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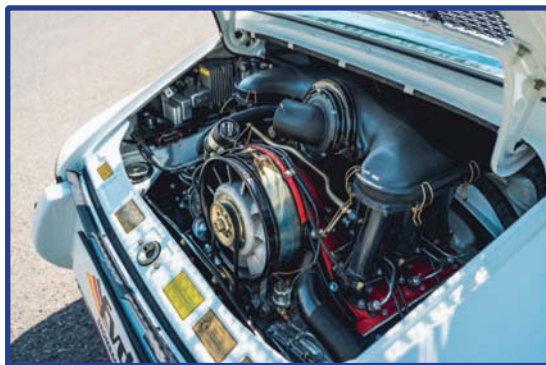
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SECRETS OF THE NEW 911
Bigger, lighter, faster: new 992 is much more than a 991 makeover

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UP FRONT

Ruf's new Yellowbird, Porsche's new 992, engine upgrades from Hartech, just to skim the surface of this issue

The world that is Porsche is as wide as it is long, you've only got to look at the front cover of this issue to see that. Ruf's carbon tubbed, carbon bodied Yellowbird CTR-4 stretches the definition of Porsche to its very limits. Is it a Porsche at all? Well, given that Ruf is classified as a manufacturer in its own right in Germany, it perhaps doesn't really matter, but I would describe it as a Porsche in shape and mechanical layout only, so radical is it under the skin, despite its retro looks.

The Porsche 992 model 911 is the real factory deal. We've got the Porsche approved and sanctioned 'ride' story in this issue. It's certainly rather more than a 991 update, but we'll reserve full judgement until we

“ I would say it's a Porsche in shape and mechanical layout only ”

get behind the wheel very soon. One thing, though: it's bloomin' huge!

Much more my cup of tea and worthy of a coverline are the new big capacity engines from Hartech. Hartech rebuild 150 M96/M97, flat-six, water-cooled engines a year and figure that, as well as getting a fresh engine, owners might well like something bigger and more powerful, too, for not a lot extra in terms of cost. Enter, then, Hartech's 3.7-litre and 3.9-litre engines and Barry Hart's theory of power from torque, rather than the usual obsession with power from revs. And goodness, do they work. My own 996 would certainly benefit, although I'm not wishing an engine rebuild on it any time soon. However, driving Hartech's modded 996s (and Cayman) did inspire me to at least get the battery charger on it, and book it in for extensive/expensive bodywork repairs. So thanks for that, I think.

STEVE BENNETT
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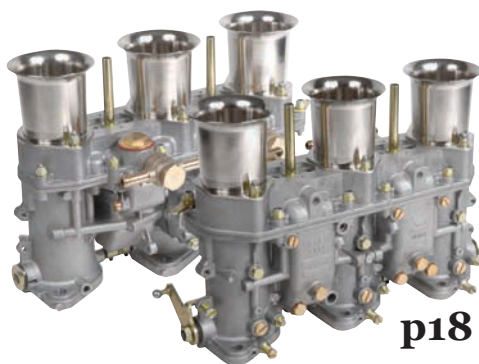
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ALL THE PORSCHE NEWS AND VIEWS

NEWS

Porsche recreates Moby Dick for 70th Birthday *
Cayman GT4 speculation * New Speedster confirmed
* Diesel dumped * Rare RHD DP Motorsport 935 at
auction * Record crowd at Laguna Seca Rennsport



PORSCHE'S 'MOBY DICK' IS REBORN

Rebodied 911 GT2 RS makes for the ultimate track day toy

Do not adjust your spectacles. Your eyes do not deceive you. What you're looking at is indeed a fusion of the legendary 935/78, the 1978-season racer also known as Moby Dick, with modern 911 underpinnings. In fact, it's essentially the mighty Type-991.2 GT2 RS road car in a period frock and with a few additional competition-racing frills. This isn't, truly, a racing car. More on that in a moment.

The new car, known simply as the Porsche 935, was unveiled by Porsche for the recent Rennsport Reunion event at

Laguna Seca in California. It makes a spectacular final flourish for Porsche's 70-year anniversary celebrations while also tying in with the original race car's 40th birthday. It will be produced by Porsche in a limited run of just 77 units, each one commanding a mere 701,948 euros, plus whatever local taxes apply. In the UK that makes for a grand total of around £750,000 including VAT.

So what, exactly, has gone into this modern day 935? Most of the road-going GT2 RS's body has been replaced or

supplemented by carbon-fibre composite parts. With its streamlined extended rear, the 935 measures 4.87 metres, while the total width comes in at 2.03 metres. For the record, the GT2 RS measures 4.55 metres long and 1.88 metres wide.

Power comes from what is an essentially untouched GT2 RS twin-turbo flat six and thus cranks out 700 metric horsepower at 7000rpm from 3.8-litres of displacement. Porsche isn't quoting a torque figure for the 935, but that too will likely clock in around the 550lb ft figure of

Over 70 years, the back catalogue has been kind to Porsche, with plenty of iconic machines to replicate. When it came to a present for itself, Porsche chose to build a modern day example of the legendary 935/79, AKA Moby Dick



the GT2 RS road car. As per the GT2 RS, again, we're talking PDK-only in terms of transmission options and power exclusively to the rear wheels. Six-piston aluminium monobloc racing calipers on the front axle in combination with internally ventilated and grooved steel brake discs with a 380-millimetre diameter provide excellent deceleration values at the front axle. The rear axle is fitted with four-piston calipers and 355-millimetre discs.

Just like the road-legal 911 GT2 RS, the 1380-kilogram 935 is equipped with PSM (Porsche Stability Management) including traction control as well as an anti-lock braking system (ABS). Thanks to an on-dash map switch, these assistance systems can be adjusted separately or switched off completely, enhancing the 935's role as a high-end training device for aspiring track pilots.

The aforementioned aero aside, many

details of the new 935's exterior are a salute to winning vehicles from the Porsche motor racing history: The aerodynamically capped rims echo those of the 935/78, while the LED rear lights on the rear wing endplates are adopted from the 919 Hybrid LMP1 race car. The side mirrors hail from the current Le Mans-winning 911 RSR and the exposed titanium tailpipes are modelled on the Porsche 908 from 1968.

These references are carried through to the cockpit. The knob on the gearshift lever has a laminated wood design reminiscent of racers such as the 917, the 909 Bergspyder and the Carrera GT super sports car. The carbon steering wheel and the colour display behind have been taken from the 2019 model year 911 GT3 R. A massive safety cage combined with a racing bucket seat and a six-point safety harness ensure maximum safety. A second

seat for the passenger is available as an optional extra. Air conditioning is included as reflects the car's ultimately non-competition remit. Yes, this isn't actually a racing car.

"This spectacular car is a birthday present from Porsche Motorsport to fans all over the world," says Dr Frank-Steffen Walliser, Vice President Motorsport and GT Cars. "Because the car isn't homologated, engineers and designers didn't have to follow the usual rules and thus had freedom in the development."

If that's the good news, the bad is that said lack of homologation means the 935 doesn't actually qualify for competition. Nor has it been homologated for public road use either. Put the two together and you have a car, as it stands, that's really limited to the role of track day toy. But what a stupendous track day toy it will surely be, for the lucky few.



PORSCHE CONFIRMS NEW SPEEDSTER

Goes on sale in 2019, 4.0-litre engine likely

Porsche has confirmed the 911 Speedster concept, first shown in June, is to go for production early in 2019. Fully 1948 units of the open-top model will be made. Porsche says that number was chosen to commemorate the Porsche 356 "Number 1" that received its operating license on June 8th, 1948.

The updated car you see here was shown at the recent Paris motor show and it remains a concept, officially. For the record, this new concept adopts Guards Red paint in what Porsche says is an homage to the G Series Speedster, along with a new set of cross-spoke 21-inch wheels. The final form of the production version has yet to be seen and it's expected that not all elements of the concept cars seen thus far will survive the transition.

The new Speedster was developed at Porsche Motorsport in Weissach in cooperation with Style Porsche and Porsche Exclusive Manufaktur and will be the first car to be offered with the new Heritage Design

Packages. This exclusive accessory line by Porsche Exclusive allows for an even higher degree of personalisation for the 911.

All body components as well as the entire technology of both the 911 Speedster Concept cars are identical. This includes the shortened window frames with their lowered cowl top panels and the smaller side windows as well as the carbon-fibre rear bonnet with the double-bubble cover behind the seats. The concept cars' body is based on the 911 Carrera 4 Cabriolet. The wings, as well as the front and rear bonnets, are made from lightweight carbon-fibre composite. The chassis, meanwhile, is largely taken from the current 911 GT3. Both cars come with a lightweight tonneau cover, fitted by Tenax buttons. In other words, the Speedster concepts have no convertible soft tops.

Whether the final production version will have a convertible top isn't clear. The two 'Talbot'-shaped exterior mirrors as well as the fuel tank cap – centrally positioned on

the bonnet – are further details that may not make final production. What we do think probably will appear in the final car, though this isn't officially confirmed, is the concept's powertrain.

That involves the GT3's 4.0-litre naturally aspirated flat six cranking in excess of 500hp and a manual six-speed gearbox providing drive to the rear axle. Question marks remain over Porsche's ability or willingness to homologate the 4.0-litre engine under the new WLTP (Worldwide harmonised Light vehicles Test Procedure) emissions regime. Likewise, it is as yet unclear how much impact the introduction of a petrol particulate filter, a measure being brought in parallel with WLTP, will have on Porsche's motorsport-derived naturally aspirated engine. But Porsche's emphasis that the new concept retains the engine while confirming the car is go for production is the first firm indication that the engine can survive in the post-WLTP era. Pricing for the new Speedster has not been confirmed.

The enduring appeal of the Speedster is rebooted again as the 911 Speedster concept unveiled earlier this year is confirmed for production

OUR TAKE

WHERE FOR ART THOU, GT4?

Porsche has now released second-generation iterations of the Type-991 GT3 and GT3 RS. It has also cooked up a Type-991 GT2 RS with 700hp and most recently confirmed the 991 will also be given a swansong in the form of Speedster treatment. The Paris motor show has likewise just been and gone. And, still, there's no sign of a follow up to the smash hit that was 2016's Cayman GT4. Nor has the closely related Boxster Spyder received an update.

Meanwhile, the existing Cayman and Boxster twins, now branded 718, are coming to the end of their life cycles and cars that look very much like development mules for putative 718 GT4 and Spyder models have been spotted on public roads and test tracks for at least a year. Just days before we go to press, a GT4-style car has once again been seen lapping at Monza in Italy. So, what exactly is going on? Very likely a major part of the explanation involves the recent imposition of the new WLTP (Worldwide harmonised Light vehicles Test Procedure) emissions testing regime. For starters, that's causing a major backlog in terms of getting cars certified for road legality. A low-volume model like the GT4 won't be high priority for the VW Group's apparently scarce WLTP-testing resources.

The related imposition of a new particulate filter for petrol engine cars may also be a factor. Several reps from Porsche's GT car department have indicated a preference to retain natural aspiration for GT models bar the 911 GT2. It may be the marriage of a particulate filter with a high-revving naturally aspirated motor is problematical.

Whatever, for some time expectations for the GT4 have centred on a 4.0-litre flat six either closely or loosely related to the same-capacity unit in the latest 911 GT3. More recently, reports of a rethink have emerged. Porsche has decided to revert to

the old 3.8-litre unit from the first GT4, to which the 991.1 Powerkit will be applied for a total output around 420hp. So the story goes, at least. It's just possible Porsche is saving the GT4 up for the LA Auto Show in late November. After that the next available slot is Geneva in March. If it hasn't appeared by then, it may be that the whole WLTP saga has been enough to kill the GT4 off altogether. Watch this space.





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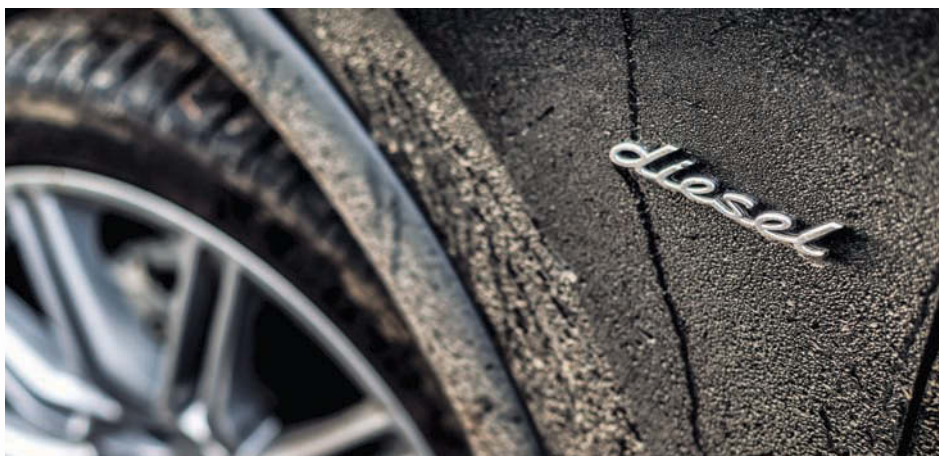
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PORSCHE DROPS DIESEL

The future is hybrid and electric

Not our words, but the headline on Porsche's own official news website. Porsche axed diesel models from its existing line up back in February. Now it has confirmed that diesel models won't be offered in future.

Porsche says demand for diesel is falling off rapidly and notes that diesel models made up just 12 per cent of Porsches sold worldwide in 2017. Meanwhile, Porsche says demand for hybrid technology is rising rapidly. Over 60 per cent of Panameras sold in Europe, Porsche says, are hybrid.

The elephant in the press conference, of course, is the ongoing Dieselgate emissions cheating scandal, though Porsche has been careful not to bad mouth all diesel cars. After all, many of Porsche's VW Group sibling brands will continue to sell diesel models in big numbers in the coming years. What's more, while some commentators speculate whether Porsche has left the door open for future diesel models, the official statement was unequivocal.

"Porsche is not demonising diesel. It is, and will remain, an important propulsion technology. We as a sports car manufacturer, however, for whom diesel has always played a secondary role, have come to the conclusion that we would like our future to be diesel-free. Naturally we will continue to look after our existing diesel customers with the professionalism they expect," says Oliver Blume, CEO of Porsche AG.

The corollary to dropping diesel, of course, is an increased

emphasis on what Porsche calls e-mobility. By 2022, Porsche will have invested more than six billion euros in e-mobility which broadly encapsulates hybrid and pure electric cars. With the Taycan electric car, Porsche will bring its first purely electric sports car to the market in 2019. Critically, Porsche says the manufacturing process associated with the Taycan will be entirely CO2 neutral. Porsche also says the Taycan will be supplied with green electricity via an ultra-fast charging infrastructure spread over Europe. Moreover, it's said every second new Porsche vehicle could have an electric drive – either hybrid or purely electric – by 2025.

Part of that mix is expected to be an upcoming hybrid version of the next 911, codenamed 992 and expected to launch at the LA Auto Show in November. Although the first iteration of the 992 is not expected to offer hybrid drive, the facelift model due around 2023 will become the first 911 to come in hybrid format, most likely with a lithium battery pack up front and driving the forward axle.

Porsche has said the hybrid 911 will be the most powerful variant offered, just as the most powerful second-gen Panamera is a hybrid model. Indeed, Porsche has indicated that there's a fair bit of life yet in ye olde combustion engine. "Optimised internal combustion engines" delivering "purist, emotional and powerful sports cars" will continue to play an important role in the Porsche product portfolio, the company said as part of its announcement that diesel was gone for good.

End of the road for Porsche and diesel after a reluctant partnership, driven by market forces and killed by actions from within the VW group

RARE RHD DP MOTORSPORT 935 GOES TO AUCTION

Believed to be the 1986 Earls Court Motorfair car

Looking very much of its time and fittingly, for an '80s machine, in Guards Red, this DP Motorsport modified Kremer 935 lookalike is going up for auction in late November at Historics' Mercedes Benz World sale.

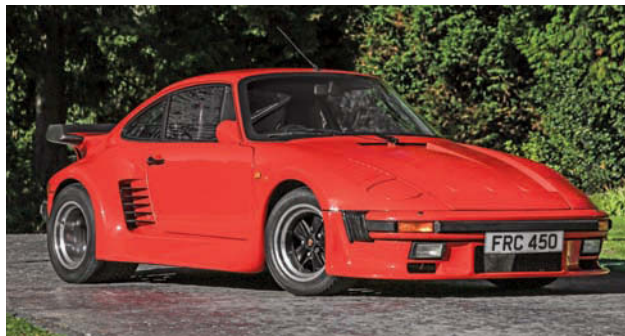
As is often the way with low production machines from a pre digital era, information is slightly speculative, although there's no doubting its DP Motorsport history. It comes with a comprehensive build sheet and is believed to be the only RHD car produced. As such it is believed to have been used as a display car by DP Motorsport's UK agent, Roy Catlin, and was shown at the 1986 Earls Court Motor Fair. Based on a 930 Turbo, DP Motorsport used Kremer designed panels from the original Kremer K3 935 racer, shedding 550kgs from the weight of a standard 930 Turbo.

This particular example features a 3.3-litre, flat-six turbo with competition heads, camshafts and polished parts, stainless steel intercooler and oil cooler. With variable boost control it produces between 400bhp and 440bhp. The gearbox is a close ratio four-speed and DP Motorsport 15in, five spoke comp wheels cover 930 Turbo vented discs. It still wears its period Pirelli P7 tyres.

Interior wise it features fully electric leather seats and numerous other luxurious niceties and, with just 23,500-miles on the clock, is described as being in "mint" condition. Fancy it? Well it's certainly an interesting curio and would turn heads. Value? Historics reckon between £145,000–£170,000, but it only takes two determined bidders to drive it along.

The Historics sale is at Mercedes World on November 24th. For the online catalogue and full details go to: historics.co.uk

You know you want it! Rare RHD DP Motorsport 935 bodied 911 Turbo goes under the hammer at Historics' November auction



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PORSCHE PUTS HYBRID MODELS ON ICE

WLTP strikes again...

Porsche is among a number of car makers who have temporarily halted production of plug-in hybrid models. The move comes in response to the introduction of the new WLTP (Worldwide harmonised Light vehicles Test Procedure) regime, which came into force in the EU at the beginning of September.

As a consequence of WLTP, most if not all models will see an increase in their rated CO2 emissions levels. According to the German Association of the Automotive Industry, the testing procedure for the new WLTP system is particularly intensive. "These vehicles complete the test several times. They start with a full battery. The cycle is repeated until the battery is empty," it says.

The test is then repeated with the battery on empty and this multi-stage process is used to determine CO2 emissions more precisely, along with electrical and total range. In the case of plug-in hybrid models, it's thought the new test will push many models over 50g/km. That, in turn, would see those models lose extensive tax benefits and other subsidies applied to electric and plug-in hybrid in many European territories.

Plug-in hybrid cars, of course, refer to models with both combustion engines and battery-electric drive that support external

charging sources. Mild hybrids, such as the standard Toyota Prius, have both electric and combustion drive sources but charge their batteries exclusively from brake regeneration and cannot be connected to an external power source.

For some brands and models, it's thought the production halt simply reflects priorities in terms of having cars certified for sale under the new rules. Facilities for conducting the more intensive WLTP testing are limited and the new regime also demands that every possible trim and spec level is individually tested, putting a huge load on limited resources. However, for some models, manufacturers could opt to increase the size of the installed battery to ensure CO2 emissions stay within tax and benefit boundaries.

Currently, Porsche has halted production of its hybrid Panamera/Cayenne models. "We will not start taking orders again until the cars are being built, the timing of which has not yet been confirmed," a Porsche spokesperson told *Automotive News*. Porsche has not commented whether it intends to increase the battery capacity of its hybrid models. But the halt in production will surely be having a major impact. Figures for the first half of 2018 show that 69% of Panamera sales in Europe were plug-in hybrid.

Porsche has ceased production of its plug-in hybrid models, while it seeks to comply with new WLTP rules

RENNSPORT REUNION 2018 IS A RECORD BREAKER

Legends on four wheels and two feet in attendance

81,550 Porsche fanatics descended on the Laguna Seca circuit in central California for the sixth instalment of the Rennsport Reunion celebration of all things Porsche. It was the highest attendance at Laguna Seca in five years and easily broke the Rennsport Reunion V record of more than 60,000 at the previous event in 2015, which was also held at Laguna Seca.

The theme of the sixth edition was "Champions". With over 30,000 race wins, Porsche reckons it is by far the most successful brand in motorsports worldwide. Around 2500 vehicles, including everything from 356 Speedster to the RS Spyder, the 959 Dakar and the 919 Hybrid racer, thrilled visitors with their fast laps in seven categories.

Dr. Wolfgang Porsche himself turned some laps in 356 Number One, the first registered vehicle from Porsche in 1948. "It was a pleasure to drive," said the Chairman of the Supervisory Board at Porsche AG. "The corkscrew corner is definitely a lot of fun in a really fast car. I only know this passage from our track at Leipzig. The original is far more impressive."

Among numerous notable figures who attended the 2018 event was Belgian motor racing legend Jacky Ickx. "Some very emotional experiences are connected to so many Porsche race cars," he says. "But it's the incredible moments that are deeply rooted. This becomes more and more obvious when I see a Porsche 936. In such a car we won a seemingly impossible race at Le Mans in 1977. For hours we fought tooth and nail. The team gave their utmost. In the end we climbed to the top of the podium. We made the impossible possible. No one gave up – you never forget such lessons."

Jochen Mass, the Porsche legend from Germany, was also there. "It's fantastic to see all these race cars. That's when I realise

everything I drove back then," said Jochen on the eve of his 72nd birthday. "When I see these cars, I want to race them. Especially the 962. These cars bring back all the memories. For instance, I think how magnificent it was to drive the works cars. When customer teams slightly modified the 962, often the good balance was gone. What does that tell us? Leave a Porsche as it is. That's as good as it gets."

Bringing things up to the modern day was not only a few demo laps by Porsche's new 935 track toy but also the final appearance of a Le Mans legend. After scoring three overall wins at the 24 Hours of Le Mans, the title of the World Endurance Championship WEC and setting records on the Nürburgring-Nordschleife and the Circuit Spa-Francorchamps, Porsche works driver Earl Bamber from New Zealand turned the final laps in the Evo-version of the Porsche 919 Hybrid. A fitting end to both a fantastic career and a great event.

Over 81,000 Porsche fans flocked to Laguna Seca for the sixth edition of the Rennsport Reunion





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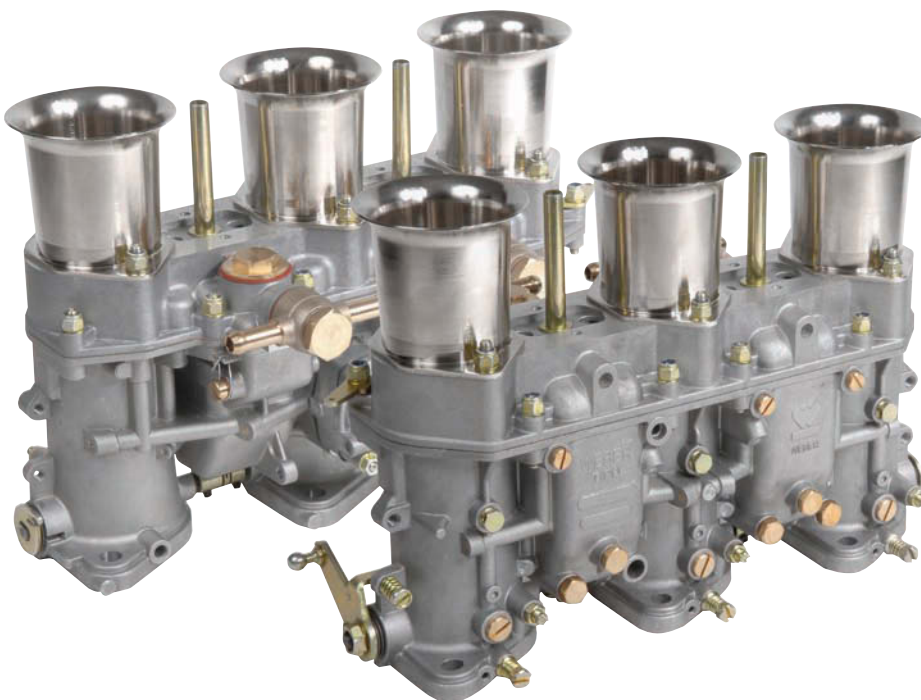
It's just been announced that Weber 40IDA3C and 46IDA3C downdraught carbs for the classic air-cooled Porsche models will soon be produced again, and will be available from Webcon.

The carbs are being produced from 100% new tooling, created from the original Weber factory drawings. Although the product is as original, the manufacturing now uses the latest technologies to ensure the very finest quality is maintained for every component.

The new carbs are expected to be available in late 2018 – watch the Webcon website for confirmation of a release date.

Retail prices are as follows: Both the 40IDA3C and 40IDA3C1 are priced at £1295, while the larger 46IDA3C and IDA3C1 will cost £1395. In each case, both prices are plus VAT.

