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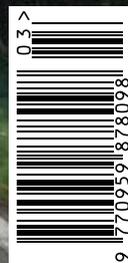
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## ALONG CAME TWO SPYDERS

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# UP FRONT

Faster, greener, cleaner. That's the future of Porsche's sports car range and we can thank ever tightening emissions laws. Funny old world, really

'Necessity is the mother of invention.' A well worn quote/phrase and one that springs to mind when considering the new, all-turbo gen 2 991s. Without the strangling emissions legislation imposed on car manufacturers, Porsche would never have thought or needed to turbocharge its core models. But imposed it has been and so, in the short term, that was the solution that Porsche came up with. The same applies with the impending launch of the four-cylinder, turbo Boxster/Cayman line up. The sweetener for both the 991 and mid-engined cars is that turbocharging brings power and torque to the party, while

“ Work is under way on a plug-in hybrid version of the next-generation 911 ”

reducing emissions and increasing economy, which is a pretty neat trick from what is really a low tech solution.

The next step is trickier. Emissions are set to get ever tighter. Porsche doesn't want to abandon the flat-six as the defining feature of the 911 (well, that and its location) so, according to Porsche insiders, work is under way on a plug-in hybrid version of the next-generation 911. That's a whole packaging headache, not to mention a lot of extra weight, which will have to be offset with a lighter bodysell.

But Porsche is well down the road with this technology. The 918 Spyder was much more than just a vanity project, and the technology in the Le Mans winning 919 won't just be confined to the race track. Roll on 2018.

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# THIS MONTH



p72

## FEATURES

### YOU AND YOURS

Adam Chodosh and his Carrera 3.2 **36**

### 991 GEN 2 TURBO DRIVE

In an all turbo 911 world, the real Turbo has to stand out **42**

### ALONG CAME TWO SPYDERS

Roof down winter thrills in the Boxster 987 Spyder and new 981 Spyder **52**

### 991 CARRERA S UK DRIVE

For the definitive verdict on the new 991 gen2, we drive the Carrera 2 S proper British roads **62**

### SUPERCAR SHOOTOUT

High-speed testing: 959 takes on Carrera GT and 918 Spyder **72**

### M96/M97 ENGINE INSIGHT

Part three of our epic investigation into M96/M97 engine issues and fixes **82**

### ARCHIVE: PORSCHE AT LE MANS 1969-70

Looking back at Porsche's efforts to win its first Le Mans 24-hour race **92**

### HOW TO: 944 CLUTCH CHANGE

Knowledge is power, as they say. Here's how to change a 944's clutch **100**

### SPECIALIST: CSF COOLING

Keeping water-cooled Porsches cool **106**



p36



p100



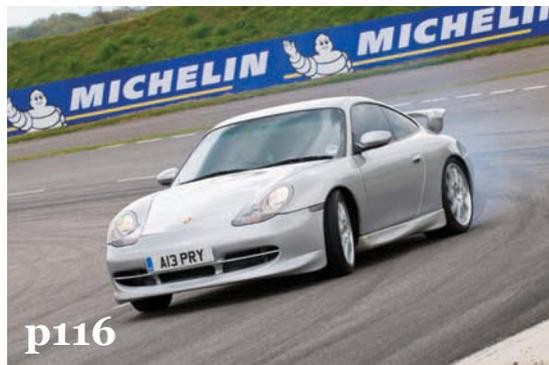
p42



p62



p106



p116



p52

REGULARS

PORSCHE NEWS

All the latest Porsche news... 10

PORSCHE PRODUCTS

...and all the latest must have stuff 22

THE USUAL SUSPECTS

Johnny Tipler has his say 30

PORSCHE LETTERS

You tell us 34

PORSCHE PROJECTS

The latest from the 911&PW fleet 112

PORSCHE Q&A

Technical problems solved 123

BUYERS' GUIDE: CAYENNE

Opinion dividing SUV analysed 130

MARKET PLACE

Tried & tested, plus dealer and auction talk 134

TIME MACHINE

Journey through 911&PW's past 144

SUBSCRIBE

PAGE 142

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Sat Nav, 41,000 miles.....**£36,000**



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Sat Nav, 52,000 miles.....**£36,000**



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# NEWS

The latest on the new four-cylinder Boxster and Caymans. 911&PW wins an award, Porsche extends warranty to 15-years, record 2015 sales and Porsche GB restores a 924 racer



## FASTER AND MORE EFFICIENT: NEW '718' BOXSTER AND CAYMAN DETAILED

Flat-four turbo engines for rebranded mid-engine models

**A**fter last month's news flash, details of Porsche's new 718 Boxster and Cayman mid-engine models are coming thick and fast.

Due for launch at the Geneva motor show in March, the big news items are the name change and shift from naturally aspirated flat-six to turbocharged flat-four motors. But the 718 is not an all new

model. It's a development of the existing 981 Boxster and Cayman cars. The most significant hardware changes are those engines and a new rear structure to accommodate them.

For the record, the new flat-four is codenamed 9A2B4T and derived from the flat-six turbo engine fitted late last year to the updated Type-991 911 Carreras. Indeed, the 718's new base engine shares

precisely the same 91mm bore and 76.44mm stroke as the Carrera's turbo six. In other words, it's essentially the same block minus a pair of cylinders.

The new S models in the 718 Boxster and Cayman range, however, will receive a 2.5-litre engine. Given the distinctly over-square nature of the base engine (in other words, the bore width exceeds piston stroke), the bigger engine could well be a

Styling is tweaked (hard to tell here in winter testing) and the '718' designation harks back to glorious racers of old. But like the 991 gen 2, it's what is lurking amidst that's really different. Gone is the atmo flat-six and in comes a turbo flat-four cylinder for both the Boxster and the Cayman



## HOW TO SPOT A 718

OK, there's the badge on the rear. But, externally, the 718 is more facelift than an all-new model. So what will change compared to the current 981 Boxster and Cayman? For starters, there are new bumpers front and rear. The headlights get an overhaul with what has become Porsche's signature quad-array of LED driving lights. At the rear, arguably the 981's most distinguishing feature, the way the spoiler lip flows into the rear light clusters is gone. In its place are new rear lights that seem to hark back to the original 986 Boxster. Elsewhere, there are redesigned side air intakes and, inside, a minor overhaul including a 918-style optional steering wheel.



stroked version of the 2.0-litre with shared bores and pistons.

Either way, a significant difference between the two engines beyond capacity is thought to be turbo technology. Both get just one turbo compared to the pair fitted to the new 911 Carrera. However, the 718 S is expected to sport the same high-tech variable vane turbo seen in the Type-991 911 Turbo. All told, the new base engine will be good for around 295bhp and 258lb ft. Those numbers are almost identical to the original 3.4-litre Cayman S back in 2005, which just goes to show what a decade of progress and a bit of turbocharging can do. The S model, meanwhile, will knock out

roughly 350bhp and 295lb ft. Both models will be roughly five per cent more efficient than before.

As for outright performance, the numbers improve incrementally with the sprint to 62mph now a 5.5 second affair for the base model and the S squeaking in just under five seconds. But it's the huge increase in torque in the mid-range that will likely ensure the new models feel dramatically more muscular. That said, with a limiter set to 7400rpm, there's still hope for some high-rev thrills.

In engineering terms, the interesting bit is the new rear packaging. While a flat-four might seem like an easy fit where once a flat-six resided, the turbo paraphernalia complete with intercooling means otherwise.

Porsche says much of this new hardware is located in the space vacated by the two missing cylinders. Indeed, fitting the turbo flat-six from the Carrera in this mid-engine model is apparently a non starter.

Another intriguing detail is the use of active engine mounts. As four-cylinder engines go, flat fours are well balanced – good enough, in fact, not to require balancer shafts. But they still lack the inherent harmonic smoothness of a flat-six motor. The solution, for the 718, is active engine mounts. Of course, smoothness aside, arguably the great unknown is noise. Just how will the 718's flat-four soundtrack compare to the glories of the outgoing flat six? We'll find out later this year.

There's nothing unusual about big power from a small engine these days, not when forced induction enters the equation. For the record the S version of the Boxster and Cayman will produce 350bhp, while the base model will output 295bhp





911&PW won the 911uk.com award for best Porsche Media in what is a crowded market place

## 911&PW WINS UK PORSCHE COMMUNITY AWARD

Reluctant as we are to beat our own drum, we remain duty bound to bring you news of 911 & Porsche World magazine's victorious showing in the annual 911uk.com awards.

The gong in question was for best Porsche Media. 911uk.com, of course, is the UK's biggest online Porsche community with around 250,000 unique users per month. Over to our fearless leader, Steve Bennett, for comment.

"Many thanks to 911uk's enthusiastic forum users for awarding 911&PW with the 2015 Porsche Media award. In a crowded market, such an accolade goes a long way and this is a great way to start the new year. 911&PW will continue to be the only UK Porsche magazine staffed by Porsche owners and drivers, sharing the passion and sometimes the pain that ownership brings."

Of course, 911&PW wasn't the only winner. Portsmouth OPC

notched up a win for best Official Porsche Centre. Meanwhile, Harbour Cars in Chichester took top honours in the independent sales category and Hartech of Bolton achieved the same for Porsche servicing.

As we went to press, winners in several categories including Porsche restoration, motorsport breakthrough and social media and marketing had yet to be announced. But for the record, voting in the awards is open to public, not just 911uk.com members. 911uk.com says the aim of the awards is to recognise excellence and achievement across the UK from product and service providers to the Porsche community.

For a full list of the winners and to bask in some of the glory, head on over to [porscheawards.co.uk](http://porscheawards.co.uk). And thanks again for your support, it's appreciated.

### BYE-BYE BOXSTER?

What to make of Porsche's imminent branding overhaul for the Boxster and Cayman? The addition of '718' makes sense in a lot of ways.

Triple-digit numbers are a Porsche tradition, of course. '718' sits nicely with the 918 Spyder supercar, too, which is mid-engined just like the Boxster and Cayman. It also neatly leaves space for

another mid-engine model. 818 to take on Audi R8 and BMW i8, anyone?

That may be fanciful, but what's for sure is that '718 Boxster' and '718 Cayman' are a mouthful. Everything else in the Porsche range either has a name or a number. Yes, there's 911 Carrera and 911 Turbo, but that's not quite the same as the unambiguously model-specific 'Boxster' and

'Cayman' names.

So, the revised branding is probably the first step in a two-part process that sees both 'Boxster' and 'Cayman' dropped entirely. In other words, it's a transitional move to help the buying public across to the new '718' brand.

In the interim, 'Boxster' and 'Cayman' will sit oddly together. But neither makes much sense as a name for both models. 'Boxster' means boxer-engined roadster and 'Cayman' probably isn't a strong enough brand in its own right.

Yes, dropping the 'Boxster' name would mean ditching a lot of hard-won brand equity. It was the Boxster that saved Porsche back in the late '90s. People actually competed to pay over list price to bag an early 2.5-litre example. And yet Boxster sales have slowly shrunk over the years. Maybe the time for change has arrived. Farewell, then, Boxster, and thanks for saving Porsche.



Does the introduction of 718 branding signal the end of the Boxster/Cayman model name?

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It had to happen. Porsche have ditched the evergreen Mezger engine for racing purposes. Racing GT3 variants will now use the 9A1 direct injection engine as found in all 991 models, including the GT3 and GT3 RS

## PORSCHE'S DIRECT-INJECTION 911 ENGINE MAKES RACING DEBUT

### New 911 GT3 R drops the legendary 'Mezger' engine

By the time you read these words, Porsche's all-new Type-991 911 GT3 R will have made its competition debut in the Rolex 24 at the Daytona International Speedway in Florida. The new 911 GT3 R is the first works racing 911 to use Porsche's codename-9A1 direct-fuel-injection flat-six, as seen in the road going Type-991 911 GT3 and GT3 RS models.

With the 2016 race season imminent, Porsche has been putting the 911 GT3 R and a revised version of its 911 RSR sibling through their final paces. For 2016, the Type-991 911 RSR has been given aero tweaks including a repositioned rear wing and a larger diffuser. The RSR, of course, is a multiple race and series title holder.

The list of 2015 triumphs includes the aforementioned IMSA SportsCar Championship in the USA. Then there's the GT class in the World Endurance Championship. That also went the RSR and Porsche's way. The one that got away in 2015 for the RSR, of course, was victory at the Le Mans 24 Hours, which went to the Chevrolet Corvette C7.R. One to watch for 2016, then.

However, it's arguably the Type-991 911 GT3 R that's the more technically intriguing of the two cars. The new GT3 R is the first competition 911 to use Porsche's 9A1 direct-injection flat-six.

Previously, factory-supplied racing 911s including GT3 variants have used versions of the legendary 'Mezger' engine, which at its core is derived from the original air-cooled 911 engine designed by Porsche engineer Hans Mezger, hence the name.

The 9A1 first appeared in Porsche road cars back in 2009 with the launch of the second-generation Type-997 911 Carrera. Variants of the 9A1 went into the Boxster and Cayman models at the same time. However, Porsche continued to use the Mezger engine in the road-going 911 GT3 until the Type-991 model was unleashed in 2013 with a 9A1-based engine. Since then, some have argued there has been a critical disconnect between the road-going GT3 models and the racers.

Put simply, the contention was that, without an engine used in racing, the 991 GT3 was a branding exercise rather than the real race-refugee deal. What's more, some saw the fact that the 9A1 had not progressed into competition as evidence of its inferior robustness compared to the Mezger engine.

Well, not any longer. With the debut of the new 911 GT3 R in Florida, the 9A1 is now an official works racing engine. That said, it might take a while yet before it attains the legendary status of the hallowed Mezger.

## RSRNURBURG ANNOUNCES SPA TRACK DAY DATES

Porsche track day specialists RSRNurburg have announced dates for their 2016 series of track days at the legendary Spa-Francorchamps circuit in Belgium.

The first event is on 19th March and the series runs right through to mid-November. As its name suggests, RSRNurburg is based in Germany near the legendary Nürburgring Nordschleife circuit. It not only runs track days on the 'Ring and at Spa, but also

track car rental, driver training and more.

As a track day operator at the more serious end of the spectrum, the Spa dates are run as open pitlane events for unlimited track access, while entry numbers are limited to prevent on-track congestion. The days also allow competition cars with slick tyres to take part. Pricing starts at 795 euros, so about £600. Find out more from [rsrnurburg.com](http://rsrnurburg.com).



Fancy driving a GT3 or a Cayman GT4 at Spa? Then contact Porsche track day specialists, RSRNurburg. Their season runs from March to November



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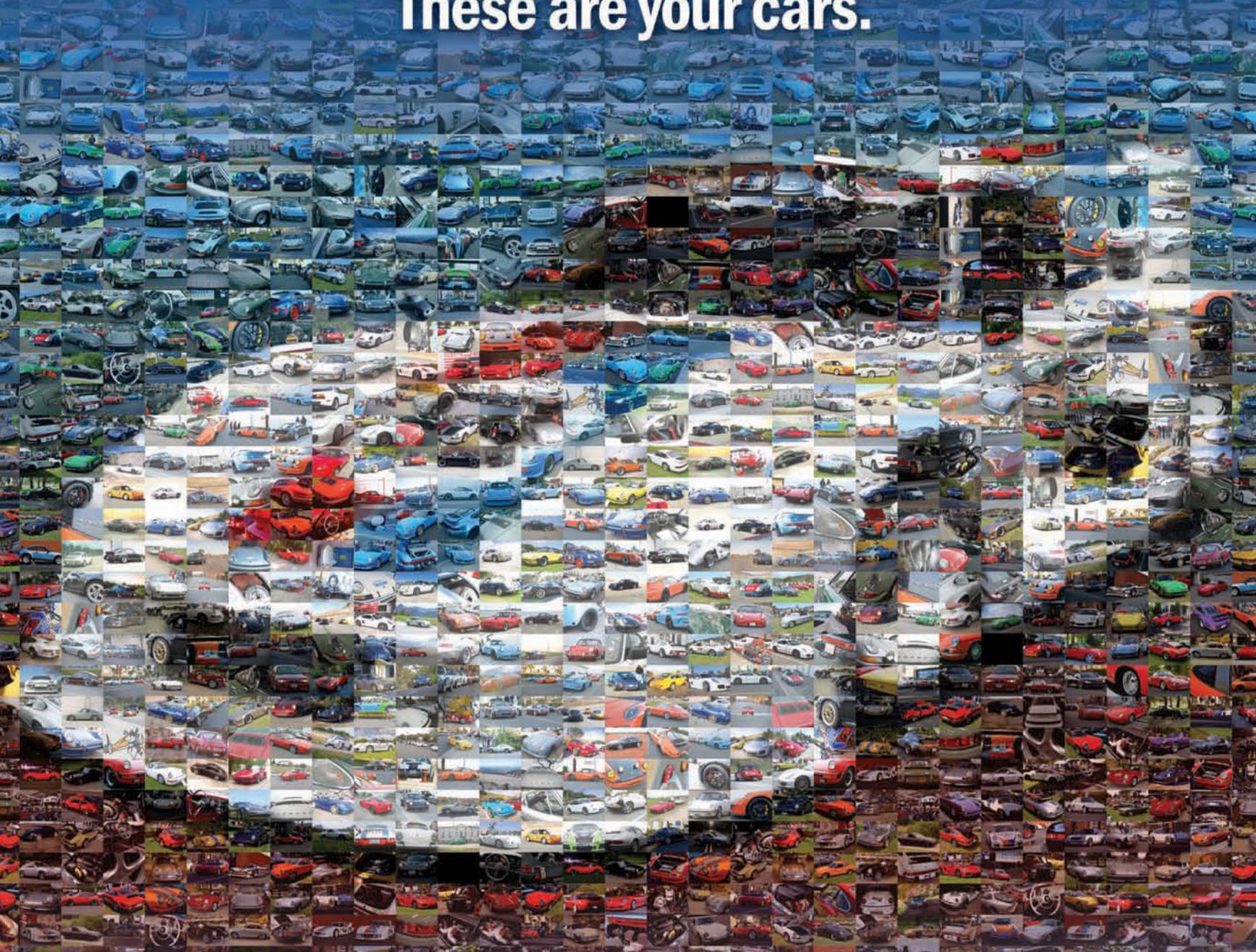
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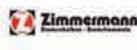
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## PORSCHE APPROVED WARRANTY INCREASED TO 15 YEARS

### Older models brought back into the warranty fold

Porsche has increased the maximum acceptable age for coverage under its Approved Warranty, often known as the 'extended warranty', from 10 to 15 years. In theory, any Porsche made in the last 15 years can now qualify for cover under Porsche's official scheme.

Ostensibly, nothing else has changed. The limitation of 125,000 miles remains and as before you can buy the warranty in blocks of one or two years, subject to the age of the car. As for pricing, it varies by model, but by way of example a year's warranty on a 987 Cayman is £660. For a 997 Carrera, it's £1100. To that you will have to add another £216 for the 111-point pre-warranty inspection, though if you buy two years' cover, you'll only have to have the car inspected once. Porsche also discounts the warranty slightly when you buy two years cover.

Of course, that's a best case scenario. For cars that aren't under warranty, any worn or failed components that need rectifying to qualify for cover will be at your cost. It's also worth bearing in mind that the warranty doesn't cover wear and tear items like suspension bushes, clutches, expansion tanks and drive belts, to name a few from the list of excluded items.

Similarly, because the Approved Warranty is actually an insurance product, it's not subject to EU law pertaining to manufacturer warranties, like that supplied with a new Porsche. That means fairly strict stipulations can be applied. This is something of a grey area. But in essence, any modifications or non-standard parts, including non N-spec tyres, could put the warranty at risk. Likewise, having your car serviced or repaired outside the Official Porsche Centre network could also be problematic.

Nevertheless, the extension to 15 years will be of particular interest to owners of 997 and 987 models with M97 engines generally thought to be at risk of bore scoring. Certainly, if you are already having your car maintained by Porsche and prefer the car in entirely standard specification, keeping it under warranty could be very appealing. And now you can keep doing that for another five years. Indeed, the change means even some late 996 and 986 Boxsters can now be brought back into the warranty fold.

## RECORD SALES FOR PORSCHE IN 2015

It's official. Porsche sold more cars in 2015 than any previous year. Precisely 225,121 Porsche were delivered to customers in 2015. That's up from 189,849 in 2014. Needless to say, the new Macan was a big contributor to the sales increase and immediately became Porsche's biggest seller in its first full year with over 80,000 units. However, the evergreen 911 sports car notched up just under 32,000 sales, which compares favourably with almost any time in the model's 50-year history. Oh, and for the record, for the first year ever China was Porsche's biggest single market with 58,009 deliveries.



Sales on the up for Porsche in 2015 at 225,121 compared to 2014's 189,849. Predictably the Macan was the major contributor to this success, with over 80,000 cars sold. China was Porsche's biggest market, with 58,009 cars delivered



## REV-RANGE DATA BEING 'EDITED'

It's not clear how long this has been going on, but at least one UK company, known as ECU Guru (ecu.guru), is offering to edit the so-called rev-range data stored in modern Porsches.

The logging of rev ranges is a controversial subject, but the basic idea is to provide a record of any mechanical over-revs an engine may have experienced. Indeed, rev-range data is routinely examined by specialists in the Porsche trade and is also used by Porsche as a qualifying criteria for the Approved Warranty.

Doubt remains whether the editing of data leaves any trace in the ECU. But the moral here is that it may no longer be possible to assume that the rev-range data stored by any given Porsche is accurate.

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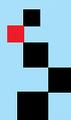
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## THE RESTORATION OF THE 1981 PORSCHE 924 CARRERA GTP

Porsche is extending its restoration and classic activities even further this year with a very special project, running alongside the individual dealers' restoration competition. The latter is for front-engined Porsches on this occasion, and it's apt that this 'special project' centres on one of the most famous of the breed

Words: Adam Towler Photography: Malcolm Griffiths

**I**n 1980 the works Porsche entry for Le Mans was something different. By then the Group 6 936 was getting old, and after two victories – in 1976 and 1977 – the factory programme with it had ended. The Group 5 935 had been passed solely to customers, too, although the car was still in with a chance of winning as its outright victory the year before proved. Stuttgart actually entered three 924s. Not just any old 924s though, but GTPs – a fully blown racing version of the wonderful Carrera GT road car. With lightweight panels and many other modifications, these cars weighed 930kg and put out 320bhp: quick machines, then, but not fancied for an outright victory up against cars with 600bhp and 200mph+ potential.

After so much success, the nature of this assault caused consternation in some circles for a company used to winning (indeed, when Peter Schultz took over at Porsche the following year, when told the 924 programme was all the company had with no chance of outright victory he immediately ordered two 936s be taken from the company museum and readied for the race. The car of Jacky Ickx and Derek Bell won easily). It turned out to be a PR masterstroke, however, because each of the cars was assigned to a 'country' and liveried accordingly by the stylist Arnold Ostle.

Porsche UK's PR impresario at the time, and former *911&PW* columnist, Michael Cotton, takes up the story, and it began with his idea for the 1978 924 Challenge in Britain. "We were selling a lot of cars," recalls Michael, but to push it on we asked 18 dealers to enter a 924 in a one-make series. Tony Dron won, and Andy Rouse

was second. At the 1979 Frankfurt motor show I saw Tony Lapine (the then head of Porsche styling) and he told me the factory would be running three cars at Le Mans in 1980. So I came back and spoke to John Aldington (AFN) and said 'can we sponsor one?'

This wasn't the sort of thing Porsche normally did, and in fact, the number '2' 924 GTP remains the only factory Porsche racer to compete with a Union Jack on it. Once it had been agreed, Porsche's Manfred Jantke asked for a 'name' in the car, and Michael approached Derek Bell. "Can it win?" Michael recalls Derek asking, but while he had to answer 'no', he did say that Norbert Singer was engineering the car. The latter was enough to get Derek on-board, and as Michael says, it was a split second decision that turned his career and led to all those triumphs during the 1980s for Derek and Porsche.

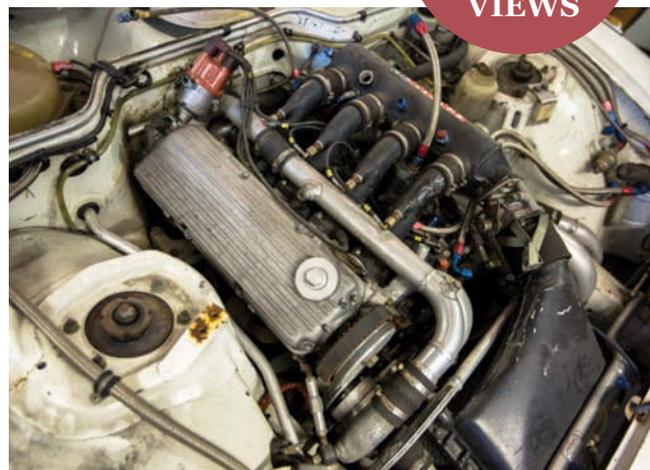
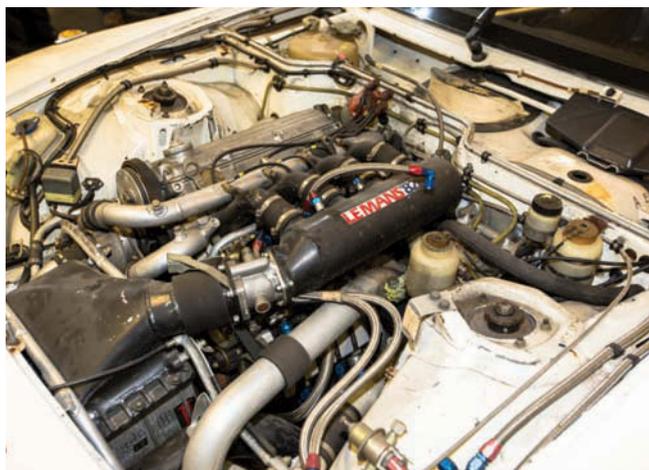
As the great race approached there was to be an 'American' car, a 'British' car and a 'German' car. Before the start, the American Peter Gregg was injured in a road accident and Derek Bell was drafted across to share with Al Holbert, meaning that Andy Rouse and Tony Dron would therefore tackle the race on their own; Jurgen Barth and Manfred Schurti teamed up for the German entry.

In the race, reliability with speed saw all three 924s steadily climb the leader board, but the British car completed the final six hours on just three cylinders to finish 13th. The American 924 was 12th, while the German car, running a richer mixture and trouble free under the bonnet, finished 6th.

The British 924 didn't do much in the months after the race.

The grand (ish) unveiling. The Porsche Cars GB backed 924 Carrera GTP, which raced at Le Mans in 1981, will be restored as part of Porsche's 40-year celebrations of the front-engined breed of cars that started with the 924 in 1976

The 924's humble VW/Audi derived 2-litre, 4-cylinder engine was developed to produce 320bhp. Enough to propel it to 180bhp on the Mulsanne straight. Below: Reunited: Tony Dron (left) and Andy Rouse raced this very car to 13th place at Le Mans in 1981, hampered by an engine only running on three cylinders for the final few hours. The German entered car finished sixth, highlighting the car's potential



Some testing followed the year after, and then it was retired to the museum stores, the only one of the three entries to remain in its original, untouched condition from that 1980 race. That's how the car is today, and while it's tempting to suggest it shouldn't be restored for the sake of originality, when I see the car 'in the metal' it's clear it's too scruffy to exhibit in public, let alone run. For example, the front has clearly been chopped around in the name of testing.

The Porsche Centre restoration competition is '40 years at the front' this time, and the GTP is the perfect focus point for activities surrounding those cars. It took quite a bit of convincing to let Porsche GB have the car, with the museum making it clear that such a thing has never been done before. The aim is to have the car restored in six months but that depends on what challenges the team find on the way – there is a large stock of parts for the car still kept at Stuttgart, and they also have access to Norbert Singer's notebook.

There are now four Porsche Classic Partner centres in the UK: Glasgow, Hatfield, Leeds and Swindon. Glasgow will work on the

suspension, brakes and wheels; Porsche Centre Hatfield will take on the gearbox and drivetrain; Leeds the electrics and radiator plumbing; Swindon the engine; and finally Road and Race Restorations in Manchester, a Porsche-approved body repairer, will restore the body and interior trim. The objective is not perfection, rather to give the car the appearance of a machine that has just finished Le Mans, but in full running order. The period-correct nature of components such as the roll cage means that it won't be raced again, but it will be demonstrated at the major historic motorsport events of the year, and be displayed in the showrooms of the Centres involved in bringing it back to life.

"It was a great opportunity for me", says Andy Rouse reflecting on that race as he sees the 924 for the first time again after all these years. Rouse, a true giant of touring car racing, never did go on to race sports cars regularly, but the drive helped re-establish the momentum of his tin-top career, which then brought so much success. He was invited back to race a 924 again in 1981.

Rouse and Dron made a fine partnership, setting comparable times. They certainly gave it their all, with Tony passing out as Andy





Untouched interior, except for some dial pilfering over the years. Restoration will be a collaborative effort split across Porsche Centres country wide

crossed the finishing line. With the 40th anniversary of the 924 taking place this year, one of its most famous incarnations is set to come alive once again.

## TONY DRON SPEAKS

"We tossed a coin to start the race: I said 'bad luck, Andy' when I saw the rain. Andy and I were in a similar position in our careers – it was a big deal to be invited. I remember testing at Paul Ricard and we had an engine failure 14-hours in. Singer said 'we'll take it away and sort it'. Should we trust them? We did. But, if we had just feathered the engine through the race I worked out we would have finished fourth overall. The car would have actually got up to the same speed, just have taken longer to do it."

Casting his mind back to those amazing 24-hours, Tony warms to the theme: "On Sunday morning the weather was difficult, and despite the problem with the engine I was circulating at exactly the same speed as Jacky Ickx (entered in a privately-run 936). I was on wets, he was on slicks though." What the little Porsche lost on the straights it would make up through the corners.

Tony and Andy were losing 20-seconds a lap thanks to that engine issue, but on full song the 924 was surprisingly quick. "The 935s and 936s were 30mph faster than us (down the Mulsanne straight), and we were 30mph faster than the 2-litre cars. We'd reach 180mph down there. Early on in the race I was about to overtake a 2-litre car and decided I wasn't going to back off as a 935 was closing down on me. I popped out behind the 935 and the turbulence blew the nearside bonnet pin right out of the bodywork, so the bonnet flapped about and I had to radio in for a new one. Singer refused to believe that I hadn't hit anything!"

On the subject of such things, Tony giggles when the man from Porsche begins to extoll how original this car is. "I has never been shunted, that's true", laughs Tony, "but it was a close run thing in the middle of the night! A 935 spun in front of me at the second left in the Porsche Curves. At the last moment he rolled backwards, and there was just enough room between him and the Armco barrier (to squeeze through). I was sideways in the dark, looking out into nothing, then it went the other way and I saw a glimpse of it all, then it came back the other way and we carried on." Tony's eyes sparkle at the memory of those wild few seconds, and just thinking about it makes my hands damp.

"It was an underrated car", recalls Tony fondly, "much quicker than you'd think and the handling was superb".

“ We'd reach 180mph down the Mulsanne straight ”

”





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# ESSENTIALS

The tempting trinkets that enhance Porsche ownership



## GO FOR GOLD

Ah, the sweet, sweet handling of Porsche's modern day roadster. You really mustn't mess with the Boxster's chassis, right? That all depends. The factory springs and dampers are a super all-round compromise. But let's just say the result is a little more grand touring than Rennsport. For something a bit more focused you could do a lot worse than the newly-revised Gaz Gold kit, available for both 986 and 987 Boxsters (and thus 987 Caymans, too). Gaz is a UK outfit and as we know from first hand experience is second to none for customer support. Height adjustable and with both bump and rebound on a single, easy-to-reach knob, the Gold kit is user friendly despite being proven as the default setup for the BRSCC Boxster race series. The robust design includes a new black zinc anodised finish and the kits are £1590 inc. VAT. Find out more from [gazshocks.com](http://gazshocks.com)



## PIPING HOT

The 996 Turbo might just be the top choice for tuning fans. It's recent enough to be in plentiful supply. It's turbocharged. And of course it's based on that beautifully bulletproof Mezger engine. So, you can probably never have too many options for adding power to a 996 Turbo. Enter, therefore, a new set of hoses from Forge Motorsport. They allow for the installation of a twin set of recirculation valves for the turbos. Modelled directly from the factory hoses, these new precision-engineered parts are an easy fit yet offer significantly greater ability to withstand much higher boost pressures. What's more, the woven fabric reinforcement and competition-quality silicone makes for much better durability than the failure-prone factory part. Available in multiple colours, the hoses cost £54 with hose clips a further £5 if required. Get all the details from [forgemotorsport.com](http://forgemotorsport.com)



## TYRE TUNER

If you've been bitten by the trackday bug, odds are you've run into problems with tyre pressures. Adjusting them with either a keep-fit foot pump or something fancier is the easy bit. Knowing whether you've got it right is a lot trickier. It'll be obvious enough if the pressures are miles out – the handling will go off dramatically. But finer tuning and in particular sniffing out the difference in temperatures across the tread that can result from incorrect pressures is a whole different ballgame. That's where the B-G Racing Tyre and Brake Pyrometer comes in. It allows you to record three temps per tyre and has a memory function that calculates average temperatures per tyre, across axles and corners and for each side of the car. An optional further probe adds brake temp testing and the whole shebang starts at £359.99. There's more at [bg-racing.co.uk](http://bg-racing.co.uk)



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One hundred per cent made in Germany has a certain ring to it, we think you'll agree. Extend that philosophy to your road wheels and one brand immediately springs to mind. Yup, it's good old BBS. The latest additions to the range are tweaked versions of the CI-R and FI-R wheels. Respectively cast and forged takes on the same basic design, the flow-formed and milled spoke CI-R has been updated with a new 19-inch size to go with the previous 20-inch option, which will please those who prefer to stick with standard rim diameters. Meanwhile, the greater strength of the FI-R's forged construction enables sizes up to 21-inches, allowing you to choose between subtle and spectacular, as do the silver or black finishes available on both wheels. Pricing varies according to application, so why not have a play with the BBS configurator at [bbs.com](http://bbs.com)

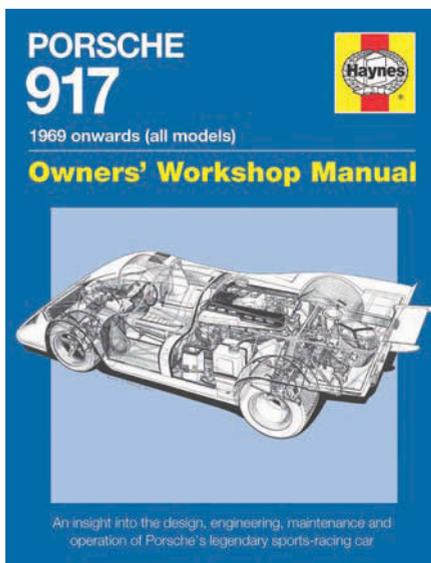


## DIY ENDURANCE RACING

Do it yourself. Or pay the man. It's the classic dilemma for Porsche lovers when it comes to car maintenance. But if you happen to be an owner of that most iconic of endurance racers, the 917, the DIY option just got easier thanks to a new Haynes

workshop manual for the 917. Yes, really. OK, the new book is more a curio for racing fans. We're not expecting to suddenly discover next door has a 917 on axle stands. But it should be a fascinating deep dive into what makes a car like the 917 tick. Author Ian Wagstaff has included

insight from both key engineers and big-name racers like Derek Bell, Vic Elford and Jackie Oliver. "It has been fascinating putting this manual together and to speak with so many individuals who are as passionate as I am about the Porsche 917," says Wagstaff. Yours for £22.99, you can hit up [haynes.co.uk](http://haynes.co.uk) for more.



## OLD SCHOOL TUNES

Nothing quite kills period cabin coolness like an old 911 dash defaced by a garish modern audio head unit. Problem is, period head units are often pretty pants. Thus far if you've wanted modern functionality combined with period looks your choices have been both limited and painfully pricey. That's where the new Continental CDD7418UB-OR shakes things up. It sports modern must-haves like Bluetooth connectivity (both handsfree and music streaming) and a DAB+ tuner. The CD player supports MP3 playback and there's a USB port for flash drives with MP3, WMA and M4A files. And here's the kicker. The head unit itself costs just \$215 or £145 in old money (plus shipping, VAT and duties from the US of A). An adaptor ISO harness for easy installation in a Porsche 964 or 993 is also available. The place to go for info is [bergvillfx.com](http://bergvillfx.com)



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## NEW MODEL ARMY

'Ever ahead' is the latest official tagline and Porsche's evergreen 911 is nothing if not ever evolving. When you think about how far the model has come, it's actually rather sobering. Back in 1963, it launched with a 2-litre flat six knocking out a mere 128bhp. Today, we're talking 365bhp for the very lowliest version of the latest second-generation of the Type-991 911. That's good enough for a top speed of 183mph and the sprint to 60mph in about four and a bit seconds. Yes, the basic 911 is now basically a supercar. Of course, the constant change is also an ever-present challenge to model makers. But the official Porsche shop has just caught up. You can now bag 1:43-scale models of all the new turbocharged 991.2 models, including this electric blue Targa. Grab yours along with examples of the rest of the new range for £36 a pop from [shop2.porsche.com/uk](http://shop2.porsche.com/uk).



## WATCH THIS

Are you an air-cooled or a water-cooled kinda guy or gal? If the former, the latest official watch from Porsche might be your thing. After all, it's driven by a traditional Swiss automatic movement that is surely the horological equivalent of a classic fan-cooled 911 engine. Limited to 1911 units, the features begin with both quality cowhide and three-part interchangeable stainless-steel straps included. The stainless-steel casing has a finely satinised finish and polished casing plate. The full-metal dial has a black base colour with Porsche crest and sunburst patterns while the sapphire glass has an anti-reflective coating. An engraving on the base picks out each watch's unique serial number. The final flourish is a screw-down crown complete with Porsche crest. It's not cheap at £1300, but then quality costs. Order yours from [shop2.porsche.com/uk](http://shop2.porsche.com/uk).

## BY YOUR COMMAND

Borked electrics are the bane of modern motoring. Arguably, in future it's electrical systems that are going to be the biggest challenge in keeping old Porsches going. But there's a flip side to all that. And that's the relative ease with which features can sometimes be added. Updating maps in a navigation system is an obvious example. Or adding cruise control. But how about voice control? Yup, that's on the list, too. If you have a second-generation Type 997 911 or Type-987 Boxster or Cayman (or newer) with the PCM multimedia system, you can add voice control if you don't already have it. All PCM functions can then be controlled almost exclusively using voice commands. That includes whole-word input of navigation destinations, phonebook entries or radio stations. The fully fitted price is £538. Contact your local Porsche Centre for more information.



