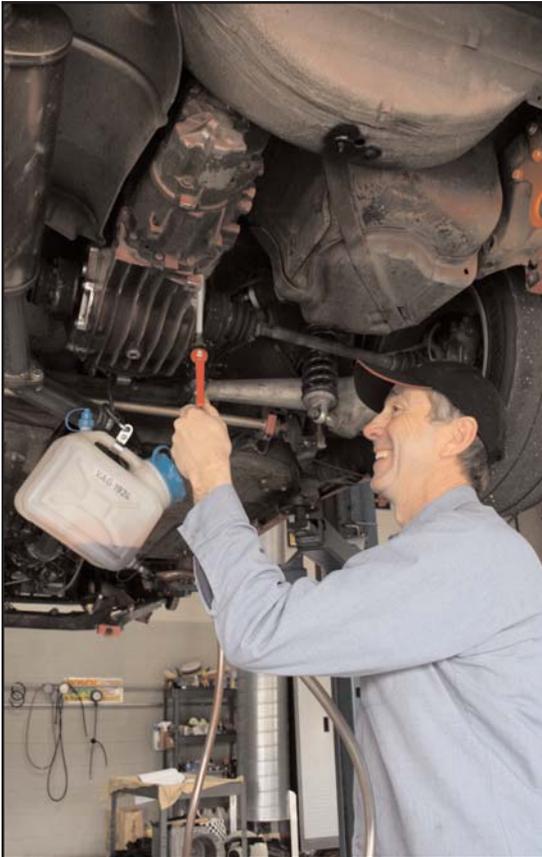


HEYER performance

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Tiptronic Transmission Fluid Service



Porsche calls the transmission fluid in Tiptronic equipped Boxters and 996s “lifetime” and doesn’t recommend a service interval. The word lifetime when applied to automobiles usually covers the time a manufacturer warrants their car, or at most seven years.



left:and above: Tony pumps fluid into the transmission with a special heated Porsche pump and nozzle.



Heyer Performance recommends a tiptronic service that not only changes the fluid, but removes the transmission oil pan and cleans the metal shavings from the unit at 60k miles. Refilling the unit takes a special Porsche nozzle, and the fluid needs to be exactly 180 degrees to obtain the proper viscosity to enter the unit. Tony recently performed this procedure on a 76k mile Boxter, and both shifting smoothness and speed noticeably improved.

Porsche’s Hybrid Future

Porsche will first come to market with the Cayenne Hybrid SUV by the end of this decade to be followed by the Panamera Hybrid. After they introduce the much anticipated four-door sedan in 2009, Porsche intends to achieve their environmental goal of a 30 percent decrease in fuel consumption with a hybrid version, while offering the expected Porsche high-performance attributes in a four door sedan. Both the SUV and sedan’s par-

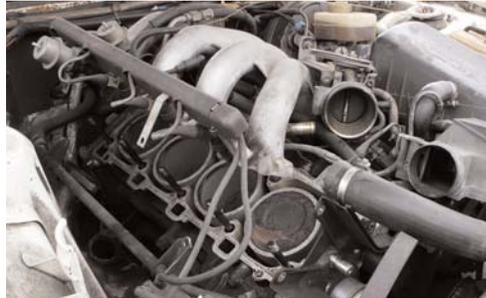
allel hybrid system is configured with the battery unit positioned below the luggage compartment. The hybrid module, consisting of an additional clutch and electric motor, will be located between the engine and transmission. Depending on driving conditions, the hybrid module can disengage either the combustion engine or the electric motor or can combine both drive systems as one joint power unit. This flexibility results in benefits such as a zero emissions driving mode, fuel savings in both city and highway driving, and maximum performance when needed. Coordinating the hybrid system’s three main components – the combustion