They'll be available directly from Webcon and from appointed Webcon dealers around the world. For further details contact Webcon UK: webcon.co.uk



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Heads up air-cooled 911 owners. CSF radiators has cooked up these new RS and RSR-style bar and plate oil coolers designed for all air-cooled 911s up to 1989. They're said to be direct-fit performance replacements items in place of the original Porsche parts. CSF says the main benefits involve the heavy duty core, an aero-flow bar design for low mass, strength and maximum airflow through the core itself and finally a satin finish for protection against corrosion and debris. What's more, the rads feature triangular flush mounting points at both the top and bottom (specifically M8x1.25), and a 15-degree angle for connections (M22x1.5 female) with tapered, cast end-tanks. Measurements clock in at 609mm by 54.6mm by 146mm. Yours for £570 plus VAT from csfrace.e



SPOTTED

Hands up if you think rallying simply rocks. If you also own an air-cooled 911 or maybe a 914, these period-correct beamers might be your bag. They're Cibié Pallas auxiliary headlights, of course, as seen on rally-spec Porsche 914/6s and 911 STs back in the day. With glass lenses and chrome finish, they're 150mm in diameter and run H1 bulbs as standard. Suppliers Car Bone can also do you a set of yellow lense covers for some additional French flair, or metal covering caps if you want to cut a competition-inspired dash. Price for a pair with clear lenses is \$670 or £515 plus shipping. Yellow lenses up the ante to \$760 or £585, while the metal covers clock in at \$160 or roughly £125. All are available now from car-bone.pl





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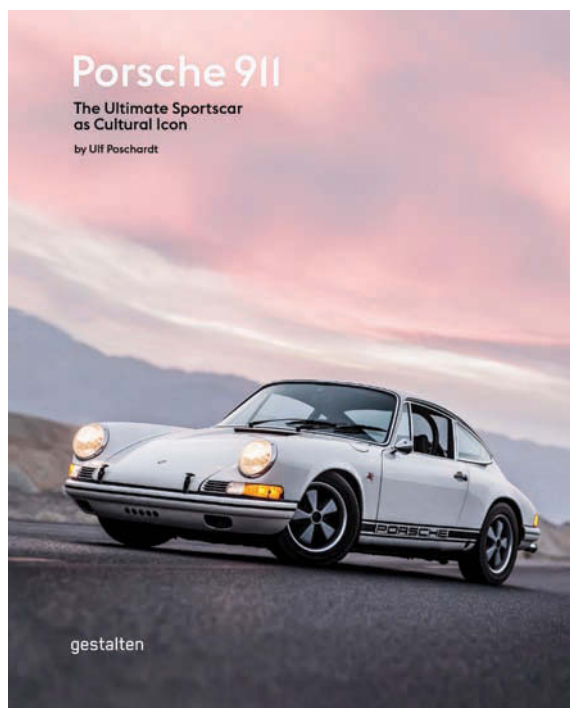
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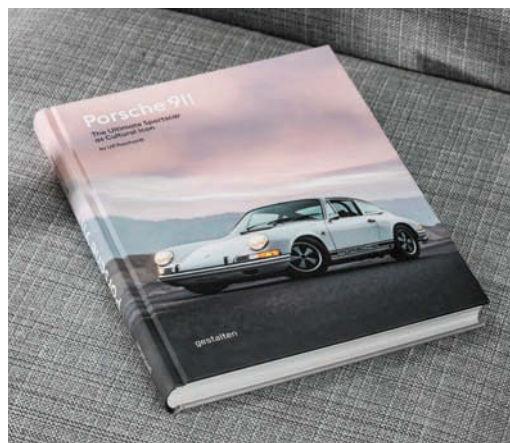
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CAR CULTURE

What's the world's greatest sports car? You can probably guess what we think. But if that's a subjective call, it's surely objectively true that the 911 tops the tables in terms of sports cars as cultural icons. *The Ultimate Sportscar as Cultural Icon* from Gestalten publishing explains exactly how ye olde 911 became a global phenomenon and a symbol of aspiration and freedom, and why the 911 continues to fascinate and inspire. Author Ulf Poschardt sends Porsche drivers to the shrink and concludes that a little narcissism can be a healthy thing. Not everyone can, nor indeed should, drive a Porsche, he thinks. Porsche 911: The Ultimate Sportscar as Cultural Icon should be a must read for those of us who are man or woman enough for the challenge. Available for €34.90 or £30 from bulangandsons.com

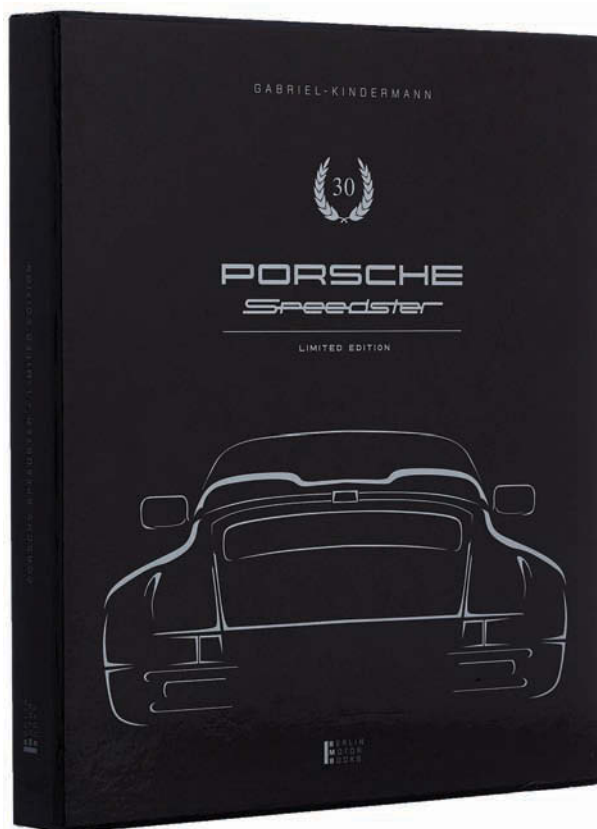
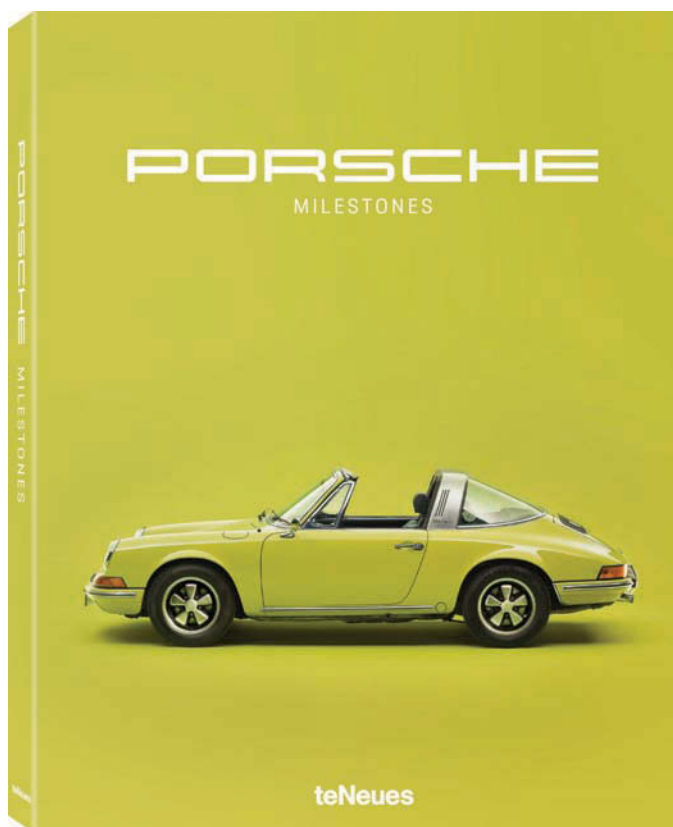


THE LAST 70 YEARS

With Porsche's 70-year celebrations winding to a close, here's one last chance for wistful retrospective. Well, until the 75th anniversary rolls along and the partying kicks off again. Porsche Milestones takes the reader through Porsche's key moments in chronological order, from the number one roadster in 1948 right up to the 2018 911 GT2 RS. A mix of top international writers and journalists are said to have joined forces to bring their expertise and perspectives on different genres of lifestyle in an entertaining, creative, savvy and informative book. The text is in English, French and German. Published by teNeues Media GmbH & Co, the ISBN-10 number you want is 396171021X and it's available on Amazon in hardback for £29.25.

AND SO THE SPEEDSTER

As you'll no doubt have spotted in the news section, Porsche has rebooted the 911 Speedster for 2019. The latest version is a 500hp beast with a naturally aspirated engine and GT3 undercrackers. It's probably the most driver focussed Speedster yet. But why not test that theory courtesy of this anthology of all things 911 Speedster? We give you Porsche Speedster – Legends live forever: 1989–2011. Numbering 396 pages, it's said Porsche gave author Andreas Gabriel full access to its archives, enabling him to uncover new insights and reveal previously unpublished documents and images. Published by BMB Berlin Motor Books, ISBN-10: 3981459229, the text is in German and English. At £80.30 from Amazon, it ain't exactly cheap, but it does look like a quality bit of printing.



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HOCKENHEIM HOTTIE

It's pretty much impossible to identify the greatest ever racing Porsche. There are simply too many to choose from, each with a compelling story of its own, many with stellar results on multiple circuits. But the 962C would surely make most short lists, especially in iconic Rothmans livery. This gorgeous 1:18-scale model captures the 962 in 1985 Hockenheim-winning spec, as driven to victory by none other than Hans-Joachim Stuck and Derek Bell. It's listed as "sold out" on the Minichamps website and as a limited-production run of 402 pieces, is probably getting scarce. Happily, you can grab one from our chums at selectionrs.com for €99.95, which works out at a shade under £90.



THE PRETTIEST PORSCHE?

If the 962C is in the conversation when it comes to the greatest racing Porsches, then the 1960 356 B 1600GS Carrera GTL Abarth surely has a look in as one of the prettiest. The Abarth, of course, was all about weight loss, with the car reportedly clocking in at just under 800kg. Made entirely of aluminum, the Abarth's body was smaller overall than the 356 on which it was based and reduced drag from 0.398Cd to 0.365Cd. This 1:18-scale model from Minichamps reproduces the Abarth as it was for the 1962 instalment of the Le Mans 24 Hours, with Ben Pon and Carel Godin de Beaufort at the helm. Just 200 individually numbered pieces have been produced. You can get yours for €249.95 or £220 from selectionrs.com



SALZBURG SPECIAL

Now for something completely different. And completely modern. Well, not quite completely modern. This is the technotastic 918 Spyder with added Weissach pack goodness but painted in period 'Salzburg', as specified by a certain M. Webber as a sort of glorified company car. Nice work if you can get it. Of course, with the world and Porsche going absolutely EV crackers, the 918's combo of naturally-aspirated engine with electric motor augmentation looks like a decent bet for a future 911 GT3 application. Perhaps not the next GT3, but odds on for the one after? While you ponder that prospect, why not snag this 1:18 scale model of the 918. It's another diecast Minichamps special. Available for €139.95 or a whisker under £125 from selectionrs.com



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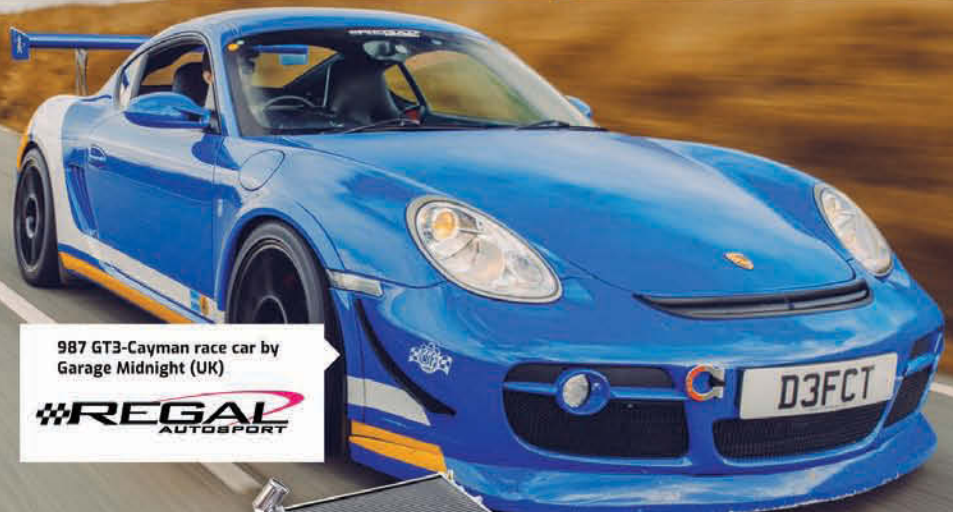
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LETTERS

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BE KIND TO THE 718 BOXSTER

I must congratulate you for producing such an entertaining, informative magazine packed with great articles and wonderful pictures of exotic Porsches of all genres. I have been a subscriber for quite a few years and love the articles.

I felt as though I must write in to defend the new Boxster, though. I feel as though I'm a bit of a rarity in this magazine, after giving the 718 the thumbs down, it sort of put me off the car reading the purists' point of view.

Over the years I've owned several 911SCs and my current 911 Carrera 3.2 I've had for 28 years. I'm a huge aficionado of the air cooled Porsches. The trouble is I've never been able to fit in the previous Boxster due to me being over six feet and I always hankered after a soft top Porsche after having owned a 914/6, 911SC Cabriolet and a Morgan V8 in the past.

The plus side is that we now have a new Boxster S and it's fantastic! I love the turbocharger, which is exhilarating. The PDK is a dream, both in manual and auto; the engine is unobtrusive in normal driving and when you put your foot down it sounds like an angry goblin in the back, spitting like a cobra! I can't wipe the smile off my wife's face when we swap seats

I know it's expensive and it's only got four-cylinders, but what the heck, it looks great. We did a tour around Spain this summer, with the roof down and got so many thumbs-up. PLUS it's RED with black wheels and we love it. So please be kind to the 718 and tell everyone

– even diehard 911 owners – it's a great car.

Keep up the good work.

Robert Pinkney, via email

Steve Bennett replies: Hopefully we re-dressed the 718 Boxster balance with our Gmund road trip, earlier in the year, to celebrate the 70th anniversary of the first Porsche hitting the road in 1948. It was my first run in the 2-litre turbo machine and I loved it!



Best of both worlds. Reader Robert Pinkney's classic Carrera 3.2 with new Boxster 718

WE WERE THERE FIRST!

Kieron Fennelly may well be right about *Autocar* writer Steve Sutcliffe getting his hands on a 997 Carrera in September 2004 (Tried & Tested, November 2018 issue, page 124), but I feel I ought to remind him, and everyone else, that we – 911 & Porsche World, that is – had our first drive in one the previous April, roughly five months before it went on sale in the UK.

It's not often during my career that I have been able to say this, but the fact is that I was one of a tiny handful of journalists flown by Porsche AG to Puglia in southern Italy for a first drive in brand-new cars that, while out on the public road, were still 'disguised' with bits of gaffer tape. As I suggested in my story on the trip in the July issue that year, though, what else could they possibly be but the hotly anticipated new 911s?

It was a predictably fascinating experience, even way down on the 'heel' of Italy involving the dodging of potential automotive paparazzi in a 3-series BMW, and clandestine communications among the Porsche minders – of which there were many – on two-way radios. More surreal still was ending up at the otherwise deserted Nardo test-track at about 7pm on a Sunday evening and, after some car-to-car photography in the pouring rain, being invited to rack up some solo laps of the famous high-speed banked bowl.

'That finally done,' I wrote in my report, 'I was able to put in a few laps on my

own, gradually easing (myself rather than the car) up to around 230km/h (142mph) and suddenly, given the complete absence of landmarks in the conventional sense, feeling not unlike the tiny blob of luminous paint on the second hand of a wristwatch. It really is the most extraordinary place.'

And, as we discovered, the 997 itself was to mark yet another milestone chapter in one of the most extraordinary automotive dynasties there will surely ever be. Happy days!
Chris Horton, Thame, Oxfordshire



DOGGY WHIFF

Great to see a Cayenne on the fleet in 911&PW. These big buses are such bargains now, and a wonderful way to get around. Even better to see that it's being run by Mr Bangernomics himself, James Ruppert. I've enjoyed James's work over the years and greatly enjoyed his books, in particular: The German Car Industry: My part in its victory.

I've always been a great advocate of his 'Theory of Bangernomics' largely because in order to keep something exotic and classic in the garage, my daily runabout has to be something cheap and cheerful. I'm not sure that quite applies to the V8 Cayenne, but like James, I couldn't resist at just £5k for mine. I will be interested to see how he gets on in future reports.

Finally, while my Cayenne doesn't have the seemingly optional SUV/4x4 doggy whiff (see Cayenne running report in 911&PW issue 296), I did once have a Discovery that suffered from a canine pong. It was sorted with a Dakota Car Odour Bomb, widely available online and from Amazon.

John Richards, via email

Steve Bennett replies: Yes, John, we're delighted to have both a Cayenne and 'Bangernomics' man, James Ruppert, on the fleet.

We hope that both your Bangernomics Cayennes are a good buy, although the 'Projects' pages do rely on some mechanical intrigue for interest, just not too much! Whatever, it's certainly going to be an interesting ride.



James Ruppert's Cayenne, complete with doggy whiff. Let's hope that's the only issue going forwards



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THE USUAL SUSPECTS

Plenty's been going on since Johnny Tipler dashed off one of these bulletins over a year ago, what with blasting his Boxster S through France covering the Monte Carlo Historic Rally and trailing over to Le Mans for the Classic extravaganza, so here are a few of his notes and observations

PILGRIM FARTHER

Big-time events are like pilgrimages. And of all the major historic race meetings on the competition calendar Peter Auto's Le Mans Classic that follows a fortnight after the centrepiece 24-Heures is undoubtedly one of the best, vying for top spot with Silverstone and Spa Classic, Lime Rock, Zandvoort and Algarve Historic GPs, and the Nürburgring Old Timer. Coming so soon after the WEC 24-Hours, the Classic's on the radar of many Brit race fans and, like the all-nighter, there's a fair presence of geezerdom livin' it large in the campsites adjacent to the circuit. I'd gone over with snapper Sarah Hall, travelling in the Boxster S via the overnight crossing from Plymouth to Roscoff, courtesy of Brittany Ferries, on account of all other routes being sold out. We were billeted in the Maison Blanche camping ground, about 100m from the track but likewise handy for the paddock. Less well appreciated was the errant behaviour of a few Porsche hotheads, doughnutting on the campsite's blacktop, including a red 928 that had to anchor up a bit

sharpish when confronted by a couple of kids on skateboards. The Norfolk coppers would have had something to say about that – like, you should be setting some kind of example. On the other hand, the roundabout in the centre of Arnage was equally fair game for tyre smokers of all persuasions, entertaining diners in the overflowing roadside restaurants, though on Saturday night the spectacle was suppressed by a large police presence.

As for the racing, what we saw of it was excellent, given our privileged trackside vantage points and pitlane access, though it was excruciatingly hot, making the media centre overlooking the start-finish straight a more than welcome refuge. The Porsche-only race was entertaining, and gratifyingly won by a longtail 908 coupé, whilst inescapably keeping an eye on veteran Porscheist Gérard Larrouse as he worked his way up from 16th to 6th in the wonderful yellow-and-red swirls 911 ST. Consistency was his secret, he told me later.

Porscheist, Gérard Larrouse in the swirly 911 ST at the Le Mans Classic



JOHNNY TIPLER
International Porsche
adventurist



SEA VIEW

Over or under? By which I mean Tunnel or Ferry. Together with one snapping companion or another – mostly Antony Fraser – I make the journey to continental Europe several times a year, covering events or visiting specialists, and there's the choice of taking Eurotunnel's Shuttle from Folkestone or the aquatic option which is a DFDS ferry out of Dover. For longer crossings, Portsmouth or Plymouth to Caen or Santander I sail with Brittany Ferries, and from Harwich to Hook-of-Holland it's Stena Line; in either case, there's no other choice. But for the short hop from Dover to Calais it's really down to speed versus chill-out. There are pros and cons either way. Eurotunnel offers a reasonably decent terminal experience (not knowingly fatal) with numerous cafes and duty-free

shopping, plus the revered chuck wagon ladies purveying bacon and eggs at the Folkestone end. For the nautical shopping experience you have to be actually on board the ferry, and in DFDS's case the optimum mode of travel is their top deck Premier lounge, which, if coupled with Priority boarding, means you speed quickly out of Dover, fully refreshed, onto the motorway. The tunnel train takes 35 minutes, the sea voyage 1hr 30mins. In both modes, passport scrutiny is much lengthier when leaving Calais than departing Blighty. So, we tend to take the Tunnel to get on the Autoroute faster, and the Ferry for a more relaxed return passage where time is not of the essence. Hold-ups are rare in either context. But whether this remains the case six months from now is another question.



Who pays the ferry man? For optimal travel relaxation, ferry trumps tunnel, but tunnel wins if speed of travel is the priority

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



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GRAZING CARS

None of us like it when our cars are damaged, either inadvertently by ourselves and especially not when it's done by a third party. My 986 was totally immaculate when I bought it, but within a month of on-street parking its extremities were covered in scratches. Happily, its recent spray-wrap by John Isolda at Scratch-&Peel has completely masked that, and now the house has been done up we've sacrificed a portion of garden big enough to accommodate two cars: the Boxster shares with Mrs T's latest acquisition, a 1-series BMW. The new Beemer is in such good nick that it is equally deserving of its off-street parking. However – and here's the point – its predecessor, an Alfa Romeo 156 that was low-miles pristine on acquisition, became so badly beaten up during a decade's tenure that any scuff or blemish went virtually unnoticed, certainly unremarked. This also prompted a casual attitude to navigating crowded streets or tight country lanes because it simply didn't matter if contact was made with the scenery. On-road intimidation was fair game in the same way that it's

possible to intimidate with a Land Rover. Going back to my initial thought, it prompts the notion that

manufacturers could market vehicles that are deliberately damaged from the outset, so you just don't mind any further altercation. Or, like Citroën's C4 Cactus, the vehicle is protected up to the hilt with rubbing panels: scratch me if you can. Unsightly? Not necessarily when it's themed like the Cactus. Along the lines of the faux-corroded rat-look Beetles that flock to events like Bug Jam, my choice would be a

distressed 24-Hours of Le Mans look, where the car is covered in oil, race rubber and stone chips.



HOT ROD CULTURE

For a lot of people, Porsches are for tuning – customising, as they used to call it in the post-war Californian hot rod fraternity of the 1950s – and if you own a Porsche of a certain age it's always been fair game to modify it. As *Hot Rod* magazine defined the craze in a '50s editorial, 'a real hot rod is a car that's lending itself to experimental development for the betterment of safety, operation and performance.' Check! Whilst my 3.2 Carrera merely blasted the sound waves with a bespoke Hayward & Scott exhaust, the Peppermint Pig 964 was perfectly set up by its purveyors, Rook Racing, and only molested cosmetically thereafter by me. Same with my low-rider 996 Pig Energy, though Porscheshop gave it a minor tweaking when I took delivery. The current ride – a 986 Boxster S – has had the most work done: M030 springs,

Cargraphic exhaust, Clive Atthowe ECU re-map, Scratch-&Peel spray-wrap and, most recently, a set of Group4 Fuchs repro wheels. Pretty much fits the hot rod bill. But will all that mucking around affect its worth? Rebel without a cause, I don't much care, and I'm not interested in selling anyway.

Now, though, with values of standard cars gone through the glass ceiling it's made many folk think twice about personalising their Porsche and, in one or two cases, revert to stock. Because transformations do seem to affect value, unfairly in my book, because if mods are kosher and done right they enhance the driving experience, and in fact everything that fits *Hot Rod* magazine's definition. My snapping colleague is a case in point (and hopefully he won't read this as it would reduce him to a gibbering wreck) but he'd

had a number of upgrades carried out on his gen 1 996 GT3, a very wonderful car that he once let me loose with on Zandvoort racetrack. Power was raised, dampers upgraded, including a nose-lift kit, and he used it as it was intended. And that meant it had done 80K-miles by the time 'a domestic' obliged him to part company. He got half what it was worth. And that's a shame because, at 80K, it was barely run in, and given the disparity of spec between all GT3s – from Comfort to Club Sport to RS, a few homegrown adjustments shouldn't have counted against it. Hot rodding is a personal thing, though, and one man's embellishment is another's excrescence. The Beach Boys had the perfect answer to anyone who didn't dig it: 'tach it up, tach it up, Buddy gonna shut you down!'




Hot rodding a GT3? Why not says Tipler, and the Beach Boys. Might hurt when you come to sell, though...

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UPWARDLY MOBILE

Mention the 1980s and the boom of the City boy or Yuppie to your friends and ask them to describe the sort of car that a Young Urban Professional might have driven – sure, you might get the occasional Lamborghini Countach or maybe a Cosworth Sierra but, sooner or later somebody will suggest a bright red 911 Targa with a wing...

Words: Paul Knight Photos: Aaron Good

Following the demise of the aforementioned Yuppie, it's fair to say that the image of the archetypal 1980s City-boy Porsche took a bit of a hit. For a while, people found the rear wing to be a little OTT – perhaps even a symbol of '80s excess – and, consequently, a good number of cars lost the signature whale tail. But, fashions tend to be cyclical, and never was this truer than in the case of the iconic 1980s Targa. There's certainly no denying the fact that the car you see here is now a very desirable piece of Porsche history and owner, Neil Hatton, is understandably proud of his superb example of the marque.

Neil explained, 'I've always been interested in sports cars and motor sport – spectating at many races and events such as Le Mans etc over the years – and more recently taking part in track days with my own-built Westfield'. He continued, 'The 911 is a car that any such enthusiast simply can't ignore – it's always competitive and always "mixing it" at the front of any race

with other desirable, and normally far more exotic, marques. Like any schoolboy, I always dreamt of one day owning a Porsche as well as the normal Italian exotica'.

And so, having worked his way through a Mk2 Golf GTI 16v, a couple of hot Honda Civics and an old Rover Vitesse 3500, Neil eventually found himself at a point in his life at which he was in the position to potentially

researched the 911 and revised and tested myself on a bewildering list of 911 nomenclature (Carrera, 964, 996, 997 etc), the more it became apparent the "true" 911 and character I desired was air-cooled!

The problem now was finding the right car so Neil began to search various websites and forums and also planned to visit a number of events and auctions to get a feel of what was available in and around

“ I revised and tested myself on a bewildering list of 911 nomenclature ”

make that childhood dream a reality. Neil said, 'It's only been in recent years that one of Stuttgart's finest appeared to finally come within reach, and I was initially considering something a bit more recent and water-cooled'. He went on, 'However, the more I

his budget. Having looked at a few vehicles, Neil eventually stumbled across this 1981 Guards Red 911SC Targa at the Silverstone Classic. He said, 'As I walked through the Porsche Club GB owners' area on my way to the car park to go home, there it was; a

Neil Hatton, with his 1981 911SC Targa in – what else – classic '80s Guards Red



gorgeous 1981 Targa with a 'for sale' sign in the windscreen'. So, Neil tracked down the owner, Roger, and arranged to visit his home the following week to take a closer look and test drive the vehicle. Fortunately, Roger turned out to be exactly the sort of doting owner we all dream of buying a classic Porsche from as he had taken great care of this particular SC over the past 32 years! We're talking about paperwork, history, tax discs, Polaroids and photos and a truly heart-felt attachment to the Targa. Neil commented, 'I could see that it was really tough for Roger to part with the car but, due to his retirement and downsizing etc, he knew it was time to pass the Porsche on, hence I assured him that I would treat his car with the same level of respect and care as he had for the past three decades.' It seems Neil had more than made his mind up and that it was Roger that needed convincing in this case!

