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UP FRONT

Ten years in the seat at 911&PW. Time for Bennett to have a quick look back, before looking lively and getting on with the next 120 issues!

While putting together the 'Time Machine' page in the back of the mag, I discovered that this very issue marks 10 years of my steering 911&PW. It came as a little bit of a shock I must admit, but it's got me thinking as to the big Porsche events I've witnessed and written about in that time.

When I joined 911&PW, Porsche was a fully-formed, modern car company with a model range that was still dominated by sports cars – the 911, Boxster and Cayman, which had just been launched. The elephant in the room was, of course, the Cayenne, which has now been joined by the Panamera and the



The 911 is still the beating heart of the company



Macan. That trio comfortably drives Porsche sales, although the 911 is still the beating heart of the company, and the 918 has proved that Porsche can cut it in the supercar stratosphere. The biggest 'event' was undoubtedly Porsche's family feud boiling over, the demise of Wendelin Wiedeking, and Porsche being consumed by VW. The three were inextricably linked. It's an industrial soap opera worthy of a film.

Of greatest pleasure has been Porsche's return to sports car racing with the 919 Hybrid racer, winning Le Mans and the 2015 WEC Constructors' and Drivers' Championships, thus proving that Porsche remains a competition driven company. My biggest wish? That Porsche builds a lightweight 911 that doesn't become a limited edition investment opportunity.

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Basalt black with black leather,
Sat Nav, 35,000 miles.....**£45,000**



911 (997) "4S" 3.8 " pdk (09-2009)
Basalt black with black leather,
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NEWS

The 911 Turbo breaks the 205mph barrier, the Mission E Concept is go, Mark Webber wins the WEC title, Cayman GT4 Clubsport launched, TechArt launch new Magnum and Porsche opens new Classic Centre

NEW 911 TURBO

Not just faster but cleverer, too, as the 911 Turbo seeks to differentiate itself from the now turbocharged Carreras



Can you have too much of a good thing? If the new 911 Turbo and 911 Turbo S models are anything to go by, the answer is an emphatic no. Due to be officially unveiled at the Detroit motorshow in January, these new second-generation 991 iterations of what Porsche itself calls the 'ultimate' 911 have more of everything that has always made the Turbo great.

It all starts with power. Yet more power. Both the new 911 Turbo and its even grunter 911 Turbo S sibling have been tweaked to the tune of 20bhp. Peak figures for each model are now 533bhp and 572bhp, respectively. In percentage terms, these are not dramatic power boosts. The 3.8-litre flat six from the outgoing Turbo and Turbo S, known internally at Porsche as the 9A1, has been largely carried over. So is this revision little more than a quick bit of keyboard action, just the dark arts of engine

mapping at work?

Perish the very thought. This is Porsche, after all. The reality is much more involved and begins with new cylinder heads with revised inlet ports, new injection nozzles and higher fuel pressure. To that the Turbo S adds new turbochargers with larger compressors. As before, both models sport turbochargers with variable vane geometry for improved response, a technology that Porsche reckons is unique in petrol engines.

The net result? Even more performance. The new Turbo S obliterates the zero to 62mph sprint in just 2.9 seconds and hits the wall at at 205mph. As for the plain old Turbo, let's just say it's no slouch at three seconds flat for the sprint and 198mph all out. When you consider that Porsche's performance claims tend to be conservative, the mind boggles.

More recently, of course, 911 Turbos have been as much about brains as mere

brawn and these revised 991s are no different. For starters, despite the performance increases fuel efficiency has actually improved, albeit marginally. Combined fuel consumption improves by two per cent to 31mpg for the coupé models.

More intriguing is a new engine mode Porsche is calling 'dynamic boost'. By interrupting the fuel flow but keeping the throttle valve open if the driver briefly lifts his foot from the accelerator pedal, charge pressure is maintained and the engine responds more rapidly upon throttle reapplication. It's yet another tool in Porsche's box of lag-reduction tricks.

Another related feature is the new Sport Response button, which forms part of the revised Sport Chrono Package. Located in the centre of the mode dial on the steering wheel (now a 260mm 918-Spyder inspired item), it pre-conditions the engine and transmission for optimum responsiveness.

Gen 2 991 Turbo follows traditional Porsche mid-life upgrade pattern, with revised front and rear aprons and LED driving lights

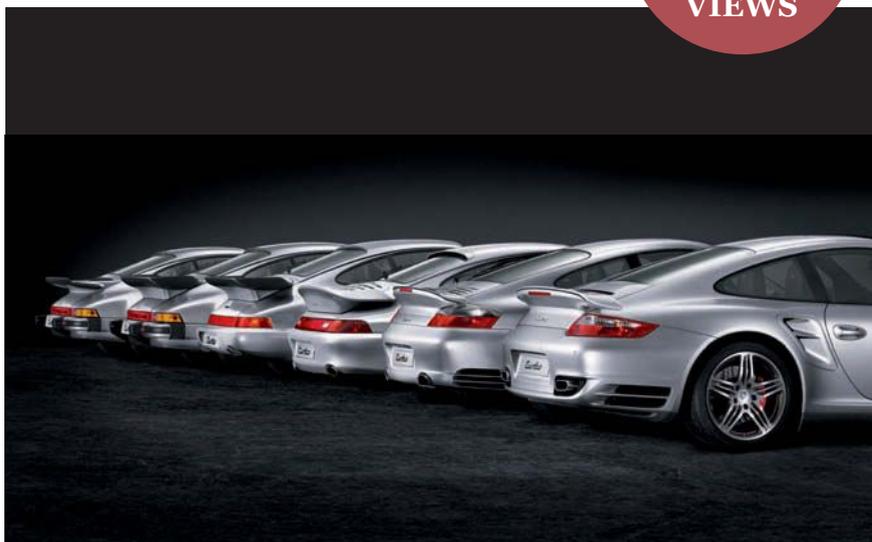


Instantaneous acceleration is available for up to 20 seconds. Ideal for overtaking, no doubt. Think of it as push-to-pass, Porsche style.

Elsewhere, Porsche has applied upgrades already seen in the standard 991.2 Carrera models to the new Turbos. That includes an upgraded PCM multimedia platform with an improved HD screen and gesture support along with a new 'drift mode' in the PASM stability system. Finally, the revised cosmetics include new bumpers front and rear, new LED driving lights up front and those funky 3D light clusters with 'aura-style' illumination at the rear.

The exit openings for the exhaust system at the rear as well as the dual tailpipes were also redesigned. Ditto the rear engine lid grille. Available in both coupé and cabriolet body styles, the new Turbos start at £126,925 for the Turbo coupé and extend all the way to £154,614 for the Turbo S Cabriolet.

At the rear the revised 911 Turbo gets 3D light clusters, as seen on new 991.2 Carrera models and revised engine lid grille



TURBO TIMELINE

The very first 911 Turbo had about the same power as the current 2.7-litre Boxster. Here's how we arrived at the latest 572bhp, 200mph beast.

1975

Codenamed 930 and the original bad boy. 3.0-litre non-intercooled engine and a mere 260hp. But widebody look, whale tail and explosive turbo punch created an icon.

1978

An upgrade to 3.3-litre engine and the addition of intercooling ramped up power to 300hp. Less lag and latterly a five-speed gearbox made for a more drivable proposition.

1990

Initially launched with a 3.3-litre 320hp motor, the type-964 911 Turbo was upgraded to 3.6 litres and 360hp in 1994. Ultra-rare Turbo S got 385hp.

1995

Arguably first of the modern 911 Turbos and certainly the first with all-wheel drive, the 993 Turbo upped the ante to 408hp. Just 183 Turbo S models with 450hp were made.

2001

The 911 Turbo goes water cooled with the arrival of the 996 model. All-wheel drive remains and power jumps to 420hp. Turbo S and X50 pack both offer 450hp.

2006

Things get really serious with the 997 Turbo, which opens proceedings with 480hp. Second-gen Turbo S model drops the 'Mezger' engine but ups ante to 530hp.

2013

The type-991 911 Turbo delivered 520hp as standard and 560hp for the Turbo S. By now, Porsche's dual-clutch PDK transmission is standard as is kidney crushing performance.



PORSCHE OPENS OFFICIAL CLASSIC CENTRE

Zuffenhausen gets in on the classic car boom

The world's first official Porsche Classic Centre has opened in Gelderland, just outside of Arnhem in the Netherlands. The new centre will offer services exclusively for classic Porsche cars of all ages.

It's the first time that service, workshop and sales facilities just for the classic Porsche sports cars have been brought together under one roof. Core services will include supply of some 52,000 original spare parts, complete and partial overhauls but also repair and maintenance work and

classic cars sales.

A small number of additional certified Porsche Classic Centres are set to follow around the world. However, a broader international dealer and service network supporting the classic models is also planned. Fully 100 centres will be involved and most will be existing Porsche centres which will provide support for sports cars of earlier eras in addition to the current models and will be certified as Porsche Classic Partners.

Each will set up a separate area with classic vehicles on

display and current spare parts together with technical literature and information. Employees at these centres will complete training developed specifically for classic care care, too. The centres will also be equipped with special tools and model-specific repair instructions relevant to older sports cars. The idea is to deliver a uniformly high standard of quality and service for classic Porsches.

Currently, the network includes 24 Porsche Classic Partners around the world.

Germany has 10, with further centres in Estonia, France, Italy, Japan, Switzerland, Hungary, South Africa, Thailand and the United Arab Emirates. The UK has two Porsche Classic Partners in Hatfield, just north of London, and Leeds. Among other territories, new centres are planned for Australia, Belgium, Canada and the USA. So it will be a truly international network. Given the current boom in all things classic and Porsche, no doubt demand for the services of these centres will be high.



Porsche getting in on the back catalogue. First official Porsche Classic Centre opens in Gelderland, Holland

PORSCHE CAYMAN GT4 CLUBSPORT PICTURED

We've already seen the full specifications. Now we have the pictures to go with them. Here is the first official image of Porsche's Cayman GT4 Clubsport. It's a pure race car derived from the smash-hit Cayman GT4 production model. Changes include a switch from manual to PDK dual-clutch transmission and a motorsport-spec limited slip differential. Brakes are 380mm steel items all round and the rear suspension has been beefed up with transverse arms adopted from the 911 GT3 Cup. The stripped-out interior sports a fully welded in roll cage and overall the Clubsport weighs in at 1300kg. It's on sale now for 111,000 euros plus VAT, which translates into a grand total of about £95,000.



Looking tough in race livery and lowered race suspension, new GT4 Clubsport is a pure race car. Strangely, though, while the roadgoing GT4 Clubsport is manual only, the racer is exclusively PDK



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MEGA MAGNUM

To paraphrase Samuel L. Jackson in full flight, when you absolutely, positively have to flatten everyone else on the autobahn, accept no substitutes. Demand the TechArt Magnum.

At least, that's what the styling of this tricked-out Cayenne, now on its third generation, seems to be saying. It's a comprehensive makeover, this time, that starts with a carbon-fibre bonnet complete with huge air vents and an aggressively re-profiled front bumper. Wheel-arch extensions add further visual clout to what is already an imposing beast as standard.

At the rear, a diffuser of epic proportions, dual spoilers, huge vents and quad tail pipes ensure

that the Magnum's murderous intent is unmistakable. As for performance, the Magnum range starts with the Cayenne Diesel S boosted by 35hp. But the daddy is the optional TA058/T2 engine kit for the Cayenne Turbo that winds the output up from 520hp to fully 700hp.

That's enough for zero to 62mph in just 4.1 seconds and a top speed of 183mph. In an SUV. Pretty the TechArt Magnum therefore isn't. But it's hard to argue that this monster isn't absolutely effective. Prices vary according to specification but you can find out more from UK TechArt supplier Tech 9 Motorsport via tech9.ms or call 0151 425 5911.

Subtle it ain't, but you've got to love the TechArt Magnum for its sheer presence, which, with additional engine work, takes the Cayenne's power output from 520bhp to 700bhp!



TechArt takes imposing to another level. Massive diffuser, mega scoops and wings dominate

OUR TAKE

HYBRID HOTNESS

With the revised type-991 911 safely launched, it's no surprise to find the first images of an all-new next-generation 911 doing the rounds on the web. And the big news is hybrid power.

It's not clear whether hybrid power will be standard or optional for the next 911, due out in around three to four years. But it will definitely be in the mix. Either way, what's interesting is how hybrid power dovetails with Porsche's ongoing shift to turbo power.

On the one hand, it's easy to see how Porsche might use the electric part of a petrol-electric powertrain to offset some of the perceived shortcomings of turbo engines in terms of response and power delivery. On the other, it's also interesting to wonder whether turbos would have been deemed necessary at all should hybridisation have arrived a little earlier.

The obvious guide here is the petrol-electric but naturally aspirated 918 Spyder which seems to offer the best of both worlds. But the real beneficiary might have been the Boxster and Cayman models. Due to shortly downsize to turbo flat-four engines, might hybridisation have enabled them to maintain that flat-six soundtrack while still achieving emissions targets? We may never know.



918 SPYDER IN SUPERCAR SHOWDOWN

It's the track test they said would never happen. Except now it has. High-speed skid specialist and video jockey Chris Harris has managed to bring the Porsche 918 Spyder together with its hypercar nemeses, the McLaren P1 and Ferrari LaFerrari and the Portimao circuit in Portugal for one of his YouTube specials, thus beating Amazon Prime backed, Clarkson, May and Hammond to it.

Joined by Scots race ace Marino Franchitti and racing relic Tiff Needell, Harris does timed laps in each car before the inevitable tyre shredding ensues. We won't give away the final result, but suffice to say the 918 does things that simply shouldn't be possible given its power-to-weight disadvantage. Nearly an hour long, the movie is a typically high quality affair thanks to camera whizz Neil Carey and copious use of drones. See for yourself at bit.ly/1T3iKZI.





You're ready for the track, but is your car?

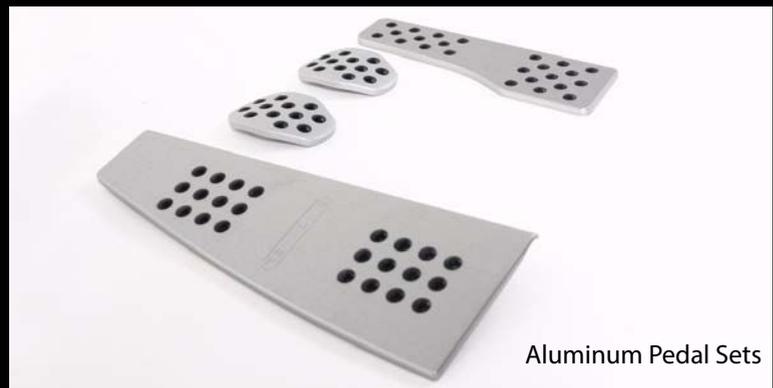
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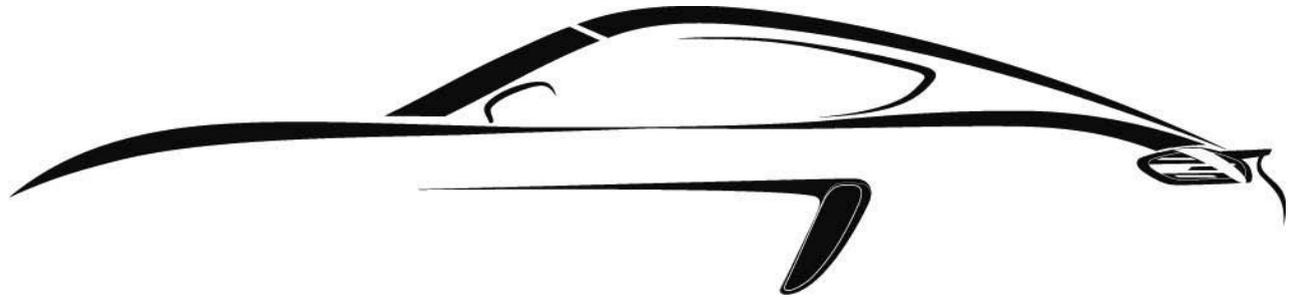


Aluminum Pedal Sets



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718 Cayman



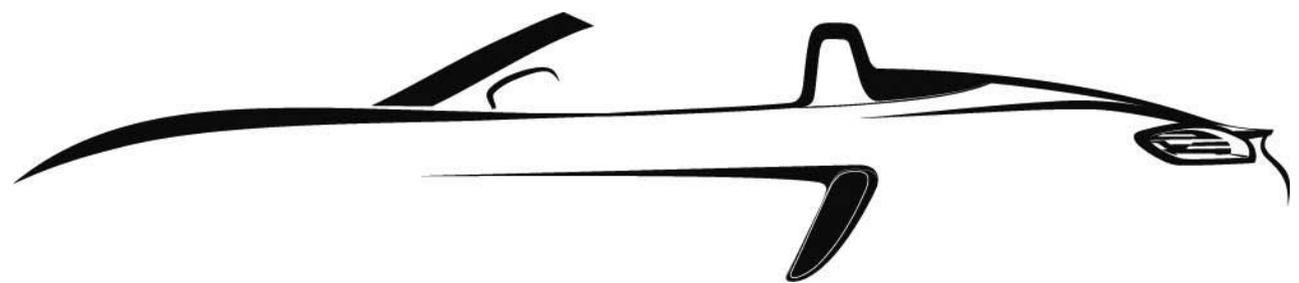
CAYMAN AND BOXSTER 4-CYLINDER TURBOS CONFIRMED, PLUS 718 REBRANDING

Not that it's much of a secret, but Porsche has confirmed that the revised Boxster and Cayman range will feature 2-litre turbocharged flat-four engines. The range will also be rebranded as 718 Boxster and 718 Cayman, in homage to Porsche's successful 1957 four-cylinder race car, which was the successor to the 550 Spyder, the car which, of course, the original Boxster was based on. In adding the 718 reference to the Boxster and Cayman, Porsche is, of course, reinforcing its four-cylinder credentials, or sweetening the pill! It can also point to its current WEC success with the V4-powered 919 Hybrid, to quell any four-cylinder doubters. Ultimately, though, this is all part of industry

wide engine downsizing in order to cut those pesky emissions. As to whether the new engines will use twin (like the new 911s) turbos, or a single unit, is unclear, as are power figures, but expect them to be similar to the outgoing flat-sixes. Equally unclear is whether halo models like the GT4 will continue to be powered by a flat-six.

The Cayman and Boxster will also be repositioned relative to each other in the Porsche range, with the Cayman now becoming the entry level model, and so cheaper than the Boxster. Expect all this to happen over the course of 2016. More details as and when we receive them.

718 Boxster



By referencing the 718 race car, Porsche is reinforcing its historical links with successful flat-four cylinder engines



PORSCHE ON PATROL

A million-dollar supercar as a police patrol car? It can only be Dubai. Yup, the Dubai fuzz has added the awesome Porsche 918 Spyder to its supercar fleet. Looking for all the world like a Le Mans refugee in its white-and-green livery, the truth is that this 918 won't really be used for chasing bad guys, which is a shame.

Instead, it's more a police promotional tool aimed at tourists and the more affluent areas of Dubai.

The 918 joins existing fleet members including a Bugatti Veyron, Lamborghini Aventador and the ultra-rare Aston Martin One-77. Nice work if you can get it!



Dubai's Porsche 918 won't, apparently, be used for chasing baddies, but is more of a promo tool



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WEBBER, BERNHARD AND HARTLEY TAKE WEC DRIVER'S TITLE

Sports car racing triple crown secured for Porsche 919 Hybrid

A perfect finish to what has so far been a fantastic season for Porsche's 919 Hybrid LMP1 racer required just one thing. Adding the driver's title in the World Endurance Championship to the constructor's title and outright victory at Le Mans that were already in the bag.

Sure enough, car number 17 driven by none other than former F1 ace Mark Webber alongside senior works driver Timo Bernhard and Kiwi sports car specialist Brendon Hartley has done just that. Fifth place at the final 6 Hours of Bahrain instalment of the World Endurance Championship was enough to pinch the prize from

the second place trio of Marcel Fässler, André Lotterer and Benoît Tréluyer in the number 7 Audi R18 e-tron quattro by 166 points to 161.

The result was far from a foregone conclusion, despite Webber and co starting the race from pole position. Within the opening hour of the race, the title was under threat with Bernhard losing five laps in the pits with a throttle actuator problem on the number 17 car. It wasn't until hour four of the race that they'd clawed their way back into a championship-winning position.

For Webber, the parallels with his agonising 2010 F1 campaign

that saw the driver's championship slip from his grasp in the final race of the season must have been all too obvious. "We had a lot of problems and it was very stressful. We got the car home and we had enough points and enough wins to be world champions," Webber said after the race.

The victory marks the high point thus far of a fascinating return to sports car racing for Webber and his re-acclimatisation to sharing a car with co-drivers. "I surprised myself by how much I enjoyed sharing after a short period of familiarisation," Webber said. Arguably, however, Webber's

journey won't quite be complete without a victory at Le Mans. It was, of course, the Le Mans race in 1999 that saw Webber experience two terrifying accidents when aerodynamic problems with his Mercedes CLR race car caused it to become airborne at high speed, flipping end-over-end.

With Webber and his co-drivers inked in as Porsche pilots for the 2016 World Endurance Championship, will 2016 be the year that F1's nearly man becomes Le Mans champion? Webber himself calls the race 'unfinished business'. Bring on the 24 Hours of Le Mans 2016.

Left: Leaping for joy. Mark Webber flanked by team mates Brendon Hartley (left) and Timo Bernhard celebrates winning the WEC Driver's title capping off a perfect season following Porsche's WEC Constructor's title and Le Mans win



PORSCHE AND AUDI SCALE BACK LE MANS PROGRAMMES

Both Porsche and VW Group sister brand Audi will be scaling back their Le Mans 24 Hour racing programmes in 2016. The move is said to be a consequence of the cost cutting programme forced by the emissions cheating scandal that is currently rocking the VW Group.

In a statement given at the launch of its 2016 LMP1 racer, the R18 e-tron quattro, Audi said, "In the interest of maximum cost efficiency, Audi and its group sister brand, Porsche, have agreed to each compete in the Le Mans 24 Hours – the WEC season's pinnacle event – with only two instead of the most recent three cars."

The most obvious and immediate impact will be on the drivers of the third cars for each team. Porsche has confirmed reigning WEC champions Mark Webber, Brendon Hartley and Timo Bernhard will retain their seats and will be joined in a second car by Romain Dumas, Neel Jani and Marc Lieb.

That will surely make for a bitter blow for 2015 Le Mans champions Nick Tandy and Earl Bamber. They will not have the opportunity to defend their crown. The third member of the Le Mans winning trio, F1 driver Nico Hulkenberg, wasn't expected to race at Le Mans in 2016.

Porsche will run only two cars in the 2016 WEC season in wake of cost cutting brought on by the VW emissions scandal



PORSCHE'S MISSION E GET THE GREEN LIGHT

Straight from the 'no surprise there, then dept,' Porsche's Mission E concept, unveiled at the Frankfurt show last September, has been given the go-ahead for production. The sensational looking machine garnered much praise for looking – well, just looking sensational really, but that's not

really the story here. The story is to bring an all electric car, with a sensible range and mighty performance (300-miles, over 600bhp) to market before the end of the decade, which isn't very long. And it could be said that, with Tesla already firmly in that ball park, then Porsche is playing catch up.

Whatever, this is no half-hearted effort. Mission E will see over 700m euros invested in Porsche's Zuffenhausen 'factory 4.0', creating 1000 jobs in the process. Porsche's Weissach centre will also benefit from the investment. Crucial to the future of electric cars, aside from range, is a

realistically fast charge time. Porsche is claiming that, with a dedicated 800-volt charger, the lithium ion battery pack will be capable of achieving 80% charge in just 15 minutes. Even the stick in the mud internal combustion enthusiasts here at 911&PW can't help but be excited.

Porsche's Mission E Concept will go into production. Expect to see cars on the road by the end of the decade



TUTHILL AND STIG WIN SAFARI RALLY

That's Stig as in Stig Blomqvist, the Swedish rally legend, not the tiring Top Gear wheeze. We speak, specifically, of Blomqvist and co-driver Stéphane Prévot's victory in the epic East Africa Safari Rally courtesy of a Tuthill Porsche prepared air-cooled 911.

Blomqvist and Prévot were competing in the nine-day rally with Team Tido Race4Health. The rate of attrition among competitors was high, but the 1984 World Rally Champion took the lead from day one and survived the test as did another five Tuthill-prepared Porsches that finished

among the top 10 runners. In total, 11 classic 911s prepared by the Banbury based specialist completed the gruelling competition.

The rally started from Mombasa, Kenya on November 19th with a loop of competitive sections finishing back at the Whitesands Hotel before spreading its wings to travel to Tanzania through Amboseli and the border post of Namanga. In Tanzania it passed Lake Manyara and Arusha and then back to Mombasa via the border post at Taveta. All in, the event is over

2000 miles long.

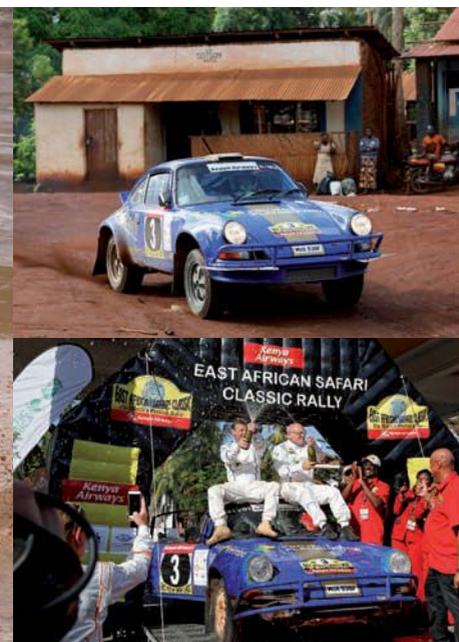
In the end, Blomqvist won the race by fully eight minutes from Tido teammate Richard Goransson. But even with decades of experience, Blomqvist found the going tough. "Safari is never easy," Blomqvist explained, "there was a lot of traffic and we were the first car on the road, which is always a bit difficult. This rally has been quite rough. A bit of rain and a bit of everything."

All the Tuthill prepared cars are said to have enjoyed an eventful Safari, with two cars

damaged and the third being driven sixty kilometres on three wheels by the end of day two. The three cars were repaired by the eighty-strong Tuthill team on location and made it to the finish line in Mombasa.

"African terrain is as merciless now as it was fifty years ago when this rally first started, so it's a great feeling when a car built by Tuthill crosses the finish line. Seeing so many Tuthill 911s go the full rally distance is a very proud moment," said team boss Richard Tuthill.

Stig Blomqvist won the Classic Safari Rally driving a Tuthill prepared 911. In total five of the overall top 10 cars were Tuthill prepped 911s



JZM'S SHOWROOM AND TECH UPGRADES

With Porsche classics both old and new currently booming, it's no surprise to learn that one of the South East's best known Porsche sales and servicing specialists is currently upgrading its services. Kings Langley-based JZM is expanding its showroom on Langley Wharf and has also launched a new app for smartphones.

We caught up with JZM's sales director, Russ Rosenthal, to find out more. According to Rosenthal, "In the last few years the showroom had become our Achilles' heel, we'd simply outgrown it." When the next-door unit became

available, snapping it up was a no brainer.

With the new facility nearing completion, JZM's showroom capacity will double to 45 cars. The existing half of the showroom is currently being overhauled, complete with a new inspection ramp, and plan is for the full facility to be operational by year's end.

JZM, of course, has carved out a niche as one of a handful of go-to sales and service centres for all things GT3 related and that's not going to change with the expanded operations. Rosenthal says JZM sells more GT3s than any other model and that reflects

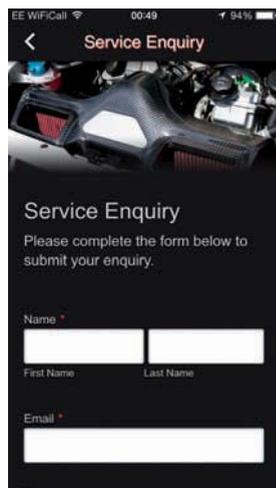
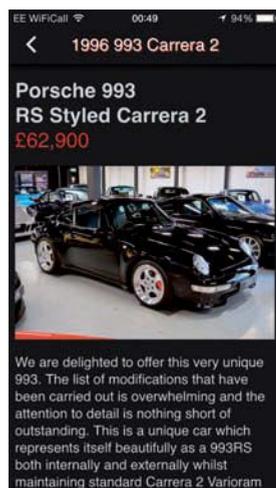
the strength of the JZM's workshop operations, which over the years has had some 600 GT3 customers. "Not a day goes by when we aren't dealing with GT3s," says Rosenthal.

As for what's hot in the GT3 market right now, Rosenthal reckons all the manual Mezger-engined models have become instant classics. But it's the second-generation 997 model that really hits the sweet spot. "It's the easiest to live with, but still raw, still very, very 911 and still manual," he says. Currently, JZM has 10 GT3s in stock of various vintages and specification along with a pair of GT2s.

On the service and maintenance side of the business, one recent trend has been an uptick in interest in what Rosenthal calls the 'air-cooled underdogs'. Think previously unfancied 911 models like SCs, 2.7s and even 964s and you'll get the idea. Rosenthal says owners increasingly see the value of returning these models to their former glory with a little TLC in the JZM workshop.

To see what JZM is currently offering and to keep up to date with the latest news, head for jzmporsche.com or search Google Play and the iOS app store for JZM Porsche.

Expanding times for JZM. Showroom capacity is now 45 cars and while JZM stock all types of Porsche (and the odd Audi), it's the GT3 that has become a speciality



'APPY DAYS

Along with the showroom overhaul, JZM has a tech upgrade for its customer base. It's a new app for Android and iPhone handsets. Part of a broader multimedia overhaul that will also bring a new website, the app is all about keeping customers in touch with JZM. The functionality currently includes an index of all JZM's sales cars, quick links to JZM's social media feeds and contact forms for sales and servicing. Customers can also choose to receive alerts and news. Rosenthal says it's early days for the app and further functionality is planned for the future.

WATCH 'FASZINATION' IN FULL

In the good old days, copies used to change hands on grainy VHS cassette tapes. Then a few bootleg versions popped up online. Now you can watch it in all its glory via the new official RUF Porsche YouTube channel. Yup, it's Faszination on the Nürburgring, otherwise known as 20 minutes of utter insanity courtesy of RUF's legendary test driver Stefan Roser and the RUF CTR 'Yellowbird'. Long before

the likes of Chris Harris popularised high speed skids, Roser had perfected the art and not only around the Green Hell that is one of the world's most challenging circuits but also driving the lethal, narrow-hipped weapon of destruction that was the original 470hp CTR. It's a moment of motoring madness that may never be matched. Watch it again and again at bit.ly/1HJdCJm.





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The tempting trinkets that enhance Porsche ownership

PIMP YOUR PORSCHE

Admit it. Cars look better with a bit of a suspension drop. That applies to Porsches, too. Problem is, lowering for 'show' can do very nasty things to 'go'. Like spoiling the ride and handling. The best of both worlds would be a system that allows electronic lowering for show and easy access to more usable settings for on-road go. Enter the new AirREX air suspension kit for the 964. The height-adjustable system comes complete with a wireless remote control unit. But the clever bit involves ride-height presets, allowing you to easily return the suspension to optimal geometry settings for on-road performance. AirREX says the kit is fully reversible, allowing 964 owners to revert their cars to standard, and has also been carefully tuned not to overload the 964's ageing electrical system. Yours for £4999, you can find out more from airrexuk.co.uk and 01933 685840.



K&N FOR MINI CAYENNE

Performance parts for the full-sized Cayenne SUV are now pretty common. So, it's no surprise to find the Cayenne's little cousin getting the K&N filter treatment, too. This new air filter is designed as a drop-in upgrade for the Macan's dual factory airboxes in the 3.0-litre and 3.6-litre V6 petrol models, the Macan S and Macan Turbo. K&N says the Macan High-Flow Air Filter offers low air flow restriction, resulting in increased throttle-response, horsepower and torque. The deep pleated K&N cotton media provides a large filtration area offering long service intervals and excellent filtration. With any luck, the filters will add a little induction bark to those sweet sounding but almost too silent sixes, too. Priced at £97.20 each, they're said to be good for 50,000 miles. Further your knowledge of filters at knfilters.com



MEGA GT3 MAGS

If you demand the lightest and strongest alloy – as opposed to carbon-fibre – wheels, there really is only one option. You need to sort a set of mags. By that, of course, we mean forged magnesium wheels. The good news for 997 GT3 owners is that you can now do just that, courtesy of our friends at BBi Autosport and the new RSR 980 wheel. The headline claims are 30 per cent reduced weight of standard aluminium wheels and the best vibration absorption money can buy.

The front wheels are 9-inch by 19-inch items and rock the scales at just 8.15kg. The rears are 12x19 and 9.34kg. Available in a variety of different paint finishes, you might think the \$8800 plus VAT, duty and shipping price is pretty painful. But it's all relative when a set of carbon fibre wheels will set you back double the money. Hit up bbiautosport.com to find out more.





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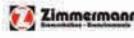
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JOPLIN'S PORSCHE P&J

A sports car with some psychedelic style? It has to be the 1960s. And it may well be legendary hipster and singer-songwriter Janis Joplin's. Which it is, actually. This natty little resin cast 1:43 scale model is a faithful repro of Joplin's 1965 drop-top 356C, which she had decked out dayglo-stylee in the summer of 1968. As you do when you're fresh from signing a new record contract with Columbia Records. The result is this mobile mural which Joplin dubbed 'The History of the Universe'. The car itself survives and, inevitably, it'll be on the block at the RM Sotheby's 'Driven By Disruption' auction in New York pretty much as you read these words. The auction estimate is \$400,000 to \$500,000, but do not despair. This model is available for the more prosaic price of just £69.95 from the fine fellows at Grand Prix Models grandprixmodels.co.uk.

LUGGAGE

Where do old 911s go when they die? To Italian luggage factories to be made into bags. Well, kind of. This stylish and sporty luggage set uses the very same houndstooth fabric as early 911s, though not actually harvest for the dead bodies of the dear old things. The embossed plastic is air-cooled inspired, too, this time via the hard-wearing plastic of the original 911's dash. For a modern twist and to add a dash of colour, GT3 seat belt fabric does duty as a feature line. Every bag in the range has a large zippered access panel along the top and both carry handles and a long shoulder strap. Fashioned in Italy (certainly) by 911-loving artisans (possibly), the luggage starts at 149 Euros or around £105 at the going rate. Grab yours along with other items from RS Selection's Porsche range from rselections.com.



START 'EM YOUNG

Rumour has it the 991 GT3 is good for more than the advertised 475hp. It'll lap the Nürburgring in under seven and a half minutes. It's a serious weapon. But it has surely met its match in this Power Wheels Porsche from none other than Fisher Price. How about 2.5mph of pure performance, plus an optional top whack of fully 5mph, the latter accessed via a parent-controlled high speed lock-out. With that kind of performance, we're glad to see a bespoke Power-Lock brake system on the spec list. Of course, as a modern GT3 derivative you get paddle shifters with authentic lights and sounds. In all seriousness, there's an attention to detail in this two-seater kiddiemobile that's actually pretty pleasing and the rechargeable battery bodes well for usability. Retailing at \$360 Stateside, expect a price around £250 back in Blighty. There's more info at fisher-price.com.



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PERFECT TIMING

Last month, Porsche's stupendous 919 Hybrid nailed down the World Endurance Championship manufacturers' title. Now former F1-ist Mark Webber has clinched the driver's title alongside co-pedallers Timo Bernhard and Brendon Hartley – driving a 919, of course. So, when better to celebrate Porsche's triumphant return to the top echelons of motorsport with a spot of Switzerland's finest under your sleeve, the Porsche 919 Chronograph. The Swiss Ronda movement sports 13 jewels, luminescent hands and a stopwatch function. The case, meanwhile, is in hardened aluminium and engraved with a unique serial number while the sapphire glass has a special anti-glare coating for maximum clarity. Waterproof up to 50m and covered by a two-year warranty, grab yours for 349.90 euros, which we compute at roughly £250, from selectionrs.com.



MAKE IT A GOOD YEAR

A brand new Porsche is a once-in-a-lifetime ambition for most of us. But here's what you might call the affordable way to enjoy a new Porker every single month in 2016. Yup, it's the official Porsche wall calendar. The bumpf says the 2016 calendar is your invitation into the world of Porsche design courtesy of 24 different design motifs. In practice it involves 12 detail images and 12 full car images of current Porsche models. Pop it up on the office wall and think of it as a motivational tool, perhaps? Work hard, buy Porsche. Something like that. The calendar also comes with what's described as an 'exclusive collector's coin', the details of which will remain a mystery until the calendar hits your front door matt. Priced at £40, it's available from the official Porsche website or more specifically shop2.porsche.com.



CLASSIC CAR CARE

Are you a two-bucket method kinda gal or guy? If so and you also own an older Porsche, this one is for you. Porsche has announced a new range of car care kit specifically for the characteristics of the paints, soft-top fabrics and other materials of classics. The 17 products include shampoo, cleaning clay, polish, hard wax, synthetic materials cleaner and acid-free wheel rim cleaner. Also included are sponges, cloths and brushes. Every product has been tested in the Porsche development centre in Weissach for compatibility. The whole shebang is available in an appropriately configured leather bag featuring the classic Pepita fabric pattern. It's not exactly a bagatelle at 470 euros, which translates into £330 in old money. But then your period Porsche is worth it, right? Contact your local Porsche Centre to find out more or place an order.



TEQUIPMENT TURNS 20 AND CELEBRATES WITH OFFICIAL TWEAKS FOR PRE-OWNED PORSCHE

To celebrate 20 years of the Porsche Tequipment department, Zuffenhausen has set it loose on the first generation 991 Carrera S, circa 2011. The mission? To demonstrate the impact the Tequipment range of tweaks can have on pre-owned Porsche, rather than just brand new vehicles. At Porsche, let it be known, customisation is not just something that can be savoured with the purchase of a new car.

Porsche is also at pains to highlight that any Porsche Centre can carry out this work. But what work would that be, exactly? The overall list for the project car is absolutely bonkers and extends to over 40,000 euros in parts and labour or roughly £30,000. The biggest ticket items include the engine Power Kit plus Porsche Sports Exhaust, which lift peak power from 400hp to 430hp and weigh in at 15,000 euros combined.

The good news is that there are numerous much more affordable options. Perhaps sir would care for some carbon-fibre bucket seats or the Aerokit Cup body kit? Or would something simpler like some wheel spacers and the interior carbon styling package be more to sir's taste? The point is that you decide. Contact your local Porsche Centre for full details. It could be the transformation your Porsche deserves.



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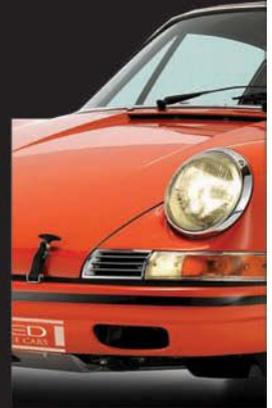
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ADAM TOWLER
The enthusiast

Porscheophile, Adam Towler, has been letting his imagination run away with inventing a whole new Boxster Spyder and spec'ing his perfect Cayman GT4. Well, he's allowed to dream. Time also to revisit the Gen 2 991 and ponder on the ever increasing size of the 911 and its move away from definitive sports car status

ALONG CAME A PROPER SPYDER:

Been driving a lot of new Porsches recently including the 981 Spyder, the canvas-topped twin to the GT4. You'll be able to read about what happened in a future issue of this magazine, but driving it set me thinking. Funnily enough, I had quite a lot of thinking time in the Spyder because the Guards Red press car I had on loan has the full sound system delete, with just a two tier oddments tray staring blankly back at you for comfort. The M4 can seem like a long, dull journey without radio, MP3 or phone calls, and so the subconscious drifted off into thinking whether the Spyder was really what it said on the tin.

Don't get me wrong: the new Spyder is a really great car, albeit a subtly different one to the old 987 iteration. But then if you compare Boxsters past and present, as we did with entry-level versions not too long ago in *911&PW*, you could probably have guessed that. The new Spyder is lighter than a comparable Boxster, and considerably more potent, and it's a really fast car as a result. The roof is ingenious in as much as it's vastly easier to operate than the hotchpotch of canvas pieces utilised by the old car. Yet there I was, driving along, in a car that professed to be a truly focused open-air Porsche, and it still doesn't quite ring true. The harsh fact still remains that if you're interested in driving, even competing, you'll be buying a Cayman GT4, and only if a tan and the feeling of the summer breeze through your hair are more important will you opt for the Spyder.