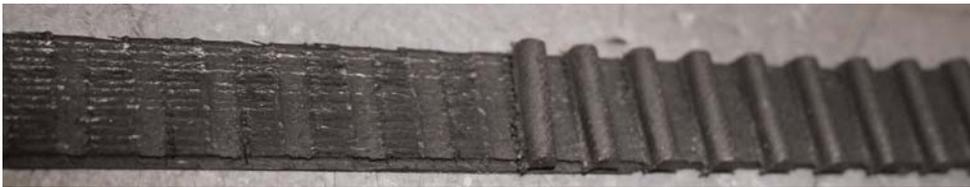
engine, the electric motor and the battery – takes some serious computing Porsche calls the Hybrid Manager. It oversees some 20,000 data parameters as compared to only 6,000 data parameters for a conventional engine, and the Hybrid Manager is one of the most powerful (and complex) technologies found in any hybrid vehicle.



Better Safe Than Sorry with 944 Timing Belts



above: This 944 lost its timing belt. **above right:** The head must be removed.
below: Here's the timing belt - the teeth simply sheered off.



When the 944 was new, Porsche's recommended service interval for the all important timing belt – that's the giant toothed rubber band that keeps the cam and valves moving in synch with crankshaft and pistons – at 60k miles. Porsche quickly realized the interval was optimistic, and backed the factory specs down to 45k miles. Recently, Tony has encountered two belt failures at just 35k miles, and has always recommended a 30k mile interval on this inexpensive, but very important part. What happens when it fails? The valves stop opening and closing at the right time, and the pistons start hitting them. When this happens, the best-case scenario is a bunch of bent valves, and if you're running

above left: A bent valve sticking out of the head.
above center: Removing the valves.
above right: Broken, bent, and straight valves.

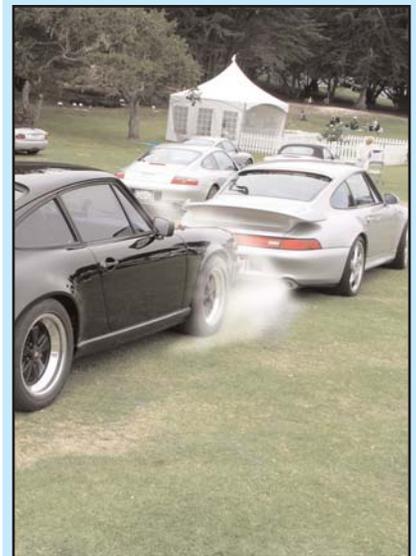
hard at high RPM the valves could break on impact and fill the combustion chamber with debris that usually damages the head beyond repair. In his own racecar he's tried aftermarket belts with little success. Most of those have stretched beyond the tensioner's ability to cope within only 3k miles. As a result Tony only uses Porsche belts. This white 944 is the classic example – the belt failed, and valves were bent. For many owners, the repair work after a timing belt failure costs more than the car is worth. Changing the belt at 30k costs just a fraction dealing with the consequences, not to mention the hassle of getting stuck, towing, and dealing with a time consuming head repair.

Smoking 993 Turbos

Smoking on startup: It's more common among 993 twin-turbos than you'd think. It would be logical to check rings, valve guides, and even the turbos themselves as potential culprits. "Assuming those things are good, and there's still a smoke issue, I've had problems with the turbos filling up with oil when they're not running.

When this happens, they smoke like a freight train when started up after not running." Tony said. Andial made a clever fix in the form of a stainless steel oil line with an extra loop to keep oil from draining into the turbo, but they stopped making the kit. The later 996 twin-turbo cars went to a check-valve on top of the turbo itself.

That 996 part can be adapted to the 993 if oil smoke is a recurring problem. Most likely, your turbo will stay smoke-free - but if it doesn't Tony can help return it to its normally clean starting ways.