Following a few cups of tea and a great chat, it was time for a test drive. Neil explained, 'I'd always assumed that I'd buy a coupe and hadn't really considered a Targa until I spotted this car'. He continued, 'Roger insisted that the roof was removed before we set off and immediately I understood the appeal of the Targa...this car just got better and better!' With both parties convinced that the car was going to the right home, a deal was struck and Neil drove it back to his home in Reading.

Interior is in great shape for a 38-year-old car, with the original leather responding well to treatment



“ I'd always assumed I'd buy a coupe and hadn't really considered a Targa, but I immediately understood the appeal ”

Neil explained, 'So, it's a 1981 911SC Targa Sport, which was supplied with the pu-rear (all rubber) spoiler, front chin spoiler, Bilstein dampers, sports seats, 16-in Fuchs and a limited-slip differential'. This car was ordered with a dark blue leather interior and, as you can see from the photographs, it's in superb shape for a 38-year-old vehicle. Fitted with the 204hp 3.0-litre 930/10 engine (which was 20hp more than the earlier 3.0 cars), the Targa is a blast to drive and sounds awesome thanks to the fitment of an aftermarket SSI exhaust and heat exchangers. Neil said, 'People often comment that the pre-'87 915 5-speed transmission is clunky and less desirable than the later G50 units and, whilst I'd admit that a good part of my original test drive was spent coasting in neutral/trying to find 3rd or 4th gear, I soon mastered the art of driving my car and now consider it to be part of the 'involvement' when driving a classic Porsche!'

Inside the car, Neil replaced the original

Above middle: The SC's 3-litre engine is a tough unit. Right: The all rubber rear spoiler is exclusive to the SC



Neil's 911SC got most of the popular upgrades of the day, including front and rear spoilers, 16in Fuchs wheels, Bilstein dampers and limited slip diff

3-spoke steering wheel (which had seen better days and was flexing a little) with a Momo Prototipo before treating the leather to a thorough clean. The seats were then treated with a professional leather conditioner, which not only moisturises the leather and restores the lustre but also helps to nourish the hides, thereby preventing dry cracking and adding

the audio installation all looking period correct and/or hidden from sight.

As mentioned earlier, Neil also owns a Westfield, which he built at home; hence it's fair to say that he knows his way around a toolbox. Therefore, servicing and maintaining his own cars is all part of the experience as far as Neil is concerned and

Bosch K-Jetronic fuel injection system to fix a cold start issue – it's the early Constant Injection System (CIS), which has a reputation for being problematic, but I'm confident I can fault-find the issue at home!

Future plans include swapping the Bridgestone tyres for Pirellis (as recommended by various Porsche owners) and possibly dropping the ride height just enough to fill the gaps in the wheel arches, however, that's as far as Neil plans to go as his priority is to retain the original charm and character of the car.

In closing, Neil commented, 'I'd like to thank my wife, Jane, for putting up with my car hobby for all these years and the weekends spent in the garage, or at car shows, rather than taking her out. She still doesn't accept that I bought the 911 purely so that she could join in – the Westfield's too noisy and windy for her to consider travelling anywhere in it!

Also thanks go to the previous owner, Roger, for the 32-years of care. I just hope I can keep the car to the same standard that he'd be proud of, while driving and enjoying it, as he wished the car to be used!' **PW**

“ Servicing and maintaining his cars is all part of the experience ”

years to the life of the interior trim.

Neil commented, 'At present the car is fitted with a modern 'budget' Sony head unit, which doesn't sound great through the old speakers!' As Neil enjoys his music, he has plans to replace the speakers with top quality items and also fit some low-profile sub-woofers beneath the seats. He's also researching period-style digital/Bluetooth head units right now, as the key is to keep

that's also one of the reasons why he made the decision to purchase a classic air-cooled Porsche over a modern, computer-laden model. Thus far he's worked his way through niggles such as the fresh air blower (which had no slower speeds and a screaming fan bearing!), a faulty hot air pump, worn front wheel bearings and creaking door check straps. He told us, 'Right now I'm working my way through the

Below middle: Neil's other car is a self-built Westfield, seen here on track at Anglesey. Below: VW to Porsche is a well worn path. Golf GTI pervs will recognise this as a nice early Mk2 16-valve





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45,000 miles **£33,000**

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65,000 miles **£33,000**

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Meteor grey with black leather
60,000 miles **£33,000**

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GT Silver with black leather
62,000 miles **£33,000**

911 997 "2S" 3.8 (07 - 2007)
Basalt black with black leather
48,000 miles **£33,000**

911 997 "2S" 3.8 (57 - 2008)
Silver with black leather
59,000 miles **£33,000**

911 997 "2S" 3.8 tip (57 - 2007)
Silver with black leather
53,000 miles **£33,000**

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Silver with ocean blue leather
36,000 miles **£32,000**

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Basalt black with black leather
65,000 miles **£32,000**

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Silver with ocean blue leather
51,000 miles **£31,000**

911 997 "4S" 3.8 (56 - 2006)
Basalt black with black leather
63,000 miles **£31,000**

911 997 "2S" 3.8 (06 - 2006)
Seal grey with black leather
50,000 miles **£30,000**

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Silver with black leather
66,000 miles **£30,000**

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PORSCHE WANTED (2003 TO 2014)

Words: Clark Thomas Photos: Porsche AG

SECRETS OF THE 992

We ride shotgun with Porsche's engineers in America, at the sign off on the new 992 model 911. As ever the evolutionary design and shape masks a very thorough overhaul. Make no mistake, this is a new 911





“We’re really busy now,” admits Alex Ernst, Team Leader Testing, Porsche. He’s the man heading this test of the 992, Porsche’s replacement 911, and after we’ve been out in the cars today, our seats will be filled by the management for final sign off. The pressure is on then, not least as Porsche will reveal the next Carrera at the LA Auto Show late November, this test part helping finalise details, and smoothing out any final issues with these pre-series cars.

shape familiar, if subtly different. August Achleitner, Vice President Product Line 911/718, elaborates; “there won’t be a narrow bodied 911,” all new 992 Carrera models will share the same dimensions with these cars here today, the rear as wide as the outgoing 991 GTS model, the front track being 40mm wider, front overhang 20mm longer for styling reasons and the height growing by 5mm.

Like the existing GT3 the new 992 Carreras will wear staggered wheel sizes, with the front axle on the S having a 20-inch wheel, and the rear a 21-inch. Those, combined with the wider front track allows

The car is, in Achleitner’s words, “all new”, it wrong to write it off as a development of the 991 before it. Inevitably there are carry-over elements, the engine block is essentially the same 3.0-litre turbocharged unit as the 991 series, but it’s been significantly revised. Not least how that turbocharged flat-six mounts to the body, Achleitner explaining: “we have a connection between the cylinder heads on both sides, and link directly to the longitudinal beams of the body. It makes the whole system stiffer, feels more rigid and this is especially an advantage for the convertible for stiffness, you don’t feel it so much with the coupe, but it’s a big step for the convertible.”

With ever-tighter emissions regulations the engine has been overhauled, gaining an entirely new induction system, as well as Piezo injection to improve efficiency. More significantly is the fitting of a new eight-speed PDK transmission, it derived from the Panamera’s gearbox. It replaces the previous seven-speed PDK transmission, the manual remaining a seven-speed unit, the new automatic not just bringing an additional ratio, but the potential for hybrid drive. The ratios between sixth and that eight are better spread, Achleitner saying that the eighth gear is comparable to the seventh of the old car, the shift up to it feeling more harmonious.

The space in the gearbox housing for a hybrid drive won’t be utilised yet, Achleitner saying: “the whole car in its layout, its structure is prepared for any hybrid solution in the future. We do not do it right now, we will not introduce it in the next few years,

“It is wrong to write it off as a development of the 991 before it”

Around 300 will be built, Porsche undertaking four large tests, the one I’m joining collecting terabytes of testing data, in the tough driving conditions on America’s West Coast. Driving pre-production cars through the heart of San Francisco might not be ideal for secrecy, but the aggressive driving here, allied to the heat, altitude changes and dense stop-start traffic create a perfect testing environment – that the West Coast buys a sizeable number of Porsche’s annual 911 production is a consideration, too.

The cars are disguised, as much as you can hide the iconic shape of a 911, the

Porsche to lower the stiffness of the rear stabilizer bar, enabling greater forces on the rear axle when accelerating out of a curve.

There’s a mix of Carrera S coupe models here, PDK automatic and manual, with optional Sport Chassis and standard, Sport Chassis riding around 10mm lower and featuring a slightly more prominent front spoiler. The model line will be introduced with the rear-wheel drive Carrera S and four-wheel drive 4S in LA, in PDK guise only, the standard Carrera following in 2019 along with the choice of the seven-speed manual. Convertibles will also join the range in 2019.



because we are not yet satisfied with the performance, especially of the batteries." There's space in the body to accommodate batteries, too, in the floor, Porsche admitting too that it explored a 48V system, but ruled it out due to the additional weight it brought.

With new emissions regulations weight reduction has been key in the car's

at the rear, around 7.5kg, though the 3.0-litre turbo engine in S guise here gains hp, it now delivering the same 450hp as the outgoing 991 GTS, torque being around the 530Nm mark. The Carrera will produce in the region of 380–385hp when it arrives in 2019.

In S guise with launch control with the PDK

Individual mode. Sport Chrono will continue to be an option, it adding elements like active engine mounts and additional configurability within the driver modes. Of those Wet is a new addition, and, says Achleitner, necessary due to the 992 being relatively light and on wide tyres. It is linked to a new sensor system in the front wheel wells that detects water on the road surface. Working independently of the wipers, using acoustic monitoring, if a wet surface is detected the driving systems are primed automatically, the rear spoiler changing its angle of attack for greater downforce the PSM (Porsche Stability Management) adjusting its responses and the gearbox is put in its less aggressive Normal mode. It does so automatically, the driver then able to select the full Wet mode if required.

That Wet mode is one of a number of new technologies for the 992, the new Carrera also being offered with active driver

Testing in downtown San Francisco. Development cars are lightly disguised

“Weight reduction has been a key part of the car's development”

development. More of the body is formed in aluminium, the entire side panel from the A pillar to the rear wing being aluminium, that saving about 10–15kg, at the rear of the car. The need for exhaust filters for European models has added some weight

transmission the Carrera will have performance to rival the 997 Turbo model, which means a 0–100km/h time of under 4 seconds. As with its predecessors the 992 will feature different drive modes, with Wet, Normal, Sport, Sport+ and the configurable



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aids like Lane Departure Warning and Lane Keep Assist. If that technological creep to autonomy raises a concern, Achleitner is quick to counter: "I think the 911 will be one of the last cars which will be offered with an autonomous system. I've been asked 'do we really need adaptive cruise control for the 911?' And I said, well, just offer it, and if you're travelling in heavy traffic then why not? It's an option so if the customer wants it, and has a situation where they want to use it, but of course it can be switched off, of course, that's the main thing. It is quite easy to switch off."

In addition to that the 992 will be offered with a nightvision option, which detects pedestrians and animals on and around the road. That is displayed on one of the screens surrounding the analogue rev-

counter dial, which retains its classic central position in front of the driver. The interior, still largely covered on these pre-series models is significantly changed, featuring a large central screen that's shared with the Cayenne, the dash profile now featuring a step, and containing a more conventional cup holder.

Opening the doors will be more of an event, with all 911s being keyless go, with the door handles popping out as you approach the car, returning to position after 10 seconds. Retracted, these help with the 0.29 drag figure, that achieved with the rear spoiler in its raised 'eco' position in European models, other markets having a slightly greater angle of attack at highway speeds for greater downforce. Climbing in sees kick plates displaying '911' in the

heavier typeface of the '70s' 911SC models as an appealing retrospective nod.

It's familiar 911 inside, sitting low, the haunches visible in the rear view mirrors. Passenger seat only today, as Ernst and his team of engineers, which number over 20 on this test, do driving duties. In the traffic in town it's quiet and smooth, the suspension riding with real composure, and there's a notable improvement in road noise from the front, which has long been a 911 signature.

Key to the engine changes, over the efficiency gains, admits Matthias Hofstetter, Director Powertrain Product Lines 911/718, is improvements in response. The intake system helps here, so too does the movement of the intercoolers from a split system either side of the engine to a unit

There will be no narrow body 911 with the arrival of the 992. Rear width is same as the outgoing 991 GTS, while front track is 40mm wider. Wheels are staggered, 21in rear, 20in front. Base 992 will have 380bhp, while S will have 450bhp. A hybrid version is on its way...



above it. The result is palpable, the 992 feeling hugely quick when escaping the confines of San Francisco's busy streets, exploring the roads that wind up into the mountains.

Optional rear-wheel steering assists with the agility, though even without it the promise is of a sharper turn in, and greater grip. The road surfaces here are poor, the 992 managing the tricky Tarmac with fine control, both wheel and body. As standard the 992 will feature standard steel brakes, with both Porsche Surface Coated Brakes (PSCB) with their hard tungsten carbide surface, or Porsche Ceramic Composite Brakes (PCCB) offered optionally. As ever, with the 911 its braking performance is exemplary, though the engineers do admit that they're finalising the pedal response in

this test after adjusting it and making it too abrupt on some cars.

The eight-speed PDK shifts with the speed we've come to expect from Porsche's paddle-shifted autos, the manual's seven-speed retaining the rev-matching throttle blips when in Sport modes and above. The manual has been retained, thanks in small part to the resurgence of demand, with global manual sales of around 15%, markets like the USA actually taking a greater percentage of manual sales, particularly higher up the model range.

That model range will follow the established route, with Carrera, Carrera S and GTS, in coupe, Targa and Cabriolet guises in rear- or four-wheel drive, while there's room for the more driver-focused

T model, its success surprising insiders at Porsche. Above that will come the inevitable Turbo and Turbo S versions, the mightiest anticipated to have in excess of 660hp, while the GT department will add GT3 and GT3 RS models in for the track drivers out there.

Rumours abound that the GT cars may switch to turbocharged 3.8-litre engines, but they currently remain just that, rumours, the hope being that the GT team will hang on to the naturally-aspirated 4.0-litre engines for a while yet. Time will tell, and more details will come as the official wraps come off the line up later this year, but our early ride in the 992 does little to suggest that Porsche has done anything to gamble with the 911's unique appeal in the sports car marketplace. **PW**



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1965 Porsche 911 Stock-04983

The stunning and very early 300 Series 1965 Porsche 911 featured here with matching numbers, and the Certificate of Authenticity included, was built on April 15, 1965. This is a factory color code #6412 Bali Blue example with a black interior and Pepita cloth inserts. This is definitely an impressive and luxurious color scheme. Equipped with a manual transmission, wood dash, wood steering wheel, and alloy wheels. An extremely clean and presentable example which is highly sought after. Excellent investment potential due to the early 300 Series examples have seen a dramatic rise in value. A great car to drive as is, or a prime specimen to take to the next level. Do not miss this opportunity to own an exceptional original California car which is mechanically sound. **For \$167,500**



1968 Porsche 911L Soft Window Targa Stock-10106
This stunning 1968 Porsche 911L Soft Window Targa is believed to be one of 121 examples built in 1968. It's showcased here in the U.S. in its original color code #6805 Bahama yellow with a black interior and a gorgeous and highly desirable color combination. It comes equipped with a 2.2 liter with a manual transmission, Fuchs wheels and includes the jack and spare tire. An excellent original California car which has the same owner for many years and is mechanically sound. **For \$79,500**



1970 Porsche 911E Targa Stock-10082
The 1970 Porsche 911E Targa shown here with matching numbers is available in this beautiful color combination of blue with a black interior. It comes equipped with a Sportomatic transmission, OEM radio, Fuchs wheels and includes the original owner's manual and spare tire. The Targa was in single ownership for many years and is a very presentable and a highly collectible example. **For \$57,500**



1971 Porsche 911T Stock-09488
The excellent original 1971 Porsche 911T Coupe shown here with matching numbers comes in its original color code #1111 light ivory with tan interior. It is equipped with a 5-speed manual transmission, air conditioning, cookie cutter wheels and includes the spare tire. The 911T was previously owned by a Porsche Club of America (PCA) owner and is mechanically sound. **For \$46,500**



1973 Porsche 911 RS Clone Stock-09614
This stunning 1973 Porsche 911 RS Clone comes in a gorgeous viper green with black Carrera script and black Recaro racing seats. It is equipped with a 2.4 liter with a manual transmission, MOMO steering wheel, MSD ignition, roll cage and Fuchs wheels. A very presentable and great car for vintage racing which is mechanically sound. **For \$39,950**



1973 Porsche 911E Targa Stock-10144
This very desirable 1973 Porsche 911E Targa with matching numbers is featured here in its original and very desirable color code #018 tangerine with a black interior. It comes equipped with a manual transmission, rally lights, air conditioning, MOMO steering wheel, Fuchs wheels and includes the original owner's manual and spare tire. This very sharp 911E Targa is an excellent weekend driver and is mechanically sound. **For \$46,500**



1985 Porsche Carrera Turbo Conversion Stock-9777
This 1985 Porsche Carrera Turbo Conversion is available in black with a black interior. It comes with a salvage title and is equipped with a manual transmission with a 3.0-liter engine, power windows, power seats, solid wheels, sunroof and includes the spare tire, jack and tool kit. An excellent weekend driver which is mechanically sound. **For \$36,500**



1997 Porsche 993 Cabriolet Stock-09730
This very presentable 1997 Porsche 993 Cabriolet featured here with 72,553 miles on the odometer is available in its original color code #741 black with a black interior. It comes with a clean CarFax and is equipped with a Tiptronic transmission, air conditioning, cruise control, power windows, power steering, power seats, power soft top with boot, OEM stereo, drilled rotors, Porsche twist wheels, original owner's manual and includes the spare tire. A very clean low mileage Porsche 993, which is mechanically sound. **For \$36,500**



1997 Porsche 993 4S Stock-09834
This very sharp 1997 Porsche 993 4S is available in its original color code #92U Arctic Silver Metallic. It comes with a clean CarFax and is equipped with a 6-speed manual transmission, air conditioning, power windows, power steering, power seats, OEM Porsche stereo sunroof, Porsche twist wheels, drilled rotors and includes the spare tire, jack and air compressor. A very clean and presentable example and one of the last of the air-cooled 911's which is mechanically sound. **For \$64,500**



1997 Porsche 993 Coupe Stock-10040
This very sharp 1997 Porsche 993 Coupe is available in its original color code #908 Grand Prix White with a tan interior. It comes with a clean CarFax and is equipped with a Tiptronic transmission, air conditioning, cruise control, dual airbags, power windows, power steering, sunroof, Porsche twist wheels, drilled rotors and includes the spare tire, jack, tool kit and air compressor. An excellent weekend driver which is mechanically sound. **For \$32,500**



1967 Porsche 911 Coupe Stock-09836
This beautiful 1967 Porsche 911 Coupe featured here with matching numbers, includes the Porsche Production Specification Certificate and is available in red with a black interior. It comes equipped with a manual transmission, Weber carburetors, sunroof and with Fuchs wheels. A highly collectible and sought-after example which is remarkably clean and presentable and an excellent original west coast car which is mechanically sound. **For \$89,500**



1959 Porsche 356A Cabriolet Stock-10193
This highly collectible 1959 Porsche 356A Cabriolet comes in its original gorgeous color code #705 Fjord green with a beige interior. It comes equipped with a 912 engine with a manual transmission and includes the jack and spare tire. An extremely clean and presentable example which is highly sought after as a collectible. It has recently come out of long-term ownership and is mechanically sound. **For \$108,500**



1959 Porsche Convertible D Stock-09941
The highly sought-after 1959 Porsche Convertible D featured here, is available in red with a black interior. It comes equipped with a 912 engine, manual transmission, upgraded disc brakes, rear luggage rack and includes the boot, soft top, Tonneau cover and as well as extensive service records and other documentation. A very presentable example which was once owned by the same husband and wife since 1979. This is an excellent original blue-plate California car which is mechanically sound. **For \$139,500**

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Words: Johnny Tipler Photography: Antony Fraser

A BIRD IN THE HAND

The latest Ruf Yellowbird CTR-4 is the most radical offering yet to fly the Pfaffenhausen nest. We winged it on the Swabian blacktop





Yellow plumage – and a cocksure attitude: that's about all that the latest Yellowbird has in common with its trend-setting ancestor. It is a true technical tour-de-force, because although it presents itself as something approaching a 964, ruffle those feathers and you'll find it's anything but. This freshly-hatched CTR employs racing car construction technology, miming the same structure as a DTM (Deutsche Touring Meisterschaft) saloon, for which the regs stipulate a common-chassis construction of carbon-fibre monocoque and steel roll-cage, with front, rear and lateral crash elements, which also serve to locate the suspension componentry.

Alois Ruf's vehicular affections proudly embrace the imagery of the classic air-cooled 911s, and to that end the Yellowbird's body shape emulates a 964 rather than a 991. Our run out into the Swabian countryside with both examples, old and new side by side, emphasises the growth of the modern car's girth and stature. The new car is only 911-esque, because what you're looking at is a carbon-panel clad chassis. Whilst the cabin interior corresponds exactly with normal 964 proportions, the exterior has swollen,

very subtly, and it takes Alois's guided tour to appreciate the niceties.

Three decades separate the two Yellowbird CTRs, one introduced in 1987, the latest in 2017. As Alois tells us, 'the original idea was to make a motor car that was not so large because, remember that in the same year, '87, we had the 959 which was a very big car, relatively, and we wanted to follow the same principle with the new car, and make it smaller than the current 911. The entire monocoque is carbon, whereas the Ultimate that you saw last year only had a skin of carbon, but here it's the whole monocoque. Most people think it's based on a 964 or a 993, and it's some kind of a backdate. But it's based on a Ruf, and it's coming from a clean sheet of paper.'

In fact, there's a full-blown Le Mans racecar underpinning this traditional looking car. 'It could have a modern body,' Alois says, 'but we wanted it to look as much as possible like our original Yellowbird. This is why the car handles so nicely and feels so great, because it's a modern, state-of-the-art racecar underneath. The push-rod suspension includes upper and lower wishbones, and at the rear there are the horizontal cross-mounted shock absorbers with coil-over springs, while in the front they are longitudinally



mounted, and that's pure racecar engineering.'

Nothing is left to chance or done on a whim. 'We needed to accommodate these larger wheels and tyres to have an adequate stance for the horsepower,

has broadened out.' Typically for a Ruf, the Yellowbird roof has no rain gutters. 'The old one didn't have gutters, and neither does the new one. But what we've done here is to give the doors and the wings more shoulder. When you open the door, you'll

has changed because it's acrylic and there's a discreet air intake either side for the combustion air. The two large ducts in the tops of the rear wings (fenders) provide cooling air for the intercoolers. 'Take a few steps back and you will notice we have a 70mm longer wheelbase, and the eye doesn't notice that, because the overall length of the car hasn't changed. It is still the same length as the other one, but we have less overhang, front and rear. The headlights have been moved up by 20 millimetres, and nobody can tell that. The rear axle has moved by 50mm towards the back of the car and the front one by 20mm towards the front. We've lengthened the door by 25mm, and although it's longer the pivoting points have not changed because that would make it more difficult getting in and out when you're parking next to another car.' Was it difficult to accommodate the front edge of the door

Alois Ruf speaks, we listen. The development of his all new Yellowbird CTR-4 is quite a story, too

“ We made it wider, but the eye does not read it as a very wide car ”

because output is 700bhp and it's a lightweight chassis, so we made it wider, but the eye does not read it as a very wide car. To start with, we put 4cm more in the tail-lights, and when you compare that with the old one you'll see the difference, that the tail-light and that section of bodywork

see how much thicker it is than normal. The size of the cabin inside hasn't changed, the glass area is still the same; we still have the same side-window glass and the door frame that the old one has, as well as the windshield and the rear window.' However, the glass in the rear-three-quarter windows

It's a 911, but not as we know it. Despite looking like it's based on a 964, it's in fact not based on any specific 911 at all. The body is unique



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within the structure because of its extra length? 'All the body parts are different,' says Alois. 'There is nothing structural that you could exchange with a 911. You can carry over the wipers, the windscreen, the side glass and the door frame, and that's all; the rest is completely new.' The LED headlights are specially made for Ruf, and the door mirrors are also to Ruf's special design, while the rear bumper corners are slatted in the interests of heat dispersal. 'We've just put it on Dunlop tyres as part of the testing programme; we had been trying Michelin tyres, and now we're trying the Dunlops to see if there are any significant changes.'

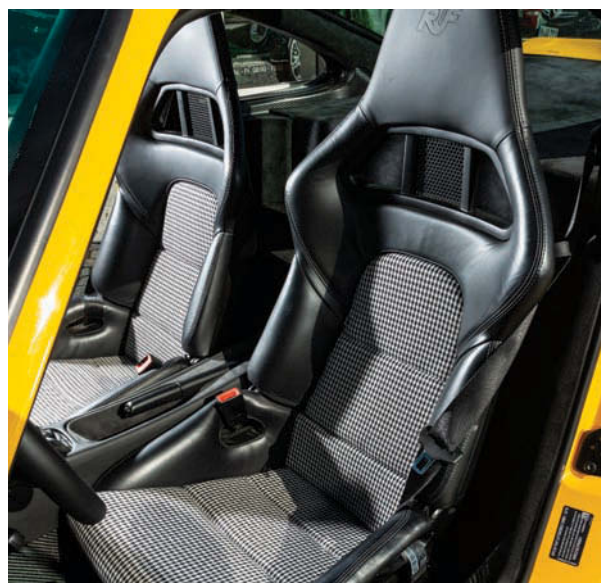
To access the cabin, I first press the button on the door lever and the lever swings out a little way in the fashion of a similar Jaguar item, revealing a discrete Ruf logo. You only have to get into any Ruf and

you're sitting in something rather special. In this case, the seat upholstery is black-and-cream hound's-tooth cloth, and the seat belt passes through an aperture in the side of the sports seat beside your thigh. The steering wheel is characteristically black padded leather without any of the gizmos that infest modern wheels, so you're looking through the apertures in the wheel arms rather than having switches to operate. Of the gauges, the rev counter is Ruf logo'd, the digits are in green against a black background, and the whole car has been re-trimmed so that the panel gaps in the elements of the interior are all pretty well perfectly aligned. There's Kevlar cladding to the inside sills and the outer skins of the footwells, and the cabin rear has been re-trimmed with flat surfaces and storage bin where the rear seats would otherwise be in a conventional 911. There's a carpeted roof

and Alcantara around the 'A' posts and 'B' posts, cladding the integral roll cage. The inside door handle levers are very neatly concealed by the armrest and door-pull, and we have trademark Ruf aluminium pedals and a serious footrest for the left foot. Overall, the interior is deliberately minimalistic because it's a CTR. There's no glove compartment and instead there are what resemble sponge bags in the lower door liners, which provide storage nooks.