Of course, this wasn't always the case

with Porsche's open cars, but then a lot of that is down to how they're constructed. Back in the 1950s, with spaceframe construction, it mattered not that the roof was missing – the car took its rigidity from its overall construction. But when it's a monocoque, chopping the roof off is in effect a disaster, and requires strengthening to make the most of a bad lot. You can feel that – just – in the way the latest Spyder steers. The sense of quality in the Spyder feels a bit misplaced too: the dash is the same as the Boxster, of course, and so is just about everything else. If someone had spec'ed a radio it wouldn't have looked any different at all. If I was being cynical I might think that it was all about convincing wealthy individuals that they were 'hardcore', and getting them to part with more money in the process. Or put another way, ask yourself this: if you could get the styling parts and 3.8-engine in a Boxster, would you really care about a few kilos and rather have a quieter, thicker, canvas roof?

Now imagine this proposal for a Spyder. I've called it Spyder-R (a nod to the history books). The idea was born somewhere near the Maidenhead junction and had fleshed out nicely by the time we droned past Newbury.

The R is a proper Motorsport department car. It's a road car, but it's aimed at amateurs going racing, as an alternative to the GT4. I can't think of a championship for it, but there must be one. The factory has to enter it in at least one major race to give it credibility. Can an open car be homologated into the GT4 class; the VLN?

It has an FIA-spec roll cage behind the passenger compartment that not only provides the necessary safety, but also adds greatly to the rigidity of the 'shell'. There's a front half to the cage too for racing: that comes in a box when you buy it. The roll bars are faired in (like the Spyder hints at with its apologetic humps, only more so). There is no roof per se, just a canvas 'shower cap'. Inside there's no carpet (or soundproofing), and the seats are made from a simple, waterproof material. The dash is sparse, and there's a motorsport-spec wiring loom. Thanks to the full cage there are lightweight doors and, while there are plastic side screens as part of the canvas roof, there are no fixed glass windows. You're basically meant to have it open unless you're parked.

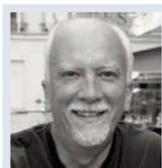
The suspension is largely taken from the GT4 and GT4 Clubsport, and is fully adjustable for racing. There's a titanium exhaust and a remap, and it has in excess of 400bhp. Given it is much lighter than the regular Spyder (by 150kg?) the performance is fierce: I've kept the manual 'box to stick with the lightweight theme, but there's a short shift, single mass flywheel and the final drive is much, much shorter. Full racing brakes are an option, along with the rest of the 'track pack' that makes the car race legal.

Now that's a proper Spyder, not a comfy one you can fit sat nav to and use everyday in all weathers. By the time I'm past Swindon I've even chosen the graphics and exterior paint colour...

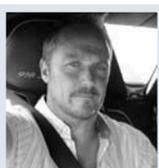
The Boxster Spyder isn't nearly hardcore enough for our man Towler. In his head he's created the ultimate spec. It's even got a name: The Spyder-R



Say what you like about them, but 911 & Porsche World's elite squad of journalists and Porschephiles have opinions aplenty on all manner of automotive matters. And this is where they get their two-pages' worth



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I WANT THAT CAR, AND I WANT IT NOW:

Still reeling here after a couple of periods spent with a Cayman GT4. If you could see my face right now as I write, you'd see I'm grinning from ear-to-ear just from thinking about that little terrier of a car. Most of all, what I really like about the GT4 is that it reaffirms my faith in new cars still having that mysterious want-one factor that makes us go all gooey inside. The old 'uns do it, whether orange 911 2.2S, brown '76 930 or a white

997 GT3 Gen 1, and the GT4 does it as well.

You probably won't be surprised to hear that I've been speccing my ultimate GT4. I've gone with Chartreuse Green for the exterior on a special order, unavoidably influenced by my friend's genuine 2.7 RS in that colour which always fells me every time I set eyes on it. I reckon that hue would work wonders with the mid-grey GT3-style alloy wheels. I've gone for ceramics, too,

but I might need to re-paint the calipers to avoid an unfortunate clash with the bodywork. All other options are as sportingly focused as possible, while a bit later down the line I might be speaking to Mr Akrapovic and investigating how a Gen 1 991 GTS makes 430bhp. The fact that, even if I did have the money to buy one I probably couldn't, due to the supply situation, is scant consolation.



The Cayman GT4 might have sold out, but that hasn't stopped Adam from speccing his ultimate version. Imagine it in Chartreuse Green if you can. He can buy it with the money in his imaginary bank account

WHAT DOES THE 911 MEAN TO YOU?

That's a question I ask myself periodically, and repeatedly so in the days since driving the Gen 2 991 on the launch. It's a point that has to be kept somewhere in the back of one's mind when thinking about the new car: what are Porsche trying to achieve here? It's my current belief – before I've had any more time behind the wheel – that the Gen 2 is a great 991, but not necessarily a brilliant 911. But then am I trying to make it fit a profile that Porsche are not aiming at? With the advent of the spicier Cayman and Boxster models, and the sheer size and escalating price of the 991, it strikes me that the rear-engined car is becoming ever-more of a GT – something it's doing now better than ever with its smooth, torque, turbo engines. But if you're looking for a sports car then you definitely require the expensive tech options such as rear-wheel steering, and even then it's technology making the car be something different, rather than an inherent character.

Most of all it set me to thinking about packaging, that industry term that designers and engineers alike use to describe the location of all the fundamental elements of the car, driver included. We've talked before about how the 991 feels the least '911-like' of all the, err, 911s, but what do we actually mean by that?

It's a composite of things. The familiar upright 911 windscreen in the 991 is more

steeply raked, and further away; the dashboard architecture is different, especially with the high centre tunnel, and the opposite side of the car also feels further away – no longer can the driver reach across and touch the door cap easily.

This was all thrown into greater focus when driving the 964 and 993 on the cover last month just a few days after the Gen 2 991 Carrera launch. The original 911 just has this knack of feeling like the right size: it's not cramped, or uncomfortable, or even impractical, but it is cosy, and that makes it

feel wieldy and sporty. I think most of us understand that cars can't be as narrow as the 964 now, even if threading it along a B-road was a joy precisely because it is so small, and suddenly a road offers different lines while still staying within the legal boundaries of the traffic flow. But it would be nice if Porsche could study that original package: let the car grow beyond that door cap and windscreen base to incorporate crumple zones, airbags and the like, but try and keep those interior dimensions if possible. I'd love to see what the result came out like.



As the 911 evolves it is inevitably leaving the spirit of the original concept behind. That's progress for you!



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RARE BREED RS

Any sort of 911 RS is a rarity, but some are rather more sought after than others, like Mark Beeston's 993 RS Club Sport – one of only seven right-hand drive cars built

Words and photography: Brett Fraser

Up ahead, Mark Beeston's 993 Carrera RS Club Sport looks amazing in the late autumn sunshine, a silver streak darting through a deluge of red, gold and green leaves that are both falling from the trees and being kicked up in the Porsche's wake. The car's rump is broad, its back tyres fat, and its rear wing preposterously large yet somehow not ridiculous perched on top of the engine cover. Without doubt, this iteration of the 911 is a very special thing.

And, from the perspective of the car trying to keep up with it, the RS also seems to be pretty hard work, on Northamptonshire's country lanes, at least. For starters, even from inside another car it's loud. Not obscenely so, but ear-piercing all the same. It appears to be a real handful, writhing left and right as the crown of the road plays havoc with its track-sensitive steering: without quick, corrective measures the kerbs and ditches on either side of the lanes would doubtlessly

consume it, so a driver's arms and nerves need to be on constant high alert. And feet, too – although the 3.8-litre naturally aspirated 993 RS has 'only' 300bhp, in Club Sport spec its light weight does wonders for the throttle response, which on damp, bumpy surfaces can easily unsettle the rear end if power is applied inconsiderately. Meanwhile the brakes – plucked from the 993 Turbo – evidently prefer a bit of heat in them, judging from all the high-pitched squealing the RS emits when slowing for road junctions.

Of course, you don't really buy a 993 RS Club Sport as a road car: its heart, soul and capabilities very much belong on the race track. So if you do drive it on Her Majesty's highways, you have to be prepared to compromise. But as owner Mark Beeston asserts, that compromise is oh-so worth it. 'This car is so raw and so angry that every drive in it is an awesome one. Any B-road on a Sunday morning is a journey that makes you glad to be alive.'

Given that he wasn't often likely to be

taking the Club Sport to a circuit, what made Mark consider owning such an unruly (in the nicest possible sense) beast? 'I'd already owned the 993 RS Comfort and was aware that 993 RS Club Sports almost never come up for sale. When I saw this one advertised with a dealer back in 2006, I knew how rare it was and that this was probably my one opportunity to buy one. We did the deal the same day I saw it advertised.'

Mark's Club Sport is one of only seven right-hand drive cars and has a couple of tasty extras over and above the standard car's thinner glass, alloy front lid and stripped out interior. Its doors are alloy and said to be 40kg lighter than the regular items that Mark has kept, and it's fitted with a set of BBS centre-lock magnesium alloy wheels that are also weight savers as well as looking very pit-lane. Further circuit-friendly features include a welded in roll-cage complete with door bars, race-style seats with five-point harnesses, suede-covered (non-airbag) steering wheel, and

Mark Beeston and his 993 Carrera RS Club Sport. You'd be smiling, too!



a fire extinguisher: curiously there's no electrical cut-out switch, but you can't have everything.

Although Mark wasn't ever intending to play racing driver in his Club Sport, he has enjoyed one memorable track adventure in it. 'I did the Porsche RS Driving Experience at Porsche's Silverstone facility in 2012. At the lunch break I asked if I could do a few laps of the circuit in my Club Sport and the team was kind enough to let me.

'Driving every model from the 993 RS Club Sport to the 997 GT2 RS on the same day is something that no-one else may ever experience! It was a great reminder that driving pleasure is about poise, not just sheer power.'

That particular lesson simply reinforced Mark's opinions on poise and driver involvement that had been nurtured during several years of Porsche 968 Club Sport ownership. 'I remember as a teenager being excited by the 911 flat nose Turbos when they first came out, but the first Porsche I could realistically lust after was a 968 Club Sport.

'I've since owned seven of them – and two of those I've owned twice! A well sorted 968 Club Sport is an amazing combination of balance of chassis to power. The 993 RSs in either guise [RS and RS Club Sport] take that up a whole other level: the balance and poise are simply sublime. And then to complete that ultimate package, you have the naturally-aspirated flat-six singing behind you.'

Mark's passion for cars and driving started early. 'My fascination in things with wheels began when I was young enough not to be able to remember. My parents recall me whizzing around on a red, six-wheeled ride-along from the day I was old enough to get on it, and apparently I've been totally passionate about cars ever since.'

His interest in motorsport stems from his childhood years, too. 'I was brought up in Derbyshire and a visit to Tom Wheatcroft's Donington Collection was a formative experience. I've found race cars and motorsport of all forms fascinating ever since. Above all I'm a big believer that any car is also a tool, and any specific type of race car represents the ultimate evolution of making that tool fit for the job at hand.'

Mark's automotive education comprised a wonderfully diverse selection of teachers. 'My early car evolution went: Ford Fiesta Mk1, Vauxhall Cavalier Mk2, VW Beetle, Renault 5 (two of them), Toyota MR2 Mk2, Lotus Elan M100, TVR Chimaera, and Ferrari 355 Spider, all during a nine-year period.

'I purchased a six-month-old Lotus Elan in 1996 and drove it to Italy for my first ever touring holiday. Having the immobiliser pack up in a supermarket car park in Italy in August was an interesting introduction to both continental driving and the need to travel with a toolkit, not just clothes... I repeated that journey in a '95 Ferrari 355 Spider in 1998 for my honeymoon and the experience of driving a Ferrari in Italy was just extraordinary.'

A successful career in the City allowed Mark to indulge his passion for fine cars and ultimately to turn a hobby into a business, when he established Dove House Motor Company. 'My career in the City has



“ I'm a big believer that any car is also a tool. A race car is the ultimate evolution of that ”



Top: Split-rim BBS wheels are the ultimate extra for an RS of the 993's era. The Club Sport is pretty much a road registered racer, as borne out by the stripped out interior and welded in cage

HISTORY

The 993 RS spanned 1995/'96 and was very much the road racer and the Club Sport version even more so – weighing 100kg less than a standard 993 Carrera. Engine power was raised to 300bhp and featured a revised Varioram system for a broader power band. Both the base RS and Club Sport had six-speed manual gearboxes, but fifth and sixth gears were shorter on the CS model. Visually the CS had a larger rear wing and was fitted with the brake system from the 993 Turbo. Inside, the 993 RS Club Sport was completely stripped out, with a welded roll cage, race seats, six-point harnesses and fire extinguisher. They don't make 'em like they used to!



luckily afforded me the ability to buy cars that were special and way beyond what I might have imagined when growing up.

'In addition it also afforded me the capital to establish and invest in Dove House Motor Company through which I have seen many other exciting cars come and go over the years. Of course it also works the other way... Selling a personal Ferrari Daytona for £63,000 because I wanted to put the capital into the business is probably one of the worst car decisions I've ever made, in terms of both passion and financially!'

Mark's first Porsche was the 993 RS, which isn't a bad introduction to the marque. 'The 993 RS Comfort was the first car from Weissach that I put my money down on. I'd read about its legendary balance for so long I just had to have one. And it's all true; it's an amazing analogue driver's car. As well as that, the RS Club Sport and those seven 968 Club Sports, my other Porsches have included a perfectly restored 356C, a 993 Turbo and a 993

Turbo S. The latter is the top of the list of cars that I regret selling.'

Although the RS Club Sport is a tad shy of just 24,000 miles and is in gorgeous condition, Mark insists that he does actually use his cars. 'All of the cars in my garage have to fulfil a role. I have no space for garage queens: I like to keep them as close

everything, as you might expect; I am a very exacting but happy customer.'

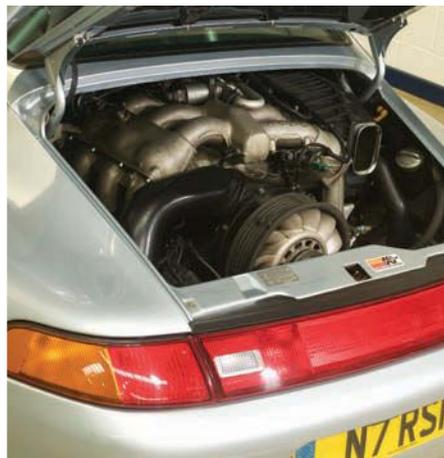
Sadly, while Mark's love affair with his RS Club Sport is likely to last forever, the relationship may soon come to an end. The remorse is clear when he tells us: 'All my cars have to be used to stay. Unfortunately life moves on and with two kids at senior

“ The 993 RS was the first car from Weissach that I put my money down on ”

to perfect as possible, allowing for the fact that I want to actually use them, not display them.

'As part of that I had the Club Sport's engine stripped and rebuilt by the experts at FearnSport, perhaps a year before we opened our own workshop at Dove House. Since then Dove House has taken care of

school and constant business travel, I just don't have the time or opportunity to use the RS: you can't leave it at the train station and most of the time I need at least three seats. I'm going to regret seeing her go, but it's time for her to move on to someone who can actually enjoy using her in the manner for which she was designed.' **PW**



Above: Rear wing means business. Left: Engine may only produce 300bhp, but it's enough in a car that weighs so little in the first place

CONTACT

Dove House Motor Company
Mark Beeston's 993 Carrera RS Club Sport is currently for sale. If you're interested, then contact Mark at Dove House Motor Co
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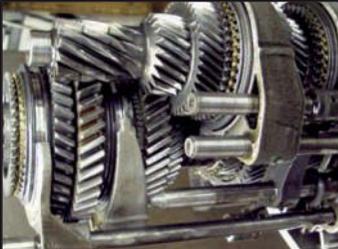
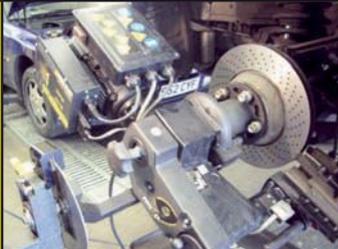
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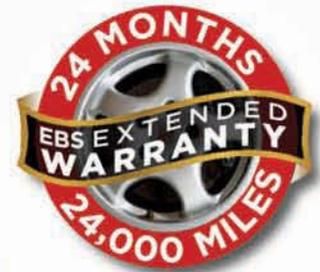
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DESERT STORM

Memories of the legendary Dakar 959 live on
in this superb Italian built desert racing 964

Words and photography: Robb Pritchard





At first glance you might be mistaken for thinking that this is just some normal desert buggy with Porsche-shaped panels draped over it, but no. This is a seriously well developed 964 that has more in common with the iconic Dakar winning 959 than any buggy and owner Agostino Rizzardi has put a serious amount of work into it.

The story starts 20 years ago when he bought a Mazda 323 to compete in Italian hillclimbing events, an experience which infected him with the incurable virus of motorsport speed. After a few years' break for college, and then to start up his winemaking business in 2008, he again had time to restart his latent motorsport passion.

"I didn't have enough money for a Ferrari, but in Italy you can be forgiven for driving a Porsche. Although it's German with its shape and style it definitely has the Italian spirit and so I bought a

beautiful 993 Supercup car. It had been well used before me but was a very reliable car and I did a couple of hillclimb championships in it, with some pretty good results... But it was always rallying that I wanted to do, so I looked for another car, and ended up buying an ex-Jimmy McRae 964 4x4. It was an amazing car, 1100kg, six-speed, four-wheel drive, 380bhp, and nobody else had a car like it so it always stood out, which I loved.

But in 2011 I had a new desire. Short little gravel rallies, as fun as they were, weren't quite the ultimate challenge I was looking for so I started thinking about the big marathon African rallies. And whenever I watched videos on YouTube I kept seeing the amazing 959 with the Rothmans livery winning in 1986. At first I thought about pulling the McRae car apart and making some desert-racer prototype out of it. But when I went back to the garage to look at it I realised that the car is really a piece of art so instead of

cannibalising it, I decided to start again.

So the third car I brought into the garage was a 1989 964 road car. When Porsche used to race in the desert they used it as a big test for their parts, and so basically the 959 was the test bed for the

and, even though it was still basically a road car, we decided to race it in Tunisia. All that was modified was the reinforced shocks and springs. It was a six-day event and we were competing with people who were practising for the Dakar and they

come apart, as well as all the suspension parts. But with the result it was clear what we could do with a proper car so I looked around for someone who would be interested in doing such an unusual project, and found Loris Calubini of Jolly Car. The guy won the Breslau 10 years ago so was really experienced and has done a lot of races in Africa. He looked at my plans, smiled and said that we could make something really interesting, and that's how the year of building started.

I started Googling lots of diagrams of Dakar cars like the Mini and the Mitsubishi MP13 with the twin shock wheel set up and took measurements. I wanted 25 to 30cm of suspension travel so we needed the A-arms to be as big as possible. We made the first design and took the car down to Tunisia to test and it lasted about 200m because it was all wrong. The

“ The 959 was the test bed for the engine and transmission for the 964 ”

It's not the obvious choice for a desert racer, but think about it: four-wheel drive, tough air-cooled engine and 959 ancestry, and it starts to make sense

engine and transmission for the 964, so I knew that the drivetrain from the C4 was going to be reliable for what I wanted.

The first job, obviously, was to strip it down to the shell. We put a cage in and took out the interior to make it a rally car

were laughing at us every day because the suspension only had 10cm of travel, but the fact that we got fourth overall, not just in class, was pretty amazing. But as good as the car was, it was absolutely destroyed. The body had pretty much



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second version was much tougher and we took it on the Tuareg Rally because actually competing is always a much better situation to testing. On every stage we were out leading but every day we didn't finish because of one problem or another. But it was a great test because every night

it's the one that doesn't break.

The engine is a 993 3.8 Varioram motor. It is the last of the air-cooled engines made by Porsche. I chose this because it has lots of torque and you need that much more than power to get you out of the sand. The only thing we changed was the

much, much shorter ratios. A company in Australia called Albins Performance Transmissions was the only one I found that had a catalogue for things like this, as they make off road gears to fit anything. It was a big job, but I am very happy with it because after 25,000km it's still as good as new.

The crown wheel and pinion are specially made by an Italian company, as well. The ratio is also much shorter: 4.62 compared to the standard three. This has lasted 10,000km.

Of course the car is a lot wider than the original – 40cm wider in fact – so it stands a full two metres wide so we had to make our own suspension system, driveshafts and joints and this is basically what makes the car so special. It took a long time to get right because it's an original design of ours, that needs to work in quite an extreme way. The earlier designs were fabricated from tubes but now the A-

Main pic: Kicking up a sand storm. After much development – particularly in terms of suspension – the 964 desert racer really flies on the rough stuff.

Right: The man behind the project, Agostino Rizzardi

“ The car you need for the desert races is the one that doesn't break ”

we had a big program of improving what we had, not adding anything new. We had five different sets of suspension that we tried, looking for the best one because we were looking for reliability not especially performance. The car you need for the desert races isn't really one that goes fast,

camshafts and a new Motec ECU. It's a great improvement because it only has three wires and is a lot less complicated than the original, something else that makes the car simple to service.

With the 80cm tall tyres we needed a completely new gearbox though, with





frames are CNC, lazer cut box sections, and the joints are buggy style, designed for a lot of movement.

And all this makes it a wonderful car to drive. If we are on a dry lake bed, we can get up to 190km/h and in the desert sand it handles like a little boat on the river. Amazing! Jumping as well. When a front-engined car lands all the weight bangs down on the front axle and the rear can kick up. With the Porsche it is the opposite – it lands on the lightest end first so in the rough terrain it's very quick. It's also very comfortable because the seats are angled at 110° not 90 so that I can fit, not banging my helmet on the roof. It's quite tiny inside but I am always driving it with a smile and

for me that's actually the most important thing. If you get out after a 500km long stage, where you've drunk six-litres of water because it's so hot and you are still smiling, that's what I want in a car.

So now, after the testing in the smaller rallies, I think we are ready for the ultimate challenge, which for this car is the Africa Eco Race. It's a 6000km event over nearly two weeks on the old African route from France to Senegal. It's totally different in scale to anything any of us in the team has ever done before, mainly because it's just so long and tough. But with all the destruction testing we did in the other rallies, we know now which parts we need to change and when. For example, we

know that a clutch will last 4000km, the shocks will last 3000km and the A-frame joints 3000km, and we can have scheduled services throughout the rally and have two mechanics working on it for ten hours through the night to check everything, even when there is nothing wrong with it. The big issue, though, is to find a good sponsor because getting the parts and the team service trucks together is a very big project."

The car is ready for AER and so is Agostino. He got asked by his friend to drive a Unimog truck in this year's Dakar and finished third in class! "It was a good experience, but I'd choose the Porsche to drive every time!" **PW**

Right: Just to prove that this is not just a spaceframe special, with any old engine, there's the 3.8-litre VarioRam lump with Motec ECU producing 300bhp and plenty of torque

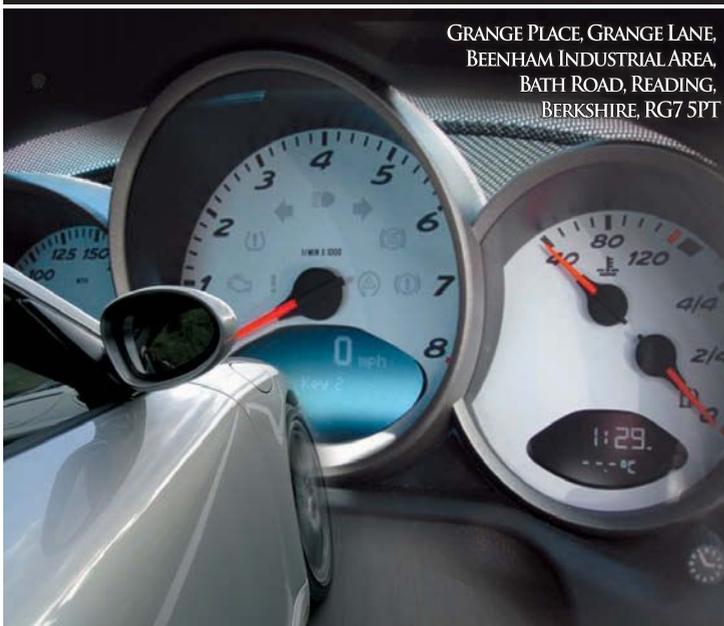




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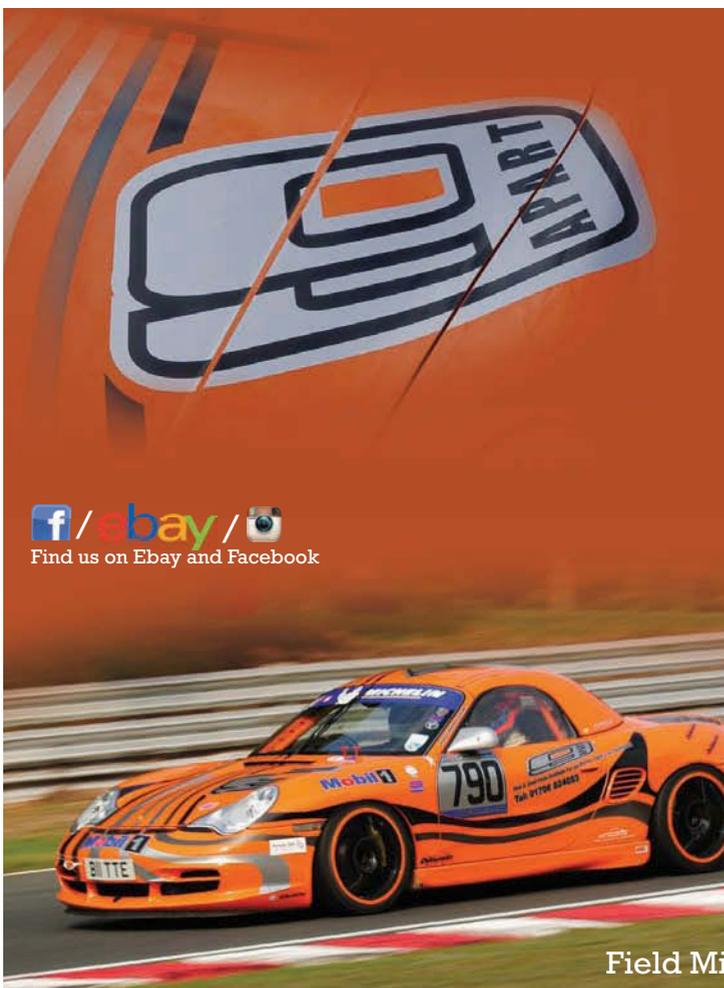
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HORSES FOR COURSES

Cubic inches don't necessarily guarantee the win in a GT3 trackday shoot-out. By process of evolution we put the 996 GT3 RS up against the last of the line 997 GT3 RS. So 3.6-litres v 4.0-litres and nearly 10-years of development

Words: Johnny Tipler Photography: Antony Fraser



“Long Shot kick de bucket,” intoned Two-Tone Ska band The Specials, mourning the demise of a famous old nag, but in our Abbeville track test it was the long shot 996 GT3 RS that lifted the crown, and the favourite, the 4.0-litre 997 GT3 RS that fell. Not that there was an equestrian-style terminal experience – far from it – just that the big-bore kid was outgunned by the older filly.

OK, so we’re at tiddly Abbeville, 13 corners coming up in rapid succession and only one straight worthy of the name, rather than at Silverstone or some other high-speed arena. Nevertheless, these cars are the crème de la crème of their

own particular generation, and we’d confidently expect that both of them would give a good account of themselves.

They belong to Johan Dirickx, Belgian RS connoisseur par excellence, and he’s invited me and my snapping compadre António to sample these two extremes – the first and the last – of the liquid-cooled Mezger-engined RS genre. The 493bhp 997 RS 4.0 is also very likely the final manual GT3, too. Having whistled an FVD 4.0 RS up Schauinsland Hillclimb a couple of years ago, I can’t wait to cruise Johan’s blue bayou on an equally winding course, only this time one with run off areas and barriers, as opposed to vertiginous drop-offs into pine forest. For starters I sit in with Johan, strapping up in the plush

Recaro seats. As we ease out onto the start-finish straight he switches off PSM and pops on Sport mode. We do a couple of laps to warm it up – and then it begins, the concerted assault on the Abbeville asphalt. We’re using the entire width of the track, clipping the apexes on every turn, and it’s incredibly fast and very brutal. ‘It is a really amazing car,’ declares Johan, ‘but you have so much horsepower that you tend to overdo it, and as you saw, I did overdo it on a couple of turns, and that is not the way I like to drive it. At the end of the day it seems quite tolerant, but then again I think you have to know what you’re doing. It is forgiving, but if you do the wrong thing you’ll probably go off big time because your speed will be pretty high.’





Smokin! Our man Johan prefers the balance of the 996 GT3 RS – probably because it actually has less grip than the 997 GT3 RS and so is easier to move around on the tight Abbeville circuit. Right: That's another tyre done

We switch cars and venture out in the 381bhp 996 GT3 RS. Immediately it's apparent that it's a more raw, focussed machine than the 4.0-litre car. The bigger flat-six powered Porsche may be faster but this 3.6 is more dialled-in as a track car. Johan twirls the wheel on the serpentine infield section and the car sashays left-right-left; it's pure ballet dancing, and he's so clearly having more fun in the 996 than the 997. Afterwards, over café crème in the paddock club, we have a de-briefing. 'The 3.6 is much easier to throw around than the 4.0-litre car,' he admits, 'and basically I think the chassis is more balanced, and that's why this car does behave like a ballerina; the momentum goes smoothly from one end to the other and back again, whereas with the 4.0-litre it is much more abrupt. So there is a bit of a difference in the chassis, and I would say the 996 is better for this kind of thing than the 997; it's a little more subtle. The 4.0-litre is a little bit too hard. I drove the 996 much better than I drove the 997, and I'm much happier with

what I did on these laps than what I did with the 4.0-litre because it was much more in balance.'

Johan bought the 4.0-litre RS months ago from its first owner who lived near the Franco-German border. At first he was sceptical that it was a genuine one because, as far as he knew, they only came in white and black. 'I discovered that

different. The guy's a collector and he sold this one because he'd ordered himself a 991 GT3 RS in Viper Green, which is also a special colour. The 997 has only done 13,000 km so it's a car you can drive with a clear conscience rather than stow away. Anyway, I wanted to have a 4.0-litre because it was the last Mezger engine, and probably the biggest displacement engine, and it is

“ Johan is clearly having more fun in the 996 GT3 RS than the 997 GT3 RS ”

Below: Last of the line, the 4.0-litre 997 GT3 RS features the biggest displacement of the legendary Mezger engine and with it 493bhp

Porsche did 56 cars in colours other than white and black, of which two are in Riviera Blue; here's one and the other is in the USA, so the chances are slim that we will see the two together in Europe. There's another in British Racing Green, a couple in Tangerine Orange, but I wanted something

also very likely the last one with a stick shift.'

There is undoubtedly another factor to consider regarding the handling that seems to be biased so much in favour of the older car, and that is their tyres. The 997 GT3 RS 4.0-litre is running Michelin Pilot Sport Cups, 245/35 ZR19 on the front and 325/30 ZR19





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Grand Prix White • Black/Grey Dual Tone Leather Bucket Seats • Manual Gearbox 18" Split Rim Wheels • 58,240 km (36,400 miles) • 1995 (N)

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911 2.4 S (LHD)

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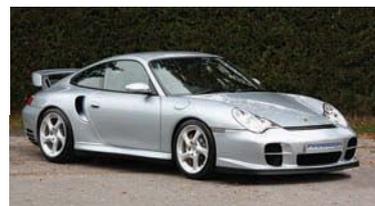
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911 Carrera RS (964 LHD)

Maritime Blue • Triple Tone Leather Bucket Seats • Manual Gearbox • 17" Magnesium Cup Wheels • 93,656 km (58,195 miles) • 1992 (J)

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911 GT2 (996)

Arctic Silver • Black Leather Bucket Seats • Manual Gearbox • Porsche Ceramic Composite Brakes • Rear Roll Cage • 48,992 miles • 2002 (02)

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911 Carrera 4 GTS (997 GEN II)

Carrera White • Black Leather Sport Seats • PDK Gearbox • Sport Chrono Pack with Sport Plus • 18,019 miles 2012 (12)

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911 Carrera 4 (993)

Midnight Blue • Dark Blue Leather Sport Seats • Manual Gearbox • 18" Turbo Wheels • Air Conditioning • VarioRam Engine • 72,490 miles • 1996 (N)

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911 Carrera 2 S (997 GEN II)

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911 Carrera 4 S (996)

Seal Grey • Black Leather Sport Seats Manual Gearbox • Satellite Navigation 18" Turbo II Wheels • Bi-Xenon Headlights • 56,862 miles • 2004 (04)

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on the back, while the 996 GT3 RS is running slightly slimmer Pirelli P-Zeros, 235/40 ZR18 on the front and 285/30 ZR18 on the back. 'We have another possible cause for the disparity,' suggests Johan, 'and that is the width of the rear tyres. In theory these P-Zeros are less good than the Pilot

with the Pirellis the tyre rolls under the wheel in a much more progressive way, and that's probably why this car feels so much more composed when drifting than the other one. The 997's Michelins bite into the Tarmac and when it does come unstuck it's like a bomb going off.'

Sport Cups are more like slicks, that's why the 997 is more aggressive than the 996, that's the basic difference between the two cars.' Me, I consider that one of the main differences between the two cars – as far as the passenger is concerned at any rate – is that in the blue car my helmeted head was frequently banging the side of the car, such were the violent transfers of force, whereas in the white car I didn't feel at all punch drunk when we rolled to a standstill in the paddock.

Then it's my turn to take the wheel of the 4.0-litre 997 RS, and as I settle in, I'm struck by how little it feels like an RS; it feels just like a very sophisticated roadgoing supercar. Despite its rude boy manners when challenged by its owner, it doesn't have the same provocative, pared-to-the-bone, stance of the 996 GT3 RS, even with its dive-plane aero and comprehensive spider's web of a cage in the rear of the cabin. It proffers

“ When the 997 GT3 RS comes unstuck it's like a bomb going off ”

Johan's 997 GT3 RS is one of only four built in Riviera Blue. Its more aggressive nature and grip highlight the progress made between the first GT3 RS and this, the last of the 996/997 generation

Cups because they slide more, whereas the Michelins hold on very well, and this is fine on the road, but not what you want on the track. They don't slide over the Tarmac, they just grip the Tarmac, and that makes it very difficult to create a beautiful slide, whereas

Tyre doubt after these exertions? You could say that. Back in one of the paddock's Nissen hut garages, techie Mike van Dingenen clarifies the theory: 'we have two different tyre characteristics; on the 996 they are street car tyres, the 997's Michelin Pilot



luxury door pulls as opposed to spartan RS ones, with Alcantara door armrests and Alcantara ceiling. It's even got sat nav, superfluous at Abbeville though possibly advantageous on the Nordschleife. So, in a way it's more like a Club Sport than an RS.

The Recaros are monogrammed "RS 4.0" and they have leather bolsters with an Alcantara central section with a carbon fibre back, and the gear lever gaiter is feel-good Alcantara clad, too. It's got a short-shift manual transmission, last-of, so there are no paddles, which is in itself a kind of anachronism now. It's an extremely refined grand touring car with a visceral edge to it, in the sense that I can hear the transmission rumbling behind me as I'm sitting at idle. But just driving it normally, as opposed to ragging it around a race track, it feels very much more civilised than the 996 GT3 RS, which makes no bones about its intended purpose. So I think the 997 4.0 RS

is a wonderful piece of kit for normal motoring that clearly can be coaxed into behaving in RS fashion when required, but this duality is better exemplified in its raunchy road car personality.

Johan has no doubt about its status in the Porsche panoply. 'I think this will become a very iconic car in the future, and of course the 991 GT3 RS is faster than this one and probably the next one will be faster than that, so it's not down to which is the fastest of the series, it's down to which is the most iconic of the series. If you want to have a 997 GT3 RS and you could choose which version, you'd probably go for the 4.0-litre. I like the first generation 996 RS in green and orange, and the second series in the grey, but I think this is the one you want to have.' Though I take his point, personally I'm not so sure the 4.0 is indeed the one, if it's rawness you're after.

Just to recap, then; the 381bhp, 3.6-litre

996 GT3 RS was in production from 2003 to 2005, and Johan bought this particular car new from Belgian concessionaire D'Ieteren in 2003. He was first in the queue. 'I went to the showroom in 2001 and said, "I want to sign an order form for a GT3 RS," and the salesman said, "well, I'm very sorry but there is no RS." I insisted that an RS would be coming, but he said, "no," so I said, "you know what, just let me fill out the order form for an RS, and if it comes I'll have it, if it doesn't there's no harm done." Then, a couple of weeks later, he calls me and says, "how the hell did you know that an RS was coming?" I said, "well, it's kind of obvious; I mean, 1973, 2003, the GT3 is the most glorious model that Porsche does, and it seems logical they'd make an RS version." I have to admit that I was guessing, but I said to him, "next time when I'm asking you to order something, just write it down!" Thirty years after the 2.7 they

997 GT3 RS 4.0

Engine:	4.0-litre flat-six, 24-valve
Transmission:	6-speed manual, RWD
Body style:	Two-seater Coupe
Kerb weight:	1360kg
Economy:	20.1mpg (combined)
Top speed:	193mph
0-62mph:	3.9secs
Power:	493bhp at 8250rpm
Torque:	339lb ft at 5750rpm
Price new:	£128,466

Right: Defining feature of the interior is that stick-shift. Porsche saw fit to make the 991 gen GT3 PDK only. Massive wing creates proper downforce. Centre lock wheels shroud ceramic discs



came up with a new RS, and although I don't think the 996 is the best looking model in the 911 line-up I have to say that, looking at this car, I do find it pretty attractive, and I still find it brilliant to drive.' Initially Porsche declared they were only going to make 250 cars, but in fact it's difficult to tell how many RSs were actually made because there isn't a specific

units of the 996 GT3 RS.

I remind Johan that when we were out on track earlier it was the older car that he was clearly having more fun with. 'I wouldn't say that the 996 RS is a better car, but it is easier to drive than the 4.0-litre. Objectively, the 4.0-litre would be the better car, but the 996 GT3 RS is the easier car and it's much

lick, slick, sliding through the turns. 'It all depends on what you want to do with the car,' reflects Johan. 'What we're doing here is over the top, probably, and I don't think most people would use theirs in quite this way. But if you are talking about a fun car I think the 996 GT3 RS would be the better bet.' By a short head.

Our analysis continues as we endeavour to rationalise the 996 RS's evident superiority over the 4.0-litre 997. Some of this is down to tyre characteristics. 'If they put the Michelin Pilot Sport Cups on the 996 maybe it will become a totally different animal, and we might have the same kind of behaviour as we've experienced with the 4.0-litre 997. It would be very sticky on the road, but treacherous in extreme conditions when it's sliding. When it's wet with this kind of tyre you're nowhere, but in dry conditions they do their job. So I'm asking myself, is it down to chassis? Probably. Is it down to tyres? Surely.'

Logically, every evolution of the 911 is better than the previous one, so it would be

“ The 996 GT3 RS is easier to drive than the 997 4.0-litre ”

On this day, on this track and with these tyres, the 996 GT3 RS has the measure of the 997. A different day, a different track etc, and it could easily swing in favour of the later car

run of chassis numbers for them. That's possibly because they didn't want to go to the FIA to get homologation numbers for the particular RS parts for the GT3 race series, and by not differentiating them from the normal GT3 production cars there was no need to apply for specific homologation. At any rate, the total production comes to 682

more subtle than the 4.0-litre, which is a very fast and efficient car, and on a fast track, much quicker than the 996. But on this track, if you want to move like a ballerina then the 996 is a better car.' True enough. I love the 996 RS's firm, thoroughly planted handling and ride, and I'm feeling every slight undulation of the track surface. It's so fluent,



amazing if the 4.0-litre 997 was not vastly improved over the 996. But that's to dismiss much of the older car's more delicate poise; the 997 is a big bruiser by comparison. While the 996 RS shares its clean austerity and hardcore functionality with its air-cooled ancestors, the 4.0-litre 997 RS is excruciatingly opulent by comparison, more akin to its Panamera pal.

Of course, there's no doubt there are plenty of other scenarios where it would do the business. 'It's really a powerful car for this kind of Mickey Mouse circuit, and it would be an absolutely glorious car to go to Spa with. It is a great car, it's very fast, but it's a difficult car to drift, whereas the 996 RS was obviously easy. I already picture myself going down into Eau Rouge with that car, it must be an amazing feeling and it's likely that, on tracks like that, the 4.0-litre will be the better car by far. But on the smaller circuits the 996 is better, even though it gives away 100bhp. You cannot make up the difference on the straightaway, even though the 4.0-litre is 10kph faster

and in the corners the 996 RS is quicker, more agile, so I have to say I'm really amazed how good this 996 is. If you want a car for this type of driving you have to buy a 996 RS, forget about the 4.0-litre, though probably if we had the same discussion at Spa I'd probably tell you to buy the 4.0-litre, so basically you need both!

