mass flywheel; 3-plate carbon-fibre clutch; RWD; limited-slip

BODY: Monocoque (GT3 RS); aerodynamically optimised front end with front spoiler; aerodynamically optimised front underfloor; adjustable rear wing; 90-litre safety fuel tank with fast filling function; air jack; welded-in safety cage; racing seat; 6-point seat belt adapted for use of HANS Support; electric fire-extinguishing system.

SUSPENSION: Front - McPherson spring strut axle; Sachs 4-way gas pressure dampers; double coil springs; front axle arms adjustable for camber; adjustable sword-type anti-roll bar on both sides; power steering.

Rear - Multi-arm axle with rigidly mounted axle sub-frame; Sachs 4-way gas pressure dampers; double coil springs; rear axle tie-bar reinforced and infinitely adjustable; adjustable sword-type anti-roll bar on both sides.

BRAKES: Front - 6-piston; 380mm
Rear - 4-piston; 355mm.

WHEELS: Front - (11J x 18-34); BBS Alloy, central bolt; **Rear** - BBS alloy center bolt (13J x 18-12.5).

WEIGHT: Approx. 1,220 kg A.C.O.;
Approx. 1,245 kg FIA.

Brumos Recaptures Glory

2009 Rolex 24 Hours of Daytona

By: Kevin Sims
Photos By: Brumos Racing and Grand Am

Daytona Beach, Fla. – January 25th, 2009 – Brumos Racing captured their first overall victory, since 1978, at the 2009 Rolex 24 Hours of Daytona by managing to keep a racecar with ailments together for the required time. Tensions in the Brumos pits were as thick as they could get during the race's final hour. The winning, #58 Brumos Porsche-Riley, simultaneously suffered from radiators that expelled coolant and oil leaks from both its engine and transmission. Most of the oil leaks had been masked by switching to thicker lubricates, however, the issues still persisted. The miraculous win seems even more illustrious when one realizes that the #58 car was holding off Montoya's #1 Ganassi Lexus-Riley during the last laps on its reserve gas tank.

According to Patti Tantillo, PR manager for Brumos Racing, "With the problems we were having at the end of the race, the result could have easily been heartbreaking. The whole team was hoping for a win, but prepared for a heartbreak." She would know about the race's tensions as she was assigned to operate the "stop/go" signs during pit stops.

In addition to mechanical dilemmas, the Brumos team was in competition against highly funded race teams from the American IndyCar Series and NASCAR. Brumos played the underdog in a David versus Goliath struggle and displayed that devotion can be mightier than a big budget.

"We've been at the bottom for a while and these guys just never give up. Today proves that point. We came ready to run hard and we ran hard the whole time," explains David Donohue the closing driver of the #58 Brumos Porsche-Riley.

Driven by the team of David Donohue, Darren Law, Antonio Garcia, and Buddy Rice, the #58 car ran toward the top during much of the race. One factor they faced was that 25 caution flags covered 117 laps, so the field was never given the chance to spread out. The overall lead changed 51 times and was shared by 9 different cars. During the first third of the race, Brumos and Penske Porsche-Rileys'



2009 Rolex 24 Hours of Daytona

Tensions in the Brumos pits toward the race's end.



dominated as both teams led 207 laps out of the first 261 laps. Late Sunday morning the #16 Penske experienced a broken drive-shaft and its repair cost them 15 laps. As a result, Porsche's reclaimant hopes of Daytona glory lay fully upon Brumos.

After 23 hours of intense racing, the contest came down to an eyeball-to-eyeball clash between Brumos's Donohue and Ganassi's Pablo Montoya. It was Montoya that captured the lead at roughly the 50-minute remaining mark when the #58 and #16 had both pitted. The lead was not a healthy one as Donohue courted Montoya like a lion does a gazelle. Finally, at around the 40 minute mark, Donohue executed a brilliant late brake maneuver in a tight apex to secure the lead. From there it was Porsche horsepower and Donohue's traffic negotiation skills that gave Brumos Racing the overall victory. **AA**

Porsche 2009 ALMS Winter Testing

By: Kevin Sims
Photos By: Porsche Press

The 2009 Porsche 911 GT3 RSR posted a successful winter testing session at the famed Sebring road course. The session is used by American LeMans Series teams to gauge their car's abilities prior to the season's start. Modifications made to the new GT3 RSR showed improved reliability and handling over last year's race car. Flying Lizard Motorsports and Farbacher-Loles Racing used

the session to further hone their cars for the Sebring 12 hour race in March, the opening event for the ALMS season.