I pull the engine lid release knob and the lid lifts of its own accord, revealing a very different engine as far as the visible ancillaries are concerned. The oil filler in particular is handily placed, projecting backwards for easy filling. Alois disabuses my colleague from taking any photos of it as the motor is still a work in progress and could eventually look somewhat different, certainly more refined and less

The all-new Yellowbird CTR-4 takes its styling cues from the original. There's an engine in the back, but Alois is being coy as to what exactly it's based on, although the fact that it's got a seven-speed gearbox (below middle), and is water-cooled, would indicate that it's contemporary





The interior shares the same dimensions as the original Yellowbird, but as you can see from the sills, it is clearly a wider car. Check out the visible carbon tub, too

racecar than it does currently. 'It's functional the way it is now, but not photogenic,' he says. 'To give it the feeling of the air-cooled engine we've put the alternator into the centre, and we have relocated the air conditioning compressor to the front with an electric motor, and the power steering pump is also in the front with an electric motor, so we can afford to have a very clean engine here.'

Back in the day, we thought the 964's suspension was radical when it shifted from torsion bars to wishbones: the Yellowbird is in a different league, taking a leaf out of its mid-engined CTR-3 sibling's set-up – and then some. Its coil-over spring-damper units, assistor shocks and adjusters are mounted horizontally, front-to-back on either side under the front lid, rather than vertically, and the similar rear units are also mounted horizontally, but laterally, from side-to-side. According to Ruf PR Marc-André Pfeifer, the benefit of having them

horizontal rather than vertical is that, 'the car doesn't bounce on bumps like it would with conventional vertical springs and dampers, so it doesn't lose contact with the road surface, and therefore it doesn't lose traction.' It also provides greater space for accommodating wider tyres and bigger

Marc points out that this is, really, 'the prototype, the first driving car, where we can collect experiences and make notes as to how it's working, what we need to alter and adjust.' In which case, we're privileged to be able to see how they're getting on, and even at this stage this is a truly

“ The Yellowbird is in a different league, taking a leaf from the CTR-3 ”

Sweeping roads around Ruf's Pfaffenhausen base are perfect to get the feel for their latest masterpiece

brakes. The fuel tank occupies a large proportion of the front boot area, but you fill it up via a race-style funnel accessed through the cap in the front lid. This shorter filler pipe also enables a larger capacity tank, currently 8-litres more, and which will eventually be 105 litres.

incredible car. I buckle up, fire up the deep-throated flat-six, and ease out of Pfaffenhausen on the flat farmland blacktop to one of our photo locations, a wonderful sweeping B-road, which we have pretty much to ourselves. The quicker I go, the more the steering lightens up. It's unfailingly





very precise, and there's no drama moving the steering wheel, partly because the new suspension allows the road wheels to turn more freely. Frankly, it's kind of uncanny how smooth and direct it is, and how silky the ride. It's all very acute, from the turbo-fused acceleration to the braking punch and tight turn-in. Everything about the driving experience is extraordinarily exact, there's an uncanny smoothness to the steering lock, and when I press the accelerator pedal there's a dramatic surge forward, accompanied by the whistling of the wastegate with each shift. This is a distinctly macho car, requiring some 3000rpm to actually get it going, and then every gearshift is a minor workout; it's certainly not a soft touch. I'm using mostly 4000rpm before each shift, and it has seven speeds, and though I've engaged 7th it's not for long on this fast, serpentine B-road. Actually, there doesn't seem to be much difference between 6th and 7th, and I'm still accelerating hard in 7th. The rev counter is

zinging round to 5-, 6000rpm, and the boost gauge is equally agitated, going right round to 1.2-bar with each throttle thrust. Turn in is hyper-sensitive and the steering is extremely sharp, and the surge of energy it delivers when I apply the accelerator literally pins me against the backrest. Conversely, the stoppers are so strong that, under braking, my torso lunges forwards into my belt.

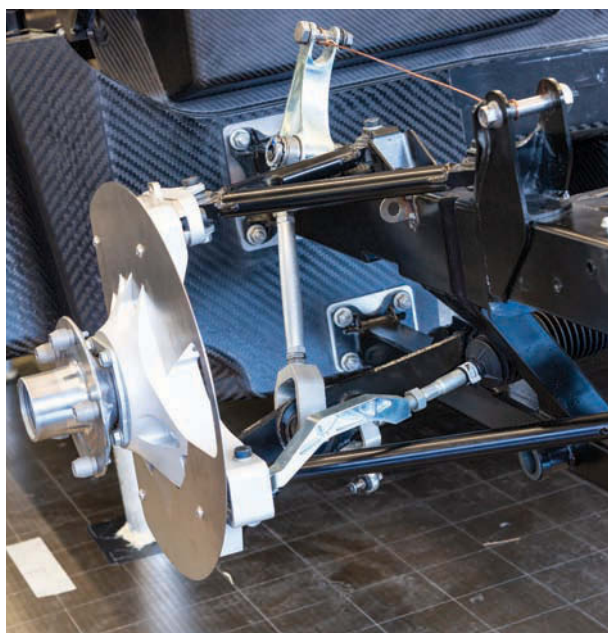
This is a much more macho car than its Pfaffenhausen siblings, including even the mid-engined CTR-3. It's quite different in character to other Ruf models, which could be described as relatively placid by comparison. This Yellowbird you can't be soft with, you've got to grasp the controls and really go with it. The paradox is, its very lightness and delicacy of handling and steering is at odds with the massive power available. 'Sure,' says Marc, 'the more you get the feel of it the better you know how it's going to behave. It has a huge personality, and it asks what you'd like to do

with it, very directly, and you are the driver, you decide what to do, and that means in a very tough way. A major factor with most modern sportscars is that you're not afraid because you have so many electronic aids inside that you know that, no matter what I do, it will save me. But here we are in the realm where you can go over these limits, but it's you that has to take care of it. Of course, we have standards and safety regulations, but the limit of this car is so much higher in performance and cornering that first you have to get used to it. Its light weight means you have much higher braking efficiency; you can brake later, you can accelerate earlier, you can go at higher speeds around the corners, so everything is one or two steps above the limits that you've been used to before.'

The person responsible for achieving these standards is Alois himself. Whist Stefan Roser was the test pilot for the original Yellowbird, Alois has the most experience in the behaviour of rear-engined

Under the familiar shape, there's a race car lurking. Much of the chassis tech is taken from Ruf's mid-engined CTR-3

Build number two under way. Carbon tub is clad with a lightweight carbon body. Suspension carried by front and rear subframes, which bolt straight on to the tub



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cars, so it is he who has raised the bar and set the parameters for the new Yellowbird. 'We've tried to achieve a weight balance that matches the behaviour of the mid-engined CTR-3,' says Marc, 'and this new push-rod suspension, front and rear, provides many more possibilities for us to achieve that goal. Then, of course, you just need a lot of test driving, and you either hunt for performance limits like top speed or acceleration, or, what is more important from our point of view, is that the car should give you as much fun as possible when driving it, because that's what it's all about, the pleasure of driving. You can make a lot of calculations and theoretical concepts, but in the end it always comes back to experience, and this is our strength. Next year we celebrate 80 years of Ruf, and that's what we've tried to put into this car.'

Back at the Pfaffenhausen showroom there's a group of Brits enjoying a guided tour – hi there, readers – and after refreshments I head out again in the new

Yellowbird, reflecting that life just doesn't get any better than this: it's such a thrill. Its colossal power is instantly delivered, and the whole tactile experience of the new CTR-4 is above and beyond what you would normally expect, even in a Ruf. This is a very sophisticated sports car with racing connotations as well, the way the power is

its lightweight construction, too. So, it's a muscle car in the sense that it requires you to use your muscles to actually control it when you're accelerating hard. But as well as deploying brute power it will pootle with the meekest of them in an urban context. Its ride is amazing, too, and that's mainly to do with the orientation of the springs and

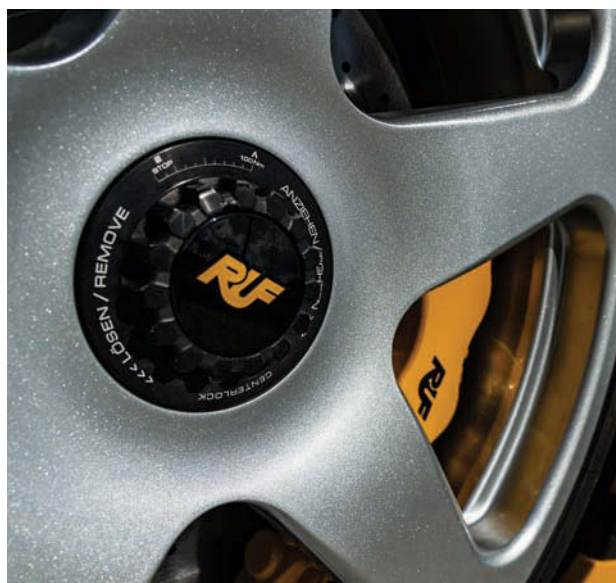
Next to the original Yellowbird CTR-1, the larger scale of the CTR-4 is more apparent. It's still a compact car by modern 911 standards, though

“ The CTR-4 is above and beyond what you would normally expect ”

delivered, a slight shudder accompanying each shift, almost like a hint of torque steer with each gear change as the power comes in. And I don't have to be trying very hard to make that happen: squeeze the throttle pedal and we're off! Let's not talk about horsepower: this CTR deploys elephant power – and of course that's partly down to

dampers. As Alois puts it, 'you feel the unsprung weight is really minimalistic, and you notice when you drive how nicely the wheels stick to the road; the suspension still delivers very good ride comfort, too. At the front we've gone longitudinal, so we have more space for the fuel cell and for luggage capacity and the other ancillaries we have

Below left: Trademark Ruf five-spoke wheels use Porsche's centre lock wheel fixings





Above: Rear suspension subframe. Right: Yes, it's that light! Alois Ruf happily holds aloft the entire roof section



This is a Porsche in shape and mechanical layout only. Otherwise, under the skin the Ruf CTR-4 is very much a bespoke offering

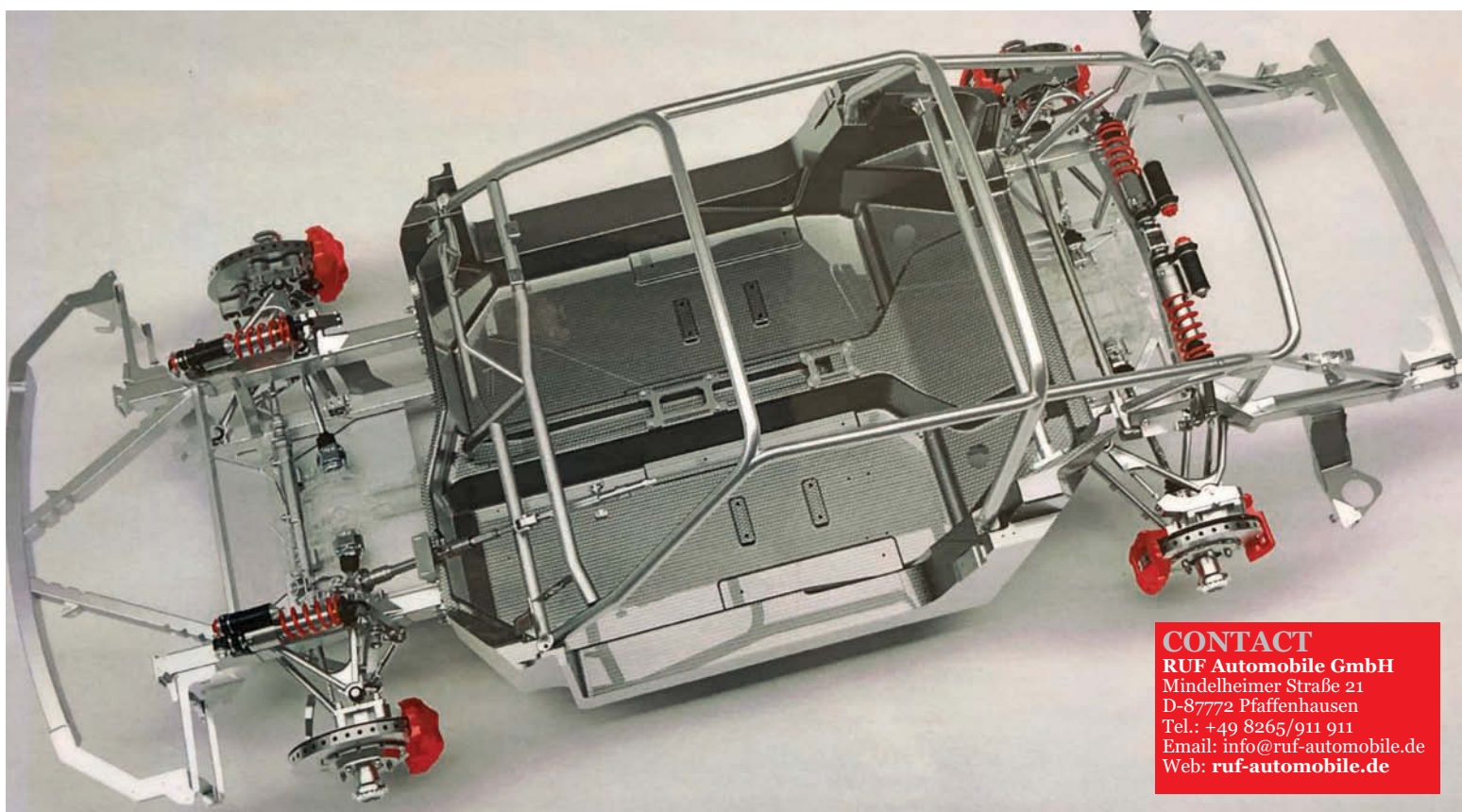
in there. We made a different fuel cell that's filled up from the aperture in the front lid, and by doing that we've gained 8-litres more fuel capacity, because you don't have the filling pipes of a normal 911. Also, we wanted to have steering that is very direct and very precise, and it's hydraulically assisted but with an electric pump, which means we can keep the engine compartment cleaner and bring weight to the front for better weight distribution, and we gave up on the rear seats for that reason, too, so instead you've got a luggage box behind you.'

Alois takes us the few kilometres to the Ruf skunkwerks where the chassis for Yellowbird CTR-4 number two is in the process of being created. The skeleton of

the chassis sits on a dais in the workshop, looking for all the world like a racing module. Two technicians hold up a complete carbon side of the car for Antony to shoot, demonstrating the lightness of it by using just two fingers. Alois obliges by picking up the entire roof panel by himself. The front and rear subframes are crash structures, made of lightweight steel, and bolted to the carbon monocoque. 'The bonding happens only between the parts that are made in carbon-fibre. The tub is made by a German firm, the same company that makes all the DTM tubs for the race series.' Some areas are solid and extremely rigid, while other box-sections are voids. 'You probably felt when you drove the car how rigid it is; there is no

squeaking, there is no flex, you don't have the feeling that something is moving around, like in a steel body; it's very solid. So, we are very proud that we have done something with the traditional 911 shape that didn't hurt it. Usually whatever people do to modify a 911 only makes it worse, not better, and here we have put something together that could have been an evolution of that iconic body.'

There is no doubt that the new Yellowbird CTR-4 is a masterpiece, hints of which were manifest in the air-cooled, carbon-bodied "Ultimate" that we featured last year; but the Yellowbird is nothing less than a quantum leap in Ruf's ever-evolving take on the 911. Come home to roost? Far from it: these flights of fancy are still very much on the wing. **PW**




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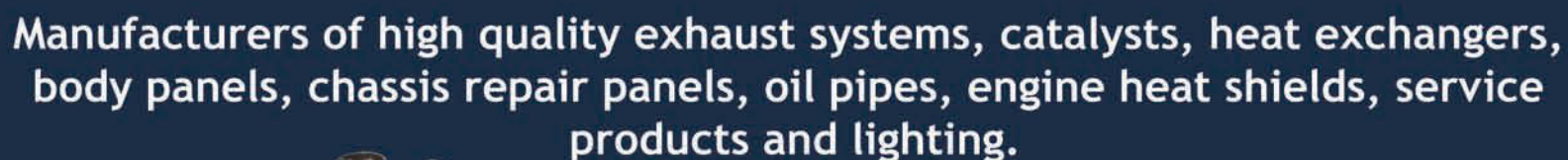
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SAVING THE BEST UNTIL LAST

With the new 992 model 911 almost with us, it's time for one last drive in the 991, with 991 sceptic, Bennett, at the wheel. However, he thinks the 'enthusiast' aligned T version might just win him over

Time to take an analogy and run with it. If the 911 were my favourite band, then the 991 would not be my favourite album. Indeed, were it such a thing, then I would have played it a mere handful of times in the 991's seven-year production span. By means of a comparison I reckon the 997 was rarely off my playlist. Indeed, the 997 probably qualifies as my favourite 911 album. Indeed, I can even name my favourite 997 track, that being the gen 1 GT3 RS, a car that was still analogue in the great scheme of things.

It's not quite for want of trying to like the 991. When it launched in 2011, it was, of course a big, big deal. Certainly a big deal for a magazine that's very cornerstone is the 911. The 991 was only the second all new, clean-sheet reboot for the classic 911 concept and the first in 14 years for the modern, water-cooled iteration. There was a lot to understand and it deserved our full attention, which we gave it in the form of a first drive that lasted three days and took us to the far north and some of the best driving roads we know.

At our disposal was a base 3.4-litre Carrera 2, which seemed fitting, on passive suspension and only PDK to spoil its enthusiast-like spec, but necessary thanks to my being on crutches after a cycling accident. The seven-speed manual, which sounded impressive (I mean who wouldn't want a seven-speed gearbox to play with), would have to wait for another time, although colleagues whose opinions I trusted, were not complimentary.

Back then, in 2012, I felt like I really had to like the 991, and I don't mind 'fessing up that perhaps swayed my

judgement to a degree, but deep down, for me, some of the magic had gone. I just wasn't quite prepared to admit it to myself, justifying my analysis with the inevitable progress of 50-years that had smoothed off some of the 911's quirks and rough edges.

Further drives followed – the launch of the C4S, a long distance blast to catch a stage of the 2012 Tour de France, the odd group test, GT3 x 2 and then the gen 2 turbo cars, which we marked with a two car test in Wales, with both the base Carrera 2 and the C2S. That was over two years ago and I haven't driven a 991 since largely on the basis of: if you can't find anything good to say, then...well you get the drift (funnily enough, that doesn't apply to the 911 Turbo, though, which I consider to be a 911 in name only these days). Not that I hid my disdain, far from it. It was my Ratner moment. It wasn't so much the inevitable turbocharging, but the accumulative effect of the 991's various systems weighing it down, and the turbos just added to a general bloated feeling. This was a car that was no longer light on its loafers, particularly since to fill the wheel arches they had grown to 20in of premium rubber, with equally massive brakes. And then there was the artificial addition of rear wheel steering and torque vectoring and all sorts of other guff to try and make the 991 feel rather livelier than it really was. I said all that stuff, too, and absolutely nobody disagreed. But then I'm just a harmless print media journalist. Good job I'm not an 'influencer', eh?

And I stand by it. The 991 hasn't captured the enthusiast's market and the GT cars have just made the enthusiast market cross, thanks to Porsche's bloody minded approach to production and allocation. And surprisingly Porsche got

“ If the Porsche 911 were
my favourite band, then
the 991 would not be my
favourite album ”





the message. What was required was a stripped out Carrera 2 and lo it was born in the shape of the 911 T. Sure there was a certain amount of smoke and mirrors going on, and typically less means pay more (the 911 T costs £8000 more than a base Carrera 2), but hey, we were grateful for the crumbs and the junior GT car vibe. Now here was a 991 that I might like...

And with the 991 leaving us and the 992's arrival imminent, now seems like a good time to say goodbye to the 991 and to take a drive in what I hope will be a case of saving the best until last. No, I'm not expecting the 911 T to elevate the 991 to the position of fave 911 album, but I'm open to it becoming my fave track of a thus far personally disappointing collection.

I hate to have a pop before I've even

driven it, but first impressions are not good. The less is more ethos of the 911 T is comprehensively trashed because this particular test fleet example is loaded with enough extras to take the on the road price to just £17 shy of £100,000, which is crazy and surely missing the point. It's got the lot: rear steer, torque vectoring, £6k's worth of carbon ceramic brakes, rear camera reverse, heated seats, cruise control. With that little lot to haul about, the fabric door pulls and rear seat delete and thinner side and rear glass just seems slightly cynical. The German registered version that colleague Dan Trent drove back in the early part of 2018, with no fripperies and not even a radio, was far more the thing. On the plus side, though, it looks the business in Speed Yellow, with Titanium Grey wheels and hunkered down

by 20mm on its Sports PASM suspension. And it's manual, too.

And so to the North Yorkshire moors and Blakey Ridge, the very same terrain that challenged that early 991 3.4 back in 2012, albeit minus the February snow. Purist and normally aspirated as it was, the 3.4-litre, 350bhp engine was lacking in torque and didn't really have the required grunt to overcome the 991 eco-biased gearing, its 324lb ft at 5600rpm no match for the 911 T's twin turbo 332lb ft between 1700rpm–5000rpm. Torque talks in real world conditions and this second encounter with the 991's twin turbo power pack is a more positive one, especially with the steering column mounted rotary dial tuned into Sport, which sharpens up the throttle response and magically gets blippy on the throttle

Above left: 991 sceptic, Bennett, at the wheel and presumably stirring for a gear. Handling and grip on massive 20in wheels and PASM Sport suspension is mighty



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for you on the downshifts.

Downshifts? Ah, yes, that manual seven-speed. The shift quality is superb, but you can't twang the lever round the gate like you can with, say, the Boxster/Cayman six-speed. Coming down from seventh to sixth and the lever is pulled straight to fourth, which can leave you in a right old muddle, unless you take evasive action and add your own bias correction. Even leaving seventh out of the equation, the spring biasing still works against you, taking the lever to a plane you don't want. Put rather

more simply, something that should be intuitive demands far too much thought. Which is a shame, because the manual benefits from the T's shorter, more dynamic 3.59:1 final drive, unlike the PDK T's 3.44:1 final drive, which is the same as the standard C2.

The chassis is rather more successful, even if it is artificially enhanced. Grip is never in question, particularly in the dry, but 20in tyres have that effect. Rather more reflective of the 911 vibe is the way the 911 T moves around when worked

hard. The added turbo torque wakes up the rear weight bias and the T feels more like the 911 we know and love, even if some of the agility is provoked via the rear steer trickery and torque vectoring rear diff. Whatever, it moves about, it shimmies and twists, in a way that was almost absent from the earlier gen 1, normally aspirated 991 experience. Over the crests and dips of Blakey Ridge, the PASM dampers offer strict control, but without ever being harsh or crashing and banging. Sure, it's no magic carpet, but body roll and contact

Not for the shy and retiring, but 911 T looks terrific in Speed Yellow. Massive PCCB brakes might be £6k spec overkill, but they don't half work

911 CARRERA T

Model tested:	911 Carrera T
Engine:	3.0-litre flat six, twin turbo
Transmission:	7-speed manual
Body style:	2+2 Coupe
Economy:	29.7mpg (combined)
Top speed:	182mph
0-62mph:	5.5secs
Power:	365bhp at 6500rpm
Power:	332lb ft at 1700-5000rpm
Weight:	1500kg



Below left to right: Fabric door pulls seem slightly cynical given the rest of this car's spec. Seven-speed 'box still not intuitive. Interior one of the 991's best features

patches are locked down. In this respect and despite my whinging about all manner of trickery, the T is a success. Hell, even the much derided steering is soon forgotten about, although it's hard not to feel slightly duped when you check out the spec and realise what you're interpreting as feedback is a 'Steering pulse generator!'

But forget about all that. As much as anything the essence of a sports car is about how it makes you feel and whether

it thrills and excites and the 911 T delivers that in a way that other 991s haven't, not even the unobtainium GT cars, which thrill and excite rather too much for everyday use. Sure, some of it is by sleight of hand, but there is just enough of the right stuff here to feel like it really is the 911 experience that we (or just me) have been pining for.

And apparently it's been something of a success, too, taking Porsche rather by surprise. There will be a 911 T in the 992

range, too, and presumably it will arrive sooner rather than later. And you will have noticed that we've looked into the forthcoming 992 in some detail in this issue, but there's no room for speculation on that here.

So back to my musical 'if the 911 were my fave band analogy.' I still stand by my assertion that in 911 terms the 991 is not a great album, but, as I hoped, there is a new best track on the album. It's called the 911 T and it's a catchy number, too... **PW**

“ Despite my whinging about all manner of trickery, the 911 T is a success ”





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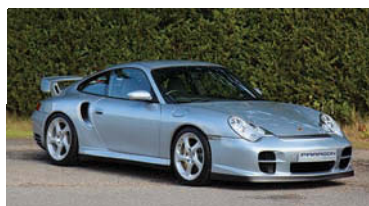
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Words: Dan Trent Photography: Sim Mainey

BIG BANG THEORY



GT-R tuner turns its expertise to turbocharged 991 Carreras with quietly spectacular results



LITCHFIELD 991T

Engine:	3.0-litre flat six, twin turbo
Transmission:	7-speed manual
Body style:	2+2 Coupe
Top speed:	182mph
0-62mph:	4.5secs
Power:	480bhp at 6500rpm
Torque:	460lb ft at 3695rpm
Weight:	1500kg

Litchfield 991 T sits 20mm lower at the front and 10mm at the rear, on custom springs. The track has been widened slightly, with 7mm spacers. Uniball front suspension arms allow camber change

What does a man synonymous with tuned Nissan GT-Rs buy himself for his 40th birthday? Why, a Porsche of course! Iain Litchfield's choice of a Carrera T is perhaps less surprising when you consider the history of the highly respected company carrying his name. Growth from an importer to tuner resulted in highly-acclaimed cars like the Cosworth-engined Type 25 Impreza. But as fashions changed and Subaru fans moved into Nissan GT-Rs Litchfield was right there with them.