Johan bought the complete package. 'I have all the trinkets that go with the car that all the first owners got, like a box embossed with 4.0-litres and a replica of a piston inside, and I have the photos from when the car was delivered at the factory. Apart from that there is no history because it never did any racing, though the guy buys a new car every couple of years then sells off the old one. He has raced a 996 GT3 so he's really driving that one still, and he sold the 4.0-litre 997 because he's bought a 991 GT3 RS in another very special colour. He seems to be very well connected at the factory because having special colours on the RS is not an easy thing to achieve right now because of production limitations for

doing a special colour.'

It's always fun to have a car that nobody else has, and basically that's the name of the game for Johan, to find a car that's different, unique in provenance and scarce of colour and spec-wise. 'I think that, in the long run, people are going to look for these cars, too.' And he's right. The recent upward swing in the market for exotic and not-so-exotic Porsches has encouraged more intense levels of connoisseurship, so rare beasts like the 4.0-litre 997 RS will become more valued for their spec than their scorching driving potential. So it's great that there are guys like Johan who'll happily blast them around a racetrack just for the hell of it. That still means that the more powerful of the RSs we have here today turns out not to be the best on a small circuit, but we couldn't have proved that without putting them to the test. There's no substitute for horsepower, so they say; but it's not necessarily going to pull off the win in a trackday shootout, especially at a twisty venue like Abbeville. Horses for courses, indeed. **PW**

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996 GT3 RS

Engine:	3.6-litre flat-six, 24-valve
Transmission:	6-speed manual, RWD
Body style:	Two-seater coupe
Kerb weight:	1350kg
Economy:	24.9mpg (combined)
Top speed:	190mph
0-62mph	4.4secs
Power:	381bhp at 7300rpm
Torque:	284lb ft at 5000rpm
Price new:	£84,230

Interior is stripped as you'd expect, with obligatory roll cage. Note the void beneath the dash board and in front of the gearlever, where radio and oddments tray would normally live. Right: Pirelli P-Zero Corsa tyres are more progressive than the Michelins on the 997 GT3 RS





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ROAD RAGE

From benign pussy cat to snarling tiger in one prod of the throttle, the new 911 GT3 RS takes the road racer concept to an all new level. But is it just a bit too much?

Words: Adam Towler Photography: Tom Gidden





Has there ever been such a weight of expectation around a 911 ahead of its launch? That's doubtful.

The whole 'GT3 RS' lineage has become as strong as any sub-brand in Porsche history, over the course of the last decade and a bit – stronger than almost any other model line in modern motoring. So much so, that prices of the recent 997-generation models have been appreciating fast, and the final iteration of that car – the mighty 4-litre RS – seemed to go from new car-to-modern classic without a hint of being second-hand or depreciating in-between.

However, there's a sense that not only is the buzz surrounding the latest RS the hysteria of excited expectation, but also of fear: how will Porsche have developed their superstar within a 991 framework? With the sequence of 997-based RS models we all had a pretty good idea that the new arrival would be as great as the last one, only a bit faster, a bit more serious, a bit more focused. And, of course, with a slightly faster Nürburgring Nordschleife lap time to boot.

But what can we expect from this new car? It's bigger, it's much faster – certainly around a lap – it's PDK only – surely a massive debating point in itself – and it arrives in a curious pastel shade of soft orange. Not everyone found the 991 GT3 to their liking, although few have quibbled with its performance and high-revving engine. That the early stages of production were marred by catastrophic engine unreliability seems to have been quickly forgotten in a second-hand market that's wildly out of control.

All of which means my head is spinning with questions as I climb into the Lava Orange GT3 RS press car we've procured from Porsche GB for one very special day only. Of course, this magazine has already driven it on the launch, and came away mightily impressed: how will it work in the UK, on the kind of roads idiosyncratic to this nation?

If the first GT3 RS back in 2004 looked very much like a regular GT3 with a slightly different rear wing and some stripes on it, then this RS is in a different league entirely. It commands your forward vision; momentarily stopping me in my tracks, my mouth agape; it's so wide, so big, so...well, orange. Alongside it in the Reading HQ car park is an assortment of Boxsters and Caymans, and I half expect the RS to suddenly jerk its gaping air intake mouth to one side and swallow one up whole for breakfast like a hungry shark. If it eats one of them without even blinking, what's it going to do to me?

You must know the spec of this car by now. For those who don't, then contemplate this: Porsche has extracted 500hp from a new 4-litre version of the 991 GT3's DFI engine (the days of the Mezger are long gone now, unless, of course, you want to have just sealed the GTE Pro WEC title, in which case the Mezger is very much alive and wailing hard). This new 3996cc has a longer stroke to reach the new displacement, at 102mm (as opposed to 77.5mm), but retains the 81.5mm bore size of the regular GT3 engine. That means it can't quite hit the same screaming peak as the smaller but shorter-stroke unit, topping out at 8800rpm as opposed to the magic 9000rpm, but then again, it doesn't need to. Not only does it have another 50bhp at its disposal, but with 339lb ft at 6250rpm, it



It's hard to imagine where Porsche could possibly go with future GT3 RS generations. It's certainly hard to imagine anything more extreme. Amongst all the future talk of hybrids and turbos, this could be the last of its kind

has more torque than the 3.8 (325lb ft), and a fatter graph below that peak. And anyway, 8800rpm should still do very nicely, indeed. By the way, maximum power is delivered at 8250rpm, so it's well worth revving it still: this is no torque heavy slogger. Interestingly, the additional power is offset by the displacement increase, so in terms of horsepower-per-litre both engines have exactly the same 125bhp/litre figure. It goes without saying that the performance is staggering: the 0-62mph time is claimed to take a scant 3.3-seconds. But, then again, the RS-series has always been more than just about raw numbers.

Impossible as it may sound, the PDK transmission can now shift gears even faster (and the final drive is higher), and is connected to a fully variable, electronically controlled rear LSD. It's 10kg lighter than a GT3, despite the extra width, but then lightweight materials have been used everywhere. The roof is magnesium, not carbon, because it's even lighter than the latter, let alone aluminium, and don't even think about steel. Much of the bodywork is also CFRP (Carbon Fibre Reinforced Polymer), and those vicious-looking extractor vents on the front wings solve an issue that

has been causing 911 engineers a problem for decades: how to get significant downforce on the front axle. In conjunction with the massive front splitter they create a low pressure area, meaning the GT department can get away with placing a simply enormous wing on the rear without upsetting the balance of the car. Then there are the wheels and tyres. Finished in sinister matt black, the extraordinary Michelin Pilot Sport Cup 2 rubber that envelops the rims is so large on the rear axle it's hard to contemplate: 325/30

the current noise and emissions regulations. I mean, just how do Porsche manage that? It fires instantly, and settles down to a noisy but smooth idle. There's little of the clatter and random machinations that characterised the old Mezger engine: this feels like something altogether more ruthless and advanced, as if it's well within itself rather than at the limit of its capabilities.

I'm about to experience one of the biggest differences with this new car as opposed to GT3 RSs of old, and it's our dear friend the

“ Such an output from a normally aspirated motor feels like alchemy ”

Interior is semi-stripped, but still more than comfortable enough for those long trips to Spa or the 'Ring. Seats are from the 918. PDK is the only shift option in town

ZR21. Just ponder on that for a moment. I could go on, of course, but I think I need to drive the car now. Right now.

It's a cold morning as I fire up the exotic 4-litre engine. Such an output from a naturally aspirated six-cylinder motor feels like more than a touch of alchemy seeing as it meets all

PDK gearbox. Casting a glance over the various buttons on the raised centre console, I elect to simply select Drive with the selector and get going. We trundle – the 'we' being snapper Tom Gidden and I in this instance – out of the car park, along the short access dual carriageway in heavy traffic, and then roll





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down the slip road and onto the M4. The ride is firm, the engine loud, the fantastic 918 Spyder-style bucket seats uncompromising in their tight embrace, but with the sat nav guiding me and the ratios shuffling quickly as the speed builds to the legal limit, I am entirely comfortable. I wouldn't say it's the same as being in a 911 Carrera, but get beyond a few elements and the experience isn't really that much different.

Our motorway journey is largely uneventful, and there seems no reason why we couldn't roll along all day like this with some tunes on until we're at the Severn Bridge. But our destination today is the Lambourn Downs in Wiltshire, which should give us some decent roads to play...I mean test, on, while still working with our tight time schedule today.

It's a relief to pull off the motorway, not because the RS has been a pain, but because I've been champing at the bit to uncork the flat six over my shoulder. On one occasion I accelerated sharply to get out of the way of an errant truck, and the PDK decided to ratchet down a considerable number of gears, unleashing a great wall of engine noise into the cabin that almost makes Tom and I jump. From then on I knock the lever to the side and change gear manually: if the car has the extra torque of the 4-litre engine, I'd like to use it.

The first time I really let the RS go is a moment of some wonder. It's also a reminder of the violence of 500hp, something that the ease with which the RS has handled itself so far this morning has almost completely

disappeared from my mind. In some ways that makes it all the more shocking.

The RS kicks early and hard. It doesn't quite have the savagery of a modern 911 Turbo, but then with 'only' 339lb ft it's a good deal short of the 500lb ft plus of one of those, and at a higher rpm peak, too. Even a 200kg-odd saving can't quite paper over that truth. But it's still a gutsy kick in the small of my back. And then it keeps on growing. And growing. And second gear stretches on, and the induction noise grows in intensity and volume through the new twin side-fed intakes until it's quite shocking and still my fingers haven't twitched on the gearchange paddle. And now it's sounding really angry, and every last percentage of my senses are alive to the ferocity of the acceleration, the manner in

“ The first time I let the RS go is a moment of some wonder ”

991 GT3 RS

Engine:	4.0-litre flat-six, 24-valve
Transmission:	7-speed PDK, RWD
Body style:	Two-seater Coupe
Kerb weight:	1420kg
Economy:	25.5mpg (combined)
Top speed:	193mph
0-62mph	3.3secs
Power:	493bhp at 6250rpm
Power:	339lb ft at 6250rpm
Price:	£131,296

The 991 GT3 RS looks huge. It's slightly deceptive thanks to massive 21in wheels and that massive rear wing, but snake hipped it isn't. Slats in the front wings help to equal front-end aero with the rear wing

which the scenery is coming to meet the RS's broad frontage, the possibility of hazards barely visible on the horizon but which will surely be on top of us in no time whatsoever. Finally, 9000rpm approaches and I click the paddle, summoning the transmission to slot home the third ratio without pause or jolt, and the speeds are already getting seriously naughty, and that truck ahead lumbering along at 45mph like a pensionable ox is about to be rammed by a pastel orange Porsche that's only just beginning to find its stride.

Wow. That's fast: really palm sweating, brutally fast. It won't matter how many times I let the RS off the leash during the course of our time together, I never do quite get used to the depth and breadth of its performance.

The road to our first cornering shot location is a mini rollercoaster of asphalt, oscillating in both direction and altitude at random, but all on a gentle, Wiltshire scale. Today it's also covered in a wintry layer of grime – an emulsion of dampness, mud, fallen leaves, and cold ground. There is no traffic in front of us, and I up the pace to see, essentially, what happens next. The result is a fairly hectic workout. Those fat rear Cup 2 tyres aren't in their element on a surface such as this, and given I've elected to switch off the electronic aides, I just know this is going to require maximum concentration on my part. The RS bucks and weaves, sometimes it hops from one bump or ridge to the next without bothering with the road surface between. A slight squeeze of too

much inappropriate throttle has the tail on the move, and while it's unerringly accurate in both its communication and the way it which it can be countered, it also does everything quickly, requiring in return fast, decisive reactions. When grip returns it does so fast, there's no messing about with the 991 GT3 RS. Not for the first time today will it reveal its no-nonsense character: a machine that, without the cloak of security provided by its admittedly very sophisticated traction and stability systems is utterly ruthless. It becomes increasingly clear to me that the RS has been developed to such a pitch of performance that you adopt a casual approach to it at your own peril.

By the time we reach the more open, faster plains of our destination I'm wide-eyed



with a mixture of exhilaration and apprehension, glad in some ways that I haven't dropped Tom and I into a ditch in the name of 'testing', and also slightly boggled at the raw anger contained within this car. At times that last section felt more like a rally stage, and neither the car nor I were entirely comfortable.

There's no respite, though, because it's the good old cornering shots next, and I need to at least have a stab at getting it sideways for the ubiquitous shot. It's a decent 90-degree corner that I have at my disposal, but the limits of the car's adhesion are so high that it's not enough to try a little bit and be greedy with the throttle: you've got to really provoke it, really show it who's boss and hope you have an answer for anything it throws back at you. By the end of it I don't mind admitting I'm breathing quite heavily.

By lunchtime the RS and I have some kind of bond. Sandwich time means parking in the

high street of a quaint market town, and it's only when I get out do I appreciate the sheer aggressiveness of the exterior once again. I know that the measurements tend to suggest otherwise, but it seems like such a big car too. Parked up here it looks faintly ridiculous, as if I'm shaking down a new chassis for the WEC title decider later this month.

I can't say what the exact effect the aero package has during road driving, but I don't doubt for a moment it makes a serious difference when driving hard on a circuit. What I can say is that the RS feels exceptionally well planted on the road when taking fast curves. It's those kinds of roads that characterise this area of the country, and having to repeatedly run through one sequence of mild curves – let's just say at a reasonable pace – the RS feels completely glued to the road. The steering is really good – not perhaps exceptional by the standards of 911s of old, but for an electrically assisted

setup it's a real achievement. In weighting and accuracy it's without fault, and there's even some feedback through it. The brakes are as mighty as you'd hope a set of ceramics with 410mm discs on the front axle to be, in fact, for road driving it just doesn't feel like they're being taken to anywhere near their limits.

Perhaps that last point could be said about much of the GT3 RS. As our day in its company draws to a close I try to put my finger on exactly why it doesn't quite worm its way into my affections as the previous RS models did.

The GT3 RS is just too fast, too honed, too...well, everything for the road. Yes, I know previous RSs, as well as no end of other modern performance cars, could be labelled with the same accusation, but in the past we've managed to kid ourselves that the RS-lineage was still relevant because even when you weren't extracting the maximum it gave back plenty of enjoyment. But the 991 GT3





RS is a curious thing: it is cuddly and ferocious within the same breath, useable and also completely irrelevant. It makes going slowly uneventful, going fast almost boringly easy, and going really, really fast a white-knuckle ride that's unforgettable, but also laden with guilt. To really drive the RS hard on the road is to be so far beyond what even an enthusiast might deem 'acceptable' that it becomes uncomfortable; the sort of activity

I feel sure the RS has been taken in this direction because Preuninger and his colleagues want, and have also been told, to make it the best and the fastest that it can be, and if you follow that development line it's only natural that with skill and money they'd end up at this point. But the fact that they're also bringing out an 'R' version of this car, without the wings and with a manual gearbox, tells us that in making this new GT3 RS

from your house so as not to wake anyone and set course for Belgium. You're still a bit sleepy, but that's okay because the auto gearbox takes care of gearchanges and you've got a travel mug of coffee in the cup holder. After droning around the M25 in relative comfort you're out the other side of the tunnel and after the usual tedium of the Belgian AutoRoute – made much easier by listening to your favourite tunes off your phone via PCM – you arrive at the hotel near the circuit feeling reasonably fresh. The next morning you're onto the circuit and spend the whole day lapping, without a mechanical problem, the car setup chassis-wise to your own taste, and you are massively, biblically fast. Moreover, the car is a challenge; to tap into the best of it requires skill and experience. At the end of the day you decide to make a break for home, so pack everything up, and do the long journey again, getting home late, tired, but happy. It really wasn't too bad on the way home – you even spent some of the time catching up on the 'phone, thanks to PCM. There cannot be a finer car in the world in which to accomplish this task in, and in that sense the RS is brilliant. But if I just wanted to go for an enthusiastic drive around Wiltshire on a summer's evening, I'd always take my GT4... **PW**

Above: On a wing and a prayer. The GT3 RS is about as subtle as a kick in the knackers and cannot realistically be used to anything like its full potential on the road and trying is, frankly, a bit scary!

“ To drive the RS hard is far beyond what might be deemed ‘acceptable’ ”

conducted in short bursts followed by cooling off periods of quiet reflection.

More than ever, the GT3 RS is a racing car for the road. In that sense Porsche must be congratulated to the maximum, because for your £131,296 Porsche will sell you a device that not only bristles with intent, it delivers like nothing quite before it and at a price that hugely undercuts anything of the same ilk.

I know I'm not the only one to come to this conclusion, and I think Porsche knows it, too.

they've left behind much of its significance to road driving. It also goes some way to explaining the appearance of the Cayman GT4, a car I have to say I would rather be driving on these roads, and on this particular day, than this 911.

I can see a clear role for the GT3 RS, and it goes something like this: you're booked into a track day at Spa. You leave the house early, chuck all your bags under the bonnet of your GT3 RS, drive as quietly as you can away



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ALRIGHT IN THE '80S

The past is another country: they do things differently there. They certainly do, as witnessed by this uniquely '80s take on modifying. Actually, it's all Ferrari's fault. Without the Testarossa and its side strakes, this Rinspeed built 930 Turbo would never have happened. Hang on as we take the spirit of Miami Vice to Scarborough – in December

Words: Adam Towler
Photography: Antony Fraser





Miami Vice? Sonny Crockett wouldn't know what had hit him. Over the deep-fried aroma of my fish and chips lunch, and partly obscured by the condensation formed on the inside of the restaurant window, the North Sea crashes onto the beach with spiteful intent. Scarborough in December is sopping wet and bitterly cold, and I've rarely been as thankful for a nice, hot, cuppa.

Taking a pause in a vain attempt to prevent the battered cod repeating on me, I try and picture Don Johnson's Sonny, strolling wistfully past the fudge retailers, amusement arcades and bucket and spade emporiums. He's wearing a white Armani sports jacket with the sleeves pushed up to the elbows, naturally, and baggy white linen trousers. A wistful gaze scoped somewhere beyond the breakers is hidden behind a chunky pair of Ray-Ban Wayfarers, while a pastel blue T-shirt and slip-on loafers – sans socks in spite of the grim temperature – completes the look. Alongside, his partner 'Rico' Tubbs carries a shotgun loosely in one hand, his eyes flitting from window to doorway and back again. Quite why they're suddenly on Scarborough's seafront, and not South Beach, Miami, hasn't been covered in this daydream yet, but my mind is on full boost and mere details such as that have been left flailing.

More importantly, and from somewhere not exactly obvious in this chippy, the initial sequenced kick drumbeat and arpeggio synth bass of Jan Hammer's 'Crockett's Theme' has just started up.

Sonny and Tubbs clock the Porsche parked amidst a giant puddle on the fisherman's jetty. Lieutenant Castillo back at headquarters had said there was a problem with the Testarossa. Specifically, the department wouldn't pay to have it shipped over here for this international undercover assignment – and that was final. Sonny threw a wobbler, kicked a locker, threw a half-drunk polystyrene cup of coffee into a waste paper bin with an exasperated "Damn it!" and slammed the door behind him in a whirl of white Italian threads. Tubbs went after him: didn't those fools in city hall realise that deep cover was vital in securing a conviction when working a narcotics case?

Eventually, Marty said he'd 'see what he could do'. This, then, was clearly the sum of his efforts. Rico squinted: it certainly had the air of their Testarossa about it: the obvious side strakes, chisel nose and broad flat rear deck area. But any fool could see it was too high off the ground, the windscreen too upright in angle. It looked a little like a Porsche 911, but that couldn't be right, surely...

In clichéd Hollywood style my vision turns wavy and we're back in the room. My



A warning from the past? There's no disputing the influence of the Ferrari Testarossa on the Rinspeed R69. Mixed with the 911 Turbo it is the ultimate amalgamation of the two '80s poster cars – if we're being generous

Almost any semblance of the 911's curvacious shape has been replaced (save for the top half). The flat front is very '80s, as was white, as it is currently

eyes re-focus on the cheery face of photographer Fraser as he loads another laden forkful of greasy chips into his mouth, and the North Sea looks as bleakly grey in tone as ever. Someone has just pulled the plug on Jan's primitive synthesizers.

Just what exactly were Rinspeed thinking? Just look at it. In the present era the act of modifying a 911 rarely extends beyond a larger wing, or more exaggerated wheelarches. It's all a bit, well, serious. But oh no, not in the 1980s: in this decade anything was fair game, and the Rinspeed R69 is clear evidence of, if nothing else, a free spirit in a more innocent time.

Clearly, the 1984 launch of the Ferrari Testarossa was so pivotal in the contemporary car scene it couldn't be ignored. The 'Red Head' had replaced the 'Boxer', or 512BBi to be precise, a blade-nosed beauty of a car that epitomised the 'supercar '70s'. The new car would use an updated version of the glorious flat 12 engine, but apart from its location in the chassis there the similarities ended. Ferrari put the radiators in the flanks, and the styling incorporated – nay, made a core feature of –

this decision. It was one of the cars of the decade, but only now are values – and an appreciation of it therein – beginning to climb. Perhaps the generation that played 'Outrun' as a youth in some grotty arcade are coming of age?

Rinspeed's current website confirms the big Ferrari was the inspiration behind the R69 kit: "1985 – launching of the RINSPEED

turbocharged Golf GTI at the Geneva motor show. In 1983 it unveiled its first Porsche conversion, with the R69 following in 1985, adding during this period the concession for AMG and AC Schnitzer in Switzerland. In more recent years the firm has become known for some true oddballs, culminating in the Budii concept shown at Geneva this year and described as a "Robotic friend on

“ Just what exactly were Rinspeed thinking? Just look at it ”

R69 Turbo based on the Porsche 911 Turbo with inspiration of the Ferrari Testarossa", is what it has to say about the car.

The Swiss tuner, concept creator and styling house, the trading name of Frank Rinderknecht, opened for business in 1977 and began by importing sunroofs from America and converting vehicles for disabled drivers. By 1979 it had shown a

wheels". Some of Rinspeed's work is truly off the wall: It's all a long way from cutting up Porsches, and when asked about the R69 project, the company simply said it has 'no records of that era'.

The R69 conversion brought about not only drastic body modifications but interior options and mechanical upgrades as well. This car has both the body kit and the





**911 /912 Wing joining plate right
65-73 58,00 EURO**



**914 Outside door handle without lock
cylinder left/right each 138,00 EURO**



**356 Tie rod long, right
356 Tie rod short, left
each 154,00 EURO**



**911/912 Sender fuel gauge
65-73 98,00 EURO**



**964 Lens for tail light
left/right
each 72,00 EURO**



**911 Parcel shelf
support
each 130,00 EURO**



**914 Cover
58,00 EURO**





optional roof spoiler, as well as the colour coded alloy wheels and, I'm told, the 60bhp power boost. A further option in the brochure was a five-speed gearbox, although of what type is not clear.

There's no hiding from the weather any more. Stepping out onto the high street, crossing the road to the jetty, the R69 sits slightly forlornly in the murk alongside an old Ford Transit loading up fish. There is no middle ground with cars like this Rinspeed

I think it would have blown a fuse in my brain. Just to see a 930 was something to talk about for days, because Porsches were far more exclusive than they are today, especially something like a Turbo. But the Rinspeed – well, there's a strong suggestion of Luke Skywalker's Snow Speeder in both the pearl white paint and the flat, harsh surfaces. I have already checked: there's no harpoon gun mounted on the rear parcel shelf, nor a button to

crisis. Nevertheless, the Turbo had carved out its own niche, setting new standards not only for outright performance, but crucially, useable performance. It's this template that survives to this day in the form of the latest 991 Turbo and Turbo S.

After three years in production it was time to refine the offering, and at the heart of that lay more power. This was achieved by enlarging the capacity of the 930/50 engine to create the 930/60, with the stroke growing from 70.4mm to 74.4mm, and the bore expanding from 95mm to 97mm, giving a total displacement of 3299cc. This larger basis was also stronger, thanks to thicker crankshaft webbing and enlarged bearing diameters, and there was no longer a head gasket, block and heads being directly joined. The other key introduction was the fitment of a large intercooler on top of the engine, which necessitated a switch from the original 'whale-tail' rear spoiler to the flat-topped and deeply edged 'tea-tray' wing. The intercooler significantly reduced the charge temperature – by up to 60 degrees – to the benefit of the turbo's operation, which incidentally had an enlarged compressor wheel inside the same housing.

The result was now 300bhp at 5500rpm and 304lb ft of torque at 4000rpm, outputs that would be tweaked slightly over the years to improve driveability as new developments were introduced, but would

On the move with Adam 'Sonny' Towler at the wheel. The extended front and rear overhangs make the Rinspeed look rather stubby, not helped by the typically period wheel and tyre combo, which could never match the design doodlings

“ There is no middle ground with cars like this Rinspeed Turbo ”

Turbo. You either say 'yuk, that hasn't aged well, it's disgusting', and in doing so rather miss the point, or, as I intend to do today, try and turn back the clock to imagine what it must have been like when it was new, and moreover, how people – both owners and onlookers – must have felt. It's a sense of that emotion that we're trying to drill down to, in essence, one of the tenets of general classic car appeal.

I honestly think that as someone about to hit double figures in age when this car was converted, a glimpse of it in the mid-'80s would have stopped me dead in my tracks.

press that fires the glowing lazer cannons...

The standard basis for the R69 was unsurprisingly the 3.3-litre 930, unveiled in late 1977 for the 1978 model year along with the SC. In fact, according to the brochure, R69s could be created from naturally aspirated 911s as well, although there was more work to be done to come up with an end product that had the same visual appeal.

The Turbo had been on sale since 1974, an incredibly bold – or potentially dire – move on Porsche's part to unveil a so-called supercar in the midst of the first fuel



stay largely the same until the phasing out of the type in 1989.

One thing that did remain was the trusty four-speed gearbox, as Porsche still didn't have a five-speed transmission strong enough to cope with the thump of torque the 930/60 was capable of delivering. What had changed in the drivetrain was the clutch, both to strengthen it and to reduce the chatter at idle that some customers must have moaned about. In doing so the unit grew, and this meant that the engine actually moved 30mm rearwards in the car – and with intercooler and other modifications it weighed 30kg more as well – so that now 60% of the overall weight of the vehicle sat over the rear wheels. This is

an interesting and rarely discussed point. I have never driven 3-litre and 3.3-litre Turbos back-to-back, on a circuit, and hard enough, to be able to give an opinion on this; some say the difference is notable, esteemed commentators such as the late journalist Paul Frere said it was not. From a sheer physics point of view the change was not ideal, but given the benefits not just to the drivetrain but to the overall package, and the advent of wider, stickier tyres during this period, it was quietly forgotten.

The other major development was the replacement of the Porsche 'S type caliper' brakes on the 3.0 Turbo with big four pot brakes derived from the 917 racing car. Given the increase in weight on the 3.3 and

its spectacular performance, this was no bad thing at all, and 3-litre Turbos have always had to bear a reputation for being under-braked. If maintained correctly, and on the earliest, lightest 3-litre cars, the originals can be fine for road use, but it's probably fair to say that the stout 4-pots were the brakes the Turbo always deserved.

With the above in mind I keep trying to tell myself that under the bizarre bodywork is a good ol' 911 Turbo, but somehow it's proving difficult to latch onto that thought. It's just so... '80s...

This particular car dates back to 1980, and has been in the custodianship of the same family since new, with its original



It's easy to mock. Cars like the Rinspeed R69 were very much of their time and have to be taken in that context. The world would, however, be a poorer place without a few of these creations surviving

The interior is almost a disappointment being largely standard and brown, which was far more '70s than '80s. It deserves something far more space-age, which Rinspeed could have offered

purchase and all but two services being carried out at JCT600, these days known as Porsche Centre Leeds.

Once sat inside the overall impression is the same as when sat in a factory 930 SE, otherwise known as a 'flat nose'. The view through the windscreen initially appears the same, but after a moment the brain registers that there's something missing from the time-served view, and that is the soft curves of the front wings that act as a gun sight for your chosen line ahead. In the R69, just like the 'Flats', there is nothing: it reminds me of the time I had the good fortune to sit in an English-Electric Lightning fighter jet and the impression was of sitting right on the tip of a highly explosive rocket, a front row seat for any impending disaster. Nevertheless, flick the light switch and from seemingly nowhere two square shapes suddenly rise

into view: there is something so evocative about 'pop up' lights!

The rear deck of the Rinspeed is out of sight in the rear-view mirror, so whether it's Rinspeed or the factory tea tray it doesn't really make a lot of difference – the view is the same.

As far as Turbos go, this one is appealingly groovy inside. The earlier Turbos often featured bright, visually eccentric interiors, with sometimes tartan fabric or brightly colour leather, something that was lost by the late '80s when most were either black or cream leather (with the exception of the wild Can Can Red, of course). This car features brown leather with check cloth centres, the rest of the interior in a similar hue. It makes one yearn for the days when car interiors weren't as serious and/or sensible as they are now, even on expensive

performance cars.

A turn of the key and the engine leisurely wakes into an idle. Like all 930s it's a distant, disinterested hum that only vaguely hints at the performance that is in fact on tap. This is the nature of these original Turbos: they hide their madcap behaviour under a veil of sensibility, in a way, a kind of low-tech dual personality to enable the car to be used in everyday driving, by all sorts of different drivers. And so it is here: the R69 splashes through the wet and sleety roads of North Yorkshire, away from Specialist Cars of Malton's base where it is currently for sale, and although I'm aware from the outside it looks faintly absurd in a historical market town that's in a deep freeze, from the inside it's the same old biddable 930. The four long gears, when combined with significant turbo lag from one archaic, large single turbo





installation, mean that it's possible to drive along quite normally without ever rousing the serious acceleration on offer. There's an old adage that a car is only as fast as the driver pressing the right-hand pedal makes it go, and it's never been truer than with a 3.3 930.

There's been some serious cash spent on this car in recent years and it shows. The engine was rebuilt at Porsche Centre Leeds and, with a few more revs on the large central tachometer, it begins to pull with determination. It's still not really enough to get you into trouble, more that it's a very heavy hint written out in very large font that

1985 for that matter.

It's not a great surprise that the R69 drives much like any other 930. The steering has some real heft to it once on lock; the suspension is surprisingly soft in its overall attitude, although potholes and cat's eyes do thump through into the structure. It feels obviously rear-engined, more so than certain 911s, in the sense that there's clearly a very heavy weight at the rear with the overwhelming power to compress the rear tyres into the road surface.

To be frank, the conditions are so dire today it's not the time and the place to get

swift pace following Fraser's ever-rapidly driven Passat I said I wasn't using 100% concentration, because a 930 is that sort of car, but it feels great, and by the end of the journey, you really know you've driven. In conditions such as these, you're constantly evaluating how much boost you dare deploy.

I'm not sure what Sonny and Rico would have thought about the Rinspeed 930. To be fair, most of the people who clocked the R69 that dismal morning looked as though they weren't quite sure what to make of it, either. I'm not altogether certain some of them even realised it was a Porsche 911, testament if nothing else to the extent of Rinspeed's handiwork. Perhaps in mid-'80s America, under the hot, humid Florida sun, surrounded by palm trees and beautiful people, it would have made the perfect stand-in for the Ferrari. Guest stars like Phil Collins were an integral part of Miami Vice, so why not mix it up a bit with the cars, too.

In 2015 Yorkshire it feels as though it exists in an orbit entirely of its own. Much like the 930 SE, it's a car of its time and an interesting part of any Porsche collection, but just speaking personally for a moment, it's not one I'd buy instead of the standard car. A large chunk of the appeal from owning a 930 is simply looking at it – it remains surely one of the most darkly beautiful forms the 911 has ever morphed into, and when you start to radically alter that you risk damaging that very same appeal. As for Sonny, I imagine he was more worried about the road salt damaging his loafers to care. **PW**

Left: The recently rebuilt engine is reputed to have the extra 60bhp that Rinspeed offered in the package, which would take it to 360bhp – a lot of power in the '80s. Wheels are Rinspeed badged but made by French wheel manufacturer, Gotti

“ The Rinspeed R69 exists entirely in an orbit of its own ”

you might want to sharpen your concentration a little bit. You can drive the R69 like that ad infinitum and it rolls along with a terrifically relaxed gait – another of the Turbo's traits that make it such a good GT car. Hold your right foot to the floor though and the years drop away to reveal a car that feels grin-inducingly swift even by the standards of 2015. That's not necessarily by the standards of a 2015 911 Turbo, but there's still the sort of performance on offer that makes you ponder with wonderment just how extraordinary that must have been in 1978, or

too carried away, but the Rinspeed is happy to communicate what is going to happen. A couple of roundabouts taken at mildly optimistic velocity elicit a nibble from the front end to signal the onset of understeer. But when the front grips, it's the rear that will go next, as an amusing bout of oversteer somewhere south of 30mph proves. You have to build a rhythm with it, and on our more scenic route back to Malton there's an opportunity to do just that. In the beating rain, and with the road flanked by snow banks, I'd be lying if even at this moderately

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PORSCHE 997 – GT3/TURBO / C4S / C2S / C2

2011 - 997 GT3 RS 4.0 GEN II (GRANDPRIX WHITE) 11,000 Miles
4.0 Ltr, Black with Red Sports Bucket seats, Red Seats Belts, PSM/PASM/PCM 3-Touch screen Satellite Navigation, Telephone, Chrono Pack, Sports Exhausts, Climate Control, 19" GEN II 997 GT3 Alloys, Full Service History

2010 - 911 (997 GEN II) TURBO 'S' PDK (BASALT BLACK) - 25,000 Miles
PDK, Black Leather Int, PSM/PASM/PCM (GEN II)-Touch Screen Sat Nav, Telephone, Sports Exhaust, Cruise Control, Chrono Pack, White Dials, Heated/Memory/Fullly Electrical & Sports Seats, BOSE-CD Changer/USB/IPOD Connection, Xenons, Porsche Crest on Headrest, Alcantara Headlining, Climate Control, Rear park Assist, 19" Turbo Alloys Wheels, Full main Dealer Service History.

2007 - 997 TURBO COUPE TIPTRONIC (METEOR GREY) 37,000 MILES
Full Black Lther int, Silver centre console, PSM/PASM/PCM 2-Sat. Nav, Telephone, Bose sound upgrade, Sports Seats, Sports chrono, Heated seats, Electric sunroof, Rear parking sensors, Ltronic headlights, 19 inch wheels (unmarked), Full Main Dealer Service History - Last serviced in February

2009 - 997 C4S CABRIOLET PDK (GEN II) (METEOR GREY) 28,000 Miles
Full Black Leather Interior, PDK, PSM/PASM/PCM(Voice Control), Extended Sat Nav (Touch Screen), BOSE, CD Changer, iPod and USB, Telephone Module (Bluetooth), On Board Computer, Heated Seats, Rear Park Assist, Sports Plus, Sports Exhaust, Sport Chrono Pack, White Dials, M/F Steering Wheel, Partly Electric Seats, Porsche Crest on Headrest, Front & Rear Camera, Climate Control, 19" Porsche Sport Design Alloys, Xenon Headlights, LED Daylights, Full OPC Service History (Just been serviced at official Porsche Centre), Four Former keepers only.

2010 - 997 C2 COUPE GEN II PDK (RUBY RED METALLIC) 30,000 Miles
Cashmere Leather Interior, PDK Transmission, PSM/PASM/PCM-Touchscreen Sat Nav, Climate Control, Telephone Module, CD Changer, Bose Sound, Cruise Control, Alcantara Headlining Rear Parking Assist, Rear Wiper, Xenon Light, 18" Alloys, iPod/USB Connector, FSH

2006/55 - 997 C2S CABRIOLET TIPTRONIC (BASALT BLACK) 34,000 Miles
Black Leather Interior, PSM/PASM/PCM-Sat Nav, Telephone, BOSE, CD Changer, Chrono Pack, White Dial, M/F Steering Wheel, Heated & Sports Seats, Climate Control, Porsche Crest on Headrest, Rear Park Assist, Xenons, 19" Sport Design Alloy Wheels, Full Service History.

2005 - 997 C2 COUPE TIPTRONIC (ARCTIC SILVER) 62,000 Miles
Black Leather Interior, PSM/PCM-Sat Nav/Telephone-BOSE/CD Changer, Heated Seats, M/F's wheel, Alcantara Headlining, Rear wiper, Climate Control, 19" Carrera Alloy wheels Full Service History.-

PORSCHE 996 GT2 & TURBO

2002 - 996 GT2 CLUBSPORT (POLAR SILVER) 55,000 Miles
ONE OWNER ONLY, Full Porsche Main Dealer Service History with a recent service, GT2 Club Sport Model, White Dials, PCB Brakes, Radio and CD player, Climate Control, Central Locking, Electric Mirrors & Windows, Porsche Crested Sports Seats, Correct carbon fibre interior

2002 - 997 GT2 CLUBSPORT (ARCTIC SILVER) 37,000 Miles
Black Leather Int, PSM, Cruise Control, Porsche Radio & CD Player, Alcantara Headlining Fire Extinguisher, 18" GT2 Turbo Alloy wheels, Full Main Dealer and Specialist Service History

2002 - 996 TURBOCOUPE TIPTRONIC S (LAPIS BLUE) 86,000 Miles
Lapis Blue Metallic, Grey Leather Int, PSM/PCM-Sat Nav, Telephone, BOSE, Sports/Memory/Electric Seats, Sunroof, White Dials, Red Seat Belts, Rear Park Assist, Rear Wiper, Alcantara Headlining, 18" Turbo Alloys, Full Service History

PORSCHE 993 - TURBO / C2S / C4S / C2 / C4 / TARGA

1998 - 993 TURBO "S" COUPE MANUAL (SPEED YELLOW) 60,000 Miles
Black Leather/Carbon Fibre Interior, Litronic Lights, Sports Seats, Electric Seats, Electric Mirrors, Yellow Dials, Porsche Radio & Single CD Changer, Yellow Seat Belts, Sunroof, Rear wiper, Yellow Callipers, 18" Turbo S Alloy Wheels, full Service History.

1996 - 993 TURBO COUPE (BLACK METALLIC) 61,000 Miles
Black Leather Interior, Sports Seats, Top tinted Windscreen, Sunroof, Porsche Radio System Becker CD Changer, Tracker System, PA1000 Remote Control, Electric Mirror, Electric Window, Rear Wiper, 18" Turbo Alloys, Fully Documented Service History, Just been Serviced

1997 - 993 TURBO COUPE MANUAL (ZENITH BLUE METALLIC) 79,000 Miles
Beige Leather Interior, Sunroof, Sports Seats, Fully Electric Seats, Alpine Radio Player, Rear Wiper, Climate Control, 18" Turbo Alloys, Full Service History

1998 - 993 C4S COUPE MANUAL (SILVER METALLIC) 36,000 Miles
Concours winner, Black Leather Interior, Sports Seats, Top tinted Windscreen, Sunroof, Porsche Radio System, CD Changer, Tracker System, PA1000 Remote Control, Electric

Mirror & Window, Rear Wiper, 18" Turbo Alloys, Fully Documented Service History, Just been Serviced

1996 - 993 C4S COUPE MANUAL (MIDNIGHT BLUE) 64,000 miles
Marble Grey Lther Interior, SONY CD players, Seats, Semi-Electric Seats, Electric Windows, Electric Mirrors, rear wiper, 18" Turbo Alloys, Full Porsche Service History

1994 - 993 C2 COUPE TIPTRONIC (BLACK METALLIC) 84,000 Miles
Black Metallic Coachwork, Grey Leather Interior, Alpine Radio & CD Changer, Sunroof, Climate Control, Telephone Module, Rear wiper, 17" Alloy Wheels, Fully Documented Service History.

1994 - 993 C2 COUPE MANUAL (FOREST GREEN) 104,000 Miles
RHD, Marble Grey Leather Interior, Sunroof, Alpine Radio Player, Part Electric Seats, Rear Wiper, Climate Control, Electric Windows, Electric Mirrors, 17" Alloy wheels, Full Service History

1994 - 993 C2 COUPE TIPTRONIC (BLACK METALLIC) 99,000 Miles
Marble Grey Leather Interior, Sunroof, SONY Stereo & CD Player, Electric Window/Electric Mirror/Part Electric Seats, Rear Wiper, Air Condition, 17" Alloy wheels with Coloured crests, Full Service History (Just Been Serviced).