## IT'S NOT A WRAP

### IT'S AN OFFICIAL STICKER SET

Are full-body car wraps a fun way to temporarily change car colour or just abominable aftermarket bling? That probably depends on your point of view. And the colour of the wrap. Either way, here's an alternative for brightening up your Porsche while keeping things official. Yes, it's a range of official sticker sets from

Porsche that start with subtle and go all the way to spectacular. The punchier end of the scale includes a full Martini Racing Design (without doubt the most enduring piece of marketing that Martini has ever done) for the Type-991 911 coupé. The kit includes bonnet, roof and side skirt stickers, along with another

for the rear wing of aero-kit equipped cars. Owners of GT3 models also have the option of the Motor Sports set that involves a slightly more subtle central black stripe. Elsewhere in the range, model designation sticker sets located at the lower leading edge of the doors are available for most models in the 911,

Boxster and Cayman ranges. So whether it's a subtle tweak or something that screams racecar for the road, there could be a sticker set for you. Prices start at £174 fitted for the door designations. The Martini Racing Design is £1446, again fully fitted. Contact your local Porsche Centre for more info.



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# THE USUAL SUSPECTS

Roaming around Europe on a quest for stories, Johnny Tipler is perplexed by the quality of satnav voice-overs announcing street- and place names in a bizarre vernacular. That, and the need to grapple with credit card pre-payment at certain continental petrol stations, spoiler scraping road furniture and insurance companies



**JOHNNY TIPLER**  
*International Porsche adventurer*

## VOICE OF REASON

So my last two satnavs were nicked – the Garmin, that I was never that happy with, was taken by the dubious guest of someone who was meant to be house-sitting, and its replacement TomTom appropriated by a smash-and-grab chancer who plucked it off the car's windscreen; satnavs are part of the car's furniture and accordingly get taken for granted, hence not thinking to keep it out of thieves' sight. The upshot is yet another TomTom, even though it steadfastly refuses to see eye-to-eye with a Mac to receive updates, no matter what app I add on. Thus, I find myself travelling across what the TomTom would have me believe is a ploughed field at 99mph, when in actual fact it's a not-so-newly dualled stretch of the A11. Ok, so I dare say I can plug it into a PC and these two devices might "see" each other and it will automatically update itself. But that refusal to update for free is not the most irritating thing; that honour goes to the miniaturised instructor who lives inside the device, whose disembodied voice tells

you to turn right or left and which town or village you're approaching. Even in the UK it's iffy enough over some place names – like Wymondham where the Lotus factory is – we pronounce it "Windham", TomTom calls it "Whymondum." It's bad enough in Welsh Wales. But abroad, it can only issue a scrambled blur of vowels and consonants. French places are guessable, German too... But Flemish and Portuguese, forget it! Doesn't matter which 'voice' you select: none of them have the appropriate accent or pronunciation. Stop and ask a local and, ten to one, they'll obligingly speak English.

It has earned its keep, however. Traversing rural France last year in the Boxster S, with uncanny precision it picked up a succession of dead-straight country lanes that patched together a rural route that winged us seamlessly from Lauzerte – in Quercy – in the south-west all the way to Brittany in the far north with nary a mispronounced town and scarcely an autoroute along the way.



Listen to the voices. TomTom satnav is Johnny's travel system of choice, even if the machine's disembodied voice struggles with continental place names and even some in Blighty

Oh, and of course it is worth its weight in gold coins on the benighted M25, which I contrive to use exclusively at nighttime, not just to avoid the anachronistic Dartford crossing toll, but to alert me to the frequent speed cameras on the overhead gantries. It hasn't picked up on those newish double cameras that grace the outside of certain gantries yet, but the preponderance of flashers on an orbit of London green belt means that, even at 3.00am, it's prudent to stick to 70mph or less. So it has saved me some money: Tom, Tom, the pay-person.

## STATION TO STATION

My snapping colleague, one Antony Fraser, is so fired up by having to cough up for petrol – or in his Passat's case, diesel – before brimming the tank, that whenever he's confronted by a pump-side credit-card machine, he hops back in the car and off we go – not just to another petrol station, but to a different country, never mind the fact that the on-board pooter says we've got barely half-a-dozen miles-worth left in the tank. It's a Belgian thing, apparently. Not in Holland, not in France, where you fill up and then

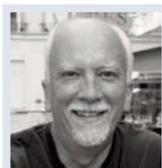
wander into the service building, select a baguette and a Red Bull, and then finally pay. That's not how it is in Belgium. I have some very dear friends in Belgium – the Peppermint Pig lives there now, for one. But why don't the Belgian fuel companies trust anybody to replenish their tank and then go and pay inside the service centre? Here's a typical scenario at a Belgian filling station – there may be a knack to it, but I haven't mastered it yet: select the all-important grade and number of litres I want, enter the

appropriate pump number, punch in my credit card code, and by the time I've opened the Porsche's fuel hatch and stuck the nozzle in, it's timed out. You can see why this would seriously tax the patience of a creative type like Fraser. So, on a foreign assignment in Germany, say, we tend to fuel up before entering Belgique, or simply take a deep breath and make it all the way back into France, whether we're running on fumes or not. One day it'll be us that's fuming – out of gas beside the autoroute.



Tipler is happy to fill up anywhere, unlike his regular travel companion, A Fraser, who refuses to fill up in Belgium due to self-service payment methods

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



KEITH SEUME



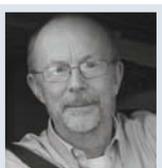
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STEVE BENNETT



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## STAKE A CLAIM

Help me out here. Why do insurance companies take so long to stump up for a claim? Call me cynical, but is it a masonic Lloyd's thing, where a coterie of associated agents and brokers conspire to hang on to the money for as long as possible whilst paying themselves sizeable dividends? As I've previously reported in the Our Cars column, I have a claim outstanding (as I write this in mid-December) that goes back to early October, for damage done to the Boxster when its rump was sat on by a horse. Maybe the Osmonds know something I don't: Crazy Horses? This one was certainly related. I won't bore you with the details all over again; suffice to say that it was a very narrow lane, the person leading the horse beckoned me on, and as I was alongside the nag, it shied and plonked its arse on the car. The owner admitted it was the animal's fault and her insurance would certainly pay. That was over three months ago. Maybe one of our esteemed advertisers would enlighten me as to why the process is so slow. I opened the proceedings by notifying the horse's brokers as well as my own, straightaway, but nothing much at all happened apart from both sides confirming that the claim had been noted. I took the car to Paul Stephens for a quote, on the basis that he has a new bodyshop and his people know it's a 50th Anniversary 550 Spyder special



edition, requiring GT Carrera silver for any repainting. It turned out that the metal was creased, and a grand's worth of work would be involved. All this was passed on to the brokers. Then, after a couple of months when nothing had happened, I suggested to them that, had it been the other way round and it was the horse that was damaged in the altercation, the animal would have surely received attention within minutes. Suddenly people started taking notice, and a flurry of encouraging emails landed. As I say, that was a month ago now, and still

nothing. They are keen enough to get us to sign up and pay our premiums, but not so prompt when it comes to stumping up. So here's the weird thing: I was contacted just last week by a man representing my broker, who asked if I'd suffered any injuries such as whiplash in the incident. Now, he didn't know that a horse was involved and was asking for the registration number of the other car. 'Yes,' I said, 'there had been a whip lash – the one administered by the horse's rider with his crop.' He wasn't amused.

Insurance companies, eh? Quick to take the money, not so fast to stump up. Mr T's Boxster still bares the imprint of a horse's backside. Meanwhile, the compensation crew have been on the blower. It's all happening bar the repair

## GETTING THE HUMP

The new Carrera Cup-style front panel fitted on my 996 C2 "Pig Energy" by Norfolk Premier Coachworks has had a significant effect on my driving. It's not that I am endowed with significantly greater downforce, improved turn-in or penetrative qualities in the wind department, it's at the other end of the performance scale that changes have had to be made. The car is, in a road-going context, pretty near to the ground, thanks to its H&R suspension and leery front splitter, as I discovered in a rare vehicular outing to London last weekend – for dinner with Mexican exponents of La Carrera Panamericana, Angelica Fuentes (probably the most successful woman rally navigator in history) and Jo Ramirez (latterly McLaren F1 team race controller and previously at JW Automotive, All-American racers, Dallara, Lamborghini and Maserati, not to mention the Rodriguez brothers). Typically, road works in the City threw the aforementioned satnav out of kilter and it diverted me down a succession of Sahf Lunnun side streets that would have been – maybe still are – rat-runs riddled, end-to-end at 20 yard intervals, by traffic-calming humps. Calm? I was anything but calm. There are predominantly three kinds of hump: the sleeping policeman – a

bitumen wedge that straddles the road side-to-side; the buns, usually paired, and which a bike can speed between; and platforms that often have zebra crossings painted on them. Oh, and there's a fourth hump, which is the one you get when your car bottoms out on them. Just when you think, ah, I've got that god-forsaken street out of the way, along comes the same dose again. And there is no way that "Pig Energy" in its current ground-effect configuration can surmount them without a graunch of glass-fibre, unless it's travelling at snail's pace in 1st gear. Surmount one at zero miles-per-hour, speed along to the next, brake furiously, and so on. Boy, did this wind up commuters behind me. But after one or two scrapes of the splitter I wasn't disposed to help them out. So I reckon that's the last time I'll drive the 996 up The Smoke, though I could be tempted to fit a front suspension lift kit which would obviously help matters. There is a suitable connection with my Mexican dinner date, and that is the ubiquitous presence in Mexican towns and villages of traffic calming humps, known as Topes. These monsters are twice the height and volume of anything we might encounter on the school-run in Britain, or Europe for that matter. As I found when

driving La Carrera Panamericana in 2011, there are at least two sets of these asphalt anacondas spanning the road at the entry and exit to every village, and on the transit sections between special stages in the 914 GT/4, its lowered suspension was frequently cross-axed as I straddled the Topes at the optimum oblique angle, only to ground out the floorpan on each one. They're not necessarily marked either, so you have to second guess where they'll be so you don't come across them travelling at full tilt.

Anyway, out of town – eventually – in the 996, heading back into East Anglia, the humping horrors of the City were forgotten, and instead it was the real-life policemen who I hoped would be asleep.



The full lowdown. JT's low riding 996 isn't happy traversing the road furniture of our capital city



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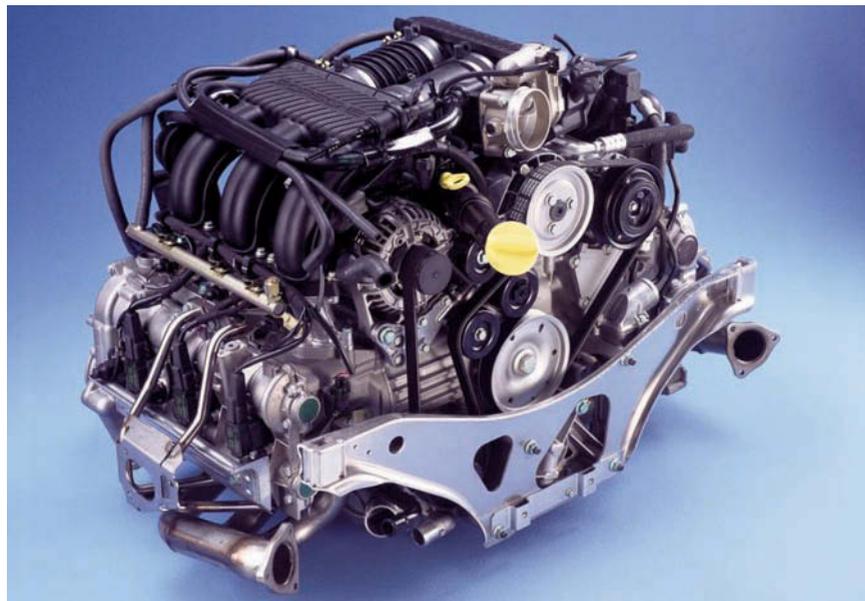
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# LETTERS

Got something to say? Need to express an opinion on the Porsche world? Well, here's your chance...



Mike Miller doubts whether any other manufacturer could have got away with the M96 engine failure problems for so long...

## IMS AND KAIZEN

Reflecting on Chris Horton's excellent article 'Reasons To Be Cheerful' (911&PW, January 2016) I find the whole situation with M96/M97 engines quite extraordinary. I wonder how this would have panned out if the manufacturer in question was Toyota for example, remember the incident with 'unintended sudden acceleration' and the attention it attracted from the national press, and subsequent recalls, etc?

This is manifest of Wendelin Wiedeking's development of Porsche in the early 1990s leading to the 996/Boxster launch in 1997. He brought in a completely new ethos, consultations with Japanese manufacturers led to new systems such as *kaizen* (the practice of continuous improvement). And yes, I did have to look it up! – KS), for example.

In my view IMS is a consequence of 'value engineering', where a minimum

standard of service life is calculated to provide the most cost effective specification for components such as IMS bearings. Is this a valid system for the design of such a high quality, high performance power unit; for such a crucial component?

What I find most unacceptable from Porsche is the length of time it took them to provide a satisfactory, complete solution for this appalling situation. It was not until 2006 that the problem was fully resolved with the much larger roller-bearing race – that's nine years!

The original 964 had what by comparison were fairly minor issues during the 1989 model year, but all of these were resolved by the time the 1992 models were released, just three years later.

One should never underestimate the power of a brand.

**Mike Miller,  
Burghfield Common, Berks**

## NO FRILLS, THANK YOU!

I read with interest Steve Bennett's 'Up Front' editorial in your February issue and first of all have to congratulate him on his 10 years at the 'top'. That's a long time in publishing (I work in newspapers...).

It was Mr Bennett's comments about his wish to see Porsche build a lightweight 911 that wasn't viewed as an investment opportunity by customers that struck a chord with me. I find it very hard to understand what Porsche hopes to achieve when it builds models such as the Sport Classic 911 which by its very name should have been a no-frills coupé harking back to the days of the 911S. Instead, it was a high-priced, low volume limited edition that was instantly snapped up by well-heeled customers who clearly prefer not to drive them – when was the last time you saw a Sport Classic?

The 911 is, and always will be, the flagship model but I just wish Porsche would occasionally listen to its long-term customers, the majority of whom despair of it becoming ever heavier, ever better-optioned and ever bulkier.

I know people say that the Cayman is taking over as the thinking man's Porsche sports car, but surely Porsche cannot have lost sight of the esteem in which the 911 is held? Yes, the Turbo and GTS models are astounding, but wouldn't it be nice if there was a no frills – indeed, lightweight – 911 in the range? Not all of us want an engine in the back seat.

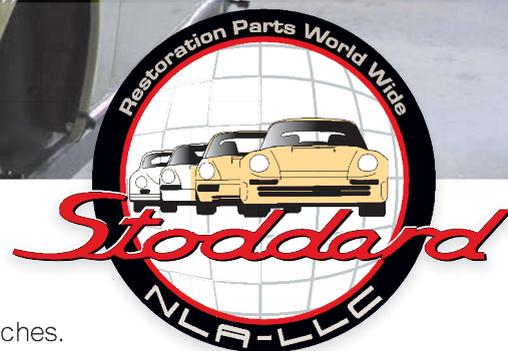
**Maurice Edwards, via email**

**Keith Seume replies: Personally, I couldn't agree more. I love the Cayman and the new GT4 is undoubtedly an amazing car – but it's not a 911. Come on, Porsche, listen to your purist customers!**



Bring back a no-frills 911, says reader Maurice Edwards...

CarParc USA, Costa Mesa California



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# WIDE BOY!

He may race a historic Corvette and have a passion for V8 muscle, but for the road Adam Chodosh is captivated by his Carrera 3.2 Super Sport, a car that has featured before in *911&PW*

Words and photography: Brett Fraser

**T**here's no substitute for cubic inches' goes the old American muscle car saying. But there are alternatives. Just ask Adam Chodosh. A banker in the City of London, Adam shares a thundering 1958 Chevrolet Corvette race car with his brother, while their father competes in a 1959 model: and when he returned from a stint working in New York, Adam brought home with him a 400cu in (6.6-litre) V8-engined Chevrolet Camaro. It's fair to say that Adam 'gets' the whole cubes rule vibe. Yet for his most recent purchase, Adam has turned towards Stuttgart and not Detroit.

The observant amongst you might have spotted a picture of Adam's rare 911 Carrera 3.2 Super Sport on the letters page of the December 2015 issue of *911&PW* – he'd written in to tell us that he was running around in a car that had featured in Running Reports in the magazine back in the mid to late 1990s; in those days it wore a private registration, 311 TAR, and was

owned by Graeme Cole. And would we be interested in coming to have a look at it...

Adam admits that it took a while before Porsches popped up properly on his automotive radar, despite coming from a family of committed car nuts. Having raced in the National Karting Championship, by his mid-teens he craved something bigger, although not too much bigger. 'From the age of about 14 I was obsessed by *Mini World* magazine (former place of employment to *911&PW*'s current editor many years ago) and was determined to have a Mini of my own.

'When I was 16 my dad said that he was prepared to match whatever money I managed to save up towards buying a Mini, so I ended up working 50 hours a week in a factory in Tottenham in pursuit of that dream. Eventually I saw advertised an ex-*Mini World* project car: it had a blown engine so I was really able to nail the guy down on the price. My plan had always been to tinker around with the engine, so the fact that it didn't go actually

worked in my favour.

'I got it going again but unfortunately wrote it off! Following the Mini I must have been entering a Fast and Furious phase: I bought a 1.2-litre Renault Clio, put on a set of 17in wheels, lowered the suspension and fitted a very expensive stereo. After that, though, I went and bought a Honda S2000 – it remains one of my favourite cars and I would definitely consider owning another one.'

As happens to so many of us, Adam then reached a stage in his life when he wanted to buy a house. So he diligently saved up his pennies for a deposit...and spent it on a Porsche. 'No matter how much I saved,' says Adam by way of excuse, 'the property market was always ahead of me. So I invested in a 996 C2 in Basalt black.

'It was fully loaded and a great car. I bought it from a guy who'd owned it from new and had already purchased a 997 as a replacement. Essentially I just paid off the remaining finance on the car for him. And after running it for a couple of years and

Adam Chodosh and his Carrera 3.2 Super Sport, looking gleaming thanks to recent full respray



8000 fun-filled miles, I managed to sell it for £50 less than I'd paid for it.'

Adam only parted with the 996 because of a job move to New York, and although he raced on several US tracks while he was Stateside, he didn't have much need for a road car, especially a right-hooker. Then again, he returned to the UK with a left-hooker, the aforementioned Camaro, but that was never intended as everyday wheels. Back in Blighty Adam kept the Camaro as a sort of investment vehicle for a couple of years, before chance steered him once again in the direction of Porsche.

'About 18 months ago my dad received an email from his mate John who was helping friends to sell off a deceased's estate – did dad know anyone who might be interested in a 911 Super Sport? I went over to see it and from that moment there was no question that I was having that car. My brother owned a narrow-bodied SC that I'd driven and enjoyed on a few occasions, but the Super Sport looked a proper mean machine. The Camaro went up for sale – it was eventually bought by a Dutch guy – and I committed myself to beg, borrow and steal enough money for the Porsche.

'It had a few mechanical issues, so I dropped it off with Northway for a full inspection, overhaul and service. It also had a new exhaust, suspension bushes, and brake discs, pads and lines while it was there. My father works in the car and motorsport industries and has a long list of trusted and reliable contractors, so I took the Super Sport over to his metalwork specialist to have the bodywork checked over.

'There had clearly been a prior repair to the driver's side front wing that hadn't been done terribly well, and the tin worm had also paid a visit to the sill. And one of the doors had previously been filled, again not so well. Still, the kidney bowls and other areas where rust traditionally is a problem in earlier 911s were all fine. But there were a few little blisters in the paintwork, particularly around the nearside headlamp – the guy doing the inspection checked whether the metal beneath the blisters was solid or not by stabbing the car with a large screwdriver: I had to leave the room!

'A full respray was unavoidable, so I took the Super Sport along to MDV Engineering – a race shop in Essex that prepares the quickest and most refined Escorts around – for them to disassemble the car and catalogue all the components. Everything was then painstakingly sandblasted before being sprayed in the original metallic blue. Apart from the interior – which is the next project on my list – I replaced every piece of trim, and all the seals and rubbers, unless the original was in exceptional condition. Putting the car back together took a very long time. The Fuchs alloys, by the way, were polished by Osprey Metal Finishing, a local [to Borehamwood] company that specialises in polishing musical instruments.'

All that effort – and what must have been a not inconsiderable amount of money – was very much worth it, because from the outside Adam's Super Sport is showroom fresh. 'Of course you have to have a budget in mind with a project like this,' he concedes, 'but it's folly to think that you can ever do it cheaply. However, you can do it

Top: The Super Sport, of course, uses the Turbo body for that wide-body look, but without the expensive bit in the back, which in Super Sport spec is a standard 230bhp Carrera 3.2 engine. Deep-dished Fuchs complete the look and look the business



“ It's a folly to think you can ever do it cheaply. However, you can do it efficiently and once ”





## HISTORY

The 911 Super Sport (also known as Turbo look) was based on the Carrera 3.2 and part of the enduring G-Series of 911s, which saw production from 1974 to 1989. With Turbo front and rear wings, plus spoilers, some derided the Super Sport for being more 'show' than 'go.' True it lacked the Turbo's 300bhp or so, but the 3.2 engine was good for 230bhp and offered immediate response and a five-speed gearbox. The Super Sport also featured the Turbo's suspension and superior four-pot brake calipers and bigger discs, to offer probably the best braking system on the market. Very much a product of its time, and much sought after now.

efficiently by only doing it once: that's what I was aiming for with this restoration.'

Adam had been hoping that the car would be ready for the Porsche Club Great Britain National Event at Althorp House last August, but it wasn't to be. 'I'd had an invitation from the Super Sport Register, so it was disappointing to miss it. But then I got the car back on 9th September, and on the 10th I took it to a PCGB trackday at Castle Combe. I had been going to the trackday anyway, as a friend had offered to let me have a few laps in his 911 2.7 RS lightweight, and the organisers were gracious enough to let me take the Super Sport out for a couple of laps for a taster session.

'I was impressed with the way the car behaved on the track. It's not mega-fast in terms of performance; it's all about the handling, and I think there's a little extra finesse with the wide body. At Castle Combe I found it hard to get to the power versus grip limit – racing the Corvette you

have to slide it around. Because it's an old car, the Porsche's steering feels very heavy at low speed, but on the track it felt more telegraphed and responsive.'

Although Adam's unafraid of using the Super Sport on a circuit or driving it in poor weather conditions, on the day that we meet he's on his way to a storage facility at

with the exterior. 'Everything inside the car is in good nick and has a nice patina, but it is quite tired now. So the interior is my next major project. I already have [Enfield-based] b-trim waiting in the wings – they do lots of work on the cars that my dad looks after. I'm also planning a visit to Northway to see if we can get the heater to work, but

“ It's not mega-fast in terms of performance; it's all about the handling ”

Silverstone to lay up the car over the winter, although he insists that as soon as spring returns, the Porsche will be back out on the road. 'Having spent all that money on it that I really don't have, I want to look after it in the right way.'

Meanwhile he's assessing what's required for bringing the interior into line

that will now have to wait until the spring.'

And come the better weather, Adam has other plans, too. 'I'll take the Super Sport to some of the shows, and to the race meetings we attend with the Corvettes. And I'd love to drive over to Lake Como and go touring.' Well, Adam, you've certainly got the right car for the job. **PW**

Far left: The interior is next to Adam's to do list. Left: The way we were. Adam's Super Sport with previous owner and 911&PW running reporter, Graeme Cole. Graham currently has a 996 Turbo Cabriolet



## CONTACT

**Northway**  
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# SHOCK AND AWE

How to differentiate the 911 Turbo from a now all-turbo 911 range? Simple. For the gen 2 991 Turbo, Porsche have given it more. More power, more torque, more outright speed and a 'Ring lap time that leaves even the GT3 RS trailing

Words: Chris Chilton Photography: Porsche/Richard Pardon

**A**ugust Achleitner lets out a wry smile. 'There were some very proud faces when the numbers came in,' says the Vice President of 911 development. Intoned, but unsaid, is that over at Weissach in the motorsport department, another bunch of engineers were probably feeling rather crestfallen at the same news.

The numbers he's talking about are 7m 18sec, the time it takes the new 911 Turbo S to lap the old Nürburgring Nordschleife. On its own, that time would be impressive enough; the reason for that wry smile is that Porsche's own feted GT3 RS, a 493bhp missile with sticky Cup rubber, carbon panels and a wing that could float a Jumbo if you bolted it upside down, is 2 seconds slower, at 7min 20. For reference the old Turbo S, a car that hardly wanted for performance, took 5 sec longer again.

We don't want to get hung up on 'Ring times. The point is that the Turbo is not merely absurdly rapid, but that circulating racetracks quickly is just one of its many talents. The GT3 RS is a brilliant machine but operates within narrow parameters. The Turbo can do it all. Achleitner, who is responsible for the whole of the non-motorsport 911 line plus the upcoming 718 four-cylinder Boxster and Cayman twins says the Turbo is his favourite of all.

To find out if it's ours, we've come 11 hours due south of the Nürburgring, to Kayalami in South Africa. Once the location for a number of key Porsche victories, including the 962's final win in 1987 and, in Peter Revson and Tom Pryce, some key F1 tragedies, the recently run-down Kayalami is in the throes of a massive redevelopment programme after its acquisition by Porsche South Africa.

The track is fresh but there's clearly work

to do creating the Porsche Centre-style buildings, the off-road course and the small inner handling track that customers will be able to experience. More pressing today is the drainage. After months of dry weather a freak storm has left rivers of water streaming across the track at various corners, and handily at exactly the points

## 991 TURBO S GEN 2

<b>Engine:</b>	3.8-litre flat six, 24 valve
<b>Transmission:</b>	Seven-speed PDK, four-wheel drive
<b>Body style:</b>	Two-seater sports
<b>Kerb weight:</b>	1600kg
<b>Economy:</b>	31mpg
<b>Top speed:</b>	205mph
<b>0-62mph</b>	2.9sec
<b>Power:</b>	572bhp
<b>Power:</b>	516lb ft at 2100-4250rpm
<b>Price:</b>	£145,773





The 991 Turbo S in gen 2 form boasts some astonishing figures, not least a power output of 572bhp and a top-speed of 205mph. Perhaps most astonishing of all is that this most versatile of supercars will lap the Nürburgring three secs faster than that dedicated track weapon, the GT3 RS

where balance is absolutely critical. It's not ideal, but in fact Porsche couldn't have engineered a better test: the Turbo was made for this kind of stuff.

Compared with the original forced induction 991 pairing, the new Turbo and S gain an additional 20bhp via modified inlet post and higher fuel pressure, taking power to 533bhp and 572bhp respectively, while torque is up to 524lb ft in the standard car. It's unchanged in the S though at 516lb ft (553lb ft on overboost), Achleitner explaining that to improve it while maintaining Porsche's expected levels of durability would have necessitated even bigger, more expensive turbochargers.

Both cars already get new blowers featuring complex variable vane geometry normally seen on diesel engines. But the S's features space-shuttle materials to withstand the extra heat and allows it to produce 1.2bar of boost at maximum attack to the Turbo's 1.0 bar. Zero to 62mph takes 3.0sec

in the Turbo, 2.9sec in the S, both 0.2sec quicker than before, and while the Turbo gains 3mph at the top end for a 199mph maximum, the S stretches out 7mph to a mighty 205mph, the first time a factory Turbo has topped the double ton.

In common with the newly facelifted, and

letter retrospectively? Look for black chrome tailpipes, the distinctive motorsport-style centre-lock wheels (now 0.5in wider than before) and PCCB ceramic brakes.

Inside, the big news is the adoption of Porsche's excellent new PCM multimedia system, whose elegant flush fit screen now

“ This is the first time a factory Turbo has topped the double ton ”

also now turbocharged, Carrera and Carrera S, the Turbo proper gets Porsche's new trademark 3D taillights, more elegant door handles and combination of twin-vents either side of a trio of forward facing louvres on the rear spoiler. Want to be sure the car you're looking at is an S and hasn't just gained the

features navigation with pinch and zoom functionality as well as Apple's Carplay, allowing you to operate your phone's apps through the module.

Of more interest today is the new 918-derived 360mm steering wheel complete with a version of the hybrid hypercar's rotary

## CARRERA 4 ARRIVES

The Turbo twins weren't the only new Porsches up for sampling at Kyalami. We also had the chance to drive the new Carrera 4 cabrio and Targas, which mate the C2's new 3.0 turbocharged flat six with a four-wheel drive transmission for a £5k premium. As with previous 991 C4s, the giveaway is the 44mm wider rear bodywork whose arches are linked graphically by a panel connecting the two (now 3D-look) taillights.

In common with the C2, the new engines here sound less exciting at the top end than the old ones and there's that unmistakable forced-induction pause as you wait for boost. But in relative terms, turbo lag is minimal, there's pull from 1700rpm and you're flying by three. And the soundtrack is still pure Porsche. Just remember to spec the sports exhaust.

The updated four-wheel drive system features a fast acting electrohydraulically-controlled multiplate clutch and ensures the chassis isn't fazed by the extra torque over last year's car – which particularly transforms the heavy and previously slightly underpowered Carrera Targa, a bodystyle that comes only with four-wheel drive. And for the first time, a C4 911, at 4.2sec to 62mph in coupe S form, is actually 0.1sec quicker than its lighter C2 brother. Does a non-Turbo 911 need four-wheel drive? No, but with punchier styling and no discernable performance or handling penalty, it's a strong proposition.

The Carrera 4 range starts at £81,398.





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'mode switch' set within the lower right quadrant. Besides offering the old console switch's Normal, Sport and Sport + modes, there's now an Individual setting allowing you to pick and mix your favourite throttle, damper and ESP settings.

As we're on track I go straight for Sport+ having twisted the familiar 911-shaped key to bring the flat six to life – unlike rivals, Porsche still doesn't offer keyless start on its sports car. It doesn't offer a manual

transmission option with the Turbo either, so I pull the PDK lever back, noticing the newly reversed plus-minus layout, and roll out onto the virgin Tarmac.

As before, four-wheel steering is standard on both Turbos, and it works brilliantly, helping stave off understeer and point the nose into the first corner, a tight left hander by turning the rear wheels the opposite way to the fronts. Much of the rest of the track is far faster, and here the rear

wheels turn the same way as the fronts to promote stability. There's no hesitation when you make a direction change with this setup, no wait for the rear tyres to load up, giving the car a really pointy feel, without sapping your confidence. Even through those rivers of water, which ought to end the whole car skidding off line like an old Capri hitting a mid-corner bump, the 911's chassis soaks up the deflection.

You can drive the Turbo one of two



The everyday supercar tag still applies. It's what makes the 911 Turbo so beguiling. User-friendly 4wd practicality mixed with rocket ship performance. No other supercar can pull that off

ways. Keep it neat and still make respectable progress, or engage the new separate PSM Sport mode, which allows more slip than the old Sport+ drive mode's ESP map and start to play with the weight, going in hard on a trailing throttle to feel the car pivot around its centreline, then get back on the right pedal to employ that incredible traction. If it sounds dramatic, the reality is that the Turbo is hugely far more forgiving than a car like this has any

right to be. And with the knowledge that the PSM is waiting in the wings to catch you if you fall, it opens up the car's abilities to any owner.

Later, there's a chance to drive the Turbo on the road. To be honest the drive route is terrible, giving scant chance to surmise how the car will feel on a typical British B-road. On top of that I feel particularly conspicuous driving a £145k near-supercar while surrounded by people

who clearly haven't got two Rand to rub together, like I'm a Victorian toff touring a sanitarium for entertainment.

But while these might not be the most entertaining roads, they're real-world relevant and provide a reminder of one of the modern Turbo's biggest strengths: it's so simple to drive. And that's not meant as a back-handed compliment. Despite the engine's colossal outputs the power is easy to mete out, the steering feels so





Interior is a familiar place. New steering wheel is a delight to use. Rotary knob to the right handles dynamic setting. PDK seven-speed is standard, with no option of a manual, but actually why would you? PDK is a perfect match for the Turbo's epic power

much more alive than Porsche's early electric-assistance offerings, and beyond a little fidgety sensation, the ride is calm and controlled. Driving on the road also gives me the chance to try one bit of tech you don't get the chance to try on track where you are, you'd hope, on it full-time: the

its ordinary cruise. You could call it a gimmick, but it's actually both entertaining and useful in practice.

But that's not the only way Porsche has attempted to cut effective lag. Now, when you lift off the throttle momentarily say to adjust your line mid corner, the engine will

Sport+ mapping and you're never going to be caught out waiting for the boost to arrive.

Is the S worth the extra £18,848 spend over the ordinary Turbo? Objectively, the Turbo offers all the performance you'll ever need; subjectively, once you've felt that extra intoxicating kick of boost, it's hard to convince yourself you can live without the S. And if you're considering adding pricey options like PCCB, dynamic roll control and ceramic brakes to a standard car, equipment that's standard on the S, that price gap starts to narrow very quickly. Historically British buyers tend to agree, buying two Ss for every Turbo. We'd go with that. It might not be as focused as the GT3 RS, but its blend of horizon-headbutting performance with real day to day usability, and agility that defies its 1600kg bulk means Achleitner has got it spot on. This could well be the best car Porsche makes. But we look forward to giving the manual-transmission GT3-engined 911 R a chance to change our minds. **PW**

“ British buyers tend to agree, buying two Ss for every standard Turbo ”

Below: PCCB brakes are standard on the S, as is a lot of other kit, that you would have to option on the standard Turbo. Right: Our man Chilton at the wheel

Sport Response button. Pushing the button in the centre of the wheel's rotary dial in preparation for an ambitious five-car overtake primes the engine and transmission for 20sec which count down on the dash display. If by then you haven't opened the floodgates, the car defaults to

cut the feeling but keep the throttle value to maintain pressure. Get back on the gas and the power returns almost instantly, hurling you forward relentlessly with a soundtrack that suddenly seems less muted in the wake of the quieter turbo Carrera models. Combine that with the PDK's well-judged



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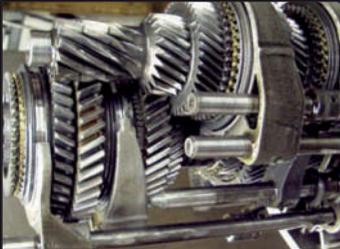
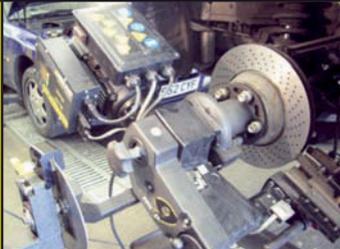
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# ALONG CAME TWO SPYDERS

Porsche looked to its rich past when introducing the Boxster Spyder. Inspired by the 550 Spyder race cars, it's the less is more approach that has served so well when appealing to enthusiast drivers who just want a purer driving experience. For the lowdown we pitch the 987 Spyder against the current 981

Words: Adam Towler Photography: Richard Parsons



**T**wo Spyders. Both red. A sight to warm any car enthusiast up on a wintry day, let alone a devoted Porsche enthusiast. To be honest I'm already in love with these two rare, very special mid-engined Porsches. Both roofs are removed, because, well, these are Spyders, and that's just what you do.

Tucked down into the 981, a funnel of Bedfordshire hedgerows opening up as our convoy exits a 90-degree 'right', the sculptured posterior of the 987 dips slightly, and I take it as my signal to squeeze my toes down onto the accelerator pedal. Suddenly, the granite bark from behind my shoulders is joined by a rising wail from the car in front as the smaller flat-six in the older car hits its stride. Regardless of price, does driving a Porsche get much better than this?

That's surely the point. The Spyder is a special car: a hard one to explain in a logical sense – 'so you don't even get a radio and

the roof is much noisier than that cheaper Boxster over there?' - but for the joy of driving it's hard to beat, filtering away some of the unnecessary layers of modern comforts to distil down to what makes driving a potent sports car so very special.

It's a relatively new model line in the modern sense, yet one with its roots firmly lodged in Porsche's past – the earlier era that seems to garner less attention than the big sports racers, the 911s, the 240mph prototypes of the 1980s and all that. This was Porsche as the underdog, still making its way, always giving ground on displacement and top speed, but trading blows through low mass borne agility and clever engineering. The 550 Spyder of 1953 set the tone for a whole series of increasingly exotic spaceframe racing cars that would continue into the 1960s. Only with the advent of the 904, and then 906 Carrera 6, did Porsche change tack again, and once flat-eight superseded flat-six, and then onto flat-twelve, did Porsche shake the minnows

image once and for all. Even then, the 911 has usually taken on rivals who boast larger engines, the 911 Turbo being a case in point. Today, the phrase 'intelligent performance' is at the core of Porsche's marketing push around their racing activities.

While Porsche had dallied with the 911 Speedster in both 3.2 Carrera and 964 forms, when the firm revealed the 987 Boxster Spyder at the 2009 LA Motor Show it was obvious this was a far more sophisticated and thorough effort than the Spyder-badged special-edition Boxsters of 2004 and 2008. This was a significantly lighter car, aided considerably by the removal of the undeniably effective fully electric roof system. In its place was a slightly bizarre contraption in two parts, consisting of shower cap top piece that could be used separately to the rear screen section. When fitted with the lightweight bucket seat option, and also the gorgeous Spyder-specific alloy wheels that saved further kilograms against the

regular items, the weight of the car dropped to 1275kg, a substantial saving over a standard gen 2 987 Boxster S of the same period. For good measure the ECU was remapped to provide an additional 10hp, taking the total to 320hp. This, coupled with the lower weight, reduced the 0-62mph time to 4.8 seconds when fitted with the PDK transmission and utilising the launch control function of Sport Chrono. Nevertheless, for all its effectiveness, the weight penalty of PDK and its removal of some driver interaction means that, to my mind at least, the only gearbox choice for the Spyder is the wonderful six-speed manual. It's just such a car we have with us today.

I got to know of Mike Runnalls through the Boxster register of Porsche Club GB. His 'daily' car is a 2.9 Boxster, and while using that car on a photoshoot he let slip, with a devilish grin, that it wasn't the only Boxster he kept in his stable. When the picture came through of the red stunner you see on these pages now, I knew we'd

**BOXSTER 987 SPYDER**

**Engine:** 3.4-litre flat-six, 24-valve  
**Transmission:** 6-speed manual, RWD  
**Body style:** Two-seater sports  
**Kerb weight:** 1275kg  
**Economy:** 29mpg (combined)  
**Top speed:** 165mph  
**0-62mph:** 4.4secs  
**Power:** 320bhp at 7200rpm  
**Torque:** 273lb ft at 4750rpm  
**Price new:** £46,387

**BOXSTER 981 SPYDER**

**Engine:** 3.8-litre flat-six, 24-valve  
**Transmission:** 6-speed manual, RWD  
**Body style:** Two-seater sports  
**Kerb weight:** 1315kg  
**Economy:** 28.6mpg (combined)  
**Top speed:** 180mph  
**0-62mph:** 4.4secs  
**Power:** 370bhp at 6000rpm  
**Torque:** 310lb ft at 4750rpm  
**Price new:** £60,459

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The Boxster Spyder is at its most distinctive from the rear, where the twin cowlings meet with the dual roll bars

have to try and use it for a story somehow, and when we received word that the press 981 Spyder we'd be getting was also going to be Guards Red, then a plan hatched in less than the time it takes to even remove one element of the 987 Spyder's eccentric roof.

I feel the older car is in my mind fairly clearly (see boxout as to why), but the crux of this test is how it compares to the newer version. It's also obviously a special car, that much was obvious on the International launch, but just as the regular 981s are quite profoundly different characters to the models that preceded them, so then the latest Spyder should be its own character, too. And moreover, the fundamental concept of the car has changed as well: raw power is a new ingredient in the modern recipe.