Whether you want a few more horses for your GT-R or a full, 1000hp-plus Time Attack monster with a billet engine block, wild aero and 'Ring record ambitions Litchfield is your

packages for all second-gen 991 Carreras using the twin-turbo 3.0-litre engine. The only issue? Out of the box it was near-perfect.

"It's one of the best cars I've ever driven!" laughs Iain, praising the suspension, steering feel, throttle response and expansive power delivery of the stock 370ps/365bhp engine. His personal car is a purist's delight, with the carbon bucket seats, rear seat delete and optional rear-axle steering. The manual gearbox ticks the enthusiast box and scores him the T's lowered final drive, his car already living up to the 'driver's Carrera' billing. But there was untapped potential and it wasn't long before Iain was working to unlock it.

Porsche offers its 3.0-litre turbo six in three states of tune. Starting with the 370ps/365bhp Carrera you can then go

temptingly easy option if you want a bit more poke from your 991 Carrera and turns a GTS into a 500bhp-plus Turbo chaser. But this is just the first step.

Looking at the stock exhaust system Iain realised it was hugely restrictive. For those who prefer tuning to come from bolt-on mechanical parts rather than electronic tweaks even a 'slip-on' Akrapovic exhaust can release an additional 19bhp and 34lb ft, a result that impressed even the Litchfield boys. Sports cats release a little more still. A Remus equivalent achieves similar results at a more reasonable price. But the real choke-point in the system was the stock, pressed-steel manifolds. By accident or design these restrict the flow of exhaust gases to the turbos, capping both response and power. Admittedly there are few complaints about either when driving the standard car and Porsche has to preserve its range hierarchy. But Iain reckoned there were big gains to be made and had some tubular manifolds fabricated to test the theory.

Even he was pleasantly surprised at the results. "The turbos are now spooling up at least 500rpm sooner and we're seeing 30lb ft more torque at 2000rpm and an additional 55lb ft at 2500rpm, plus peak power at 480bhp" Numbers are numbers though. Proof, as always, comes in the driving.

Straight out of Litchfield's gate you hit the kind of bumpy, twisty B-roads on which 911s traditionally shine. And before the first mile the transformational effect of what are relatively minor modifications shine through loud and clear. Literally in the case of the engine, the breathing mods and Akrapovic exhaust singing a louder, more intense tune while the turbos whine and hiss in a way Porsche tries to mask in the standard car. But it's the throttle response that really stands out.

“Rather than sulk about dealer allocations, he put his money into a 911T”

man and his workshop, dyno and expertise are all in demand. But where do you go when you've scratched the GT-R itch, want something a little more mature but still crave the turbocharged horsepower hit? Well, you could do worse than a Litchfield-tuned Porsche. And upgrade packages for 911 Turbos were an obvious progression for both company and customers alike.

Litchfield fancied a 911 of his own though and had his heart set on a GT3. That didn't happen but, rather than sulk about dealer allocations, he put the money into a Carrera T, spotting both a nice 911 to own and enjoy and a business opportunity to develop tuning

to the 420ps/414bhp Carrera S, which is identical bar slightly larger compressor turbines on the turbos. To that you can add the optional factory Powerkit that matches them with larger exhaust turbines, new map and sports exhaust for 450ps/444bhp. This is standard in the GTS and as far as you can officially go on a Carrera.

With a plug-in remap alone Litchfield can release a GTS-beating 460ps/454bhp from the base Carrera engine, as tested on Iain's T and carefully tuned on the in-house dyno to maximise driveability as well as improved performance. For £1994 including VAT, and fully reversible if required, it's a



The standard engine is hardly mushy, especially when you hit the Sport button. But rather than a contrived, electronic tweak to the throttle mapping the improvements in this car result from mechanical changes and improved breathing. It's not quite as sharp as the more exotic, naturally-aspirated 4.0-litre in the GT3 variants. But it's not far off and matched with a much stronger torque delivery that gives you

that remains a core USP. But to drive a modern, turbocharged engine that revs like this one is a rare treat in this day and age. And given the good stuff is there in any gear, at any revs it's easier to exploit than it is in a GT3, especially at road speeds you might consider responsible.

The engine package with the Remus exhaust, sports cats and the remap costs

20mm and the rear by 10mm while 7mm spacers help fill the arches and take the edge off the raised spring rates. Uniball lower front arm bushes meanwhile permit a tweak to the castor. Stiffer sidewalls on the Michelin Pilot Sport 4s also help, the package adding just a little extra bite to the front end and just a smidge more feedback through the wheel. It's hardly a stiffly sprung handful but you can now sense the cambers and shifting grip levels through the wheel like you might on an older 911, this paired with the crisp throttle and predictability of the T's standard mechanical LSD releasing more of the old-school feel the T always hinted at. This package costs just over £2000 fitted but seems money well spent.

Litchfield's upgrades are entirely respectful and simply unlock that final degree of interaction the Carrera T's 'entry level' positioning wouldn't otherwise allow. It's a tactful package of upgrades, created and refined by people who really know what they're doing. Best of all it can work the same magic on any turbocharged 991 Carrera, now or at any time in the future you may wish to consider it. Best driver's 911 for road use this side of a GT3 Touring or R? With a light tickle that's exactly the potential Litchfield has done to a T. **PW**

Standard exhaust is typically restrictive. Litchfield has replaced it with a combination of Remus sports cats and an Akrapovic exhaust centre box

“ To drive a modern turbo engine that revs like this, is a rare treat ”

more options on how to drive the car.

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£7354, including VAT and fitting, or £10,363 with the titanium Akrapovic system. A chunk of money but not unreasonable compared with the £7172 factory Powerkit, which isn't available on the T.

And that's not all. Although delighted with his T's handling balance following some track testing Iain reckoned there was a little room for improvement, the front ride height in particular robbing a little steering feel. Some custom springs and adjustable beds let him play with the rake, dropping the front by

Below left: A simple remap will liberate over 450bhp. Below: Exhaust is a work of titanium art





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2016 718 Cayman S 2.5 Coupe
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2009 911 (997) 3.8 Carrera S Coupe PDK Gen II
Basalt Black, 2009/09, Automatic, 71,450 miles, Sand Beige Leather, PCM 3 - Touchscreen Sat Nav, Sport Chrono Pack Plus, Heated Seats, Bluetooth, Xenon Lights with Wash, 19" Carrera S Alloys with Porsche Crests, Aluminium Dials, PASM. **£35,900**



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Photographs by Antony Fraser



POWER

One day, the engine in your 911, Boxster or Cayman might need a rebuild. It's a costly business, admits Chris Horton, but for perhaps an additional £1500-£2000 you could also increase the cylinder capacity for a worthwhile increase in power and crucially torque. Suddenly that dark cloud has a silver lining



There is, as we car enthusiasts like to say, no substitute for cubic inches. It's a commonly quoted automotive 'proverb', one of those hoary old

aphorisms that we use without considering their real meaning, but like most of its kind it is based upon easily observable fact.

American 'muscle cars' have for many years relied on the sheer size of their usually V8 engines to generate the power and specifically the torque needed to deliver the performance for which they became famous – albeit usually in a straight line only. And here in Europe, where smaller four-cylinder motors are the norm, both after-market and DIY tuners long ago realised that often the most effective way of significantly increasing a given unit's output, its ability to propel the car satisfyingly quickly and easily from 'A' to 'B', is to increase its capacity, or in more scientific terms the swept volume of its cylinders.

This capacity increase, all things being equal, allows the engine to burn more fuel in the larger quantity of air which – if the induction and exhaust (and ignition) systems are up to the job – it can draw in to and then expel from its larger combustion chambers. That pushes the pistons with greater force, which in turn turns the crankshaft with more

of that same energy. It's much the same principle as throwing a stack of hefty logs on a sputtering campfire to create a bonfire, and thus generate more heat.

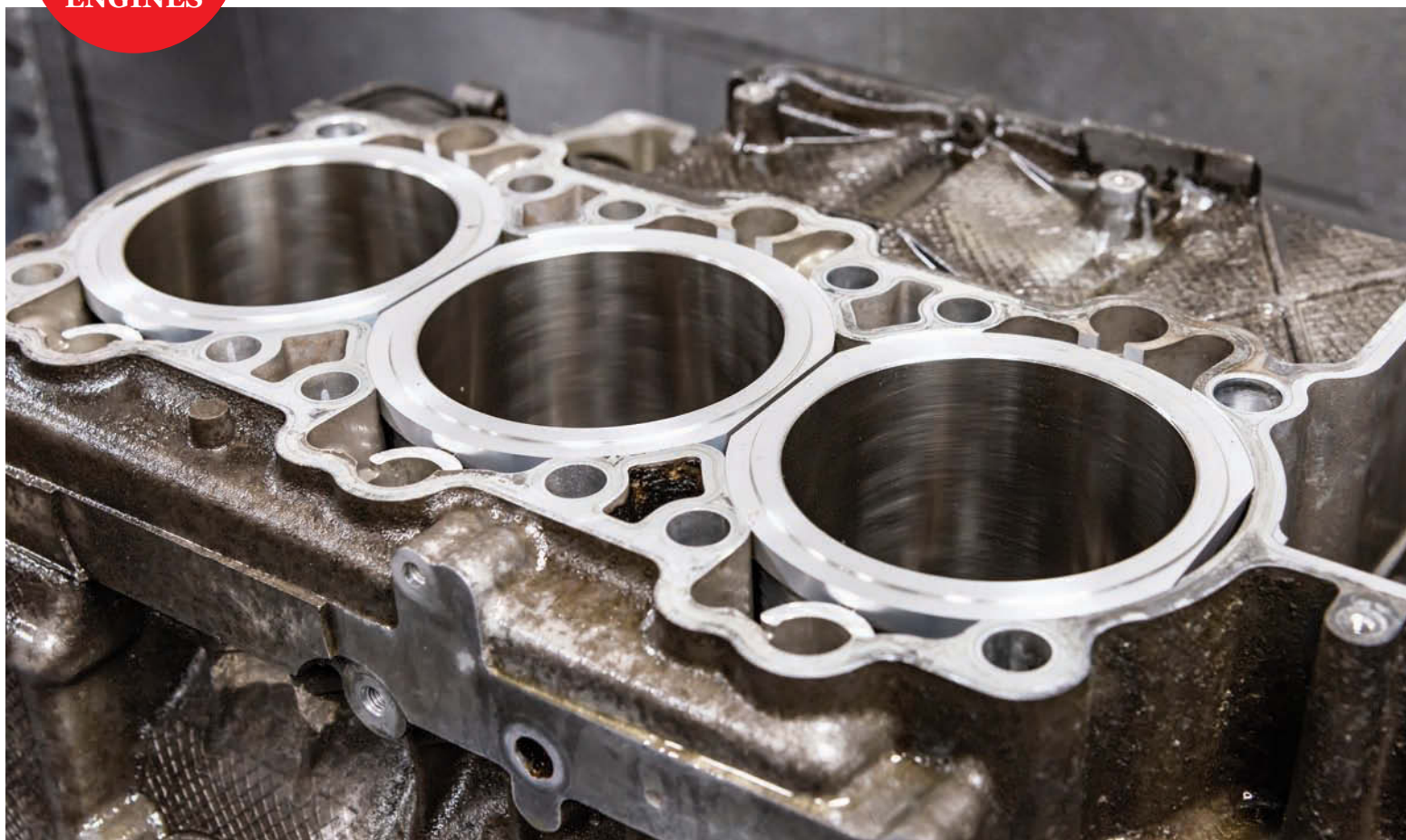
Porsche, too, has long been an enthusiastic proponent of 'oversizing' its engines for more power and torque; for upscaling, perhaps, to use a modern term. In standard production form the naturally aspirated air-cooled 911 expanded from its original modest 2.0 litres to 2.2, 2.4, 2.7 and 3.0 litres, and then finally to 3.2 and 3.6 litres. The water-cooled M96/M97 grew from 2.5 to 2.7, 3.2, 3.4 and 3.6 litres, and finally to 3.8. (The subsequent 'shrinkage' of the current gen 2 9A1 to 3.0 litres is another matter, prompted by the need to reduce overall exhaust emissions, but is arguably more than offset by turbocharging.)

Oversizing is not necessarily a simple process, though. At the very least it requires the engine to be stripped, and then the cylinder block to be machined to the size necessitated by the chosen larger-diameter pistons. Attention must also be paid to smaller but no less important details such as the resulting compression ratio (which will naturally increase), piston-to-bore tolerances, valve sizes, cylinder-head gasket(s) and, for optimum results, camshaft profiles and timing,

ignition settings, and not least the intake and exhaust systems. And obviously you need to make sure that the rest of the engine's structure is strong enough, too.

Arguably by far the simplest engine to modify in this manner is the air-cooled 911, with individual and easily replaceable cylinder barrels suspended from the external faces of a vertically split crankcase by through-bolts, once you have removed the camshafts and the individual cylinder heads. (Likewise the VW Beetle engine and its Porsche variants, of course.) That's the way Porsche generally did it, and the reason why, even today, a good set of crankcases from even a 1965 2.0-litre can with the appropriate barrels and pistons become the basis of a no less than 4.0-litre motor. There can't be many other designs with that kind of versatility.

It is, unsurprisingly, a different story for the water-cooled flat-sixes, designed for the easiest and cheapest possible initial assembly processes, and in effect as sealed-for-life units probably intended, like most mass-produced modern engines, to be discarded when they wear out or go wrong. Few, if any, enthusiasts, then, would in this case routinely embark upon a tuning programme based first and foremost on capacity. A remap and an after-market exhaust system will deliver a



cost-effective improvement quite sufficient for most, and ultimately it is cheaper and easier to fit a larger second-hand unit – or perhaps just to buy another car.

But the times they are a-changing. History has shown many of the water-cooled engines to be disappointingly fragile (although some do manage to notch up impressive mileages; we know of several 2.5s that have happily exceeded 200,000), and a significant sub-industry has sprung up to cater to the needs of enthusiasts who, understandably, don't wish to consign to the scrap-heap a high-value and certainly highly desirable sports car that they justifiably cherish.

Pre-eminent among those specialists here in the UK is Barry Hart, since 1985 the tireless engineering talent behind Bolton, Lancashire-based Hartech, and in terms of the molecular-level metallurgy and thermodynamics of Porsche's water-cooled flat-sixes probably the most knowledgeable – and certainly the most boldly and painstakingly innovative – man outside the factory itself. His long career in the automotive industry began way back in the late 1960s, and includes both the designing and manufacturing from scratch of a number of race-winning motorcycle engines and gearboxes. A beginner he is not.

Barry's first reworking of the then contemporary M96 was as long ago as 2002, when it was becoming painfully apparent that the standard offering wasn't quite as robust as we had all hoped, and since then he has gone on to develop solutions covering just about every aspect of the units. One of his earlier upgrades was to fit a purpose-designed bracing collar between the top of each cylinder and the surrounding coolant jacket, to prevent the former distorting and cracking, and it was surely no coincidence that Porsche itself later adopted this so-called closed-deck construction.

Thus far Hartech has in one way or another reclaimed at least 2000 of these power units for owners right around the world (there is at

least one Hartech engine in Iran), and even now, with the potentially affected models rapidly ageing, and being replaced by more modern and almost certainly more reliable versions, there is no sign of the steady flow through the company's busy machine shop diminishing. Like any genuine enthusiast, however, Barry couldn't help thinking that for all its flaws – entirely fixable, thanks to those repair techniques and modifications – this was a design that had still more to give.

With time on his hands, then, now that the day-to-day running of the business is ably handled by his stepson, Grant Pritchard, and with a team of long-serving technicians and machinists behind him, Barry has spent the last three years devising a programme of capacity increases applicable to pretty much the entire range of M96 and M97 engines (but not the MA1/9A1 from the gen 2 997 and the gen 1 991). All are designed around the holy grail of the easily accessible and enjoyable performance that comes not just from their headline-grabbing power output, but primarily

from the increased torque available. (See pages 84–87 for an explanation of the crucial differences between power and torque.)

Not for a moment is Barry suggesting that anyone in their right mind will spend the best part of £10,000 on an engine rebuild purely for the sake of a capacity increase somewhere between 200cc and 500cc, and increases in power and torque of around 15 per cent at the very most. His programme is based on the perfectly reasonable assumption that any engine receiving such an upgrade requires reconditioning anyway, either because of a failure, or because its owner wishes to avoid one. In which case, for the sake of perhaps just £1500–£2000 plus VAT out of that £10K bill, why would you *not* go the extra mile? Or in this case, perhaps, the extra cubic centimetre?

Central to each oversize conversion is a set of six Nikasil cylinder inserts and matching pistons, designed by Barry himself and manufactured under licence by Capricorn in Hampshire, and in principle no different to

One of Hartech's most significant upgrades to M96 and M97 engines is to fit a supporting collar between the top of each cylinder 'barrel' and the inside of the surrounding coolant jacket, to prevent distortion of the bore and even cracking. Porsche itself eventually adopted this so-called closed-deck construction. Note, too, the subtly cut-back areas where coolant passes between the block and the head



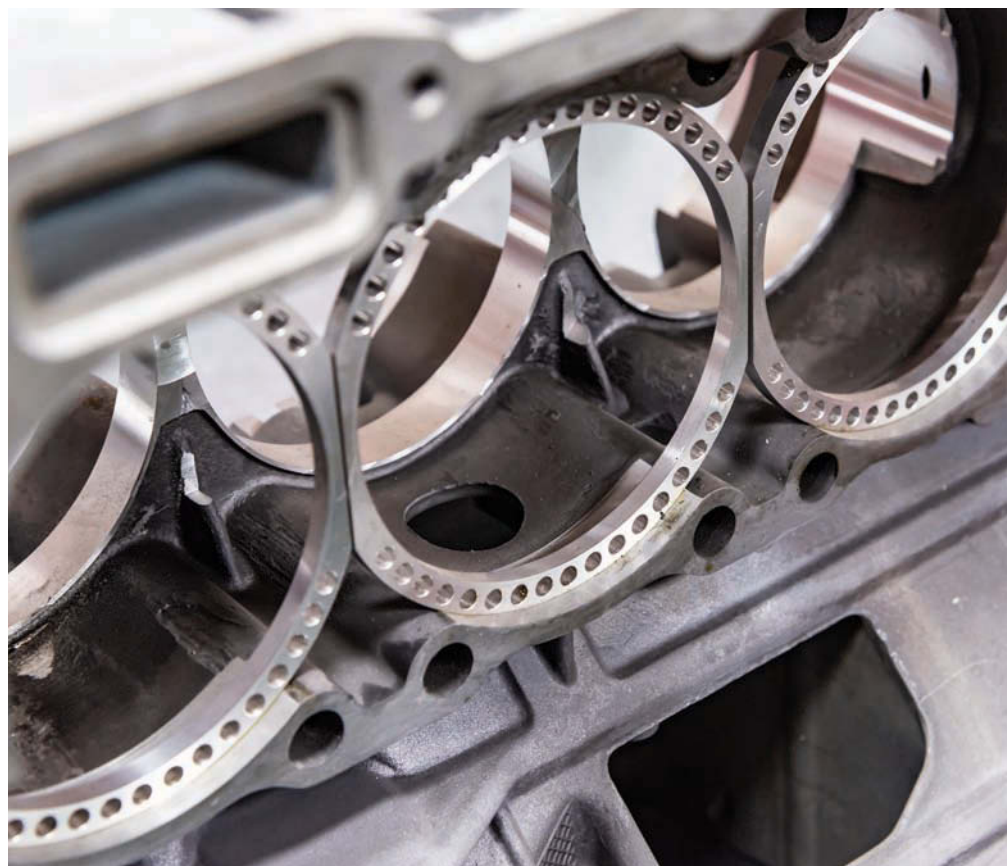
From left to right: Hartech director and service manager Tobias Higgins; company founder Barry Hart; and Grant Pritchard – Barry's stepson, and now MD. Barry began his career designing and manufacturing race-winning motorcycle engines and gearboxes, including one for the late Barry Sheene, although sadly he never competed with it. Barry (Hart) also designed the innovative square-four motor for the Phoenix 4 bike that featured in the 1980 British movie *Silver Dream Racer*, starring David Essex



3.4 – 3.7 / 3.4 – 3.9 / 3.6 – 3.9 CAPACITY CONVERSIONS

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those used in all of the company's engine reclamation jobs. Thoroughly tried and tested, in other words – and things of undeniable beauty if you should be lucky enough to hold them in your own hands. Significantly, all have a nominal working diameter of 100.0mm, finished capacities (see chart below right) determined by the stroke of the crankshaft.

The original Porsche cylinders are machined out and the new ones pressed in, and crucially with a supporting ring not just at the top of each bore, but now also at the bottom. These are themselves drilled (see photo above), partly for lightness, but primarily

sprocket- or the slightly later gear-type shaft – and that first shaft is itself 'updateable' to the subsequent gear-style item if required, although naturally that requires the matching chain, and various other parts. Famously, that final iteration of the IMS bearing cannot later be replaced without splitting the crankcases again, but such appears to be its dramatically improved reliability and longevity that this should hardly be an issue.

It would be understandable if at this point you are imagining all sorts of exciting possibilities – turning your Boxster 2.5 into a 3.9, for instance; and remarkably every single

outweighed by the costs.

Precise increases in both power and torque depend on a number of factors, but generally, as we've said, amount to some 15 per cent, and with a no less useful lowering of the revs at which they are achieved. Both the 3.6 to 3.9 and the 3.4 to 3.7 will run with the original engine management system, we understand, although perhaps unsurprisingly the 3.4 to 3.9 will benefit from a remap – as, of course, will those smaller versions. There should also be an improvement in the engine's overall efficiency and thus its fuel consumption, although since you would have to be as abstemious as a Franciscan friar not to use the additional performance at every available opportunity, that is unlikely to figure in any calculations. It is certainly not something that Barry Hart is championing.

For him – and, as you will see elsewhere in this story, for us, too – it is all about the torque, and the resulting improvements in not just the cars' 0–62mph times, but also in real-world, mid-range acceleration. The ability not just to maintain a relaxed motorway cruising speed, but also to overtake swiftly and safely when needed. Sounds ideal to us. **PW**

Belt and braces: it's not just the middle and the top of each cylinder that is firmly braced against the crankcase. Latest Hartech innovation is to add these drilled rings at the base of each tube – holes are partly for lightness, but primarily to aid oil drainage. Pistons and cylinders (top) designed by Barry, and manufactured under licence here in the UK by Capricorn. Both first- and second-generation intermediate shafts, with small-diameter bearing, can be modified for the larger-diameter third-generation job (above, left of pic), and which has proved itself virtually unbreakable. Chart below gives a good overview of various capacity options

“Increases in both power and torque depend on a number of factors”

in order to facilitate oil drainage back into the sump. There is an additional supporting interference fit between the block and roughly the mid-section of each cylinder; and the upper area of the tube, inside the coolant jacket, is ribbed to give additional surface area and thus more efficient heat transfer.

Cooling is further assisted by the opening up of the coolant pathways between the top of each block and the cylinder head – another proven Hartech modification to aid cylinder-bore longevity. That said, Nikasil cylinders are inherently resistant to scoring, because the cylinder surface does not consist of hard silicon particles trapped in an aluminium matrix that gradually comes loose and scratches at the piston surface, but instead a homogeneous electroplated surface that remains permanently fully bonded, like a complete thin tube within the aluminium.

It would for similar reasons be the brave owner of an earlier engine who turned down the option of an intermediate shaft modified to take the later larger-diameter IMS bearing. This can be installed in either the earliest

one of these Porsche engines has the same overall external measurements – but not surprisingly there is a practical limit to what is possible, and Barry has no less sensibly set out just five options. (And, based upon the simple but often overlooked fact that today the 2.5 and 2.7 rarely, if ever fail, neither of those units is considered to be a viable basis for conversion.)

In order of original size, then, the range commences with the 3.2-litre Boxster 'S', which with those 100.0mm pistons in place of the original 93.0mm items gives a nominal 3.7 litres. The 3.4-litre 996 (96.0mm bore, again raised to 100.0mm) becomes a 3.7, and with the additional fitment of the appropriate longer-stroke crankshaft the 3.4-litre Cayman 'S' can be stretched to 3.9. The 3.6-litre engine (96.0mm) is another good candidate for the 3.9-litre upgrade, not least because it already has the same free-breathing cylinder heads as the 3.8, and likewise the 3.8 itself can easily be given those extra 100ccs, although obviously by this stage any benefits are beginning to be

	Bore (mm)	Stroke (mm)	Capacity (cc)
Boxster 2.5	85.5	72.0	2481
Boxster 2.7	85.5	78.0	2687
Boxster 'S' 3.2	93.0	78.0	3179
Hartech Boxster 'S' 3.2 to 3.7	100.0	78.0	3676
996 Carrera 3.4	96.0	78.0	3388
Hartech 996 3.4 to 3.7	100.0	78.0	3676
Cayman 'S' 3.4	96.0	78.0	3388
Hartech Cayman 'S' 3.4 to 3.9	100.0	82.8	3902
996/7 3.6	96.0	82.8	3596
Hartech 996/997 3.6 to 3.9	100.0	82.8	3902
997 3.8	99.0	82.8	3825
Hartech 997 3.8 to 3.9	100.0	82.8	3902

LARGER THAN LIFE

In which editor Steve Bennett gets behind the steering wheels of a trio of Hartech's large-capacity engine conversions, and finds their improved pulling power very much to his liking. Stand by for Project Oversize... Photographs by Antony Fraser



Bennett at the wheel of Hartech's capacity-enhanced, 352bhp Cayman 'S'. Both power and torque have been increased by 48 per cent, with torque at 320lb ft at 4500rpm

When it comes to torque versus revs I am definitely in the former camp. High-revving engines do have a certain appeal, particularly the small-capacity screamers – like Honda's VTEC units – where all the power happens at once, in a narrow power band. But crucially they rarely seem that fast out in the real world, where a linear power delivery feels just that. Or, to put it another way, they are rather flat as you wait for a discernible peak in the power curve somewhere near the redline. Such engines work best in small, lightweight sports cars, but largely they have disappeared, killed off by emissions and the rise of turbocharging in both diesel and petrol engines, plus emissions-friendly 'tall' gearing.