1994 - 993 C2 COUPE TIPTRONIC (BLACK) 94,000 Miles
Black Leather Interior, Tiptronic, Sunroof, Becker Radio, Electric Seats, Electric Windows/Mirrors, Rear Wiper, 17" Alloy wheels, Full Porsche & Specialist Service History. (Just been Serviced)

1987 - 993 CARRERA 3.2 CABRIOLET (G50 GEARBOX)
126,000 Miles, Manual Gearbox (G50), Matching Numbers Example, Immaculate Blue Metallic Exterior, Full Marble Grey Int, Matching Dark Blue Hood, Fully Electric Softtop, Electric Windows and Mirrors, Period Correct Fuchs Alloy Wheels, Comprehensive Service History, Very Original Condition, 10 Years with The Same Owner, Kept with the same specialist for a number of years

1992 - 964 CARRERA COUPE (POLAR SILVER) LHD - 138,000 Miles
Tiptronic Gearbox, Black Leather Interior, Sunroof, SONY CD & radio Player, Fully Electric Seats, Rear Wiper, Climate Control, Electric Windows & Mirrors, 17" Alloy wheels, Full Service History.

1979 PORSCHE 911 SC COUPE - LHD (SLATE GREY) 271,000 Kilometers
Left Hand Drive, Slate Grey Coachwork, Marble Grey Interior, Manual, 271,000 Kilometers Pioneer Radio & CD Player, 16" Alloy wheels, Five Former Keepers Only

FERRARI - MODELS FROM 1967 +

2005 FERRARI F430 F1 COUPE (NERO DAYTONA) - 17,000 Miles
4 owners Only, Full service history, Just been serviced and NEW CLUTCH, F1 pump fitted last month, Nero Daytona Black Metallic Black, Front and Rear parking sensors, Scuderia shields, Yellow brake calipers, Navtrak antitheft system, Black Leather interior, Electric nero daytona seats Sub-wwoofer sound system.

1998 - FERRARI 550 MARANELLO (GRIGIO SILVER METALLIC) - 55,000 Miles
Manual, LHD, Silver Coachwork, Full Leather Interior, Black Carpets with Ferrari Crests, Fully Electric Seats, Electric Windows, Electric Mirrors, Climate Control, 18" Alloy wheels, Sony Upgraded Sound system, Sports Mode, ASR, Brass Steel Gated Gear Shifter, Full Ferrari Service History - Fully Documented Service History with a Recent Service, Original Tool Kit

1973 - FERRARI 365 GTB/4 DAYTONA RHD (ROSSO RED) 38,000 Miles.
Black/Red Leather Interior Red Carpets Climate Control "Ferrari Classiche" Full Continuous History Superb Provenance 3 Owners From New.

1971 (SERIES E) FERRARI DINO 246GT (ROSSO RED) 41,000 Miles
Right Hand Drive, Rosso Red Coachwork, Black Leather with Red carpets, 41,000 Miles Only, 5 Owners Only, One of 488, Ferrari Classiche, All MOTs, Complete Service History, Documented Service File, Original Hand Books, cards and purchase invoice, Original Tool Kit

1967 - FERRARI 275 GTB/4 MANUAL LHD (ARGENTO SILVER) 59,000 Miles.
Full Black Leather Interior Detailed Restoration History Full History Original Build Sheets/Sales Invoice/Tool Kit/Wallet/Hand Books Numerous Concourse & Awards Winner Engine Rebuilt By Ferrari in Johannesburg 26,000 KMS Ago Comprehensive photos showing The Re-paint & Work Done By Ferrari Exceptional Condition Throughout.

Ferrari 330 GTC COUPE - GRIGIO SILVER
Ferrari Classiche, Rosso Red Leather Interior, 86,000 Miles, Chassis No: 10157-GT, Engine No: 10157-GT, Extensive Interior retrim-(photos available), All MOTs, Fully documented service history with many invoices over the years, Original handbooks and Tool kit, Original sales brochures

CLASSICS - AC / BENTLEY / JAGUAR / PORSCHE 356

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AC COBRA 289 CONTINUATION MODEL (BLACK) - 1996
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AC COBRA MK IV BUILT ON LIGHTWEIGHT SHORTRNOSE CHASSIS BY AC CARS (ROLLS ROYCE EBONY BLACK), 11,000 MILES.
LIGHTWEIGHT, LARGE BRAKES FLAT DASH, SMITH INSTRUMENTATION, TELESCOPIC 5MPH IMPACT BUMPERS FRONT AND REAR, REAR PETROL TANK BEHIND SEATS/RACING FILLER TRIANGULAR CHROME ROLLBAR, FULL LETHER CONNOLLY HIDE IN SILVER GREY WITH PIPE BLACK, High performance fuel injection 5.0 Litre FORD V8 engine. Very rare and limited production of the best that AC could offer, with the best features of the Lightweight production run.

1972 PORSCHE 911 2.7 RS TOURING 72,000 MILES
7000 miles since total restoration by RUF, Canary Yellow, Black Interior, Left Hand Drive, Complete History of Restoration, including Photos and invoices

1977 PORSCHE 911 CARRERA COUPE 3.0 LTR 111,000 Miles
Five Speed Manual, Copper Brown Metallic, Tan Leatherette, Race Seats, Chrome Trim Rear Spoiler, Rear Wiper, Very rare UK RHD, extensive service history. Fundamentally every invoice on every expenditure Over the past years, and confirm matching numbers engine/chassis/interior and Colour. Bodywork is in excellent condition.

1977 - PORSCHE 911 CARRERA 3.0 LTR COUPE (METALLIC ICE GREEN) 120,000 Miles
5 Speed Manual, Ice Green Metallic, Black Leatherette, Sparco Race Seats, Chrome Trim Rear Spoiler, Electric Sunroof, Rear Wiper, Very rare UK RHD, extensive service history. Fundamentally every invoice on every expenditure Over the past years. Porsche Authentically certificate confirm matching numbers engine/chassis/interior and Colour. Bodywork is in excellent condition.

1973 Jaguar E-Type Roadster Series III AUTO 25,000 Miles
finished in Carmen Red with Black hide interior and Crema soft top, Automatic transmission, stereo system. The finest Chrome wire wheels. Chrome exhaust system, Previous owner over the 32years, totally restored to a very high standard. Total miles is 25,000. Fortune spent on restoring this superb E Type drives like new. This car is just amazing.

1962 - JAGUAR 3.8 MARK II AUTOMATIC LHD (BLACK) 16,000 Miles.
Automatic Black Coachwork Red Leather Interior Power Assisted Steering Wire Wheels Recent Restoration To Virtually Concours Standard

1936 - BENTLEY 4 1/4 PILLARLESS COUPE (MIDNIGHT BLUE)
Grey Leathr Gurney Nutting Coachwork 1 Owner 40 Years Extensive History A True Classic Completely Original Throughout & Has Been Exhibited At Luois Vuitton Concours D'Elegance In Paris 2003. Sunroof Produced By Gurney Nutting Chassis Completely Original Throughout

2008 LAMBORGHINI MURCIELAGO LP640 (RED METALLIC) 14,000 Miles
This extremely rare and beautiful supercar; Rosso Andromeda, e-Gear, KENWOOD CD CHANGER, Cruise Control, Ceramic Discs and Brembo Calipers, Carbon Fibre Interior Pack, Carbon Fibre Door Entry Panels, Carbon Fibre Engine Cover, Climate Control Air Conditioning, Xenon Head Lights, Glass Engine Main Cover, Front Axle Lift, Rear Camera, 18" Murielago Wheels, Full Lamborghini Service History, Lamborghini Car Cover, Immaculate Condition Throughout

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HOPE SPRINGS ETERNAL

The further you delve into Porsche's first water-cooled flat-sixes, the more you begin to marvel that the things ever work at all. Run they do, though, and with some relatively straightforward – if not inexpensive – after-market re-engineering they can be rendered as reliable as any. Chris Horton continues what has evolved into a three-part investigation into Porsche's M96 and M97 engines; photos (mostly) by the author



The story so far: last month we looked at the overall structure and basic history of Porsche's ingenious but by many accounts fatally flawed M96 and M97 engines – as used, in one form or another, in most of the company's sports cars from 1996 to mid-2008. We excluded the broadly similar but in detail substantially different units from the 911 Turbo and GT2, and also the naturally aspirated GT3.

In 2008, for the 2009 model year, there began, in the Gen(eration) 2 987 and 997 engines, and continuing even now in the Gen 2 991s, what you might call a process to revive a design ethos harking back to the generally much longer-lived – but certainly not everlasting – air-cooled flat-sixes. (With the obvious exception of those engines' primary cooling medium, of course. Sadly but inevitably, cooling by air alone is long gone.)

We attempted to balance the commonly perceived picture of widespread – if not necessarily universal – and surprisingly diverse failures of those earlier units with the essentially anecdotal but none the less graphic evidence of two high-mileage 986-model Boxster 2.5s. (One of which, we have since been informed, is still running reliably with more than 200,000 on the clock. More on that next month.)

We also saw how two more or less identical 2003-model 996 Carrera 4Ss had suffered from what appeared to be eerily similar intermediate-shaft (or IMS) bearing failures, but of which at least one was practicably repairable – in the short term, at least – without stripping the engine. And that led us to an exploration of first why these IMS bearings fail, and then what you can do about that particular issue. More on the second and what proved to be the – so far – rather less satisfactory case on page 89 at the end of this story.

This part of the saga, then, is where it all begins to get a little more complicated. Or a lot more complicated. Google 'Porsche cylinder bores', for instance, or any similar combination of related terminology, and you will immediately get well over half a million results – and, one might glibly suggest, well over half a million conflicting and certainly vociferously expressed theories and opinions, as well as a similarly confusing number and variety of possible solutions. Very soon your head will be hurting.

But can it really be that big a problem? Pistons have been going up and down, or in Porsche flat-sixes backwards and forwards, in cylinders for a very long time now – the internal-combustion engine was invented in the mid-19th century, and steam engines have been around since about the early 18th century – and by and large without

presenting any fundamental or apparently insurmountable problems. Just what is it about these water-cooled engines that so suddenly and completely put such a cliff-like slope on the once level playing-field? And is it inevitable that yours will go the same way as seemingly so many others?

Our own view, which we happily share with Barry Hart of well-known independent specialist Hartech – indeed, it is largely Barry who has helped us, we believe, to begin to understand many of the underlying issues – is that the current situation is due mostly to a combination of possibly cost-compromised design and material choices, high operating temperatures and pressures, and not least the expansion and clearance issues that almost invariably result from such large-diameter pistons. Lubrication is key, too, of course – and arguably even the chemical composition of modern fuels has its part in the overall drama.

It is probably no coincidence that what appears to be the most reliable of any of these engines is the modest 2.5-litre, 204bhp unit from the first Boxsters – as hinted at earlier – and arguably the least

reliable the 3.8-litre, 355bhp motor from the Gen 1 997 Carrera 'S'. (Although that doesn't necessarily take into account the latter's higher production and now survivor numbers.) Remarkably, both cylinder blocks have the same external dimensions – which means, if you think about it, that the 3.8 must have rather less space inside it for things like coolant. (And which suggests to us that 4.0-litre conversions might be pushing your luck just a little too far.)

A complete explanation of the science behind these engines, and their well-documented failures, would take many more pages than we have here, and someone rather better qualified than this writer to fill them. And we don't doubt that at least some of what we suggest will earn howls of protest, disbelief and even derision from some quarters. (And it wouldn't be the first time that we have been accused of 'talking down' the values of the affected vehicles. No! We are just telling it like it is.)

The theory as explained to us sounds entirely plausible, however, and the no less inescapable fact is that the solutions put forward by Hartech – and a number of other

independents, to be fair, although few, if any, can have done even a fraction of the R&D work carried out by Barry and his team – do appear to deliver good results.

Whether, as a result of all that effort, Porsche's water-cooled flat-sixes can begin to enjoy the same iconic status as the air-cooled 'Mezger' engine – which itself wasn't universally the paragon of reliability some imagine, we would suggest – remains to be seen. Personally, we think that they could and they should, not least because the air-cooled cars are becoming increasingly inaccessible to the ordinary enthusiast, and the water-pumpers, by virtue of their so far relatively poor reputation, ever more affordable.

And also because, thanks to the development work lavished upon those latter models by that small army of dedicated independent supporters, the survivors are slowly but surely not only coming good, but are likely to remain so – although that will, of course, start to exert the usual upward pressure on residual values. Either way, there is, indeed, light at the end of the tunnel; hope for the future.

Below, from left to right: 'D'-chucking (so called because of the shape of the broken piece of cylinder wall) was often so predictable that the fragment from one engine would fit almost perfectly the space in another. This photo was shot in 2005. Clearly this bore is about to let go. In truth, this piston (middle photo) was destroyed by a broken valve head, itself thought to have been the result of a valve seat becoming dislodged, but either way the result was a catastrophic engine failure. Simple two-plane measurement with a dial gauge will usually show cylinder bores wearing very slightly oval

THE GREAT CYLINDER-BORE ISSUE...

Back in the good old days – let's say before about the late 1970s – the vast majority of mass-produced car engines had cast-iron cylinder blocks, and pistons made from some kind of lightweight aluminium alloy. It was a cheap, simple, effective and usually long-lasting combination. Or long-lasting enough, anyway – and then easily reconditioned for another tour of duty, if necessary, by 'reboring' and fitting matching oversize pistons.

It was relatively heavy, too, of course, so gradually manufacturers with performance aspirations began to look for weight savings wherever possible, and an aluminium-alloy cylinder block was one of the most obvious solutions. Porsche itself had faced and dealt with this issue back in the early 1960s, when it was designing a lightweight six-cylinder replacement for the iron-barrel 356 engine.

But aluminium is relatively soft, and would quickly be worn away by the harder piston rings. Certain manufacturers opted for some kind of ferrous sleeve or liner, then, generally cast directly into the cylinder block itself. Probably the classic British example is the Rover V8 of the late 1960s and beyond, but there were a number of others.

Porsche, for its part, eventually adopted for the (air-cooled) 911 a material, or perhaps

more accurately a process, called Nikasil. Patented by piston manufacturer Mahle, this is essentially an amalgam of silicon carbide dissolved in a special nickel-based solution – hence the name – and then electro-plated onto the aluminium-alloy cylinder wall(s).

The piston rings rub through the nickel, leaving a hard and obviously microscopically thin layer of silicon carbide to protect the aluminium against further abrasion, and the aluminium piston from direct contact with the cylinder. The resulting working surface is very durable, and no less crucially allows relatively tight piston-to-bore tolerances for improved engine efficiency and performance.

The only major downside – apart from the cost of the process – is that because the hard particles of silicon carbide are so small it is impossible to create the necessary oil-retention recesses between them during manufacture (it is that oil that ultimately prevents the two surfaces from destroying each other), and instead this has to be achieved by a specialised honing process during manufacture. The resulting surface is known as oleophilic; that is to say it has a strong affinity for oil.

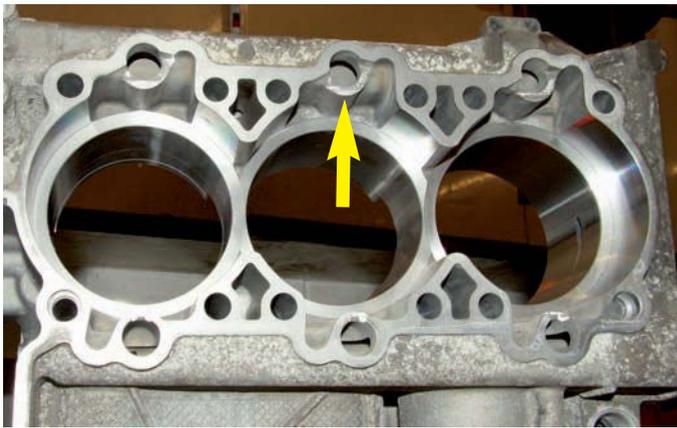
Nikasil was deservedly popular among a number of engine manufacturers well into the 1990s – and the last air-cooled 911 Turbo, with

Nikasil cylinder bores, was built as recently as 1997. (Both the 996 Turbo and GT2, and the naturally aspirated GT3, all widely considered to be paragons of virtue next to the equivalent mainstream models, have Nikasil-plated cylinder bores. Go figure.) Gradually, however, nickel came to be seen as an environmentally hazardous metal, and began to be replaced by a material known as Alusil. It was also becoming apparent that a Nikasil surface could, under certain circumstances, be eroded by the by-products of the sulphur found in modern and certainly lower-quality petrol. BMW, for instance, had a particular problem with some E39 5-series engines.

Alusil had been invented and developed by Kolbenschmidt in Germany as long ago as the 1920s, and is what is known as a hypereutectic (don't ask...) aluminium-silicon alloy. When suitably etched this leaves behind a hard silicon precipitate that in very simple terms is also sufficiently porous to retain oil, and thus makes an excellent bearing (or cylinder) surface. Porsche used it for the cylinder blocks of the 928, 944 and 968 engines.

Alusil can be a somewhat wasteful material for an entire engine block, however: difficult to cast, and later to machine-finish and to drill, and thus more expensive. Kolbenschmidt's





answer was Lokasil, which as its name might suggest is basically a rather more localised application of a silicon-based cylinder-manufacturing technique within a cylinder block that can as a result be made from a softer and less specialised material.

To describe and/or understand the process fully is probably way beyond most of us without a degree in metallurgy, but essentially it begins with special cylindrical 'pre-forms' containing tiny silicon fibres bound together by a synthetic resin. These pre-forms are accurately positioned within the mould for the cylinder block, which is then injected with molten aluminium alloy under very high pressure – typically 900–1000 bar, says Barry Hart. Unsurprisingly this melts the synthetic resin, and the voids thus created between the fibres become filled with aluminium.

Lokasil was successfully used for first 986 Boxster and then 996 Carrera cylinder blocks, in conjunction with special ferrous-coated pistons, from the start of production in 1996 and 1997, respectively. There was some early evidence of cylinder cracking and so-called 'D'-chucking, both leading to coolant ingress to the combustion chambers, but crucially little or no sign of the bore scuffing that would later

characterise the larger-capacity 997 engines. 'The cracks were caused by the pressure exerted by the thrust faces of the pistons pushing against essentially unsupported cylinder bores,' suggests Barry Hart. 'The resulting flexing and distortion made the latter gradually become very slightly oval in shape, and eventually the forces exceeded the elastic limit of the relatively brittle material.'

Meanwhile the scuffing problems first started, it seems, when for reasons that are not entirely clear the process by which the necessary ferrous coating was applied to the pistons to allow them to run in Lokasil bores was allegedly banned in Europe, and a special 'plastic' coating had to be adopted instead.

At about the same time, ever-larger cylinders were bringing with them problems of maintaining the required piston-to-bore clearances within the inevitable constraints of differing rates of thermal expansion and contraction. Overall piston thrust loads were increasing, too, as the natural but unintended result of many drivers giving large-capacity and thus inherently torquey engines wide throttle openings in a relatively high gear, particularly in those cars with an innately 'lazy' Tiptronic transmission.

Either way, the inevitably quite soft plastic coating could quickly be worn off the piston skirts, and the relatively larger particles of the silicon precipitate that were simultaneously scrubbed off the cylinders were too big safely to be carried away by the lubricating oil, rapidly leading to still further damage.

It was the classic vicious circle, compounded by the engines' so-called open-deck design (which, as we suggested a moment ago, offers no support to the tops of the cylinder bores, and thus allows them to become oval and eventually to crack), and their arguably marginal cooling, which inevitably limits the effectiveness of the protective oil film between all of those increasingly hard-working surfaces.

And no less a problem in this context, according to Steve McHale at JZM in Hertfordshire, was the erosion of the pistons' naturally more highly stressed thrust faces and the matching areas of the cylinders that came from what was then the increasing use of ethanol in petrol – essentially a repeat of the earlier Nikasil/sulphur problem. It was, in short, a recipe for something rather less than complete success; a classic example of the law of unintended consequences. It was obvious that Something Would Have To Be Done.

This Hartech block, above left, is a work in progress, but clearly shows how in all these conversions existing cylinders are first machined out, down to the base of the coolant chamber. This view also shows the company's mods to the six peripheral coolant pathways between block and each head (just one arrowed), allowing what it claims to be improved flow around the cylinders. Hartech sleeves, liners, cylinders – call them what you will (above) – uniquely have ribbed outer walls for increased surface area, and thus improved cooling; note also integral bracing elements around their upper ends. The sleeve on the far left was an early trial to see if additional securing points were needed – they were not. Below, left to right: early pistons have just enough ferrous coating to exert a slight but measurable pull on a magnet. Later pistons are essentially plastic-coated; again Hartech has experimented with various types. Simple steel liners offered by some local machine shops, but can themselves rotate and/or drop. This rather crude welding shows one way of trying to make them stay in position...

...AND SOME LONG-TERM SOLUTIONS

And something was done, too. It was two well-known UK Porsche specialists, Autofarm and Hartech, who first came to the rescue of the owners of stricken M96 and then M97 engines. More recently US-based company LN Engineering, well known for its innovative IMS bearing upgrades, has begun offering its own Nickies-branded replacement cylinders and reconditioned cylinder blocks.

Autofarm's Silsleeve conversion was originally developed primarily to overcome the earlier problem of cylinders cracking, rather than the later scoring, the former often so remarkably consistently that the resulting 'D'-shaped chunk from one failure would fit almost exactly in the equivalent space from another. See the photograph on page 83.

A Silsleeve installation – which is naturally a highly specialised process – involves machining out of the block the entire Lokasil 'spigot' that forms the affected cylinder(s), and then pressing in and firmly securing a specially made Nikasil-plated light-alloy or steel replacement. (The former material for standard bore sizes, the

latter where an increase in capacity is required.) Both types of these new cylinders – always fitted as a set of six – have the further refinement of a separate but closely fitting ring around their top edges, to brace the cylinders against the block, and thereby help prevent further cracking. Wherever possible the pistons are Teflon-coated and used again (obviously the cylinder is subsequently precisely bored and/or honed to suit), with new piston rings suitably treated to run reliably against the Nikasil surface.

Silsleeve can also be used where – more commonly in later and larger-capacity engines, such as the 997's 3.8 – the liner is for whatever reason merely scored rather than actually cracked. (Although interestingly the company's preferred method for dealing with that particular problem, where technically feasible, is today to electro-plate a suitably 'thick' Nikasil coating – just a few thousandths of an inch – and then to hone the bore back to size.)

'Actually, we don't see too many cracked cylinders these days,' says Autofarm engine technician, Matt Wiltshire. 'That was mostly

a problem in the earlier and smaller-capacity M96s. And scored bores are pretty rare in those engines, too. It seems to be the 3.8-litre M97 that now suffers the most from scuffing.'

'Often we can reclaim a scored bore by having the damage Nikasil-plated and then honed back to the size required, but Silsleeve always remains an option, and especially where an owner wants to improve the engine rather than merely to repair it. Capacity increases are a possibility, too. Both the 3.2 and the 3.4 can be taken to 3.7 litres, and the 3.6 to 3.8.'

As a rough guide – and more details are available on the company's website, or direct from its Oxfordshire HQ – expect to pay around £3000 for a standard-capacity Silsleeve block with Nikasil-plated light-alloy cylinders, or £5000 for oversize bores in similarly Nikasil-plated steel cylinders; Teflon-coated pistons are about £150 each. Nikasil-plating an otherwise standard block would work out at around £3000. In all cases the engine will have to be stripped and then rebuilt, of course, so despite the added cost it would make little sense to have



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ARE YOU FAMILIAR WITH THE IMS FAILURE?

It's a common problem that could
cause a catastrophic engine failure
on all Porsche engines from 1997-2008

*excluding GT3 and Turbo models

THE BEARING
IS NOT THE
PROBLEM;
IT'S THE LACK
OF PROPER
LUBRICATION.

PATENT PENDING



Direct Oil Feed (DOF):

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available for the 997 and 987 models with
the larger IMS bearing.

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anything less than a full overhaul and upgrade carried out – including the IMS bearing. All of which Autofarm will happily tackle.

Hartech's approach to the great M96/M97 cylinder-bore problem, conceived, designed and developed from around the late 1990s by successful former engine designer Barry Hart, in conjunction with a specialist supplier of top-quality Nikasil-plated cylinder castings, is naturally broadly similar, but at the same time incorporates a number of Barry's own thoughtfully engineered refinements. Significantly, all machining and installation – and subsequent engine reassembly – are carried out in-house in Bolton, Lancashire.

(It is, as we suggested last month, an extremely impressive set-up: organised on a production-line basis for high efficiency and low

cost, with the unsurprising result that Hartech has deservedly become almost the default supplier for M96 and M97 expertise and repairs. The place is awash with engines from around the UK and the rest of the world, and from both individual owners and other Porsche specialists. The company carries a good stock of second-hand spare parts, too, although understandably it does prefer to keep those for use within its own commissioned rebuilds.)

Chief among those refinements for the cylinders is first the use of an aerospace-grade high-silicon alloy – of Barry's own choosing – for maximum strength and durability, and second an integral 'top hat' at the upper end of each casting to brace its outer wall firmly against a precision-machined recess in the block, and thereby help prevent cracking. 'It creates a more rigid closed-deck design,' says Barry. 'Our cylinders also have a ribbed outer wall to increase their surface area for better cooling.' Additionally Barry has done a great deal of painstaking research on different piston coatings. It is a truly holistic approach.

Hartech's prices are remarkably competitive, too, we believe. Option 1 – in this example for a full 997 3.8 strip and rebuild, with one new cylinder and one new piston (including removal from and refitting to the car, plus new fluids,

there by transporter), have a full stripdown, rebuild and installation, and drive it out again. Inside will be six new Nikasil-plated cylinders, six recoated pistons (supplied on an exchange basis), new timing chains and guide rails, new crankshaft bearings, new seals and gaskets throughout, and overhauled cylinder heads with new spark plugs. Even a new air/oil separator.

For post-2006 vehicles, already fitted with the larger-diameter IMS bearing, that will cost just £7500, and for earlier models with either of the two smaller-diameter bearings from £8200, both figures excluding VAT. (In other words, the fit-and-forget IMS upgrade is costing you about £700 plus VAT.) That is still a pretty hefty sum of money by any standards, but given that a Porsche in need of the above work is probably immobile and, therefore, effectively useless – if not worthless – then we can think of no more painless a solution.

LN Engineering in America offers a broadly similar method of replacing failed cylinder bores, using its well-known Nickies 'sleeves' (although as in both the Autofarm and Hartech solutions they are, in fact, complete replacement cylinders, again plated with what amounts to a proprietary Nikasil equivalent), but interestingly retains the open-deck construction – no supporting ring or 'top hat' at the top of the bore, in other words – for what the company argues is optimum coolant flow.

You will have to look at its busy website – packed with many other upgrade parts for both water- and air-cooled 911s, including IMS bearings – for full details and prices, but suffice it to say here that all M96 and M97 units can be reclaimed in this way, and with prices for a 2.5 (including new JE pistons) starting at a competitive US\$4600 plus taxes. Here in Europe the company's products are handled by Fast Forward Automotive in Leverkusen, Germany (www.fastforward-automotive.com).

Another significant player in the M96/M97 world is JZM in Kings Langley, Hertfordshire, run by highly respected engineer and former racer Steve McHale. His own view, as we have suggested, is that the later problem of cylinder scuffing stems primarily from the corrosive effect of modern, ethanol-based fuels on the original Lokasil surface, which is naturally at its most severe between the harder-working thrust faces of the pistons and their bores.

'We have the cylinder blocks reclaimed for us by a company specialising in this type of work,' he says. 'They machine the damaged surface, and then plate it with a Nikasil coating before honing it back to the required diameter. We do this with every engine that we are asked to rebuild – these days usually 997 3.8s, of course – and have found the results to be very reliable. The total cost for a full strip and rebuild is about £8000 to £9000 depending on the precise specification, and obviously on the level of damage that we find inside.'

'We also recommend the TuneRS Motorsport direct oil-feed kit for the IMS bearing, and again that seems to have solved for us all of the well-known issues in this area. That costs £499 if it's installed at the same time as an engine rebuild, or £1160 or £1440 for manual or Tiptronic cars, respectively, if fitted individually. All of those prices exclude VAT.'

Autofarm was an early entrant to the M96 'industry', and we ran one of its Silsleeve engines in the writer's 996 project car 10 years ago. As far as we know it is still working perfectly. Conversion (above, far left) uses either a light-alloy or steel sleeve (hence the name), but here separate bracing rings to give what amounts to a closed-deck block. Some engines began with head gaskets that balanced coolant flow and thus cylinder temperatures, but Porsche later adopted one with the same size holes (arrowed) throughout: cheaper to make – allowing the same part number for both sides of the engine – but arguably another contributing factor in persistent overheating. Above: engines, engines, as far as the eye can see. Hartech's extensive premises are packed with units either awaiting attention or bought in to provide good, usable spares for certain key and otherwise costly and/or unobtainable components

“ It's Options 2 and 3, though, that for us represent the best value ”

cost, with the unsurprising result that Hartech has deservedly become almost the default supplier for M96 and M97 expertise and repairs. The place is awash with engines from around the UK and the rest of the world, and from both individual owners and other Porsche specialists. The company carries a good stock of second-hand spare parts, too, although understandably it does prefer to keep those for use within its own commissioned rebuilds.)

Chief among those refinements for the

air-con gas and testing) – costs £4275. Send up a 'long' engine alone – minus all ancillaries, but still with cylinder heads fitted – and you are looking at £2975. Single cylinders fitted to a customer-supplied bare block start at just £600. Note that all these prices exclude VAT.

It's Options 2 and 3, though, that for us represent by far the best value, and especially for those who not unreasonably cannot do any engine removal or installation work themselves. Drive your car in (or more likely have it taken



There is a significant and ever-increasing amount of good after-market hardware with which these ingenious engines can be given vastly improved reliability and longevity – such as this low-temperature thermostat from LN Engineering (near right), and an uprated radiator from another American company, CSF (far right). We shall be looking at the cream of the crop next month. All of the companies featured here are easily found via a web search



SO WHAT CAUSES ALL THE PROBLEMS, THEN?

It is all too easy to become bogged down in theory, speculation and even guesswork – educated or otherwise – when analysing the M96's and M97's well-documented shortcomings; to miss the wood, or in this case the solutions, for the bewildering abundance of trees. It is useful, though, to have at least a basic understanding of the issues behind the failures and, in some instances at least, to know what you can do about them for little or even no cost.

Probably the most important area is cooling. Modern engines are designed to work with coolant and oil temperatures of around 95–105 and 85–95 degrees Celsius, respectively. This generally equates to a piston-crown temperature of around 260–300 degrees Celsius, suggests Barry Hart. Higher-output engines are by definition more likely to be running near or at their upper limits in this respect – and also, in the quest for overall performance and fuel-efficiency, to be of essentially lighter construction.

Whether, in this case, the problem is compounded by the position of the power unit within the chassis is itself the subject of much debate, but it can't have helped. And it can be no coincidence that in the 911 the cylinder seemingly most likely to be affected by bore scoring (or scuffing, to give the problem its arguably more correct name) is number six – at the right-hand front corner of the unit but, by virtue of the way in which the pipework is set out, effectively the furthest from any of the front-mounted radiators.

There is nothing you can do to alter the

physical layout of car and power unit, of course, but you can make sure that everything is working efficiently. Keep the radiators clean, and free from leaves and other detritus sucked up from the road surface. Make sure that the electric cooling fans are operating correctly. Their activation and then speed is controlled by a so-called ballast resistor apiece, and these often fail, unnoticed, in such a way that the fan cuts in, albeit at a higher velocity, only after the coolant temperature has begun to reach dangerous levels – and by which stage the radiators can only ever be playing catch-up.

It goes without saying that there should be no leaks in the cooling system, but sadly that is increasingly not the case as the cars age and pass down the maintenance 'food chain'. The essentially push-fit and then spring-clip-secured unions between sections of underbody hoses and pipework often corrode, and when they let go can dump all the coolant within just a few seconds. Game over.

No less pernicious are the slow leaks that result in either a permanently and possibly dangerously low coolant level or, because of frequent topping-up with plain water, a dilution of the corrosion-preventing anti-freeze within it. Plastic coolant header tanks are another common source of leaks. They crack – but usually underneath, where you won't readily spot the damage. Thanks, Porsche.

The composition of the coolant itself is critical, too. Regular readers will know that we are enthusiastic proponents of Evans Waterless Coolant, which with a boiling point

of 180 degrees Celsius (and by definition no water within it) helps to prevent the formation of pockets of steam in low-pressure areas deep inside the cylinder block, and thus to avoid localised overheating. (And any reduction in operating pressure, perhaps as a result of that slow leak we talked about, will naturally reduce the boiling point of any ordinary water-based coolant.)

By the same token using EWC also significantly reduces stress – and thus the risk of eventually bursting – on the rubber hoses and their connections, which with water-based coolants can become pressurised to as much as 2.0 bar. With EWC you could conceivably run with no cap on the coolant tank if you wanted to. EWC is also both non-flammable and, perhaps most crucially for those with children or animals around, non-toxic.

A number of the specialists that we know and respect – including Northway and RPM Technik – have started using EWC, although others still favour the standard (and somewhat less costly) Porsche stuff. 'We began using it in our racing programme,' says Barry Hart, 'and it worked perfectly, but it is inherently rather "oily", and I was always concerned about the effect of a potential spillage on the circuit as the result of, say, a collision. Needless to say, that's the only thing that would cause one of our cars to leak! I do like the fact that it doesn't need to be pressurised to maintain its high boiling point, though.'

Meanwhile Robin McKenzie at Auto Umbau argues that the ordinary Porsche coolant is more than adequate – provided it is changed

If, as seems highly likely, it is a lack of cooling that can be one of the M96's and M97's Achilles' heels, then plainly it is only sensible to make sure the cooling system is in good shape. Change anti-freeze regularly – or better still, we suggest, use Evans Waterless Coolant, which can also help to relieve large pressure changes on hoses, joints and so on. Those connections (right) need regular attention, too, and correct repair if necessary – not just a worm-drive clip like the one shown here. Coolant header tanks (middle) are prone to cracking, it seems, but often from below, where you might not spot the problem until it's too late. Whether or not overheating leads to cracked heads is debatable, but it can't help – and it may be what leads to valve seats dropping out (see again middle photo on page 83)



at the recommended intervals. 'Trouble is,' he says, 'people never do. We have seen several cars – including my own 3.8, just after I bought it – with a sort of horrible, jelly-like substance inside the pipework, which forms as the corrosion-inhibiting properties of the coolant diminish over a period of time.'

Simple logic suggests that additional cooling capacity for these engines can only ever be beneficial, but surprisingly Barry Hart urges caution. 'The biggest problem is that here you have a range of high-performance sports cars, all designed to operate anywhere in the world, whether crawling along in heavy traffic, cruising on a light throttle out on the open road, or sometimes – and for the majority of people it is only sometimes, if ever – flat-out on a circuit. But all of those situations bring with them their own cooling issues, and it is almost impossible to solve them with a one-size-fits-all solution.'

“ Logic suggests that additional cooling can only ever be beneficial ”

'People have latched on to the so-called third radiator – and it is certainly a relatively simple method of boosting the cooling capacity – but what you have to remember is that Porsche fitted it to Tiptronic cars, and then to the GT3 and the Turbo, purely to deal with the additional heat put into the cooling system by the automatic transmission, and in the case of the GT3 and Turbo their likely circuit usage. In many day-to-day road cars it has exactly the opposite effect on engine temperature to the one you actually want.'

'It's all very well reducing the temperature of the coolant flowing back into the cylinder block,' Barry explains, 'but if the system is to remain in balance it means that you have to put more heat into it in the first place. That's just basic physics. So what happens is that the thermostat – which for some odd reason Porsche placed in the return line from the radiators to the engine, instead of between the engine and the radiators – shuts down to reduce the flow. And so cylinder six – the last one the coolant reaches before exiting the block – runs closer to the temperature at which the protective oil film between the bore and the piston starts to break down.'

Unsurprisingly, then, Barry doesn't recommend a third radiator, or even uprated corner radiators, unless the vehicle is going to be driven particularly hard and/or in very hot climates. Or, if you must have this belt-and-braces approach – and there will always be the odd occasion when it genuinely saves the day – to do so only in conjunction with one of Hartech's soon-to-be-available additional thermostat kits.

'Then the third radiator will be in the circuit only when it's absolutely necessary,' says Barry, 'and you really would have the best of both worlds.' (Interesting to note, of course, that the latest Gen 2 991s have not only ferrous-coated cylinder bores, but also a number of thermostatically activated flaps to regulate the flow of air through the radiators, in practice a rather more effective way of controlling the engine's temperature than a conventional coolant thermostat alone. See pages 44–51 of the November 2015 issue.)

Barry Hart does, though, recommend a so-called low-temperature but otherwise standard thermostat. 'The worst-case scenario for these engines seems to be after a fast run in hot weather, followed by a short period with the car stationary – at traffic lights, for instance – and then another "spirited" getaway. Low coolant flow and heat soak can between them significantly increase the engine's core temperature – especially in cylinder bank two, which is usually where the scoring occurs. Then you pull away, demanding high torque from the engine at low revs, and again the thin oil film allows that dreaded scuffing effect to take place.'

'Lowering the overall thermostat setting – which Porsche had avoided because of its possible effect on exhaust emissions – reduces both the overall coolant and engine temperature, such that when you suddenly stop for a short time there is less heat

available to soak into the block, and thereby raise its temperature to danger level. And, then, if things do start to get too hot, the thermostat opens more quickly. Think of it as a kind of safety valve.'

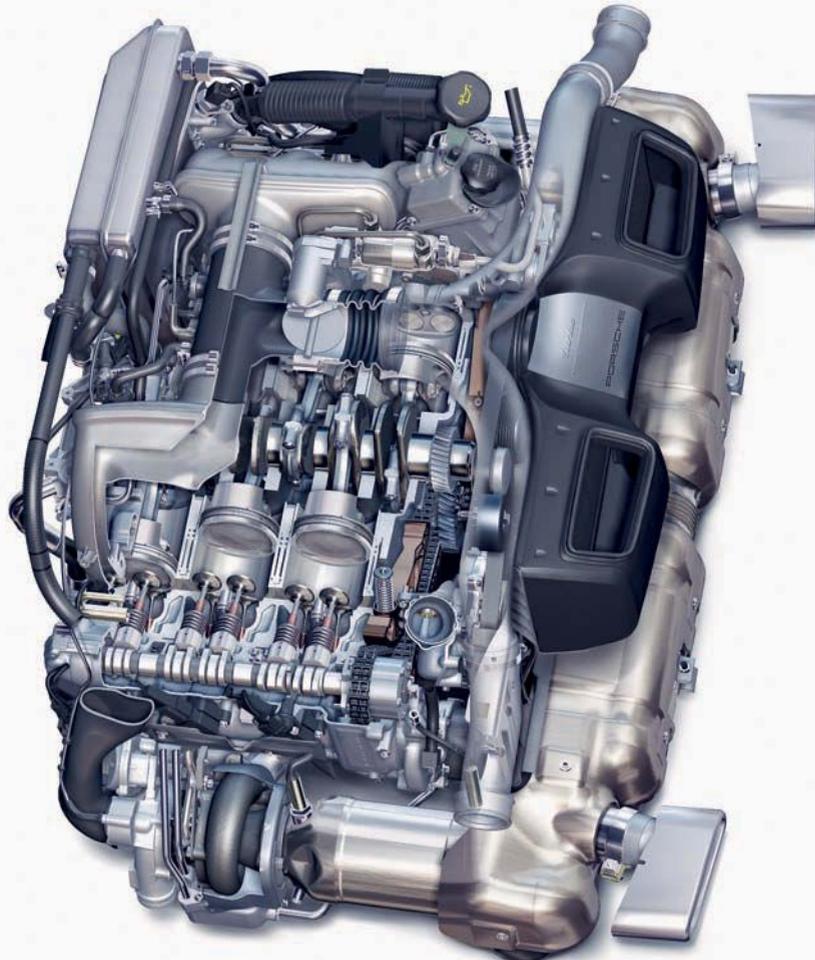
Barry is no more enthusiastic about a number of the other features of the engine's layout. 'There are some really great ideas inside it,' he readily concedes, 'but they look to me as though they were dreamed up by a team of young and relatively inexperienced

designers, who perhaps didn't have the authority and certainly not the budget to make them as effective as they could and undoubtedly should have been.'

He cites as an example the overall flow of the coolant through the cylinder block and heads. 'Unlike in previous liquid-cooled Porsche engines – the 944, for instance – only around 15 per cent of the coolant is directed through the cylinder block and heads. What's more, it flows in such a way that the thrust faces of the cylinders and pistons in bank two can routinely run quite a lot hotter than those in bank one. We know because we have driven several test engines fitted with very accurate sensors to find out exactly what is going on inside them. The heat reduces the viscosity of the protective film of oil between the cylinder and the piston, and increases the chances of scuffing – which, as we all well know, is most prevalent in bank two.'