"Right from the start, the cars ran very well and the teams made excellent progress with their work," explained Martijn Meijs, head of Performance Porsche Motorsport. "Due to changes in the technical regulations, the cars tackle this season with a smaller air inlet restrictor and the ride

height must be five-millimeters higher. For this, the teams can use hardly any of the data from 2008 and virtually have to start from zero with their suspension set-up."

Wolf Henzler, a factory driver on the Farbacher-Loles team, views the results from the winter test session as a positive outcome. "The GT3 RSR has made another noticeable step forward. I think we are well equipped to win the championship."

Patrick Long and Joerg Bergmeister, both factory works drivers running with Flying Lizard Motorsports, shared a focus on setting up their GT3 RSR's for the Sebring 12 Hour race. "The new GT3 RSR has a much better turn-in than the 2008 car," Long commented. "Now we just have to work on finding an optimal spring-shocks set-up for the extremely bumpy circuit here in Sebring," added Bergmeister.

The Vici Racing team also concentrated on finding the right set-up as they are switching to the Michelin tires.

Based on all the team's tests the new GT3 RSR with its 450 hp, 4-liter boxer is expected to meet the challenge of this year's ALMS season.



Swan Song Championship

Factory DFI RS Spyders Not Racing in 2009

By: Lenny French
Photos By: Porsche Press

After three seasons of success, Porsche has withdrawn the RS Spyder from ALMS's P2 class in 2009. They locked up the 2008 ALMS P2 Championship by deploying direct fuel injection (DFI) to the RS Spyder. Porsche Motorsports admits that the added pressure from a fully supported Honda-factory team in P2 prompted them to introduce the new engine mid-season.

"Competition in the LMP2 class is at an extremely high level," says Hartmut Kristen, Head of Motorsport at Porsche. "Therefore introducing DFI at Mid-Ohio was exactly the right time."

Designed in conjunction with the street DFI systems, the new RS Spyder engine has improved power while decreasing fuel consumption – important advantages in endurance racing. Rated at 503 HP at 10,000 RPM, up from 476 HP, the 3.4 engine represents the first time DFI has been applied to such a high revving application.

As compared to the previous intake manifold fuel injection system, DFI can be operated lean under partial load conditions like during caution periods. This allows for a greater range from a tank of racing fuel. DFI enables improved management of fuel injection, thus opening up more control of highly dynamic processes such as gear shifting at full throttle.

With a 1-2-3-4 win at the 1,000 mile Petit LeMans, Porsche's strides in DFI also secured them a win in the coveted Green Challenge for lowest fuel consumption and environmental impact.

"At this race we were able to utilize the full potential of DFI for the first time. All five RS Spyder prototypes had DFI and they ran the entire distance without one problem," said Thomas Laudenbach, Head of Motorsports Development

Porsche's motives for withdrawing in 2009 are unknown. Perhaps the economy or the acquisition of VW played a part in the decision. After three seasons, however, Porsche had proved its point – they were the best. Porsche still plans to fully support GT2 class teams in 2009. It is rumored they will race in the 2011 P1 class.



2008 24 Hour Racing

LeMans >> Porsche Takes Top LMP2 Spots

By: Kevin Sims
Photos By: Porsche Press



Sarthe, France - June 15th, 2008 - The Porsche RS Spyder's LeMans premiere was graced with a double victory in the LMP2 class. The Van Merksteijn Motorsports trio, Jos Verstappen, Jeroen Bleekemolen and Peter van Merksteijn, ran a flawless race finishing 353 laps with an average speed of 124.72 MPH. They held an eight lap lead over the second place RS Spyder of the Essex team.

"This success is something very special in my racing career," said the ex-Formula 1 driver Jos Verstappen. "Winning in Le Mans means you go down in racing history. For me it was also important as I'd never competed in a 24-hour race. The car was unbelievably reliable and fantastic to drive."