Not that Porsche engines have been lacking in torque in recent years. The most popular sizes at 3.4, 3.6, 3.8 and 4.0 litres have sufficient capacity to produce that 'big' engine feel, which is what you notice in road driving. They can be improved upon, too, but not significantly, unless you start to play

around with camshafts, throttle bodies, engine management systems, and so on. Indeed, take that route and you might see some similar gains to Hartech's big-capacity engines, as tested here. The difference is, though, that you will have spent a great deal more money, and you will have something that feels raw, noisy and decidedly non-

Bolton, Lancashire. While technical guru, Chris Horton, was getting the lowdown from Barry Hart, I was getting the seat-of-the-pants driving experience with the help of a number of modified-by-Hartech machines: a 996 Carrera 2 3.7, up from its original 3.4 litres; a 996 Carrera 2 3.9, increased from 3.6 litres; and a Cayman 'S' 3.9, up from its original 3.4

“As a 3.4 owner myself, I was intrigued to try the 3.7 conversion first”

factory, which isn't what most people want. No, the beauty of Hartech's conversions, is that they feel and drive like standard Porsches, which is surely the ultimate accolade for any modified car.

Here at 911 & Porsche World we know this because a few weeks ago we paid a visit, mob-handed, as it were, to Hartech's labyrinthine but well-equipped premises in

litres. Corresponding standard cars were on hand, too, with their owners, who also drove the Hartech cars. It was, as you can imagine, a fascinating exercise. Just a shame about the suddenly very autumnal weather...

As a 3.4 996 Carrera 2 owner myself, I was intrigued to try the 3.7 conversion first, against the standard 3.4-litre 996 Cabriolet belonging to Alex Yates. As expected,



Alex's car felt more than familiar, with the 3.4's typically wide power band. For all its issues, it's a lovely, smooth, flexible unit. It's not lacking in torque, either, but more of this valuable commodity is never a bad thing, particularly if – as here – it is produced lower down the rev range.

Hartech's demo 996 3.7 is a 1998 car, but it has weathered well, given that it's now 20

without needing to run the engine into the higher rev range – unless you want to, of course. And if you do, then it's just as smooth as the standard 3.4-litre, with peak power arriving at much the same point. The difference is, as with the torque, there's more of it. Indeed, if you look at the graphs, the power and torque curves are remarkably similar in terms of shape, which is very much

237lb ft between 1500rpm to 7500rpm to 283lb ft, an increase of fully 20 per cent.

Time to try the 3.9-litre 996 now. Again it's a C2, but a 3.6 gen 2, which this time belongs to Hartech director and service manager Tobias Higgins. It's a Tiptronic, and we have a 996 C4S Tip on hand for the standard comparison, which from the seat of my pants feels, well, standard. That is to say that over the gen 1 3.4-litre 996, there is appreciably more torque, which is what you would expect from another 200cc. And the 3.9 Hartech engine? Well, the basic facts are these: power is up from 320bhp to 347bhp, while torque increases from 273lb ft to 313lb ft between 1500rpm and 7000rpm. Put into a different perspective, and perhaps a more real-world one, for both power and torque that's a 14 per cent increase between 3000rpm and 6000rpm.

And how does it feel? Muscular! Using the Tiptronic in manual mode in third and fourth gears highlights the engine's power curve,

Hartech's 3.7-litre conversion as fitted to a lovely, early 996 makes 325bhp, and 283lb ft of torque, which is an increase of 20 per cent

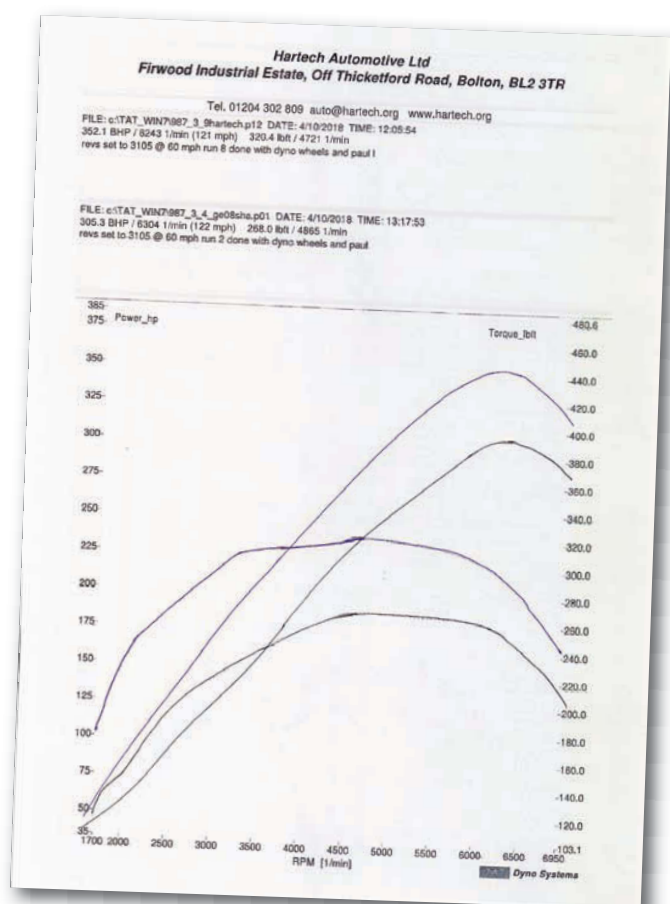
Using a gen 2 3.6-litre 996 as a starting point, capacity increases to 3.9 litres and power to 347bhp, with torque increasing from 273lb ft to 313lb ft

“ Using the Tiptronic in manual highlights the engine's power curve ”

years old. Predictably it feels more like a gen 2, 3.6-litre 996, and compared to the standard 3.4, the power builds earlier, becoming meaningful from 2500rpm and making progress all the more effortlessly swift,

what you feel on the road. And for the record, the 3.7 conversion is making a maximum of 325bhp between 1500rpm and 7500rpm, an increase of nine per cent. But what you're really feeling is the torque, which goes from





Rolling-road graph for the Cayman 3.9 conversion clearly demonstrates a 48 per cent increase in both power and torque. Note how the curves have essentially the same profile for both standard and modified engines

and again the experience is mirrored by the numbers. After all, you're not going to mistake an extra 14 per cent of power in that real-world sweet spot. It's there, you can feel it and you can exploit it, but without having to work the engine's upper rev range. Again, that's power from capacity and torque, rather than power from revs.

And so to the Cayman 'S', which Barry Hart reckons to be the most interesting and appealing conversion here, because unlike the other two it has jumped an extra 500cc (as opposed to 300cc for the two 996s), which has resulted in a massive improvement in breathing at low revs, compared to the 3.7-litre engine, with which it shares the same stroke. Digging into this further and at 2000rpm both torque and bhp are some 48 per cent higher. Yes, that's worth a double take! This tails off to 20 per cent at 5000rpm and 16 per cent at 7000rpm, but who's complaining? In terms of power the 3.4-litre to 3.9-litre conversion goes from 303bhp to nearly 352bhp, between 1500rpm to 7000rpm, while torque – as you would expect from the above figures – jumps from 250lb ft at 4500rpm to 320lb ft at roughly the same rpm.

Study the graph for the full load down, but those differences between the standard and modified power and torque curves are replicated on the road. Between the standard Cayman 'S' on hand and the modified 3.9, the difference was all too clear, aided by the fact that each car was a manual, giving maximum control over the two engines. The 3.9 has power everywhere, starting with that massive surge from low rpm, which feels like an electric motor has joined the party or, as Barry describes it, rather like combining a low-pressure and a high-pressure turbo.

Certainly the Cayman hits the sweet spot, thanks to that capacity-versus-stroke combination. Yes, it's fast, but it's the way that it produces the power that makes it so suitable as a road-car engine. The same applies to all the conversions, but more so with the Cayman. Its broad spread of power and its incredible flexibility give you options. Overriding memory? A long, straight, uphill drag and, even in sixth gear, the Cayman simply demolishing it.

An absolutely fascinating experience, then. And a potential cherry on the cake for anybody pondering an engine rebuild. I mean, why wouldn't you? Right now, I just can't get out of mind the prospect of that 3.9-litre engine sitting in the back of my gen 1, 3.4-litre 996. How about it, Barry? **PW**

THE REAL-WORLD VIEW THREE OWNERS OFFER THEIR OPINIONS ON THE BIGGER-EQUALS-BETTER DEBATE

Alex Yates: 996 Cabriolet 3.4

We used Alex's 996 as one of the comparison cars. He has owned it for nearly five years and has covered 45,000 miles, using it as a daily driver. It's now on 130,000 miles and significantly still has its original M96 engine, which says a lot for regular use. Is it on borrowed time? Who knows, but Alex's engine is a prime candidate for a Hartech capacity upgrade when the time comes. And after a drive in the 996 3.7? 'In third and fourth gear at 3500rpm–4000rpm it's much more flexible,' reckons Alex. 'More mid-range, too!' And of the 3.9 Cayman 'S'? 'That seemed as fast from 3000rpm to 5000rpm, and it goes like stink from any revs!'



Mike Hibbins: 996 3.4 Tiptronic

Another encouragingly high-mileage 996, this time with 155,000 on the odometer, although owner Mike Hibbins concedes that it received a Hartech rebuild at 92,000 miles. It's another daily driver, too, which is equally encouraging for a 20-year-old car. Mike was impressed with the 3.7 and 3.9 996 conversions – 'A definite difference from 2000rpm' – and reckons that had the option been available when his engine was rebuilt he would definitely have gone for it. But he reckons that there's no reason why he couldn't apply the mods to his current engine, and was last seen having a quiet word with Barry Hart...



Eric Munro: 996 Carrera 4S GT3 RS replica

Serial Porsche owner, Eric Munro, bought this 991 GT3 RS lookalike as it stands. The body conversion was carried out in Germany, and the interior has been retrimmed in leather and Alcantara. He's no stranger to modded Porsches, and once owned footballer Rio Ferdinand's ex-TechArt Cayenne Magnum. Underneath, Eric's GT3 RS lookalike is a standard 996 C4S, and he's not going to be shy about modifying the engine. All that show deserves an equal amount of go. Predictably, Eric was impressed with the 3.9 Cayman 'S'. 'It pulls very well in sixth,' which we can vouch for, too. Again, last seen in the queue to have a quiet word with Barry...





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TORQUE TALK

Engine tuning traditionally concentrates on raising peak power, but in truth it's torque – rotational force – that does most of the hard work, argues Chris Horton. Photos by Porsche and the author



The headline benefit of raising any engine's swept volume, as we've suggested elsewhere in this analysis of Harteck's enlarged M96 and M97 units, is an increase in power. It's what magazine road-tests, tuning features and *Top Gear* presenters have banged on about for years. (With arguably one notable exception; see below.) But to Barry Hart – and, in truth, to the rest of us, if we did but know it, and had not become fixated on mere bhp – the most important gain is a comparable increase in torque. And, if you and/or your engine builder have done your sums, a modest but no less useful reduction in the engine speed at which both curves subsequently peak.

'Porsche sports cars have gearing that most owners will never exploit to peak revs – and certainly not in the higher gear ratios,' says Barry. 'Tuning a given engine to raise the revs for maximum power looks impressive on paper, but often fails to provide the real-world performance increase that the graph implies. But even a modest increase in capacity will usually result in much better torque, and so the easier, faster acceleration that will also suit both typical road users and occasional trackday drivers far more than the results of purely external modifications alone. And a modest increase in capacity will often result in the engine being less stressed than it is by conventional tuning.'

It's all about what Barry calls the rev-drop area. 'Your engine's maximum brake horsepower is effectively the same in any gear – and simply determines its potential to do different things, depending on the way in

which it transmits the output. But torque is not quite the same thing. You have the most torque at the wheels in the lowest gears – which is why when driving on mud or ice you need to stay in as high a gear as possible, in order to reduce the chances of wheelspin – and as you shift upwards the torque reduces in inverse proportion to the ratio. Torque in sixth gear – again at the driven wheels, of course – is typically between four and five times less than it is in first.

'When you change up through the gears, you inevitably exchange that torque for rotational speed. To put it another way: increase wheel speed, so that the car can travel faster, and you reduce the available torque by the same proportion. This is why your car naturally accelerates faster in the lower gears, and less quickly in the higher ratios. And why, when you come to climb a gradient, you have to change down in order to maintain your speed.

'When you change gear at the rev limit the engine speed naturally drops to the level that is effectively determined by the next higher ratio. So if you are driving to maximum revs before changing gear you create a "rev drop" – or more likely a series of rev drops – in which the vehicle has to accelerate back up to the rev limit before you shift up again. And this rev drop varies in size depending on which gear you are in. It's usually at its greatest between first and second gear, and at its lowest between fifth and sixth. Essentially, the fastest overall acceleration will be achieved by having the greatest average torque in that rev-drop area.

'Typically, tuning an engine to rev more

quickly will usually produce more power at or close to maximum revs – and in so doing place more stress upon it, of course. But it will also tend to produce lower torque at lower revs, and lower average torque within that crucial rev-drop area. So its acceleration will necessarily be compromised. You can, of course, exploit beneficially higher bhp at higher revs – even though it reduces average torque – if you can also change all the gear ratios and the final-drive ratio to suit. But if, as is almost inevitable, you are stuck with the ratios you already have, then increasing average torque in the rev-drop area that you are also stuck with will usually increase performance by a greater margin.

'The reason it is difficult to create extra torque at higher revs is purely because as the revs go up the period during which the inlet and exhaust valves are open – to allow fuel and/or air in, and exhaust gases out – reduces by the inverse proportion of the engine speed, until there is simply insufficient time for the engine to breathe effectively. It's like a world-class athlete who, however powerful his muscles might be, just cannot get sufficient air into or out of his lungs quickly enough. Trying to improve breathing at the very highest revs at which the engine is already struggling is not easy, and brings few rewards. By way of contrast, at lower revs – when there is more breathing time available – the valves are open for longer, and as a result they can handle more air flow and create more torque.

'So although increasing capacity might or might not increase maximum bhp at maximum revs – or, at least, by not as much

996 Turbo – here in Cabriolet form with a factory hard-top – had an impressive enough 420bhp at 6000rpm, but what really did the business was its torque 'curve', essentially a flat, 560Nm plateau from 2700rpm to 4600rpm. Even with a supposedly 'lazy' Tiptronic transmission – and perhaps because of it – 0–62mph was easily and consistently achievable in the factory's claimed 4.3 seconds, and 0–100mph in 9.5. Power is one thing; torque – and the ability to use it – quite another



The Carrera GT's V10 offered 612bhp at 8000rpm, and a hefty 590Nm at 5750rpm, but 'clean' standing starts were not easy to achieve – and its 205mph top speed is by today's standards hardly remarkable

* The 'units' used throughout science can be baffling, not least because there have evolved so many ways of expressing the same thing. Pounds or kilograms? Miles or kilometres? Gallons or litres? The newton (lower-case 'n') is the International System of Units- (or SI-) derived unit of force. It is named after the English polymath Sir Isaac Newton (1642–1726) for his work on classical mechanics, including his famous laws of motion. One newton is the force needed to accelerate a mass of one kilogram at the rate of one metre per second squared. Other units of force are the dyne, the kilogram-force, the pound-force and the poundal. The joule, named after another English physicist, James Prescott Joule (1818–1889), is an SI unit of energy, defined as that transferred to an object when a force of one newton acts upon it in the direction of its motion through a distance of one metre. If you want to know more about all of this, then pour yourself a strong drink and settle down with Wikipedia on your laptop...

as some expect – it always creates exactly what makes a car accelerate faster. That is to say, more mid-range torque in that crucial rev-drop area, and that allows the driver to go faster while revving the engine more modestly. This brings improved longevity, of course, and the better mid-range response – as a result of increased torque – makes it less important to be constantly changing gear in order to drive quickly.

'You could be surprised to learn that whereas an increase in capacity of, say, eight per cent, from 3.6 litres to 3.9, might increase bhp by around the same percentage – and at peak revs when the breathing limit is reached it could be even less – in the rev-drop area, where there is more time when the valves are open, the extra capacity can allow in more air and expel more exhaust, and increase torque by up to 15 per cent. With that kind of improvement comes the sort of increase in acceleration that you might have previously expected from a car with the same engine tuned for a 15 per cent increase in bhp at higher revs – which is actually extremely difficult to achieve. And certainly not for anything like the same cost.'

All well and good. But just what is this mysterious and so frequently misunderstood torque? And why is it so often confused with power? To explain that is going to require some GCSE-level Physics, but try to stick with us here, because once you have grasped the basics of this fascinating subject you will never feel quite the same again about the simple brake horsepower – or more correctly, perhaps, the mundane kilowatt.

In its very simplest terms, it's all about force. In physics, a force is said to do work if, when acting, there is a displacement of the point of application of the force in the same direction as that force. If you push your car with a force of, say, 50 newtons*, but the handbrake is on, you will have expended energy, certainly, but perhaps surprisingly you will have done no work. Release the handbrake, however, and push the car a distance of 50 metres (on level ground; we need to keep this as simple as possible, without gravity clouding the issue) then the work done – that is to say, the force multiplied by the distance – will be 2500 joules. Well done; have a well-earned rest. From this, it follows fairly logically that power can be

defined as the rate of doing work. Let's say that you now ask a friend to help you push the car, and thereby double the force to 100 newtons. This will enable you to halve the force with which each of you has to push – or else both to push with the same force as before, and to halve the time the process takes. (So-called 'wind resistance' is not really relevant at this low speed, although unfortunately it remarkably soon becomes so.)

So far, so straightforward. But car enthusiasts (and car journalists and even car manufacturers, all of whom ought to know far better) don't talk about newtons or joules, but about horsepower (or, more confusingly still, brake horsepower) and torque. Or torques, as Jeremy Clarkson ironically but actually quite perceptively and helpfully puts it. The accepted wisdom being that the more you have of both the better. (And the 'torques' thing an obvious jibe at the fact that few people really understand the concept in any case.) But horsepower is, in truth, an archaic

to the engine's crankshaft in order literally to brake it, or in other words to stop it rotating. In this context it is of genuine value only when measuring and comparing power outputs on an engine dynamometer connected directly to the crankshaft.

The concept of torque is on the face of it only marginally less perplexing for the many of us without a long background in mechanical engineering – and that includes this writer. Think of it as rotational force, however, and it begins to make rather more sense. Plainly your engine does not propel the car in the same simplistic way as you and your mate straining against the rear bumper, your thigh muscles burning with the unaccustomed effort. Instead it applies, via the gearbox, the differential and not least the wheels and tyres, a surprisingly widely variable rotational force to the road surface. ('Horsepower' – or perhaps just power, ie kilowatts – is torque applied over time.) As we have seen, the more of that force you

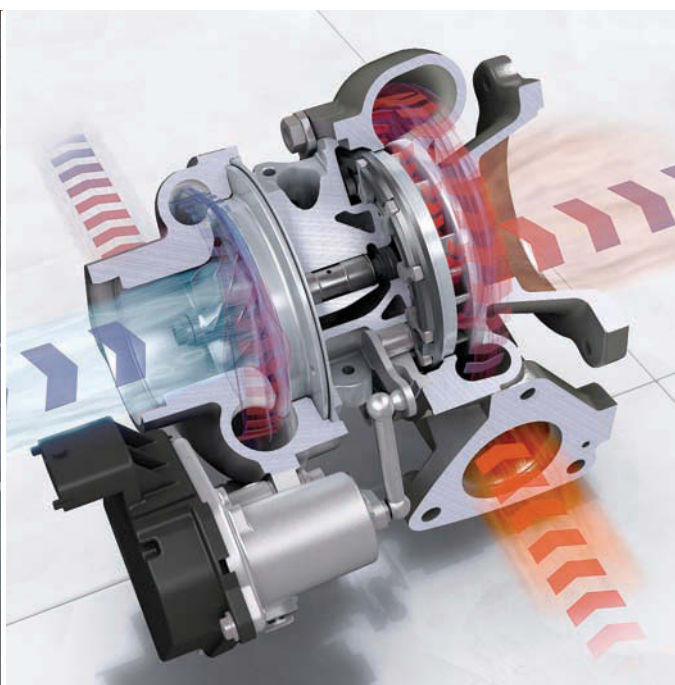
“ The concept of torque is on the face of it only marginally less perplexing ”

term, dating from as far back as the 18th century, when Scottish engineer James Watt needed a way of comparing the output of early steam engines with the capabilities of the draft horses they were gradually but inexorably replacing. In fact, the correct SI measurement of power is today the watt, named after that same engineer.

Either way, this particular problem is further compounded by all the different 'types' of horsepower there are: mechanical (also known as imperial); metric; electrical; hydraulic; boiler; shaft; drawbar. See what we mean? For the purposes of this exercise, however, we shall stick to watts or, since in automotive terms those are rather small (one metric horsepower is equivalent to around 735.5 watts), the now increasingly widely used kilowatts. (One kilowatt is equal to 1000 watts.) The arguably equally archaic brake horsepower is also an imperial unit: a measure of the force that needs to be applied

have, the faster you can cover a given distance. And, crucially, the faster you will be able to accelerate the car, to overcome its inertia and get it rolling, even if only to walking pace. Once you grasp that basic concept, everything else starts falling into position.

As with power, there are many ways of expressing torque – most of them thoroughly confusing. Here in the UK we have determinedly hung on to all manner of absurdly old-fashioned terms, but the SI unit is the newton metre (all lower case), usually abbreviated to N m or Nm, or in other words a force of one newton applied at a distance of one metre from the point of rotation. (And from this it follows that torque at the road surface is also determined by the car's gearing, or the mechanical advantage that confers. Even the diameter of the wheels and thus the size of the tyres has an effect, as Barry Hart discovered to his cost when he realised that two tyres of nominally the same



size can vary in diameter by up to 10 per cent – or in other words by roughly the same amount as the percentage gain in torque that can result from increased engine capacity.)

What it all boils down to is that, to some extent regardless of its apparent 'power' output, your engine's ability to get the car moving – and then to keep it moving against inertia, gravity and inevitably that wind resistance we talked about – is governed more than anything else by the torque it generates. That's what really does the business, pushing (and/or pulling) you down the road; past that on-the-limit truck on a challenging two-lane highway. The more torque you have, the more flexible and responsive the car will feel, and – generally speaking – the easier and the more relaxing it will be to drive for a given throttle position.

Both power and torque are – in automotive terms, anyway – generally expressed at specific crankshaft speeds. Maximum power (the maximum rate of doing work, remember; and power is torque over – or divided by – time) tends naturally to occur toward the top of the rev range. Which is all very well for racing or perhaps trackday work, but since few people – out on the public road, anyway – routinely explore even half of their engine's full potential, raising power has relatively little effect in terms of everyday performance. Quite the opposite, in fact, if as a result the engine becomes less tractable; more peaky, as another old term puts it. Even modestly increased torque, however – a natural by-

product of increased cylinder capacity; think of it as 10 of you pushing against the bumper rather than just you, or even you and your mate, rather than you alone trying to push 10 times harder – makes a huge difference to the way the vehicle behaves in everyday circumstances. Potentially to its efficiency and thus fuel consumption, as well. The more torque you have, the less difference it makes what gear you are in when you wish to accelerate – and the more naturally responsive the car will be in the higher gears.

A good example in Porsche terms is surely a direct comparison between the eight-valve 944 and the 16-valve 944S, both with 2.5-litre, four-cylinder engines. Peak power and torque for the former is generally quoted as 163bhp at 5800rpm, and 205Nm at 3000rpm, respectively. In the 'S', peak power rose to an impressive-sounding 190bhp at 6000rpm, and maximum torque to 230Nm at 4300rpm. On the face of it that should have made the 'S' a bit of a rocketship, but the reality tells a very different story. The plain fact of the matter is that the 'S' has far less mid-range flexibility than the eight-valve car, and as a result (or so believe most of us who have experienced them) can be incredibly frustrating to drive. You have to keep the engine on the boil by changing gear all the time; rowing it along on the gear lever, to quote yet another old car-magazine cliché. Even the later 944 Turbo, with 250bhp and no less than 350Nm, suffers from a relative lack of torque until the blower is actually boosting,

and it is really only the naturally aspirated 3.0-litre S2 (211bhp at 5800rpm, and 280Nm at 4000rpm) that puts a smile on your face the moment you floor the throttle.

Perhaps having learned a lesson from this, Porsche itself made much of the favourable torque characteristics of the 996-model 911 Turbo when it was launched in 1999, for the 2000 model year. (And turbocharging has famously become an 'easy' route, in all manner of engines, to not just improved power but crucially also to substantially improved torque.) Maximum power – a not exactly unimpressive 414bhp – was developed at 6000rpm, but the engine's *tour de force* was in practice a plateau of muscular torque the size of South Africa's Table Mountain, from as low as 2700rpm all the way to 4600rpm. This concept of a broad and easily accessible torque spread was further honed over the following years, thanks to techniques such as variable turbine geometry, or VTG, with the result that the 580bhp 991 Turbo 'S' has no less than 750Nm from just 2250rpm, and this barely tails off at the 7200rpm red-line.

What it meant – and still does, of course – was that you could leave the transmission in almost any gear, with the crankshaft rotating at perhaps a leisurely 1500–2000rpm, and still take off like a guided missile whenever you nailed the throttle. Which is a very neat trick if you can pull it off. And one so utterly addictive that you will surely repeat it at every available opportunity. **PW**

Apogee of the water-cooled flat-six engine is surely – for the time being, anyway – the 991 Turbo 'S', which thanks to its ingenious variable turbine geometry (above), first seen in a Porsche some 15 years ago, cranks out a frankly astonishing 750Nm from as little as 2250rpm

Published figures – and established logic – suggested that the 16-valve 944S (far left) should have been a much stronger performer than the original eight-valve car, but you had to rev it hard to access the extra torque, and on the road it was all rather disappointing. Likewise the 944 Turbo (below), and it's the 16-valve, naturally aspirated S2, with its nearly 3.0-litre engine, that many enthusiasts – us included – consider to be the best of the breed



POWER UNDER PRESSURE

Steam engines have huge power and torque from effectively zero revs, but how does that translate into reality? Who better to explain than Cayman owner Peter Maynard, who has experience of many different types, from diminutive 0-6-0s to massive 2-10-0 freight engines. Photos by Peter Robain and Chris Horton

Most road vehicles have internal combustion engines of one form or another, but the steam locomotive has at least two external combustion engines, fed with steam from a boiler. Instead of generating energy within each cylinder, the steam locomotive creates the energy required to move it by heating water by fire, most often using coal, but sometimes oil.