Cylinder-head gaskets further compromise the situation. 'The ones Porsche used up to and including the 3.4-litre 996 had different-sized holes to control the flow of coolant in the three cylinders in each bank, so that all had the same flow rate past them, irrespective of their position. But because the coolant entered at the same end of the engine – with the heads reversed – that required two different head gaskets. One for each side.'

'The Cayman 3.4, and then the 3.6- and 3.8-litre 996/997 engines, eliminated the need for two different head gaskets by having the same size of hole in each cylinder-head feed – making the more powerful engine thermally less well balanced.' The answer, it seems, is a simple Hartech modification to machine away some of the metal around the waterways at the 'top' of each cylinder block. It's just a shame that Porsche didn't see fit to bother.



Like the mainstream M96/M97, the engine fitted to the Turbo, GT2 and GT3 models is a water-cooled flat-six (left), but seems to suffer from few, if any, of the same problems. That is due in part to its 993-derived crankcase, with no intermediate shaft, as such, and thus no IMS bearing, but almost certainly also to its Nikasil-plated cylinder bores. Notably the Gen 2 997 engines did away with the IMS, and the Gen 2 991s have ferrous-coated bores. As we have suggested, then, maybe there is hope for the future

BAD NEWS OR GOOD? OR PERHAPS A BIT OF BOTH?

Sometimes events come together in the most extraordinary fashion. Last month, you might recall, our how-to story about replacing a failed IMS bearing (pages 102–105) was by chance rather neatly juxtaposed with the first part of this investigation into the shortcomings of the M96 and M97 family of engines.

And at almost exactly the same moment that we were watching Porsche-Torque's Sid Malik at work on that stricken but amazingly still running 996 C4S in Uxbridge, Middlesex, Alun Morris's almost identical car – with what sounded like an identical problem, but most definitely no longer a runner – was being transported from his home in Belgium all the way up to Bolton in Lancashire.

There, in Hartech's large and well-equipped workshops, the engine would be removed from the car and partially dismantled. We would then drive up with camera and notebook, partly to talk to Barry Hart about the thorny subject of bore-scoring, but also to watch Alun's power unit itself being opened up for inspection and subsequent pre-rebuild assessment.

Sadly for Alun, it wasn't exactly good news. But then neither was it the catastrophically bad news that it so easily might have been.

Removing the relevant plastic plugs from the

cylinder heads, and looking at the ends of the camshafts, showed that the valve timing was only slightly misaligned, so maybe that would mean no bent valves, and encouragingly there was no sign of mechanical carnage beneath the camshaft covers – although worryingly one of the scavenge pumps was very stiff to turn, possibly due to the ingress of swarf.

Lifting the cylinder heads, however, revealed both a few faint but telling marks on several of the piston crowns and, although hard to see, a quartet of very slightly distorted valves. Plainly the timing had, indeed, slipped, almost certainly because the so far unseen IMS bearing had collapsed. But the majority of the valves had survived unscathed, and neither the six pistons nor, more significantly, either of the block nor head castings were damaged.

Interestingly there was no evidence of bore-scoring or cracking, either, although Barry later established that the cylinders were beginning to develop the all too familiar ovality. 'It probably wouldn't have been too long before they were unusable,' he suggested with a shrug.

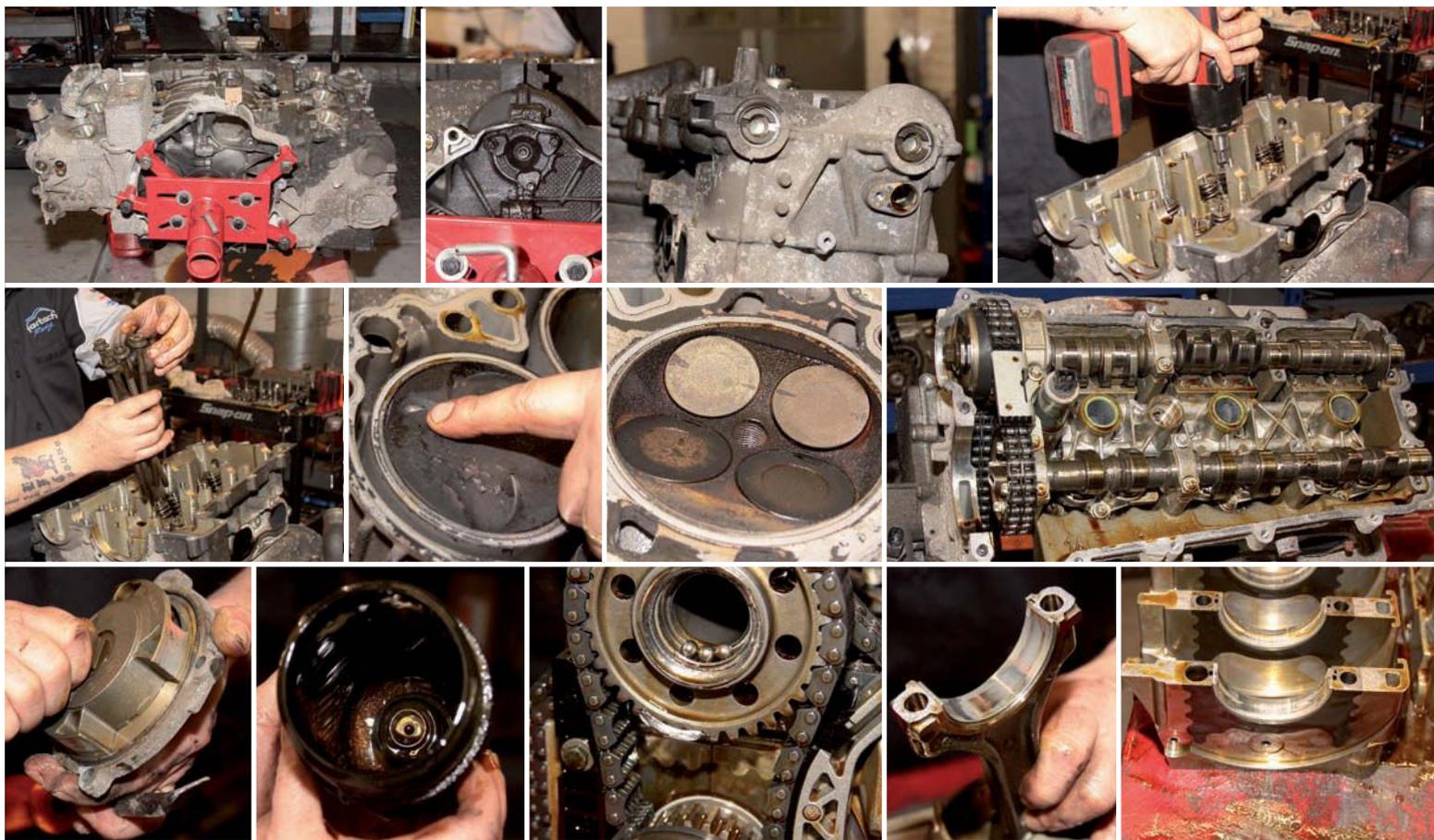
Subsequently separating the crankcase halves brought the by now expected view of a completely wrecked IMS bearing – we had already spotted the gold-coloured metallic

particles inside both the oil-filter housing and the sump – but fortunately the intermediate shaft itself appears to be undamaged (always assuming that the IMS bearing track can be removed successfully, of course).

Perhaps most disappointing, though, was the condition of the big-end bearings and, to a slightly lesser extent, the main crankshaft bearings. It plainly wouldn't have been long before they, too, rather like the oval cylinders, were worn through to the backing material – and this in a carefully maintained and driven car with fewer than 80,000 miles on the clock. 'And serviced only last March by Porsche,' says Alun, 'with no "advisories", and only about 3000 miles on the clock since then.'

So where to from here? That's still to be decided between Alun and Barry. But the former is adamant that he wants to get the car running again, albeit within the constraints of a real-world budget, and then to keep it for long enough to get his money's worth – and he is, let's face it, going to have to spend quite a lot of that. Either way, we shall be following the story as best we can from a distance and, we hope, showcasing the future-proofing upgrades that Hartech will so easily be able to incorporate to that end. Watch this space.

Hartech technicians Paul Hughes (that's him on page 82) and Lee Jenkyns had Alun Morris's C4S engine stripped to its component parts within little more than an hour – but then they have done it once or twice before, and they do have an armoury of power tools set up for the job. The problem, as we feared, was a failed IMS bearing that had allowed the timing to slip, and thus around four or perhaps five valves to 'kiss' the adjacent pistons. Crankshaft bearings were well past their best, though, so just as well we got in there when we did. More on the rebuild next time



INTERIM CONCLUSIONS

If there is, so far, any message to be gleaned from all of this mechanical mayhem, then it is probably that you have to buy and then run any M96/M97-engined Porsche on the basis that sooner or later the power unit is going to need major attention. Maybe a complete rebuild; either pre-emptive or, as so often seems to be necessary, in response to a major failure of some sort. Plan and budget accordingly, however, and have the work done properly, by a reputable company such as Autofarm, Hartech, JZM or LN Engineering, and it would be nice to think that, far from the engine's reputation continuing to detract from the car's residual value, you will actually be adding to it. A bit like re-roofing that classic country cottage, if you will.

Not that there is necessarily a great deal you can do to protect yourself when buying one of the potentially

affected cars. Overall condition, service history, and not least the current owner's driving style are always useful indicators, but seemingly still no guarantee of 100 per cent safety – just look at the tragic case of Alun Morris's C4S. Inspecting the cylinder bores with an endoscope might show if there is a problem in that area but, like scanning a foetus to determine its sex, can rarely be 100 per cent reliable. And the sad truth seems to be that scoring – generally indicated by high oil consumption and/or excessive smoke in the exhaust – might begin at literally any time thereafter. It's just the luck of the draw. All you can really do is to make peripherals such as the cooling system as failsafe as possible, to stack the odds in your favour.

Above all, perhaps, and assuming you manage to find a good one to start with, drive with due consideration to the car's 'weaknesses' – or perhaps just its inherited characteristics. That certainly doesn't mean that you

can't push the engine as hard as its designers undoubtedly intended – indeed, never going above 3000rpm can in some circumstances be just as bad as rarely driving below it – but you should always let it warm up thoroughly first, and by the same token cool down gradually after a fast run. Relatively few of us may be trained engineers, but it takes only common sense to have at least some mental picture of what is going on inside any engine in response to what you demand of it.

There remain one or two areas to look at in this massive story – if a job is worth doing then surely it is worth doing properly – so more in next month's final instalment on crankshaft bearings, cylinder heads and other peripherals. Plus – at last – our long-promised review of some of the after-market hardware available and with which, we believe, both the M96 and M97 can be world-beaters. Yes, it has been quite a ride – but then so is a water-cooled flat-six Porsche. **PW**



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FACT 2  Ceramic hybrid bearings only need 1cc of oil per minute.

FACT 3  The dual row bearings used in the Single Row Pro and Classic Dual IMS Retrofit have load ratings equal to similarly sized roller bearings.

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A BREED APART

Baron Fritz Huschke Sittig Enno Werner von Hanstein – known simply as Huschke von Hanstein or, better yet, the Racing Baron – turned the world of press and public relations on its head. Or rather, he invented it... By his own admission, he was born with a silver spoon in his mouth but, despite his privileged upbringing (or maybe because of it), he entered the world of motorsport and helped put Porsche firmly on the map...

Words: Keith Seume **Photos:** Porsche Archiv/Delwyn Mallett

Every now and then, you come across the story of somebody who seems to have done it all, the kind of person who, one weekend walks across the Sahara Desert, climbs a mountain the next while the following weekend he swims the English Channel. Oh, and to cap it all, he drives a new Porsche every day...

Huschke von Hanstein may not have looked down on the world from the peak of Everest, nor, indeed, did he swim the Channel (at least, not as far as we know) or even cross the Sahara on foot, but he seems to have done just about everything else in his lifetime.

Born in January 1911, Baron Fritz Huschke Sittig Enno Werner von Hanstein, to give him his (very) full name, was a

unique character in the annals of Porsche: racing driver, record breaker, team manager, PR expert. You name it, he did it, indelibly stamping his mark wherever he went.

Von Hanstein made no bones of the fact that he had a privileged upbringing, born out of the union of a Prussian cavalry officer and a wealthy noblewoman, a member of the Dippe family who happened to be the largest producers of seeds for the German farming industry. The young Huschke had a very formal upbringing, wearing military uniform at all times as a child and, doubtless, calling his father 'sir'...

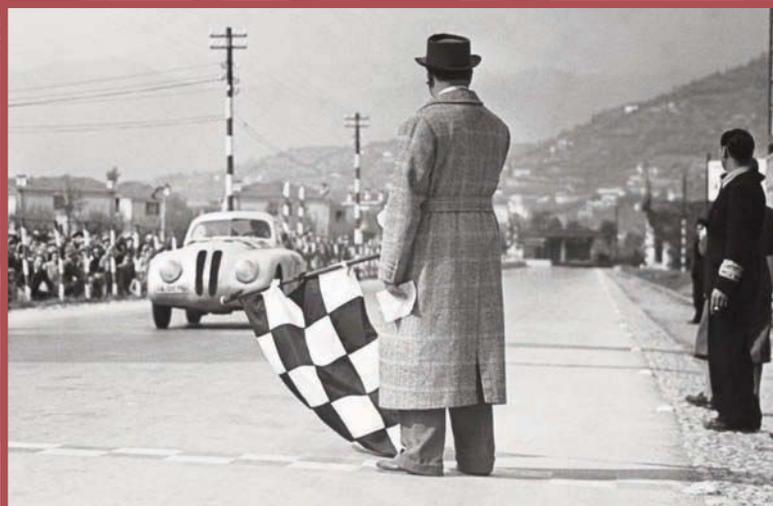
Life wasn't all bad, though, for before the outbreak of the First World War, he had already sampled the delights of driving a car, steering it along the driveway of the family home while sat on his father's lap.

After the war, the family moved to the von Hanstein estate at Wahlhausen-Unterhof, which dated back to 1308! There, the young Huschke learned to ride a motorcycle, buying a 250cc Triumph on his 18th birthday.

This news didn't altogether please his father, who got him a job at a large export company in Hamburg. There, the younger von Hanstein traded in his Triumph for a more powerful FN, with which he entered several long-distance rallies. It was only a matter of time before he won his first event, but his father still remained unimpressed.

Instead of congratulating his son and heir, von Hanstein senior offered him a choice of either going to England to study or continuing his education at a German university. Huschke chose the former,

Above: It is rare to see any photograph of Huschke von Hanstein without a broad grin on his face. It seems nothing could get him down...



booking his passage to the UK with his trusty motorcycle as company.

There he perfected the art of becoming an English gentleman, for he was a dyed in the wool Anglophile and loved everything about the traditional English way of life, wearing tweed jackets and a monocle at every opportunity. He also attended as many parties as his calendar would allow, went shooting, fishing and carousing...

His love of motorcycling took him to the Isle of Man for the TT races but, rather than take up road racing, he bought himself a BSA trials bike on which he entered the International Six Days Trial. On his return to Germany, still a firm lover of the English way

of life, Huschke von Hanstein entered several motorcycle trials on board his trusty BSA, his skills catching the eye of the Ardie team, who offered him a works ride.

Despite his successes on two wheels, he had his heart set on motor racing, becoming a works driver for Hanomag. You'd think that would be enough to keep anyone occupied, but von Hanstein continued riding motorcycles competitively, became an accomplished horse rider (he was German college equestrian champion) and also worked as a delivery driver for the Röhr car company. It seems the young von Hanstein's day consisted of more than the usual 24 hours, while his weeks must have

lasted at least eight or nine days...

Despite a serious accident that left him with a damaged shoulder, von Hanstein continued his motorsport career with Hanomag, entering the Rallye du Maroc, partnered by Walter Glöckler. This was to be no ordinary rally, for not only was it the most gruelling of the calendar, but he was also asked to spy for the German counter intelligence service, the *Abwehr!*

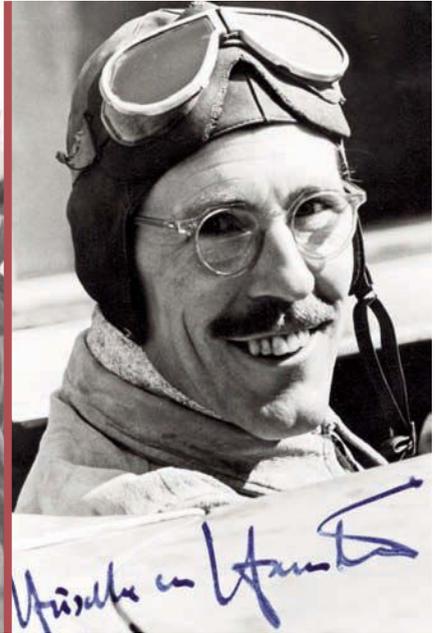
This was a time when Germany was falling under the spell of Adolph Hitler and his warped ideals, the only positive aspect of which was that a great deal of money was poured into motorsport as a consequence.

Back in Europe, von Hanstein's career on

Race victories came early in von Hanstein's life with BMW in the 1940 Mille Miglia and at the wheel of his own 328 (bottom left)

Below left: At the wheel of the second Petermax Müller Below: Carrera Panamericana 1954; left to right: Herbert Linge, Hans Herrmann, Huschke von Hanstein and Jaroslav Juhan





four wheels continued apace. He gave up rallying in favour of racing, driving an Adler at Le Mans, and would continue to drive for the team until the outbreak of war. When his father passed away, the 27-year-old Huschke assumed responsibility for the day to day running of the family estate and also took on a more serious role with his mother's seed firm. Oh, and he also bought himself a BMW 328...

Painted black, and bearing the registration number SS-333, the BMW also bore a large round 'SS' badge on the side, another emblazoned on von Hanstein's crash helmet. His racing overalls also bore the 'SS' insignia, for he had now been seconded into the SS and was granted the rank of *Untersturmführer*, or 'junior officer'. This was not as sinister as it might now seem, for many sporting luminaries were granted honorary status in the SS.

Von Hanstein had the opportunity to take his racing career to another level when he was offered the chance to take part in tests with the Auto Union racing team – the

legendary 'Silver Arrows'. Sadly, and much to his lifelong regret, Huschke didn't cut the mustard, sliding the powerful Auto Union off the road, not once but twice. Instead he continued to compete in his trusty BMW, winning the German Sports Car Hill Climb Championship.

Held on the famous Grossglockner pass, this event was a major occasion in the German motorsport calendar. There, he met up with Ferdinand Porsche junior (better known as Ferry) who was at the wheel of a prototype *KdF-Wagen*. Von Hanstein finished third in his class behind drivers from England and Romania but as the rules didn't allow anyone other than a German national to take the crown, von Hanstein was duly awarded the championship!

Interestingly, the English driver was A F P Fane, a shareholder of AFN Ltd, manufacturer of Fraser-Nash cars and BMW importers for the UK. The company would also later be the first official Porsche importer. Along for the ride was John 'Aldy' Aldington of AFN and the three became firm

friends, a relationship which was sadly curtailed by the war. Fane died in an air crash while serving as a pilot in the RAF.

Although Auto Union may not have rated von Hanstein as a driver, he continued to drive with some success. Indeed, as a member of the five-car BMW team, he won the 1940 running of the famous Mille Miglia at the wheel of one of the company's streamlined 'Superleggera' coupés.

Covering the 934-mile course (not quite the 'mille' promised by the event title) at an average of 103mph, von Hanstein had good reason to feel pleased. Not only was this the fastest average speed ever, but it was also the first time the event had been won by anything other than an open sports car.

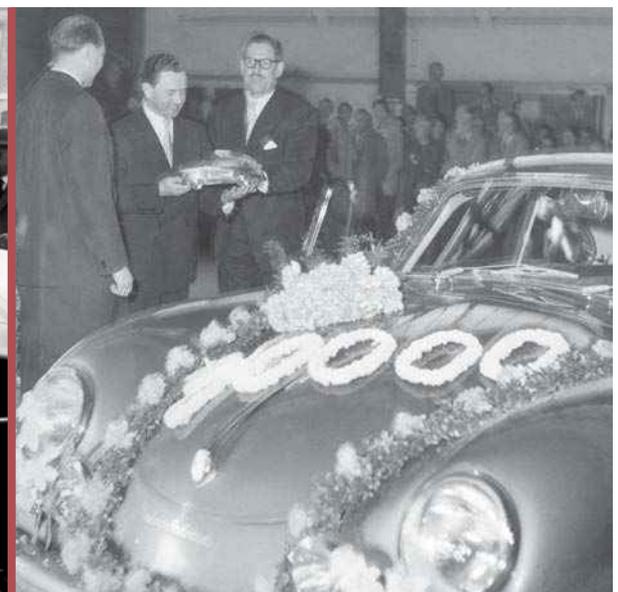
After the war (in which he was at first imprisoned by the Gestapo for 'fraternising', and then sent to the Eastern front...), Huschke von Hanstein was forced to leave his family estate, which now found itself in the Russian-controlled sector of Germany. He headed west to build a new life, befriending Petermax Müller, who became a

Above left: Le Mans 1953 and von Hanstein jokes with Herr Stubbe, race director for Dunlop Tyres. To von Hanstein's right is works driver Richard von Frankenburg

Above: With his waxed and twirled moustache, von Hanstein could have passed for an English gentleman. He was a proud Anglophile

Below left: Mille Miglia 1955 and von Hanstein turns his back on the mighty Mercedes 300SLRs of Kling and Moss

Below: Celebrating the building of the 10,000th Porsche in March 1956





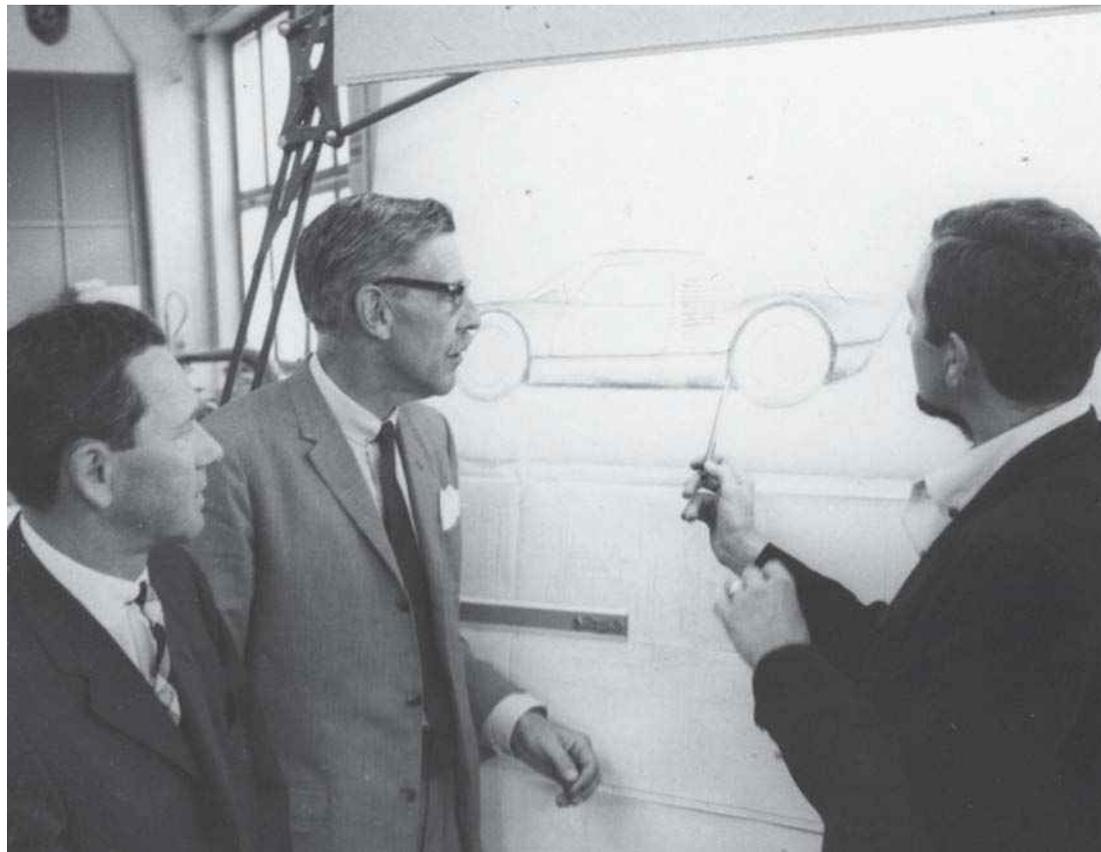
successful racing driver at the wheel of his self-built VW-based 'special'.

Müller built a second car, which he made available to von Hanstein and together, in 1950, they became the first post-war German team to run in the Targa Florio in Sicily. They finished 43rd overall, sufficiently impressive to be invited to enter the Mille Miglia.

In addition to the road racing exploits, Müller and von Hanstein also had a crack at doing some record breaking. The chosen venue was the banked circuit at Monthéry, near to Paris. Other drivers pulled in for the occasion included Helmuth Polensky, who had also built VW-based specials and who, later, would go on to open a Porsche dealership and become a member of the Porsche works rally team.

To complete the team line-up alongside Müller, von Hanstein and Polensky was Porsche dealer Walter Glöckler, whose own sports-racing cars were the inspiration behind the successful Porsche 550 Spyders. It was a veritable who's-who of the VW-Porsche racing world...

Von Hanstein soon realised that, although all this racing and record-breaking might have been fun, it was no way to make an honest living. He did have one other natural talent, however, with which he would make a major impact on the Porsche fraternity: generating publicity. Hard as it may be to understand today, but back in the early



Above: Discussing the design of the forthcoming Porsche 904. From left to right: Ferry Porsche, Huschke von Hanstein and Butzi Porsche

“ They became the first post-war German team to run in the Targa Florio. They finished 43rd overall... ”

1950s, there was no such thing as 'press and public relations'.

Manufacturers relied on word of mouth and some modest press advertising to spread the word about their products, but few companies ever used their race

successes as a way to sell their cars. All that was soon to change – at least as far as Porsche was concerned – and the credit can be squarely placed at the door of Huschke von Hanstein.

First, though, came a stint as sales

director for Vespa, the Italian scooter manufacturer. Von Hanstein organised various publicity stunts to spread the Vespa gospel, and soon found himself in a position to afford a new car: a Porsche. It was one of the first steel-bodied 356s built by the factory after its return to Stuttgart from Gmünd and would serve to give von Hanstein a way in with Porsche.

The young Baron continued his racing ways, driving a variety of sports cars, breaking a few records, doing some more stunts for Vespa and even driving in the Monte Carlo Rally at the wheel of a Beetle. Oh, and he got married, too.

By the end of 1950, it was becoming



Far left: Le Mans 1954 and von Hanstein stage manages the post-race photo session

Left: Reims 1954. Von Hanstein keeps a watchful eye from the pit wall as the 550 Spyder of Auguste Veuillet and Gonzague Olivier is refuelled



obvious that Germany wasn't quite ready for the little Italian-made scooter, so von Hanstein began to look for another outlet for his talents. And that's where the Porsche connection came in.

In 1951, he joined the company in a roving position that saw him tackle a whole variety of tasks. His principal talent lay in knowing how to schmooze with well-healed

— preferably titled — customers. Coming from a privileged background, von Hanstein knew how to break the ice with these people.

It was only a matter of time before his talents were appreciated by those high up in the company, most notably Ferry Porsche. Ferry was a quiet, almost shy, individual who while appreciating the benefits of publicity was too reserved — almost too

modest — to do much about promoting his company's products, or making the most of its successes in motorsport. Huschke von Hanstein was the perfect press and public relations contact, even before such a term had been 'invented'.

Von Hanstein's role was wider than ever, encompassing the aforementioned press and PR positions as well as assuming the position of race director. All this was in addition to his continued appearances on track, most notably with the Glöckler and one of the aluminium-bodied Gmünd Porsches back at Montlhéry. It seems that young Huschke enjoyed boundless energy.

His duties took him all over Europe, visiting wealthy customers and friends of Porsche, as well as shepherding the factory race cars at tracks all over Europe and as far afield as South America.

Success followed success and von Hanstein made plenty of hay while the sun shone, gaining plenty of 'column inches' in both the enthusiast and general press. He was persuasive, making sure that the best drivers got behind the wheel of Porsche products, and if there happened to be a vacant seat he was happy to step in to take care of the driving, or co-driving, duties.

In 1952 and '53, von Hanstein was the driving force behind Porsches appearing in a wide variety of events. In August '52, he co-drove with his old accomplice Müller in the Liège-Rome-Liège long-distance rally, using a Gmünd-built coupé. The partnership was victorious, although von Hanstein found the drive 'deadly boring, driving for three days and three nights straight through...'

Other events, such as the Rallye Soleil, from Reims to Cannes, were right up von Hanstein's street — what could be better than a long rally which ended up at one of the most glamorous of venues? He acted as manager to the all-female team of his wife Ursula von Hanstein and Ingrid Bretz, driving a 1300 356 Cabriolet. They finished second overall but won the Concours d'Élégance trophy, giving von Hanstein plenty to crow about in the press.

Le Mans loomed large in Porsche's calendar, too, although overall victory was

Above left: Nürburbring 1960. John Surtees in the driving seat with, left to right, Hubert Mimler, Jo Bonnier, Hans Herrmann, Wilhelm Hild, Herbert Linge and von Hanstein

Above: Stirling Moss (left) and Graham Hill in conversation with von Hanstein at the Nürburbring 1000km race in 1961

“ It was only a matter of time before his talents were appreciated by those high up in the company... ”



Left: Record breaking at the VW test track at Ehra Lessien, driving a 3.0-litre-engined Carrera RS in July 1973



out of the question (Porsche did not have a suitable car in the 356), class wins were there for the taking. In 1952, Veuillet/Mouche won their class at an average speed of 76.5mph – another newsworthy piece as far as the publicity-conscious Baron was concerned.

The following year, the 550 Spyder appeared for the first time, allowing Porsche to gain a one-two in the 1.5-litre class at Le Mans, with entries driven by Glöckler/Herrmann and von Frankenburg/Frère. Budgets were tight, though, and von Hanstein stepped in as a driver whenever necessary, although it has to be said that in general there was no shortage of drivers happy to step behind the wheel of one of the new Spyderys.

In November that year, von Hanstein headed across the Atlantic with driver Karl Kling at the request of Max Hoffmann, who had been instrumental in Volkswagen's entry into the USA. Two 550s were shipped over, for Kling and Hans Herrmann to drive. In their first race, the two cars dropped out with mechanical problems, but sights were set on the Carrera Panamericana, the legendary long-distance race across Mexico.

Von Hanstein's silver tongue helped Porsche benefit from some sponsorship from Fletcher Aviation, a California-based company which had been considering using

Porsche engines in its aircraft. Fletcher's name appeared on the cars, while the company also offered the use of a plane to transport von Hanstein from stage to stage. The team cars both dropped out but von Hanstein was still pleased with the exposure, especially as there were two other locally-entered 550s in the event.

In 1954, Hans Herrmann and Herbert Linge drove a 550 to a 1.5-litre class victory, and sixth overall, in the gruelling Mille Miglia. It was an incredible result, made all the better from von Hanstein's PR-biased point of view by the fact that Porsches also finished in the first four places in the 1600cc GT class. It was manna from heaven for the racing Baron.

Throughout the 1950s and into the 1960s, von Hanstein remained a larger than life character at Porsche, very much the public face of what had rapidly developed into a major player on the racing scene. His smiling visage appeared on innumerable photographs in press all round the world: sitting on the bonnet of a victorious car on the Carrera Panamericana, or waving to the crowds at Le Mans. Wherever Porsche went, so did von Hanstein.

Even when new brooms started to sweep clean at Porsche, the Baron managed to keep his place in the company as a roving ambassador. His role as race

director came to an end in 1968, though, his old school ways not fitting in with the new order, principally Ferdinand Piëch. But you can't keep a good man down, and von Hanstein's talents were still lauded by all who knew him.

He became the Sports President of the German Auto Club, and the German representative on the FIA. He continued to compete in rallying, most notably in an unwieldy Volkswagen K70 on the Monte Carlo Rally, and continued to show off his record-breaking prowess by driving Volkswagen's ARV (Aerodynamic Research Vehicle) to a new world record 224mpg in 1980, at the age of 69.

His love of motorcycling never left him, either, and he enjoyed touring and riding off-road machinery (for fun, this time) until late into his years. But finally time and old age caught up with him and the spirit of the racing Baron, as he was so widely known, departed this earth on 5th March 1996, aged 85.

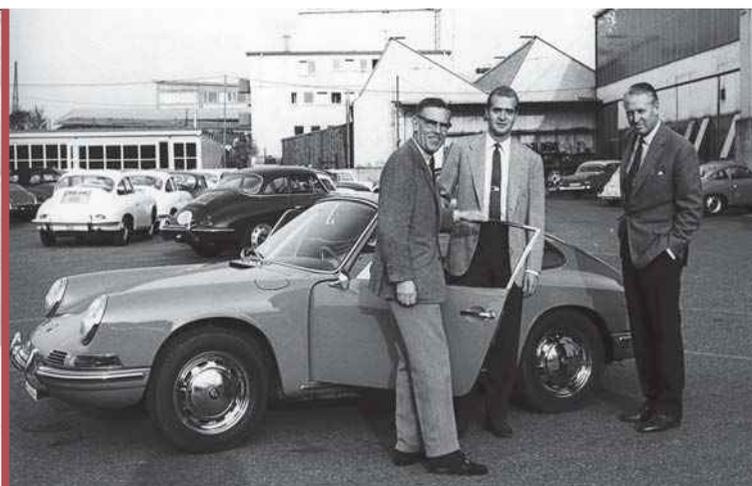
Few people have ever led (or ever will lead) such a full and exciting life as Baron Huschke von Hanstein. He helped put Porsche's name on the tip of every car enthusiast's tongue – but, just as importantly, almost singlehandedly he created what we today know as the PR industry. He really was a breed apart. **PW**

Above left: helping out at a 1966 Porsche Club Great Britain trip to Germany. The location is Solitude

Above: 1968, with the 911S 2.0 coupé fresh from the Monte Carlo Rally. Huschke von Hanstein with Sobieslav Zasada and Pauli Toivonen

Below left: Von Hanstein was instrumental in introducing Formula Vee racing to Europe

Below: Mixing with royalty. Centre stage is King Juan Carlos of Spain with his 911





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TECH SECTION

PRACTICAL PORSCHE

Welcome to the grubby end of the magazine, where the glossy features give way to the oily bits. Too often ignored, this is the beating heart of Porschedom, where we strip, mend and modify our machines and yours

QUICK GUIDE

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Q&A P123

SPECIALIST P108

OUR CARS P114

MARKET WATCH P138

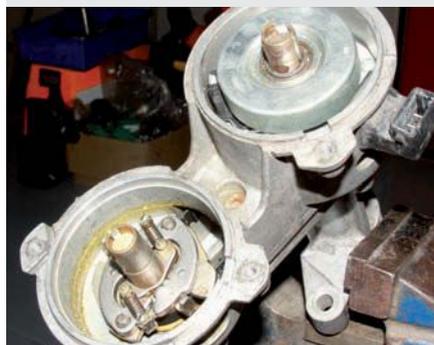
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HOW TO: 102

964/993 distributor set-up. When it's all working, the twin dizzy set-up is out of sight and out of mind. Problems are usually associated with the drive belt. Here's how to change it.



SPECIALIST: 108

We drop in on Nick Fulljames at Redtek and find an immaculate race team style workshop and some mouth-watering modified air-cooled engines in build.



OUR CARS: 114

More adventures from the 911&PW fleet. Antony Fraser's 996 GT3 goes camping; Kieran Fennelly's Cayman 2.9 is the model modern Porsche and Keith Seume's hot-rod 911 has been on the rolling road.



Q&A: 123



CLASSIFIEDS
The place to buy and sell
Porsches and accessories
P131

You ask, we answer; well, our tech guru, Chris Horton does, together with his crack squad of Porsche experts. This month we look at 996 windscreen replacement, non-starting Carrera 3.2 and weird Boxster noises

MARKET WATCH: 138

What to look for when buying a Boxster 987, plus dealer talk with Greig Daly at RPM Porsche and a round up of the latest sales and auction results and trends.



TRIED & TESTED: 141

Getting out there and kicking the tyres! This month our man Horton checks out a 944 Lux that has much to recommend it. Buy it now and you'll have the perfect machine with which to celebrate 40-years of the transaxle Porsches.



TECH: HOW TO

BELT & BRACES

Replace your 964's or 993's distributor drive-belt, or grit your teeth and simply buy a complete new distributor? The former isn't the easiest of jobs, but the financial savings are massive – and you might well avert an even more expensive engine failure, too. Story and photographs by Chris Horton



A new belt alone for your original unit (left), or a complete 'new' distributor (far left)? Either way, the vitally important first step – before you do literally anything else – is to place the crankshaft in the correct position for the distributor later to be refitted. Use a spanner on the pulley nut to rotate the crank so that the special 'Z1' mark aligns with the relevant mark on the fan housing (see item 24, bottom right-hand corner of the next spread), and the primary rotor arm is positioned as shown in the same group, ie facing the tiny projection on the distributor body (arrowed). After that, of course, you must avoid further turning the crankshaft. When installing the distributor, you must obviously turn the primary rotor arm to the correct position before sliding the unit fully home and engaging the drive gear with the crankshaft. It may take several attempts to get it exactly right, but that's obviously what you need to do

To DIY or not to DIY? That is, indeed, a very good question. As hands-on enthusiasts we will generally argue the former, of course, but there will always remain one vitally important question. Put simply, are the benefits – financial and/or practical – truly worth the effort?

Few tasks typify the debate better than this. Your 964 or 993 Carrera needs a new drive-belt inside its twin-barrel distributor.

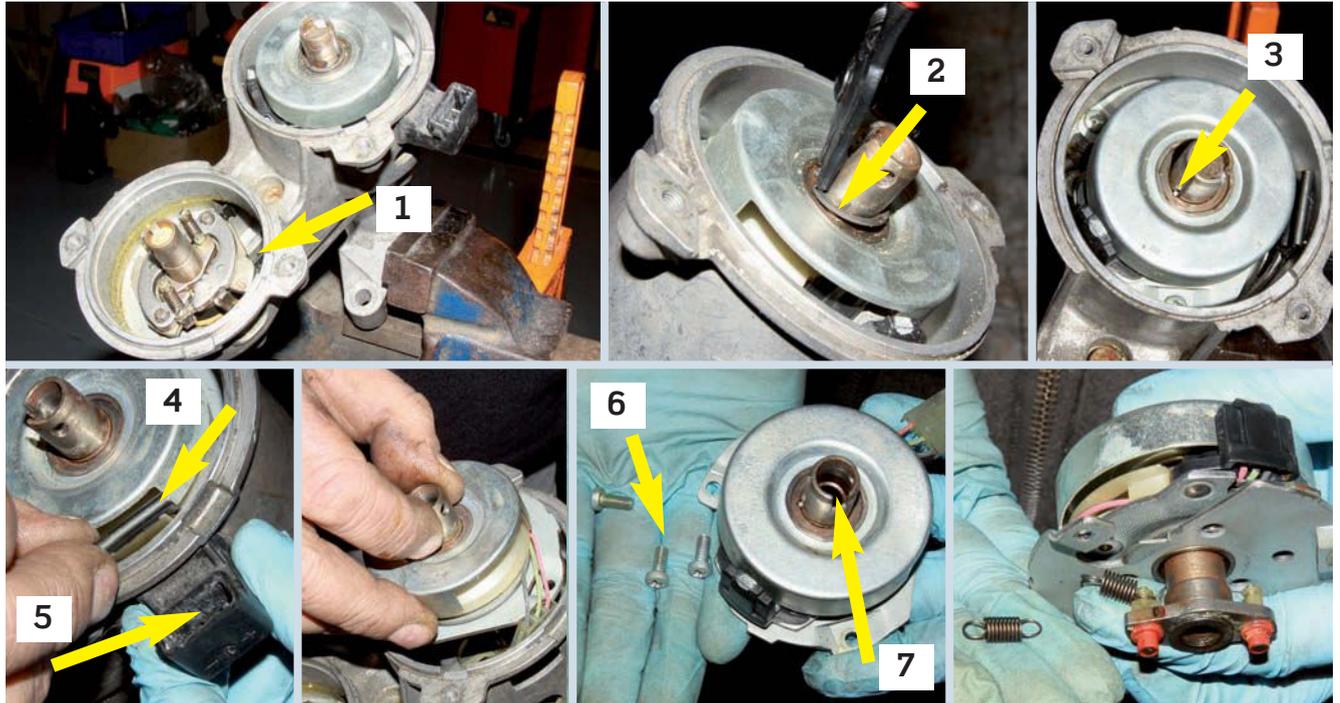
Option 1: remove, strip and rebuild the device yourself. It is no job for a novice, but not desperately difficult, either, and should certainly take only a few hours. Cost? About £12 for the belt.