Just as the original Boxster Spyder was a twin with a go-faster Cayman – the excellent 'R' model – the latest Spyder shares plenty of parts with the current Cayman GT4. Now we know just how

good that car really is, so the expectations surrounding the Spyder are sky-high. Where new and old really differ is in the engine bay: whereas the 987 has a subtle remap job, almost to help justify the price and marketing position of the car on paper, rather than offer a tangible benefit, the new machine features a full-fat 911 engine

equates to 375hp at 6700rpm, and 310lb ft of torque from 4750–6000. Compare that second figure to the 987's 273lb ft at 4750 and it's clear the newer car has a healthy advantage in mid-range muscle. Note also that the 987's power peak doesn't arrive until 7200rpm.

The 981 is a bigger car, and a heavier

“ This red example is hardcore, with not even a stereo in the dashboard ”

making it easily the largest and most potent motor to be fitted to Porsche's roadster.

Although some 5hp down on the GT4 engine, and 25hp down on the gen 1 991 installation (apparently due to heat management and exhaust space – or is that just marketing again?) that still

one, too, at 1315kg. This red example is on the hardcore side, with not even a stereo in the dashboard, just an oddments tray. Part of that weight gain is down to the civility of the roof: it's still a manual contraption, although you now have to press a button to un-tension the mechanism, but not only is the one-piece



Interior mixes Alcantara with leather and splashes of red. Quality is a given these days. The 981 Boxster Spyder is manual only, which seems fitting in such a hardcore machine



item much easier and quicker to remove, it's also much quieter with it raised. Yes, the difference is still noticeable compared to a Boxster S on the motorway, but it's probably at the point where you could use the car everyday if you wanted to, and such long trips would not be a chore. Not necessarily something you'd say about the dear old 987's hotch potch of canvas, that.

Viewed independently, the new car is a wonder. The combination of additional capacity and less weight than a regular 'S' makes this car feel quite different. It's not just about utilising every one of those last engine revolutions and revelling in the raw performance on offer, it's also so noticeable when the accelerator is floored around 3000rpm in, say, fourth gear. No Boxster has leapt forward before under such circumstances, but the Spyder has the ability to turn such actions into one long seam of acceleration that rises in noise and intensity as car and driver work towards the red line. This makes the car feel really responsive and, once sampled, it's hard to not want a 3.8-litre engine in every Boxster you drive! With sports exhaust switched on, the 981 Spyder is loud enough to turn heads several hundred yards ahead on the pavement. It yelps and it burbles and bangs on the overrun, and it seems essential to rev-match every shift.

Test car comes with option of composite brakes shrouded by the standard 20in wheels. PASM takes the sting out of the ride. Seats are as comfortable and supportive as they look

It's this torque, coupled with the Spyder's excellent chassis – 20mm lower sport suspension – that makes the car such an intuitive drive. In fact, without any heat in the tyres it has a surprisingly mobile rear axle at the beginning of a journey, as I discover much to my amusement on successive roundabouts. The standard limited slip differential deploys the grunt effectively, but this willingness to slide around, even once there is heat in the rubber, is another subtle difference to the regular S, which is not a 'hooligan' sort of

then, and all the better for it.

I need to get a new perspective on the current car, so it's time to swap into Mike's 987. Like the 981, the design elements of the Spyder actually have a far greater visual reach than it would seem on paper. Although still clearly a Boxster, the redesigned nose, larger rear engine/roof cover with its stylistic head fairings that taper into the tail (Porsche terms these 'Streamliners') and pert little spoiler at the back give the cars a far more exotic, near-supercar presence than a regular Boxster

“ The latest Spyder is a really aggressive thing: all thick-set muscle ”

car. You can drive the 981 much more on the throttle, altering your line with it and experimenting with getting on the power earlier in a corner. The six-speed manual gearbox is a brilliant partner for the car as well – this time around Porsche are offering no PDK option with a view, one assumes, of further distancing the car from other models in the range. The car we're driving today is very much to the Spyder doctrine,

could ever dream of possessing. Parked next to the 981, the older car suddenly looks cheeky, small – more of a flyweight contender. The latest Spyder is a really aggressive thing: all thick-set muscle on the road, which is great, but it's the older car that picks up the strongest on memories of those early Spydors in the 1950s. I've always thought it was a really loveable shape, and the streamliners in particular are





The 987 Boxster is from a different, earlier generation. Not surprising given that it can trace its roots right back to the original 986 Boxster. It is noticeably smaller and needs to be worked harder than the 981 car

more convincing than the more subtle versions on the 981.

It's the same sort of sensations once I've climbed inside. There's a fundamental difference here, in that when you're in the newer car it feels as though you're cocooned within an incredibly strong structure. I get the impression my

the car rather than 'in' it, it does feel more open and traditional. The sensation of fresh air around one's head is stronger, too.

I'm expecting the 987 to feel different, of course, because we all know by now the strengths and weaknesses of the 987 versus the 981: I'm ready for the more

it in a nutshell. The engine has a much more organic note, less try-hard and boisterous, but wonderfully strident and musical once it's up and running. To be blunt, until around 4000rpm is showing on the dial it really is a non-contest, as the 987 is quiet and relatively uninterested, but unlike the newer car there's a clearly defined point where the power really starts to flow, the volume picks up, and from then on it does feel very nearly as quick. Drop out of this zone and you're out of the game once again, but keeping the engine there is one of the traditional sports car pastimes, and it's something that Mike relishes. I can see why – it adds another dimension to the driving experience, just as the torquey delivery does to the 981. Both manual gearboxes are superb, but the last degree of precision and mechanical feel has been smoothed out of the 981 in return for less effort; it's a shame, but only really noticeable when comparing them back-to-back.

Most obvious of all, the 987 Spyder feels the more traditional 'sports car' of the

“ You have to work the old car harder to extract the best from it ”

backside is mere millimetres above the ground, and with the seat dropped as low as it will go – naturally, it's the first thing you do, right? – the cockpit sides are almost claustrophobically high. Personally, I love this driving position, but the impression is of much more car around you, whereas while I could never say in the 987 it feels as though you're sitting 'on'

natural, hydraulically assisted steering, the smaller footprint on the road, the greater sense of intimacy with the controls, the inferior structural rigidity. But even all that can't quite prepare me for the divergent Spyder characteristics. Essentially, you have to work the older car harder to extract the best from it, and while doing so it gives you appreciably more back. That's

The roof on the 987 Boxster Spyder was very much a means to an end and not really to be trusted on a day-to-day basis. The 981 Spyder has a much more convincing set-up that will happily deal with the elements



two. It offers much the better steering, with a real sense of connection with the road that the 981 just can't match, despite it possessing a very accurate and well-weighted rack. It changes direction in a more flighty, carefree manner, and because it feels less sturdy around the driver, the elements seem closer and more visceral. The more I drive the car, the more the appeal of the newer one wanes, but typically, I drive the 981 again and I then begin again to appreciate where its strengths lie – that crushing performance, the ease of use and, of course, dynamics that are equally as good, just different in their execution.

It's logical I suppose that it should be this way, given their respective starting points, but what had seemed on face value a simple comparison between two successive

models, has turned into one of those moments where we can only weakly offer the thought 'you'd have to have both, money no object'.

Mike's take is interesting. While I get the feeling he likes the new car, I can tell he's not smitten with it in the same way. He has no plans to replace his 987 with it, or for anything else for that matter, because he appreciates that on the right road it offers an experience that's quite unique, and something rather special. For those days when a dull journey in the pouring rain beckons, then he has the 2.9 to mop that up.

My fondest memories of the day take us back to the start of this story: to run in convoy with these two great modern-era Porsches; two streaks of red across the bleached out scenery, the roar of their exhausts and shriek of their induction

systems. If I owned the older one, I don't think I'd swap it for the newer one. Having said that, this isn't one of those 'older is better' type stories; I get to spend more time with the 981 over the rest of the week, and I can't deny I end up loving the experience down to the very last rivet, grommet and bracket within the Spyder. If you want a car for an invigorating blast of a drive in the country you don't need to worry about spending hundreds of thousands of quid and having 500bhp+, what you need is a Spyder to jump into. To not have to press any buttons to change modes, to not have any sound system or Bluetooth for a distraction, or the silent dehydrating effects of climate control; just an open road and some serious 3.8-litre muscle in a lighter, back-to-basics sports car. Sometimes simple really is best. **PW**

## LIVING WITH THE EX-PRESS FLEET SPYDER

"I've bought a Spyder", said my good mate Simon back in March 2011. "I'm sending you through some pictures of it now. It's black". My mind threw up an image of that wonderful press fleet 987 Spyder, in black, with the proper lightweight wheels and a manual 'box, and I grinned. 'Nice choice, mate', was my reply, 'Just how the old press car was'. The picture came through. Ding. The registration plate looked very familiar. 'Err, Si, did you know you've actually bought the ex-Porsche UK press fleet Spyder?' Much mickey-taking about careful journalists and their mild driving ensued, taken in good spirits (at least on the surface – it was over the phone, initially), and I dug out the photos (again) from when we had used that very car in this magazine for a twin test with a silver 964 Speedster. I'd had the good fortune to drive that particular Spyder a few times: it wasn't actually meant to be the press car (but their white one got written off early on), hence why it was black (photographers hate black cars).

Porsche Cardiff had acquired the car when it had been de-fleeted, and sold it to its first private owner in the late summer of 2010. "I bought the car privately from him in 2011", says Simon. "I'd had a 986 'S' in the past, but wasn't really enamoured by it. I found it a bit boring after owning a couple of Lotus Elises, but was looking for something with more substance than them. I've had 911s too – a 993 and a 997 – so I knew what I liked about Porsches. The stance of the Spyder, the decals, that long rear deck really stood out in the photos, and when I saw a white one parked next to a standard Boxster at my local Porsche centre it really blew me away. I'd actually drive past the showroom from then on, just to see it."

Not being able to afford a dealer car, Simon decided to stretch himself to acquire one privately, then finding

the black car which had the spec he wanted – all the choice lightweight bits, but some comfort items, too.

"Five years later and there's nothing I can think of to replace it in the price bracket it's in – not cheap, but not Ferrari prices: it's unique, you just don't see another on the road. The best bits of ownership are the individual design, the feel of how it drives and the fact the roof comes off! I had a 987 'S' as a courtesy car from the dealer, and the Spyder just offered 20% more of everything on a B-road. It sounds properly angry – not an acoustically tuned sort of noise like the newer stuff, but just natural and powerful."

What's not been so good, I wonder? "I'm reluctant to say 'the roof': yes, every day it would be ridiculous, but on sunny days you just take it off and it stays off. It gives the car a certain character. The new Spyder's roof is great, but the whole point is it shouldn't have the roof on."

"I suppose what I don't like is the rising market", says Simon reflectively. "The best prices are obviously for low mileage, under-driven cars, with a comparable 'S' now half the price. I really want to drive the car, but in this crazy market I'm devaluing it by doing that. So, I'm reluctant to drive it now if it's just a motorway drive to see friends – that kind of thinking takes some of the enjoyment out of it. I put 6000 miles on it during the first year because I'd just drive it

everywhere, but these days I use it a lot less. There have been no downsides to buying an ex-press car: I took the view that it had been maintained to the very highest standard." And indeed, Simon has had no problems with the car during his ownership.

Finally, to the big question: would he sell? "I'd love to be able to keep it for ever. I would only sell it if I had to – for whatever reason. To be honest, I don't think I could replace it unless I spent twice as much. It's exotic but still – just – within the realms of affordability, and there's something quite special about owning it. I'm looking forward to that day in a couple of months when the sun comes out and I can begin the first drive of the year." There's one happy man and his Porsche.



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# NEW ORDER

There has been a seismic shift in the 911's 'force.' Gone are the atmo engines and in come the twin-turbos. Good for emissions, economy and more, there is the benefit of more power and – in particular – torque. As such the driving characteristics of the 911 have been changed forever. We find out how for the first time on UK roads

Words: Adam Towler Photography: Antony Fraser



**T**his is a very big deal. You know that, and I know that. Porsche can bring out high performance derivatives, they can launch niche models with retro roofs, even fit all GT3s with automatic gearboxes only, but when you fundamentally meddle with the recipe of the standard, Carrera-grade 911, then the motoring world holds its breath and waits.

We've already gone into extensive detail on various occasions as to why there's now a 3.0-litre bi-turbo flat six out the back of a 991, and not a naturally aspirated 3.4- or 3.8-litre motor. CO2 emissions, fuel economy, torque delivery, fashion, you name it, but it's here and here to stay,

so we'd better get used to it. Today is our first chance to drive one in the UK and, as you can imagine, I simply can't wait to grab the keys.

I was lucky enough to report on the gen 2 991 for this magazine when the type was launched overseas at the tail end of last year. It wasn't an easy piece to write because, frankly, I came away with just as many questions as answers. The ability of the new car was beyond question, but what about it viewed within the '911' frame of reference? What if you read this magazine and you dream about, and maybe even buy, a 911 because of how they make you feel, rather than what they say about you? I just wasn't sure – like the

majority of modern performance cars, there are so many specifications and options on the new car (despite there being only two basic models once again, the Carrera and Carrera S) and the new Porsche seemed very sensitive to changes in spec. On the day I didn't get to drive a manual 'S' with all the gadgets, but the majority who did (although not all) raved about it.

Then there were the roads: largely eye-widening mountain passes, virtually traffic-free, and blessed with seemingly never-ending sequences of curves. Essentially, they were the kind of routes that can make even an average car seem terrifically exciting.

## 911 CARRERA S

Model tested:	911 Carrera S
Engine:	3.0-litre flat-six turbo
Transmission:	7-speed PDK/manual
Body style:	2+2-seater coupe
Top speed:	191mph
0-62mph:	4.3 secs
Power:	420bhp at 6500rpm
Torque:	369lb ft at 1700-5000rpm
Price:	£85,857



New gen 2 911 looks good in monochrome black and white, with yellow calipers visible through the wheel spokes. No matter what Porsche do under the skin, that 911 silhouette will always remain

Test car features PDK, the default option now for most 911 buyers. Interior impresses with new 'infotainment' system. The 360mm sport steering wheel is a joy to grip and use. Rotary dial on bottom right of wheel controls dynamic settings

This time there can be no such distractions. We're kicking off our relationship with the gen 2 991 at the top end of the range, courtesy of 'OPR 911', a monochrome Carrera S fitted with PDK transmission, Sport Chrono, sport suspension, with a 20mm ride height drop, rear steer axle, carbon-ceramic brakes, bucket seats, a sport exhaust and black alloys. It's the new 991 turned up to 11, basically, so if nothing else we'll get a handle on the new car's performance in, for want of a better phrase, the 'real world'.

Temperatures, both road and ambient, are cold: after a mild winter to date, the arrival of the 991 coincides with a cold snap, and the bray from the exhaust on cold start seems, anecdotally at least, to be as loud as it ever was. It may be turbocharged, but the new car still has a distinctive flat 'six' voice. Undeniably, it's a different one, though, and when the exhaust quiets down the sound is actually quite muted. With the sport exhaust switched off

the tone from the close-set twin pipes is a rather flat, slightly odd vibrato, which is hard to hear once you're on the move. It's a similar story inside when you're just driving normally, the 420hp flat-six little more than a hum when the PDK 'box is quickly shuffling through the ratios to the maximum

Commuting in a 911 is more feasible than ever. Although being in the new car does feel special, perhaps more than ever it feels like an upmarket sports coupe, and not a versatile sports car. In this environment another aspect that's patently obvious is how impressively the new car rides: the 'S'

“ Perhaps more than ever it feels like an upmarket sports coupe ”

benefit of fuel consumption and emissions.

Despite this particular car's advanced spec, it's this regular kind of driving that I'm particularly curious to experience with the new car. A trip into central London and back is perfect for that, not least because I spend a fair portion of the time with the engine 'off' in Auto Start-Stop mode...

specification includes 20in wheels as standard, and yet with the new generation of PASM (standard on all 991s now) monitoring the dampers' behaviour, it is more comfortable than plenty of so-called luxury cars. Only when the road's surface is especially bad are you aware of the narrow sidewalls on the fat tyres – up to 305 in



All 991 gen 2 cars get PASM suspension. Test car shames many luxury cars with its ride quality, with only very choppy surfaces exposing the ride limitations of 20in tyres and narrow tyre walls

width on the S now, from the 295s of the gen 1 car.

What else can I tell you from such a journey? That the PCM4 infotainment module is much, much more sophisticated than its forebear, although I still need to spend some time with the manual perhaps to get the best from it. Although it retains the configurable right-hand display to complement the regular size screen in the centre console, it lacks the wow-factor associated with the infotainment systems from VW Group relative Audi, for example. That's not necessarily a bad thing; it just gives the cockpit a more traditional feel.

No, I'm not surprised that the new car is better than ever while the driver tries to avoid black cabs and red buses, and if you're going to use your 991 in just such a way then the new engine is both more refined but also able to unleash a sudden burst of torque-rich acceleration when that tantalising gap in the traffic appears. In that regard, at the very least, it's job done: it's a mighty contender in the traffic light grand prix.

But I'm guessing that's not really the part you're most interested in. Neither am I. What I want to do is get under the skin of this new Carrera S: just what kind of car is it and what is it like to really drive?

For the 'S' model the 3.0-litre engine features, over the Carrera-spec unit, enlarged compressor wheels within the turbochargers, a specifically tuned exhaust

system, and a remap – and that's it. This is an entirely practical ploy on Porsche's part, and it must do wonders for the balance sheet, but it does carry a faint whiff of cynicism about it all. It also negates the appeal of the regular Carrera, because it seems – and we'll know for sure when we drive it in the UK – that it offers little more than affordability to those who can just about scrape together the cash for a new 911 (can't imagine that's a very common occurrence now, especially with Porsche finance). From having driven it we know that it has no definite character of its own, save a little less turbo whoosh and whistle with the windows down than its bigger brother.

To put the new engine's output into some kind of context, that 420hp is 10hp less than the gen 1 991 Carrera GTS we drove recently in the pages of this magazine, and that we rated so highly. However, don't be fooled: with 369lb ft versus 325lb ft, the new engine has a significantly higher torque output and, moreover, it's where that torque peaks at that's most telling of all. In the 3.8-litre, naturally aspirated GTS, the engine needs to be turning over at 5750rpm before the driver gets the full quota of torque: in the new car, the maximum is on tap from just 1700–5000rpm. Or in other words, the new S pulls with full force from just over idle speed.

Just imagine how that might transform, re-shape, distort, beyond all recognition,

the traditional 911 Carrera driving experience. Gear selection suddenly becomes a lot less important, because the engine is able to give its maximum shove over such a wide range, and driving can be a quieter, less stressful activity. But does that make it boring?

The answer is not quite what I was expecting. Put simply, I'm beginning to think the gen 2 car is a bit of a 'slow burner'. On first acquaintance it's easy to think it's both more capable and simultaneously more anodyne than before. The engine's response to the throttle is good, but whatever Porsche may say it can't hope to match that of the old engines. It tries hard to sound nice, too, but perhaps too hard, and after a while I switch the sport exhaust off because its shouty presence feels all a bit contrived, as does the mapped-in pop and burble every time the throttle pedal is lifted. There are the familiar driving modes too, of course, but now they can be accessed much quicker via the optional mode switch mounted low on the steering wheel, or even programmed into a user setting. There is also an overboost button; a kind of 'push-to-pass' knob that makes me think of F1 cars in the mid-1980s. It gives more squirt for 20 seconds, counted down on a digital graphic that appears in the instrument cluster, and that looks like some aged computer game. It all feels very gimmicky, aimed at a group that believe 'more' must always be better, and



so with plenty of miles now under my belt in the gen 2 I adopt a user setting of my own: first I switch the PSM function to either Sport or completely off, depending on where I am and what I'm trying to find out about the car. Then I keep the car in the normal mode, letting PDK do its thing in a speed limit zone, and simply palming the lever to the left for manual control on the 'open road'. Keeping it simple.

Free to concentrate on just driving, the S begins to seriously impress. Second gear still feels quite low in the seven-speed 'box – despite the ratios being revised for the new engines' characteristics – but third and fourth are mighty on any A- or B-road, and the shift speed and smoothness is more impressive than ever. Once you've got over what little lag there is at very low engine revolutions, the way the S hunkers down and pours the power on like advanced multigrade flowing from a jug becomes addictive. The biggest realisation I get is that there's never that moment, like in all the gen 1 Carreras and especially the 3.4-litre Targa, where the amount of noise created seems to exceed the rate of acceleration on offer. In the new

car it just goes, and goes really, really hard towards the horizon. Did the old car really sound that good anyway, I suddenly begin to wonder, or was it all a little false too, except that when this new car was announced we all started to think of it as the best soundtrack ever. It wasn't a patch on a Mezger lump, that's for sure.

Let the engine sing through the gears and it feels capable of dispatching a water-cooled Turbo – with a capital 'T' – from just the recent past. This new engine gives the driver so many options: you can rev it right out and go slightly mental, but you can also adopt a laid back but deceptively quick driving style, metering out acceleration in carefully defined bursts, overtaking with almost ludicrous ease whenever required, and feel as though you and the car are barely breaking into a light sweat. It's akin to a feeling of superiority, I suppose, but whatever the ego-boosting qualities, it sure does feel good.

There are other ramifications for the new 911 with this biturbo engine. Having all that additional torque available much more of the time works the 991 chassis like never before. Not even the current GT3 RS can

muster the same sort of torque even at its peak, let alone lower down the rev range, so the only comparison we have is with the current Turbo models. Obviously, they exceed the figure of the new Turbo, but then they're not rear-wheel drive...

This means that the new car is much more sensitive to the throttle in a corner than before. That can make it more of a hooligan, and it can also make it a more serious device on occasion, although that's assuming the stability control system has been switched off: with it on you're unlikely to feel more than a sudden jolt as the electronic brain works out how to keep the car pointing in the right direction.

A few moments stick in my mind, and remember it's a cold wintry day with greasy, near-freezing Tarmac not ideally suited to massive high performance tyres. Entering a large roundabout and immediately peeling off to the left, I feed in the power as progressively as I think is possible, only for the rear axle to step out of line well into third gear. If I'd have been braver I'd have ridden it out on the throttle, and I'm sure the 911 would have taken it just fine, but I wasn't, so the tail came back into line

With 369lb ft of torque available from 1700–5000rpm, the turbo generation of 911 has a huge spread of power compared to the outgoing, high-revving, normally aspirated generation. Aside from more power more of the time, this gives the normally unflappable chassis something to think about







Our man Towler at the wheel getting the UK miles in. His verdict? "For now it's a quietly impressed thumbs-up"

quickly and all was calm again. Later, on a small roundabout, a sudden kick of throttle exposes just for a moment the turbocharged delivery, as the road speed and hence engine revolutions have fallen too low. Off boost for a second, the 991 understeers markedly, then flicks into oversteer at the same time when the flood of torque arrives,

somehow dangerous or frightening, because it's not at all. Just that with this extra mojo lower down the rev range it becomes clear that the 991 now needs much less provocation to adjust its cornering attitude, and that, largely, is a good thing. There are some glisteningly white, big sharp teeth below that carefully orchestrated exterior,

certainly ties the body down further, but if the road is in any way poorly surfaced then the driver certainly knows about it: not in a drastically uncomfortable way, but enough that the standard setting seems more desirable, especially as it has more than enough control for just about any situation. That impressive ride quality in an urban environment is just as, if not more, useful on the open road, because the new car appears to almost float over the majority of bumps, rarely being deflected off course. There's that familiar 911 nose bob over really undulating surfaces that the Porsche engineers can never quite seem to hide, but it just makes the surroundings appear reassuringly familiar to anyone used to a 911.

“ I am left in no doubt as to the potency of the biturbo engine ”

skating on all fours across the slippery surface like a cat on an ice rink. The final moment is a wriggle in fourth gear, but we'll leave that one to the imagination for now! Underwear replaced, I'm left in no doubt as to the potency of the biturbo engine. None of this is meant to imply that the new car is

smoother and more highly polished as it is than ever before.

It has to be said that for UK roads this S feels like an excellent compromise in terms of handling and ride, not something you would always say of a 911 with optional sport suspension. The Sport setting on PASM

This particular car has the 360mm GT steering wheel (compared to the standard 375mm diameter one), and it's a lovely driving instrument to whirl away at in your hands. The gen 2's steering is a definite improvement, with strong hints of the current GT cars in the way it responds and weights

We don't usually bother with 911 engine shots any more, because there is really nothing to see. However, the 3.0 S script tells the story here. Both Carrera and Carrera S engines are 3-litres in capacity, with the S engine featuring larger turbo compressor wheels and a remap to achieve 420bhp to the base Carrera's 360bhp



up with lock applied, if without quite the last degree of positivity, as one might expect in what is a car aimed at a much wider audience than something like a GT3. It may not have the feedback found within a 996 Carrera, of course, but then what car with electric power assistance for the steering does these days? Instead, we have to settle for merely very good, and it's complemented here by the usual outstanding braking performance and pedal feel from the simply massive Porsche carbon-ceramic braking setup.

Part of the time the Carrera S manages to disguise its size around you, but there are times when the smaller dimensions of an older 911 incarnation would be so appealing, and every time I climb out of OPR 911 I'm struck by just what a large, imposing car the 991 is these days. The colour doesn't really do either the perception of size or the latest shape any favours, and to these eyes it does look

considerably more impressive in a crisp metallic hue. The most recognisable areas of the new car are the frontal and rear aspects: the arrowhead nose clearly identifiable once you've absorbed the differences, while the slatted black cooling outlet on the engine cover is an instant giveaway as to the nature of the engine lurking beneath.

I drive the Carrera S quite a lot more after this particular drive, and it continues to worm its way into my affections – perhaps more than I thought it would if I'm honest. It's such a complete package that it feels churlish to start criticising it for a lack of immediate fire in its belly, even when experience now leads me to believe that nothing could be further from the case. More than ever, this is a 911 for people with a passing interest in cars but that want an expensive Porsche; for the brand lovers who want a fast, secure, modern performance car without having to make a single compromise. Porsche has

delivered the car of their dreams, and that also makes it a ridiculously easy car for most of us to drive. Does the grumpy old 911 fan in me find elements of that an issue? Yes, probably. But I doubt that sort of sentiment will make a dent in Porsche's balance sheet, and they can always point to the more specialised models to satisfy that niche market (if they didn't sell out before most could buy them, that is).

In terms of character I'm left aligning it more with the old 3.2 Carrera on the family tree: a do-it-all 911, perhaps not the most exciting on first acquaintance, but whose potency and usefulness are without question. Now we have to look ahead to getting to know the other models in the range, including, for example, those fitted with a manual gearbox, and in time, to see what the new drivetrain means for the four-wheel drive models, and cars such as the Targa. For now, it's a quietly impressed thumbs up from this observer at least. **PW**

The challenge for Porsche engineers is to keep the 911 relevant in the ever-changing automotive landscape, without losing that core appeal





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# TECHNO PARADE

We've brought together THE three mythical Porsches – the 959, Carrera GT and 918 Spyder – to compare the driving sensations they each provide and to pay tribute to one of the great supercar lineages

Words: Laurent Chavalier Photography: Laurent Villaron



**T**he supercars from Weissach are both mighty brains at the peak of their cognitive powers and at the same time instinct-driven thrill seekers.

And with each new generation both parameters increase exponentially. However, these skillsets are often only seen gracing motor show carpets. Which is why we've taken it upon ourselves to bring all three together on the same track and impart what sitting behind each of their respective steering wheels actually feels like and how they have adapted to the passage of time.

**DESTINATION MOON!**

The 918 is first and foremost a masterpiece of engineering. At rest it is akin to one of those high-end watches, that add complication for complication's sake and which you can gaze at for hours in wonderment at how it is possible to squeeze so much ingenuity into such a small case. First reaction: fascination – and that at a level above which you would

normally reserve for mere supercars. Why? Simply because this Porsche appears to resolve one of the fundamental equations of quantum mechanics: combining VERY high performance with electricity. We should remember that Porsche manages to demonstrate that exercise far more effectively than Ferrari too due to its fully electric mode – still powerful enough on its own to humble a hot hatch at the green-light drag-strip and able to last for around 20kms without a drop of petrol being used. At any moment of course you keep the option of breaking out the V8 and going into hyperspeed. In summary, the 918 first leaves you voiceless with its electric mode and then speechless with its thermal mode. I realise I'm not in any position to relay any hybrid propaganda effectively so you'll find it easy to believe that I found this duality genuinely exciting in practical use. The contrast is so fascinating. When compared to the Carrera GT, the biggest immediate difference is torque. The 918



“ The 918 opens up a brand-new section on the metre-rule of acceleration ”



Porsche's supercar evolution. Left to right: Carrera GT, 918 Spyder and 959

provides an immediate, massive and persistent punch from the off whereas its older brother is infinitely more elastic and progressive. A bit like the kick you get in the 959 at 5000rpm, but instead available immediately and all of the time. As for the perennial question of how it compares to the LaFerrari, I would simply say it is very different. The Italian gives the impression of more power but it is not as instantaneous as the Porsche. So they draw. As for the McLaren P1? Well, we haven't had the pleasure yet.

The other miracle Weissach has achieved with the 918 is the handling and chassis balance both achieved despite the extra weight of the batteries and two electric motors. Yes, the lighter front end of the Carrera GT makes it more lively in use but the 918 remains very natural in feel. And front end grip in the 918 is on another planet due to the four-wheel drive – not a luxury when there is so much power to put down. Comparing the

acceleration of the 959, Carrera GT and 918 is a bit like group testing an F16, an Apollo 5 launcher and the Millennium Falcon – yes, they're all very fast but the measure of 'fast' is very different for each. The 918 almost opens up a brand-new section on the meter-rule of acceleration with a 2.6 0–100kmh and a 18sec dead for the 1km sprint. Just to give this some perspective, it wasn't that long ago that anything approaching 20sec over 1000m was seen as very special indeed. At these speeds gaining a second here and there is very hard work. Same goes for the braking which is 125m for 200–0, which is nine metres less than the Carrera GT. And thirteen metres less than a McLaren 650S... But crazy figures aside, the 918 backs it all up with an amazing ease of accessibility and functionality. Arguably it is the ultimate combination of the technological shop window seen in the 959 and the sporting masterclass of the Carrera GT. A true masterpiece.

### THOROUGHbred

Sampling the V10 of the Carrera GT after the V8 of the 918 is a bit like having an extra helping of dessert. When it's this good, you never say no. But before I start excavating the profiteroles, I'm still a bit nervous. What if this summit of a car now feels a bit old? With recent progress in engines and gearboxes, it can go this way. However, one quarter turn of the key makes at least half of this concern vanish immediately. What a start, what music, what lightness. If the 918 was a tad industrial the Carrera GT rings out like a crystal glass. The only bit that feels aged at this point is the clutch operation which has always had a reputation for being 'tricky', and this at a time when some people have probably forgotten that driving once involved a left foot. As a reminder Porsche opted for a double ceramic disc of very small diameter, which allowed a much lower centre of gravity for the engine. Awkwardness when manoeuvring was the trade-off. There is a way of working around it, of course, and



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### HENDON WAY MOTORS STOCKLIST

#### 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/Fully 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 Lthr 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, Litronic 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 (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, MFS/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

#### 2009 - 997 C2S CABRIOLET PDK (GEN II) (ARCTIC SILVER) 58,000 Miles

Full Black Leather Int, PDK, PSM/PASM/PCM/Extended Satellite Navigation (Touch Screen), BOSE, CD Changer, iPod and USB attachments, Telephone (Bluetooth), On Board Computer, Sports Exhaust, Sport Plus, Heated Seats, Rear Park Assist, Sports Plus, Sports Exhaust, Sport Chrono Pack, White Dials, MFS/Wheel, Partly Electric Seats, Climate Control, 19" Porsche Sport Design Alloys, Xenons, LED Daylights, Full Official Porsche Centre Service History (Just been serviced at official Porsche Centre)

#### 2005 - 997 C2 COUPE TIPTRONIC (ARCTIC SILVER) 62,000 Miles

Black Leather Interior, PSM/PCM-Sat Nav/Telephone-BOSE/CD Changer, Heated Seats, MFS 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, PCCB Brakes, Radio and CD player, Climate Control, Central Locking, Electric Mirrors & Windows, Porsche Crested Sports Seats, Correct carbon fibre interior

##### 2002 - 996 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

##### 2005 - 996 TURBO S COUPE MANUAL (GT SILVER METALLIC) 57,000 Miles

Turbo S, Black Leather Int, PSM/PCM - Sat Nav, Telephone, BOSE, 4 CD Changer, Memory & Electric Seats, Carbon Pack, Sunroof, Alcantara Headlining, Rear Wiper, Ceramic Brakes, 18" Turbo Alloys, Full 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

##### 2003 - 996 TARGA TIPTRONIC S (ARCTIC SILVER) 69,000 Miles

Black Leather Interior, PSM/PCM-Sat Nav, Telephone, BOSE Surround System, 4CD Changer, Partly Electric Seats, Rear Wiper, 18" Carrera Alloy Wheels, Full Service History (Just been Serviced).

#### PORSCHE BOXSTER

##### 2011 - PORSCHE BOXSTER (987 GEN II) PDK (ARCTIC SILVER) 35,000 Miles

Black Leather Interior, PSM/PCM-2 Touchscreen Sat Nav, Telephone, CD Changer, iPod/USB Connector, Rear Park Assist, 18" GEN II Alloy wheels, ONE Former Keeper Only, Full Main Dealer 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).

##### 1992 - 964 CARRERA COUPE (POLAR SILVER) LHD - 138,000 Miles

Tiptronic Gearbox, Black Leather Interior, Sunroof, SONY CD & radio Player, Full Electric Seats, Rear Wiper, Climate Control, Electric Windows & Mirrors, 17" Alloy wheels, Full Service History.

##### 1987 - 911 3.2 CARRERA 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

##### 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-woofer 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

##### 1982 - FERRARI 512 BBi (ROSSO RED) - 24,000 Miles

This is a low mileage 512 BBi, LHD, 24,000 miles only from new and the condition of the whole car is commensurate with the extremely low mileage. Rosso Red Coachwork with Crema leather interior which is all original and in excellent order. Undoubtedly one of the finest examples on offer anywhere, the 512BBi is still under-valued when compared to other top flight Ferraris. Just completed a big service including cam belts. Ferrari Classiche certification in progress.

##### 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, 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 Concours & Awards Winner Engine Rebuilt By Ferrari In Johannesburg 26,000 KMS Ago Comprehensive photos showing The Repair & 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

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##### AC COBRA 289 CONTINUATION MODEL (BLACK) - 1996

VERY RARE, BUILT ON THE LIGHTWEIGHT MK II 289, SHORTNOSE CHASSIS, ONE OF APPROXIMATELY FOUR ONLY MANUFACTURED. 14,000 MILES, BLACK COACH WORK WITH MIDDLE WHITE STRIPE HAND CRAFTED BLACK LEATHER SEATS WITH RED PIPING MATCHING LEATHER HEAD RESTS, LEATHER TRIMMED ALUMINIUM LIGHTWEIGHT DASH WITH "SMITH" ORIGINAL STYLE INSTRUMENTS. INTERIOR IS FINISHED WITH HIGH GRADE WILSON BLACK CARPETS PIPED IN BLACK LEATHER. EFI injection engine V8, normally aspirated arrangement 8.9:1 compression ratio cast iron engine block with cast iron heads, roller camshaft, upgraded SV0 lower aluminium inlet manifold/upper aluminium inlet manifold body with performance 65mm throttle body

##### AC COBRA MK IV BUILT ON LIGHTWEIGHT SHORTNOSE 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 LEATHER 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.

##### 1979 PORSCHE 930 TURBO COUPE 3.3L Engine 57,000 Miles

Four Former Keepers only, Silver Coachwork, Black Leather Interior, All manuals and Tool Kit, All MOTs, Fully Documented Service history, Fully stamped up service book.

##### 1980 PORSCHE 930 TURBO COUPE 3.3L Engine 68,000 Miles

FIVE Former Keepers only, Silver Coachwork with Savannah Tan Leather Interior, Sunroof Sports Seats, Rear Wiper, Electric Windows, Electric Mirrors, All manuals and Tool Kit, All MOT's, Fully Documented Service history, Fully stamped up service book.

##### 1977 PORSCHE 911 CARRERA COUPE 3.0 LTR 111,000 Miles

Five Speed Manual, Copper Brown Metallic, Tan Leatherette, Race Seats, Chrome Trim, Electric Sunroof, 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 (ICE GREEN) 120,000 Miles

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##### 2008 LAMBORGHINI MURCIELAGO LP640 (RED METALLIC) 14,000 Miles

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27 years separate the 959 and the 918, while the Carrera GT – launched in 2004 – sits in the middle of the development curve. Of the trio, though, it's the GT that eschews most forms of technology, save for a composite tub and panels

that is basically to avoid touching the throttle at all at low speeds until the clutch is full released and allow the anti-stall software to handle the rest. Once you're past this detail, however, you can revel in the way that the CGT manages to combine race-car characteristics with road-car useability. The gearbox? A true joy with the high level lever which falls perfectly to hand every time. You take this large wooden marble in your hand, with even more pleasure and tactility due to the directness and speed of the change. The joy of the toe-and-heel downchange with a (mostly) indulgent blip of the throttle. Fantastic. I'm still amazed that this gear lever positioning hasn't been copied by anyone else, either before or since the quasi-ubiquity of the paddle-change.

Back to the heart of the matter, though; the nobility of the Porsche V10 reminds one

of a V12 from Maranello – in their pre-Berlinetta days – with its ability to rev effortlessly. The sheer speed with which those revs rise and fall, combined with the power available and the smoothness, is hard to describe. In the world of animals the nearest equivalent would be a pure-breed racehorse crossed with a pit-bull. Essentially the 5.7-litre V10 hasn't aged a day, whether compared to the V10 in a Huaracan or the twin-turbo V8 in a McLaren. If anything it's got even better! Why? Simply because with the recent obsession with flat torque curves we had begun to forget the joy of feeling revs and power rise to the summits in a progressive, natural way. I've said it and I'll say it again; this V10 is a race engine which takes you straight onto the Mulsanne straight in less time than it takes to write it. In terms of handling the Carrera GT starts with an

unfair advantage: 1470kgs with all fluids. That's compared to 1603kg for the 959 and 1694kg for the 918. Which goes a long way to explain its amazing dynamism. Yes, the car demands your attention and liberties should not be taken, but that level of focus is surely to be expected in a car such as this. The finest of fine arts.