A GT2 ride with Walter Röhrl



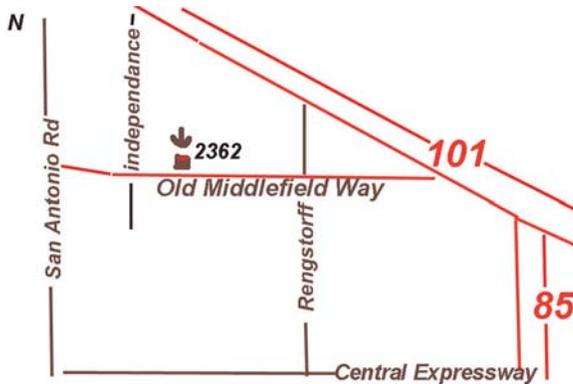
From its inception as a 993 based racecar, the GT2 established itself as the ultimate turbo version of the 911, and even after the racing class that spawned its name changed the rules and vanished, Porsche realized there's a place for a rear wheel drive Turbo that lifts a little DNA from the glory days of endurance racing 935's with big power and that familiar shape. With two-time World Rally champ and Porsche test-ace Walter Röhrl working the wheel, the new GT2 has lapped the Nurburgring's Nordschleife loop in an astounding 7 minutes and 32 seconds. That's 14 seconds faster than the previous GT2 and 10 faster than the current GT3RS. When I got the call from Excellence Magazine editor Pete Stout, he mentioned something about the GT2, and twisting my arm with 530 horsepower, launch control, and six pounds per horsepower. He had me at GT... and within minutes my bags were packed for Germany. Needless to say, the car is phenomenal (it should be at \$191,000) –the power delivery is intoxicating, and it's hard to keep from cracking the throttle open just to feel the shove back into the seat and accompanying howl of the motor. The variable steering boost is identical to the GT3 and Turbo, and has the same laser precision. The scary thing is how stable it is at speed-250kph (155mph) feels like 65mph. Helping matters further was the quality of the German roadway – silky smooth and nothing like our freeways around the Bay Area. Traveling over 300kph (186mph) it's just as planted, and the speed of the scenery whipping by is the only indication that we were really hauling. On one clear section it pulled right past the advertised 329kph (204mph) top speed. The motor still had a few revs left and was happily pulling with an indicated 1.4bar. Even at ridiculous speeds, there was no drama, no light feeling at the front, nothing to indicate only 38% of the weight of the car rides over the front wheels – just the same peripheral vision blur you get while riding the high speed German ICE trains and the added responsibility of not running over other drivers traveling over 100mph slower. The PCCB brakes were more than up to the task of scrubbing 120mph quickly without any signs of fade, a necessity with these speeds.

Driving quick on the autobahn is one thing, but it's not every day you get to ride with a two-time World Rally Champion –