Option 2: fit a complete 'new' (that is to say a reconditioned) distributor. It is inevitably a much simpler and quicker procedure – although probably still not one for the beginner – but comes at a cost, however: at least £786 from Euro Car

Parts, and from Porsche more like £1370. Both figures are on an exchange basis, and include VAT. This will, of course, save time and aggravation – which is why many independents would opt for this second route – and in the case of the ECP unit will also give you two new distributor caps and rotor arms, but even so that's a lot of money to fork out for what amounts to little more than a sophisticated rubber band.

We decided, then, to show how to tackle

Belt (1) is just visible inside the base of the distributor. Remove this circlip (2). That will reveal a tiny pin (3) by which the trigger disc is pegged to shaft. Disc should lift off, but it's possibly stuck to baseplate. Extract spring-steel clip (use a small screwdriver; 4), and then ease out connector block (5). Undo three screws (6) fixing trigger to distributor body, plus larger screw inside central shaft (7), and whole thing should come out as one. Final shot in this group shows why you need to separate all the parts. Removing trigger brings with it the central rotor-arm shaft, plus bobweight springs. You will never be able to refit those with the baseplate in the way – and to remove that you need access to yet another circlip



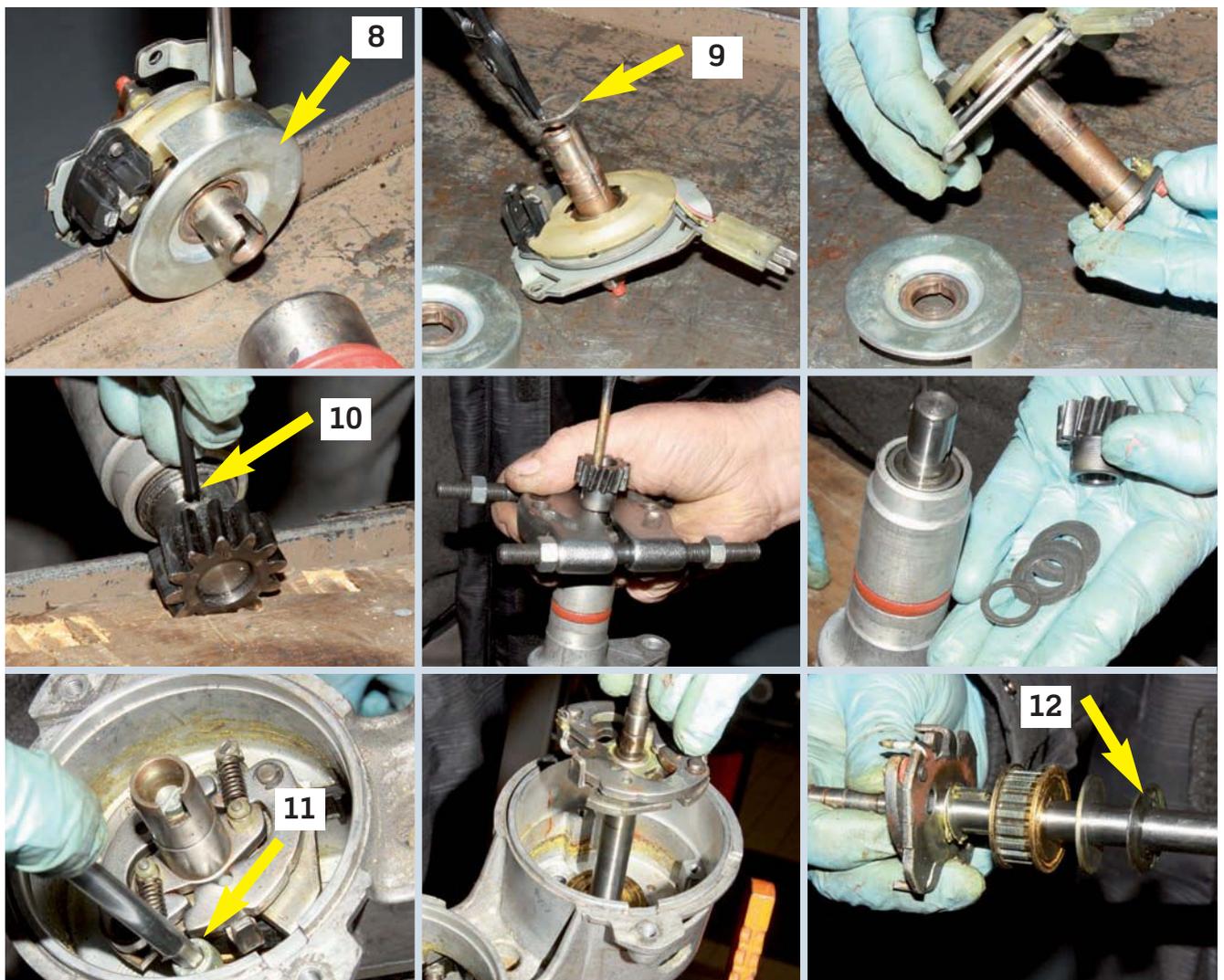
this once much discussed but in practice now rarely seen procedure. Our chosen specialist was BS Motorsport at Westcott in Buckinghamshire, where technician Rob Nugent, with help from proprietor Neil Bainbridge, set to with the spanners

one autumn evening. In fact, it was a learning curve for all three of us – or perhaps I should say a relearning curve, certainly for Neil and Rob. Both have thousands of hours of experience on all manner of Porsche exotica, but for the

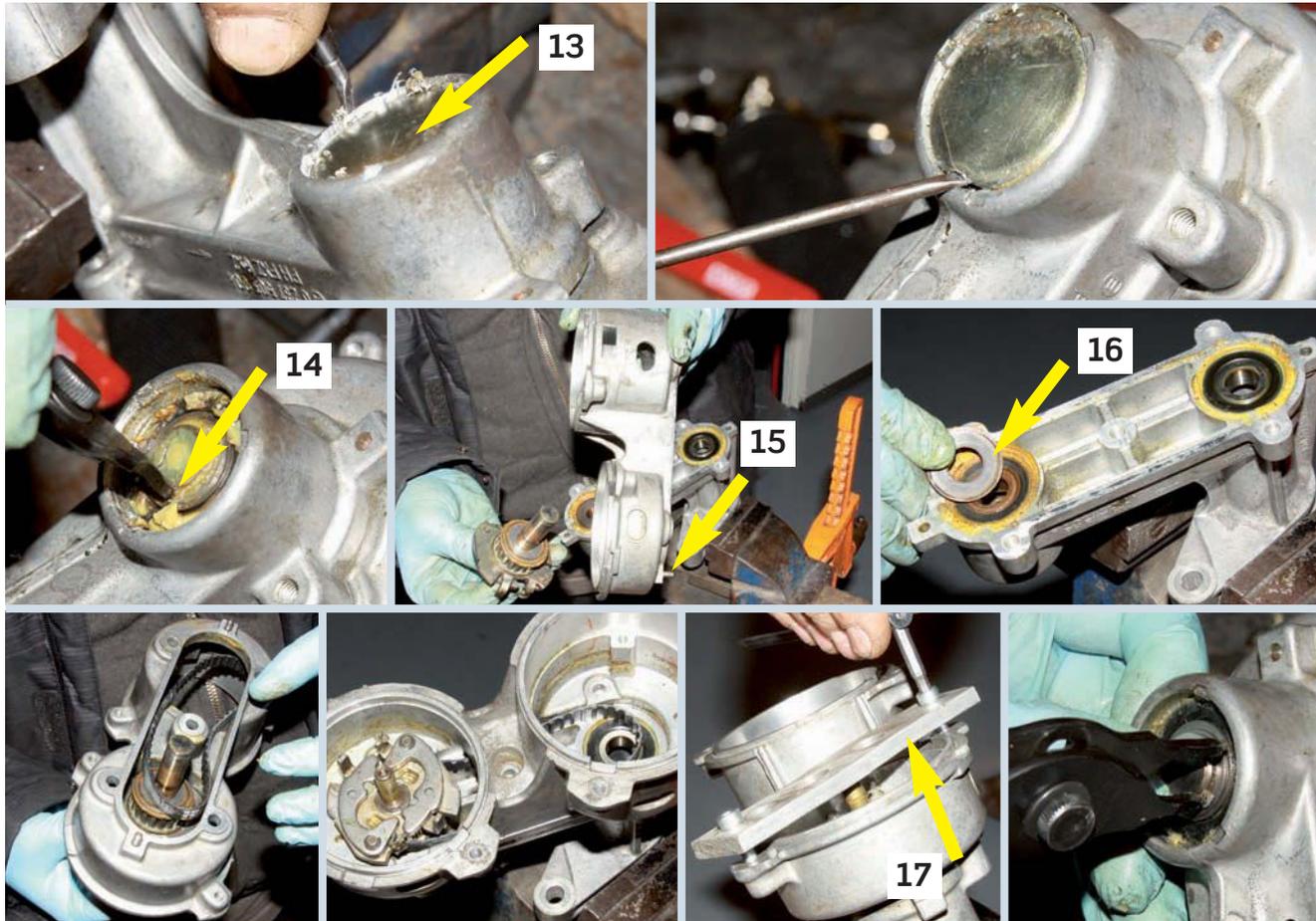
commercial reasons outlined above it was some time since either of them had delved inside one of these units.

It all came good in the end, though, with only a moderate amount of bad language. We may not have done it in quite the way

By supporting upper part of trigger (8) over the strong vertical edge of the workbench, we were able gently to tap through the rotor-arm shaft. This revealed a circlip (9), easily dealt with, and allowed the baseplate to slide off central shaft. In order to split the halves of the distributor body you need to remove both vertical shafts. On the primary side remove the helical gear by driving out retaining pin (10) – you might want to buy/find a new one before you start – and then gently pull the gear off the shaft (middle pic, this row). Note the position of all the washers and shims. We were a little out of sequence here, undoing the two Allen screws (11) inside the secondary distributor, but they'll all have to come out soon. Primary shaft can now be pulled through the body. Note dished thrust washer (12; more on this later), and key securing the toothed wheel. No further stripping of these items is necessary



TECH: HOW TO



Secondary shaft is secured by a circlip beneath this plug (13). Ease that out with a pick and/or screwdriver. Circlip (14) easy to remove, and with the shaft pulled up, and all five Allen screws undone, the upper and lower halves of the distributor body can be split. There is a dowel at each end (15; one arrowed), so they might need persuasion. Another dished washer (16) sits under secondary shaft's toothed wheel. Both exert thrust between sprockets and bearings. Check both bearings rotate smoothly. Loop new belt over secondary sprocket, and then refit upper body to lower half. Fit Allen screws. Belt 'timing' not important at this stage. Preload from thrust washers means that to fit secondary shaft's lower circlip you need to push down hard on the top of the shaft. This tool (17) was made from light-alloy scrap

Porsche intended, and we needed a few 'special' tools, including punches, small circlip pliers, and a means of applying downward pressure to the two central shafts while we refitted their lower thrust washers and securing clips, but even that Neil made in minutes from a piece of aluminium and two screws, and you could do the same.

It's doubtful that either Rob or Neil would volunteer to do the job again any time soon, but at least now you might understand their reluctance. And why, as an alternative, you might consider doing a belt change yourself. Think what else you could buy for your Porsche with the money! **PW**

THE GET-YOU-HOME SOLUTION

It is not always easy to tell if your 964's or 993's distributor drive-belt has failed. You might feel a roughness or hesitation, but with at least six spark plugs still on active duty the engine should still be producing most of its original power. And we say 'at least' six plugs because, of course, there is a possibility that the secondary rotor arm will have stopped sufficiently close to one or even two of the contacts in its distributor cap to fire the relevant spark plug(s) at the wrong time. At best this could cause detonation in the affected cylinder(s); at worst it could blow a hole in the piston(s). Either way, that belt breakage is not in

itself a disaster, and there is no reason why you cannot drive the car until you can have it fixed – and to your destination, at the very least. It is easy to take off the distributor cap(s) to have a look inside – although removing the secondary cap will give you a better view – and then, if necessary, to disconnect the low-tension wiring to the relevant ignition coil. The obvious temptation is simply to pull off the rotor arm, or to disconnect the so-called 'king' lead, but that will leave the coil generating the high voltages required to fire the plugs, and there is no telling how that will track to earth – as, of course, it surely will.

Add baseplate assembly, this thin washer (18), and then the central shaft upon which fits rotor arm. Bobweight springs can be hooked on with pliers. Align cut-out in secondary rotor-arm shaft so it faces mark on body (19). Fit the primary sprocket inside belt, with keyway aligned as shown, and then lower in the shaft (shown with sprocket for illustrative purposes; belt won't clear lip on lower part of sprocket unless you fit it separately). It should take only a few trial runs to fit shaft to the sprocket so that, with secondary marks aligned, primary marks align as indicated by driver. Refit both bobweight springs, and finally the central retaining screw. Lower part of the trigger goes back on in much the way you would have taken it off – had its two halves not been stuck together. Position it so that the wires pass correctly through the side of the distributor body, and then refit the connector block and its retaining clip. Don't forget this vital circlip (20)



THANKS

To Neil Bainbridge and Rob Nugent at BS Motorsport in Buckinghamshire. Call Neil on 01296 658422, or go to bsmotorsport.co.uk

Refitting primary drive gear means using your special tool again, to press down on the top of the shaft and slightly compress the dished washer. If you don't need the tool you've missed it out (or some or all of the lower shims). Gear itself can go back on in either of its two positions, and is then secured by (carefully) driving pin (21) back in. With secondary shaft's lower circlip correctly seated, refit pressed-steel plug by tapping it home with a suitable hammer.

Stake over the aluminium to prevent it falling out, but take care not to butcher the casing. Top part of trigger mechanism (22) slides down over the central shaft.

Rotate the trigger plate so that its groove lines up with the one on the rotor-arm shaft. Place pin (23) as shown – it might take a few tries; keep a magnet handy – and then slide it home with a suitably fine punch. It shouldn't be tight. Replace upper circlip, and finally check that rotor arms align with marks on body as shown by arrows.

A rebuilt exchange distributor will come with new caps and rotor arms, as well as a new belt, but there is still quite a strong case for tackling the work described here – it's not that hard.

Vital, though, that you set the crankshaft pulley and the primary rotor arm to the correct position before you even start (24) – and make sure, of course, that they are still correctly aligned when you complete it

THE KNOWLEDGE

Why do both the naturally aspirated 964 and 993 Carreras have this rather strange-looking double-barrelled distributor?

As in a number of previous air-cooled flat-sixes (notably the 906's, the 2.8 RSR's and the 935's), each of the six individual cylinder heads contains two simultaneously firing spark plugs for optimum combustion, fuel-efficiency and – of course – maximum performance. In those earlier engines the 12 plugs are fired by a single distributor with a full dozen plug leads sprouting from its moulded cap, but the internal mechanism was both complicated and expensive to produce – and not always easy to maintain.

By the late 1980s Porsche was looking for ways not only to make its new cars more fuel-efficient and powerful than the outgoing 911 Carrera 3.2, but also very much less costly to build. And this double-barrelled distributor, and its associated extra spark plugs, was one of the many answers it came up with. (These days it would be done with solid-state individual coil packs, but this was literally a generation ago, remember.)

The primary side of the distributor is driven, as usual, by a gear that engages with the crankshaft. Lift off the distributor's moulded cap, and beneath it you will find a rotor arm, a dust shield, and below that a Hall-effect electronic trigger. Below that is a pair of spring-loaded balance weights that, by moving outwards under centrifugal force as the engine speed increases, and thereby twisting the rotor arm through a few degrees relative to the central shaft, provide a small

amount of mechanical ignition advance.

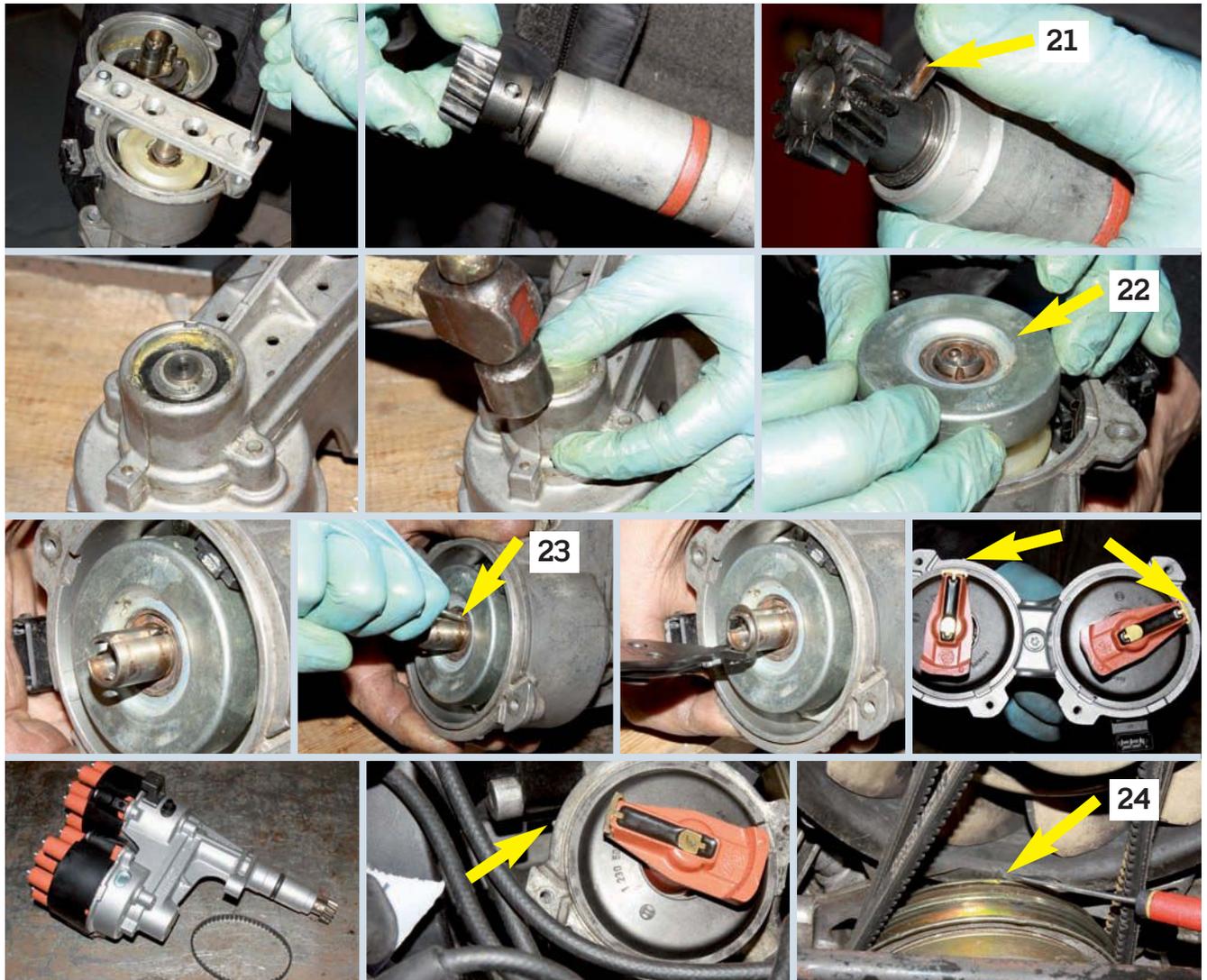
Immediately below those weights, however, is a small, brass-coloured toothed wheel and matching rubber drive-belt, the latter not unlike something you might find inside an ordinary domestic vacuum cleaner. From this is driven an identical toothed sprocket in the secondary distributor, and thus the secondary bob-weights and rotor arm. And ultimately, of course, the relevant 'secondary' spark plugs.

It looks complicated – and replacing the belt is for various reasons not *that* easy – but from a manufacturing point of view it was a no-brainer. The distributor body was little or no more expensive to produce than any other of the many dozens of similar castings in the car, and that was further offset by the duplication of a number of components. The two shafts need to be timed to each other during assembly, but that is no more difficult than the synchronisation required by any single-bodied distributor when that is fitted to the engine – and the toothed belt should then maintain that correlation more or less indefinitely.

In the early days of the 964 there was a fairly high failure rate of the rubber belts. This was quite quickly attributed to a build-up of ionised air inside the sealed distributor body, itself a result of the substantial voltages flying around (typically 25Kv), and later cured by fitting a

breather tube linked to the engine air intake. Many earlier cars were updated in this way (although a surprising number have not been, even now) and the four-part kit (see photo below) remains available from Porsche to this day for just a few pounds.

But the damage had been done – literally, in some instances; see the sidebar on the opposite page – and henceforth that toothed rubber belt acquired a reputation for breaking at the drop of a hat. In fact, failure is now quite rare, either with or without that breather kit fitted, and even then – assuming you drive accordingly – not exactly the end of the world. Again see the panel opposite.





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IN TO THE RED

We drop in on Redtek and proprietor Nick Fulljames and discover a business dedicated to the art of rebuilding, modifying and making air-cooled 911 engines last longer and go much faster

Words and photography: Brett Fraser



This isn't so much a business as a way of life,' opines Nick Fulljames, owner of Brackley-based air-cooled Porsche engine specialist, Redtek. And for Nick that's no idle claim: he's been elbow-deep in exhaust ports and crankcase journals since he started his engineering degree specialising in engines and electronics – at Oxford and Warwick universities – back in 1984. He's been an "engine man" ever since, not merely in his ability to fix non-functioning examples and return them to their former glory, but also through his skills as an engine designer, builder and tuner.

Nick honed his talents whilst in the employ of a number of really rather big industry names. At Brodie Brittain Racing (back then owned by Dave Brodie and Ken Brittain) he worked on the Mitsubishi Starion BTCC racer; the company was Mitsubishi's official works team before the advent of Ralliart and a change of focus to the World Rally Championship with the hugely successful Lancer. Then in the late 1980s, an offer from TWR Engines proved irresistible – whilst in the Walkinshaw workshops Nick helped to design and develop engines under contract for the Jaguar XJ220 supercar and the Aston Martin DB7, as well as getting involved in more prosaic engine projects for Ford, Mazda and Volvo. Oh, and he also built

Cosworth/Minardi F1 engines and worked on the Cosworth RS500.

But by the end of that decade, however, Nick realised that these outside development contracts were beginning to dry up; the relentless and ever-increasing pace of electronics technology was also starting to take some of the enjoyment out of the job. So he steered his career off the treadmill and down an avenue that ultimately was to be of huge benefit to the air-cooled Porsche community.

'In 1994 I had my introduction to Porsches,' recalls Nick, 'when I took a job at Autofarm. They'd just moved into the premises at Oddington Grange, so it was like being in a fresh business but with the old customer base. Having been operating

Yes, you probably could eat your lunch off that immaculate workshop floor. Engines in various states of build in Redtek's ultra clean workshop

Redtek specialise largely in air-cooled engines, many of which can be up to 40 or 50 years old and require a particular focus of attention. Whether a road or a race engine, each receives the same standard of attention and build ethos



at the forefront of engine modern engine technology, the change in pace was like returning to being an apprentice again. But there was so much to learn and I was like a sponge with all the information and experience that the older guys who worked there passed on to me. These guys knew the cars inside out, and it was a chance to also learn all the chassis stuff. And Josh [Sadler, Autofarm's then-owner], it was amazing what he could remember about the older Porsches.'

At about the same time that he signed on the dotted line at Autofarm Nick started racing – sprints, hillclimbs, the Hot Hatch Championship, TOCA Fiestas and Britcar – and over the next 13 years the experience he gained on the track and prepping competition motors all contributed to the services that Redtek is now able to offer. It also gave Nick insider knowledge of what

race customers really require. Another outcome of his time at the circuit was that Nick eventually left Autofarm to set up his own business, Jen Engines.

'We did do a lot of Porsche stuff at Jen,' Nick explains, 'but really we were a race/rally engine tuner. One of our clients

was buying and selling a few Porsches – a 3.2 Carrera, a 1978 SC and a 1989 911 Turbo LE, amongst others – and gaining a bit more experience of the marque, although back then they weren't really the car to have.'

A canny property deal in 2002 allowed

“ There was so much to learn and I was like a sponge soaking it up ”

was the Silverstone Driving School, so we were working on Caterhams and Ferraris and Lamborghinis. At the time nobody wanted to touch supercar motors, but the reality is that they work just the same way as any other. In the background to all this I

Nick and his family to move to Australia for a couple of years, and while Down Under he worked for a V8 Supercars [a form of Aussie touring cars] team for a spell and then was an instructor in a BMW driver training programme. But while life in



Right: Anyone for tennis? Carrera 3.2 with ducktail and fuel injection throttle bodies. Together with a bespoke ECU, this mod liberates an easy 20bhp

TECH: SPECIALIST



Before getting hooked on Porsches, Nick Fulljames worked for BBR, Ralliart and Tom Walkinshaw. A stint at Autofarm was followed by racing and a couple of years in Australia working for a V8 supercar team before coming back to the UK and a return to Autofarm and then setting up on his own

Australia was fabulous in many respects, Nick found the bureaucracy too stifling to start a business of his own, so in 2004 the Fulljames family headed back north to their British homeland.

Taken on again by Autofarm, Nick was put in charge of the engine shop and engineered the company's upgraded 996 replacement motor. 'I sourced an M96 engine and did all the development work to upgrade it – the IMS, etc – applying the experience I'd gained over the past few decades. It worked extremely well: we sold about 100 engines in two years.'

But Nick's desire to run his own business was overwhelming and at the end of 2007 he set up Redtek. Although Redtek now deals exclusively with air-cooled engines, water-cooled motors did get a look-in to start with. 'We did about three years of water-cooled engines,' says Nick, '996s, 997s with scored bores, Caymans... But because these cars were typically someone's daily driver, customers wanted

the job turned around yesterday and our machine shop was getting clogged up with this sort of work, rather than the development projects I really wanted us to be undertaking. So we no longer handle water-cooled stuff and neither do we do regular servicing.

'I like to think that what sets Redtek apart from other engine shops is our depth of understanding of engines: it allows us to see further ahead when dealing with a particular problem. For example, if we're machining metal off a cylinder head we know that it could cause a weakness elsewhere. So we think carefully about what other work will be required to mitigate that. Then there are the physical materials of the engine – some of these units are now 40 or 50 years old and the metal can degrade; if you're aware of that you can engineer appropriate solutions and not be over-ambitious with what you're planning for the engine. We always have an eye on the end product.

'Because I have a background in racing and engineering – that's pretty much all I've done for the past 30 years – I tend to tackle things differently. So at Redtek we build up road engines to the same spec as a race rebuild. As an example, in 80–90% of the engines we see the crankcase journals are misaligned because the two halves of the casing "creep" over time. We therefore shuffle-pin and line-hone the casings, a race practice, to ensure accurate long-term alignment.'

Apart from balancing and dyno testing, Redtek does everything – machining, fabrication, media blasting, ultra-sonic cleaning, even magnesium welding – in-house, which Nick regards as critical for maintaining high standards. And the team is experienced in working on air-cooled Porsche engines from any and every era, for road or track use. But while justifiably proud of his company's record for producing strong, reliable engine rebuilds, what really set Nick's eyes twinkling are Redtek's

A mouthwatering selection of machines, including the nose of a 904 just sneaking into the frame



Engine conversions are a hugely popular part of Redtek's business. 3.2-litre engines are taken out to 3.5-litres, with twin-plug heads to give 350bhp. 964 engines can be taken out to 3.8-litres, with throttle bodies, cams and bigger valves, to give 350bhp



conversion projects. 'We aim for 100bhp per litre, and without creating a peaky engine,' he beams. 'With our 3.5-litre conversion for the 3.2 we twin-spark the engine, almost like creating a little RSR, which helps give us 350bhp.'

'Very popular is our 3.8-litre conversion for the 964 motor. We change the inlet manifolds, swap the cams, put in bigger valves and fit throttle bodies. The result is 350bhp and a very driveable, flexible engine. We do like to ensure that with this conversion customers also attend to their brakes – the 993 Turbo brake upgrade is popular – and suspension!

'When 964s are in for a top-end rebuild we recommend a conversion to 964 Cup camshafts and a remap – it's a very cost-effective and reliable way of boosting that engine to 290-ish horsepower. And for a standard 3.2 we suggest fitting throttle bodies and replacing the Motronic injection with a plug-and-play ECU – this liberates about an extra 20bhp, but more

importantly gives far superior low-down throttle response.'

Redtek also makes its own high butterfly throttle bodies, complete with cast EFI feet on the bottom of them for an easy fit. 'You get big induction noise with these,' grins Nick, 'and better throttle response. Plus those six tall trumpets look fantastic in the engine bay.'

development project for the 915 'box, and we'll bring you more details once the job's completed.

To date word of mouth (and very positive feedback on internet forums) has kept Redtek's immaculate engine building area full of work, and Nick tells us that the company typically rebuilds 30 to 40 engines a year – 'they never seem to stop coming,'

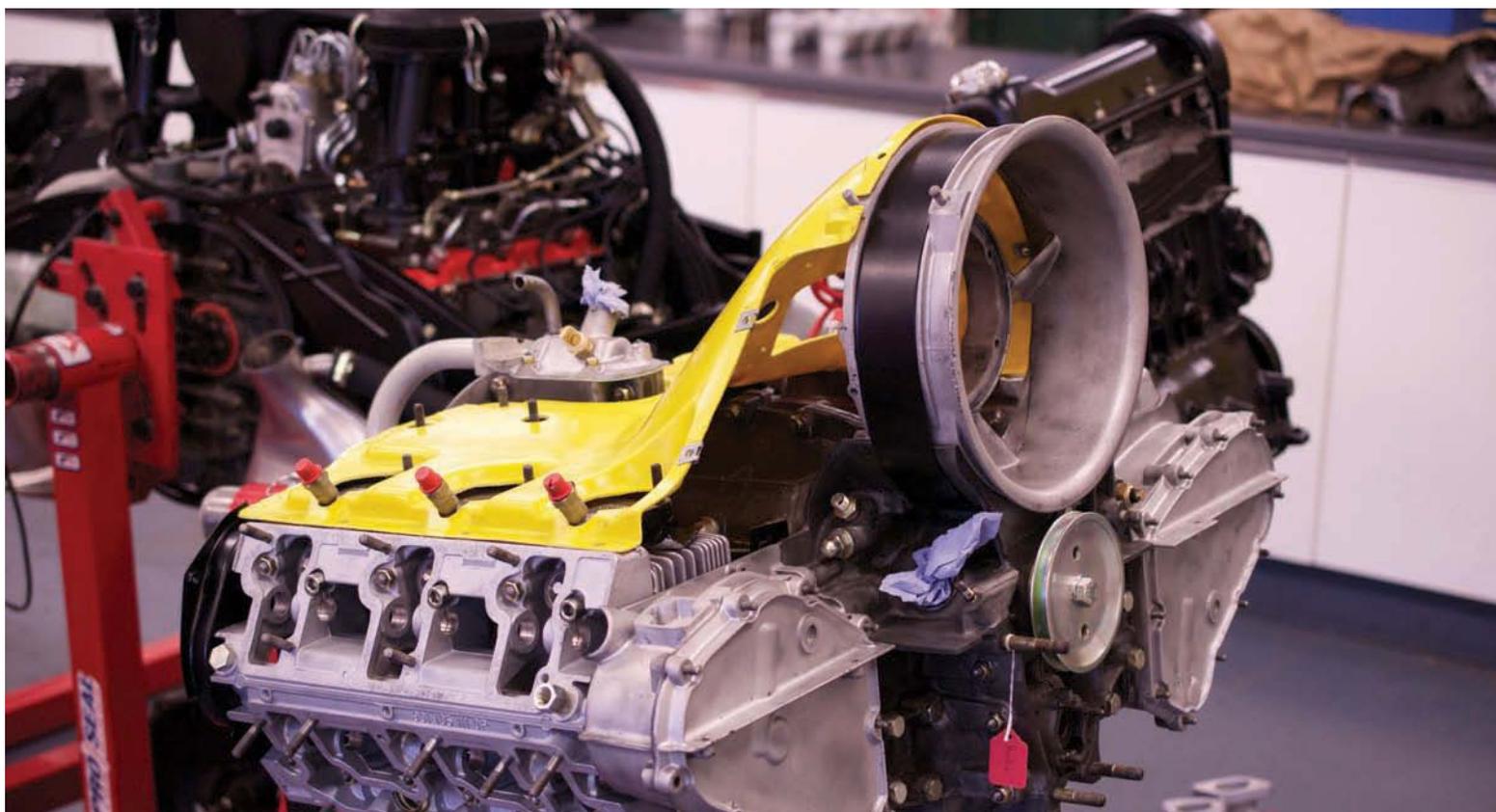
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Email:
nick@redtek.co.uk
Web: redtek.co.uk

“ To date feedback and word of mouth has kept Redtek full of work ”

Another element of the business, but one that Nick doesn't shout so loudly about, is gearbox rebuilds. Again everything's done in-house, and includes straight rebuilds, upgrades, bench-testing and, of course, improvement programmes – Redtek is currently near the end of an exciting

he jokes. And he's still smiling when he relates one final little tale. 'It might seem a bit silly, but I still get an enormous buzz every time I fire up an engine for the first time after a rebuild.' Like the man said at the beginning, Redtek is not so much a business, more of a lifestyle. **PW**



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THE TEAM

STEVE BENNETT

996 C2/944 LUX



Move along, nothing to see here. Winter is here, the 944 is still in Gloucester and it can stay



there. The 996 is tucked up in the garage and it can stay there, too. Neither needs suffer our salty UK winter roads.

KEITH SEUME

912/6 'EL CHUCHO'



Crunch time, then. 'El Chucho' has been on the rolling road and the result is a very respectable



205bhp! No wonder it feels pretty quick! Pleased? Yes, you could say that. Now for some winter tweaking.

CHRIS HORTON

924S, 944



The once again winter-tired 924S is waiting patiently for me – and some snow, or even



just frost – up at Auto Umbau. The poor 944, meanwhile, just waits, while I gather together a few more vital parts

PETER SIMPSON

911 2.7 TARGA



The parts are still flowing and the job list is getting longer! I just can't keep up at this rate



so if anyone wants to help with a 2.7 twin spark engine rebuild then fire me an email, it's nearly ready to go.

BRETT FRASER

BOXSTER 3.2S



American reader, Dave Grange, has been in touch with details of his Boxster, which he has



been subtly modifying. Given that Boxster values are going nowhere but down, I'm tempted to have a play.

JOHNNY TIPLER

BOXSTER 3.2S/996 C2



The Boxster S is back in business after the equine altercation, its bodywork immaculate



once more, thanks to Paul Stephens' bodyshop. Great to razz about the lanes in it once more.

ANTONY FRASER

996 GT3, SC, TRACTOR



There is something very satisfying about using a car that's patently unsuitable for heavy load



carrying duties and getting away with it, as you can see from the opposite spread! Once was enough, though...

POLE-TO-POLE

Fraser feels the perverse need to carry a tepee on the roof of his GT3, for a weekend's glamping. Still, you have to admire the boy's style...

ANTONY FRASER

996 GT3, 911SC, JUNIOR TRACTOR

Occupation:

Freelance photographer

Previous

Porsches: 911SC

Current Porsche:

996 GT3, 911SC,

Junior tractor

Mods/options:

GT3 modified with

Cargraphic exhaust

and DMS remap,

lightweight

flywheel, plus

numerous

suspension mods

Contact:

antonyfraser@mac.

com

This month:

Camping!



Isn't it true to say that the Porsche 911 is widely regarded as the usable supercar? I know I've always thought of it in this way. So, was I in any way hesitant upon receiving an invitation to editor Bennett's 21st (*if only! Ed*) birthday bash? Of course not. The only way a gentleman should arrive at such an auspicious event is in his favourite car, with his favourite wife, equipped with everything two people could require for a luxurious camping weekend. In our case, that included two large, cosy chairs (a must) and a rustic but stylish tepee. Not forgetting ice buckets and ice, a double airbed and pump, sheets, duvets, pillows, groundsheet, clothes, food, wine, whiskey, wellies and warm hats. None of

this would pose any kind of issue for your die-hard Porschista, were it not for the challenge of the tepee poles – a full dozen stout sticks, almost exactly the length of the car. Now, the roof of a 996 is a formidably strong construction, as I have proved in the past with a very large pair of spare wheels. Whether it would cope with this sort of load, though, was another matter. The worry comes not from the roof itself, or even the Thule roof bars, but from the frankly tiny little grub screws that hold the whole lot onto the roof. They're M4 – or nothing like enough, as it should be called – and they screw into some flimsy-looking bosses in the roof. Once seen, never forgotten. They were certainly at the forefront of my mind as I lashed down the poles, mostly thick end to

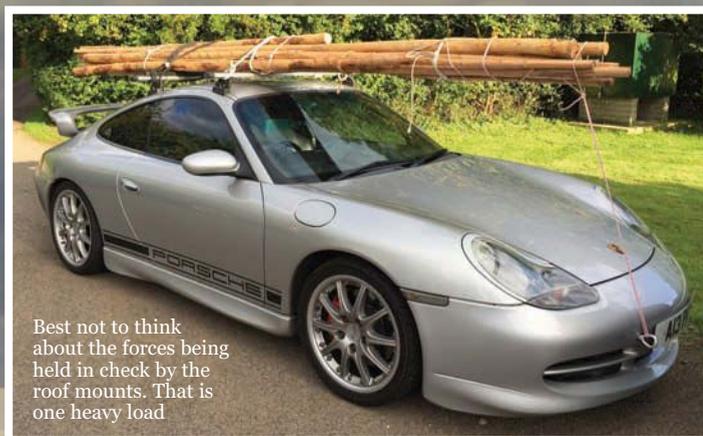
Long suffering Mrs Fraser and luxury 'glamping' accommodation, all transported by 'utility' GT3

the rear to try to offset the long, springy overhang at the front. Ok, I'm not a physicist, but it wouldn't take Albert Einstein to wince at the force available from that kind of lever bouncing up and down on a bumpy road. Tying it down to the front towing eye seemed like the solution, but did little to calm my nerves for the two hundred mile trip to sleepy Suffolk, as I struggled not to obsess over the attractive pink string, waiting to watch it suddenly fall slack, just ahead of a loud commotion, close behind us. It was alright in the end, of course, though more by luck than judgement I suspect. Was it worth it, for a dramatic entrance and a few hours of guffawing? Yes, of course it was. But I've learnt my lesson, officer, I promise.

Just a few little niggles jangle around, amid the pleasure of GT3 ownership. The increased value of the car, while a very good thing in my book, seems to be a source of worry for my insurers, who have insisted on a tracking device. All well and good, but it cost a small fortune, plus an annual subscription, and it uses plenty of juice; the battery is flat as a tack well within a week. I know this after two calls at very odd hours from the tracking people. (Should've learned the first time, eh?) Nice to know they're keeping an eye on the old girl, but it does mean it has to remain plugged into the mains pretty much all the time. And I said I'd never drive a hybrid...

Possibly more seriously (but hopefully not!) is the issue of a nasty, but mercifully brief, rattle occasionally on startup, usually after a longish lay-up. I've had all sort of opinions proffered from "They all do that, don't worry about it", to "You're Donald Ducked, mate". I'm leaning towards either hydraulic tappet buckets taking a second or two to fill up, or a worn timing chain tensioner, causing the chain to rattle briefly on the casing until the oil pressure rises. If it's the tappets, I'm not overly concerned, as it does appear to be quite common in GT3s, apparently without excessive wear. But I'm going to get the chain tensioner looked at, as it's not an engine-out job, apparently, and it strikes me as a very wise insurance scheme, bearing in mind the potentially catastrophic consequences of a jumping chain. Me, I'm trying very hard not to bear that in mind, as I wouldn't be able to sleep at night.

Other than that, all is well. The new suspension continues to be exactly what I want, and the



Best not to think about the forces being held in check by the roof mounts. That is one heavy load.

Yokohama AD08Rs are grip-tastic, come rain or shine. And obviously, the car continues to be the practical load lugger that no sensible motorist would want to be without.