## TIME CAPSULE

Climbing aboard the 959 gives you the strange impression of being a child again. At the time when the very first Weissach supercar was fighting it out for wall space above my bed with the 288 GTO, the F40 and the Countach (and yes, I know the purists amongst you will argue the latter is no supercar, but for me it is and will always be, so there). The cabin of the 959 is exactly as I'd always imagined it: sober with lots of



### PORSCHE 959 'S'

<b>Engine:</b>	2.8-litre flat-six, 24-valve
<b>Transmission:</b>	6-speed manual, 4WD
<b>Body style:</b>	Sports coupe
<b>Kerb weight:</b>	1603kg
<b>Economy:</b>	24.9mpg (combined)
<b>Top speed:</b>	211mph
<b>0-62mph</b>	3.5secs
<b>Power:</b>	515bhp at 6500rpm
<b>Torque:</b>	369lb ft at 5000rpm

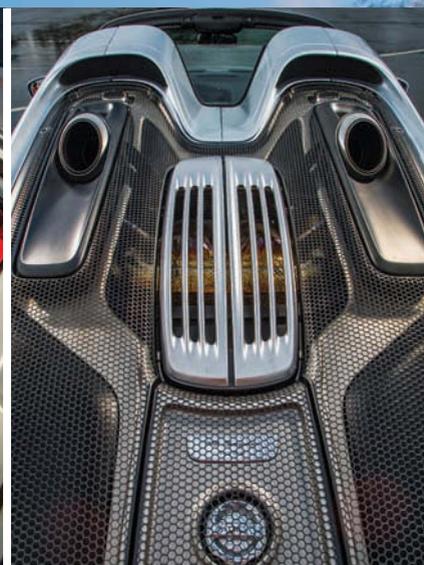
### PORSCHE CARRERA GT

<b>Engine:</b>	5.7-litre V10, 6-speed manual, RWD
<b>Body style:</b>	Two-seater sports
<b>Kerb weight:</b>	1380kg
<b>Economy:</b>	15.9mpg (combined)
<b>Top speed:</b>	205mph
<b>0-62mph</b>	3.7secs
<b>Power:</b>	604bhp at 8000rpm
<b>Torque:</b>	435lb ft at 5750rpm

### PORSCHE 918 SPYDER

<b>Engine:</b>	4.6-litre V8 with 230kw electric motor
<b>Transmission:</b>	6-speed manual, RWD
<b>Body style:</b>	Two-seater coupe
<b>Kerb weight:</b>	1694kg
<b>Economy:</b>	28.9mpg (combined)
<b>Top speed:</b>	214mph
<b>0-62mph</b>	2.5secs
<b>Power:</b>	887bhp combined
<b>Torque:</b>	994lb ft combined

Left to right: The Carrera GT gets a normally aspirated V10 engine and 612bhp. The 959, as tested here, produces 515bhp from its twin turbo, 2.8-litre flat-six. The 918 packs a phenomenal combined 887bhp from its 4.6-litre V8 and combined electric motors



“ The 959 makes you feel like you’re in a 911, rather than the space shuttle ”

Catch me if you can! The 959 makes a break for it and can still hold its own even with a Carrera GT and 918 in hot pursuit. All three of these machines will comfortably crack 200mph and reach 60mph in around 3 seconds

perfectly legible dials and ergonomics from another era. But unlike the Carrera and 918 which both give you the impression you're seated in the space shuttle or just a fighter, the 959 makes you feel like you're in a 911. Well, what appears to be at least. Especially in the test car which is particularly special – which I'll come back to. Turning the ignition key, the flat-six comes to life with the familiar sounds and vibrations of the air-cooled classic. But this isn't a bad thing, rather it anchors the car in a long and very fine line of predecessors. If anything actually ages the interior it's the floor mounted pedals, but you get used to those soon enough. The first metres make it clear the DNA here is 110% pure Porsche: a consistent but light steering, ultra-direct but which can be metred out accurately and a highly civilised powertrain. Then I start to squeeze the throttle and I feel like I'm pulling back on a catapult – even if I'm being discreet due to the age and value of the car. Gradually the tachometer needle winds its way up to 5000rpm and then...an explosion. Literally. Of the sort that floors you and

devastates everything in its way. The 959 is a cannon ball, a bomb. Let me explain.

### X-RATED

Our test 959 isn't a 959 'like the others', if that isn't too much of an understatement. Firstly this is an 'S' or Sport, one of the 29 examples built on the periphery of the regular Komfort models. This means around 100kgs less to carry around due mostly to the elimination of the computer controlled damping, air con, radio, rear seats, electric windows, etc. It has got a roll cage, however. A bit like a 959 GT3 ahead of its time. But that isn't all. Of those 29, the last three built by the factory benefited from an upgraded engine (new Motronic injection and bigger turbos), taking the power to 570bhp instead of 450bhp. And this is chassis 29 which Porsche listed in their books as a 961 (the race derivative). Which meant a fair bit of paperwork was required before road registration could be given and, as a side effect, the creation of the model '959 X' of which this is the one and only

representative. I'm forgetting one last thing: this car kept the electric windows and right-hand mirror for the sake of usability. All of that to say that this 959, well, it's rarer than hen's teeth. Even rarer given that its performance is much higher than the car originally tested by our German colleagues from *Auto Motor und Sport* who recorded a 3.35sec 0–100kmh run and 11.9 to reach 200kmh. And that's not all; thanks to its higher power output, this Sport maxes out at 344kmh, which makes it pretty much as quick as the 918. Not bad for a mid-'80s machine.

### CONCLUSION :

These Porsche masterpieces are timeless. Like artworks in a museum that leave you speechless regardless of their age, the genius of their creators remaining unchanged over the centuries. The real genius of Weissach is to continue making the sensational performance of their supercars useable on the road in real-life conditions. This amazing trio is testament to that vision. **PW**



Left to right: Carrera GT interior launched Porsche's distinctive, raised central console. Polished wooden gearknob is an homage to the 917 racer. 959 is conventional 911 of the '80s era. Raised transmission tunnel required for 4WD propshaft. 918 cockpit surprisingly conventional in terms of layout, but scratch the surface and it's a digital tour de force



“

These Porsche masterpieces are timeless. Like artworks in a museum

”

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# THE FINAL ANALYSIS

It is a saga to rival *War and Peace*, suggests Chris Horton, but at last our big round-up of M96 and M97 engine problems – and their solutions – is nearing an end. This month we look at the crankshaft and cylinder heads, and wrap it all up with a brief guide to the makers and suppliers of the best repair and upgrade hardware available. Photos by the author, and individual component manufacturers



**Y**ou will surely be relieved to know that this is the final instalment of what has become an M96/97 trilogy; our attempt to examine and analyse as many aspects as possible of these clever but famously often troubled water-cooled flat sixes. You can, after all, have too much of a 'good' thing. On the table for discussion this month, then, as the title of the piece suggests, are hardly peripheral issues, but certainly some of the more unexpected areas in which you might encounter a mechanical failure of some description. And, no less important, what to do about them, and perhaps even how to prevent them. Plus, of course, our promised round-up of who does what in the way of repair, upgrade and tuning parts.

We shall start with the crankshaft and its bearings. We, probably like most, were firmly under the impression that given the obvious requirement for regular oil and filter changes, and the use of only top-quality oils, this was one area of these engines that you generally didn't have to worry too much about. Not so, suggested Barry Hart, confidently – and entirely correctly, of course – predicting that Alun Morris's *circa* 80,000-mile 2003 Carrera 4S motor would have not only the (fortunately slight) valve and piston damage resulting from an IMS bearing failure (which had allowed the timing to slip by a few degrees), but also – and for entirely different reasons – main- and big-end-bearing shells that were just about shot to pieces.

There are several factors behind this increasingly common and frankly disappointing scenario, argues Barry. Chief among them is the considerable overhang between the rearmost main bearing and the end of the crankshaft to which is bolted the heavy flywheel and clutch, or the equally massive torque converter – and then the dimensions of both the shaft and its bearing journals. 'The crankshaft as a whole is an ingenious piece of design,' suggests Barry, 'and does allow the engine itself to be remarkably compact in relation to its power output and weight. But compare it with, say, a humble 944 crank, and the difference is remarkable. The latter has main-bearing journals that are both significantly broader, and larger in diameter, and the crankshaft itself weighs maybe twice as much. It is physically a lot larger, as well.'

On paper, and no doubt in idealised test conditions, this was no great problem, believes Barry (and the air-cooled 911 crankshaft is, of course, similarly svelte), but out here in the real world it can be a very different story. 'At high engine speeds, even the smallest imbalance in the rotating

components can cause the crankshaft to flex, particularly during very vigorous or what I would call “abusive” clutch actuation – although obviously that won’t be a factor in Tiptronic cars. It would be an almost imperceptible amount of distortion, of course, and naturally it will first affect the main bearing nearest the heavy end. But the flexing will travel the length of the shaft – not unlike the familiar whip effect in a length of rope – and given the necessarily minute tolerances involved, eventually that can be enough for one or more of the journals to overload and overheat its bearing shells, and so to begin to abrade the white-metal surface.’

In itself even that is not immediately catastrophic, argues Barry; the journal will continue to be supported by the surrounding undamaged bearing surface, and by and large the engine will continue to run well enough. (Although it is this flexing, unsurprisingly, that is also thought to be one of the primary causes of chronic RMS leaks.) Eventually, however, and with the situation possibly exacerbated by extended oil-change intervals as the vehicles pass down the used-car hierarchy, and/or the lower-quality oils often associated with that decline in residual value, something has to give. ‘By design, oil is pumped first through the main-bearing journals, and then the big ends,’ adds Barry. ‘As the main bearings wear, however, the resulting “leakage” causes a reduction in the pressure at the big ends. Eventually, one or more of those will overheat and, if you are unlucky, seize solid. That usually snaps the connecting-rod, and the ends will act like flails, punching their way through the crankcase.’

That is clearly an extreme situation, and relatively few power units will end their days in that way – if only because something else might well let go first. (Cylinder bores and/or pistons, for instance... See the previous two editions of the magazine.) Even so, main- and big-end-bearing wear is now clearly commonplace enough that it is becoming a significant factor in many engines’ on-going viability. ‘Get in there early enough,’ suggests Barry, ‘and provided the shaft is undamaged – and quite often it will be – it is usually possible simply to fit new standard-size bearing

shells. And that’s what we did with Alun Morris’s Carrera 4S engine.

‘Where the problems really start is if the crankshaft is damaged enough to need machining in order to reclaim the bearing journals. The cranks are hardened during manufacture, by a process known as nitriding, but in fact this hardening is in the form of only a very thin surface “skin”. The finish-machining inevitably destroys that skin, and so you need to have the crank nitrided again. That adds material, but not necessarily as much as you earlier removed, and so you end up needing under-sized shells. They are available, but only on the after-market, not from Porsche, and personally I am not that keen on them.

‘Our preferred solution is either a brand-new crankshaft from Porsche – although those are naturally very expensive, and also quite difficult to get hold of – or, failing that, a good second-hand shaft. Luckily, we can usually obtain those from specialist Porsche breakers, but not surprisingly they are beginning to become quite hard to find, too. The third option is to machine and then correctly harden the shaft for those under-size shells – as above – and the fourth is to have new shafts specially made. We are currently running several test engines with crankshafts that we have had manufactured from solid steel billets.’

The other area where you can expect to find problems as these engines age, it seems, is the cylinder heads. ‘In earlier units – that is to say, up to and including the 996 3.4 and the 3.2 in the 986 Boxster ‘S’ – the castings are a little bit thin in places,’ says Barry. ‘Our experience is that they can crack, and thereby allow cross-contamination of the oil and the coolant – and obviously water in the oil is never going to do the crankshaft bearings any good.

‘The cracks are not immediately apparent – you have to take off the camshaft covers, the camshafts, and then the tappet blocks, so that you can see the areas around the spark-plug holes – but if you have one of these cars it’s worth keeping an eye on the contents of the header tank. Don’t be too alarmed by a very thin film of what might look like oil on the surface of the coolant – that’s by no means abnormal – but if you stick a finger in – when it’s cool or better

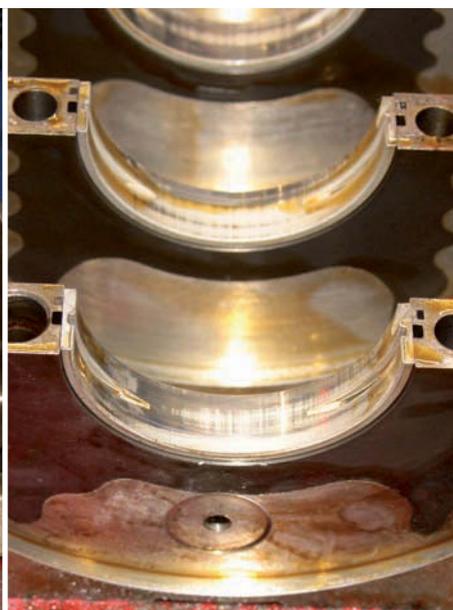
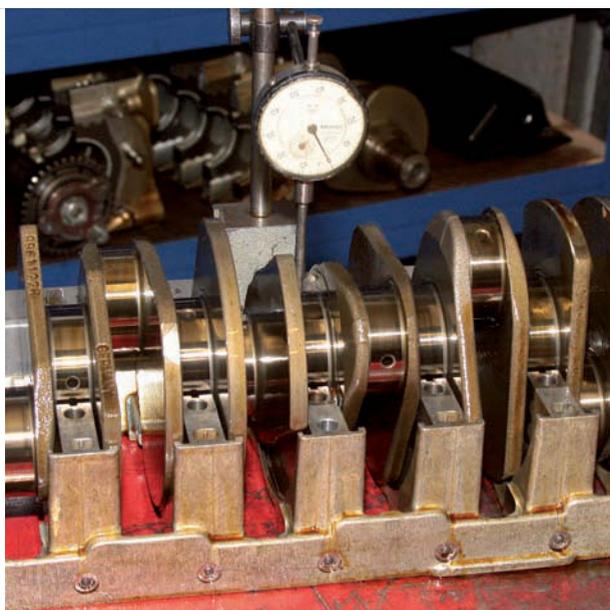
still stone-cold, of course! – and it comes out literally covered in grease, then naturally there is likely to be a problem. Likewise, don’t be too alarmed by a little bit of so-called “mayonnaise” in the oil filler cap – that’s often the result of perfectly normal condensation accumulating in a relatively cool-running part of the engine – but do seek advice if it seems excessive. It could well be the sign of coolant in the oil.’

The optimum solution to this problem, says Barry, is a new or second-hand cylinder head(s), but prevention is always better than cure. ‘I firmly believe the problem stems from uneven expansion as the engine warms up,’ he suggests. ‘For that reason I always urge owners to allow both the coolant and the oil to reach full operating temperature before driving the car hard. It’s just common sense, really. Ask any pilot. But don’t under-estimate how quickly the engine will lose heat once you stop – we have seen a number of these failures in trackday cars, possibly because they have been standing idle in the pits between sessions, and then the owners, because they appear still to be “hot”, take them back out again without that vital warm-up lap.’

Conversely, so-called heat soak after you stop the car after even a relatively period of spirited driving brings its own problems. We discussed this last time, in relation to its effect on cylinder-bore temperatures and the resulting scuffing, but it, too, can lead to serious issues within the heads. ‘We have seen several instances of valve seats falling out,’ says Barry, ‘and I believe that’s largely the result of people coming to a complete standstill immediately after a hard, fast run.

‘You might unavoidably face that situation out on the road – suddenly running into heavy traffic, for instance, or even an accident – but again it’s trackday cars that seem likely to be worst affected. That’s why it’s always important to do a slowing-down lap as well as a warm-up. And don’t forget how close all this hardware is to the exhaust manifolds. They could be virtually red-hot after just a few circuit laps, and when you stop all that heat has to go somewhere. The good news, though, is that even an engine that has suffered this kind of damage can often be reclaimed with the

Both big-end (below) and main bearings (below right) are surprisingly prone to wear in all of these engines, often after as little as 50,000 miles. Poor-quality oil (and extended service intervals) are naturally a factor, but it seems that the ‘whip’ inherent in a crankshaft with such relatively modest dimensions – and certainly of the bearing journals – plays its part, too. Harteck routinely checks run-out at centre main bearing





same machining and cylinder-liner technology that we would use against scoring – giving you the same variety of upgrading and future-proofing possibilities – and again a second-hand head.’

And that, you will now be very relieved to hear, is about it. There are a number of other genuinely peripheral failure points to bear in mind if you run one of these engines – see section below – but by and large these are more inconvenient and annoying rather than truly catastrophic in nature. What all this says about the M96 and M97 family of engines is in some ways glaringly obvious – were you writing a school report on Porsche’s efforts you might justifiably use the phrase ‘could do better’ – but equally one is drawn back to the often remarkably indulgent view many enthusiasts have of the earlier air-cooled units, and the huge amounts of money they seem prepared to spend on them, and not

necessarily, we suggest, for any genuinely pressing technical reason.

We shall leave the last word to Barry Hart – who, it bears repeating as often as possible, has probably done more carefully thought-out development work on every aspect of these engines than anyone else outside Porsche itself. (He is even talking about the possibility of manufacturing substantially redesigned crankcases; what a remarkable legacy to the Porsche ‘industry’ that would be.) ‘I think it’s a superb power unit,’ he says emphatically. ‘One of the best mass-produced performance-car engines there has ever been, and now maybe ever will be. The real problem was not only that Porsche designed it when it had very little money, but also at a time when the motor industry as a whole was latching on to the obviously appealing idea of the throwaway car, and so – even at this rarefied level – the throwaway engine. The idea that it

needed to last no more than 100,000 miles, at most, and would never need to be rebuilt like it would have been in the old days.

‘I understand entirely that it goes against the grain potentially to face so many faults in what for many people will be their dream car, and still quite an expensive one, at that. And a vehicle that, partly because of all these well-publicised historical issues, has yet to start appreciating in the way we seem to expect of almost everything else we own these days. But accept that those problems exist, and perhaps have a pre-emptive rebuild carried out, with properly supported cylinders that cannot and will not go oval, low-friction coated pistons, and above all the larger-diameter IMS bearing – in broadly the same way that so many air-cooled owners do – and I think it could last more or less indefinitely. It will certainly be far cheaper than waiting for it to go bang and then fixing the resulting carnage.’ **PW**

Close-up of the driving end of a typical M96 crankshaft (far left) shows the relatively large distance between the final bearing journal and the heavy flywheel and clutch. Even the slightest imbalance in the latter assembly can cause that ‘whip’ effect throughout the length of the shaft, often with disastrous effects on the bearings. Simple, bicycle-chain-style sprocket for primary camshaft drive shows this to be a very early shaft, before the switch to the quieter Hy-Vo chain. Middle photo shows what can happen to big-end bearing shells as a result of a compromised oil supply; in severe cases con-rod snaps. Crankshaft above shows the obvious discolouration caused by badly overheated bearings. Below: VarioCam system – shown here in an earlier ‘five-chain’ engine – can suffer from solenoid faults, and the resulting misfire. Camshafts not known to wear excessively, but anything is possible... Cylinder heads can crack around spark-plug holes, especially if engine is allowed to warm up too quickly

## A few more of the usual suspects

Ultimately, just about any part of any engine can fail – which is why the maintenance of aircraft and other safety-critical machines is based around the pre-emptive replacement of what might appear to be perfectly serviceable components with brand-new ones, similarly ‘lifered’. Shown below, then, are the few remaining areas of the M96/M97 that we have not so far covered, and which, even if unlikely to bring the engine to a catastrophic halt (or necessarily easily replaceable), are well worth not simply forgetting about.

## Timing chains and tensioners

The former are not known to suffer from any particular weakness, but the internal tensioner

blades can wear. The Boxster 2.5 and Carrera 3.4 both have a total of five timing chains, and later engines of all types just three. The oil-fed tensioners themselves – one per cylinder bank, and accessible from beneath the engine – are easily removed for replacement of their aluminium sealing washers to cure small but persistent leaks, but it is absolutely essential first to turn the crankshaft to the correct position to prevent any possibility of the valve timing being altered.

## Camshafts, VarioCam and Variocam Plus tappets; valves and guides

The four camshafts per engine, and their 24 followers, or tappets, are not known for any particular faults, although inevitably their effectiveness and lifespan will be compromised by extended oil-change intervals and/or the use of poor-quality oil. Watch out for Variocam

solenoid problems in earlier engines, however, which can cause a misfire and switch on the CEL, or Check Engine Light – but may be caused by a poor electrical connection, as much as by a fault within the unit.

## Exhaust-manifold fixings

Whatever else their virtues, modern Porsches are not known for the high quality of the various fastenings by which they are held together. Among the very worst offenders are the M96’s and M97’s exhaust-header screws, securing the manifolds to the underside of the cylinder heads. All too often they rust away to virtually nothing, making them difficult to grip, even with specialist tools, or else break when you try to unscrew them, which means drilling them out and reclaiming the holes with special threaded inserts. Replace them with either new standard Porsche screws as often as possible or necessary, or just once with upgraded items in stainless steel.



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### Vacuum/tandem pump

On 987 and 997 versions of the engine the vacuum required to activate the brake servo comes not from a connection to the inlet manifold, but from a pump at the end of one of the cylinder heads, and driven by the exhaust camshaft. In the Boxster and Cayman this places it at the left-hand front corner of the power unit, but in the 997 at the right-hand rear corner, where it is exposed not only to water and mud thrown up by the road wheel, but also the heat from the nearby exhaust. This corrodes the pump's mild-steel cover, which then allows engine oil to leak out. The pumps

and regulating the pressure differential between the crankcase and the inlet manifold. There is also a condenser to trap liquid oil and make sure that does find its way back to the sump, and not least a so-called flame-trap to prevent a backfire in the induction system igniting the inherently explosive fumes in the crankcase. The separator's failure – in the form of either a split in the diaphragm, or its partial or complete seizure – can cause excessive smoke in the exhaust, as well as high oil consumption and oil leaks, and is more than likely why some otherwise good engines have been condemned, or at the very least

old-fashioned ignition distributor, but a single dedicated coil per spark plug, mounted directly over the latter on the camshaft covers. These, too, often corrode – despite some rather flimsy shielding – and not unnaturally that can lead to troublesome misfires and generally poor performance. The coils are not in themselves particularly expensive – typically £20 each – but, given the work involved to access them, are best replaced in sets of six. Which, of course, is also the ideal time to replace the spark plugs. Or maybe their replacement is the perfect opportunity to renew the coils? For more on this subject see the March 2011 issue.

Vacuum or so-called tandem pump from a 997 (above left) shows how susceptible these units are to external corrosion and the resulting oil leaks. Boxster/Cayman suffers less because pump is positioned away from water and dirt thrown up by road wheel. Air/oil separator (above) is an essential part of the crankcase breathing system: faults here – relatively easily curable – have more than likely resulted in many otherwise sound engines being wrongly condemned because of high oil consumption. Alternator bearings (below left) can become noisy, again leading owners to believe the engine itself is about to fail. Beware, too, faulty electrical connection in 997, causing poor battery charging and non-starting. Coil packs (below) are a very common cause of worrying misfires

“ The separator’s failure can cause excessive smoke in the exhaust ”

can be replaced – see the October 2014 issue of the magazine – but it is not a pleasant job, and best left to an experienced specialist. The unit is sometimes – for not entirely obvious reasons – known as a tandem pump.

### Air/oil separator

At the heart of this surprisingly important device – and again there are several different types, depending on the precise application and model year; there is even an upgraded Motorsport item – is a flexible diaphragm. It acts as a simple two-way valve, controlling

unnecessarily stripped and rebuilt. Again the unit's position on the engine – near the left-hand front corner in the 911, near the right-hand rear in the Boxster/Cayman – makes it a very awkward task to replace, so accepted wisdom is to do so whenever any other work provides the opportunity. See the February 2014 and October 2009 issues of the magazine for more details.

### Ignition coils and spark plugs

All of these water-cooled flat-sixes have no

### Starter motor and alternator

Neither is directly connected to the engine's overall health, of course, or known for any particular problems, but you won't get far unless they are working correctly. The latter can become worryingly noisy if a bearing fails, but replacement generators are readily available (typically £250, perhaps as low as £75 if you have your own unit repaired by a good auto-electrical specialist), and although not a five-minute job to replace are not that difficult, either. See the July 2015 issue for a how-to story on replacing a 996's generator, but also the December 2013 issue for a similar piece on the 997's main generator cable, whose failure can in these cars lead to much the same issues. For details on how to replace the poly-rib drive-belt (which also powers the water pump, power-steering pump and air-conditioning compressor) see the June 2007 issue of the magazine.





#### Attractive Ocean Blue

Boxster 2.5 (above, middle) had the best part of 200,000 miles on the clock when we featured it in *Tried & Tested* in the October 2013 edition (below), and soon after that was purchased from

Suffolk-based independent Finlay Gorham by Anthony Wells and his son, Chris. The latter has since done at least another 12,000 miles, using the car daily for work, and although there have naturally been a few minor issues (see text) the car is still strong and highly enjoyable, says Anthony. It has even taken a trackday in its stride, suggesting that by no means all M96 (or M97) engines will prematurely end their days in the scrap bin

### ORIGINAL AND STILL THE BEST?

If you have been with us on this story right from the start, then you will no doubt recall the nearly 200,000-mile Boxster 2.5, seemingly still on its original engine, that we referred to in the January edition – and our hope that its current owner might get in touch to tell us how it's going.

And that, thanks to *911 & Porsche World's* ability to reach the parts that others do not, is precisely what very soon happened. Let's hear it, then, for Anthony Wells and his son, Chris, who between them are the proud custodians of S158 APF (above and below), and anecdotal evidence, at least, of the theory that the earliest and smallest iteration of the M96 might well prove also to be the best, and certainly in terms of reliability and longevity.

'This was to be Chris's first car after leaving university for a new job,' writes Anthony, 'and being able to drive it to work every day would be essential. It had to be a Porsche, and cost no more than £4000 to buy. Independent dealer Finlay Gorham in Suffolk [www.finlaygorham.com] had what sounded like the ideal vehicle. A 1999-model 986-series Boxster 2.5, with six months' warranty, and all for precisely £4000. The car also had new wheels, a GT3-style front end, a glass rear windscreen from one of

the later models, replacement Porsche seats, new brake discs and pads, and not least new air-conditioning condensers.

'On the downside, the mileage was both very high and uncertain, with replacement speedometers creating some anomalies in the recorded MOT-test mileages. There was a fully stamped service book, though, and it seemed that Finlay Gorham had maintained and thus known the car for the previous 10 years. Unsurprisingly, Chris came back after the test-drive, with Finlay Gorham proprietor Joff Ward, grinning from ear to ear. He had previously driven my 964 Carrera 2 on many trackdays, and said the Boxster was surprisingly punchy by comparison, with more controlled handling than the 911.

'Over the following two years of our ownership the car has naturally needed fairly constant attention to items subject to the usual wear and tear, including a new battery and starter motor, a micro-switch for the hood latching mechanism, a hood tension rope – which the magazine ran as a useful how-to story some time ago – and hood "A"-pillar attachment points, which needed new blind-rivet fixings. We also fitted a set of new wheel bolts, after a visit to a tyre depot for balancing. The shoulders of all the existing bolts had either cracked

or broken, and understandably the garage refused to work on the car until they had been replaced. The suspension has also needed new rear arms and new front drop-links to eliminate clonking sounds.

'One day the engine stalled. Although it would restart and rev well enough, it just wouldn't idle. We knew it was unlikely to be either the ignition coils or the spark plugs, because we had replaced all of those, so we needed help from our local garage. They found no faults, and I began to fear the worst. Then, after a second look, they found a broken dipstick tube that was letting in air, and upsetting the crankcase breathing system. It turned out it had been repaired before, but that the glue that had been used had failed, so a new one from Porsche was the only long-term solution.

'With Boxsters of this age and value you have to be able to run them on a budget using DIY skills, if you don't want to spend more than its value, even at your local garage or a Porsche specialist. Luckily there are lots of second-hand and after-market parts available, with technical advice on how to repair just about anything readily accessible on the internet. I have really enjoyed tinkering with the car, and have seen the various repairs and maintenance that we have had to do not as a chore, but rather as a sort of bonding experience!

'The Boxster is a lot of fun for a relatively small outlay. Its handling makes the average driver feel special, and top-down summer trips are a delight. And if you work that lovely gearbox properly it's even more fun. Compared to a 964, the Boxster is a lot more civilised as a daily driver. It has served Chris well for 12,000 miles, and even at over 200,000 miles it's still going strong.

'Eighteen months into Boxster heaven and the health of the engine has been excellent, with one trackday at Brands Hatch, and one session at the Porsche Experience Centre at Silverstone, and both taken in its stride. The 2.5-litre engine is proving to be very good. It's just the other stuff that you need to attend to due to wear and age.'



## LEARNING THE HARD WAY – BUT BENEFITING FROM THE EXPERIENCE, TOO

Put your hands together, too, for the truly heroic Alun Morris. It was his 2003 911 Carrera 4S – fitted from new with the optional X51 Powerkit – that we featured in both previous instalments of this story (and before that as one of the *Tried & Tested* cars in the June 2012 issue of the magazine), as what you might call the ‘bad cop’ to the Wells’ good one.

The engine, which last time we showed being stripped for inspection after a suspected IMS-bearing failure, proved to have three or four slightly bent valves (as a result of the timing slipping by a few degrees), and surprisingly worn crankshaft bearings, but fortunately there was no major internal damage, and it was an ideal candidate for a full Harteck rebuild incorporating a number of the company’s well-known ‘future-proofing’ measures.

These included a full set of six Nikasil-plated Harteck cylinders and exchange recoated pistons, a full set of crankshaft bearing shells, a modified intermediate shaft with the later larger-diameter bearing – it would have been madness not to have gone for that – timing chains and guides, a new air/oil separator, second-hand valves as required, a second-hand scavenge pump (the original had partially seized, as we reported last time), and not least various exhaust clamps and fastenings.

The bill came to the precisely £8500 plus

VAT (ie £10,200) previously agreed between Alun and Harteck, but subsequent testing revealed that the car also needed a replacement radiator fan and oil-pressure gauge, and despite being understandably financially stretched by the experience Alun wisely went the extra mile – although the possibly worn dual-mass flywheel will just have to wait for a little while, he told us. A new clutch was fitted, too – that was another few hundred pounds on top, but again it would have been false economy to have missed the opportunity to replace it.

The plan was for this writer to have met Alun Morris at Harteck when he went up to Lancashire to collect the finished car, but the situation is complicated partly by the fact that the latter lives in Belgium, and so for now that – and we hope our subsequent driving impressions – will have to wait. ‘Of course I could have done without such a relatively large expenditure on a vehicle that itself cost me only £21,000 to buy in the first place,’ says Alun stoically, ‘but it’s my dream car, and I had always planned to keep it for a long time. I shall just have to keep it for a bit longer still, to recoup the benefit of my recent investment!’

The good news, Grant Pritchard at Harteck tells me, is that the rebuilt engine apparently goes like a dream – and I always felt that the X51 kit made a big difference to the response,

even before the engine failed. Grant even went as far as to say that he would be happy to own it himself which, given the large number of similar vehicles he must see, goes at least some of the way to softening the blow and making me feel a bit better about the situation. It just goes to show, though – I should have had the IMS bearing upgraded when I first started thinking about the possibility that it might fail, not *after* it had happened. Prevention is undoubtedly better – and cheaper! – than cure.’



Blink and you will miss it: distortion in C4S exhaust valves is barely discernible, although the one on the right does have a more obvious shadow beneath what is here the lower part of its circumference. Note, too, the tell-tale witness mark across both valve heads, a result of their ‘kissing’ the piston. And all because of a failed bearing that costs all of £20 or less to buy

### Who are you going to call?

We debated long and hard here in the 911&PW office about how best to showcase the companies offering worthwhile M96/M97-specific parts and expertise, but concluded that the full guide we had planned could easily occupy many more pages within the magazine. What follows, then, is essentially a simple list of the names and now almost universally accessible web addresses of what you might call our usual suspects, together with a necessarily brief summary of what they do, and why we think they will be worth contacting. Between them they should be able not only to prevent your water-cooled flat-six failing in the first place, but also to fix it, if necessary, and then to keep it running reliably and efficiently for many years to come.

#### Harteck, Bolton, Greater Manchester [harteck.co.uk](http://harteck.co.uk)

Probably best known for its cylinder-bore repairs and upgrades, but has also conducted arguably the most exhaustive development programme on every other relevant aspect of the M96/M97 outside the Porsche factory itself. Deservedly our go-to source for much of the information in this series of features. Offers a wide range of services, and some very competitively priced solutions, all – we think – very thoughtfully designed and engineered

#### Evans Waterless Coolants, Swansea, Wales [evanscoolants.co.uk](http://evanscoolants.co.uk)

As the name suggests, and as regular readers will know, manufacturers and suppliers of the synthetic coolant that we firmly believe can go a long way toward preventing the localised overheating that is believed to be one of the factors leading to cylinder-bore scoring

#### Autofarm, Weston-on-the-Green, Oxfordshire [autofarm.co.uk](http://autofarm.co.uk)

Originator of the Silsleeve repair process in the mid-2000s, and since then has carried out a large number of such conversions and full rebuilds, often in conjunction with capacity increases. Offers a good range of other repair, upgrade and tuning hardware from several of the other original suppliers listed here

#### LN Engineering, Momence, Illinois, USA [lnengineering.com](http://lnengineering.com)

Known primarily for its cylinder sleeving process (up to 4.0 litres), but also its no less innovative IMS upgrades – one of which now uses the same plain kind of bearing as in the air-cooled 911 engine. Additionally offers circuit-orientated upgrades such as a larger-

capacity deep sump, a low-temperature thermostat, and a full-flow oil-filter adaptor

#### EPS, Miami, Florida, USA [epsfix.com](http://epsfix.com)

Best known for its re-engineered IMS bearing with parallel rollers instead of balls, but also incorporates the same device in full intermediate-shaft upgrades, in conjunction with an ingenious method of improving the oil feed without any external modifications. Also offers over-sized crankshaft bearings, ie for crankshafts that have required machining, and so have under-sized journals

#### CSF, Rialto, California, USA [csfrace.com](http://csfrace.com)

A full range of replacement radiators that between them are said to address all of the known major issues with the standard Porsche items, in terms of both cooling ability and overall longevity

#### TuneRS Motorsports, Coral springs, Florida, USA [tunersmotorsports.com](http://tunersmotorsports.com)

Primarily four carefully targeted upgrades to enhance the engines’ reliability: Direct Oil Feed or DOF kit for the IMS bearing; oil-cooler delete plate (which allows the replacement of

Below, from left right: Direct Oil Feed IMS bearing from TuneRS Motorsports; Evans Waterless Coolant; and TuneRS so-called underdrive crankshaft pulley





the apparently leak-prone standard cooler with an external device); 'underdrive' crankshaft pulley (claimed to help reduce the temperature of the power-steering fluid); and not least a deep-sump kit for added capacity and improved resistance to surge during long, fast corners

**Auto Umbau,**  
Silsoe, Bedfordshire  
[autoumbauporsche.co.uk](http://autoumbauporsche.co.uk)

Previously primarily an accomplished specialist in air-cooled body repairs and engines, but increasingly involved with all aspects of the water-cooled cars, as well – and a company with whose help we have done many how-to stories. Proprietor Robin McKenzie is the enthusiastic owner of a 997

**Ninemeister,**  
Warrington, Cheshire  
[ninemeister.com](http://ninemeister.com)

Full range of servicing, repairs, rebuilds and upgrades based on many years' experience; also offers an ingenious stainless-steel cover for the corrosion-prone vacuum or tandem pump on the 997 engine

**Cavendish Porsche,**  
Long Eaton, Nottinghamshire  
[cavendishporsche.co.uk](http://cavendishporsche.co.uk)

Servicing, repairs, rebuilds and upgrades; a valued provider of material for our long-running series of how-to features

**Porsche-Torque,**  
Uxbridge, Middlesex  
[porsche-torque.co.uk](http://porsche-torque.co.uk)

Servicing, repairs, rebuilds and upgrades; another valued provider of material for our series of how-to features

**Northway Porsche,**  
Beenham, Berkshire  
[northwayporscheltd.co.uk](http://northwayporscheltd.co.uk)

Servicing, repairs, rebuilds and upgrades; yet another valued provider of material for our series of how-to features

**Redtek,**  
Brackley, Northamptonshire  
[redtek.co.uk](http://redtek.co.uk)

Proprietor Nick Fulljames now concentrates on high-end air-cooled rebuilds, but was one of the engineers behind Autofarm's Silsleeve conversions, and so undoubtedly knows his stuff as far as the M96 and M97 are concerned. Might be persuaded to facilitate the required machining to fix a blow-up if you ask him very nicely!

**JZM Porsche,**  
Kings Langley, Hertfordshire  
[jzmporsche.com](http://jzmporsche.com)

Primarily sales, servicing and repair of all modern water-cooled Porsches, but md Steve McHale is a talented engineer who also offers full engine rebuilds with upgraded cylinders and pistons

**Design 911,**  
Ilford, Essex  
[design911.co.uk](http://design911.co.uk)

Primarily a highly respected specialist in mail-order parts supply for all Porsches, ancient and modern, but is also the UK agent for both CSF and EPS

**9-Apart Ltd,**  
Bury, Lancashire  
[9apart.co.uk](http://9apart.co.uk)

Second-hand engines and other parts

**Douglas Valley Breakers,**  
Standish, Lancashire  
[douglasvalley.co.uk](http://douglasvalley.co.uk)

Second-hand engines and other parts

Above, from left to right: LN full-flow oil-filter adaptor; oil-cooler delete plate from TunERS; and another oil-fed IMS bearing, this time from LN Engineering. Below: LN's deep-sump kit and just one of the many top-quality replacement radiators from CSF. Plenty more great products to look at and to buy on the websites listed on these two pages





# WHAT DO YOU KNOW ABOUT IMS BEARINGS?

**FACT 1**  The M96 and M97 Engine is wet sump – the IMS is submerged in oil.

**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.

**FACT 4**  The IMS Solution, US PATENT 8,992,089 B2, is the only permanent solution that backdates your IMS to work like in an aircooled flat 6 engine.

**FACT 5**  With over 20,000 installations since 2008, the IMS Retrofit and Solution are trusted worldwide as the first and best.