Each 'engine' on the locomotive typically takes the form of a cast-iron cylinder block with an integral valve chest located above the cylinder. Some engines have two cylinders, some larger ones three. The valve employed may be of the slide type or, on more powerful locomotives, a piston valve sliding to and fro, admitting and exhausting steam to and from each end of the cylinder in turn. (The steam engine scores a point over its internal-combustion rivals by being double-acting. Every piston stroke counts.) Steam engineers flirted with poppet valves – as in modern internal-combustion engines – but seemed always to return to the trusty piston valve.

Steam locomotives don't have a gearbox but they do have a 'reverser', which not only controls the direction of travel (in theory the engine can travel as fast in 'back gear' as it can in forward gear) but also the amount of steam admitted to the cylinder during each piston stroke. This can be as much as 75 per cent (steam is admitted for the first three-quarters of the piston travel,

and then 'cut off' for the remaining quarter) to as little as none, in which case the loco is in 'mid-gear', ie not in forward or back gear.

The work done by expanding steam in the cylinder is converted to motion along the track by a connecting-rod and a crank attached to one of the driving wheels (or driving axles in the case of a cylinder inside the locomotive's frames). Power – typically expressed in pounds of 'tractive effort' – is a function of boiler pressure, cylinder diameter and driving-wheel size. Higher boiler pressure: more force to drive the pistons. Big cylinders: able to accommodate more steam. Small driving wheels: the work carried out during one rotation moves the train a smaller distance than would be the case with a big driving wheel. Freight engines that needed to move heavy trains at low speeds had small drivers, whereas the 'racehorses' like *Flying Scotsman*, designed to work faster and lighter passenger expresses, had much larger ones – effectively a higher final drive. So-called 'mixed traffic' locomotives had a compromise somewhere in between.

Assuming full boiler pressure – on a large, modern locomotive over 200 pounds per square inch (say around 1400kPa or 14 bar) – the driver has at his disposal maximum power and torque at maximum (ie 75 per cent) cut-off. Thus when starting from rest judicious application of the regulator, which controls the flow of steam from the boiler to the cylinders, is called for in order to avoid wheelslip. 'Traction control'

is the driver's hand gripping the regulator handle, deftly reducing the flow of steam through the regulator valve. Large regulator openings and long cut-offs, though, are hugely wasteful: in car terms it would be like cruising at 60mph in second gear. The correct approach, once nicely on the move, is to reduce the cut-off so that steam is admitted to the cylinders for a shorter length of the piston stroke; it takes only a relative puff of steam to keep the train moving. And at the same time the regulator can be opened more widely; the reduction in torque due to the shorter cut-off reduces the likelihood of wheelslip.

Assuming sufficient traction is available (and you are dealing with narrow steel 'tyres' on possibly wet and greasy steel rails, remember), maximum acceleration is with full regulator and 75 per cent cut-off; the car equivalent is a wide-open throttle in first gear. Once up to speed, full regulator delivers maximum power but at a short cut-off a lower amount of torque. Think of it as being akin to your foot flat on the floor in sixth or seventh gear. And, just as you change down (for more torque) to climb a hill, so the engine driver lengthens the cut-off to achieve the same effect.

With steam locomotives, then, there is no 'rev-drop effect'. They actually have a continuously variable transmission, except that the variability comes from the valves that control the admission of steam to the cylinders. And steam locomotives are certainly not 'automatics'. **PW**

The author of this piece, Peter Maynard, now owns a 2015 Cayman GTS in place of this 2013 'S' model (below left), photographed at the heritage Great Central Railway in Loughborough, Leicestershire, where he both fires and drives all kinds of classic British steam engines. That's Peter – lucky chap – at the controls of 92220 *Evening Star*, as it was badged in 2015, as a tribute to the last such locomotive built by British Railways in 1960, although it has since been returned to its 'correct' guise, 92214 (below). Key to any such engine's efficient operation is the so-called reverser (far left, bottom), which determines the percentage of each piston stroke during which steam is admitted to the cylinders – hence the numbers you can see on the drum. Think of it as a cross between a Porsche engine's variable valve timing and its gearbox



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Words & Photography: Paul Knight



Located in Ripley near Woking, Surrey (just a few minutes from junction 10 of the M25), Renaissance Classics has its foundation in the long-standing passion that the Sohl family has for classic sports cars and racing. When the Ripley location became available it was an irresistible opportunity to develop a unique classic car operation with outstanding showroom and

workshop facilities. In fact, the site's heritage is unique as it has been the base for an international Porsche racing team, known as Trackspeed, and is yards away from the site of the 1950s Formula 1 Connaught racing team. Also, Ripley is a short distance from historic Brooklands, the starting point for British motor racing and classic cars – truly a great location for a specialist workshop and showroom.

It's an impressive outfit and you certainly wouldn't miss the building from the road as you drive by. There's always a selection of cars for sale on the forecourt – obviously Porsches play a large part of things, but it's not unusual to find a selection of various prestige and sporting vehicles on display.

Outside we spotted vehicles including a particularly nice GT3 Clubsport and a very pretty Cayman S in silver, which was priced to sell at just £15,995. Other deals included

Trackspeed House is an impressive home for Renaissance Classics. Located on Portsmouth Road (B2215) in Ripley, it's just a few minutes' drive from Junction 10 of the M25 in Surrey



Far left: Priced at £67,995, this 2004 GT3 Clubsport has just 40k miles on the odometer

Left: Part of the private collection, this incredibly rare DP 935 boasts around 500hp and, thanks to the carbon-Kevlar body, the power to weight ratio is impressive

Right: The visitors/ waiting room is comfortable and there's a TV, reading material and free wifi, too

Far Right: Courtney Mahon is the digital media and events co-ordinator and is typically the first person you'll meet when you arrive at Renaissance Classics



a 996 Turbo and a lovely 997 Carrera 2S, both priced at less than £40k.

Walking into the reception we were met by Courtney Mahon who takes care of the digital media and events side of the business and explained that our tour would start in the showroom before moving into the detailing bay and finally the workshops.

The reception is a bright and friendly space with seating, magazines and a large TV, plus free wifi for those waiting to collect service vehicles etc. From here we walked into the showroom, where long-term Porsche enthusiast, Graham Beeson, met us. Graham is the general manager and head of sales, but is also one of the most knowledgeable and helpful people you could ever hope to meet when

discussing all things Porsche.

Graham introduced us to directors and business founders, James and Keith Sohl, before they settled down at a meeting regarding another aspect of the business,

in the workshops etc.

Moving through the showroom we were faced with a selection of top-quality vehicles including a few BMWs, a Caterham, Ferrari, Aston Martin and also a particularly nice

“ Up to 14 cars can be displayed inside the 200sq-metre showroom ”

the AC Schnitzer franchise. Obviously this applies to BMW, Jaguar, Land Rover and Mini etc, which fits in nicely with the non-Porsche vehicles on sale and

1970 911 2.2E in tangerine and a 928 GT, which was in great condition. Up to 14 cars can be displayed inside the 200sq-metre showroom and every car on display has



Right: With more modern cars displayed on the forecourt, the showroom includes a good mixture of classics and exotica



Left: This fabulous 1970 911 2.2E looked resplendent in tangerine and had a comprehensive history folder, to boot

been picked as if it were being purchased for one of the team, i.e. these are desirable models and all in great condition, with extensive history and provenance. Not only are the cars carefully selected, they are also thoroughly inspected in the workshops

regarding the showroom vehicles, and it's this kind of personal service that has built Renaissance such a great reputation not only regarding customer service, but also the quality and variety of the vehicles that pass through the business.

bring not only their prestige vehicle but also the family runaround in when work is required as the workshop team are highly skilled and respected – that personal service and the trustworthiness of a good mechanic is worth its weight in gold!

Renaissance is a Mobil 1 approved service centre and has excellent workshop facilities and state of the art diagnostics equipment. As we walked through the bi-fold doors between the showroom and the workshop we spotted a Ferrari, an RS Cosworth Sierra and a few other customer cars alongside a very nice 930 Turbo, which was being prepared for the showroom floor.

The workshops were originally designed for a top international Porsche racing team, with state-of-the-art ramps, equipment for tracking, wheel-balancing and tyre changes,

Below left: Grey leather contrasts the Cobalt blue paint on this sweet 928 GT

Below: James Wilson is the sales manager at Renaissance Classics – if you see anything you like, you can contact him on 01483 225878

“ The workshops were originally designed for a top Porsche race team ”

where any faults or issues are corrected prior to being fully detailed and prepared for the showroom floor.

Both Graham and James Wilson are on hand to help you with questions or advice

All vehicles are sold with a warranty (which can also be extended) and Renaissance also offers servicing, repairs and upgrades for not just Porsche models, but practically any vehicle. Some customers



Right: Graham Beeson has many years of experience behind him and is always happy to offer help and guidance regarding any aspect of the business

Far right: We loved this neat seating area, which is made from old oil drums!



engineering facilities capable of sorting almost any mechanical problem as well as a well-equipped engine room for major re-builds, hence there's not much that the skilled technicians can't fix at Renaissance Classics.

Behind the workshops is a storage area, additional parking and garages where various vehicles are safely stored including a fabulous DP 935 slant nose. This car is around 500hp and features a carbon Kevlar body, and with that old school turbocharged motor out back we imagine that it must be a beast to drive!

Next to the workshop we find the detailing bay, which is where cars are cleaned, polished and prepared. We should point out that proper detailing is quite different from valeting.

A professional detailing service can recondition paintwork and the interior so

your car can be brought back to showroom condition without any major mechanical or bodywork attention. For many cars a professional detailing service is the best step towards preservation and restoration. Depending on how far things need to go, it can take up to four days to work through a full detailing session, but the results certainly speak for themselves. While we were on site there was a nice 944 part way through a proper detailing session as it was being prepared for sale and we were impressed by the attention to detail and the quality of workmanship.

Incidentally, Renaissance can tackle everything from a basic detailing through to restoration, however you should make an appointment to discuss major projects etc.

To sum up, it's perhaps best to consider Renaissance Classics to be a one stop

shop where you can buy or sell, repair, restore or detail or even discuss a potential purchase whilst gathering advice...these guys have got it all covered! **PW**

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Right: The detailing bay is well lit and spacious ensuring cars such as this 944 can be accessed from all angles. This car was being prepared for the showroom and looked fantastic



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PROJECTS

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THE TEAM

STEVE BENNETT

996 C2

My 996 is booked in to my local body shop this very afternoon. I will worry about the cost when it's done. Depending on their schedule, I will hopefully have more news and gory details next month...



KEITH SEUME

CAYMAN 981

Had a shock when I discovered the M5 motorway had been salted one Sunday morning, leaving the Cayman looking a mess – cue trip to the jet wash to stop crusty brakes and suspension.



CHRIS HORTON

924S, 944

Full report next month – when there's space in the magazine – and not least that front wing repair. In the meantime I'm hopeful that in a few days' time I shall have a working odometer. More on that soon, too.



PETER SIMPSON

356C

The garage is on the way and the foundations started. The Porsches have been moved to make room, it's just time and money now that stand in the way of the garage going up and getting the cars in!



BRETT FRASER

BOXSTER 3.2S

According to everyone on the internet, running Michelin Pilot Cup Sport 2 tyres on my Boxster will be a disaster on the road in the wet, and soon I will be living in a ditch. Early days, but no ditches or hedges yet.



JOHNNY TIPLER

BOXSTER 3.2S

Call me a copy cat if you like, but I couldn't resist a set of Group 4's new deep dish Fuchs lookalikes. For a perfect fit, I'm just waiting on some spacers, so full pics next month, plus some hood work, too.



JEREMY LAIRD

BOXSTER 3.2 S

So how is the Cayman to Boxster swap going? Well, apart from a failed water pump, I'm loving the seemingly backwards step and I've slapped 5500-miles on the Boxster since picking it up in July.



CARRERA 3.2 SEAT RESTO

Back in the *911&PW* fold, US-based Terry Thomas is setting to work on his 911 Carrera 3.2, starting with an interior makeover. On finding a pair of shape hugging Sport seats, a Chevy houndstooth makeover by local auto upholsterer, 'Sew it Matters,' has transformed the tired chairs



TERRY THOMAS CARRERA 3.2

Occupation: Freelance writer, author
Previous Porsches: Too many to list, but a variety of transaxle and air-cooled
Current Porsches: 911 Carrera 3.2
Mods/options: Largely standard, save for retrimmed seats and detailed engine bay
This month: Buying a pair of 'Sports' seats and giving them a makeover

Sew it Matters' Jessica Brown, with Terry Thomas's retrimmed Sport seats. A great job, and a great price

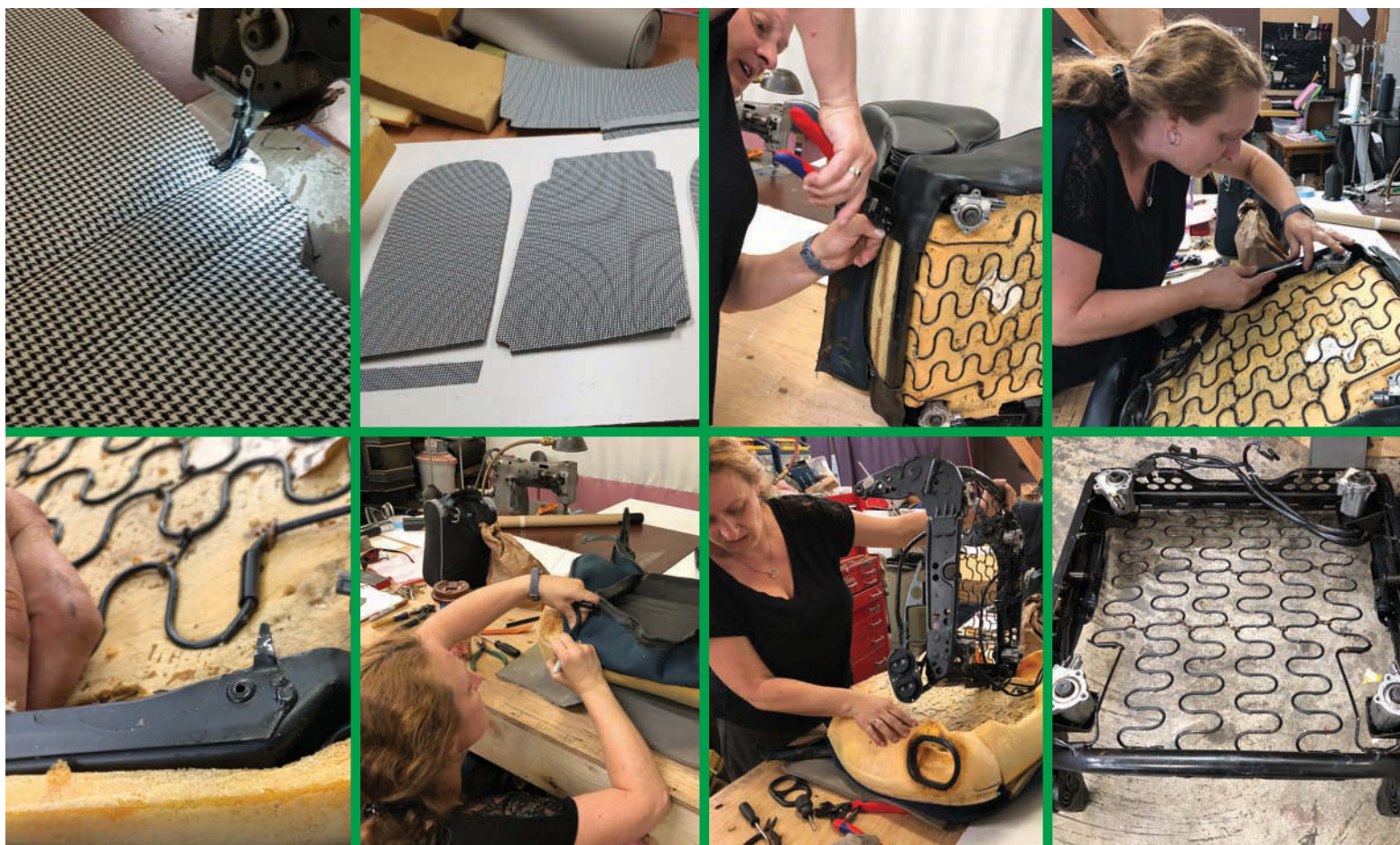
One of the many delights of the classic air-cooled 911 is that so many parts interchange among the various years. This has led to many folks deciding to 'backdate' their impact bumper cars and 964s to look like early pre-1974 'long hood' cars by replacing their wings and bonnets (indeed, boutique manufacturer Singer has created an entire business of transforming once-unloved 964s into half-million dollar works of art). I myself am old enough to remember when things went the other way – not so many years ago, people updated their early cars with more modern impact bumpers. And, sure as the sun will rise tomorrow over Zuffenhausen, someone somewhere in the world is busily re-backdating a previously updated 911. Winds of fashion

blow in circles, it seems.

Those of us lacking Singer-levels of funding can still, however, modify our cars, using Porsche OEM parts, to suit a wide variety of tastes. My own current project, a 1985 Carrera 3.2, has already been the beneficiary of this mix-and-match ethos. Having once owned a 1988 911 equipped with factory Sport seats, I have always considered these to be my favourite of all the Porsche chairs out there. These particular seats were available as options on the 1987–1989 911s, as well as certain 964s, such as the RS America. They were also available in various 944s. In addition to being all-day comfortable and supportive, these seats look fantastic, their Rubenesque shapes nicely complementing the classic 911 styling. Alas, it appears that, as always, many others share my affection

Below: It looks very Porsche, but this houndstooth pattern is actually Chevrolet Camaro, circa 1968





This is not a job you're going to want to do at home! Seat covers are held in place by prongs. Seat frames unlikely to suffer over time, unlike seat foam

Decades of being sat on flattens the seat foam, but it can be brought back to life with some tricks of the trade, plus a good steaming!

for them. When they can be found at all for sale, they are often thoroughly trashed after all the intervening years, and, practically regardless of condition, they are frighteningly expensive. A recent search of eBay finds a used, but lightly worn pair, in leather, for sale at \$2800. This is typical, and, since it is still further toward Singer price territory than my own price point, I decided to look for a pair locally. After several weeks of scanning the want ads online, I located a set from a 944 Turbo, in vinyl, with the seating surfaces in Porsche logo cloth, for sale near me. Upon seeing them in person, I found them to be somewhat dirty, but un-ripped and structurally sound. A deal was struck.

I toted them home, planning on bolting them into my car, declaring victory, and moving on to the next project. But the next morning, after looking them over more

carefully, I found them to be rather more shabby than I had initially thought, with the tears and splits that would be expected in seats over 30 years old.

I decided to explore repairing and/or re-covering them. And in a further fit of borrowing designs from other years, I decided that the centre seating surfaces should be done in houndstooth pattern, known as Pepita, that was available in various Porsches from the sixties and seventies. In a break with tradition, though, I chose a slightly smaller pattern, which I remembered was an option on certain Chevrolets dimly recalled from my youth. Sure enough, reproduction 1968 Chevrolet Camaro fabric was the look I wanted. I ordered a yard, enough to do the inserts on the two seats.

Since the seats were not currently installed in any car, I loaded them up in my

wife's Golf Sportwagen (a wondrous vehicle, that) and drove them around to a couple of local upholstery shops for estimates. One highly recommended shop sort of sniffed, told me the seats could not be repaired, had to be redone completely, and the price would be \$2400 for the pair. Oh, and it would take a couple of months, since his shop was booked out re-trimming local yachts before summer.

My next stop was at a tiny back alley shop of an upholsterer named Jessica Brown, who runs a one-person business called Sew It Matters, which specialises in upholstering sports cars, boats, airplanes, and other conveyances. Jessica, a friendly, loquacious woman who reminded me of the free spirits who roamed places like San Francisco when 1968 Camaros were new. She had never done a Porsche seat, she told me, but she was willing to give it a try.



TECH: PROJECTS



She quoted me a fair price, we selected an appropriate piece of Naugahyde, which I chose over the formidably more expensive leather option. "You'd have to bring me a whole cow," Jessica said.

Before leaving the seats with Jessica, I removed the seat tracks, exposing the four "jacks" that raise and lower the front and/or back of the seat. The jacks are driven by an electric motor via some ingenious flexible cables with square cross sections that fit into matching square female recesses in the sides of the jacks. As I do these days, I took dozens of photos as I went on my smart phone to document how everything came apart, in the hopes of ensuring things would go back together (More and more, the tool I use the most in the garage is my smart phone). I decided to leave the jacks themselves attached to the seat frames, as there was no need to remove them.

Once she received the seats, Jessica disassembled them slowly and carefully, meticulously documenting everything as she went. The first step, after removing hardware and detaching the hinges that held the backrest to the bottom cushion, was to remove the covers, which are tightly fitted over the seat frames, springs and foam. On Porsches, the covers are attached to the frames by prongs at the bases of the frames that are both fiendishly sharp and very fragile.

Jessica bent these back carefully and peeled the covers off the seats, noting every seam and stitch as she went, marking the old covers and matching their sections up, with a series of witness marks, numbers, and other hieroglyphics. Every

step was meticulously documented and photographed.

Once the seats were "skinned," Jessica removed the factory foam padding, finding it to be in reasonable condition if somewhat squashed. "At least it isn't crumbling, like a lot of stuff I see," she said. She next revealed a clever trick of the trade, whereby she actually un-squashed the padding with the help of a steam treatment. It was remarkable watching seat bottom padding, bowed and downcast from decades of, uh, people's butts hitting them, spring back to full, er, flower (OK! Metaphors end here).

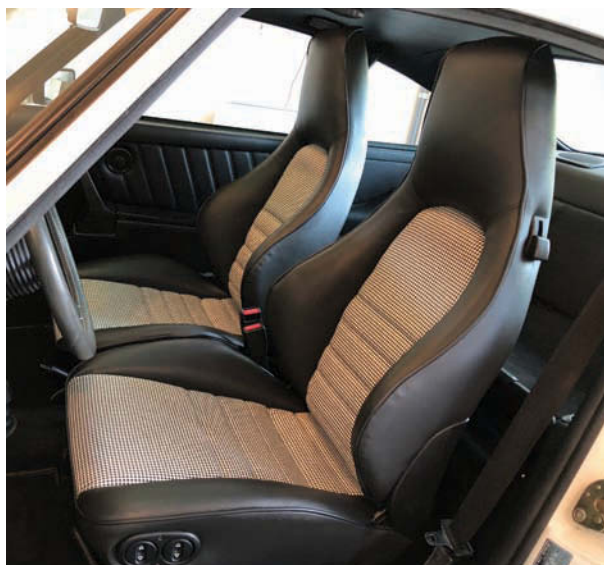
Once the seat padding was removed, some of it covered by the factory with a sort of burlap 'skin,' the steel frames were finally exposed underneath. These, and their attached springs, were in remarkably good condition and were set aside.

So assembly is the opposite of disassembly, right? Well, there was another intervening step – the matter of making new seat covers from the remnants of those so carefully removed and catalogued. Jessica arranged the pieces of old vinyl – there were surprisingly many of them – on the back of the Naugahyde, traced their shapes, transferred her notes and other

hieroglyphics onto the new pieces, and cut them out. A single sentence that encompasses many hours of hard work.

After cutting the many pieces out of the various materials, Jessica started making the new seat inserts by cutting the houndstooth-patterned cloth, then sewing up the tricky double row stitching from the original. The results looked great. She then proceeded to sew all the Naugahyde pieces back together, incorporating new 'piping', attached the newly rejuvenated cushions onto the frames, and pulled the tight-fitting covers into place. She then reassembled the seats, re-using all the original hardware, and the job was done. **PW**

Top middle: What looks like a pile of discarded vinyl is all the panels that go into making up a seat cover. These are used as templates for the new covers



Finished and installed. A job well done and suitably retro looking, too

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BOXSTER MIXED FORTUNES

Jeremy Laird's Cayman to Boxster swap was going well until the water pump failed. Speedy action under warranty sweetened the pill, and paved the way for a weekend with a Boxster 2.5, too



JEREMY LAIRD

BOXSTER 3.2 S

Occupation:

Freelance writer

Previous

Porsches: Boxster

2.5, Cayman S

Current Porsche:

Boxster 3.2 S

Mods/options:

Standard

Contact:

jeremy.laird@gmail.com

This month:

Water pump failure fails to dampen enthusiasm for my Boxster.

Boxster on holiday in France. Jeremy clearly has some posh friends!

Clank, whine, rattle, fizzle...oh hell, what's that? It was upon this very cliff I left you hanging last issue, albeit in a side-column excerpt rather than the full diary-style exposition. But let's not get ahead of ourselves. Since last we met, the Box has put quite a few miles under its belt. Over 5500 since I picked it up in July, actually, or about a decade's worth of typical modern Porsche GT car usage.

Catty remarks aside, those miles included an impromptu sprint to a friend's house in France and criss-crossing the south of England for various social and domestic duties. I caught the second half or so of what was a completely cracking summer, of course, which made it all the

easier to enjoy the Box rather than waste time second guessing my 987-to-986 transition. So, it was probably fitting that just as the weather began to turn that the aforementioned soundtrack kicked in.

Inevitably, it was on an essential journey to collect my sister from hospital. But I knew the game was up. Not to put too fine a point on it, but the noises were ominous. I stopped immediately to be greeted by steam billowing out from the driver's side rear air intake and a dribble of liquid just ahead of the rear wheel. It was pretty obviously the water pump, which was good because it wasn't terminal but bad because it meant I wasn't going anywhere then and there.

Long story short, the AA collected the car and shipped it down to Martin Reed of

North Devon Porsche. That process was a little bit painful due to the AA's policy of treating transport differently depending on whether you remain with the vehicle, and also thanks to the breakdown happening on a Friday. But by Monday afternoon the car was with Martin and all was essentially well. By the end of the week, the Box was back in action.

As it happens, the Box spitting its water pump was also a chance for Sean Dewhurst of Flat Six Classics, who sold me the car, to shine. Which he duly did. The Box came with six months and 6000 miles of internally underwritten cover from Sean. That he was true to his commitment and covered the costs of the water pump was welcome enough. However, Sean clearly

Below: Jeremy has managed to put 5500-miles on the Boxster since July. Good going





Completely standard, right down to the 'fried egg' headlamps. For how long though?

went above and beyond by lending me one of his stock in the meantime, ensuring I was without wheels for as little time as possible. Put simply, one couldn't ask for more.