I would very much like to have been able to bring you some worthwhile track impressions from our trip to Abbeville, where we enjoyed the GT3s seen on the cover of this issue, but I fell victim to my own sluggishness in getting the tracking gizmo fitted, and didn't dare take the car abroad. Rocks for brains? That's me. Next time...! **PW**



CAYMAN MORE THAN ABLE

Kieron Fennelly traded his 993 in for a Cayman 2.9 and, two-years on, he's still happy that he made the right choice, not least because the Cayman has proved to be a lot cheaper to run, even if it does lack a little of the air-cooled car's charisma



KIERON FENNELLY

2009 CAYMAN 2.9

Occupation: Freelance writer
Previous Porsches: One
Current Porsche: Cayman 2.9
Mods/options: Standard
Contact: kieronfen@talktalk.net
This month: Aside from routine maintenance, life with the Cayman is enjoyable and relatively painless

To recap for those who may not recall, at the end of 2013 I traded my 993 Carrera 2 for a four-year-old Cayman. Cries of 'has he gone mad?' were heard, but I had become increasingly reluctant to use what was by then an appreciating classic as my daily driver. The Cayman, impressively modern by comparison, is less demanding to drive and if it lacks the sense of occasion of those air-cooled 911s, it goes almost as well and steers even better. In the first year of ownership I racked up 9000 miles, including a trip to Corsica; in 2015 the mileage covered was only 6500, the Steering Committee (as Steve Cropley endearingly refers to his better half) deciding that a week of solid continental driving (we also went the pretty way) was enough for a

couple of years and in 2015 we would take the plane. Several work visits to northern counties accounted for many of this year's miles, and at times it felt as if grinding contraflows had taken over my life. The Cayman's lack of temperament in traffic queues (the 993 hated them and I used to worry about the oil temperature) and its comfortable air-conditioned cabin were some compensation.

I had a surprise late in November when a dashboard instruction informed me that a service was due in 29 days: it struck me that in two years I had spent nothing on my Cayman (except a non-scheduled one year oil change). Quite a contrast with my 993 admittedly a decade old when I acquired it, which on average cost me £700-£1000 pa. A visit to Northway at 57,400 miles for a major service cost £440 and included a new

drive belt and fresh brake fluid. I elected to leave the noisy rear suspension arm for another year as the sound is not getting any worse and simply remains an occasional minor irritation.

So I'm all set, I hope, for another two years except for that mid-point oil change (to omit this is a false economy in my view) and new rear tyres, though the current Michelins should make it into 2017. My 987 Cayman Gen 2 continues to be both immense fun and practical. And as my main transport this matters, especially as my better half takes our 1 Series at every opportunity. I agree with fellow 'Croc' owner Jeremy Laird (911&PW, December) that the Cayman can seem slightly anodine compared with 911s and I do miss them: every now and then I have to get a 'fix' by borrowing my son Glyn's 3.2. To get the

Top: Fennelly's Cayman leaving Northway after service and modest expenditure. Left: With the current 981 generation Cayman at Silverstone. Below: A wash and brush up at Northway





best out of this requires far more thought and anticipation compared with a modern and it's an immensely satisfying workout. The drawback is the crowded motoring conditions that nowadays prevail in much of England mean that the sorts of roads where a 30-year-old 911 can be appreciated properly for any length of time are rare, and especially in winter, the 3.2 now resides mostly in his garage. The Cayman works competently in winter, demisting properly at the touch of a button and I can also hose it down which is a treatment I could never inflict on the ageing seals of the older Porsche. Against that, mid-engine handling certainly flatters one's driving and does remove much of the challenge of older 911s and their pendulum effect. I understand Jeremy's 'wobble' after summer days in several (presumably nicely set-up) older 911s, but if you can only afford one Porsche, it makes sense for me to have one I can use all the time.

Jeremy had also had a go in Reading's 991GTS which I too borrowed and once again I found myself agreeing with him: epic

though the GTS is, he still preferred driving the Cayman. The 991 GTS is truly ballistic, but it is arguably overpowered for life in Blighty. Indeed, even on the relatively quiet autobahn network between Luxemburg and Manheim, I could only just deploy all its 420 horses to the top of fourth gear (with three ratios still to go!). As a tourer, the 991 4 offers rather less boot space than the Cayman which means throwing items into the beautifully appointed, but otherwise largely useless rear cabin. For all its dynamic brilliance, the 911 has become too big for me.

A 987 is not perfect, either: several laps of Porsche's tight Silverstone Experience track were a reminder that it does understeer and even with the PSM in 'firm' position the body control was not in the class of the current Cayman GTS which I tried immediately afterwards. And in the best traditions I immediately started wanting one. What impresses me about the 981 generation though is not just the superiority of the new chassis, but the improvement of the cabin, although its additional width does

make it feel a little less intimate. I thought I preferred the look of the 987, but with the exception of its corporate rear end I now think the front and side views, especially the door treatment, of the 981 are an improvement. Of the 981 generation, only the 2.7 is likely ever to reach my price range, but I am not unhappy about that. Though the S has more significantly power and torque, subjectively it has never felt that much quicker to me, not in any case £8000's worth, the retail price difference. The advent of a single turbo flat four 981 later this year, besides being a dismal reflection of the effect of environmental politics on engineering, may well stiffen 981 Gen 1 residuals, even if Porsche (once again) pulls a rabbit out of the hat by managing to make a turbo flat four that revs and sounds like the old natural six.

Speculation aside, what I can say (once again) is that life with the base Cayman continues to be a case of having your cake, with extra cream and eating it, and then going back for seconds. **PW**

Kieran can get his air-cooled fix behind the wheel of son, Glyn's, Carrera 3-2, which provides an "immensely satisfying workout." Inevitably the 'classic' car spends more and more time in the garage, while the Cayman shrugs off everyday use



Left: So that's where the engine is! Interior panel removed to change drive belt. Rear Michelins have covered 17,000-miles, with another 5000 miles of life left in them

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ON THE (ROLLING) ROAD

With a fresh service and a few hundred more miles on the clock, it was time to head back to the rolling road to find out just what kind of power the 2.2-litre engine produces



KEITH SEUME

1966 912

Occupation:

Editor,
Classic Porsche

Previous

Porsches:

Carrera 2.7; 928;
912; 914/6; Junior
Tractor

Current

Porsche:

912

Mods/options:

Six-cylinder
engine conversion,
big brakes, etc.

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classicporsche
@chpltd.com

This month:

First major service
prior to going on
the rolling road

Since the report in the December issue, I'd added several hundred miles to the total in preparation for another session on the rolling road at Tipton Garage. The first visit had been to perform some initial mapping to allow me to drive the car, but now it was time to get a little more serious.

But first, with a total of just over 1000 miles on the clock, I needed to carry out the first service – an oil and filter change, certainly, but also check the torque on the cylinder head bolts. I was also keen to run a spanner over everything underneath the car: suspension, steering, brakes – as I put on the miles, it was inevitable that some components might have worked loose. It was better to be safe than sorry.

I was due to go away for a couple of weeks, so decided to entrust the work to somebody to take care of while I was away. The rolling road session was booked for two days after my return, so I was keen to have the car ready for when I got back from my holiday. I'm fortunate that marque specialists Williams-Crawford have their workshops just 20 minutes down the road at Saltash, just over the Tamar from Plymouth.

Graham Kidd, who painted the car originally, works there these days, so I'd occasionally dropped in to have a chat. Over the last year or two, the business has expanded to cover not only Porsche sales, for which Williams-Crawford are well known, but also restoration and service work. It was a no brainer for me, as they were local and I knew the people working there.

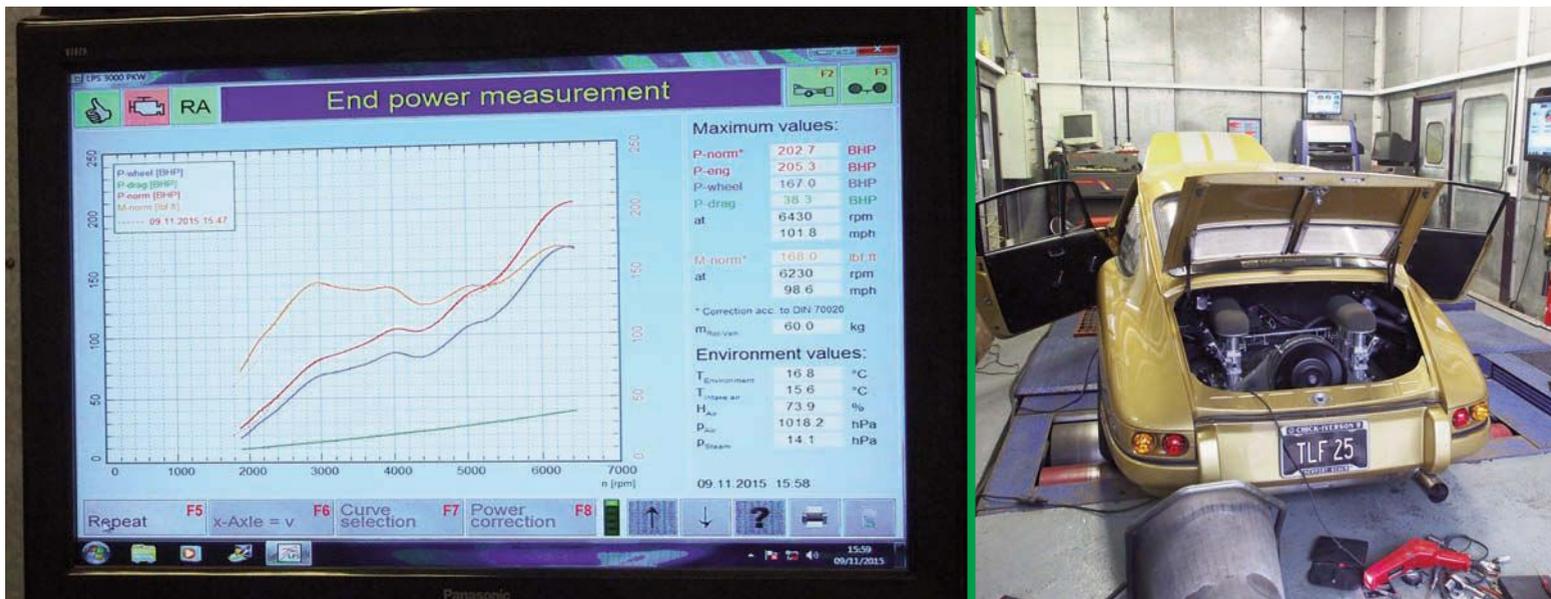
I also reminded Graham of his promise to buff the paintwork at some point, as the car had never been polished and still had a 'straight out of the gun' finish to the clear coat. Mind you, nobody noticed as it looked pretty good just the way it was! To persuade Graham, I offered him a bribe in the form of an old 1950s Peugeot motorcycle project (in pieces, naturally) I'd had kicking around for the last 14 years...

It worked, for while I was away, a couple of cryptic photos appeared on Facebook, posted either by Graham, to show off the shiny paintwork, or by Williams-Crawford to show my car was being tended to. You've gotta love the internet – here I was 5000 miles away looking at photos of my car getting some love and affection back at home in Cornwall.

I've now got around 1800 miles on the engine and it's getting better every time I drive it. There are still some loose ends to tie up but it's almost done – at last!



Left and far left: After covering over 1000 miles, I booked the car into Williams-Crawford for a full service ahead of the rolling road session. Dean (who, it appears, lives in a retro black and white world...) retorqued the heads and gave the car a general check over, making sure all the nuts and bolts were tight after the long rebuild



On my return, Dean, who'd been doing the service work, was all smiles. There had been no problems, with just one head stud needing the merest tweak. Mind you, with ARP studs, along with Time-Certs in the crankcase, it was unlikely there'd have been any problems but, once again, better safe than sorry. He also checked the valve clearances and changed the oil, swapping the 20/50 mineral oil I'd used for break-in to 10/40 semi-synthetic, as recommended by the engine's builder, Bob Watson.

It was great knowing that the car was now fit and able to be driven with a little more gusto, but there was still the matter of the rolling road session. I'd had a call from Tipton Garage asking if it was OK to delay my visit from the Friday to the following Monday as a current job had taken a little longer than expected. No problem as I was in no rush. I just hoped the weather would hold. It didn't.

It seems I'm destined to drive this car only in the rain – sadly, this has shown up a slight leak in the passenger footwell. Something else to tend to over winter.

By the time Monday came around, I was getting anxious – no real reason, other than I knew this was crunch time. Although I'd said I wasn't really too worried about ultimate horsepower figures, deep inside I still wanted to know the outcome of all Bob's work (and my expenditure!).

Stephen Miles was ready and waiting for me and we discussed a couple of problems I'd been having, one being that the car needed to be 'coaxed' into life from cold. There was also a bit of a stumble in the mid-range, but as the tacho hadn't been working, I wasn't too sure where exactly.

On that subject, while I was in the USA, I met up with Bob Ashcroft who makes a nifty box of tricks that allows you to run virtually any tachometer from any ignition source – perfect, as I needed to run my early tachometer, which needs a high-output signal, from the EDIS, which only creates a low-voltage trigger signal. It only took minutes to wire in while I was at Tipton, so at last I had a working tacho!

With everything hooked up, it was time to get the show on the road. As I said last time, it's pretty scary standing next to your car as it screams away at peak rpm, but this time I wasn't worried. Well, maybe just a little. First of all, though, Stephen needed to carry a roll-out test which, essentially, measures the drag through the transmission, etc, so the rolling road's computer could equate rear-wheel horsepower with the output at the flywheel. That task completed, we began taking some 'pulls', the first of which showed 197bhp at the flywheel at 6160rpm.

I was pretty ecstatic about that, as Bob Watson had hinted that the engine should be good for, in his words, 'somewhere around

190–200bhp'. But after studying the fuelling and ignition settings, Stephen reckoned there was more to come.

He made some adjustments here, some more there, and wound the car up through the gears once again, the rollers shrieking away, the induction system roaring, the exhaust note booming. If you want an idea of what it was like, you can see a video of the run by scanning the QR code on this page, or go to <https://youtu.be/wHADUnlo6aA>

As the graph on the computer screen peaked, the final figure showed up as 205bhp at 6430rpm, and peak torque of 168lb ft at 6230rpm. Over two hundred bee-aich-pee! Wow! That was better than I had hoped for, and what was impressive was the way the torque and power curves climbed so steadily all the way from idle, with only a brief dip at around 4200rpm – indicative of the spec of the 'S' cams fitted. On the video, you can hear the point at which the engine comes 'on cam' – it's very distinctive!

So, there we are – the cold starting still isn't right, and there's still a stumble at light throttle openings, but I am beginning to think that might simply be down to the nature of the peaky 'S-spec' camshafts.

But these are small problems, which hopefully I can iron out over the winter period.

In the meantime, I can start to pile on the miles and enjoy the car – at wide-open throttle, if I so desire. **PW**

Power (red line) and torque (blue) rose in unison, with just a slight dip at around 4200rpm – just as the engine starts to come on cam. 205bhp at the flywheel was the encouraging result



If you want to see what the car was like on the rolling road, scan the QR code and watch the YouTube video

CONTACT

Thanks to:
Tipton Garage:
01404 812091

Williams-Crawford:
01752 840307



Far left: It's all still a bit of a mystery to me, but the advantages of going the modern EFI route in terms of the ability to fine tune the fuelling and ignition settings at every point can't be denied

Left: Standing next to a car on the rollers is slightly unnerving at times... You need to mind your feet!



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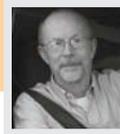
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Welcome to *911 & Porsche World's* Q&A pages, edited and assembled by the magazine's technical man and do-it-yourselfer, Chris Horton (above). The format is much as you would expect – you ask, and our experts do their best to offer a practicable, real-world solution – but we also pass on some of the knowledge that we gain during the course of our own work on the magazine and our cars. Either way, we routinely add as much detail as possible – including part numbers and costs, contact and website details, and any relevant illustrations that we can find. Prices quoted are to the best of our knowledge correct – for the UK market – at the time of writing, and generally exclude VAT unless otherwise stated. Naturally we do our very best to ensure that the advice and information given is accurate, but we can accept no responsibility for any effects arising from it.

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SCREEN REPLACEMENT: PREVENTION IS BETTER THAN CURE

Q My 996 C4, now with over 100,000 miles on the clock (and still running well on what I believe to be its original engine; naturally I read with great interest the first part of your big M96/M97 story in the January edition of the magazine) needs a new windscreen, now that the original has a number of fairly large stone-chips. Too many for it to be worth bothering with any form of localised repair, certainly.

My two previous experiences in this area were far from satisfactory, the cars – albeit not Porsches – later suffering from water leaks, and in one case catastrophic corrosion around the windscreen aperture, due to the protective paint being damaged during the removal of the old glass, so naturally I am keen to give the new one as much long-term protection as possible.

I know that you can buy special security films for the inside of car windows, often tinted, and that there are also special 'wraps' available for protecting exterior paintwork, but is there anything similar for glass? If not, there certainly should be!

Graham Emery

A **Chris Horton, 911 & Porsche World:** In just one very short and simple word, yes. I rang around a few of my contacts, and was eventually put in touch with, and later met, Ben Robinson, managing director of ClearPlex UK.

The company, which is based in Cambridgeshire, is the UK distributor for American-made ClearPlex which, as its name and this introductory preamble might suggest, is a multi-layered but still optically clear polyester film, placed over



There are no two ways about it: a car is never quite the same after having a replacement windscreen fitted, however carefully the work is done – and sadly some installers are concerned more about quick turnaround times than enduring quality. Better to avoid the issue in the first place: ClearPlex will protect glass against stone-chips – and, perhaps just as important, your skin and the fascia against UVB rays

the outer surface of the glass, and effectively invisible to the driver. It is designed to withstand quite significant impacts from stones and other road debris, usually leaving only a tiny mark on the film. It is also resistant to scratching from the windscreen wipers, and is guaranteed not to peel, bubble, crack or go yellow. (And even glass, popularly believed to be as hard as a diamond, can quickly be damaged irreversibly by sand, grit, or even just leaves trapped beneath the windscreen wiper blades.)

No less valuable, in my view, and arguably even more so, is the protection ClearPlex offers against both heat and glare, and also what is claimed to be up to 99.9 per cent of harmful UVA and UVB rays. You might remember that some time ago I answered a Q&A query from a reader who had developed solar keratoses –

potential skin cancers – on the backs of his hands, almost certainly from driving for long periods in strong sunlight, and by all accounts ClearPlex would go a long way toward preventing this. It should also help to preserve the upper part of the car's fascia, and while that is not (yet) a problem in 996s, just look at the dashboard top of any 944 these days. Chances are it will have more unsightly cracks and fissures than a dried-up riverbed.

ClearPlex is applied either from the roll, or else pre-cut from a vehicle-specific pattern – and this, we are told, makes it a possibly DIY process. (Not one that I would enjoy, however; I can't even apply a screen protector to my phone without messing it up.) Its minimal thickness allows it to follow every curve of the glass, and the even thinner layer of special pressure-

sensitive adhesive on its inside surface is then activated by smoothing with a suitable 'squeegee'. The resulting bond is naturally strong, but not permanent, allowing the fairly easy replacement of the film if necessary. You simply lift a corner with what ClearPlex calls a 'semi-sharp' instrument such as a blade, and then gradually pull with consistent pressure. Any remaining adhesive can then be removed from the glass with soap and water.

It's not the cheapest item you will buy for your car – £250 professionally fitted to your 996, or £150 if you do it yourself; both prices plus VAT – but that is far less than the cost of a genuine Porsche windscreen, never mind the fitting thereof. I genuinely believe it to be a real breakthrough in this often overlooked (no pun intended) but important area, and if I ever summon up the

courage to have the glass replaced in either my 944 or 924S, both of which are still legal, but look like they have taken a hit from a shotgun, then I shall be going the extra mile, and fitting ClearPlex on top. (And likewise if ever I am lucky enough to buy a new or even nearly-new car, too.) We are told that a large number of bus and truck operators have seen the light, as it were, with replacement windscreens for their vehicles often costing thousands (plus the inevitable downtime), so who knows? Maybe one day you will be offered a discount on your insurance premium – and certainly on your windscreen policy – for having ClearPlex fitted.

More details – as well as additional pictures and YouTube footage that, obviously, we cannot hope to equal in a printed magazine – at www.clearplex.co.uk.

TRY SOME DIY BEFORE CALLING IN THE (COSTLY) CAVALRY!

Q In 1990 I bought a 911 Carrera 3.2 Super Sport – that’s the wide, Turbo-body model, but with the standard naturally aspirated engine. It’s a beautiful car that I love dearly, but because I wasn’t using it very often in the UK I decided to take it down to my property in the south of France. Unfortunately it has now been sitting in my garage there for the past eight years without moving. Before I took the car to France it had a full service from AFN at Chiswick. I told them that it was difficult to start the engine if the car had been left standing for a period of four to six weeks or more. AFN serviced the car and told me that it was perfect, and that they could find nothing wrong.

I had a wonderful drive down through France, and the car never missed a beat. I then left the car for about six weeks, and when I returned to France I had one hell of a job to start it. I eventually got it going by pushing it out into the sunshine and letting it warm up. It then (very reluctantly) started and was fine, and again it ran beautifully. I then left the car over the following winter, and have never been able to get it going again. It’s so infuriating, because I know the car is fine, but it just won’t fire. It sits in my garage looking very sad. Picture attached.

I have thought about contacting the Porsche Centre in Montpellier, which is about 30 miles away from my property, and having them collect the car and sort out the problem, but I suspect that the cost would be astronomical with a 60-mile round trip for the recovery alone, although if this my only option then obviously that is what I will have to do.

Any ideas that you may have would be very helpful. I have checked the fuel pump, changed the starter-motor relay, checked that there is fuel at the injectors, and even had the ECU checked by a specialist here in the UK. Nothing so far has worked, with not even a hint of the engine firing.

John Dunbar

A **Paul Stacey, Northway Porsche:** It is always difficult to diagnose a car without seeing it first, but you need to go back to the basics. First, check to see if you have either a spark or an



Lost in France – or stranded, anyway. John Dunbar’s cherished Carrera 3.2 was driven down to his place near Montpellier eight years ago, but now refuses to start

injector pulse. Pull off one of the plug leads, and place a spark plug into the lead and then rest the body of the plug against anything metal on the engine to earth it. Get someone else to try to start the engine, and see if there is a clean, blue spark coming from the end of the plug. If not, then it could be the coil, the engine ECU, the DME relay, or even the speed and reference sensors.

The DME relay is located under the driver’s seat, this relay turns on the fuel pump and the engine ECU and is not expensive to replace; most air-cooled owners tend to keep a spare in the car. If you still have no spark, then check the pulse at the coil. You should have an ignition feed on the black wire to the coil and again when the engine is trying to be started check for a pulsed earth on the green wire on the coil. You will have to use an LED test light for this as a normal bulb cannot react quick enough for you visually to see the pulse.

If you have no pulse at the coil you need to check to see if you have an injector pulse. Pull off any of the injector leads and with your LED test light check to see if there is a pulse again when the car is trying to be started. If all of these tests are showing no pulse then you will either have a fault with the engine ECU (DME control module) or the speed and reference sensors. The speed and



Around £15 worth of ‘Noid’ light, by Sealey via Amazon, might help show an injector pulse. Faced with problems like this (see text) you have to consider all possibilities

reference sensors are mounted on the rear of the engine and are a bit of a pain to replace. We always replace them as a pair, and you will more than likely have to replace the housing, as well, due to corrosion. Be careful when fitting the new sensors as there has to be an air gap of 0.8mm between the flywheel and end of the sensor.

A **Chris Horton, 911 & Porsche World:** Perhaps I can add to Paul Stacey’s answer by saying that I have just bought a so-called Noid test-light kit (see above) – from Sealey via Amazon, and all for around £15 including shipping.

In truth, I shall in the short term need only one of the half-dozen in the set (the others are for different cars and/or types of injectors) but, even so, I reckon it will be well worth the modest cost to find out if the units in my 944 are working – and also in my similarly long-dormant BMW M535i, which has a spark at the plugs, but still refuses to fire.

After I’ve done that I shall probably be sending the single Bosch-type tester up to the current owner of my old red 924S in Scotland (see page 127 of the November 2015 issue) to help establish whether an injector and/or ECU issue is why that car suddenly stopped, and now won’t restart.

996 IGNITION SYSTEM WILTS UNDER PRESSURE

Q My 2002 911 Carrera 2 – obviously a 996 model – has developed an occasional slight misfire, particularly when I am accelerating hard. Like most owners of these Porsches I am painfully aware of some of the problems that are popularly supposed to beset their engines, but naturally I am hoping that this isn’t one of the more serious ones. Do you have any suggestions?

Tim Barron

A **Chris Horton, 911 & Porsche World:** From your brief description I would suggest that the most likely cause of this relatively common situation – which can affect all of these modern water-cooled cars, including the broadly similar Boxsters and Caymans – is simply one or more of the six individual ignition coils beginning to break down.

These coils, which look like miniature transformers (because that’s what they are), are bolted to the outside of the camshaft covers, directly over the spark plugs, and in the path of much of the

water and dirt thrown up from the road surface by the wheels. (The rear-engined 911 has a protective shield over each set of three coils, but in the obviously similar Boxster they are open to all the elements.) Eventually their protective plastic coating begins to crack and peel off, their inner cores begin to corrode and delaminate (see photo, right), and they can no longer reliably generate the high voltage required to fire the plug, especially when – as in your case – the engine is under load.

They are relatively easy to change, but unless you are a reasonably experienced DIY mechanic we would suggest that you leave it to a Porsche Centre or, perhaps more likely in the case of an older car such as this, an independent specialist. The latter should charge no more than around £75–£80 all in to change a single faulty coil (which itself retails for around £30 a time from Euro Car Parts; go to www.eurocarparts.com), but it should be slightly cheaper *pro rata* to have all six (and possibly the plugs, too) changed at the same time – and obviously that should also avoid the likelihood of a second or even third unit failing soon afterwards.



All 986–997 spark plugs are fired by their own individual ignition coils, which because of the harsh environment in which they work – especially in the mid-engined Boxster and Cayman – have a relatively short life. They are a little awkward to replace, though, so it’s probably best to have all six done at once rather than wait until the next one fails – as it surely will...

SOUNDING OFF

Q My 2007-model Cayman 2.7 has started making a most peculiar noise inside the cabin – a sort of deep and regular thump, and quite loud. At first I naturally thought that it must be something to do with the engine, but then I realised – with some relief – that it was coming from the loudspeakers for the stereo system. Oddly, though, the stereo wasn't even switched on at the time. Your early advice would be appreciated – the car runs well enough, but because of the loud and disturbing noise I really can't drive it very far.

Roy Hopkins

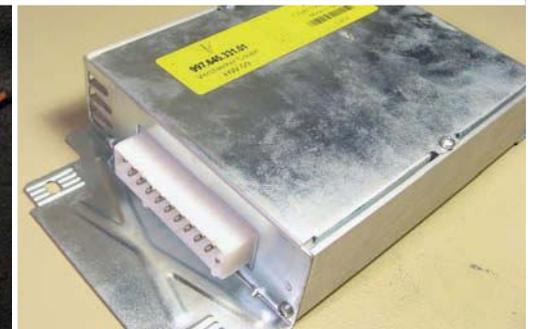
A **Tore Bergvill, Bergvill F/X, Norway:** Unfortunately, your experience is one that is now being shared by an increasing number of 987-model Boxster and Cayman owners. Those with 997-model 911 Carreras, too. The good news, however, is that I will almost certainly be able to repair the fault, if you can remove the affected unit from the vehicle and send it to me here in Norway.

These cars were optionally available with what Porsche calls Sound Package Plus. Essentially this consists of an additional amplifier mounted in the front luggage compartment, and driving an extra loudspeaker in the centre of the fascia, as well as the so-called 'woofers' within the two doors. The amplifier is mounted behind a carpet-covered lid, and is attached with a simple clip arrangement. Detaching its harness connector is done by pulling hard on the connector frame sideways (ie upwards); this will extract the connector.

The units were specially made for Porsche by an Italian company called ASK Automotive Industries Group, and they were unlucky in their choice of components, I believe, as well as having built in a design flaw or two. Several electronic components can and now often do fail, and the result is either a completely dead amplifier, or else – as in your case – a very loud rumbling noise or hiss in the relevant speakers, even when the system is switched off.

It is quite easy to establish if your ASK amplifier is faulty. (And obviously this problem will appear only in those cars with Sound Package Plus. Look for the '490' code on the Vehicle Identification Label on the underside of the front lid, or else in the car's Guarantee & Maintenance booklet.) If there is no sound, or abnormal sound from the centre speaker, as well as from the woofers in the doors, then you most probably have a faulty ASK amplifier.

Disconnect the amplifier (or remove its fuse), and turn on the stereo. If there is normal sound from the other speakers, then you have a faulty amplifier. If you still have abnormal/distorted sound, even without the amplifier, then you most probably have a problem within the stereo head unit itself. The amplifier is switched on and off by the stereo head unit. A failing amplifier can make these noises both when supposed to be in 'on' and 'off' mode, due to the fact that both the internal audio and power-



We first featured the innovative Tore Bergvill's wares – in the form of a high-power headlight conversion for 993s – in the February 2015 edition of the magazine, but he offers a number of repair procedures, as well, in this case for the extra amplifier in later cars with optional Sound Package Plus. Offending unit – also known as an 'ASK' amplifier – lives in the front luggage compartment, but is easily removed for shipping to Norway. Cost of the job is 120 euros including some worthwhile internal upgrades, says Bergvill – and even return carriage by airmail

supply circuits can eventually fail.

A new amplifier is still available from Porsche, but here in Norway it costs the equivalent of around £450 plus VAT. I imagine it will probably be about the same in the United Kingdom; perhaps a little bit less. I have seen changes in the latest versions of these amplifiers that will most likely eliminate some of the earlier problems, but the fact that even some of those later units have been sent to me for repair suggests that the manufacturer has not been able to rectify all of the original shortcomings.

I have built a bespoke test-rig for these units, and have extensive experience in repairing them. I have them sent to me from customers all around the world. Due to the large number of repairs that I carry out, I am able to offer this at a price of €120

including worldwide return by airmail. My repair procedure covers all of the known issues in these units, and I also carry out a number of minor modifications to avoid any possible future issues, as well. The repair job has a five-year warranty.

I have spent a lot of time testing and repairing these amplifiers, so I don't want to reveal precisely what I do with them. Suffice it to say that the work includes changing a number of electronic components, and requires proper knowledge and tools for working with surface-mounted electronic components. The 'Services' page on my website (www.bergvillfx.com) contains details of ASK amplifier part numbers and the many other repairs that I offer for Porsche electronics of all ages. There you will find full contact details, too.



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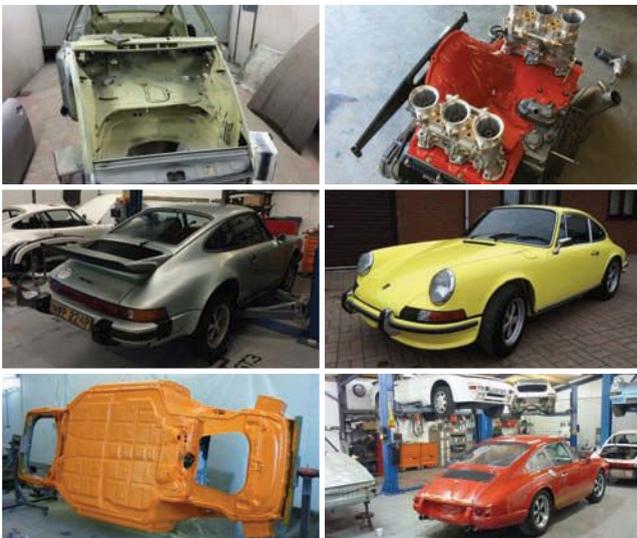
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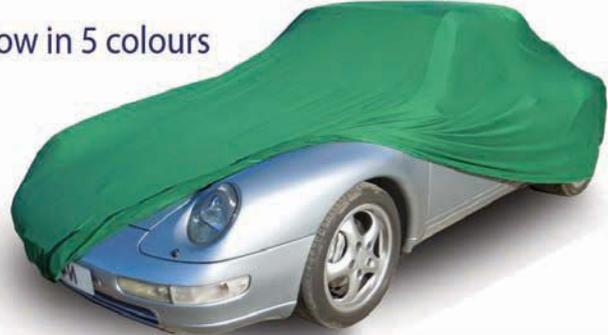
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Porsche 930 TURBO 3.3L 1986 Coupe, Manual Gearbox, LHD, Red with Tan interior.



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Porsche 911SC 1983 Coupe 3.0L 5-Speed Manual Gearbox, LHD, Silver Grey with Tan Interior.



Porsche [911] 930 Turbo 3.3L 1985, Manual Gearbox, LHD, Black with Black leather interior.



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WHEEL REFURBISHMENT

TIME REQUIRED: A FULL DAY

Alloy wheels operate in a hostile environment and eventually will suffer for it, whether stripped by road debris and brake dust, or by careless kerbing. Refurbishing can be easy, if you want a cheap job. To do it properly, however, takes time and patience. Here's how

Nowadays you can get alloy wheels refurbished from as little as fifty pounds a corner, or even do it yourself with the tyre still on at home. However, refurbishing wheels properly is still an involved job that requires skill, experience and equipment. For those with diamond-cut or split-rim alloys, the task is even more involved. In this article we have teamed up with Dave at Autosshine Wheel Clinic in Redruth, Cornwall to refurbish some one-piece Porsche wheels with PVD member and Swissvax Authorised detailer, Michael Hill, of Crystal Detailing.

The sixteen-inch Teledials arrived in a very poor state off an early 944 Turbo, clearly from a city car that had been parked using the 'Parisian method' on a regular basis. These rims will be going on a show car so have to pass rigorous inspection from concours judges this summer. The first step was to thoroughly clean and degrease them, a process carried out by hand using little more than elbow-grease and a collection of brushes. We then gave the rims a chemical bath, which softens the paint and helps to reveal if there are any cracks or structural problems. Being aluminium, it is essential to use appropriate chemicals – many 'chemical treatment systems' are simply too strong for wheels and can cause damage. After neutralising the chemicals we used a sand blaster to remove all the old paint and lacquer.

As with any paint job, the vast majority of the work lies in the preparation stages – the more time and effort put in these early steps will pay dividends when it comes to getting the final result both durable and concours-ready. These particular wheels have a big, thick rim that had taken the brunt of the kerb damage and protected the inner sections, making the repair straight-forward. Using a compressor-driven rotary sander with a range of pads, going from coarse to fine, we were able to flatten out all the gouges and scrapes. Given that wheels get a hard life, and rotate at speed, one can't simply load them with filler and hope for the best –

'as-new' results will come from sanding, sanding and sanding some more, and only using specialist filler when absolutely necessary.

Once they were to our satisfaction, all the dust and grot from sanding was carefully removed with an air gun, before the final wipe-down prior to paint. The base coat is applied first, starting at the centre hub and working outwards in circles. It is essential that all surfaces are covered to prevent premature failure of the finish, but, at the same time, the coat has to be even and not too thick. This is where the skill comes in – even on a casual inspection it's easy to spot wheels amateurs have 'practised' on. One trick to ensure an easy application is to pre-heat the wheels – combine that with a well prepared and keyed surface and the priming stage is a breeze. At this point the wheels are starting to look better, the hard work is paying off, and the primer has a slight filling property, leaving a smooth surface ideal for the colour coat.

Some primers can be air-dried, though best results come when the process is accelerated by either infra-red lamps or, in our case, an oven. The exact temperature and duration varies slightly depending on the different types of paint, and the patience of the operator – in this case it was set at just under two-hundred degrees Celsius. We used a white primer which really helps to make the silver shine, though for different topcoat colours and effects – such as pearlescent – it may be necessary to use a darker primer, or multiple different colour coats.

Colour coat and lacquer come next – in this case we have gone for a standard factory-look rather than a wild colour scheme. The silver is sprayed on in concentric circles starting from the centre, and once the wheel has fully cooled, a super-hard acrylic lacquer is applied for gloss and durability. After a second session in the oven the wheels are ready for rubber and the job is done. As you can see, alloy refurbishment done properly is a significant amount of work, but when put side by side with a 'quick-job' the difference is profound. **PW**



Our 944 Turbo wheels were pretty battered, but at least they were simple one-piece, rather than a complex two or three-piece.

Following a thorough clean and a degrease, they were chemically stripped and then the damaged rims were sanded back and filled only where absolutely necessary. All the dust and muck was blasted off with an airline and then the wheels were primed in white and oven cured, before a factory silver top coat and a super-hard acrylic lacquer were applied, followed by another trip to the oven. Repeat four times!

The results, though, speak for themselves

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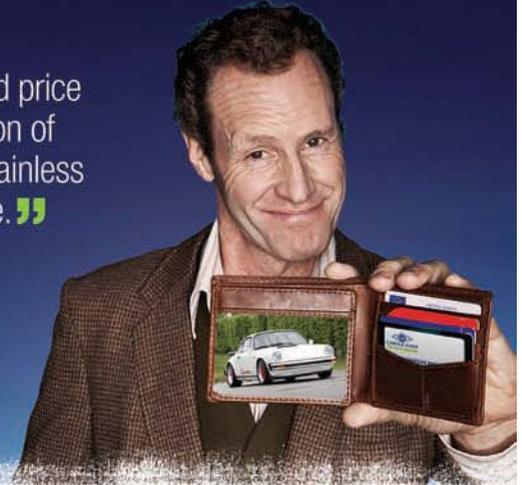
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BUYERS' GUIDE: BOXSTER 987

BOXING CLEVER

As perfect packages go, there's very little to touch the Boxster in any of its guises. The 987 sits neatly between the original 986 and the bigger, current, 988 and offers perhaps the best value of any of the three generations in terms of bang for buck. One thing is for sure, there is very little to touch the all-round genius of the Boxster's handling, practicality and sports car purity. Here's what to look for

The original, 986-series Boxster launched in autumn 1996 was without question the most significant new Porsche since the first 911 introduced 33 years earlier. Rather than building various model series with little if any components in common, for the first time the Zuffenhausen production lines would turn out different cars sharing major components, the Boxster and 996-series 911 that followed soon after using common platforms, engines and more besides.

The improved efficiency was such that the Boxster helped put Porsche back on a sound financial footing after a very uncertain period, and of course the car itself was a runaway success. 1950s Spyder 550 inspired styling but also bang up to date, the mid-engined Boxster was distanced from the 911 but equally exclusive, and quickly established itself as part of the Porsche order in a way that the 944 and 928 had failed to do, even over many years.

Yet there were complaints: the gutless 2.5-litre "boxer" six-cylinder engine, the interior that looked cheap, and the part brilliant, part flawed hood system. A capacity increase to 2.7 litres and the

addition of the 3.2-litre Boxster S in 1999 resolved the power issue, while a facelift in 2002 saw a new hood with a glass rear screen to replace the previous plastic item, eliminating the problem of the screen cracking as a result of the hood being lowered and raised. Thus when the Boxster came up for replacement in 2004, it seemed there wasn't much left to do, and at first glance the new model looked very similar to its predecessor and used the same engines. Is it, therefore, worth paying the extra to get the second generation, 987-series model, or would a late 986 model plus the change be a better option?

ENGINEERING, EVOLUTION

Here, we concentrate on the first four years of 987s, 'Gen 1' cars made up until the November 2008 facelift which introduced the Direct Fuel Injection engine for the Boxster S and also the PDK gearbox. So what exactly changed for the 987? A lot – 80 per cent of it was new, Porsche said – but let's start with what did so the least, the engines.

On its run-out, the 986 Boxster 2.7-litre engine produced 228bhp/192lb ft torque, which for the new model rose to

240bhp/199lb ft, while output from the 3.2-litre S motor increased from 260bhp/228lb ft to 280bhp/236lb ft. On both models, the improvements were achieved with revised inlet and exhaust manifolds. The manual gearbox was updated by Getrag with a shorter shift, coming as a six-speed on the Boxster S while the Boxster made do with five speeds (although the extra ratio was, along with PASM active suspension, part of the optional Sport pack). A five-speed Tiptronic S automatic transmission was available for both models.

The suspension was retuned and made lighter by aluminium componentry, the track widened and variable-rate power-assisted steering from the 997-series 911 imported. The Boxster wore 17-inch wheels and the S 18s, with a range of 18/19-inch factory options.