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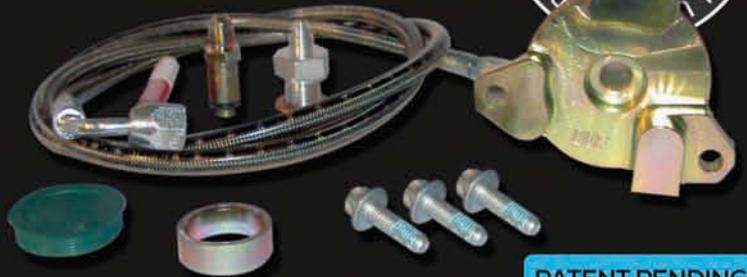
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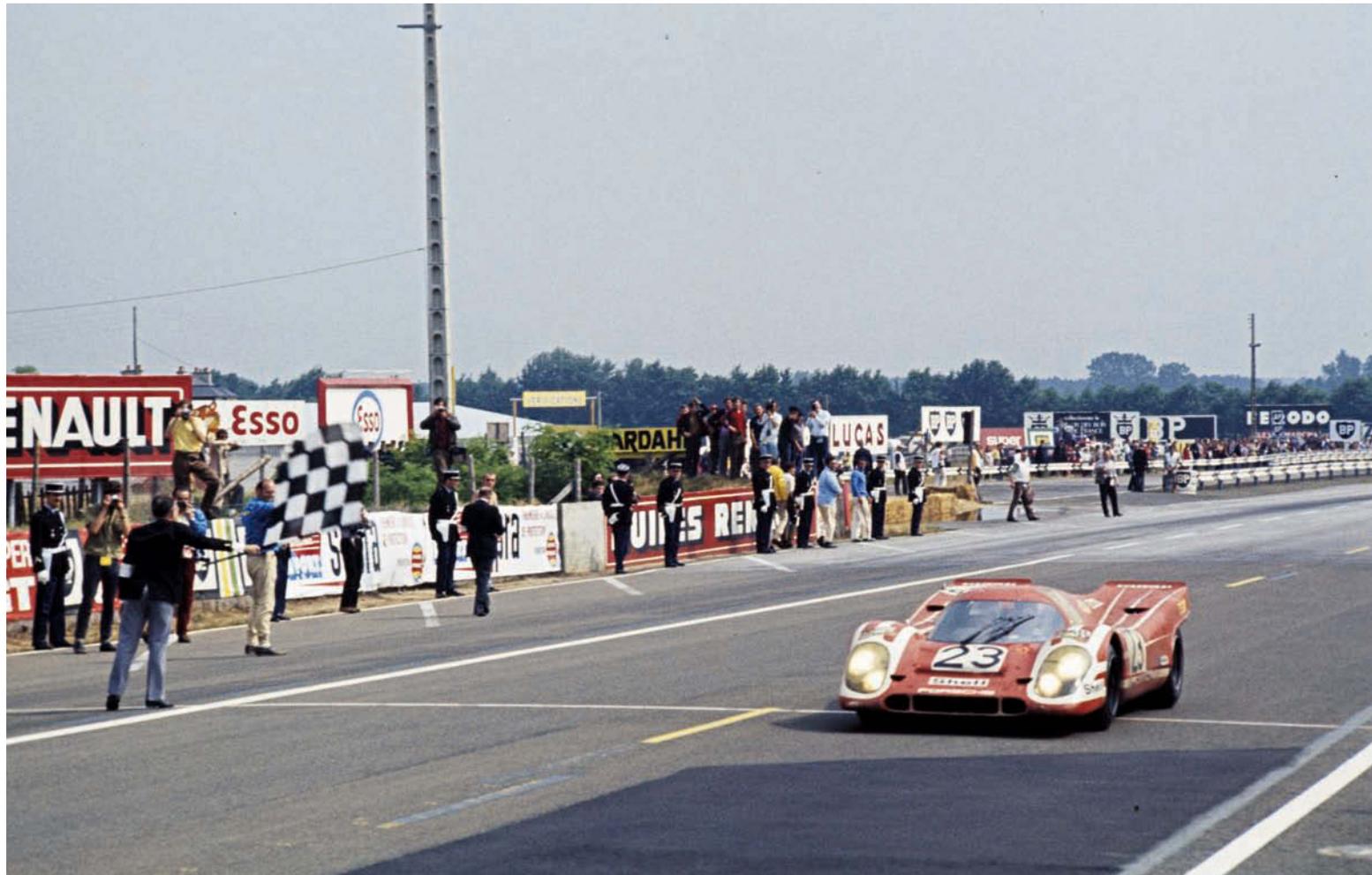
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# VICTORY AT LAST!

As Porsche readies itself for another crack at overall victory at Le Mans, we take time to look back to the years 1969 and 1970 when Porsche battled hard in an effort to gain its first outright win at the famous 24-hour event. These were years to remember, but not always for the right reasons, as Porsche's mighty 917 fell foul of regulations and mechanical ills – not to mention ageing Ford GT40s and a multitude of Ferraris...

**Words:** Keith Seume **Photos:** Porsche Archiv/KS Archives

It had been a long struggle, a costly one and, in some people's eyes, an embarrassing one, too. That struggle was to gain Porsche's first outright victory at Le Mans. Over the years, Porsches had gained many class victories, including the much-prized Index of Performance, but now it was time to step up to the plate and go for gold.

The year when it came right was 1970, a year that will be remembered for two things: Porsche won the event outright, with Richard Attwood and Hans Herrmann taking the win in the Porsche Konstruktionen-entered 917 (chassis number 917-023), ahead of Gérard Larousse and Willi Kauhsen in a 'private' Martini-backed 917, resplendent in its outrageous psychedelic paintwork. It was

also the year that Steve McQueen and his film crew recorded much of the action for use in his upcoming film *Le Mans*.

In 1969, Porsche had suffered the ultimate humiliation of not only seeing its new weapon of choice, the legendary 917, fall by the wayside, but also losing by just 100 yards to the Ford GT40 of Jacky Ickx and Jacky Oliver. Can you imagine the agony? A hundred yards difference after 24 hours of racing?

Salt was rubbed firmly into Porsche's wounds that year, which represented Ford's fourth straight victory at La Sarthe, with the elderly Ford GT40, run by John Wyer's JW Automotive team, crossing the line first, the very same car having also won the event twelve months earlier.

That year's Le Mans didn't start well for

Porsche, who showed up with three of its new 917 racers, two long-tails (driven by Elford/Attwood and Stommelen/Ahrens) and one short-tail (driven by Woolfe/Linge). Also entered were four 908s, two 910s and seven 911s.

The long-tail 917s featured Porsche's 'secret weapon' in the form of movable flaps at the rear, the angle of which could be adjusted to change the amount of downforce. Porsche was understandably dismayed when objections were raised by the Le Mans scrutineers.

The problem was that the CSI (*Commission Sportive Internationale*) had outlawed certain aero devices at a meeting in May 1969, but Porsche had somehow managed to sidestep the ban due to the lack of detail in the wording.

Above: Richard Attwood blasts the Porsche-Salzburg 917 across the finish line to take the chequered flag – finally, Porsche had won Le Mans!



However, all that changed when, a week later, the CSI issued another statement which went into greater detail: 'Specifically forbidden is any separate aerodynamic surface which may exert a vertical thrust when the car is proceeding in its normal direction of travel. By "separate" is meant the mounting of such a surface so that there is a gap or moving joint between it and any part of the coachwork.'

Porsche maintained that the 917 had been developed over a period of two years, with these movable flaps being an integral part of the design. Removing them, Porsche argued, would make the cars dangerous, if not impossible, to drive at

speed. If the CSI insisted on their removal, then Porsche said it would have no option but to withdraw its entries...

This threat put the race organisers in a bit of a panic – if Porsche withdrew its new cars, then the event would undoubtedly suffer in the eyes of the paying public. It was time for a compromise. It was decided that Porsche would be allowed to practice with the movable flaps and then, after establishing their optimum setting, the flaps would be fixed in position for the duration of the race.

In practice, movable aero devices or not, Porsche's heavyweights were impressive, with Stommelen putting in the fastest lap of

3m 22.9s, at an average speed of 148.493mph. What makes this result especially impressive is that the lap time was over half a second quicker than that set by Denny Hulme in a 7.0-litre Ford MkIV, which was established before the new chicane had been built. But this wasn't the end of the flap discussion...

In an interesting turn of events, the CSI's president, Maurice Baumgartner, told Porsche that he believed the movable flaps were a major advance in sports car design and that he would do all he could to promote their acceptance at a meeting of the CSI to be held soon after the Le Mans 24 Hours. He even went one step further,

Top left: 1969 was not a good year. 917 of Stommelen and Ahrens displaying the controversial movable flaps that caused Porsche so many problems

Top right: Flaps fitted to the Herrmann and Larousse 908 were not questioned...

Above left and right: Their car finished just 100 yards behind the winning GT40 of Ickx and Oliver after the failure of the front-running 917s



Left: Start of the 1970 Le Mans with (far left) the Elford/Ahrens car leading the field – this car was the quickest in practice. Lower down the field, the winning 917 of Attwood and Herrmann hugs the inside line...



suggesting Porsche wrote to other teams asking them not to put in a protest if the 917s did, in fact, run the flaps at Le Mans.

Porsche continued to protest that the 917 wasn't safe without the controversial additions and again the possibility of the team withdrawing the cars reared its head. An emergency meeting of the CSI was convened at which it was ruled that, as the 917 had been homologated with the movable flaps, Porsche would be allowed to use them at Le Mans after all.

So, with the fastest lap in practice, the movable flap situation resolved (at least, for the time being) and the principal opposition consisting of fragile Ferraris and ageing Fords, everything looked set for Porsche to dominate the race. But fate was to deal a cruel blow on the very first lap.

Following the last ever 'Le Mans start', where cars and drivers lined up on opposite sides of the track until the flag dropped, Stommelen roared off into the lead, followed by his team mates in a variety of Porsches.

As no fewer than five Porsches swept into view at the head of the field at the start of the second lap, all eyes were on a pawl of smoke in the distance. John Woolfe, driving the lone short-tail 917, had put two wheels on the grass exiting Maison Blanche, causing the car to spin and impact the barriers, hard.

The car broke into pieces, the fuel tank rolling down the road like a flaming tar barrel to come to rest against the Ferrari of Chris Amon, which in turn burst into flames. Although Amon was able to get out of his Ferrari, sadly Woolfe died in his 917.

Despite this tragic setback, everything was looking good for Porsche. The two long-tails held the lead, with the works 908s in the next three positions. The 908 of Siffert/Redman briefly headed proceedings before retiring with gearbox problems, allowing the Attwood/Elford 917 to retake the lead, ahead of three other team cars. But then it all started to go pear-shaped.

The Stommelen/Ahrens 917 retired with a broken oil pipe and clutch failure, leaving

the way clear for the Attwood/Elford 917 and the Links/Kauhsen 908 to head the field for eight hours. Ickx/Oliver's GT40 moved into third place, followed by a 908 and then another GT40 of Hailwood/Hobbs.

This was the way things remained until noon on Sunday when the leading Porsche 917 retired with a broken clutch, and the gearbox on the second-placed 908 gave up the ghost. This put the Ickx/Oliver GT40 in the lead, hotly pursued by the 908 of Herrmann/Larrousse. And that's how the order remained until the fall of the flag at the end of the 24 hours, with just 100 yards separating the first two cars.

For Porsche, the whole event was a devastating disappointment in so many ways. Firstly, of course, the death of one of its drivers was a tragedy nobody could have predicted, although many have said in hindsight that Woolfe lacked the necessary experience to tame the wayward 917. A fatality is, naturally, very hard to swallow but from the engineers' point of view, the mechanical failures which brought

Above left: Well known for his exploits on two wheels, Mike 'The Bike' Hailwood was also an accomplished car driver. This is his JW entry before the start and...

Above: ...being unceremoniously removed after an accident in the wet!

Below left: Porsche called in the might of the JW Automotive operation to mastermind the 1970 Le Mans effort. Car #20 was driven by Siffert and Redman

Below: Their 917 held the lead but retired at the halfway point





about the demise of the front-running Porsches would have been a massive disappointment. Clearly the drivetrain was the weakest link, with gearbox and clutch problems dogging the Porsches.

Porsche returned to Stuttgart, tail firmly between its legs. Things had to change or there would be questions asked at the highest level. To bring about this change, Porsche did something which many would have believed unthinkable: they called on the expertise of John Wyer, the man responsible for spearheading the victorious Ford effort at Le Mans in 1969. Along with his cohorts David Yorke and John Horsman, Wyer was asked to run what was effectively the 'works' entries – except they weren't official Porsche entries at all.

By the time Le Mans came around, Porsche had already won the World Sports Car Championship for 1970, but that Le Mans victory still eluded them. As the JW Automotive/Gulf team had clearly demonstrated its talents while running the GT40s, surely it wasn't beyond the realms of possibility for them to wave their magic wand over the 917s?

The number of Porsche entries at Le Mans was the highest ever. Indeed, of the 51 cars that started the event, no fewer than 24 were Porsches – not one of them a 'works' car as such. However, it was obvious that certain teams enjoyed special privileges, among them the Austrian



“ The number of Porsche entries was the highest ever. Of the 51 cars that started the event, 24 were Porsches... ”

Porsche-Konstruktionen AG of Salzburg entry and, of course, John Wyer's Gulf-sponsored team. Seven of these 24 Porsches were 917s, the remainder comprising a pair of 910s, another pair of 908s, a single 907, eleven 911s and a

solitary 914/6 GT. It was by all accounts quite a line-up.

Ferrari had taken a leaf out of Porsche's book by building no fewer than 25 examples of its new 512S model, thus qualifying it to run at Le Mans as a

sportscar, as opposed to a 'prototype'. There were 11 of these entered at Le Mans, with the men at Modena clearly planning to gatecrash Porsche's hoped-for victory party.

It was to be an interesting build-up to the race, with the normally 'easy does it' practice periods on the Wednesday and Thursday ahead of the event being used by both Porsche and Ferrari to demonstrate the performance of their respective entries in shows of bravado clearly intended to put the wind up the opposition.

On Wednesday evening, Pedro Rodriguez drove the short-tailed Gulf 917 to an unofficial lap record of 3m 21.9secs,

Above: Porsche's big rival was Ferrari with the new 512S. These were faster than the short-tail 917s but couldn't approach the long-tail cars for outright speed. Accidents and mechanical failures brought an end to the Ferrari threat



Far left: The sole 914/6 GT entered by Sonauto won its class and featured briefly in Steve McQueen's film *Le Mans*

Left: Bizarrely, car #24 was withdrawn before the start when a second driver couldn't be found!



bettering Stommelen's 1969 lap record by a whole second.

Not to be outdone, Vacarella went out in his Ferrari 512S and shaved nearly two seconds off Rodriguez's time with a cool 3m 20secs lap. Beat that, Porsche, muttered the Italians – and so they did. Vic Elford headed out in his long-tail 917 and calmly reduced the 'record' to 3m 19.8secs,

The practice sessions were a clear case of chest-thumping on the part of Porsche and Ferrari, and proved to all that any one of their cars could take the chequered flag. But how reliable would they be? After all, neither manufacturer had a clean sheet as far as, particularly, drivetrain breakages were concerned.

Added to this was the large number of

debris left on the track by contractors responsible for erecting the temporary Armco barriers and, as a result, the entire track was swept ahead of the race.

Sharp on four o'clock, at the drop of the flag (there was no more traditional Le Mans start this year, on safety grounds), five of the seven 917s took off in the lead, headed by Jo Siffert, all hotly pursued by Jacky Ickx in a Ferrari 512S. By the end of the first lap, Vic Elford had taken the lead, with Siffert second, Pedro Rodriguez third.

By the third lap, the race leaders were already starting to lap the 911s and that solitary 914/6 GT, such was the speed differential between classes. But slow tail enders would soon be the last of the race leaders' problems.

Within a few hours of the start, the weather took a turn for the worse. Steady rain began playing havoc with tyre choice and several cars were forced to make unscheduled stops.

But it wasn't the weather which caused

Above left and right: Rain, rain and more rain gave the team managers plenty to think about – tyre choice was critical and many paid the price for making the wrong decision

“ The practice sessions were a clear case of chest-thumping on the part of Porsche and Ferrari... ”

hitting close to 230mph on the Mulsanne. By way of contrast, the short-tail 917s could 'only' manage 205mph, while the Ferraris were timed at around 220mph.

punctures suffered by teams during practice – Porsche had no fewer than 10, while Ferrari suffered six and Alfa Romeo, four. This was believed to be the result of



Left: The famous 'hippy' car, driven by Gérard Larousse and Willi Kauhsen, finished second overall and an impressive first in the Index of Efficiency



Porsche problems, so much as mechanical gremlins, once again. Rodriguez's 917 lost its cooling fan, Siffert's engine blew... Whereas Porsches had still held the top five places by the end of the fourth hour, by midnight, Ickx's Ferrari had snuck into second place, only to crash out of the race at 1.35am. Mike 'The Bike' Hailwood hit the bank at Mulsanne Corner hard, wiping out his JW-entered 917. It was becoming a war of attrition.

By the midway point in the race, Herrmann and Attwood's red and white scalloped 917 had taken the lead, followed by the 917s of Larousse/Kauhsen and Elford/Ahrens. In fourth was the 908 of Lins/Marko, followed by an Alfa Romeo 33/3 and a Ferrari 512S.

The rain came and went – and then came again, catching everyone out as it soaked the track just after midday on the Sunday. And then it stopped again, causing further panic as once again teams struggled to change tyres to suit the conditions. With just four hours to go, Porsches held onto the first three places, with three Ferrari 512Ss in hot pursuit.

But by the time the flag finally came down on this incident-packed race, Porsche had taken its first outright victory, with further wins in the Index of Performance and GT classes – the latter

thanks to that solitary 914/6 GT. Porsche was ecstatic, but the race fans felt cheated, for rather than allowing the usual anarchistic free-for-all which traditionally saw race fans mobbing the victorious cars and drivers, *Gendarmes* ushered the winning vehicles out of harm's way, leaving the crowd baying for blood.

Whatever happens this year, we'll not see any finish-line parties like those of old, with drunken fans mobbing equally inebriated team members as they pushed cars off the circuit.

But hopefully, while drivers are helicoptered off site to recover and glad-hand sponsors, the Porsche fans will still have cause to celebrate in their own unique Le Mans fashion – but we don't envy them their hangovers on Monday morning...

*So what happened to the supposedly all-conquering 917s in the 1970 race?*

**Porsche 917 #3:** Driven by Gérard Larousse and Willi Kauhsen, the psychedelic Martini-backed long-tail finished second overall, and a worthy first in the Index of Efficiency.

**Porsche 917 #18:** Driven by David Piper and Gijs van Lennep, and entered by Piper, retired from 20th place after 11 hours following two accidents.

**Porsche 917 #20:** Driven by Jo Siffert and Brian Redman, this John Wyer Automotive-entered car retired in the twelfth hour while in the lead, after the engine was over-revved. A costly mistake!

**Porsche 917 #21:** Driven by Pedro Rodriguez and Leo Kinnunen and entered by JW Automotive. Retired after four hours with a broken cooling fan, having run as high as second place.

**Porsche 917 #22:** Driven by Mike Hailwood and David Hobbs, this was the third John Wyer-entered car. It crashed out of 20th position in the fifth hour of the race.

**Porsche 917 #23:** Driven by Hans Herrmann and Richard Attwood. This Porsche-Konstruktionen Salzburg entry was the overall victor.

**Porsche 917 #24:** Was withdrawn from the event prior to the start. It was also entered by Porsche-Konstruktionen of Salzburg but failed to take part when a full driver line-up could not be found. The entry forms showed the car was to be shared by 'Rico' Steinemann and Dieter Spoerry, although Vic Elford, Hans Herrmann and Kurt Ahrens were also named!

**Porsche 917 #25:** Driven by Vic Elford and Kurt Ahrens, this long-tailed version was the quickest in practice but was to retire in the 17th hour with a broken valve while lying in second place. **PW**

Above left: If Steve McQueen had had his way, it would have been a JW/Gulf-liveried car that won overall, to fit in with his filming plans! But fate stepped in and so it was the red and white #23 that came out on top

Above: Fastest in practice, the Elford/Ahrens long-tail 917 was lying in second place when a valve broke, wrecking the motor

Below left: To the victors the spoils. Porsche had waited a long time for an outright victory at this prestigious event

Below: A rare moment of calm as Attwood and Herrmann compare notes after the race





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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**

- HOW TO P100**
- Q&A P123**
- SPECIALIST P106**
- OUR CARS P110**
- MARKET WATCH P136**
- T&T P139**
- DETAILING P127**
- CLASSIFIEDS P129**

**HOW TO: 100**

There are few 'bigger' jobs on a 944 than changing the clutch. With the right facilities, however, it can be a DIY job. Here's how in our step-by-step guide.



**SPECIALIST: 106**

Dropping in on CSF Performance Cooling to check out its high-quality range of performance radiators for water-cooled Porsches.



**OUR CARS: 110**

More adventures from the 911&PW fleet. Matt Stone enjoys some long distance touring in his Carrera 3.2, before the alternator has other ideas. Tipler gives his 996 a new identity, and Antony Fraser is putting his GT3 up for sale.



**Q&A: 123**



**CLASSIFIEDS**  
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**P129**

You ask, we answer; well, our tech guru, Chris Horton does, together with his crack squad of Porsche experts. This month we look at 964 water ingress, 993 oil leaks, 944 bonnet catch, heavy 996 Turbo clutch and more

**MARKET WATCH: 136**

What to look for when buying an early Cayenne, plus dealer talk with Andrew Mearns at Gmund Cars and a round up of the latest sales and auction results and trends.



**TRIED & TESTED: 139**

Getting out there and kicking the tyres! This month our man Horton checks out something of a '70s rarity: A narrow body impact bumper 911S .



**DETAILING: 127**

You can't beat that new car smell, but for many of us it's that secondhand car smell that can be hard to get rid of. Our car care gurus show you how.



## TRANSMISSION REVAMP

How to overhaul a 944 or 968 clutch – and why you might want to pay someone else to do it for you. Story and photographs by Chris Horton

### WHAT'S THE PROBLEM?

How will you know if your clutch needs replacing? If the friction plate is badly worn the clutch might slip under load – check by accelerating hard from 30mph in third gear; engine speed will rise disproportionately to road speed – but you are just as likely to experience grabbing or juddering, a heavy clutch-pedal action, or even a failure of the clutch to separate fully. This last fault will tend to manifest itself as difficult and/or noisy gear selection, especially into reverse, and might even damage the transmission. But remember that this so-called 'dragging' might also be due to a fault in the actuating mechanism, such as air in the hydraulic fluid, or leaking seals in the master and/or the slave cylinder.

Another possibility is a seized, distorted or broken actuating arm inside the clutch housing, but since inspecting and replacing that will entail taking off said housing (even in a 968, with its detachable cover plate) you might just as well budget for a new clutch.

In the car shown here the clutch pedal was heavy, and the shift lever would select each gear easily enough while the vehicle was stationary, but not on the move – and certainly not under acceleration. That proved to be caused – as we suspected – primarily by a broken shock-absorbing rubber 'doughnut' in the middle of the friction plate (think of it as a sort of primitive dual-mass flywheel). The heavy pedal was due partly to the dry needle-roller bearings in the clutch actuating arm, and partly to the two worn fingers where the arm contacts the release bearing. A third factor was the friction plate which, although not badly worn, was certainly thin enough to alter the geometry of the mechanism, and thus the mechanical advantage it was able to achieve.

The new friction plate we fitted doesn't have this so-called 'cush' drive (see page 103). So the owner won't have to worry about it in the future, but its absence might make the car a little less refined at small throttle openings – in traffic, for instance.



**L**et's be brutally honest about this: changing a 944 clutch is not the easiest DIY task you will ever face. As in most other cars you have to remove the gearbox, of course, but that is in unit with the final drive, at the rear of the vehicle, and as a result is monstrously heavy. Even

before that, though, you will have to remove the exhaust system (again no lightweight), and afterwards disconnect the torque tube linking the transmission to the engine, and although its weight is not an issue, as such, it certainly brings its own set of difficulties. Then, and only then, can you even think about accessing the clutch itself.

Persevere, though, and you stand to save a significant amount of money – and these days perhaps enough to make all the difference to the vehicle's viability. Have an independent do the work and you could be looking at a bill for about £1000 all in (and that's assuming everything comes apart as it's meant to; drilling and tapping sheared-off



Taking off the entire exhaust system is a rather tedious preliminary step before you can even hope to start work on the drivetrain, but at least it will give you the chance thoroughly to inspect it for corrosion and cracks. Buy new manifold-to-downpipe gaskets before you begin the job, and perhaps all new nuts and bolts, as well. Whether you remove the exhaust system piecemeal, or in one hit, like this, will depend largely on your circumstances and

equipment. Either way, like pretty much everything else involved in this job, it is both heavy and awkward, so enlist some help if you can. The Turbo, not surprisingly, is even worse – some of the exhaust sections are welded together. It's not strictly necessary at this stage, but you might as well pull this shaped rubber blanking 'plate' (above) out of the housing at the rear end of the torque tube. It's this – and the small hole in front of it – that

between them will give you access to the splined coupling between the torque tube and the gearbox input. All of the cars with this transmission layout have a reversing-light switch from which you will have to detach the relevant wires, but later models – like this 944S2 – also have an electronic speedometer drive above the left-hand drive shaft (above). Gently slide back the spring clip, and pull off the rubber-covered plug



At the very least you will need to disconnect the two drive shafts from the transmission (do take care not to damage the socket-head bolts; clean out the crud before trying to insert your Allen key), but we decided here that it would be just as easy in the long run to disconnect the shafts from the wheels, too. And then came the first problem. Lock-wired bolt securing the main shift rod to the intermediate shift-lever assembly is in theory

protected by a rubber boot, but even so had here corroded enough to snap like a carrot when we tried to unscrew it. And until we could separate the rods, that gearbox was going nowhere. Drilling into the remnants of bolt, and knocking in this fluted extraction tool (above, far left), should have been the answer, but the bolt was so tight that this was in danger of snapping, too – and that would have made the problem many times

worse. In the end, our man painstakingly drilled out the entire shank and later reclaimed it with an insert. Transaxle hangs from a transverse beam bolted to the underside of the body. Detach the fuel filter from it, and then, with the gearbox securely supported on a jack, undo the single large bolt at each end. This is necessary so you can slide the beam sideways to disengage it from the mounting point on the top of the casing

bolts will naturally add to the figure). Do it yourself, however, and from Design 911 ([design911.co.uk](http://design911.co.uk)) you can buy a complete clutch kit – friction plate, cover and release bearing– for around just £450 including VAT. That sounds to us like a saving well

worth a little physical effort.

And there is even better news for 968 owners. The clutch kit itself is cheaper to start with (£395 from Design 911), and thanks to a removable cover plate on the side of the clutch housing both the

pressure and friction plates and the release bearing can be changed essentially without disturbing either the transmission or the torque tube – although you do still have to deal with the sliding tube at the rear end of the main drive shaft. **PW**

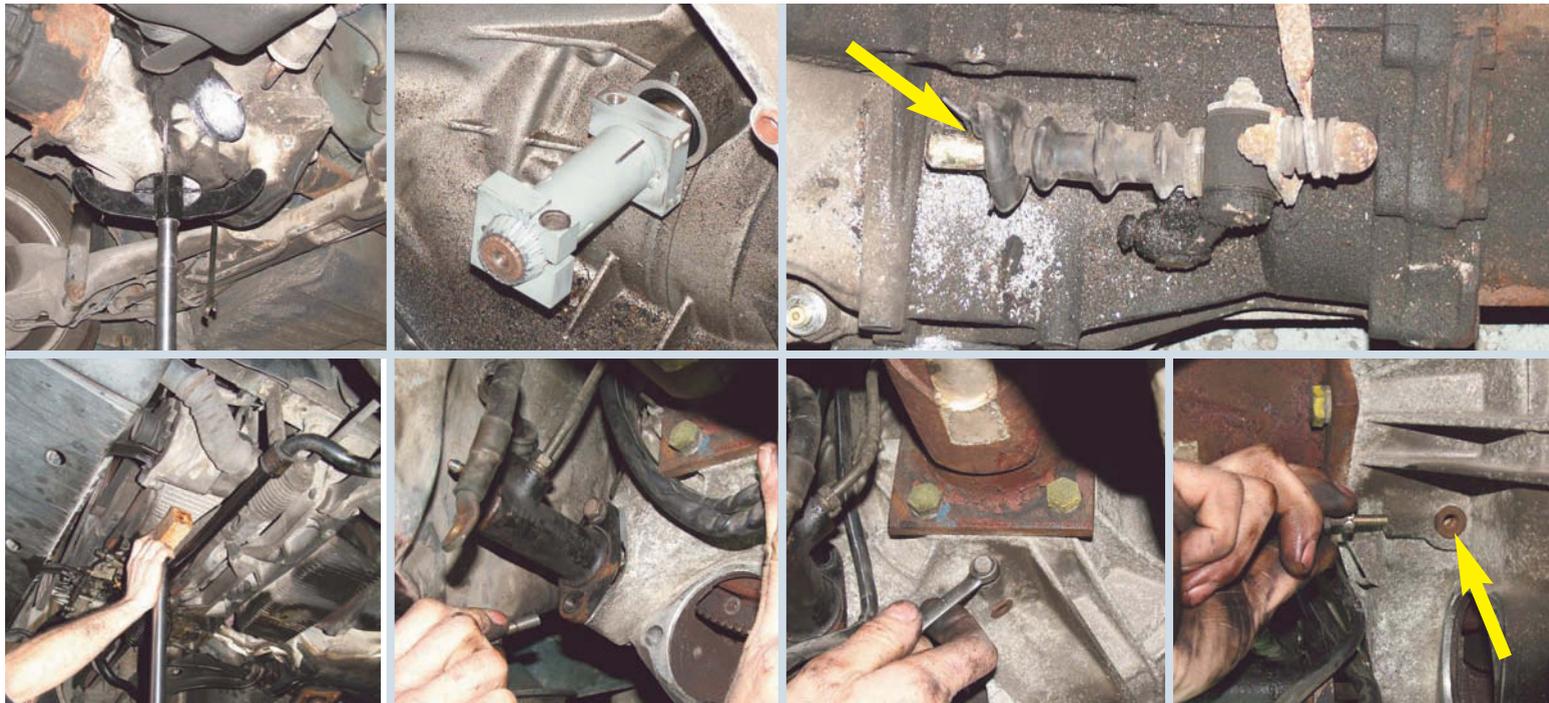


You will have disconnected the battery before you started, so now detach the cables from the starter motor, and then unbolt the motor itself from the clutch housing. It has to come off anyway, but this will also allow you to turn the engine as needed (with a screwdriver against the teeth) for access to the drive-shaft coupling's two clamping bolts. Coupling looks complicated, but is actually very simple. Trick is to use only a well-fitting

Allen key to attempt to undo the bolts – they will be tight – and to make sure the shaft is aligned so the key goes in dead straight. It's also a good idea to mark with a dab of paint the relationship of the coupling to the gearbox input shaft. Remove the second of the two coupling bolts, and at last you're getting somewhere; the gearbox will soon be ready to come out. Before you can do that, though, you have to be able to pull the main shift rod forward, and to

do that you need to detach it from the gear lever. Take off gaiter, then retaining circlip, and separate rod and lever as here. Still with gearbox supported, undo the fixings (some socket-headed) securing it to the rear end of the torque tube. Again they'll be pretty tight – and perhaps corroded, too. Now you need to detach transmission from the rubber mount via which it hangs from the beam. That beam itself needs to come out, but a little later, on its own

# TECH: HOW TO



Our technician used a professional transmission jack to lower this car's gearbox, but if you are working on the ground – and careful! – a trolley jack should be OK. With the unit safely on the floor you can see more clearly how that rather clever coupling device works. Note the small drillings on the square face at the rear end to maintain correct balance, despite the unit's plainly eccentric shape. Arrow reveals how that broken locking bolt we talked about earlier secures the main

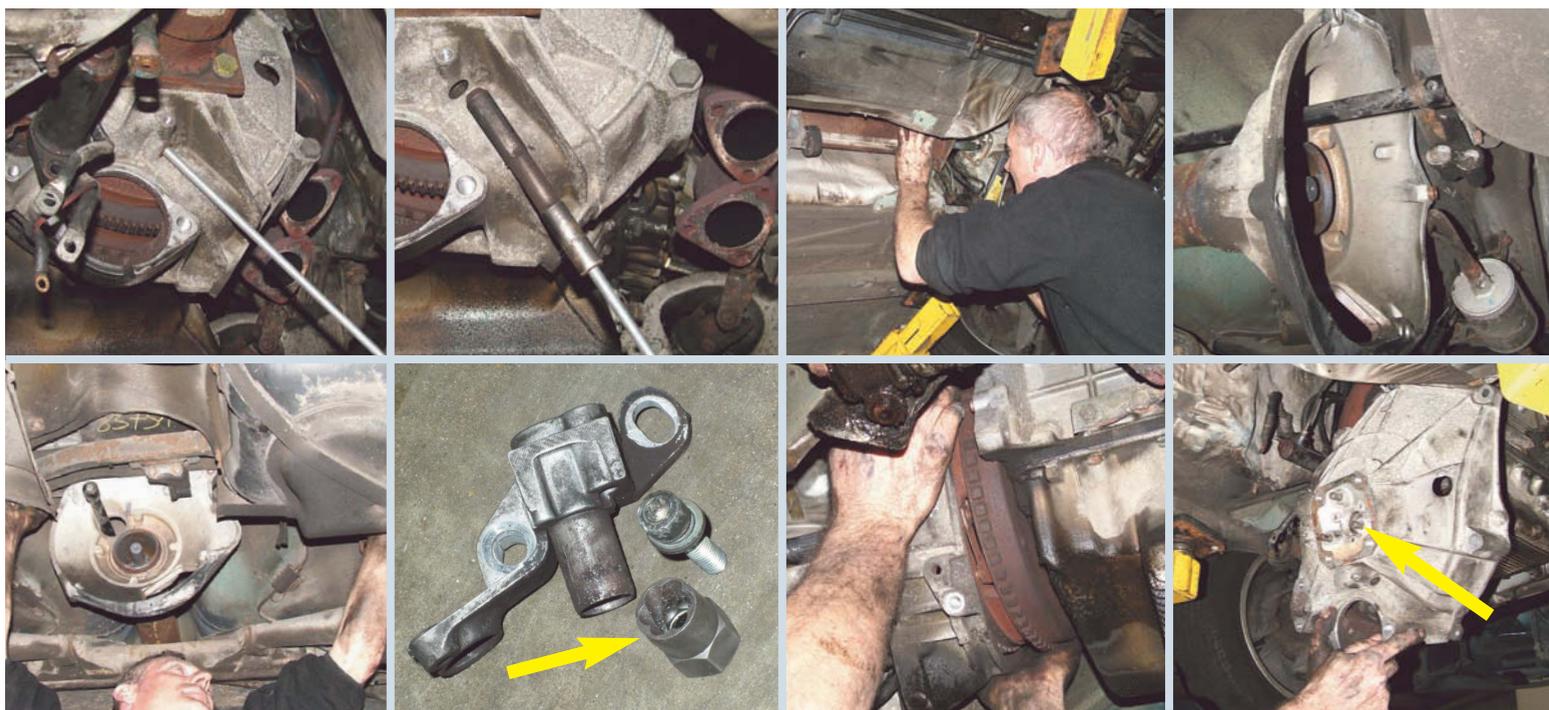
shift rod (top right), but the primary purpose of this photo is to show what's known as the intermediate shift-lever assembly, which converts the movement of the gear lever into the required three planes at the gearbox end. It's not cheap to buy, but well worth fitting a new one now, while you can. Now you can start thinking about detaching the torque tube from the clutch housing. First task is to support the front of the engine so that it won't tip forward; note block of wood

to spread the load. Then unbolt clutch slave cylinder. Hydraulics can be left connected, though – unless, of course, you decide to fit a new cylinder. A vital but often overlooked task is to disconnect the clutch operating fork, which pivots round arrowed pin – the housing won't come off otherwise. Looks tricky, but it's secured in position with nothing more complicated than an M6 bolt and a locknut – also arrowed. Undo carefully – you don't want this breaking, as well...

## DOES THIS MEAN YOU? OR YOUR CAR, ANYWAY...

The procedure outlined here applies to all of the four-cylinder 'transaxle' Porsches. That's the 924 (despite its 2.0-litre Audi-derived engine), the 2.5-litre Porsche-engined 924S, the 944 (both 2.5 and 2.7), the 944 Turbo, and the 16-valve 944S and 944S2. The 968, too, has a similar layout to all of the above, but by this time

Porsche had fitted the clutch housing with a removable cover on the right-hand side, and so it is possible to change the clutch (but not this model's sometimes troublesome dual-mass flywheel) without disturbing the outer part of the torque tube or, therefore, the transmission.



How, though, to get the pin out of what is effectively a blind hole? Simple. Find (or buy) a length of M8 studding, thread it into the hole provided in the end of the pin, and with a nut and washers on the lower end of the studding, tap downwards with a self-grip wrench or similar: a DIY slide hammer. Pin should slide out fairly easily. Undo four large bolts securing the front end of the torque tube to the clutch housing and slide the tube as far

to the rear as it will go – which, as you'll discover, isn't quite far enough if the transaxle mounting beam is still in the way. That's why that has to come out, as well. Note also drilled-out hole in the shift rod (top right). Another view, taken from the rear of the car this time, highlights how tight everything is under there. Photo above left shows light-alloy bracket for flywheel sensors – that, too, has to come out before you can remove clutch housing,

but securing bolt was so tight that we had to use this fluted tool (arrowed) for extra purchase. Even now the bulky flywheel housing will need some determined manoeuvring to wiggle it past the front end of the torque tube – and you will have that now loose clutch fork to contend with, too – but stick at it. Access won't get any better than this... Note the locating dowels (arrowed); make sure they are not damaged by careless handling

## THE KNOWLEDGE YOU NEED

Despite its complexity, you don't need a large armoury of tools and equipment to tackle this job; just the usual basics such as a socket set (3/8-inch and 1/4-inch drive, plus extension bars and Allen-head keys), open-ended and ring spanners, screwdrivers, pliers and a hammer – and so on. Add to that drilling, stud-extraction and thread-tapping equipment if it turns out you have the same problem as us with the gear-shift linkage, and perhaps a set of reverse-fluted sockets for undoing screws/bolts with rounded-off heads.

You shouldn't, though, need a clutch alignment tool. Such is the position of the torque tube that, provided the engine is still set at the correct angle, both the outer tube and the splined inner shaft can temporarily be slid forward, before you tighten the clutch-cover screws and fit the clutch housing, to perform that function.

No less a key to success is raising the car high enough for easy access to the underside. We used a garage lift, not least so we could more easily photograph all the action, but this writer has also seen the job tackled, albeit by an experienced Porsche technician, with the car on four axle-stands, and would himself be prepared to do it this way if necessary. Needless to say, it's vital to have the car securely supported so it can't fall on you, and it must also be level – so you really will need two pairs of stands.

Make sure, too, that you have a means of safely lowering the heavy transmission – and then offering it

back up again. A trolley jack is OK, but you might need to make up some sort of wooden cradle to keep the gearbox in the correct position as you raise it. An able-bodied assistant is useful at this stage, too – and lifting the exhaust back up is a two-person job, as well, rather than struggling on your own with a trolley jack.

There's not a great deal of technical stuff that you need to know – it's largely a question of tackling the dismantling and reassembly procedure in the correct order, and observing torque figures for tightening various fasteners. We would advise, however, that you obtain a copy of the Haynes manual for the 944. More details of that are available at [www.haynes.com](http://www.haynes.com).

Parts? You will need a complete clutch kit, of course, and also a pair of the special gaskets that fit between the exhaust manifolds and the downpipes. It's a good idea to have a full set of the nuts, bolts and washers that hold the various parts of the exhaust system together, as well as to the car itself. We would be inclined to fit a new clutch slave cylinder, too; they're not expensive. Don't bother even trying to reseat the old one – it's just a waste of time and money.

Be prepared to buy a replacement clutch operating arm. Ours, with badly worn 'fingers', and seized needle-roller pivot bearings, was an extreme case, but there is no point going to the effort of fitting a new clutch and then making do with a vital component as badly worn as that. Without it the car will still feel horrible to drive.

New arms are no longer available from Porsche, so you will either have to repair the old one, having the fingers built up with weld and then machined (the needle rollers are replaceable), or else find a good second-hand item. They, too, are quite hard to find and pro rata fairly expensive (ours came from 9Apart in Lancashire), but it would be false economy to skimp in this area. Reckon on about £50 a time.