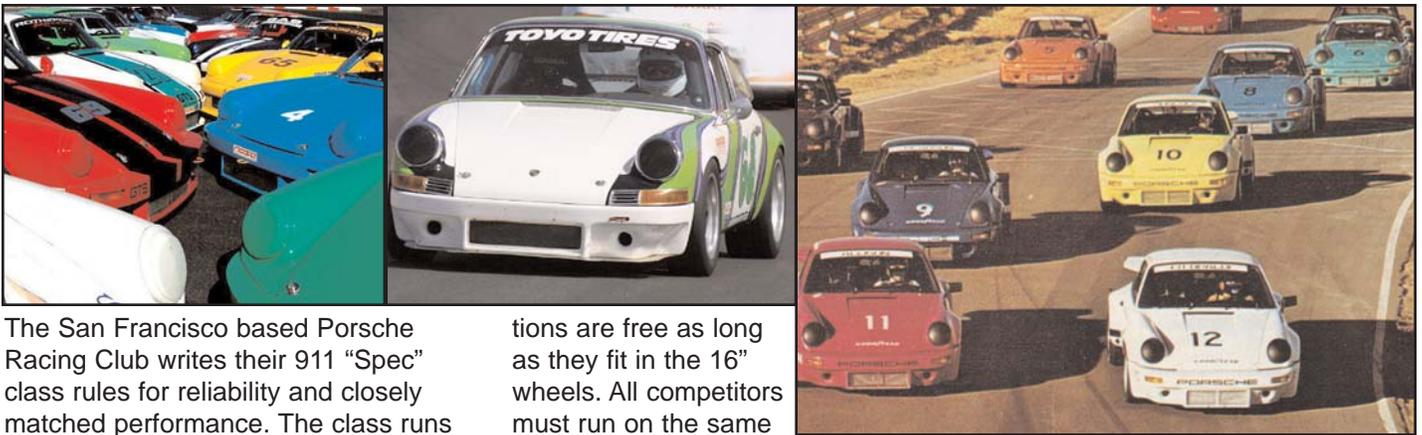


and that's what I did on this trip (for Excellence Magazine) with Porsche test-ace Walter Röhrl in wet conditions on an impromptu former Luftwaffe airfield circuit. From the outside watching him streak down the main runway with a plume of spray behind the car, it looked like a full blown land speed record attempt on a dusty salt flat. More impressive than the sight was the sound of the 911 literally tearing and compressing the air around it in a shriek louder than the measured wail flowing from the exhaust pipes. Röhrl came around closer on a short straight, tail out 30 degrees in a perfect drift. Riding with Röhrl was a treat, amplified by the iffy weather. Through puddles with PSM (Porsche Active Stability Management) on, it sounds like early 90's Formula One traction control, with the car cutting out but still leaping forward. It's the first use of the system on a GT model, and the yaw parameters that activate stability control are bumped up accordingly. To demonstrate Röhrl started out with PASM in normal, and Traction Control in the on position, where it limits the slip angle of his slides and keeps the car accelerating across puddles on the slick roadway. "It seems pretty stable" I remark as we hurtle down the straight. He replies by simply taking both hands off the wheel as we pass 250k (155mph). Just before he touches the brakes we cross 300kph (186mph) in the wet, which explains why it looked like a Bonneville run, or the Space Shuttle landing. With the electronic aids turned off, he demonstrated his rally winning techniques by sliding the GT2 effortlessly around corners while explaining that it was ultimately easier for him to catch and drive quickly than the Carrera GT. Needless to say, riding with Röhrl was a treat I won't ever forget. – *jeff glenn*

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911 Spec Racing Reminiscent of the IROC



The San Francisco based Porsche Racing Club writes their 911 "Spec" class rules for reliability and closely matched performance. The class runs primarily with NASA events and uses Pre -1990 911 chassis. The spec engine is the 3.0 liter, but 2.7 and 3.2 versions are allowed with modifications to the induction systems that keeps everyone close to a 250 horsepower target. The rules address cams, bore, stroke, rods, heads and other parts for the three different engine sizes, and all motors must run a single spark plug per cylinder. Gearboxes are 915 units with prescribed ratios and suspension rules (keeping it mostly stock) are strict. Brake caliper, pad and rotor combina-

tions are free as long as they fit in the 16" wheels. All competitors must run on the same Toyo RA1 tires, 91 octane pump gas, and the resulting battles at the front of the grid are usually close. It's interesting to see home-built and maintained 911 racers going against prep-shop built and run cars with plenty of success. Tony said, "I love watching those cars, it reminds me of watching the IROC RSR's back in the day." These 911 racers know how to keep the starts interesting too. After qualifying, the top six draw numbers from a hat to determine their starting position amongst themselves. That keeps things honest for

sure, as does the "Trophy weight" penalty assigned to the top three cars – 75lbs for a win, 50 for second and 25 for third. The minimum weight (with driver) is 2400lbs, and the maximum "trophy weight" can't exceed 2550. As soon as a driver doesn't finish on the podium, they can lose 25lbs per non-podium finish. Sounds like fun!

above left to right: 911 Spec cars at Thunderhill, Jim Hamilton's 911 racer, and the original IROC series.