The one styling change that was immediately obvious was the switch away from the extended headlamp cluster to a rounded and far neater and more purposeful looking design. The rest of the car seemed much the same – until you began to take in the proportions, which brought a new elegance to the ever so slightly awkward original, and, some say, made the Boxster more true to the stunning 1993 Boxster

There's very little to criticise when it comes to the Boxster, although it could be said that the styling is a little bland, not helped by typically unadventurous silver of studio car

BUYER'S CHECKLIST

- Soot on exhaust suggests cylinder bore wear – have this checked by a Porsche specialist
- Engine rattles could mean IMS bearing failure is imminent
- An engine misfire could mean one or more ignition packs is faulty
- Front and rear suspension springs can snap
- Water ingress in cabin can affect lights and hood electrics
- Ensure hood lowers and raises smoothly

PRICE RANGE

£7000–£8000

First, 2004 or 2005 2.7s, with mileage well over 100,000 and patchy service history

£8000–£10,000

2005 and 2005 2.7s, with 80,000–100,000 miles, a few 3.2 S models at this price

£10,000–£12,000

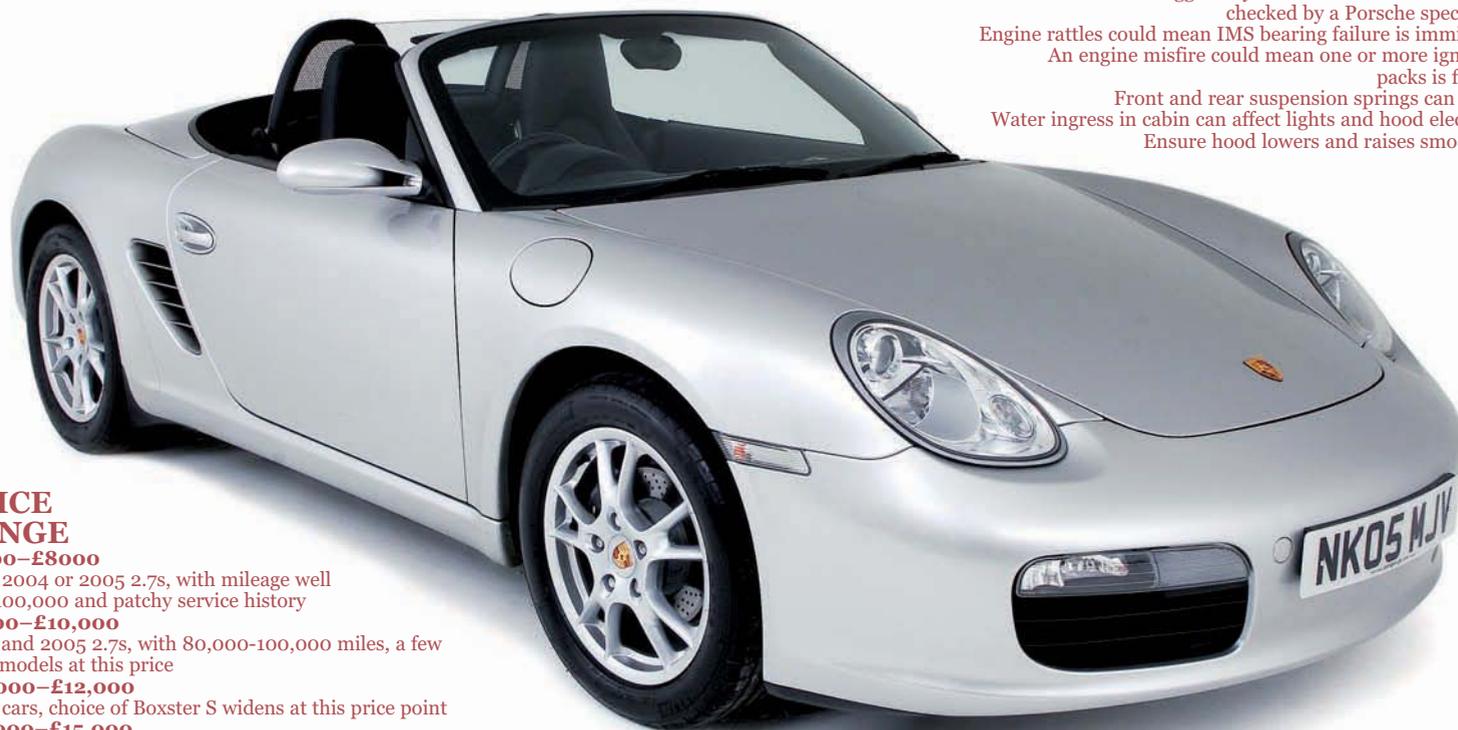
2006 cars, choice of Boxster S widens at this price point

£12,000–£15,000

2007 and 2008 pre-facelift Boxsters, 2007 S models

£15,000–£17,000

2007 and 2008 Boxster S, with under 50,000 miles and good spec





Interiors are a step up from earlier 986 Boxsters, but less likely to be spec'd as highly as a 911. Right: Standard wheel size for base Boxster is 17in. Very few people spec'd 17s, but for handling purity and ride, albeit at the expense of looks, they are the enthusiast's choice

concept car. In the cabin, the three-dial instrument display was retained, but all fittings and trim were upgraded, bringing a true quality feel to an interior that had previously felt plasticky.

When launched in the UK in late 2004, the Boxster was priced at £32,320 and the S at £38,720, standard equipment on both including air-conditioning, electrically adjusted seats, while the Boxster had Alcantara/leatherette seats and the S part leather. But the mechanical and trim options list was long and varied, key items being PASM (£1030), Sport Chrono Package/Plus (£507), Bi-Xenon lights (£626), ParkAssist (£325) and Sports seats (from £257, depending on trim). Lots of little items, too, such as full-colour Porsche crest wheel centre caps (£107) and programmable garage door opener (£175).

In August 2006 both engines were equipped with VarioCam Plus valve control. The Boxster rose by 5bhp to 245bhp and torque fractionally to 201lb ft, but more significantly the S unit was increased to 3.4 litres capacity and produced 15bhp more at 295bhp and torque rose by 15lb ft to 251. At the same time, servicing access was improved, the coolant and oil fillers placed behind a flap in the rear boot instead of being exposed. The 19-inch wheels from the 911 Turbo were added to the options list. This was the final Boxster/S spec until the unveiling of the PDK cars at the Los Angeles show in November 2008, although one year before Porsche had turned out two limited edition models, the S-based RS60 Spyder recalling the 718 RS60 Spyder racer of the late 1950s/early 1960s, and the equipment laden Sport Edition.

HOW IT DRIVES

The Boxster has always been seen as the hairdresser cousin of the 911, but you will not be disappointed at the way it drives. The handling is excellent, with the sublime chassis balance that only an engine mounted amidships can bestow. And the spring, damper and anti-roll bar refinements made for the 987 subtly improved the original. The revised steering, vibrant with feel, is also a highlight.

The water-cooled flat-six engines, with their intoxicating howl and astonishing refinement even at close to 7000rpm, are a pure pleasure to use. However, those requiring true grunt should stick to the S, either in 3.2 or 3.4-litre form, as the 2.7, while improved over the early 2.5 engine, is still rather impotent at low revs and always needs

to be revved enthusiastically.

With its improved quality and revised seats, the 987 cabin – strictly for two – is close to perfection. One could say the buttons on the centre console are too small, but the instruments and controls look good, and solid. The Boxster is utterly brilliant with the roof down, largely free of wind buffeting (all the more so if the optional wind deflector that attaches to the roll-over bar is present), and for those old enough to remember traditional roadster canvas hoods, the way the Boxster hood swiftly and smoothly lowers and raises in 12 seconds with no catches to manually unfasten is wonderful. An easily achievable 30mpg contributes to the Porsche's day to day practicality.

WHAT YOU'LL PAY

The cars we're concerned with span just four years, but the price range is large, from £7000 up to £17,000. Those at the lower end will have done well over 100,000 miles and will possibly harbour some of the issues we highlight, while cars at the top end will usually be late pre-facelift S models, an S generally being worth £1500 to £2000 more than the 2.7-litre car. In between, say for £12,000, you could get a 2005 or 2006 car with around 75,000 miles – but spec and colour have quite an effect on prices.

'A sensible spattering of options like sat nav, 19-inch wheels and full leather always

helps make a car more saleable, and cruise control and heated seats are useful, too,' says Kes Deacon at independent Porsche specialist Paragon in East Sussex. Colour impacts desirability, and although it might or might not affect the value, it can make the Porsche either easier or harder to sell. 'Silver, black, grey and midnight blue are the favourites, then you have the yellows and reds,' Deacon tells us. 'But if it's a nice mileage and spec it may not make that much difference.' Note that all Boxsters registered before 23rd March 2006 currently attract £290 road tax per year, whereas after that date, under the CO2-based system, a manual Boxster attracts £490, and the Tiptronic S and the two S models £505.

WHAT GOES WRONG ENGINE AND TRANSMISSION

If you have spent any time at all reading about Porsche's M97 engines, you will almost certainly have learned of the possible problem with the engine's intermediate shaft (IMS) bearing. Driving the oil pump and camshafts, the shaft's bearing at the gearbox end of the engine is a sealed unit, which over time can lose its lubrication and fails, with results ranging from bent valves to terminal engine breakage. This affects all engines at least until 2006 model year production, when the shaft was modified with a tougher

987-BOXSTER TIMELINE

November 2004
987-model Boxster on sale in Europe

August 2006
3.4-litre engine replaced 3.2 in S, and 2.7's power increased. Both fitted with VarioCam Plus valve control

November 2007
Limited edition RS60 Spyder and Sport Edition models introduced

November 2008
Replaced by 987 'Gen 2' Boxsters

SPECIFICATIONS

987-model Porsche Boxster (manual/Tiptronic S)

	Boxster	Boxster S
Engine	2687cc flat-six water-cooled	3179cc flat-six water-cooled
Transmission	5, 6-sp manual, 5-sp auto	6-speed manual/5-sp auto
Brakes (front, rear)	Vented cross-drilled discs	Vented cross-drilled discs
Standard wheels	17-inch	18-inch
Tyres (front, rear)	205/55 ZR17, 235/50 ZR17	235/40 ZR18, 265/40 ZR18
Weight	1295/1355kg	1345/1385kg
Max power	240bhp at 6400rpm	280bhp at 6200rpm
Max torque	199lb ft at 4700rpm	236lb ft at 4700rpm
0-62mph	6.2/7.1sec	5.5/6.3sec
Max speed	159/155mph	167/162mph
Fuel consumption	29.4/26.6mpg	27.2/25.7mpg
CO2 emissions	229/253g/km	248/262g/km

Figures are for pre-June 2006 cars, fuel consumption NEDC combined

Maintenance costs (guide price, including fitting and VAT)
Preventative IMS bearing replacement £1272
Front brake discs and pads £685
Replace all six ignition packs £395
Replace a broken suspension spring (non-PASM/PASM) £340/£420
Fit new hood canvas (independently supplied) £900
Four Michelin Pilot Sport 2 tyres (235/40 R18, 265/40 R18) £550
Oil service £234
Major service £474

Mechanical and servicing prices supplied by Northway Porsche (0118 971 4333, www.northwayporscheltd.co.uk)

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Hoods Galore
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bearing, which seems to have improved reliability – although failures subsequent to this have been noted.

But how likely is a 987 Boxster to suffer IMS failure? According to Paul Stacey of specialist Northway Porsche in Berkshire, the problem – at least on Boxsters – may be less widespread than many think: 'From what we see, I'd say it's under five per cent of cars, and we've seen 200,000-mile Boxsters on their original engine.' He believes it affects 2.7s as 3.2s equally and, interestingly, that a certain type of ownership raises the likelihood. 'I think it is more likely to happen on cars that, perhaps with 30,000 miles, sit around and are not fired up much,' he explains, 'because the lubrication drains out of the bearing.'

When IMS failure strikes, there is little or no warning. 'When you start the engine, you might hear a rattling noise and then find eight litres of oil dumped on the driveway,' he says.

The other major weakness in the M97 is the possibility of severe cylinder bore wear. This has been a much discussed issue for years, and is widely reckoned to be due to a deterioration of the cylinder liners, and persisted until the introduction of revised models in late 2008. However, Stacey believes that on Boxster engines it is due to the design of the waterways around the cylinder bores, which can cause the engine to overheat, and the piston skirt to wear against the cylinder wall.

However, he reckons that the chances of this fault occurring increase with engine size. 'You'd have to be really unlucky for it to happen on a 2.7, and although it does occur on 3.2s, it's not common,' he says. 'But wipe your finger on the inside top of the exhaust tailpipe to make sure there is no soot there, and if the engine is burning more than a litre of oil every 800 to 1000 miles, that's a sign that there is wear.'

Manual five- and six-speed gearboxes are long lasting, but Stacey feels Porsche's scheduling of a gearbox oil change at 96,000 miles is optimistic, and recommends one every 60,000 miles. 'The synthetic gearbox oil is expensive, costing £20 a litre and some owners won't pay that.'

SUSPENSION

As is the case with the 997 of the same

years, a common suspension problem is the possibility of broken road springs. This may not be as obvious as you might think, perhaps only being picked up at an MOT test. 'The front springs tend to snap more than the rear ones,' Stacey tells us. 'The car might be down slightly at one side, or you may feel a clonking noise when cornering, as the broken spring gets wound up.' On cars without PASM the repair is not hugely expensive, at around £340, provided the top mounts are in good condition and haven't corroded themselves onto the shock absorber, but PASM complicates it, adding extra time to the job. To check if they are broken, simply reach in to the strut assembly and feel around the bottom of the springs for any jagged metal.

BRAKES

Given a normal driving pattern, you can expect 30,000 miles out of a set of brake discs and pads – unless the discs have rusted badly. 'They tend to corrode on the inside,' Stacey explains. 'From the outside they can look nice and shiny, but they may be rotted out on the back.' To check, feel around the caliper and back plate, and listen for a grinding noise when applying the brakes.

ELECTRICS

An electrical problem on Boxsters is the deterioration or complete failure of the ignition packs, there being one for each spark plug, and attached to the end of the plug. These can be replaced individually at not too great a cost, although fastidious owners will renew them all, on the basis that if one has failed or is on the way out, the other five will also be suspect, too. 'The plastic cracks and lets moisture in, so if it's a wet day you're likely to get an engine misfire,' Stacey says.

Water ingress to the back of the cabin can cause a very specific problem, shorting out electrical control modules and causing the tail lights to go on and the hood to attempt to lower itself. 'Put your hand behind the carpet on the firewall at the bottom behind the passenger seat, and you'll feel an inch and a half of foam,' Stacey explains, 'If that is soaking wet, you know you have a problem.'

BODYWORK AND INTERIOR

A generation ago a 10-year-old un-rusted car would have been an owner's dream. But Porsche now delivers that, thanks to galvanisation. 'The only time you'll get rust is if there has been accident damage,' Stacey insists. Likewise, the cabin trim and fittings are durable, the only known flaw is water seeping into the inside of the door and rotting the seal at the bottom, whereupon water soaks into the floor carpeting.

HOOD

The Boxster's hood is a marvellous design and Stacey has never replaced the main motor, but the system has two vulnerable aspects. The first is the tendency of the drive arms to snap, or wear out their plastic ball sockets, and the second is for one of the two cables to break; in both cases the hood will not lower or raise properly. Should the hood canvas need replacing for any reason, owners have the choice of ordering from Porsche, or from an independent trimmer. If opting for the latter, it is important that the glass rear screen is bonded in properly.

VERDICT

As the Boxster evolved into its second generation, it became pretty much the perfect all round sports car: even sharper to drive than before, a noticeably improved interior and better to look at. And with plenty on sale at under £10,000, affordable too. The IMS and bore wear issues must obviously be taken into account when buying a 987, but they should not put you off, as there is a preventative cure for the first, and a straightforward and reliable check for the second. So with care, Porsche's roadster can be as faithful as it is fun. **PW**

WHAT THE PRESS SAID

'The steering, now with a variable-ratio rack-and-pinion mechanism to make it increasingly direct as more lock is applied, is positively alive with feel, and has perfect weighting. Braking – the discs are now cross-drilled – is immensely powerful and reassuring.'

911 & Porsche World, May 2005

'If you liked the old Boxster, you'll love the new one because it raises the bar in every area of importance. More than anything, it feels like it's spent the past six months in the gym, getting into shape. It's still the same car underneath, but now it's quicker, fitter and sharper.'

Autocar, January 2005

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2005/05 Boxster 2.7, grey, grey leather, 18-inch alloys, 73,000 miles, £8900, London

Independent dealer

2006/06 Boxster S, black, tan leather, Bose sound, 137,000 miles, £10,495, Southampton, churchgarage.biz

Porsche specialist

2005/05 Boxster S, silver, black leather, 18-inch Cayman S wheels, 51,159 miles, £16,995, East Sussex, paragon.gb.com



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P0216/013



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P0216/014

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997 GT3
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DEALER TALK:

RPM TECHNIK

Greig Daly, sales director of the Herts Porsche specialist that sells, services and builds Porsches drives a VW van a lot of the time – but it's all in the line of duty, he insists



How long have you been in the Porsche business?
RPM Technik as a business has been trading since 2001 – I joined the team in 2012 and became a co-owner in 2014. We all met in 2010 when I worked at Porsche.

What Porsches do you specialise in?
On the sales side, we tend to specialise in post-1980 models through to nearly new. Our workshops look after all ages and types of Porsches from the 1960s through to 2015, and also our race team, maintaining several race cars including a 2012 GT3 Cup car. With the workshop being so diverse, we occasionally get some of the more rare machines, whose maintenance we feel privileged to put our name to, and which only come through customers with whom we have built up years of trust.

What's your cheapest, and most expensive Porsche presently in stock?
The least expensive car is currently a 2008 Boxster RS60 Spyder at £21,995, and our most expensive is a 1993 right-hand drive 964 RS Touring, at £209,995.

What would you recommend as the best "first Porsche" to buy?
A good question, but there isn't a one-size-fits-all answer to this for us. The type of customers that we can look after can vary from ex-racers to a young first time buyer. Our way of selling Porsches is to understand our



customer and then we are best positioned to help find them their right car. This may make the buying process longer, but customers value our honesty and opinion which typically will turn into a longer term relationship.

Where do you get your stock from?
The majority of cars come from existing customers, perhaps through our service side, or they are cars we have sold previously. This is ideal, as we know the previous owners (sometimes multiple), and know the cars; with plenty of Porsches rocketing in value, provenance is everything to many buyers. We have a network of dealers specialising in other brands, and we have an arrangement whereby we inspect and purchase Porsches that come into them.

What warranty do you give, or sell?
We supply an in-house RPM Technik six-month unlimited-mileage warranty. We don't sell warranties, rather supply them as a total package for customers buying our cars. Our warranty reinforces the notion that there are only certain cars we are happy to put our name, and ultimately money, behind.

What's 'hot' at the moment?
GT3s and 911 Turbos have always been popular, and will continue to be – I still see them as great value compared with other brands' equivalent cars. The Cayman GT4 will be a good vehicle for buyers and sellers, and crucially I think we will see plenty of these being used and enjoyed rather than sat in collections, accumulating dust. 996-model 911s are starting to have their day and rightly so, as prepared correctly they are an excellent driver's car, and have had some really unfair press in recent times, which buyers have now started to disregard. Our "CSR" built 996s and 997s have begun to interest people, with three cars commissioned

in as many weeks.

What's best value at the moment?
A well prepared manual 996 Carrera Coupe (3.6 or 3.4) with a full service history and no "stories" is a fine purchase. These cars offer incredible performance, which in the right hands can keep up with and embarrass far more exotic machines. They can also be run on a fairly modest budget, providing they have been prepared correctly to begin with. I would also look at a manual 997 Gen 2, as they have now taken the brunt of their depreciation and are modern enough to be a really engaging daily driver as well as a weekend toy. I also personally enjoy them because they are a bit smaller than the 991, and arguably last of the real manual 911s.

Name a car that you recently sold, that you would happily have kept for yourself
All of them – wouldn't have sold them otherwise!

What car do you drive every day?
Most commonly a VW van! Sad but true, however four nights out of seven I will be road testing either a new piece of stock, or a service car to help analyse a problem.

What are your plans for the future?
To continue supplying good quality cars to customers – corny and clichéd I know, but we love what we do and plan to carry on with the same job for a long time yet. The restoration and race side of our business is also growing substantially, which may result in more race/bespoke cars going through the showroom.

Contact
RPM Technik, Units 6 & 7, Old Airfield Industrial Estate, Cheddington Lane, Long Marston, Hertfordshire HP23 4QR, 01296 663824, rpmtechnik.co.uk

HELPING YOU MAINTAIN YOUR PORSCHE. THIS MONTH:

CLASSIC ADDITIONS CUSTOM INDOOR COVER

PRICE: FROM £252

FUNCTION: INDOOR PROTECTION FROM GARAGE DIRT AND DUST

If you are storing your Porsche in the garage over the winter you may want to protect it with a cover. Many indoor covers are available from under £50, but this super stylish item from car cover specialist Classic Additions caught our eye. The Shropshire-based company's top range indoor cover is the Custom Indoor cover, which is hand-made and cut specifically not just for the model of car but individual variants, too. So, for example, the cover for a 993-series 911 Turbo is different than that for the 993 Carrera (pictured here), as it is shaped to accommodate

the large rear wing. They're made from a thick cotton acrylic with a soft fleecy inner, and priced from £262. You choose from a range of 20 different colours, and can have the edging trim and door mirror pockets in a different colour, while a single or double centre strip can be specified. Contrasting door mirror pockets and extra stripes are useful, as they act as reference points and make it much easier to place the cover on the car correctly, which can be surprisingly tricky in a poorly lit and cramped garage. These covers are expensive, especially if you order the extras trimmings, but they are well made – and the neat fitting shape and bright colours will help you enjoy your Porsche even when it's in storage!



TIP OF THE MONTH: CLASSIC CAR INSURANCE

When buying a classic Porsche which is to be an additional car in the household, it's normal to place it on a specific classic car insurance policy. These policies, such as from the specialist underwriter Peter Best, offer a good level of cover (and usually breakdown assistance, too) at a reasonable cost, provided annual mileage is low and the car is garaged at night.

But comparisons are key in the insurance world, where no two premiums are the same, so before signing up with a classic insurer, call your existing insurer to see if you can get "bolt on" cover for the newly acquired classic. Some insurers won't want to know, but if yours is one that likes multi-car policies you might get a good deal. It's possible that the annual mileage limit may be higher than on a specialist policy, or that you can have business use on the classic. And you will almost certainly have to pay out less up front, because if the cover begins halfway through your existing policy, the cost is calculated on a pro-rata basis. One phone call is all it takes to find out if this arrangement works for you.



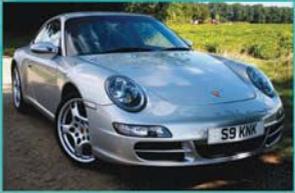
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911



1986 911 3.2 Carrera Cabriolet
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MARKET WATCH

Nobody wants to drive a convertible Porsche in winter, so they must be cheap, is the perceived wisdom. We find out if it's true

The notion that cabrio Porsches must be cheaper in the winter is becoming something of a myth. A current model used Boxster 2.7 starts at around £31,000 from a Porsche Centre, an S (pictured here) at £32,000+



We are now in mid winter, and the days are grey and short. That must mean one thing – cheap convertibles, with Boxsters and 911 cabriolets hanging forlornly about on forecourts, with the trader's favourite expression, "rare as hens' teeth" temporarily referring to paying customers rather than the cars people want.

So, is this the time to buy a droptop Porsche and save a packet? To find out if they really are, on average, cheaper when the sun refuses to shine, our first stop was Glass's, one of the motor trade monthly pocket guides that is the basis for used car prices.

In the issue published for July 2015 – in mid summer and therefore at or near the high point of convertible demand, we assume – a current shape Boxster S (as shown in the main image) registered in 2013 carried a "retail" or dealer price of £32,750 and a "trade" or part-exchange value of £28,500.

Four months later in the November issue, Glass's put the retail value of the same model at £30,250 and the trade figure at £25,750, reductions of £2500 and £2750. But when switching our study to the equivalent coupe, the Cayman S, we found that between July and November, Glass's had actually marked up the July retail and trade values of £36,250 and £31,250 by £1500 and £1750.

This confused picture is partly due to Glass's having recently reassessed Porsche values. 'Classic car values have increased dramatically, and they are pulling up the prices of some modern cars such as Porsches,' explains Glass's Chief Car Editor, Steve Jackson. 'In the market overall, convertible prices are now on the way down, and will be that way until spring, but apart from some of the older Boxsters, Porsche prices are not that challenged this winter.'

Of course, these are averaged figures that can never be much more than a starting point for those in the motor trade – so what

actually goes on in used car showrooms over the winter months? Long established Porsche specialist Carl Ives of Shirleys Garage in Meriden, Warwickshire tells us that while big summer/winter price differentials disappeared years ago along with inadequately weather-proofed convertibles, values do drop towards the end of the year, and cabriolets become harder to sell. 'They don't fall out of bed or anything, but you need to make them look a bit more attractive to sell them,' he says. 'On a £40,000 car the drop is about £2000, and on a £15,000 car about £500. It starts in September and picks up about the end of March.'

However, it seems that the difference between the summer and winter market for convertibles is not simply a question of slightly lower prices due to lack of demand – the number of cars available has an impact, too. 'In summer, a lot more garages have a go at selling convertible Porsches, just as in winter a lot of garages who would not

normally sell 4x4s buy 4x4s in for stock,' asserts Simon Lenton of Porsche and prestige car specialist Dove House Motor Company in Northamptonshire. 'So in mid summer there is much more choice, but not necessarily better cars for sale.'

He thus claims that over the winter Porsche cabriolet prices don't drop much, if at all, and cites an additional reason for this: 'Nowadays, a lot of people think they're being smart by buying a Boxster during the winter, but the problem for them is all the other people having the same idea. And at this point the dealers who have the cars tend to be the specialists.' His advice on timing is simply this: 'The best time to buy a convertible Porsche is when it is right for you.'

What prices will those looking for a convertible Porsche currently have to pay? At the time of writing, in late November, if you wanted the cast iron warranty protection from Porsche Cars Great Britain, in the form of the two-year Porsche Approved Warranty, a journey to Porsche Centre Newcastle was necessary, where a 2008/58-registered manual Boxster 2.7 in Cobalt Blue metallic paint and a partial leather interior awaited. It had covered a mere 25,400 miles, and carried good extras: 18-inch wheels, upgraded Bose sound, Park Assist and Porsche Communications Management (PCM). The Porsche network offered nine other 987 Boxster and S models under £25,000, but if you sought the current shape, the starting price was £31,850 at Porsche Centre Solihull for a 46,000-mile, 2012/12 Boxster 2.7.

As outlined in the buyers' guide preceding this, 987-

series Boxsters, all of which are now outside the Porsche Centre network, range from about £7000 to £17,000. The oldest and tattiest of the original 986s have all but hit the banger market, available from as little as £2500–£3000.

This means that the 944 is no longer the cheapest droptop Porsche available, indeed it – along with the coupe version – are, after many years, beginning to appreciate, albeit slowly. We reported last month on a 944 S2 Cabriolet that made £27,560 at auction, but that was pristine, and the going rate for average examples is presently £8000 to £10,000.

This price band is, hard though it may be to believe, on par with the cheapest convertible 911s – early 996s. Look in the on-line classifieds and you'll see a selection for four figure prices, which is surely the high point of 911 cabriolet value at the moment, even if this is for 1998/99 cars. That said, you can still pay a lot of money for a soft top 996 – at west London sports car specialist Sterling Performance, we spotted a 2004 911 Turbo Tiptronic with 40,500 miles stickered at £69,995, while Knowl Hill Performance & Luxury near Reading wasn't too far behind with its £54,995 asking price for a 23,000-mile, 996 Carrera 3.6 from 2005, very late in production.

The 911 cabriolet that the 996 replaced in 1998, the 993, is probably going to cost you at least £30,000, the 964 before that only a few thousand less, and the 1980s Carrera 3.2 much the same. The common factor here of course is the air-cooled flat-six at the rear. **PW**

Carrera 3.2 Cabs start at £30,000



986 Boxster is entry level



944 Cab prices on the up



993 Cabriolets strong at £30,000+

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'LES 190' registration for sale
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£1000 P0216/030

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P0216/059

PARTS

Early 911 parts

911 SWB dash top: original padding and vinyl, good condition, two small splits, some non-original screw holes, would recover perfectly, complete with plastic air vents, £250; clock, original VDO/Kienzle, dated 4/69, good original condition and working order, with bulb holder, bulb and mounting clamps, £100. Tel: 07766 160594. Email: mawarman@supanet.com (Derbyshire).

P0216/008

PARTS

Early 911 parts

911 exhaust silencer, 2 in 1 out, 1965 - 74, Dansk, steel, part number: 92.210 1513, approx 3000 miles use, very good condition, £200; 2 new mounting clamps for 911 exhaust, 1965 - 74, £25 the pair; pair of 911 polished stainless steel heat exchangers, 1965 - 74, for carbs, approx 3000 miles use, very good condition, £600. Tel: 07766 160594. Email: mawarman@supanet.com (Derbyshire).

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P0216/063



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P0216/062

PARTS



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P0216/019

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Blaupunkt Berlin 8000 gooseneck radio cassette player, new old stock, these were the original optional equipment between 1979-1983 for Porsche 911s and 928s, it's brand new, boxed and complete with all components and instructions, for more information and photos, please send me an email or contact me by phone. Tel: 0034 630 045990. Email: frankleon88@gmail.com (Spain).

£500

P0216/010

Boxster, Gen 2, with body coloured front air grilles?

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P0216/033

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Porsche Cayman 2.9 59 plate 2009 model Gen II OE exhaust system with round sport tips, system is 6 years old but has only done 19K miles, it is in very good condition as a result, buyer to collect. Tel: 07815 187533. Email: terryygeorge458@btinternet.com (Powys).

£300 ono

P0216/039



Porsche Panamera all weather/winter rubber mat set (x4 mats)

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P0216/061

PARTS



Porsche 912 engine

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P0216/007



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P0216/034

Porsche 911 996 1999 front wings black

Front Porsche 986/996 wings (ref 99650303101GRV / 99650303204GRV), front wing left and right, RRP £700, fits: Porsche 986 Boxster 1997-'04, Porsche 996 1996-'01, fuel cap has been removed. Tel: 07845 596925. Email: greig1983@yahoo.co.uk (Lanarkshire).

£100

P0216/040

MISCELLANEOUS



Clearout by former Porsche 356A racer See Keith Seume Oct 2002 'The Money Pit' article in 911 & Porsche World, clears barn of Porsche auto jumble and memorabilia. Email: wayne.hardman@btconnect.com for extensive list of items available.

P0115/048



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TRIED & TESTED

With 911 & Porsche World's consultant editor, Chris Horton

944 2.5 LUX 1988/'E' 98,908 MILES £5950

I like this car a lot. Perhaps, as a long-standing 944 owner myself, I would say that – it is far better-looking than mine will ever be for the money – but by the same standard that is not a compliment I could bestow on too many others I get to drive these days. Age, and not least many years in the financial doldrums, have taken their toll on the vast majority of survivors.

And this 2.5 Lux might so easily have gone the same way. By 2013 it had been standing unused for no fewer than seven years, after the then owner had more or less abandoned it at the garage where she left it for a camshaft-belt change and a routine service, and unsurprisingly both the paintwork and the brakes were by that time in need of major attention. The previous service history – such as it may have been – had gone missing, as well. The garage owner sold it on to recoup his costs – luckily, to an enthusiast who invested in a full respray and a brake overhaul, but sadly after a while he, too, lost interest.

Cue Steve Hodgkinson, who basically finished the job – which included repairs to both the sunroof and window mechanisms, and also to the bulkhead, where the brake servo had started to come adrift – and by 2014 had the car back on the road again. (The full story appeared in the March 2015 edition of *Porsche Post*. Indeed, the car was on the front cover.) Now it is for sale only because having previously owned a 944 Turbo, Steve has found one of the few genuinely good ones of those still around. 'I would love to keep them both,' he says, 'but I just don't have the space.'

The next owner will have reassuringly little to do for the foreseeable future. Both the bodywork and the trim are by and large excellent to amazing (especially for a now nearly 28-year-old), and like any cared-for 944 the car feels mechanically very strong. It's all too rare that I can squeeze in more than about a 10-mile test-drive, but on this occasion I did around 30, and would have been happy to do 300. Particular highlights include the surprisingly unworn Linen leather seats (although the driver's could do with a little renovation), the fissure-free fascia top, the free-running windows, and even the ease with which the doors pivot on their hinges. If you know your 944s you will also know that these aspects – the last-named a result of the check-strap mechanisms seizing – can be a real pain.



In all fairness I should tell you that there remain a few minor issues to deal with, but nothing that should be either too costly or difficult. Up front, there are one or two incorrect screws in the engine bay (which is otherwise impressively clean and tidy), and the plastic undertray is missing. Likewise the moulded cover for the heater unit is coming adrift below the windscreen. It could be stuck back down, of course, but better to buy a new one. (The heater output seems rather variable, as well.)

At the rear, there are signs of water ingress to the luggage space (no great surprise there, then...) but also of a slightly slapdash reassembly after the paintjob, with quite a lot of sanding dust beneath the carpet. The paper label from inside the upper rear panel is missing – often a sign of replacement metalwork, but here I suspect that is again just a result of the respray. Have a look, too, at the body seams between that upper panel and the rear wings, and also where the box-section below the lights meets the wings. Neither would be a deal-breaker as far as I am concerned, but best to be aware of them.

The driving experience, as I have said, is superb. The car is by nature no fireball, but the engine pulls strongly and smoothly, and the transmission, brakes, steering and suspension all do exactly what they are supposed to. There is a very slight wheel wobble at 70–75mph, but again, how hard can it possibly be to sort that out? Quick: buy this lovely 944 before I have to! **PW**

Guards Red 944 has a good specification, with refurbished 15-inch tele-dials (Goodyear tyres have 60 per cent of their tread left), sunroof, headlamp washers and height adjusters, front fog-lights, and body-coloured side mouldings. 'Linen' leather seats (manual fore-and-aft, electric up-and-down) replaced light-grey leatherette items, eaten by mice while the Porsche was idle. Matching door cards fitted, too. Car also has central-locking (standard by this time), plus usual electric windows and mirrors. Rear seat-belts are simple but adequate diagonals, and there's a luggage blind – but like many these days it doesn't retract automatically.

Sound system is based around a Sony CD/MP3 player, and there is also a big JVC changer in the boot (with space-saver spare, tools and compressor).

Motorola phone handset is a nice period 'extra'.

Glovebox door's hinge is OK, but lid for cassette storage on central tunnel needs a new one.

Only obvious mod is a throttle response cam. Recent work includes water pump and belts, steering rack and column, sunroof and bonnet-release repair, plus a steering pump and a service. Car has also been fully 'Waxoyled'. The MOT test runs to May 2016; 'private' plate is not included

CHECKLIST

BACKGROUND

Official Certificate of Authenticity from Porsche Cars GB shows that this 944 2.5 Lux was completed on 29th July 1987 (hence 'J' model-year identifier in VIN), but not registered until 28th June 1988. Cars could take a while to sell back then – this one seemingly via Isaac Agnew in Northern Ireland. It has had a total of 11 owners since then, the current keeper buying it as a nearly finished restoration project in 2013, after it had benefited from a windows-out respray. Now for sale purely because he has found the 944 Turbo he was after all along

WHERE IS IT?

Steve Hodgkinson lives near the author in the Thame area of Oxfordshire. Call him on 07801 260149, or e-mail steve@sho4travel.co.uk. For the full story of the car's refurbishment see the March 2015 edition of *Porsche Post*

FOR

Specification, colour (outside and in), relatively low mileage, but above all its mechanical and cosmetic condition. (Dash top is perfect.) Structural integrity, too: the sills appear to be as solid as they come. Drives very well, indeed, and what's more should need only routine servicing for the foreseeable future. Good price, as well: author's project car could consume at least as much as asking price, and still not look half as good!

AGAINST

Still needs one or two trim details to be sorted, and perhaps attention to some of the rear panel joints (see text). Would look better without that rear apron, too – but that's easy enough. And not overly quick, of course – if that really matters

VERDICT

Not the most exciting of cars, but it looks great, drives well, and with the right mindset will make you feel pretty good about the world and your place in it. Definitely a keeper if you like 944s!

VALUE AT A GLANCE

Condition	●●●●●●●●
Price	●●●●●●●●
Performance	●●●●●●●●
Overall	●●●●●●●●



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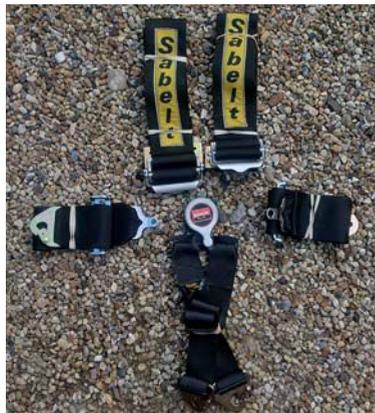
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WANTED

993 Polar Silver stone guard wanted
993 Polar Silver stone guard for rear arch, Carrera 4 passenger side, will buy pair if needed. Tel: 07791 747980. Email: downtonconstruction@virginmedia.com (Merseyside).
P0216/043

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TIME MACHINE

A nostalgic look back at *911 & Porsche World* from days gone by



FEBRUARY 2006 (ISSUE 143)

A significant event (or 'riff' as they would say in the movies) in the Porsche space/time continuum for this scribbler (that will be me, Editor, Bennett), marking, as it does, my first issue at the helm of the good ship *911&PW*. Does it seem like ten years ago? Well, as is so often the way with these things, that will be a 'yes' and a 'no,' although in the 26-year timeline that is *911&PW*, it counts as just a blip. Well, OK, a bit more than a blip, but I figure if I play it down, no will notice that I've been in the chair for quite as long as I have!

The front cover shoot certainly doesn't seem like ten years ago. I well remember freezing my nuts off with the orange RS rep in December, with snapper Paul Lomas, AKA one Antony Fraser. He was worried that other mags he worked for might take offence at his pitching up at *911&PW*, hence the pseudonym. He once worked under the name Charlie Croker, which will mean something to devotees of The Italian Job!

Er, anyway, enough of Fraser's duplicity. The orange RS rep was a true 'bitsa', as in bits of this and bits of that, all bolted to a 911T shell, and with proper RS arches. The biggest 'bit' was the 964 engine, which launched the lightweight shell off up the road with some force. It was typical of the time, when the whole retro/modifying thing was particularly on trend, but early cars were not so ballistically expensive that creating a mongrel like this was out of the question. If memory serves, this was up for sale with Paul Stephens for about £30k.

The issue itself could be described as a 'bitsa' but then *911&PW* has always been thus, except we call it



'eclectic'! That's why I was a reader long before I ever came to work on the title, arriving with a Carrera 3.2 and a 944 Lux for everyday duties. I've still got a 944, but the Carrera is long gone. In my first Editorial I scribbled that: 'What a magazine like *911 & Porsche World* can do, though, is enhance the experience of Porsche ownership. We're here to stoke you enthusiasm for the marque and remind you every month that you drive a Porsche rather than... Well, rather than anything else.' That rallying call still applies.

FEBRUARY 2013 (ISSUE 227)

Setting the controls for February 2013, and we pondered the wisdom that says a 993 always trumps its predecessor, the 964. The 964, you see, was emerging from its rather troubled past and attracting a new breed of buyer that appreciated it for what it is, which is to say a sort of stepping stone between the old school Carrera 3.2 and the modernist (by air-cooled standards) 993. Or to put it another way – a great car that had been too cheap for too long.

Three years on and 964 v 993 is a bit of a non question. It's the 993 that wins in terms of values and driving, but the 964 runs it very close, and the 964 is scarcer too, arriving, as it did, in Porsche's troubled early '90s period.

What the 964 did, though, was offer a great platform for tuning. RS replicas, back-dated hot-rods, even the mighty Singer is based on the 964. In fact no other 911 has captured the tuner's collective eye like the 964, helped in part by the 'on the floor' prices of a few years ago. That said, it's only three years past, but in the classifieds in the back of the Feb 2013 issue there's still no shortage of 964's at £12–£14,000.



FEBRUARY 2002 (ISSUE 95)

Never publicly declare your New Year's resolutions is my advice, and certainly not in print. They may come back to bite you 14-years down the line. In his editorial column in the Feb 2002 issue, former Ed and now Consultant Ed, Chris Horton, proclaimed that 2002 would be the year that he got all his cars on the road and enjoyed driving them, especially his 944. Chris, what happened? The 944 is still off the road, there's still an old BMW on your mum's drive and those old Rovers won't fix themselves you know! Ah, just a mild poke of fun, Chris, but we challenge you to get that 944 running for 2016 and the 40th anniversary of the transaxle cars.

Talking of 944s, we had a rather nice S2 on the front cover, described as *911&PW*'s latest project car, belonging to a mate of CH's, Chris Moyses. The S2 was on the receiving end of a new power steering pump, while elsewhere in the mag, and continuing the front-engined theme, we featured a 924 cam swap. The new Kent cam in question raised the 924's power output to a useful 143bhp and with a big increase in mid-range torque, too. We dare say that Kent Cams would be happy to supply any 924 owners with one today, should you ask.

Rooting around further in issue No.95, and we find Keith Seume's newly purchased Project 911 Carrera 2.7. Described as 'underrated' and costing a third of the price of an RS (a saving of around £30k in 2002 money), it seems too mean to remind Keef of his old flame, but hell, he's late with his copy!



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