We would also be inclined to buy a new bolt for the gear-linkage connection above the transmission, a handful of socket-head screws for the CV joints (you'll damage at least one), and perhaps the intermediate shift-lever assembly. It's this device that connects the main gear-shift rod to the gearbox. At around £120 it's not cheap, but a new one will probably make a big difference to the overall shift quality, and it's far easier to fit one with the transmission out of the car.

Last but not least, consider buying (second-hand) a replacement bracket for the Hall sensor(s) mounted on the clutch housing, and possibly the bracket's two securing screws. This insignificant-looking casting has to come out before you can take off the clutch housing, and if neither it nor the two sensors has been disturbed for many years, then it is highly likely that you will damage or even destroy all three in the process. (The 968 has just one sensor.) A second-hand bracket should cost only about £20 inclusive, and the (new) sensors about £120 apiece.



And here, at last, is what you have spent all this time and effort getting at – the clutch cover (top left). The new kit, supplied by Euro Car Parts, is an original-equipment Sachs unit, but notably without the potentially troublesome rubber cush drive that we discussed earlier. In the event, this would subsequently make little or no difference to the overall refinement of the car's drivetrain – which was far better, anyway, as a natural result of getting rid of the worn-out old components. The clutch also comes with new securing bolts for the cover, and a release bearing. For obvious reasons don't be tempted to reuse the old bearing (or the old bolts, for that matter). Undo the nine socket-head bolts securing the clutch cover

to the flywheel. Lower both the cover and the friction plate behind it to the ground – don't drop them on your feet – and then separate the starter-motor ring gear by gently tapping it with a plastic hammer. Check that the teeth are OK; again now is the obvious time to fit a new one if necessary. Splined brown object attached to friction plate (middle row of photographs, far left) is the rubber 'doughnut' that was originally specified by Porsche to absorb drivetrain shocks. A nice idea, but worse than useless when it gets to this parlous state – which is presumably why current clutches don't have them. Interestingly, the friction plate wasn't unduly worn, so apart from needing to be cleaned, the flywheel was

perfectly OK. Do as we say, not as we do: middle two photos show new special spring 'washer' fitted incorrectly to release bearing. It should fit with the concave side towards the clutch fingers, before bearing is secured with the new plain steel ring and circlip. Needless to say we got it right before it was too late: make sure you do, too... After that, reassembly is a straightforward reversal of the dismantling procedure. Make sure the clutch release mechanism is working correctly as soon as possible after you refit the bellhousing. Obviously you won't know for sure until the car is driven again, but it would be heartbreaking to refit the transmission, only to discover that you have left out some vital component

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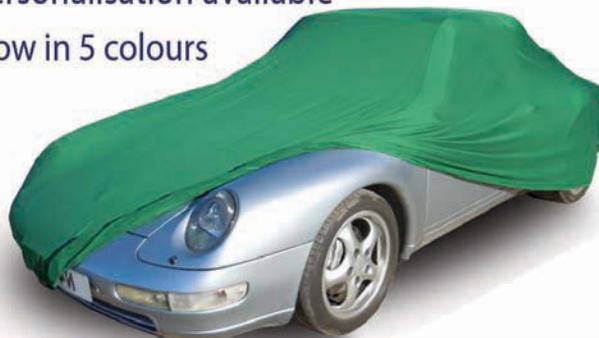
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## CSF: KEEPING IT COOL

With the advent of the water-cooled Porsche comes the need for high performance cooling solutions. Enter, then, CSF Performance Cooling, a worldwide business that will keep your Porsche cool

Words and Photography: Matt Stone



Prior to 1998, the notion of high performance engine cooling radiators didn't mean much to Porsche 911 owners; all they needed was lots of oil and plenty of cool air flow. Of course with the advent of the Boxster and 996 era cars, high capacity water cooling became an increasingly more important issue.

CSF has been in the business of manufacturing OEM replacement radiators, condensers, intercoolers and transmission and oil coolers since 1947. The company was born in India, and is now a fourth generation family owned and operated worldwide business. CSF maintains four factory locations, one each in India and Indonesia, and two with joint venture partners (as required by local laws) in

China. Ramesh "RJ" Dolwani is CSF's president, and not so long ago, his son Ravi identified needs in the marketplace for high quality, high performance cooling solutions – like for water-cooled Porsches. Especially for extreme high performance models, and for racing.

Ravi developed a business case, and ultimately got the rest of the family on board. It was a major step for the company to begin "thinking smaller" in terms of production volume, when it is used to producing OEM replacement radiators and such for high volume cars, in some cases by the tens of thousands of units per part number. Since the volume production pieces are much less hand labour intensive than the quality and materials needed for upper end, high performance use, the company had to rescale some of its

processes and develop new ones in order to enter the premium market segment.

At the current time, CSF produces left side, right side and centre radiators for water-cooled Porsches; each one a direct fit with all OEM mounting and hose connection points, no modifications required. It does not at the moment produce Porsche oil coolers or Turbo model intercoolers, although it is eyeing and evaluating those opportunities, and is highly likely to go there. Ravi launched and is in charge of the high performance production and sales.

A considerable amount of study and research went into divining what radiator tube and fin designs best suited the Porsches' cooling needs. As you can imagine, a company that produces cooling solutions for everything from farm tractors to Porsche GT3s has a wide variety of

Above: CSF make replacement, high quality radiators for water-cooled Porsches for improved cooling in all situations

Right: High tech manufacturing plant handles the mass produced side of the CSF business. Middle: Ravi Dolwani argued the case for specialist production of Porsche radiators. Far right: Boxes! CSF use lots of them across all their manufacturing plants. That's why they own a box factory, too!



cooling tube styles in its catalogue, plus you can't imagine how much the size, makeup and design of cooling fins varies from application to application. CSF's Porsche and other premium high performance radiators are made of aluminum only, no plastic tanks allowed here. The special tubing CSF uses for its Porsche radiators is called "B-Tube" Technology: unlike a regular oval shape "O" type radiator tube, CSF uses a specially engineered tube in a shape of a "B". These "B-tubes" are carefully formed and then brazed over the seam to seal. CSF is able to use thinner and lighter aluminum material (better cooling efficiency) because this design is actually stronger than normal "O" shape tubes that are welded. The design (inlet in the middle of tube that is seam brazed) increases the heat transfer surface area of the tube by approximately 15% over regular tubes,

offering the efficiency of two smaller tubes vs. one large tube within the same space criteria. With "B-tubes" you get "dual liquid laminar flow." The tubes are made from aircraft grade special clad aluminum and are intricately formed on CSF's high precision six-stage tube forming mill. No

preliminary quality assurance checks, and final finish and polishing, it is then pressure tested for leaks. If a piece leaks, it's scrapped, there's never any attempt to fix or repair it if a cooling tube or welded seam is compromised during production. "Fixing and then passing an imperfect or previously

“ All the welding on CSF high performance radiators is done by hand ”

other aftermarket radiator manufacturer uses this technology. Fascinating stuff.

Virtually all of the welding on CSF high performance models is done by hand, as is the "looks like chrome" polishing required to finish the piece. Once each piece passes

damaged radiator on to a customer would be like selling them a used piece...which we just won't do" notes Dolwani the younger. As you can see from the photos of CSF's North American distribution headquarters, located in Southern



Ravi Dolwani's own mean-machine. This 996 Turbo has been extensively modified to RUF 550 R Turbo spec, with additional tuning components from TechArt and Porsche. Finished in stunning Minerva blue, it's Ravi's daily driver

# TECH: SPECIALIST



Seems a shame to hide such quality workmanship. All CSF's Porsche radiators are hand welded and polished and feature all aluminium construction

California, the company also has great and continuous need for lots of boxes and inner box packaging. Dolwani offers a simple solution – “we also own our own box and packaging production business.” The more mainstream radiator production is packed and shipped in somewhat more

warehousing.

You cannot buy a CSF radiator factory direct, and CSF has no direct retail customer face, “because that would be competing with our dealers (in the UK, CSF's products are available from Design 911), which we don't do,” notes Ravi. Yet

Southern California warehouse and distribution centre, with radiators literally piled ceiling high, so another, larger and even more modern facility is currently under construction just a few miles away. There's also a similar property in Ontario, Canada. No small outfit this: CSF currently employs about 1000 people worldwide.

You'd expect Ravi Dolwani to drive a hot Porsche, and he does. And for a time, so did father RJ. Ravi enjoys telling the story about how he wanted to get his hands on dad's 911SC when he first began driving some years back, and his father didn't think that was wise just yet, and insisted that his son earn his stripes as a smart driver, and also earn the money needed to buy and respect such a car. A decade and a half later the time came, and Ravi went big into Porsche, as you can see from his paint-to-sample Minerva Blue Metallic 2002 996 Turbo, which has been faithfully converted

“ We want the customer to know our brand and ask for it by name ”

conventional looking brown cardboard boxes, while the premium high performance products are packed in nicer looking and exceptionally robust white cardboard boxes. CSF also produces all of the inner packaging to ensure that each piece survives worldwide shipping and

the company advertises, and supports many events and car shows in order to spread the word about the brand. “We want the retail customer to know our brand so they can request it by name from their high performance, builder or race shop.” As you can see, CSF has nearly outgrown this



Porsche radiator in production. Most of CSF's manufacturing is in OEM replacement radiators. Custom Porsche rads is something of a departure, but quality will always find a market, as will improved cooling



CSF displaying its wares. Radiators in situ on display car. All CSF rads are a direct replacement for the standard items, and therefore easy to install



to RUF 550 RTurbo spec. Most of the mods you see are RUF, with a few TechArt and Porsche factory GT2 pieces stirred in for good measure. Every bit of the work done and parts used is meticulously documented, and Ravi drives the car almost every day when the weather is clear and dry.

The engine mods alone would befit any race car, with UMW hybrid turbos packing 997 GT2 turbines, 997 GT2 RS intercoolers, UMW 3in intake pipes, Wevo engine mounts, 5 bar fuel pressure regulator, 7 coolant pipe insert welds, all new coolant hoses, GT2 fuel pump, Forge billet diverter valves, Samco silicon boost hoses, Speedtech exhaust, 997 power steering pump and reservoir, updated O2 sensors, alternator, battery, boost control valve, manifold dual switch, fuel pump relay, Behe Performance tune, and as you'd expect, CSF Cooling 3-piece all-aluminum radiator upgrade for 996 Turbo (L,R,C) with factory GT2 radiator ducting conversion. Underneath it all is the original Mezger 3.6

and six-speed manual transaxle.

The result is startling – obviously modified and personalised, yet still with a high end factory vibe – and a streetable, tractable, dyno proven 515 all-wheel horsepower, and a titanic 580lb ft of torque. There's a definite bass soundtrack underlying the exhaust note of this big thumper at idle, yet that idle remains near

accumulator and clutch slave. In spite of all the race level kit built into Dolwani's 996, it remains a mature, elegant looking machine, with a wood kitted full leather cabin, and no silly paint or stripe scheme to foil the car's fabulous paint and body lines. Dolwani worked hard to earn the rights to own this car, about which his father agrees, and there's a long list of people who want to buy

“ You would expect Ravi Dolwani to drive a Porsche, and he does ”

Bentley smooth. With numbers like these, Dolwani's car should put up a good fight with nearly any cranked up 996, 997 or 991 Turbo. The transaxle has also been beefed up to stand the force of the fortified 3.6, by way of reinforced steel synchros, a 991 shifter and transmission mount, a lightened flywheel, a Sachs Sport clutch, and a fresh

it when he's done with it – including at least one of its previous owners.

Even if you run an old school air-cooled 911, you can't help but be fascinated by the effort, science and handbuilt technology it takes to produce premium water cooling hardware. Something CSF has been messing with since just after WW2. **PW**



**CONTACT:**  
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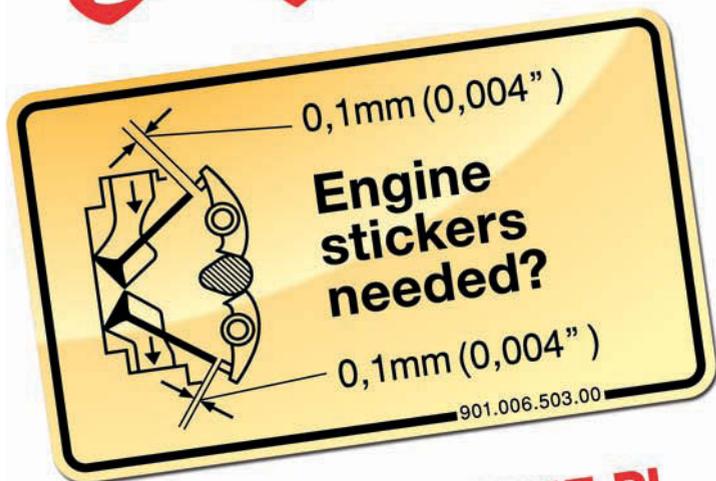
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## PROJECTS

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### THE TEAM

#### STEVE BENNETT

##### 996 C2/944 LUX

My new year's resolution? To get both the 944 and the 996 sorted. Shamefully I haven't driven the 996 since September last year. Still need those Bilsteins, though. 944 last spotted in 2014!



#### KEITH SEUME

##### 912/6 'EL CHUCHO'

Had a bit of a shock when I went to drive the car last week – as I backed out the garage, there was a pool of oil under the engine. Source likely to be flywheel or gearbox seal. The fun never ends does it?



#### CHRIS HORTON

##### 924S, 944

A burst of activity – and expenditure – sees more parts fitted to the 944, including clutch hydraulics, fuel pump and filter, and their two flexible hoses. I hope to have the motor running by the end of the month



#### PETER SIMPSON

##### 911 2.7 TARGA

Not much going on at the moment. Still gathering parts for the 2.7 engine rebuild and looking for an engine builder to take on the the 2.7 RS style engine in some up coming how to's. Anyone?



#### BRETT FRASER

##### BOXSTER 3.2S

Robin McKenzie from Auto Umbau has shamed me into getting the Boxster serviced after an educational chat about the value of looking after cars and the dangers of not doing so.



#### JOHNNY TIPLER

##### BOXSTER 986/996 C2

Losing your wheel centres is more than an annoyance when Porsche prices are involved. Glue 'em in, I say. The 996 gets new badging and its winter boots fitted and its alignment re-set.



#### ANTONY FRASER

##### 996 GT3, SC, TRACTOR

A sad day, but it's time for the GT3 to go. It's been six fun-filled years and I've enjoyed my time as a GT3 owner, but funds are required elsewhere. Still have the 911SC and tractor to divert me though.



# BADGE DEBATING

How do you select an appropriate logo for a 911 whose identity is deliberately ambiguous? And what price superglue in Uusikaupunki? Johnny Tipler comes to a sticky end



**W**hat is it about Finnish glue? I mean, you'd imagine it would be quality adhesive, up to the job of retaining a

badge on a wheel-centre cap, at least, wouldn't you? Resistant to the perils of motoring beyond the Arctic Circle and all that. Apparently not; a product of the Uusikaupunki factory in 2004, Mrs T's 986 Boxster S ("550 Spyder 50th Anniversary" special edition) has shed three of the sparkling Porsche wheel-centre crests in the last 18 months. At first I assumed they'd been pilfered in the same manner that all high-end car badges were prised off by lowlife scumbags a few years ago. Asking around, it seems badge loss is not that uncommon and, when I ordered another replacement from Porscheshop, the view there is that Finland's gunge simply isn't up to the job. So, on a recent visit to Paul Stephens' emporium on the Suffolk-Essex border, I whistled "get Dan on it" (as sung by Kool & The Gang) and got Detailer Dan to superglue the new logo in place. Loctite? As The Supremes would have it, "I'm stuck like glue to my guy..." We are now thoroughly bonded!

The next task on 996 Pig Energy's to-do list was to apply some sort of badging to the Mk 1 GT3-style engine lid sourced a few months back from Porscheshop and painted and fitted by Norfolk Premier

Coachworks. The car is slowly but surely being warped into something more exotic than the perfectly efficient C2, but I make no pretensions that it's on a par with a stock GT3. Yet. Sure, it's got a Dansk exhaust, short-shift gears, H&R lowering springs, EuroCupGT remap, induction pipes and air filters, so we are on the way. But rather than dissect the Carrera logo from the original engine lid and re-use that, I've applied another Porscheshop badge in the shape of the stick-on 911 GT digits. Referring to on-line images, I've set them at the slightly jaunty angle of the factory models and, provided they don't come unstuck, I think they provide a welcome focus on the otherwise bare engine-lid.

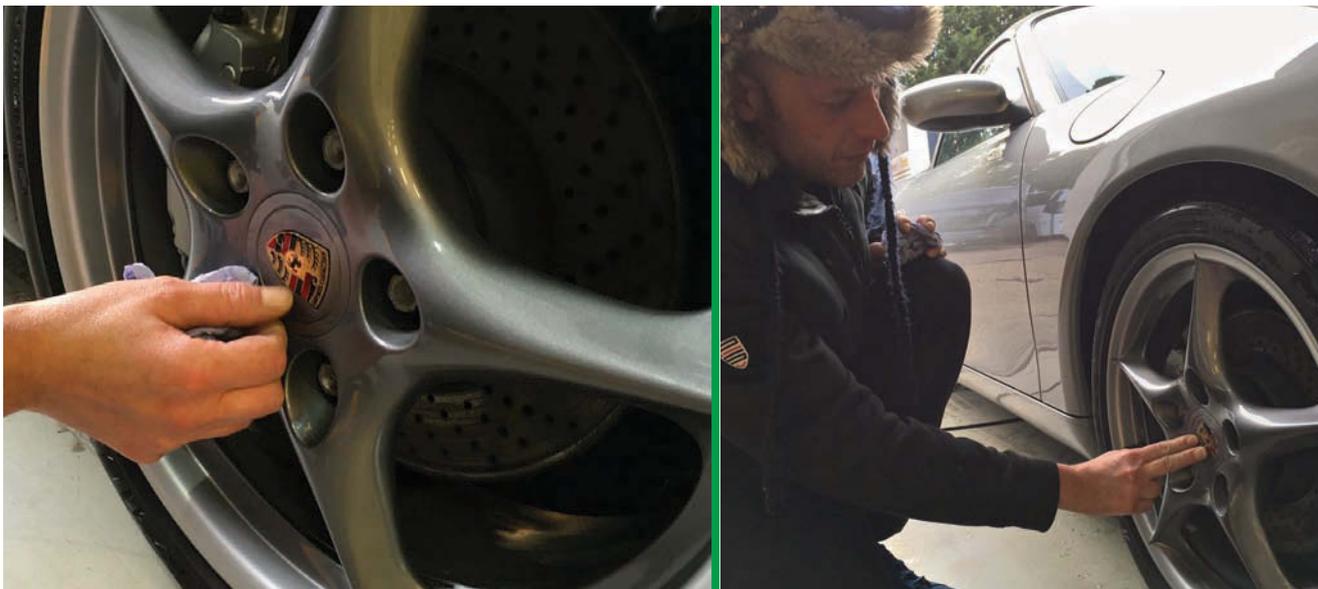
## EVERY WHICH WAY BUT STRAIGHT

And then things weren't so fine and dandy. I'd been at a meeting at Silverstone and was almost back home in north Norfolk when I felt the car begin to twitch, in that 'got-a-mind-of-its-own' jiffle that warns you that you've got a tyre deflating. I pulled into a garage forecourt, thinking that I could be recovered or re-tyred from there. But a walk round the car revealed that all tyres were perfectly pumped up. I limped home in a very peculiarly handling car, and booked it in to STR in Norwich who generally look after it. It was clearly not safe to drive, and Anglian Recovery trucked it

## JOHNNY TIPLER

### 996 C2, BOXSTER S

**Occupation:** Freelance writer, author  
**Previous Porsches:** Carrera 3.2, 964 C2  
**Current Porsches:** Boxster S/996 C2  
**Mods/options:** Modified induction set up/K&N filters, remapped ECU, Dansk exhaust  
**Contact:** john.tipler@paston.co.uk  
[www.johntipler.co.uk](http://www.johntipler.co.uk)  
**This month:** Wheel centres for the Boxster, badging, winter tyres and wheel alignment for the 996



Opposite page: New badging for 996. Left: 'Detailer Dan' glues the Boxster's wheel centres into place. Try and escape now!

(courtesy of the AA Relay) in to town on a flatbed. Dismal visions of chinking cash registers and gloom descended. Then, an upbeat text! Much to my surprise – and relief – STR's techie Chris Lewis had been able to realign the 996's toe-in, which he succinctly described as "excessively high!" The vehicle alignment report is shocking – the rears were a full 2° out – and how it can have gone so awry so suddenly remains a mystery. Up on the ramp, Chris could find no trace of contact between track control arm and driveshaft, which I thought I'd heard clunking, and he found no play in the suspension, front or rear, with the car on the MOT shaker plates. 'The wheel alignment was a long way out,' he said, 'probably due to the new H&R suspension settling in and causing the settings to go out of true.' Still, it appears to be sorted now, with nothing broken or detached and all four wheels pointing in the right direction. There's still a certain amount of negative camber, -1°50' at the back, which benefits handling at the predictable expense of tread longevity. Chris then made sure all suspension nuts and bolts were tight, and a

road test enabled him to pronounce a clean bill of health – with the proviso that it gets a fresh set of ContiSports without further delay. Phew! Kingsway Tyres, here I come.

### TREAD CAREFULLY

Talking of tyres, it's become a habit of mine to cover the Historic version of the Monte Carlo Rally – the Rallye Historique – and as you read this I will hopefully be wischening (deliberately provoking slides with oversteer and understeer) around the Ardèche and Alpine backroads in varying depths of snow and sub-zero degrees of ice. And ahead of this foolhardy expedition, 996 Pig Energy is scheduled to receive a set of Hakkapelitta R2 winter tyres to cope with the white stuff we're bound to encounter in the hills and mountain stages. The Finns know a thing or two about winter motoring – they've won 14 World Rally Championships to prove it – so their tyres are second to none in that department. Pig Energy's illustrious predecessor, the 964 Peppermint Pig, was shod with Nokians for the past few winters, and they lasted a long

time without showing signs of wear. The new Nokians will go on the 996's original five-spoke alloy wheels while the split-rim Porsche Sport Classics and their new ContiSports are rested for the duration of the cold season. Winter boots are a legal requirement in Germany till Springtime and, frankly, a lot of the traffic mayhem we endure in Great Britain when we get our annual dump would mostly be alleviated if we bothered to fit appropriate winter tyres. When I'm following the Monte Carlo Rally's live stages I find I can cope with snow tyres, slip-sliding a tad chaotically as I try to keep out of the way of the hardcore rallyists – though competitors invariably use studded tyres for maximum grip and sure-footedness. Spikes: for ice racing at Serre Chevalier stadium. Chains: on Le Croisière Blanche, certainly. But the winter tyres provide secure traction in a few centimetres of snow, and after I get back to Blighty, they'll still be good news, given our fickle weather; it's only when the roads are warming up in the Spring sunshine that they cease to be effective. So, bring on the Nokians; they're one Finnish product that really does stick! **PW**

### CONTACT

**Porscheshop:** porscheshop.co.uk  
**Nokian Tyres:** nokiantyres.com  
**Continental Tyres:** continental-tyres.co.uk/car  
**STR Service Centre Ltd:** str.gb.com  
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# ISSUE 33 ON SALE NOW



## GT3 ADVENTURE COMES TO A CLOSE

Nothing lasts for ever and *911&PW*'s resident snapper, Antony Fraser, has decided to put his 996 GT3 up for sale after six fast and furious years. It's no garage queen, it's dripping with cool mods and it needs a new custodian. Could it be you?



**ANTONY FRASER**

**996 GT3, 911 SC, 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:**

For sale: 996 GT3. First to see will buy!

**M**omentous times here in GT3 World. After nearly six years, the time has come for our paths to part. This news was greeted with a certain degree of shock-horror at Fraser Acres, especially from a certain eleven-year-old girl, who stamped on my left foot so vehemently that I wondered whether I might be for ever confined to two-pedal automatics. And after she'd always griped about the absence of heated seats! No pleasing some people...

I had always proclaimed this car as a keeper, so why the volte-face? Well, there are really only two reasons you sell a car, aren't there? Either it's a horrible heap,

which you'd rather not have to see ever again, or there's money involved. You're ahead of me here, I'm sure. I need money to fund the SC's ghastly gearbox and general tidy-up, and the old Porsche tractor isn't going anywhere until I push it along with hard currency. Plus, there's the looming realisation that we've done pretty well everything we're going to, in terms of mods.

Time, then, for an over-the-shoulder look at the experience. Cue the wobbly curtain effect, mists of time, etc.

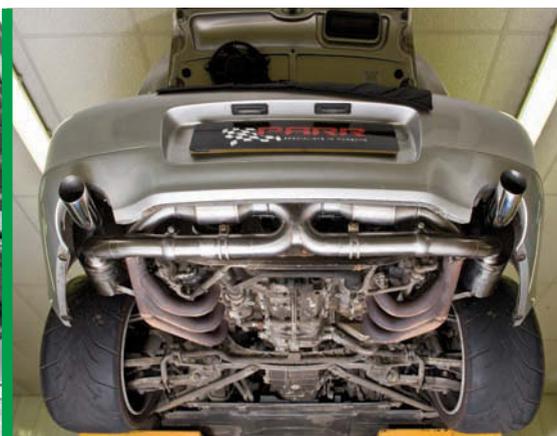
We bought the car, a Comfort model, in May 2010, from Dove House Motor Company in Rushden. Interestingly, we had it surveyed twice – once by an independent surveyor, and once by Porsche in Reading.

Porsche's own assessment turned out to be by far the more comprehensive and accurate of the two. You get what you pay for, I suppose.

The plan was to take a Comfort car and introduce some subtle mods to take it beyond a Clubsport spec. First up: more power. This turned out to be a remarkably straightforward affair. A superbly made (if slightly loud) stainless exhaust from Cargraphic gave a mighty mid-range shove, and saved a whopping sixteen kilos from right at the back of the car. Tick, V.G.! Then, a remap at Southampton-based electronic gurus DMS Automotive added a great slug of top-end go. Net result: 403hp, from an original 358, and (more importantly for the

Below: Mr GT3 himself, Andreas Preuninger, signs the Fraser GT3.

Cargraphic exhaust is a pipe-bending work of art and super light, shaving 16kg off the standard system





road) a 55hp increase at 5500 rpm, just where you really need it. So, entirely by accident, we had stumbled upon two highly complementary upgrades, turning a quick car into a really quick car, without opening the engine at all.

Some time later, we were to enhance this further, with a lightweight flywheel from TTV Racing in Suffolk. At under half the weight of the original dual-mass item, this beautifully made engineering marvel may not have actually created more power, but it gives the car real zing, especially from a standing start. Good excuse for a new clutch, too!

Under the car now, and the low-slung stance with which it arrived may have looked cool, but didn't do it any favours over speed bumps, or indeed getting into our own drive. Cargraphic to the rescue again, with their Airlift kit. Rubber doughnuts slide over the top of the front dampers, and inflate, pushing the struts downwards to raise the car's nose. Air is provided by a tyre inflator pump, under the boot floor. It's

simple and effective, but a little slow. It's possible to upgrade the pump, but it robs space from the boot, so slow is fine with me.

Eventually, with the original suspension getting rather tired and emotional, we went the whole hog and replaced virtually all of it. Eibach springs over Bilstein dampers are now held in place by rose-jointed control arms from Rennline in the US. It's all terrific quality stuff, and infinitely adjustable. RPM Technik, in Hertfordshire, dealt with the fitting and set-up, and the end product is a car that, while noticeably stiffer than a standard GT3, is a supremely willing and accurate car to drive, with lovely communicative steering and the kind of innate balance that you'd always hope for from a 911. Steady now, I might talk myself out of selling! I should mention tyres at this point. For much of our ownership, the car has run on Yokohamas, A048 and, more recently, Neova AD08 Rs. Fine tyres all, and the Neovas seem to really hit the spot on the road, with nearly all the grip of the

A048s, but with a slightly softer sidewall.

And let us not forget the adventure factor in all this. The car has been on numerous European jaunts, hit 170mph on an Autobahn, drifted around Abbeville circuit with a roof rack on top, been driven by Jan Lammers around Zandvoort, sat on by Lord March, and signed by none other than its own daddy, Andreas Preuninger himself. It's been used as school run transport and snapper's hack, and it has never even looked like it would let us down. Try all that in a contemporary Ferrari.

So, there it is. In many ways it's the anti-collectors' car. It's not original, it's not exactly low mileage (86,000), but it goes like stink, in a way that only normally aspirated cars can, and it's a joy to drive hard and fast.

The next owner will, I hope, be someone who intends to do exactly that on road and track, because, in spite of what the collectors' market may believe, that's what it's for. I wish them well. **PW**

The exhaust, combined with a DMS remap, gave the 996 GT3 some serious firepower - 403bhp to be precise and verified on the rolling road. Below: Some sideways action at the Porsche Driving Experience Centre, Silverstone

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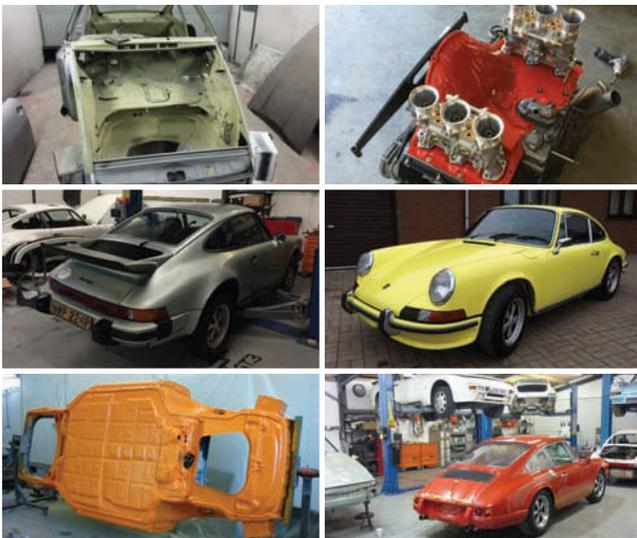
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## JUST ENJOYING THE DRIVE

After an extensive (and expensive) overhaul, US contributor, Matt Stone's Carrera 3.2 has been used for purely driving pleasure. It couldn't last, though, as a cooked alternator took out the headlights. Cue a replacement, and more



**MATT STONE**

**911 3.2 CARRERA**

**Occupation:** Freelance motoring writer and US 911&PW correspondent,  
**Previous Porsches:** One  
**Current Porsche:** 911 Carrera 3.2  
**Mods/options:** Standard save for S.Car.Go exhaust  
**Contact:** mattstonerama@gmail.com  
**This month:** Lots of driving and an alternator melt down

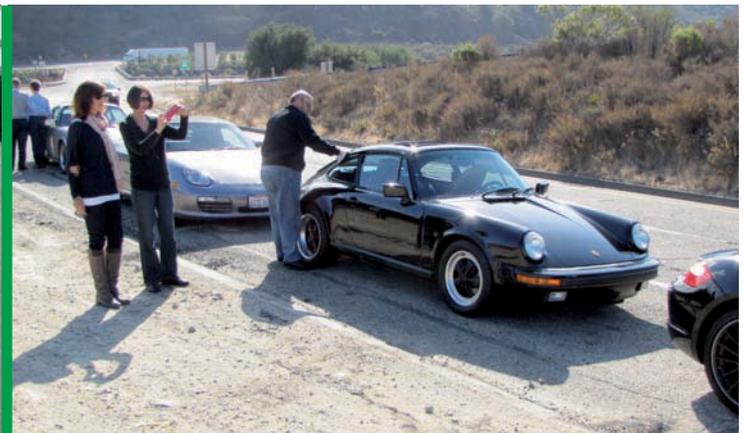
In my last instalment, I described to you the process and detail of an extensive and expensive major service encompassing a comprehensive tune up, fluids and filters refresh, new tyres, shocks and struts, plus a myriad repairs (large and small) list that had been growing over the last several years. When the great gang at Callas Rennsport finished up three months' worth of massaging, the car was functionally and physically outstanding, and road ready. So the next order of business was lots of driving, which I did. Weekend Porsche Club of America trips, cruise ins, car shows, and occasional rips up and down the famous Angeles Crest Forest Highway, which I live

near the base of.

With a 12–1300 mile PCA weekend trip once again in the offing, it was back to Tony Callas for a lube/oil/filter service and final preflight check. Callas has since switched his oil provider to Joe Gibbs Racing products, citing a high zinc content, needed to protect against camshaft wear on the older 911 engines. So we went in for a full sump tank of Gibbs oil and a proper Porsche/Purolater "red" oil filter. A test of the brake fluid revealed a moisture content of about one percent, which is Callas' recommended threshold for changing it, so the entire brake/clutch system was power flushed with fresh DOT-4 hydraulic fluid. A few other minor tweaks and we were ready

to head for Utah (nipping the corners of Nevada and Arizona along the way). We ran long and semi hard days, rolling at 4000 rpm plus for seemingly hours at a time, although of course we slowed down some when the rains began. Following my friend Jeff in his new Cayman GTS I noticed in his shiny new red rear bumper that I couldn't see my own headlights. A roadside check confirmed that I in fact had no headlights, no matter how I played with the switches, high beam, low beam, didn't matter, no headlights. Parking lights and signals worked only, as did the lower fascia factory fog lights. I was of course concerned about night driving, and running in the rain with no front lights, so once at the hotel, Jeff and I

Above and below: After a major recent overhaul, Matt has mainly been enjoying driving his Carrera around California and beyond with fellow Porsche enthusiasts on PCA events





immediately began checking fuses and connections. Everything seemed fine, so I decided to get through the rest of the trip (mostly daytime driving) with just the running and fog lights. Not fun, but my choices were few, with no Porsche level repair shops or main dealership nearby the rustic communities just outside Zion National Park. Otherwise the car performed admirably, save for a set of failing windshield wiper blades. Fortunately all of our club dinner plans were walking distance from our hotel, so no night driving was required. Although Zion boasts a few very long and dark tunnels, through which the foglights, and staying up close to Jeff, was tenuous but safe enough and dispensed with no incident.

The long drive home from Utah also took a full day but involved no night time driving. Upon return home I left the car idling in the driveway and went into the front trunk to get

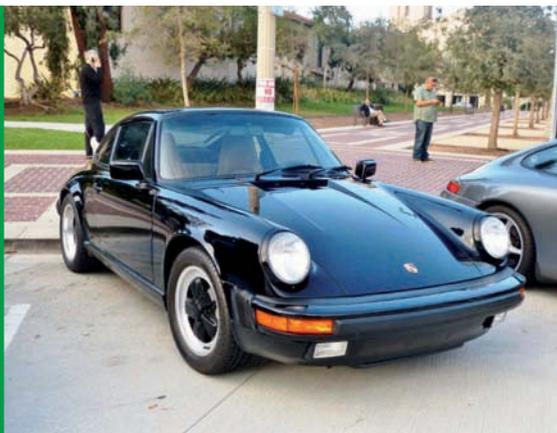
something out, and noticed steam pouring out of one of the battery's vent caps. A quick call to Tony Callas deduced that it was highly likely the alternator was overcharging (damaged diode packs in the voltage regulator or an otherwise bonkers alternator), "which may have also fried something in your headlights." A service appointment was made.

Upon arrival Tony plugged the car into his electrical diagnostic equipment, noting erratic charging patterns from the alternator. Unlike the old days when, in most cars, an alternator and a voltage regulator were distinct parts and could be replaced separately, that was no longer the case with my car, with all new and rebuilt alternators now coming with a new regulator and diode pack built in. Service manager Tom and parts guy Steve looked long and hard at all the reasonable parts scenarios, and divined that the best combination of price,

performance and quality came from a rebuilt Bosch alternator at around \$850. They got the piece, and installed it, along with two new drive and accessory belts, two fresh H5 headlight bulbs (the bulbs got so hot from overcharging that they literally exploded within the lens buckets, leaving only granular bits of glass, metal and insulating material behind), two new windshield wiper blade inserts, and the replacement of a cracked distributor cap, plus a huge and heavy duty Interstate battery and the car fired up happy once again. All the lights worked, no steam from the battery, and the charging system charged and cycled normally. All mine for just \$1500.

And after a near 1500 mile drive on the open highway and mountain roads, some wet some not, the car was filthy inside, out, and underneath. Next up, an up-on-jackstands, wheels-off detail job. With pleasure. **PW**

An oil change at Callas Rennsport. Tony Callas recommends Joe Gibbs Racing Oil (available in the UK from Demon Tweaks) for its high zinc content, which protects the cam lobes, so that's what went in, plus a proper Porsche 'Red' filter



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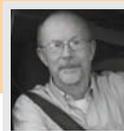


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Welcome to *911 & Porsche World's* Q&A pages, edited and assembled by the magazine's technical man and do-it-yourselfer, Chris Horton (above). The format is much as you would expect – you ask, and our experts do their best to offer a practicable, real-world 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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## 964 HAS AN UNWANTED WATER FEATURE

**Q** My 964 has a water leak into the rear part of the cabin, which given the heavy rain we have been experiencing this winter is particularly worrying. The carpet in both footwells is routinely soaked, and if I leave the car parked for even a couple of days there is a significant build-up of condensation on the inside of all the glass. It's beginning to smell inside, too.

I am assuming it must have something to do with the rear-window seal – the car had a full respray in mid-2014 – but the rubber moulding appears to be in excellent condition, certainly from the outside. I even suspected that the sunroof's perimeter seal might be at the heart of the problem, so I had a new one of those fitted a few weeks ago, but that seems to have made no difference. Your advice would be much appreciated.

Kevin Todd



The 964 has a rubber moulding at the lower end of each sunroof rear drain tube. If they are removed – for repainting, perhaps – it is vital to make sure they engage correctly with the plastic pipes running down the pillars, or rainwater will leak into the cabin

**A** Robin McKenzie, Auto Umbau: There may, indeed, be a problem with any one or all of the window seals – it is my experience that relatively few people ever refit these 100 per cent correctly – but given that you have relatively recently had the car painted I would first check that the sunroof drain tubes are performing as they are supposed to.

In earlier cars these consist of rigid steel pipes running down the roof pillars and, at the rear, exiting at the top corners of the engine-lid aperture, but for the 964 Porsche switched to plastic pipes connected to separate rubber end-mouldings. These have the obvious advantage that, unlike the previous

system, they don't corrode (which as you might imagine can present major repair problems), but sadly, like those window seals, they are often refitted incorrectly.

What usually happens is that the rubber end-mouldings, previously pulled out of the bodywork for spraying, are simply pushed back into their holes, on the false assumption that they will naturally re-engage with whatever tubes or pipes are hidden away inside the pillar.

To do the job properly, you have to peel back the headlining and the sound-insulation material beneath it, and then, using a pair of thin, long-nosed pliers (access is very limited), gently push the plastic pipe inside the rubber end-piece. That tends to

force the moulding back out of the body, though, so ideally you need to keep climbing out of the car to make sure the two are engaging correctly – or, better still, have an assistant outside the vehicle to hold the rubber in position.