The Essex race team of John Nielsen, Casper Elgaard and Porsche-works driver Sascha Maassen led much of the first third of the race. But overall finished second as the result of two tire punctures and some electrical problems forced unplanned pit stops.

"Right from the start I felt great in



2008 24 Hours of LeMans

my guest team,” said the Porsche-works driver, who competes for the factory-supported Penske Team in the American Le Mans Series. “It was a highlight to drive the RS Spyder here in Le Mans.”

Luck was not shared with Porsche’s 911 GT3 RSR entrants in the GT2 class. After securing the top two qualifying positions and leading at the beginning of the race, an accident and a technical defect eroded hopes of repeating last year’s Porsche GT2 class victory. The Ferrari 430 GT captured the top 4 spots in the GT2 class. Porsche did have one glimmer of glory, as its factory driver Patrick Long became the first to pilot a sports car category race car to a lap time lower than the four-minute mark in LeMans history. In the IMSA Performance Matmut Porsche, he completed a qualifying lap with a time of 3:58.152 minutes.

“It was a tough (qualifying) fight against the other Porsche drivers and our rivals from Ferrari,” elaborated Long.

Long’s good fortune would not play out in the race as a collision with a Flying Lizard Porsche, driven by Seth Neiman, during the second hour ended his team’s race day. The Lizards would return to



race, but with a 30 lap deficit they settled for a sixth place GT2 finish. They did manage to turn the day’s fastest GT2 class lap with a rip roaring 3:59.887-minute time. Porsche’s highest GT2 class finish was fifth with the Felbermayr-Proton team’s 911 completing 309 laps.

Jacques Villeneuve, racing the #7 Peugeot 908 HDi, had hoped to become the second man in history to win auto racing’s coveted triple-crown (F1 Championship, an Indianapolis 500 win and a LeMans win in a career), but it was not to be. A lengthy fuel stop provided the #2 Audi its call to glory as it passed the #7 Peugeot while in the pits to seize the lead. The #2 Audi R10 driven by Tom Kristensen, Rinaldo Capello and Allan McNish took the overall victory for the fifth straight year after a recovery from a shunt in the race’s 22nd hour. The three Peugeot cars held leads throughout the competition. Rain, however, late in the race was a major determinant of Audi’s win. The Audi team decided to run intermediate tires, which give them the needed edge for victory. **AA**



Porsche dominates at the 2008 'Ring 24 Hour race. Not only do they claim the top podium spot, they pull off a 1-2-3 hat trick performance. Clearly, Porsche rules.

Nürburg, Germany – May 25th, 2008 – The Porsches of Manthey Racing achieved a 1-2-3 finish at the ADAC Zurich 24 Hour Race at the Nürburgring. The team's Porsche GT3 RSR placed at the top of the podium. Driven by factory drivers Timo Bernhard (Germany), Romain Dumas (France), Marc Lieb (Germany), as well as Manthey's Marcel Tiemann (Monaco), the car finished with a full lap advantage over the second place car.

"It was mentally very demanding to have to close this huge gap. So that's why this victory is the greatest moment of my career," said a euphoric Marc Lieb.

With the victory, Bernhard and Tiemann climbed to the top of the podium for the third consecutive year.

"Winning the Sebring 12 hour race, and now this triple victory on the Nürburgring is absolutely crazy and means a great deal to me," said Timo Bernhard in a state of disbelief.

A loose seal in the GT3 RSR's cooling system within the first few meters of the race demonstrated that its dominant performance was not guaranteed. Olaf Manthey, the team's principal, instructed his drivers to not let up throughout the race despite the large gap attained.

"Even though it didn't look like it in the second half of the race – this was my

hardest fought victory by now," added Marcel Tiemann.

A gap to the second placed car of three laps toward the race's end gave the team enough time to perform a time costly, 45 minute gearbox lubricant change while completing a methodical component inspection.

The 911 GT3-MR and 911 GT3 Cup cars of Manthey Racing finished in the next two places completing a race that defied expectations. **AA**



2008 24 Hours of Nürburgring