Note, by the way, that in any such car the sunroof's outer perimeter 'seal' is really designed to do little more than slow down the flow of water into the panel's aperture, rather than to stop it completely (which would be more or less impossible, in any case). That is why it is so important to have adequate drainage – although by the same token fitting a new seal (correctly, of course!) can certainly do no harm.

## WORRYING 'COOLANT' LEAK FROM 996

**Q** I keep seeing what looks suspiciously like a small area of dried-out coolant beneath the left-hand front corner of my 2002-model 911 Carrera, after it has been parked for a few hours. I have on each occasion checked the level in the header tank in the engine compartment, which was initially a little lower than it should have been, but now appears to be entirely stable. Might I have a leaking radiator? Or does this sound like the beginning of a potentially more serious problem?

Peter Vernon

**A** Chris Horton, 911 & Porsche World: There is really only one way to find out, and that is to take off the front bumper moulding, itself held on by a collection of cross-head screws along its upper and lower edges, together with a rather more awkward one inside each wheelarch liner, behind the side marker light.

(A word to the wise: buy a full set of new screws and matching threaded inserts before you start. Chances are, particularly given the age of your car, that the originals will be surprisingly badly corroded. Your Porsche Centre, or a good independent, should be able to supply the whole lot for around £10–£15, and they will make a big difference to how well the bumper fits when you come to replace it. You will probably enjoy the job a lot more, too.)

I suspect, though, that it will probably turn out to be the headlamp washer mechanism that is leaking, in which case you will need a new one of those, too – they cannot be satisfactorily repaired.

Cost is currently around £120 per side plus VAT (which, annoyingly, isn't a great deal less than you will pay for a radiator), and with the bumper off it is easy enough to fit. Do make sure, though, that the supply pipe is first pushed fully home and then secured with a suitably small hose clip, and if it has become hard and brittle perhaps fit a new length of pipe, as well. Either way, do be careful not to crack the new washer assembly in the process – the plastic is quite delicate.



What can look worryingly like coolant leaking from the front corner of a 996 or similar might prove to be windscreen-washer fluid from a leaking headlamp-wash pump. That obviously won't compromise the engine's reliability, but best renewed

## 993 OIL LEAKS SHOULD BE NO BIG ISSUE

**Q** I have always believed – in part from reading *911 & Porsche World* for several years – that the 993-model Carrera is a paragon of oil-tight reliability, but now that I have bought one there seems to be a fairly major leak from the right-hand side of the engine.

I can live with the mess on my garage floor – for a little while, anyway – but the oil is dripping all over the car's exhaust system, as well. The resulting rather sickly smell is bad enough, but I am also worried that it might even cause a fire. Where do you think the oil will be coming from, and how can I stem the flow?

Charles Remington

**A** Chris Horton, *911 & Porsche World*: Obviously it is difficult to be precise without seeing your car, but the source of your leak is almost certainly the camshaft cover(s). And there are two per cylinder bank, remember – although it is most likely only the lower one on each side that will be leaking. The problem lies, as you might expect, partly with the gaskets between the covers and the camshaft carriers, but also with the covers themselves, which being made of plastic tend to become brittle in the heat from the exhaust, and then eventually fracture.

In theory it is a fairly straightforward job to remove and replace the covers, even with the exhaust system still in place, but the fixing screws will not only be tight – they may have been there for the best part of 25 years – but also have 5mm



Whether for weight or cost savings – or perhaps both – the 993's engine has moulded-plastic valve-rocker covers, which due to age and the proximity of the exhaust system can crack. The inevitable problem of removing them to fit new ones is compounded by the fact that they may have remained undisturbed since the car was new – unlike its predecessors, this engine has maintenance-free automatic valve adjustment. This particular unit, with no secondary set of spark plugs – and thus blanked-off lower covers – is from a GT2

'Allen' heads, whose internal recesses are very easily damaged. If that happens you will almost certainly have to take off the exhaust system for improved access and that, too, can bring a whole world of problems.

The covers themselves, if you buy them separately, will cost you £65.74 each plus VAT from Porsche. The part number for both is 993 105 116

07. You will also need gaskets, of course (993 105 135 02; that's another £16.12 each plus VAT), as well as the 19 fixing screws and their built-in special seals. Their Porsche part number is 900 067 238 02, and they cost 52 pence each plus VAT. It would also be as well to buy – or at the very least to budget for – the exhaust fixings that you are liable to break while removing the system.

## AFFORDABLE DIAGNOSTICS LEAD THE WAY

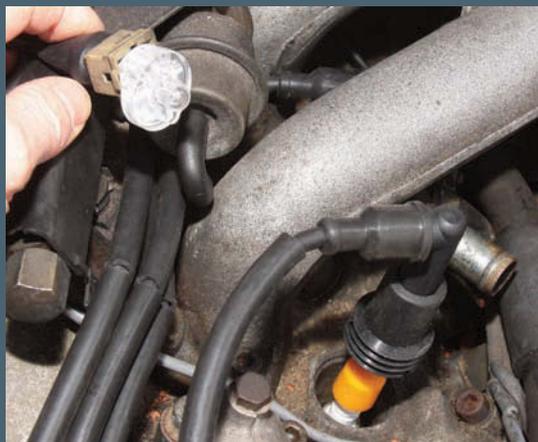
I had a major success with that so-called Noid light from tool specialist Sealey that I recommended in these Q&A pages in the February edition – on my 944 Lux, at least, if not yet the non-starting 924S in Scotland. (And the device strongly suggests that my similarly non-starting BMW M535i has a 'good' ECU, too.)

Cranking the engine on the starter, with the little gadget plugged in to one of the injector leads, produced a reassuring rapid flash from the LED – or whatever it is inside the clear plastic moulding that does the business. And a similar process, using an old-fashioned HT-lead tester (from Sykes-Pickavant in this instance), proved beyond doubt that the ignition side of the engine management system appears to be functioning as it should. So it seems that I did manage to reconnect the engine's speed and reference sensors correctly, after all. (They both have exactly the same – unmarked – plug-and-socket connections, with the obvious danger of transposition.)

There was never any

chance of the engine firing at that stage – the remainder of the (brand-new) spark-plug leads were still absent – but it looks as though I shall now have to turn my attention to the lack of fuel. Which is hardly surprising given that the pump has been dormant for so long. (Stop press: that is now off the car – see photo below right – and testing with a 12-volt supply shows it to be pretty lethargic. A new one is on its way.)

Either way, these two affordable devices – 'gadgets' is too pejorative a term, I think – offer a quick, efficient and certainly affordable way of eliminating two obvious reasons why any given engine might not start, so I hope this knowledge might benefit John Dunbar next time he is down in the south of France, trying to get his equally long-dormant Carrera 3.2 going again. (More on that in the February issue.)



Sealey 'Noid' light (above, left), and Sykes-Pickavant HT-lead tester, offered a quick way of proving that 944 engine was getting both fuel-injector pulses and sparks. Former device is available on Amazon for around £15, the latter – by either Laser or Draper – for around £11–£12. Photo on the right shows the fuel pump from Horton's 944 Lux – no great surprise that it doesn't work, given the state of all the surrounding hardware. More on this in his next *Our cars* report, he promises us

## 944'S BONNET-CATCH SPRING HAD SPRUNG



I have lost count of how many Porsches I have evaluated for my *Tried & Tested* pages over the last five-and-a-bit years, but it must be at least 100. What I can tell you is that remarkably – or perhaps not – none has ever given me the slightest mechanical problem during my test-drive. Or none that I can remember, anyway. Until now, that is...

Steve Hodgkinson's very smart Guards Red 944 (see the February 2016 edition) performed predictably perfectly throughout my 25–30-mile tour of south Oxfordshire, that distance itself a strong indication of how much I was enjoying the car on familiar and on this occasion pleasingly traffic-free local roads.

Back at home to make my notes, not unreasonably I lifted the bonnet. Inspection over, I went to close it again, gently pushing down on the centre of the panel's leading edge with the palm of my hand. It soon became obvious, though, that there was no way it was going to stay fully latched. My first reaction was to make sure I had pushed the lever inside the cabin fully forward – I know from experience that they and/or the cable can sometimes partially seize – but that made no difference. Must be the latch itself under the bonnet, then – maybe that has seized up.

Such is the limited access to the guts of the surprisingly complicated mechanism that it took me a little while to figure it out – and even then I had to refer to my own car to see what the installation should look like. To cut a long story short, it turned out to be a missing return spring; the one that tensions the tiny pawl that engages with the spring-loaded pin on the underside of the bonnet. Easy, I thought. I'll 'cannibalise' the spring from my 944 in order to drive Steve's

Vital spring is just about visible on Horton's 944; not so on later cars

car back to him, and he can either return or replace the part as appropriate; I certainly won't be needing it any time soon.

Taking the spring off my car was, indeed, dead easy. Fitting it to Steve's slightly later model was, however, a completely different story. For some unaccountable reason that has a fractionally deeper flange round the riveted-on latch mechanism, making it almost impossible to see what you are doing. Frustratingly, you can feel with your fingers the two eyelets into which the spring is designed to hook (and one of which still had in it the broken end of the original spring), but engaging them is another matter again.

Lack of time meant that I had to give up and drive the car the short distance back to Steve's house with the bonnet secured only by the safety catch, leaving him to have his chosen local garage fit my car's spring – and which he later replaced with a second-hand part he sourced. So all's well that ends well – and naturally I hope that the experience might help anyone else facing a similar issue. I would dearly love to know, though, why Porsche made these later 944s so subtly different that what should be little more than a five-second job expands to take many times that figure.

944 is the only T&T car to have given us any trouble – and was soon fixed!



## 996 TURBO'S CLUTCH PEDAL BECOMES AN IMPROMPTU EXERCISE MACHINE

**Q** My 996 Turbo's clutch pedal has become increasingly 'heavy' to operate. I must admit that, using the car fairly regularly, I hadn't really noticed, but last week a friend drove it for a short distance in stop-start traffic, and told me that after a few minutes it was all he could do to stop his left leg shaking with the effort.

Later, with the car parked in my garage – and so with the engine switched off – I tried it again for myself, and could see immediately what he was complaining about. Oddly, the pedal seems quite a lot lighter with the engine running, but there is clearly something wrong somewhere.

The car supposedly had a new clutch in mid-2013 (I bought it a year or so later, in July 2014), and since then it has done no more than about 7000 road-only miles – no trackdays, in other words, and so the clutch has not had a particularly hard life.

**George Mercer**

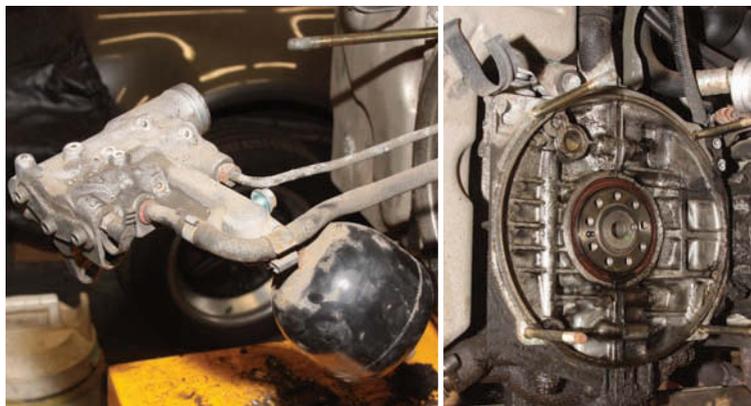
**A** **Chris Horton, 911 & Porsche World:** Most cars will suffer from an increasingly heavy clutch as the friction plate wears thinner – partly because of the gradually changing geometry of the actuating mechanism, but also because of the build-up of dust and sometimes oil within the housing, and all over the release mechanism. That certainly shouldn't be a problem after such a relatively low mileage, but who knows how well the work was done? Or even if it was done?

Here, though, there is the further complication that the 996 Turbo has a power-assisted clutch-release mechanism. Unsurprisingly, given the engine's substantial power, and especially its massive torque output, this was specified to allow both a high clamping force between the pressure plate and the flywheel, but at the same time to maintain pedal loads within reasonable limits.

It sounds to me as though there might be a developing problem within the associated hydraulic circuit – the required pressure is generated by the steering pump – and almost certainly with the so-called accumulator that is designed to maintain a reservoir of that pressure after the engine has been switched off. I am told it should be good for around 20 full up-and-down movements of the pedal.

Your best bet – and I am assuming you can't do the work yourself – is to take the car to a good independent and have them remove the gearbox for another look at the clutch itself, and certainly to change the special accumulator sphere (see photo below left). It won't be cheap, sadly – the sphere alone costs £115, the slave cylinder £347 (both figures from Porsche, and plus VAT), and there is obviously a considerable amount of workshop time to be paid for, too – but then such is the 'responsibility' of running a car with this still frankly staggering level of performance.

Citroën-style accumulator sphere attached to slave cylinder is probably to blame for 996 Turbo's heavy clutch, certainly when engine is switched off. Same car's RMS (right) suggests that notorious oil leaks are not confined to Carrera/Boxster cranks



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## ODOUR REMOVAL

TIME REQUIRED: A FULL DAY

If you want that new car smell, then buy a new car. For the rest of us, the previous owners' habits, pets, etc could leave a lingering whiff that's often masked at sale time, but all too quickly returns. A deep clean is the solution and here's how

**D**etailing is normally associated with how a car looks, but when it comes to feeling at home in a car, smell can be just as important. For those of us buying used, that 'new car smell' is something we miss out on, despite the best efforts of dealers and their 'pine-fresh' aerosol potions. In this instalment we have teamed up with Johnathan Goodall of JDG Valeting in Stockport to offer some tips and tricks for readers with pony Porkas.

Unattractive odours in automobiles have a variety of causes. Firstly, there is the family Cayenne with more than a faint whiff of Fido, with accompanying hairs everywhere. Then there is the ex-yuppy 964 with a grey interior turned brown courtesy of countless Cafe Creme cigars. The final favourite is those cars that have been left standing for 'a while' – 'barn-finds' where moisture has fed mould and fungus for months resulting in that sweaty rainforest feel.

Be under no illusion, this job requires a hearty constitution, determination and perseverance. The first step is vacuuming the car; not a quick zip-over with a twelve-volt hand-vac: a proper, methodical deep clean is required, with a brush and crevice tool attachments to Dyson's finest. Martin Barrow of Renovatio Detailing demonstrates how it's done in the picture. Be sure to remove the floor mats, as well as to push the seats fully forward and fully back. If you are lucky enough to have a 911 or similarly compact car, be prepared for contortionism – if you don't end up balancing on your head, sweating profusely, blaspheming like a trooper with your legs akimbo, you're not trying hard enough. While going through the aforementioned steps, make sure the vacuum is suitably restrained so it doesn't bang into the bodywork.

For cars with previous canine inhabitants, use a pet hair removal brush in combination with your crevice tool to agitate and remove the hair. Failing that, a semi-stiff brush will suffice, though be careful not to scratch any plastics. A good job is defined by the detail. Put your crevice tool into every orifice you can find – glove boxes, door pockets, spare-wheel wells, seat rails – everywhere. For delicate parts, like the centre console, use a soft brush to loosen the dust and grime. This also works on air vents, as demonstrated by Jordan Shone of Shropshire Car Care. For the tricky bits to get to a moist cotton bud will help. Finally we would suggest vacuuming the headlining – be careful though, particularly on older cars, where the adhesives holding the fabric up can be a little brittle.

Next is the shampooing process: similar to one's personal ablutions, work from the

top down, though a built-for-purpose automotive shampoo should be used in lieu of Pantene. There is a range of products available, the principle is the same – dilute in a bucket of water to the prescribed concentration, drench a fresh microfibre, then wring it to a mildly moist state. Gingerly wipe over your headlining in straight lines, regularly rinsing and wringing the cloth in your bucket. You will be surprised how much muck is removed – if you are using an opaque white bucket, expect the water to go grey-brown pretty quickly. Repeat the process using a bucket of plain water to remove the detergent, then again with a dry cloth.

A similar process can be used on fabric seats, though a little more vigour might be required. If your thrones are hide, use a specific leather cleaner for the best results – the same goes for leather-clad dash-tops, door-trims, and other fixtures like steering wheels, gear-knobs and hand brakes. For carpets, particularly those with a deep pile, a wet-vac makes life much easier as you can be more judicious with your water and shampoo use, and simply suck out the moisture once done. For badly soiled carpets, some vigorous agitation with a leather brush accelerates the process – for inspiration think back to the last time you spilled red wine on your host's cream carpet, only this time you can't move the sofa three inches to cover your misdemeanour.

The final 'cleaning' step is to address your hard surfaces – plastic, glass, and brushed aluminium if equipped. Nicotine has a habit of clinging to these, particularly textured plastics where the added surface area allows greater purchase. Spray an interior cleaner or diluted automotive all-purpose-cleaner (APC) directly onto a micro-fibre and wipe over the surfaces. Do not be tempted to use a domestic APC as they can contain bleach and aggressive surfactants, not to mention scents reminiscent of public conveniences. Follow this with a new microfibre moistened with water alone, regularly rinsing it in plain water. For glass, instrument binnacles, and LCD screens use an automotive glass cleaner, and be particularly careful with the latter as some screens are delicate and they are all expensive to replace.

By now you will have removed the source of the odour, but there may well be spores and bacteria remaining, and they have a habit of multiplying if left untreated. There are four options open to you – the one you choose depends on budget, bravery, and how bad the pong is. First up is a conventional air-freshener, many now contain biocides rather than just a scent to mask smells. Use as instructed, though some can be sprayed liberally and then left with the car running – AC on, fans to full



power, and recirculation on. Theoretically this allows the ventilation system to be disinfected – though efficacy varies. Option two is an odour bomb – place in the car, pull the pin, set the ventilation as suggested before, close the door, and drink tea for thirty minutes (outside the car).

Options three and four are more suited to professional use as their cost is hard to justify if used infrequently. A fogging machine works like the odour bomb mentioned above, but as you simply refill the fogging fluid, you can have more intensive 'fog' for longer – perfect for really bad cars. Finally there is the Aromatek system developed by Autosmart. Essentially an evolution of the fogger, and favoured among professionals, it is a serious piece of hardware and highly effective. Follow these steps and your pony Porka should be a feel like a pleasantly perfumed palace of perfection. **PW**

Really get stuck in with that vacuum, particularly if animal hairs are involved. Clean all surfaces with the appropriate kit for the job. Get stiff and soft bristle brushes for air vents, nooks and crannies

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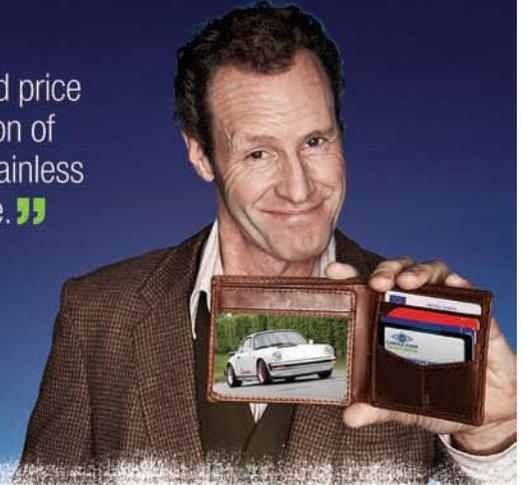
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# BARGAIN BARGE

Has there ever been a more divisive Porsche? The Cayenne certainly split opinion when launched in 2002, but has proved to be a huge success and only now are other rival manufacturers catching up to the need to have an SUV in their range. Early Cayennes are now a massive bargain, but should you take the risk?

**W**hen Porsche unveiled the original, 955-model Cayenne at the 2002 Geneva motor show, it risked losing a lot of friends but instead won many new customers and launched Porsche on a journey that would significantly expand the Stuttgart carmaker's profitability and footprint in the industry. The Range Rover rivaling SUV that some predicted would dilute Porsche's carefully nurtured sporting image quickly became its best seller – and, rather ironically, in the process contributed significantly to the healthy bottom line that enables specialist models like the GT3 and GT2 to be developed.

New, of course, they cost big money: when launched in the UK in May 2003 the two models, the Cayenne S and Turbo were priced around £45,000 and £69,000, the latter more than most 911s at the time. It's such a different story now, though, because while a comparably aged 997-series 911 will cost at least £15,000, a

Cayenne S, albeit leggy, can be yours for £4000 to £5000, and the cheapest Turbos for £8000. But the full-size vehicle packs in a great deal of complex engineering and also electronic trickery in its transmission, so is an early example of Porsche's first 4x4 a bargain prestige estate – or a troublesome Chelsea tractor you don't need in your life?

## DESIGN, EVOLUTION

Part of the purists' problem was that it was a joint partnership with Volkswagen, the Touareg the closely related model VW sold. But the arrangement was entirely logical: Porsche, with its superior engineering knowhow, designed the platform, suspension and 4WD transmission, while VW, with a greater manufacturing expertise built the 'body in white' – in other words the unpainted body/chassis minus fittings – at a newly constructed factory in Bratislava in Slovakia, after which these were transferred to Leipzig in Germany for final

assembly. Touaregs, incidentally, were fully manufactured in Bratislava, and have VW engines.

The original Cayenne S used a new 4.5-litre water-cooled quad cam, multi-valve V8 producing 340bhp and 310lb ft torque, while the Turbo had the same engine but with twin turbochargers hiking output to 450bhp/457lb ft. The gearbox was a six-speed Tiptronic S unit, and the transmission similar in principle to other 4WD systems of the time, with torque normally split 62 per cent to the rear wheels and 38 per cent to the rears, although the Porsche Traction Management (PTM) clutch could, according to conditions, deliver 100 per cent of the torque to either axle.

But Porsche would never settle for merely the ordinary, hence PTM also regulated the low ratio function for off-roading, the drop to low ratio on the transmission switching the differential lock and anti-lock brakes into a special off-road mapping, and the Turbo's air suspension into a higher ride height (on-road, it offered

Compounding the purists' view of the Cayenne was the fact that it was a joint effort between Porsche and VW. Styling came in for much criticism, but this original Cayenne S looks almost compact compared to current Cayenne

## PRICE RANGE

**£4000-£5000** 2003/04 S with well over 100,000 miles, and slim service history. Maybe an early V6

**£5000-£7000** 2004 S with 100,000-plus miles, 2003 S, and V6s start appearing

**£7000-£10,000** 2003/04 V6 and S with under 75,000 miles. High mileage Turbos are from around £9000

**£10,000-£13,000** 2005 S and Turbos with 50,000-70,000 miles, expect convincing service history

**£13,000-£15,000** All 2006/2007 late pre-facelift models in clean condition, under 50,000 miles and with full service history





Interiors haven't aged too well, although the higher the spec, then the more leather will feature. Expect plenty of 'toys' and comfort, plus that useful elevated driving position. Right: Facelift in 2007 introduced a simpler front-end

six ride heights, according to road speed). Cayennes fitted with the optional Advanced Off-Road Technology Package (ATP) had side-to-side differential locking, and also front and rear anti-roll bar deactivation which released extra suspension travel and hence greater "axle articulation", allowing the wheels to stay on the ground better when the body is at an extreme angle. All 4WD functions were regulated by a module on the centre console.

If the first Cayenne's stodgy styling, especially on its standard 18-inch wheels, didn't win many friends, there was further dissent when in September of 2003 the first addition to the range arrived – using a Volkswagen engine, the first such motive power for a Porsche since the 924 of 1976. Seeking a more affordable entry model, Porsche offered what was badged simply Cayenne, using the 3.2-litre petrol V6 from the Touareg, priced at £10,000 less than the S. Featuring modifications including a new induction system, the engine gave 250bhp compared to the Touareg's 217bhp, while torque was up four lb ft at 229lb ft. It brought with it a six-speed manual gearbox with the optional Porsche Drive Off Assistant, which automatically applies the brakes when the vehicle comes to a halt on a hill, and releases them when the clutch is engaged.

There could be no complaints over pedigree when the next newcomer arrived, the Turbo S in January 2006, it being the most powerful Porsche road car at that time, 521bhp and 531lb ft torque (both figures 16 per cent up on the normal Turbo) thanks to modified turbochargers and intercoolers. The £81,565 Cayenne flagship, running on 20-inch wheels, could despatch 0–62mph in 5.2 seconds and a top speed of 167mph, and carried larger brake discs, with improved cooling.

After four years, Cayenne sales had slowed slightly, so the facelifted model that appeared at the Detroit show in early 2007 was timely. These models do not fall within the scope of this guide, but the details are worth noting. Visual updates comprised new look headlamps, grille and wheels, along with contoured wheelarches. The base model Cayenne got the enlarged, 3.6-litre V6 that VW has developed, but with new, Direct Fuel Injection (DFI) that saw output climb 40bhp to 290bhp, and torque by a useful 55lb ft to 284lb ft. The V8 S engine rose in capacity by 300cc to 4.8-litre and, with DFI and VarioCam Plus valve control was now good for 385bhp and hit the 500Nm pulling power figure (367lb ft

torque). The Turbo's output increased by 50bhp to 500bhp, while torque was lifted by 59lb ft to 516lb ft, rendering the Turbo S, which slipped off the price list, redundant.

Some gap filling took place in September 2007 when the GTS appeared at the Frankfurt show, the first Cayenne to have the PASM active chassis. The new model's updated version of the 4.8-litre S engine produced 405bhp, though torque was unchanged. A six-speed manual gearbox was standard equipment but Tiptronic S was available.

In those years Porsche gave the impression of being anti-diesel, so a few wry smiles cracked at the appearance of the Cayenne Diesel in November 2008, on sale in the UK in March 2009 – an inevitable development if Porsche was to fully exploit the fast growing prestige SUV market worldwide. For the first time Porsche willingly acknowledged the uses of another firm's engine, this time the 3.0-litre Audi V6, producing 240bhp/405lb ft torque. Shortly after this, and just over a year before the second generation Cayenne took over, a 1000-unit, limited edition model arrived, the GTS Porsche Design Edition 3, featuring 21-inch wheels, side stripes, super posh black leather and a 14-speaker Bose sound system.

simply outrageously quick for an SUV. The normally aspirated S is less fiery but still brisk, and the V6 sweet and adequately responsive. A Weissach-honed chassis gives handling that belies the two-tonne plus kerb weight, and should you ever want to venture off road, it'll give a Range Rover a good run for its money. If all this hasn't won you over, sit in the roomy cabin's comfortable seats and enjoy the elevated, commanding driving position and take in the stylish, well made fascia. You are probably now a fan – just don't look back at the Porsche as you walk away, and spoil it all.

## WHAT YOU'LL PAY

Right from the start, the Cayenne was one more expensive German car that dumped 30–40 per cent of its value in the first two years, and then continued to decline at a steady rate, and this has left the models we're covering here – pre-2007 facelifts – starting from £5000 for a 2003 or 2004 S, and ranging up to £15,000 for a 2006 Turbo. For average condition Cayennes there is no significant price gap between models: *Glass's Guide* actually lists the V6 base model at a whisker above the S, the Turbo and Turbo S coming in much the same as the S.

As we're talking about under four years of production, condition and mileage, and not age, are the key factors. So, for example, £10,000 would buy a 2006 S with a six-figure mileage, or a 2003 vehicle with 60,000 miles. And there are lots for sale, many through used car dealers, but private

## HOW THE CAYENNE DRIVES

You might hate the Cayenne's styling, its size and its image – but you'll love the way it drives, especially the Turbo, which is

## SPECIFICATIONS

### 955-model Porsche Cayenne

	Cayenne	Cayenne S	Cayenne Turbo	Turbo S
Engine (cyl/cc)	V6/3189	V8/4511	V8/4511	V8/4511
Power (bhp/rpm)	250/6000	340/6000	450/6000	521/5500
Torque (lb ft/rpm)	229/2500	310/2500	457/2250	531/2650
0–62mph (sec)	9.7	7.2	5.6	5.2
Max mph	133	150	165	167
Average mpg	20.9	19.0	17.9	18.0
CO <sub>2</sub> (g/km)	317	361	390	378
Weight (kg)	2170	2245	2355	2355
Built	2003–07	2002–07	2002–07	2006–07

Maintenance costs (guide price, including labour and VAT)

Oil/major service, all models £260/£480  
 Tiptronic gearbox oil and filter change £260  
 Tiptronic gearbox valve block replacement £1160  
 Replace the engine oil separator/cam cover £500  
 Front brake disc and pad replacement, all models £525  
 Alloy "valley" coolant pipe upgrade £890  
 Ignition coil packs replacement (8) £390

Thanks to SVP Porsche (01299 251152, www.specialistvehiclepreparations.com) for technical advice and parts and servicing prices

## CAYENNE TIMELINE

**March 2002**  
Original, 955-model Cayenne revealed

**May 2003**  
Cayenne S and Turbo launched in the UK

**September 2003**  
VW-engined Cayenne V6 introduced

**January 2006**  
Cayenne Turbo S added to the range

**January 2007**  
Cayenne range facelifted

## USEFUL CONTACTS

**SVP Porsche specialistvehicleoperations.com**  
This Worcestershire specialist offers tuning parts for Porsche sports cars, but additionally has built up a considerable expertise in the Cayenne, and is our technical adviser for this buyers' guide

**Nine Excellence nineexcellence.com**  
General Porsche specialist, but the Surrey-based company offers fixed priced servicing on Cayennes

**Tech 9 tech9.ms**  
The Liverpool specialist is the long standing importer for Porsche tuner TechArt, which has offered bolt-on modifications for Cayennes, right back to the early 955 cars

**Porscheshop porscheshop.co.uk**  
Midlands-based Porsche parts supplier offers a wide selection of standard mechanical and body parts for Cayennes, as well as tuning equipment

sales are easy enough to find, and Cayennes are to be seen at mainstream auctions, too.

## WHAT GOES WRONG ENGINE AND TRANSMISSION

Having looked at 955 Cayennes previously, when they were a lot younger, we concluded that their engines were impressively reliable. This is still broadly the case, but with age they are now showing some common faults – and, as with Boxsters and 911s of the same era, cylinder bore wear has emerged as an issue. 'The V8s, and Turbo in particular, can suffer scored or even cracked cylinder liners,' reports Edd Stevens, General Manager at SVP Porsche in Worcestershire. 'Look for very sooty tail pipes and try to determine if oil consumption is high. If the liner is actually cracked, it can also cause the coolant system to become over-pressurised, resulting in the loss of coolant.'

However, oil consumption and coolant problems can have other causes, Stevens warns: 'High oil consumption can also mean the engine air/oil separator is blocked or the diaphragm is split, which means a complete new cam cover is needed for the left-hand cylinder-head, and coolant leaks can be due to split plastic water pipes in the "valley" of the vee engine and water then gathers at the bottom of the valley.' If the Cayenne is a late pre-facelift vehicle it may have the factory modified alloy pipes, but if not, SVP and other specialists offer an alloy pipe upgrade.

The transmission, complex though it is, has not proved troublesome but, as with many modern cars, skipped oil changes can be seriously bad for the gearbox's health. 'Neglected transmission oil and filter changes can make the gearbox slow to shift,' Stevens tells us. 'Other signs of insufficient servicing are a jerking and banging from the gearbox when it's shifting, and this can be the Tiptronic valve block, which selects the gears, having failed, or even the gearbox internals having become worn, with the only cure for this being a

rebuild.' Similar symptoms can also indicate a worn or unbalanced prop shaft.

## SUSPENSION

Cayennes with the basic metal coil suspension are unlikely to be troublesome in this department, but Turbo models, with their standard air suspension – or S models which were optionally equipped with it – need to be checked out. 'Ensure that the different ride height settings are working, and that the car settles at the correct level,' Stevens advises. 'We've seen seized rear pressure relief valves on the suspension airbags, resulting in the rear end staying at the maximum ride height regardless of setting.'

Also look out for a non-functioning 4WD control selector (mounted on the centre console), and for hydraulic leaks from the suspension units. With luck, the fault may be due to a sticking valve, but there is always the prospect of the suspension compressor needing to be replaced. Front suspension ball joints and bushes will eventually wear, causing the steering and the front of the Porsche to feel vague.

## ELECTRICS

Each cylinder has its own ignition coil pack and, as on other Porsche engines, these have a tendency to deteriorate or fail, the signs being misfires or no engine action at all. They are not prohibitively expensive (about £30 each), and their replacement – even all six, or eight – can be seen as preventative maintenance. Starter motors are known to fail. More generally, make sure that no warning lights remain on once driving, remembering that this is an MOT failure.

## INTERIOR

The overall condition, and smell, of the interior can tell you a lot about how well the vehicle has been treated. 'Check that the seats and windows all work correctly, and bear in mind that sometimes the rear seat catches can stick', says Stevens. But the most crucial check of all concerns the

climate control. 'The heater must work correctly,' Stevens stresses. 'The heater flap boxes can fail, resulting in a loss of heating on one side of the car – and it's a big, dashboard-out job to replace them!'

Wet carpets are an ominous sign. 'This can mean that the water drains in the bulkhead are blocked,' Stevens points out. 'But if it's just the driver's side [on a right-hand drive vehicle] it is likely that the hose running via the A-pillar to the rear washer system has cracked and is leaking water.'

## BODYWORK

The Cayenne is well built, and even the early 955s should be free of corrosion. 'Any signs of rust could mean a poor quality crash repair,' Stevens warns. Few Cayennes will have been taken off road, but check for the telltale signs: branch scratches along the side, and damage to the vehicle's underside. The lighting system can be problematic. 'Check that the headlamps level, and adjust fully, because if not, the headlamp adjustment motors may have failed.'

## VERDICT

If you seek to combine the usefulness of an SUV and the driving manners of a sports car (up to a point), the Cayenne fits the bill perfectly, arguably the best of its type on-road. And early models are now very affordable, adding spectacular value for money into the equation.

But the big Porker is a complex machine, more so than its stablemate sports cars, and care is needed when purchasing, especially in the powertrain department, so always invest in a pre-purchase inspection. Find a good one – be it a V6, S or Turbo – and you'll enjoy it so much that you'll soon forget the dumpy looks! **PW**

## WHAT THE PRESS SAID

'Its mass and height rob it of the pin-sharp precision of a 911 or Boxster, but this thing handles far better than physics suggest it ought to. The Cayenne tackles corners with supreme confidence and a marked absence of body roll or any other unsettling behavior.'  
**911 & Porsche World, January 2003**

'The application of Porsche's engineering and development excellence to a new market sector has produced a car of staggering ability. So it seems strange that the Cayenne's biggest weakness should be something so simple: its styling. It simply isn't attractive enough.'  
**Autocar, March 2003**



## SPOTTED FOR SALE

**Private seller**  
2006/56 Cayenne S, silver, black leather, 112,500 miles, tow hitch, £7495, Buckinghamshire

**4x4 specialist**  
2004/04 Cayenne Turbo, dark green, green leather, 82,000 miles, side steps, exterior spare wheel carrier, £10,450, Chelmsford, Essex, [saxton4x4.co.uk](http://saxton4x4.co.uk)

**Prestige car specialist**  
2006/56 Cayenne V6, black, black leather, 35,000 miles, LPG conversion, £13,993, Hatfield, Hertfordshire, [gpcars.co.uk](http://gpcars.co.uk)

# CLASSIFIEDS

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Private sale, first registered 1/07, 33,300 miles, full service history, major service just completed including a full air con service, vehicle in excellent condition, additional original equipment: GT3 RS carbon fibre spoiler and engine cover, also carbon interior centre console and door trim, Sports Chrono pack, please ring for full details. Tel: 01795 876276. Email: [jt@westlands.kent.sch.uk](mailto:jt@westlands.kent.sch.uk) (Kent).  
**£66,500** P0316/046



**1991 C2 Cabrio LHD Tiptronic**  
Fantastic condition Slate Grey 964 with genuine Turbo tail and Ruf front bumper, new soft top, 12 months' MOT, recent recommissioning including new distributor, dampers, drop-links, brand new carpet set, sounds fantastic, G-pipe fitted, recent detailing completed showing truly amazing condition, 97,000km, refurbished wheels, new centres, tyres, battery, would consider p/ex. Tel: 07775 774911. Email: [afbrewer68@hotmail.com](mailto:afbrewer68@hotmail.com).  
**£25,250** P0316/047

## 911



**1983 911SC LHD**  
In totally mint rust free condition, time warp interior, drives like a new car, engine rebuild, perfect gearbox, underneath in factory new condition, worldwide delivery no problem, a proper collector's car, matching numbers, year's MOT, call for more info. Tel: (44)7908 588962. Email: [ciaran98@aol.com](mailto:ciaran98@aol.com) (N.Ireland).  
**£39,500** P0316/044



**911SC 3.2 1979 backdate**  
Rare Petrol Blue, bare shell overhaul (documented) and respray, upgraded and backdated, fitted 3.2 engine, many new and original parts including 7 and 8-inch Fuchs, Bilstein LSD, 915 gearbox overhauled, 930 spoiler, new Yokohama AD08 tyres, full stainless exhaust, brakes, clutch flywheels, RS door cards, and much more, light and quick, further information please call. Tel: 01883 370583. Email: [davidmdrury@virginmedia.com](mailto:davidmdrury@virginmedia.com) (Surrey).  
**£27,500** P0316/069

## 911



**1974 Porsche RS 3.0**  
Based on a 1974 911S, declared manufactured 1973, confirmed with official Porsche letter of authenticity and log book, bodywork was done by RS Autos in 1989 with steel wheel arches, lightweight front/rear bumpers, ducktail and lightweight interior with full roll cage at a cost of £10,000, mild restoration then performed by local Porsche specialist, Cartec in 2015, a testament to the original work the only bodywork needed was in the usual places ie sills, jacking points and kidney bowls, also new outer sill sections, sunroof was cut out and new roof section fitted, bodywork was then stripped, prepped and resprayed in Blood Orange at a total cost of £15,000. Additional work then carried out: 9x15 Fuchs with TB15 racing tyres, Plexiglas side windows, rollcage, Turbo track control arms, new lightweight carpets fitted, refurbished calipers, new Turbo discs and brake hoses. Opportunity to purchase car with or without engine, box and clutch (price includes them all), complete 911 3.2 engine (unfitted), fully rebuilt 915 gearbox with receipts (rebuilt 2015), new clutch (unfitted). Car is complete with a folder full of receipts, bills, history and letter of authenticity from Porsche, with prices only going up, this is a great investment opportunity, selling due to property investment, if the car doesn't sell it will be put in to storage and finished in the near future, no time wasters or silly offers. Tel: 07941 017815. Email: [mark1@hotmail.co.uk](mailto:mark1@hotmail.co.uk) (Wales).  
**£46,995** P0316/011



**1990 964 C4 FSH**  
Stunning 964 C4, 82K miles, manual, RHD, Guards Red with Linen leather/red piping, present owner 12 years, large history file/fully stamped service book, just serviced (Autostrasse) + full year's MOT (no advisories), for more info contact Lee. Tel: 07974 943427. Email: [964.lee@blueyonder.co.uk](mailto:964.lee@blueyonder.co.uk) (Essex).  
**£37,995** P0316/068

## 911



**1986 911 3.2 Carrera Cabriolet**  
11.04.1986, 'C161 DY0', one family owned from new, only 27,939 miles with comprehensive service history from new. A superb and highly original very low mileage car, never rusted, restored or crashed, largely all original paintwork and patina. Unrepeatable, this mileage, provenance and condition. Specification includes: finished in L700 Schwartz Black with black leather seats, black hood (new). 5 speed (915) manual gearbox (just been overhauled and new clutch/flywheel at Porsche Centre, Tewkesbury. Fuchs alloy wheels with polished rims, rear tail spoiler, central locking, electric seats, Blaupunkt Toronto radio cassette, fully functioning and updated air conditioning, 2 rear seats, black canvas hood cover, electric windows, totally unmarked and all original in front tub area, under bonnet I/D sticker, unused space saver wheel and tyre, original black carpets throughout, emergency windscreen kit, Porsche car wash bottle, jack and paint roll. Original and unopened touch up paint, original (still in the box) red security spare key, spare keys and logo leather fob. Porsche logo fitted interior soft cover, original and complete owner's manuals pack. Fully stamped up original service history book with 18 Porsche main dealer stamps, radio instructions, substantial history file and sundry documentation. Comprehensive MOT history with 23 previous MOT certificates and VOSA MOT history printout. Tel: 01452 731289. Email: [andyjerry@hotmail.co.uk](mailto:andyjerry@hotmail.co.uk) (Glos).  
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DEALER TALK:

# GMUND CARS

Andrew Mearns began in the motoring business selling car books, but it wasn't long before the lure of selling classic Porsches saw him setting up as a Porsche specialist



**How long have you been in the Porsche business?**  
I joined Porsche Club Great Britain in 1983 when I was 14, having just bought my first car, a 1964 Volkswagen Beetle, and I have been involved with Porsches ever since. Initially, I set up Gmund Books, dealing in all kinds of Porsche related memorabilia, before expanding into buying and selling cars in 1987 through Gmund Cars.

**What Porsches do you specialise in?**  
Mainly all air-cooled models. In the past, we dealt in collectors' Porsches and limited edition models, trying to stock rare cars that most other dealers found hard and slow to sell. But for the last five years or so, most Porsche specialists have wanted to stock the rare cars, so we now also restore and sell any period Porsche, especially from the 1970s and '80s.

**What's your cheapest, and most expensive Porsche presently in stock?**  
We have just sold a really nice Porsche 924 (we often stock these) for £3995. Considering that we fully serviced the car and sold it with a six-month warranty, it was a rewarding experience for us to sell someone



their first ever Porsche knowing it was a really good car. In terms of the top end of the market, we have a concours left-hand drive 1973 911 Carrera 2.7RS "Lightweight" for sale at £1.2m.

**What would you recommend as the best "first Porsche" to buy?**  
This obviously depends on a customer's budget, but any well looked after and original car is worth buying. Maybe a good 924S, or either of the 944 Turbos, and beyond that maybe a 911SC or Carrera 3.2.

**Where do you get your stock from?**  
We are lucky to be able to buy some of the cars back that we have sold over the years, and always encourage our customers to offer us their car first, if they ever want to sell. We also import many cars from abroad, so far this year we have imported from South Africa, Canada, Australia, Spain and Italy, to name a few sources.

**What warranty do you give, or sell?**  
We have worked for over 10 years now with a national warranty company that enables us to give a minimum of six months' comprehensive warranty with every car that we sell, whether it be a 1956 Porsche 356A, a 1970 Porsche 914/6 or a Porsche tractor.

**What's "hot" currently?**  
At the moment, customers are looking for originality, service history and period colours on cars, so "Impact Bumper" 911s seem to be in high demand (911 SC, Carrera 3.2 and 930 Turbo), and all 928s seems to be on the "up", as are the best 944 Turbos. There has been a high number of

new customers this year, who are looking at investing in classic Porsches, as a way of having some fun, not losing any money and having something tangible to have their savings/investment cash in.

**What's the best value at the moment?**  
Probably front-engined classic Porsches, the 924/944/968/928, but most Impact Bumper 911s are also undervalued right now – look at the price difference between a 1973 Porsche 911S (£200,000) and a 1974 Porsche 911S (£60,000)!

**Name a car that you recently sold, that you would happily have kept for yourself**  
A 1973 Porsche 911 RS 2.7

**What car do you drive every day?**  
For long distance and bad weather driving, I drive a manual 2004 Porsche Cayenne S I've had for 10 years and which has now done 128,000 miles (on the original clutch), and for local runs in decent weather I choose between a 924S, a 944, a classic VW pickup or a 1954 VW Beetle.

**What are your plans for the future?**  
To get better at what we do. In the last few years we have moved into doing full restorations, and this has taken time and investment to get right (and the right people involved). But in 2015 we completed some superb cars that we are all very proud of.

**Contact**  
Gmund Cars, Unit 14, Nidd Valley Business Park, Lingerfield, Knaresborough HG5 9JA. 01423 797989, [gmundcars.com](http://gmundcars.com)

HELPING YOU BUY YOUR PORSCHE THIS MONTH:

PAYING THE RIGHT PRICE

Staying with the classic theme running through these "Market Forces" pages, it's easy to determine the broad thrust of collector car prices, but it's now possible to get detailed analysis of historical prices – a big help when deciding what to offer for a car, particularly at the high end of the price scale. Kidston's K500.com, established a year ago, is a subscription service that follows the values of 500 individual models and also provides commentary on them. These include 29 Porsches, ranging from the relatively humble 912 (the 1965–69 four-cylinder 911) up to super collectables such as the 917 Le Mans race car, and selling prices are tracked and indexed back to 1994, although by managing editor Steve Wakefield's own admission there is more detailed price information on models such as the early 1970s 911 Carrera 2.7 RS than 993-series 911s, which in the past have been worth relatively little. Compared to 1994, when the index was 100, in late December it stood at 474.1, up from 437.6 one year ago.

The monthly subscription is £19.95, with annual membership £99.50. Besides giving access to current values, Kidston's K500 allows you to personalise the database. For example, once you input a chassis number, and that car is sold at auction again, you will receive an email giving the sale details including the price.



Based on past prices achieved, the information available should give you a good idea of what something is worth – but always remember that reviewing past selling prices is an awful lot easier than predicting what they'll do in the future! For subscription details, go to [www.500.com](http://www.500.com)

BUYING TIP OF THE MONTH CLASSIC CAR PRE-PURCHASE INSPECTIONS

Arranging an independent inspection of a car before handing over the money always makes sense. When it comes to a classic car, that really does become essential, because highly polished paintwork frequently conceals serious rust and mechanical problems, probably more so on Porsches than on many other cars. But the average car inspection won't do – you must engage a proper specialist for this job, someone who spends half the day looking at Porsches and the other half writing up the results for customers. Apart from revealing expensive problems (this knowledge can obviously be used to negotiate a price reduction), a seasoned Porsche inspector may be well able to reveal crucial history on the car, having examined it before, perhaps even on various occasions when it has changed hands. It's also a good idea to bone up on the car you're considering by obtaining one of the numerous buyer's guides published – seen here is Velocé's one for the 944. Various specialist Porsche inspections are available, but one long standing operator that springs to mind is Peter Morgan Consulting, Wiltshire-based Morgan in fact a former contributor to *911&PW*. His charge for a full mechanical, interior and paperwork inspection is typically £395£425, or about the price of a full service at a Porsche specialist. Can you afford not to pay that when taking on a classic Porsche, especially when you are adding to the provenance of the car, for when you come to sell it?



# CLASSIFIEDS

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911

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2002 Turbo-bodied Carrera 4S 996, 46,000 miles with FPSH (main dealer and specialist), 3.6 Tiptronic coupe in pearl Midnight Blue with stunning, contrasting, full Savannah extended leather to the doors, seats and dash with matching suede roof, it has just received (on 30/12/15) a brand new Porsche-supplied short engine at a cost of £9365, which comes with a full 2 year warranty - too much to mention, contact me for full details of all work carried out, I can assure you no corners have been cut, underused 911s can have issues too as I have found out to my cost, however this now offers total peace of mind with no nasty hidden surprises. This is a really high specified and pampered 911 with receipts available totalling over £23,000, not including the engine work just spent, the photographs (see 911&PW website) do not do it justice. 3 previous owners, the last for 8 years, electric heated memory seats, Bose, sat nav, multi-CD, telephone, factory white dials, rare full factory burr walnut pack (including steering wheel), recent new brakes/discs all round, electric sunroof, air con, cruise, Litronics, factory overmats, rear wiper and 18-inch alloys which have been fully refurbished and are unmarked, it comes with the full complement of keys, manuals etc and is HPI clear. Drives as a proper 911 should: this is the real thing with arguably the best looking rear of any wide-bodied model, not many around with this provenance and prices are on the up, not the cheapest, but must be one of the best. Tel: 07563 908217. crgmtchl@sky.com (Fife).  
**£23,995**

P0316/023

911



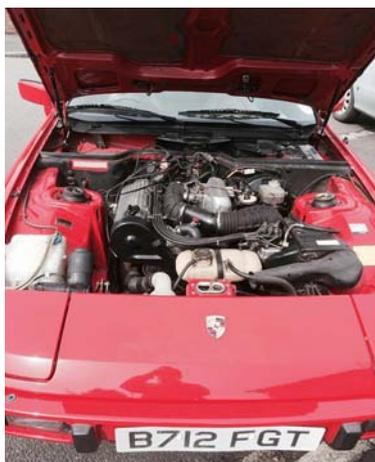
**1983 911SC LHD**

In totally mint rust free condition, leather interior like brand new, air conditioning, 85K miles with full history, fresh engine rebuild, gearbox 100%, year's MOT, new tyres, drives like a dream and not one single fault, stunning throughout, matching numbers, worldwide delivery no problem, call me. Tel: (44)7908 588962. Email: ciaran98@aol.com (N.Ireland).  
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P0316/048

924

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**Porsche 924 auto 1985**

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**£1750**

P0316/002

944

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**1986 2.5 8V 944 FPSH**

Genuine 95K 1986 944 Lux, 5 speed manual, 15" teledial alloys, full Porsche main dealer service history, rare big bolster electric seats in excellent condition, needs respray and recommissioning, comes with private plate, more photos on request. Tel: 0121 533 1965. Email: bsj79@hotmail.com (Birmingham).  
**£2250**

P0316/010

944



**1986 944 Coupe**

Bodywork generally in good condition, and original, good oil pressure, the underneath of the car is very clean, it has been off the road standing in the garage due to health problems, will require MOT and tax. Tel: 01432 265788. Email: deanfrancis1971@hotmail.com.  
**£2000**

P0316/049

**944S2 with full service history**

K-reg, 1992, last production model, 152K miles, manual, metallic Cobalt Blue with blue half leather/Porsche logo Sport seats/interior, e/w, e/sunroof, e/s, e/m, Kenwood CD/MP3 radio player, 16" D90 alloys, rear bridge spoiler, PAS, ABS, c/locking with alarm immobiliser, full Porsche documented service history with bills/maintenance work invoice costing over £19K, old MOTs, full book pack, 3 keys. Tel: 07580 454645. Email: kamgills@hotmail.com (Leeds).  
**£6995**

P0316/026

**BOXSTER**



**1986 Boxster 3.2S**

Jan 2004, 69,000 miles, Speed Yellow, full Aerokit, full leather interior, crested bucket seats GT3 type, M030 suspension, 18-in Carrera wheels, Bose + CD changer, full service history inc fluid changes, 2 owners from new, 2 keys + transponders, original paperwork, recent work, 6 coil packs, air con rads, water pump, rear track control arms, recent bore inspection OK. WHY? GTS on order. Tel: 07887 545187. Email: andrew.colledge@esbi.ie (Derbyshire).  
**£11,000**

P0316/018

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AUCTION/SHOWROOM/CLASSIFIED

# MARKET WATCH

A sure way to turbo charge the value of any classic Porsche is the addition of a famous owner in the log book. Steve McQueen is a dead cert and more recently Janis Joplin



Legendary singer, Janis Joplin's Porsche 356 – complete with psychedelic paint job – made a staggering £1,173,400 at auction shortly before Christmas

Until recently, the catalogues of international classic car auctions contained Porsches, and Porsches that had once belonged to Steve McQueen. Registration papers containing the name of the petrolhead movie star, who died aged 50 in 1980, would add an extra zero on the price achieved – take for example the 1969 911T that he owned and also drove in 1971's Le Mans, which sold in 2011 for nearly \$1.4m (about £880,000 at the time) at Pebble Beach in California. At the same event in 2015, the last Porsche that McQueen ever bought, a 1976 special order 911 Turbo, fetched \$1,950,000 (£1.3m), and such was his pulling power that it need not even be the real thing, footballer David Beckham paying £70,000 for a replica of the above 911T in 2013.

Well, now there's a new deceased star on the block, Janis Joplin. When RM Sotheby's included her 1964 356C SC Cabriolet in its New York sale in December, the psychedelically painted Porsche was expected to make \$400,000–\$600,000 (£267,000–£400,000) but after

the bidding ran away it made a staggering \$1,760,000 (£1,173,400). 'The car had so much pre-sale publicity, and it was the first time out of the Joplin family, and the Joplin family endorsed the event,' RM Sotheby's spokesman, Peter Haynes explained, 'but nobody here expected it to make that much.'

The feisty singer, who notched up hits such as Piece Of My Heart, Summertime, and of course Mercedes-Benz, died of a drugs overdose in October 1970. The originally grey coloured 356, which she purchased in 1968 for \$3500, was painted by one of her band's roadies, Dave Richards, and she was often to be seen driving it in San Francisco in the late 1960s. It was even stolen at one point. Many photos exist of her with it, which some believe helped increase its value.

However, following her death the car was returned to her family, who had it re-sprayed in its original grey. The present livery dates from the 1990s, when its iconic status was becoming obvious and the 1960s "History of the Universe" paint scheme duplicated, so there have been murmurings over originality.

The enormous price paid

for an otherwise unexceptional classic car appears to suggest that where Porsche are concerned, a legend in the logbook has a combustible effect on values not seen with other marques. Three years ago, for example, Paul McCartney's Aston Martin – in which the Beatle bassist was said to have written Hey Jude – made a relatively paltry £344,400, and in 2013 the Mercedes-Benz estate car that John Lennon owned in New York when murdered in 1980 couldn't even raise a \$50,000 starting bid on eBay.

It used to be only Porsche works race cars that sold for megabucks, so why has the celebrity factor assumed such importance? 'Celebrity provenance and its effect on classic car values is a complex issue,' says Haynes. 'When a given celebrity is dead, the effect is considerably stronger – and if they died young and at their zenith, the effect is stronger still. However, the subjectivity of "cool" where the celebrity is concerned is the key component – and Steve McQueen occupies a place all of his own in this regard.'

'But the car marque matters, too,' he continues. 'Porsches are just great cars and hugely desirable in their own right, in a way that a Buick, a Fiat or even a Rolls-Royce, isn't. Would an ex-Joplin Rolls make the same money? Probably not.'

The Joplin 356C, the last incarnation of the 356 before it gave way to the 911, was sold at the New York – Driven by Disruption sale on December 10th, where the going rate for a top 911 Carrera 2.7 RS was illustrated. A "matching numbers" Touring model (slightly less sought after than the stripped out Sport, or "Lightweight") that had spent

time in Japan but was later exported to the US and restored to a level enabling it to win a best of show award in the US sold for \$918,500 (£610,900).

The same sale provided more evidence of just how hot 930-series Turbos have become recently, with an early, 1975 3.0-litre example, again delivered in Japan, selling for \$330,000 (£219,500), up until not so long ago the price of a good 911 Carrera 2.7 RS. It had been extensively restored in Canada, although with 130,000km was not the usual little used vehicle that tends to make the headline prices.

Prior to the New York sale, Silverstone Auctions had staged an auction at the Classic Motor Show at the National Exhibition Centre in Birmingham in November, and while a less exclusive and showy affair than in New York, more Porsches were fielded, and were slightly more affordable. A one-owner, 1988 911 Turbo with 30,856 miles from new made £112,500, but putting that in the shade was the 1973 911S 2.4 Targa which sold for £140,625, and that was close to the low end of its pre-sale estimate.

It wasn't so long ago that early "mainstream" 1970s pre-impact bumper 911s, and especially the Targa, with its roof issues to take on, barely registered on the classic car radar, but now it seems we can't get enough of them. Other early 911s made less, but on the evidence of this sale you'll now need not far short of £50,000 to get something that isn't a rolling project.

The various RS versions of the 1989–93 964-series 911 went gold some years ago, but now even the regular versions are vanishing from

the realistic shopping lists of the normally remunerated, as illustrated by the merely average 1990 Carrera 4 that made £43,875 at the NEC sale. That was almost £9000 over its top pre-sale estimate, and it can be assumed that its 22,000 miles and one family ownership until last year helped the bidding.

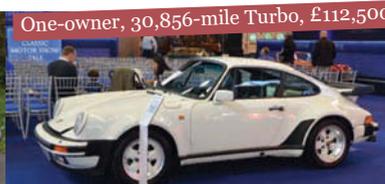
At the "everyman" end of the classic – or "young classic" – Porsche market, there is more evidence that the models we thought of as cheap and always available can no longer be taken for granted. In a previous, dedicated Porsche sale, Silverstone Auctions had hammered down a late 944 S2 Cabriolet for an astonishing £27,560, and in this most recent auction it found £18,000 for a 1990 example of the same car in red, with nearly five times the mileage at 87,000. Another notable young classic price was the £26,320 (right at the top of its estimate) achieved for a 1986 Porsche 928 S2 at the Historics at Brooklands sale in late November.

For the past year or two it might have seemed that the classic Porsche market is in danger of overheating in the way it did it in 1988 and 1989. But perhaps not so, as there have been a few notable "unsolds" recently. For example at the above mentioned Historics sale, a 1989 911 Speedster with a £140,000–£170,000 estimate failed to find a new home, as did a 1988 911 Turbo SE "Flatnose" (£68,000–£78,000) and a 1988 911 Turbo Cabriolet (£65,000–£78,000). Perhaps enough of the bidders out there are old enough to remember what happened when the last classic car bubble burst in 1990. **PW**

'73 RS Touring good value at £610,000



2.4S Targa low at £140,625



One-owner, 30,856-mile Turbo, £112,500



1986 928 S2 at £26,320 is top dollar

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**£7250** P0316/053

## REGISTRATIONS

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**£9950** P0316/012

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**£4500** P0316/013

### LES 190

**'LES 190'** registration for sale  
Until recently on my 964 but have now decided to sell the registration, on retention certificate until 3/2/2017, no VAT or other charges to pay, telephone with offers. Tel: 07425 153194. Email: lezdawes@gmail.com.  
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**£2995** P0316/056

### XXX 911X

**'XXX 911 X'**  
On certificate, ready for immediate transfer, Porsche number plate 'XXX 911 X'. Tel: 07713 469911. Email: msdriscoll@gmx.de.  
**£6000** P0316/050



**'JAZ 4911'**  
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**£2500** P0316/001

### GT03 DKT

**'GT03 DKT'**  
On retention. Tel: 07711 713479. Email: bschalmers@hotmail.com.  
**£350** P0316/051

### S2 BADY

**'S2 BADY'**  
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**£1200 ono** P0316/060



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## REGISTRATIONS



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This number plate is A1 for anyone named Andrew, Andre, Andrea or Andy, absolute bargain buy and will continue to rise in value. Imagine this on your motor, get in touch if you want it, it is on a retention certificate so a very simple operation, send me a message now. Tel: 07779 767605. Email: rugbysky@rocketmail.com.  
**£1950** P0316/058



**'T911 POR'**  
Registration on retention and ready for sale, ideal for Turbo 911 Porsche. Tel: 07789 883707. Email: stuarttrueman@hotmail.com.  
**£5500** P0316/054

### 911 EX

**'911 EX'** registration plate for sale  
On retention certificate until October 2025, assignment fee already paid, no commercial sellers please. Email: stephen@percivaldrake.co.uk.  
**£6950** P0316/029

### W22 RED

**'W22 RED'**  
On certificate, ready for immediate transfer, 'W22 RED', ideal for anyone with RED initials or football fans! Tel: 07713 469911. Email: msdriscoll@gmx.de.  
**£1000** P0316/052



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Cherished number plate for sale, on retention for easy transfer, 'P 9 HKJ' can easily read 'P911 KJ', will supply two sets of plates with above configurations, no VAT or other charges to pay, open to sensible offers, please leave a message if no reply, selling as I have now bought an older Porsche that this plate cannot be used on. Tel: 07967 355780. Email: kjackson6205@sky.com.  
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### Porsche 944/911 steering wheel in blue

Blue leather 4 spoke steering wheel, genuine Porsche original factory with complete push horn, very rare in blue leather/colour, removed from my Porsche 944S2 1992 last and later model car, only removed due to upgrade to Club Sport steering wheel, selling because I have sold the car, in excellent condition, for further enquiries please call me. Tel: 07424 734139. Email: petersinghs@hotmail.com (Leeds). **£150** P0316/019

## PARTS



### Porsche 944 gear knob and gaiter in blue

5 speed gear shift, removed from my Porsche 944S2 1992 last and later model car, genuine Porsche original factory complete with gaiter, very rare in blue leather/colour, selling because I have sold the car, in excellent used condition, for further enquiries please call me. Tel: 07424 734139. Email: petersinghs@hotmail.com (Leeds). **£80** P0316/020

### Porsche 911 engine lid

911 engine lid off my own 1984 911, very good condition, comes with engine air vent installed, has chips around lips of lid so respray needed, also has two holes either side top of lid as had brake light spoiler fitted and now removed hence holes, please email me for photos. Email: sagitint@yahoo.co.uk (Horley/Gatwick). **£500** P0316/024



### Great stereo for 911

Stereo taken from my 911 Carrera, 6 disc radio cassette with remote control, special speakers for parcel tray which are £300 to buy, brilliant sound. Tel: 07872 490760. Email: jimmydawson20032001@yahoo.com. **£200** P0316/008

## PARTS



### 911 SC Porsche rear reflector panel

1997-83, used condition. Tel: 01903 694550. Email: gary911sussex@btinternet.com (West Sussex). **£95** P0316/009



### Boxster hard top for sale

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### Porsche 911 996 1999 front wings black

Wing front Porsche 986 / 996 (ref. 99650303101GRV / 99650303204GRV), wing front 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 (Glasgow). **£100** P0316/025

### 1974 Carrera parts

Two Fuchs wheels 7x15 OEM, £700; two Fuchs wheels 7x15 reps, £150; short bonnet white, £100; SSI exhaust system small patch in heat shield required, £100; washer bottle, £30; RSR l/weight engine mount cross member, £75; starter motor used, £25; torsion bar end caps new, £30; steering wheel original, £300. Tel: 07900 780250. Email: rob.packham@live.com (Oxon). **£2000** P0316/027



### Porsche 912 engine

1966 engine, will need rebuilding, selling as a non-running engine. Tel: +44 1544 267228. Email: simonjohnston2012@hotmail.com (Powys). **£2000** P0316/061

## PARTS



### Headlight units for Porsche 968

2pcs headlight units for 968 for UK left side traffic driving, items are used but 1st class condition, no marks or scratches on lens glass, taken from a 968 just imported from UK to Sweden, price for the pair. Tel: +46 706 405405. Email: magnus@automotion.se (Sweden). **£250** P0316/016

### 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). **£250** P0316/032

### 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). **£200** P0316/037

### Blaupunkt Berlin 8000 radio cassette

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** P0316/038

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## TRIED &amp; TESTED

With 911 &amp; Porsche World's consultant editor, Chris Horton

911S 1976/'P' 140,970 MILES £42,950

**T**o most of us, I would suggest, the term '911S' has generally come to signify the range of Porsches built from 1966 to 1973, in each case – as was always implicit in that nomenclature – with slightly more powerful engines (2.0, 2.2 and finally 2.4 litres) than the run-of-the-mill models of the same capacity. But from 1973 to 1976 – for the 1974 to 1977 model years – there was additionally a so-called impact-bumper 911S. It was powered by essentially the same 2687cc engine as both the iconic Carrera 2.7 RS and the mainstream Carrera 2.7 of the period, but instead of those two cars' Kugelfischer mechanical fuel injection had an early version of Bosch's K-Jetronic system. It was succeeded by the 911 Carrera 3.0.

And this so-called matching-numbers car is one of them. Assembled in November 1975, it was imported from Colorado, USA, in late 2012 by Angus Watt, proprietor of Greatworth Classics in north Oxfordshire – presumably always for sale eventually, but in the meantime for renovation more as a personal project. To which end, in early 2015, and just in time for a road-trip to the famous Essen show, it has undergone a high-quality, windows-out repaint in the original – and very pleasing – Arrow Blue (all of the work, fully documented in photographs, was done in Greatworth's own paintshop), and a partial retrim. That brought both a new headlining, and seats retrimmed in replica (if not quite period-correct) 'houndstooth' fabric by Garry Hall of Classic F/X in Surrey, plus new carpets for the cabin and luggage compartment.

Mechanically, too, the car has benefited from a fair amount of focused overhaul work – as you might reasonably expect at the mileage. The engine was freshened up with new piston rings and cylinder-head studs, and a gearbox rebuild and a new clutch between them provide one of the best 915 transmissions this writer has ever driven. The original heat-exchangers were replaced with stainless-steel SSIs, and the fuel system given a new accumulator and warm-up valve. All of the other 'emissions' equipment was removed, says Watt, as was the air-conditioning system – although the cruise-control remains, he adds, for anyone brave enough to see if it still works. The suspension was given a full geometry check and fitted with new rear dampers, and new rear brake discs and



pads were installed. Also fitted were a new Bosch battery, and the correct left-dipping headlamps for use here in Great Britain. Wheels – shown on the Porsche Cars GB Certificate of Authenticity as 'optional alloy' rims – are currently 16-inch Fuchs five-spokes, but Angus will sell it with those, or 15-inch 'cookie-cutters', or brand-new Fuchs replicas as the buyer chooses, and in all cases with four brand-new tyres. And the icing on the cake, as it were, is a new Blaupunkt Casablanca radio/iPod player with built-in speakers. 'The door cards are so good,' says Angus, 'that I wanted to avoid fitting speakers in them if possible.'

The result is a car that, while by no means perfect (and thereby devoid of any genuine character) is remarkably uplifting and enjoyable to drive, to be in, and simply to look at, especially on a cold and grey day in early January. The paint, by and large, is flawless, and the underside, too, is as clean as a whistle. Some of the trim is a bit dowdy – steering wheel and fascia top, for instance – and there are a couple of places where the rear windscreen rubber could fit a little more neatly, but the proverbial blind man would be very happy to see it all. It offers a great drive, too. The engine seems to 'shunt' a little at around 2500rpm – endemic to some of these CIS cars, reckons Angus – but it pulls strongly and sounds wonderful, and the ride, handling, steering and not least brakes have no immediately discernible weaknesses, either. It works for me! **PW**



What's not to like about an air-cooled Porsche 911 that, even in a setting as bleak as England in early January, looks as pretty as this? US-market 911S was built in late 1975, and brought to the UK in 2012, for a focused renovation rather than a full rebuild – although the amount of work carried out, all documented in photographs, has in some ways produced a car as good as new.

Transmission, for instance, is one of the best 915s that Horton has tried, and the refreshed engine pulls very strongly. The headlights have been converted to correct left-dipping units for UK use, and their ugly US-style bezels changed for the slimmer and much better-looking European versions. Shame about the white-on-black number plates, which in theory are incorrect for a car of this age and certainly don't look 'right' – and that front one doesn't look entirely level to us... But if that's all you can find to 'complain' about in a 40-year-old car (and how hard will the plates be to change?) then the chances are it's a very good one! We also like Angus Watt's ingenious plan to fit a thoroughly modern Blaupunkt combined radio/iPod player with built-in speakers to avoid having to cut the virgin door cards. Car will come with a full year's MOT

## CHECKLIST

## BACKGROUND

A US-market impact-bumper 911S, built in November 1975, and so a 1976-model car (with essentially the same 2.7-litre engine as the Carrera RS, albeit with K-Jetronic fuel injection to the RS's Kugelfischer system). Brought to the UK by Greatworth Classics during 2012, and subsequently given a repaint, a more or less full retrim, and a mechanical overhaul as necessary. Back on the road in early 2015, and since then periodically used and enjoyed – and further refined – by Greatworth proprietor Angus Watt

## WHERE IS IT?

Greatworth Classics, which specialises in air-cooled 911s and 914s, is based in large and fully equipped premises near Banbury in Oxfordshire, and in which it carries out just about all aspects of restoration and overhaul, apart from interior trimming. Contact Angus Watt on 01295 812002 or 812266, or else go to [www.greatworthclassics.co.uk](http://www.greatworthclassics.co.uk)

## FOR

All the usual factors: condition (both structural and cosmetic; mechanical, too), colour, specification – and not least the fact that it's a classic impact-bumper 911. Has had a considerable number of new parts fitted, one way or the other (see main text), and as a result both looks great and drives beautifully, while still retaining its essential period charm

## AGAINST

The interior is showing its age in certain areas (nothing that couldn't be attended to as time and funds allow, though), and the rear windscreen rubber doesn't fit as well as it might. Drivetrain 'shunt' takes the edge off an otherwise exemplary ride – but again that is surely fixable

## VERDICT

Not quite the most charismatic of air-cooled 911s, but very nice none the less – and hardly likely to do anything but continue to appreciate if looked after

## VALUE AT A GLANCE

Condition	●●●●●●●●
Price	●●●●●●●●
Performance	●●●●●●●●
Overall	●●●●●●●●

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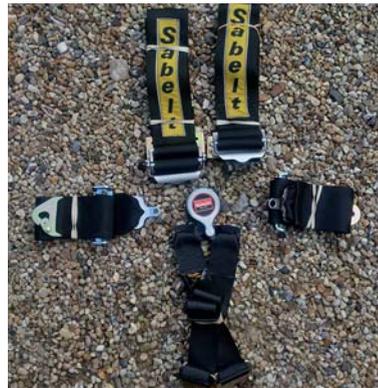
## MISCELLANEOUS

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P0316/022

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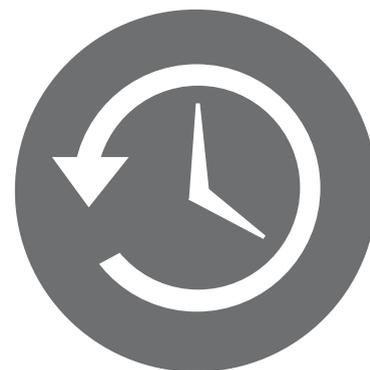
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## TIME MACHINE

A nostalgic look back at *911* & *Porsche World* from days gone by



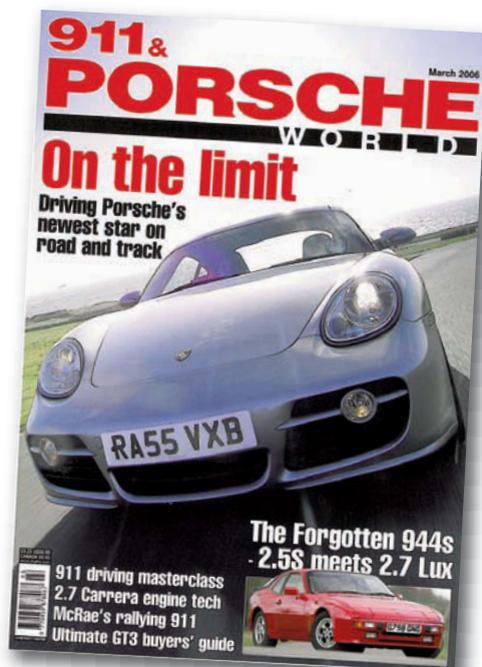
### MARCH 2006 (ISSUE 144)

**C**an it really be 10 years ago that we took a Cayman for its first UK drive? Can the Cayman really be 10 years old? No, it's actually 11 years since Porsche put a roof on the Boxster. Launched in late 1995, we had to wait a little while for cars to hit the Porsche GB press fleet, hence a January trip to the roads of Wales and a blast around the track at Anglesey to really put the Cayman through its paces. As we said at the time: "Forget how fast a Cayman can get round the 'Ring with Walter Röhrl at the wheel. What counts here in the real world is how quickly it will get from Llanddoged to Bryn-y-maen on the B5113. The answer to that is pretty bloody quickly."

The Cayman was, and is, a stroke of predictable genius. Predictable in that it was the obvious Boxster upgrade and genius because, at a stroke, it turned a soft-top, with all the associated baggage that comes with wind in the hair motoring, into a focussed, slightly hardcore enthusiast's Porsche. The best thing, though, was the amount of folk at the time who asked when the cabriolet version was coming. Doh!

Elsewhere in this issue we decided to take a proper, analytical look at the driving dynamics of the 911 and examine just how to get the best from the rear-engined design. Snappily entitled 'How to drive your 911 properly' we enlisted driving guru, Mark Hales, to really unlock the secrets of the 911's chassis. It was a series that ran and ran as he looked at 911s of all generations, before moving onto the front-engined and than mid-engined cars. Maybe it's time for a revisit?

Talking of front-engined cars we gathered two of the



more rarefied 944s for a showdown. Nothing exotic, just a humble 2.7 Lux and the 2.5 944S, the first 16-valve 944. Neither were in production for long, the 2.7 being the last of the 8-valve line and the 944S the rather ill-fated first stab at getting more poke from the 944's 2.5-litre bottom end. The 2.7 Lux proved to be the more satisfying of the duo, while the 944S lived up to its reputation for being all revs and no trousers.

At the back of the mag there were bargains aplenty, none more so than the glut of £12-£15k 964s.

### MARCH 2013 (ISSUE 228)

**T**he 996 hits back was our screaming coverline for the March 2013 issue. We've long been advocates of the 996, but we do get it in the neck periodically for having a bit of a 996 downer, largely because of our stance on 996 engine issues (and 997 for that matter). We were the first Porsche mag to tackle the issue head on, and the first to run a 996 with Autofarm's Silsleeve engine. Far from having a 'downer' on the M96 engine, we merely adopt a 'protect and survive' stance to the issue.

Anyway, the 996 C4S and 996 Anniversary model test was, we can reveal now, a means of getting back into the good books of all those 996 owners we had upset, plus a reminder of the 996's numerous plus points, particularly for those thinking of taking the plunge. Three years on and the *911* & *PW* fleet contains three 996s, so we at least practice what we preach.

Elsewhere the intrepid duo of Tipler and Fraser headed out to Germany to drive PS Automobile's slate grey 911 ST replica. It snowed big time, but fair play to PS's Dirk Sadlowski, he let them take the pristine machine out in the less than ideal conditions.

Talking of photographer Fraser, his 996 GT3 was introduced to race legend Jan Lammers, who promptly took it for a few high-speed laps of the equally legendary Zandvoort circuit. Now that's something that doesn't happen every day.

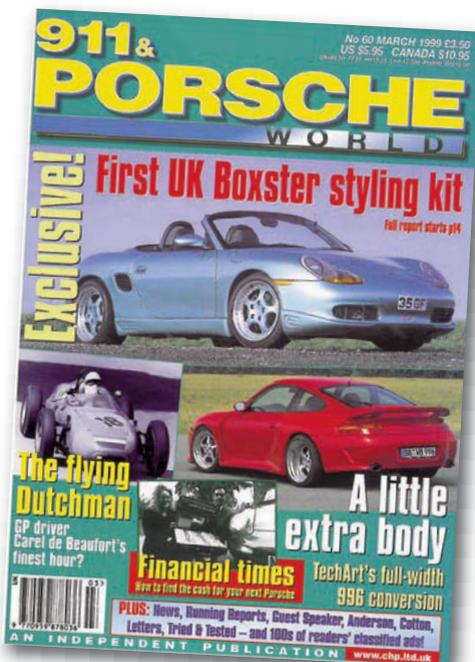
Back in the classifieds and, just three years ago, a 'stunning' G50 Carrera 3.2 was still only £14,995!

### MARCH 1999 (ISSUE 60)

**D**esign trends come and go and the trend for *911* & *PW* in the mid to late '90s was definitely to display the majority of the magazine's content on the front cover for all to see, while perusing the shelves of WHSmith. Thus we learnt, without even delving inside, that the March 1999 issue was packed with hearty, wholesome Porsche stuff including a new Boxster styling kit, TechArt's new widebody kit for the 996, obscure Dutch GP driver, Carel de Beaufort's finest hour (not enough room here to explain that one), and the various different options for financing your dream Porsche.

Fair to say, then, that the defining trend was body styling and, as ever, what worked back then doesn't always translate nearly 20-years on, although the colour of that Boxster doesn't help.

Flicking through the ads is always something of an eye-opener as to the prevailing trends. Witness Paragon's full page ad. Two 964s, one a Targa with 18,000 miles, the other an RS with 68,000 miles. Both priced at £34,995. Regardless of mileage, that demonstrates just how much the RS badge meant!



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Academy Insurance	126	Eporsch	119	Pelican Parts	15	Strasse	5, 119
Addspeed Performance Cars	28	EPS/Vertex Auto	85	PMO	104	STR of Norwich	114
Augment Automotive	104	Euro Cup GT (Porscheshop)	80	Porsche Club of GB	98	TechArt / Tech9	148
Autofarm	60	Evans Cooling Systems UK	125	Porscheshop	9	The Wheel Restorer	104
Auto Umbau Porsche	105	FVD	2	Porsche Torque	110	Tipec	126
Braunton Garage	28	Gantspeed Engineering	60	Portiacraft	118	TuneRS Motorsports	91
Brey Krause Manufacturing	4	Greatworth Classics	110	Professional Valeters & Detailers	126	TWG Motorsport	119
Cannonball Run Europe	39	GT-Racing	32	Promax Motorsport	119	Twinspark Racing	40
Car Bone	110	Hartech Automotive	90	Quickfit Safety Belt Service	110	Van Zweeden	29
Cargraphic/Parr Garage	147	Hendon Way Motors	75	Ramus Porscha	28	Yorkshire Classic Porsche	118
Carole Nash Insurance	128	Hillcrest Specialist Cars	114	Rennline	21	Zims Autotechnik	115
Carrera Engineering & Motorsport	126	HP Motorsport	114	Restoration Design	41		
Cavendish Porsche	32	Jasmine Porschalink	8	RGA	50		
Chris Turner	122	JAZ Porsche	81	RPM Specialist Cars of Harrogate	70		
Classic Additions	105	LA Dismantler	50	RS 911	118		
Classicline Insurance	128	LN Engineering/Fast Forward		RSJ Sportscars	8	CLASSIFIEDS	
Clewett Engineering	118	Automotive	90	RSR Nürburg	17	Car Cover Shop	
Club Autosport	104	Maundrell & Co	71	Ruf Automobile	13	Car Inspections	
D9 Autotech	119	Mayfair Performance Insurance	141	SCS Porsche	114	Carnoisieur	
Dansk (Design 911)	51	Nine Excellence	32	Selection RS	27	CMS Porsche	
Design 911	23, 118	Ninemeister	4	Smart Flockers	35	DSD Motorwerks	
Design 911 (CSF)	111	No5 Garage	114	Specialist Cars of Malton	80	Karmann Konnection	
Douglas Valley Breakers	105	Northway	40	Specialised Covers	70	Prestige & Performance Cars	
Elephant Racing	49	Ohlins (Design 911)	45	Sportwagen Eckert	33	Roger Bray Restoration	
Elite Garages	25	Paragon GB	61	Steve Bull Specialist Cars	122	Williams Crawford	
Elite Motor Tune	70	Patrick Motorsports	122	Stoddard Parts	34, 35		

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