That also gave me the chance to get reacquainted with an old friend in the form of an early 2.5-litre 986. Not actually my own old 2.5, which frankly would have been too rosey for the likes of Sean to retail. But a rather nice 50-something thousand mile example in silver with Metropole Blue extended leather. And what a beguiling little car it was.

For starters, there's absolutely no question there's that little bit more purity in all aspects of those early 2.5s. They feel every bit the classic car and in a good way. For starters, the cleaner looks with no central air intake up front, plus simple black plastic grilles for the two main radiator intakes and no fussy 'titanium' strip around the windscreen, as per 3.2S, is a subtle but definite improvement (in retrospect) over the 3.2-litre cars. Inside, it's a similar story. There's no plastic painted silver to make it look like metal and that's all for the good.

The drive is also unquestionably that little bit more old school. There's marginally

more feedback from the controls and through your bum. You can hear much more transmission whine and road noise, too. Put simply, the whole car feels more mechanical than even an early 3.2-litre 986 Boxster like mine. Of course, my 986 feels more mechanical than an early 987. And so it goes, with each successful generation adding ability but losing a little in the process. Choosing a Porsche, I'm increasingly realising, is all about where you draw that line between capability and character. There's no right or wrong, just a personal sweetspot.

So did the 2.5 have me hankering for that little bit more involvement? I realise that this will make many guffaw, but I honestly think the little 2.5 has as much charm and merit as a classic car as something like an early air cooled 911S, let's say the 2.2 for the sake of argument and because I've driven a really nice example a little while back. For sure, I'd say the Boxster sounds better and goes at least as well or better. Its steering is as sweet, its shift miles better, if rather loose and long compared to the precise and tight action of my own 3.2.

Look, I'm not saying the Boxster is better

than a £150,000 air cooled 911. Obviously the 911 is far rarer and more fashionable. But as a car to drive and enjoy, I'd say they're simply different rather than one being better than the other. I even think the early Boxster cabin has a lovely classic feel now, especially with extended leather but otherwise with minimal spec as per the 2.5 Sean leant me.

Despite all that, I wouldn't swap my 3.2 for a 2.5. The 2.5 does put you closer to the machine, but only a tiny bit. You lose only a little in that regard with an early 3.2. In return you get what feels like a lot more than a mere 50hp in terms of the power advantage, plus a generally more solid and together feeling car with a much better shift and, to my ears, a more musical soundtrack at the top end of the rev range. The 3.2, I grant, lacks the 2.5's delightful low speed whine.

Anyway, it was lovely to be reminded of just how special even an early 2.5 986 truly is. For those that traditionally doubt the 986's credentials, I doubt any of this will be terribly convincing. For the rest of us who get Porsche's first unambiguously modern motor car, the 986's value proposition continues to stun. **PW**

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SLIPPERY WHEN WET (OR NOT)

The internet of everything reckons that Michelin Pilot Sport Cup 2s will be a bit too extreme for Brett's Boxster, particularly in the wet. Well, not so far, anyway



BRETT FRASER

BOXSTER 986 S

Occupation: Freelance writer, Dep Ed, 911&PW
Previous Porsches: None

Current Porsche: Boxster 986 S

Mods/options: Eibach springs and anti-roll bars, Pipercross air filter

Contact: brett@brettfraser.co.uk

This month: Trying (and failing) to find the limits of the new Michelins. Plus, treating the roof.

Whatever you might think about the colour combo, you have to say that Brett's Boxster does look good in a 'stanced' sort of way

A consequence of our prolonged warm, dry spell is that I've had very little chance to try my new Michelin Pilot Sport Cup 2s in the wet. That's not a complaint, merely an observation. In no way am I hoping for rain, it's just that I'm curious to learn how my track-biased tyres will perform in conditions less clement than those we've enjoyed for many a long month now.

When I first thought of trying the Cup 2s I posted a note to that effect on social media. A mistake, I know, but I'm endeavouring to embrace the modern age. Within minutes of announcing my intentions the doom-mongers were in full flow and they were all warning of dire outcomes of using the Cup 2s in anything other than perfect conditions on a track. The common thread that bound their comments was that at the

first splash of the first raindrop on a public road, I would be paying an unintentional visit to – or through – whatever was lining the roadside at the time. Any moisture would have the effect of coating the tyres in goose grease.

Being a Cynical Old Person I tend not to believe everything I read on the internet, particularly negative wisdom of the kind that populates most forums, but some of the comments did at least give me pause for thought. And then this morning I cracked open the curtains to discover that someone had cracked open a rain cloud...

Would I even be able to pull out of my driveway without pirouetting onto the road? Well put it this way, I've yet to endure any awkward conversations with my insurance company. Admittedly the road surface wasn't streaming with water and ambient temperatures during this particular balmy

October day were high enough to keep the tyres' rubber compound within a sensible sector of its operational range, but the Cups did nothing naughty. Not pulling briskly out of junctions. Not when deliberately applying a tad too much power exiting a roundabout. The tyres just gripped, no drama.

Things will be different in the thick of winter, I have no doubt. Yet even then I don't forecast much bother, as I'll just adapt my driving style accordingly. It's not hard to do, and I find that a honed sense of self-preservation is the best form of traction and stability control. I'm lucky enough to have another open-top sports car, a Mazda MX-5 mk1, and when I fitted it with a set of Yokohama AD08s, also a track-biased tyre, the internet was equally swift to alert me to the perils of wet roads and winter conditions. And yet the MX-5 and I didn't allow even the Beast from the East to chill

Below left: Renovo hood treatment is clearly working. Below: Some new oil and fuel friction treatments from Faher to try





Some keyboard warriors reckon that Brett's Boxster will fall off the road at the first sniff of rain with its Sport Cup 2 tyres

us off the roads and outsiders' predictions of an almost certain roadster/hedgerow interface proved unfounded.

To date I've not managed to exceed the Cup 2's dry surface grip. Not even a cheep or chirrup from the rubber. I know: must try harder. Locally, though, there are very few corners with sufficient clear vision through them to safely carry the lateral speeds with which the Cup 2s endow the Boxster, and on the one or two that I've pushed harder than I normally would, it was clear that my bravery had expired way ahead of the Michelins' roadholding.

So instead of trying to find their limits on the public road – a practice we're all guilty of from time to time, but ultimately is a silly idea – I'm using my trust in the tyres' grip to take me more swiftly around tighter bends, and concentrating harder on my cornering lines now that I'm free of concerns about a possible slide. A track visit would be illuminating in terms of the tyres' full potential, but that isn't likely any time soon.

Back in the summer I went to a 'show 'n' shine' at a local microbrewery, which to my surprise was heavily populated with modern low-volume Porsches including a Carrera GT,

911R and 991 GT3 RS. There was also a WW2 Willys Jeep, and chatting to the owner, Steven – also part-owner of the brewery, Station 1-1-9 – he explained how well it was running after using some very low friction fuel and engine oil treatments from a German company called Faher. The Jeep was quieter, smoother and performed with extra vigour – well, for a Jeep, at least. You should try some in your Boxster, he recommended.

So having spoken to Faher UK's extremely helpful Paolo Garcia, that's what I'm about to do. In fact, I'd hoped to have poured in the 'anti-friction' fuel and oil treatments already, but Paolo advised that for best results the fuel treatment should be added to only about a quarter of a tank, and I'd recently filled mine. It'll be fascinating to find out what difference the Faher products make, because my Boxster has always been filled with 98 or 99 RON petrol and Mobil 1 lubricant, so ought to be in rude health inside its injectors, and moderately slippery between its moving parts.

The engine might be in fine fettle, but the central locking is giving cause for concern. When I press the key fob to lock the car the horn gives a double beep, as if warning that a

door is ajar or the central cubby lid isn't properly shut. Except I've checked – lots – and nothing is open. And when I'm driving the little red light on the central locking button comes on, unbidden. Press the button on the move and there's that double beep again, and the interior light comes on. Must consult the gurus of the forums in case all this is a portent of something more serious.

On the subject of annoying noises, the Boxster started making horrible screechy grinding sounds around right-hand bends. Fearing it might be a deflating rear tyre causing my lovely new Group 4 alloys to be striking the Tarmac, I pulled over, only to discover a piece of plastic air deflector had deserted its post underneath the car and was making a break for freedom. It's not the first piece of underbody plastic to go AWOL, and I hope it won't make a difference to the car's high speed stability.

Finally this month, I bought some tent canvas cleaner and rid the hood of some of the grot that has accumulated over the summer. A couple of coats of Renovo re-proofer followed that, and now water beads beautifully on the hood, just in time for the change of seasons. **PW**

Below: Random piece of deflector has broken free from underside. Right: Central locking is double beeping randomly and needs investigation





CAYMAN'S MYSTERY OIL-LEVEL DROP

I recently spent a fascinating afternoon at MCE Porsche in Oxfordshire. Proprietor Mike Champion is an enthusiast of many years' standing, and also a time-served and highly qualified engineer with a long career in the automotive industry behind him. And you have to admire a man who, while working on classic 911s, listens to classic vinyl albums of the same period. Ready to go on his bench-top turntable were, among many others, The Doors, The Beach Boys, Aretha Franklin, Jimi Hendrix and Led Zeppelin.

My visit, having first met Mike at a Porsche event just a few weeks previously, was primarily to have a longer discussion and a look around his compact but very well-equipped premises, but also to work out what stories we might collaborate on in future editions of the magazine. And, as luck would have it, there was an ideal candidate vehicle on the two-post lift even as I arrived.

A manual-transmission 987 Cayman 'S'; 2005 model, around 70,000 miles on the clock. Obviously owned by a fastidious individual – another engineer – and equipped with at least two mods that mark him out as a knowledgeable and far-sighted enthusiast:

a beautifully made stainless-steel exhaust, and protective grilles for the front air intakes. Here's someone who knows all about rotting radiators and the potentially disastrous consequences thereof.

His understandable worry on this occasion, however, was the engine's seemingly high oil consumption. The car had been serviced – elsewhere – in the fairly recent past, but now, after just 1000 miles, the bar-type display in the instrument panel was suggesting that the level in the sump was down to the bare minimum. An engine of this type and mileage should consume no more than around half a litre of oil in that distance. Three times that amount was suggesting that something was clearly amiss.

Mike's mission, then, was to establish whether this was due to either a faulty gauge or sender – by no means unknown – or perhaps to some other mechanical malady. (Famously, and for reasons best known to itself, Porsche abandoned the good, old-fashioned and in principle failsafe mechanical dipstick with the cessation of 986/996 production.)

Rather than wade in with diagnostic kit or an internal

examination, however, Mike was sensibly starting with the most basic and easily measurable parameters. 'I am always careful not to jump to conclusions about these engines,' he says, 'and prefer instead to take an objective, results-led view. Obtain the engineering facts, present them to the customer, and decide how to proceed from there.' Armed, then, with Porsche's published figures for the fill volume for the car (7.75 litres with a filter change; 7.5 litres if you leave the element undisturbed, and thus with around 250ml inside the housing), the first job was to drain and then accurately to measure what was in the engine to start with.

Result, after about 20 minutes, and when there were no more than a few drips oozing from the orifice: almost exactly 6.0 litres in the plastic container which, with his obviously customary precision, Mike had previously graduated with a ruler and permanent marker. Given the typically 1.0–1.5-litre difference you can expect between 'max' and 'min' on the average conventional dipstick, this suggested that the gauge was, indeed, giving a realistic view of the situation – and might even have been

very slightly optimistic.

But even now Mike wasn't convinced. 'I have no reason to doubt whoever carried out the last service,' he conceded, 'but I have no way of knowing for sure that the sump was filled to the correct level 1000 miles ago. What I shall do, then, is first refill it with the same quantity of new oil as the amount I have just drained out, to see if that gives the same reading on the gauge. If so, I shall add more fresh oil – in known increments, checking the gauge as I go – until it's up to the maximum. If the volume added matches what I would expect, then I can have confidence in the accuracy of the gauge. I will then let the customer drive the car normally for the next 1000 miles, knowing that we have both a controlled starting volume and a reliable means of measurement.

'If, as I suspect it will, the gauge subsequently shows only the usual modest reduction in level that you might expect, then all will be well, and we can put it down to operator error. If within that distance, on the other hand, the level genuinely falls back to the same as it was today, then clearly there is a deeper problem that will have to be investigated.

'In anticipation of further investigation being required, I shall also take the precaution of collecting a sample of the old oil, and sending that to Millers Oils in Huddersfield. As I'm sure you know, they offer a highly informative spectrographic analysis service, which for around £50 a time gives you a very detailed view of any contaminants and particulate matter. That should give me an accurate picture of not just the cylinder condition, but also of the piston rings and skirts, the crankshaft bearings, and even the valvetrain. And at this stage it's far less costly than having me remove all six coil packs and spark plugs, and then start carrying out cylinder leakage tests, and so on – especially if the measurements reveal that it really was just a filling error during the previous service.'

● For more information about MCE's services and specialities go to mceporsche.com, or call 07796 372239. The company is just off the A422 between Banbury and Brackley, and little more than a mile from Junction 11 of the M40 motorway. For more about Millers Oils' analysis services, go to millersoils.co.uk.



Cayman owner was concerned that after only 1000 miles since last oil and filter change, lubricant level in sump had dropped to minimum mark. But was that because the engine was burning it, or because the gauge was faulty? Or even because the level wasn't correct to start with? Only way to be sure is the application of some basic science, by precisely measuring the quantity of oil that comes out, and then refilling to the correct level and observing what happens over the next 1000 miles. Spectrographic analysis of the oil would be a good indicator of problems, too – or hopefully the absence of them – and after-market magnetic drain plug was encouragingly free from tell-tale swarf



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PART OF THE UNION

A recent visit to Auto Umbau in Silsoe, Bedfordshire, gave me a long-awaited chance to show how to deal with the quick-fit connections in the power-steering pipes halfway along the underside of the left-hand sill of a 996 or 986 – and both the 987 and 997 are in this respect identical. (This was the car with the improvised 'repair' that I reported on in these pages last month.) And I feel it's a job worthy of a few

photos because otherwise, unless you either know how to get them apart – and back together again – or else have an intuitive feel for mechanisms of this nature, you might never work it out.

Start by easing out of its groove in the rear half of the device the horseshoe-shaped plastic retainer; a pointed pick is the best tool. Using two open-ended wrenches – here 15mm; on the larger of the two

pipes you'll need a pair of 19mm spanners – start to undo the two hexagonal sections relative to each other. (The plastic horseshoe is, as you've probably realised, a simple but effective locking device.) Continue to rotate the two halves of the union and they will separate, revealing a tiny metal 'basket'. Carefully extract that, and pull the hexagonal section off the end of the rear pipe. Job done.

To reconnect the two pipes, take the now separate union and insert the metal basket, tapered end first. Make sure the 'O'-ring seal is in good condition. Screw the union into the end of the front pipe and, again using your open-ended spanners, tighten it. You don't need massive force. All you have to do now, as and when the moment comes, is push the rear part of the pipe into the front until it clicks.

Refit the plastic horseshoe, and that's that: a perfect example of the clever design and selected pre-assembly that would not only have saved countless man-hours when the car was being built, but would also allow that particular job to be done by a semi-skilled worker. Thus did Porsche start to save itself the millions of euros that enabled it to become the world's most profitable car maker. **PW**



Easy when you know how. High-pressure lines for power steering in 996 and its variants have these ingenious unions between front and rear sections, roughly midway along the underside of the left-hand sill, designed to allow quick and easy assembly in the factory by possibly only 'semi-skilled' workers. Key to undoing them is first to remove tiny plastic locking device (don't lose it...), and then to use well-fitting spanners (15mm or 19mm, as required) on the hexagonal part of each half of the union. To reconnect them, reassemble the two parts of the union 'body', and then just push in the end of the rear pipe, until it clicks and locks. And don't forget that plastic 'horseshoe', of course

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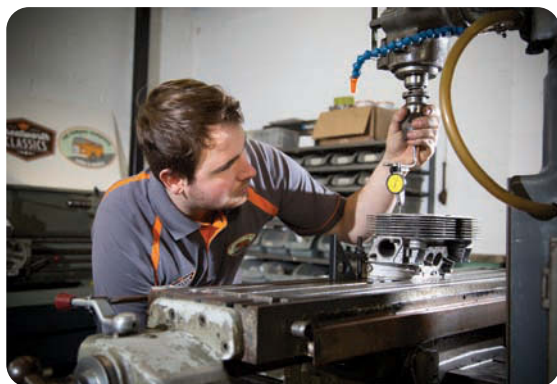
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BUYERS' GUIDE: CARRERA 3.2 SUPER SPORT

IT'S GOT THE LOOK

The 930 Turbo's wide arched body was always going to be too good to restrict it to just the one model, so it was no surprise that Porsche eventually decreed it suitable for a non-turbo model, based on the Carrera 3.2. Known first as the 'Turbo Look' and then 'Super Sport' is it a case of style over substance?

The shape that Porsche devised for the original 911 Turbo was iconic the moment it was unveiled at the Paris motor show in 1974, in defiance of the so-called oil crisis that was gripping the world and threatening to drive sports cars out of existence. Every aspect of the "930" model, as it was factory-coded, defined power, engineering and aggression: the massively bulging wings, eight-inch wheels, deep front spoiler and "whale-tail" rear wing. The term "supercar" had just been re-defined, and a model created that remains at the top level of the 911 armoury today.

The astonishing shape was always going to be too good to be restricted to just the flagship model, but it took Porsche almost a decade to apply it to normally aspirated 911s. It came in 1983, a Carrera 3.3 featuring the widened Turbo body and some chassis upgrades, but with the standard 911 Carrera engine; at this point referred to as "Turbo Look", the "Super Sport" name coming later.

As with all air-cooled 911s, values of these began heading through the roof several years ago. But when this variant was first launched, there were some who

called it a 'sheep in wolf's clothing,' and, with its added weight, dismissed it as a cynical marketing exercise that contravened Porsche's engineering maxim of lightness and efficiency. But from a perspective of more than 30 years on, how does the Turbo Look/Super Sport sit in the Zuffenhausen hall of fame, and what should you be looking for if considering purchase?

DESIGN, EVOLUTION

Porsche calculated that a sufficient number of customers in Europe and the US would like a 911 with the appearance of the Turbo, but who were happy with the performance of the Carrera 3.2's 3.2-litre, the flat-six with Bosch L-Jetronic fuel-injection giving 228bhp at 5900rpm, and 210lb ft torque at 4800rpm (compared to the Turbo's 300bhp/317lb ft). And for some, the fiery sound of the normally aspirated 3.2 engine was more appealing than the flatter and less invigorating tone of the 3.3 turbocharged unit.

An additional factor was that the 911 Turbo had, for emissions reasons, been withdrawn from the US market in 1980 (and would remain off the price list until 1986), which not only deprived customers there of

Porsche's ultimate body shape, but galvanised independent tuners into offering re-bodied Carreras. Hence under the factory's Sonderwunsch ("Special Wishes") programme for special builds, in September 1983, for the 1984 model year, European and US buyers were offered option "M491", the Turbo body.

Besides being 123mm (4.8 inches) broader at the wheel arches, and using the accompanying wider front and rear tracks, it featured the Turbo's uprated braking system, derived from the 917 Le Mans race car, and firmed and lower suspension. Sixteen-inch diameter wheels were fitted (as on the Sport models), the fronts seven inches wide and with 205/55 tyres and the eight-inch rears shod with 245/45s.

For the next five years until the next-generation, 964-model 911 arrived, the fatter Carrera 3.2, weighing an extra 50kg, received the same updates as the regular model. For 1986 equipment was upgraded and there were minor tweaks to the fascia including larger air vents. But a more significant development came one year later, in September 1986, for the 1987 season, the "G50" gearbox was fitted, the Getrag-built unit replacing Porsche's "915" unit, and accompanied by a larger,

The Carrera 3.2 Super Sport bulges in all the right places, but lacks the turbo engine to go with the Turbo looks





Defining rear wing dominates the Super Sport for that Athena poster car look

hydraulically- rather than cable-operated clutch, its larger casing necessitating changed rear suspension mounting points; a G50 is identified by the reverse position, to the left and next to first.

A year later, for the 1988 model year the wide-bodied car was given its own official title, appearing on the price list as the "911 Carrera with Super Sport Equipment", a model that should not be confused with the narrow-bodied 911 Carrera Sport, or the "911 Turbo with Sport Equipment", which was the "Flatnose" Turbo. A specific model, it was offered in coupe, Targa and Cabriolet forms. However, "Super Sport" was never a badge on a car, merely wording in brochures. An estimate by Porsche Club Great Britain puts the total number of Turbo look and Super Sport 911s delivered worldwide at 1580.

It's interesting to look at how Porsche priced the various models as the end of production neared. In April 1988, for example, a before-options 911 Carrera Coupe (or Targa) Sport was £38,900, and buying the Super Sport model entailed

raising £49,240, over £10,000 more. But if you wanted the "real thing", the 911 Turbo was "only" £7440 extra.

DRIVING THE 911 CARRERA SUPER SPORT

Unless you are steeped in Carrera 3.2s, the wide-bodied car feels little different to the standard car. The Turbo chassis upgrades might be noticeable on a fully refreshed car, but otherwise would probably not, while the extra mass of the body doesn't affect performance in a significant way. Plus, the interior is standard Carrera 3.2 unless the car was optioned up significantly.

However if, like Robin McKenzie of Bedfordshire-based classic Porsche specialist Auto Umbau, you do know your air-cooled Porsches intimately, you might disagree. 'They look great, but with 50kg extra weight they don't feel so good to drive,' he insists.

So you have the well known Porsche Carrera 3.2, with its howling engine, the

gearshift that needs careful movements (especially the pre-1986 G50 gearbox), and the unassisted, super-precise steering. The handling is probably best described as "mid-career" 911: not the wayward, tail-happy original, but still a car that demands a careful right foot, especially in the wet.

The cabin retains most of the early 911 layout, with the much loved, but not entirely visible to the driver, row of instruments, and the tricky to regulate heating system that works off the exhaust heat-exchangers. This era of 911 is the favourite for many 911 fans, who regard it as being better to drive than the early cars, but purer in character and appearance than the final two air-cooled generations, the 964 and 993.

WHAT YOU'LL PAY

Given that classic values vary so much according to condition, it is difficult to compare prices of Super Sports with ordinary Carrera 3.2s. But what is clear is that asking prices will be higher, even if not everyone regards it as a superior model. 'People will try to sell them for more than a standard car,' says Robin McKenzie, 'I'd put the value somewhere between a Carrera 3.2 and a Turbo.' A high proportion of the Super Sports for sale when we checked were Targas and Cabriolets, the coupe hardly seen.

The market for air-cooled 911s being white hot (although in the last few months it may have cooled to merely red hot), the least a Super Sport will be offered for is £60,000. However, the principal price band is £80,000 to £100,000, which secures a 30,000 miles or less example, Hexagon Classic in London offering two such cars, a white Targa and a red Cabriolet, each at £99,995. One Cabriolet seller wanted £145,000 for a 9900-mile, 1989 Cabriolet in black. Being a rare model (although we did see 10 for sale on one classic car website alone) means that most if not all

TIMELINE

September 1983
Wide-bodied "Turbo Look" version of the Carrera 3.2 added to the 911 range, also with 911 Turbo brakes

September 1985
Minor equipment upgrades applied to all 911 Carreras

September 1986
G50 gearbox replaces the 915 unit

September 1987
Wide-bodied cars now referred to as "911 Carrera with Super Sport Equipment"

June 1989
All 911 models discontinued, to make way for 964 generation

SPECIFICATIONS

Porsche 911 Carrera 3.2 with Super Sport Equipment

Engine: 3164cc water-cooled flat-six
Max power: 228bhp at 5900rpm
Max torque: 210lb ft at 4800rpm
Transmission: 5-speed manual
Brakes: Vented and cross-drilled discs
Wheels (front, rear): 7Jx16-inch, 9Jx16-inch
Tyres (front, rear): 205/55 VR16, 245/45 VR16
Weight: 1260kg
Fuel consumption: 23.5mpg (EEC average)

Maintenance costs (guide price, including labour and VAT)

Oil/major service £275/£455

Replace front brake discs and pads £728

Renew clutch £1525

Replace exhaust (stainless steel, non-Porsche) £1130

Replace both heat exchangers (stainless steel, non-Porsche) £2500

Four Michelin SXMXX3 tyres (205/55 VR16, 245/45 VR16) £1120

Parts and servicing prices from Auto Umbau Porsche, tyres prices from Longstone Classic Tyres

WHAT YOU'LL PAY

£50,000–£60,000: Very cheapest price for a Turbo Look/Super Sport, which will need a lot of work

£60,000–£80,000: Useable but some cosmetic work probably needed

£80,000–£10,000: The prices most classic specialists charge for good examples

£100–£150,000: Must be very low mileage with excellent bodywork and full history

£150,000–£200,000: Values for the best, “time capsule” examples with sub-30,000 miles

have been cosseted dramatically reduces the chance of finding a cheap, scruffy example; “cheap” in air-cooled 911 terms meaning in the £40,000s.

WHAT TO LOOK FOR ENGINE

The engine is the standard 3.2-litre flat-six, so is very reliable, although it does have failings, some easy to fix, others not. ‘The obvious sign of a poorly engine is it smoking under load, which means the engine is burning oil, and at the minimum a top-end engine rebuild is needed,’ says Auto Umbau’s Robin McKenzie. ‘And one problem that you are unlikely to be able to diagnose is a broken cylinder-head stud. This can only be found with the rocker covers removed.’

If the engine fails to start, it’s likely that the reference and speed sensors have failed. ‘These suffer from brittle leads and crushed sensors, usually by corrosion from the aluminium bracket, which itself can break and no longer hold the sensors in the right position to be able to sense the flywheel,’ Robin explains. Mass air-flow sensors and idle control valves are also known to fail, resulting in rough running.

EXHAUST, HEAT EXCHANGERS

The standard exhaust system is long lasting but, as it is not stainless steel, it will eventually corrode. Water collects in the back box and rusts through just below the tail pipe.

The standard Porsche heat exchangers

are prone to rusting and can allow oil fumes into the cabin. ‘These should be replaced with stainless steel ones – fitting the standard mild steel types is a waste of time, unless the car is being sold shortly,’ Robin advises. And replacement is no DIY job, he warns: ‘Removing them without breaking the studs can only be done by heating up the retaining nut until cherry red, and they can take up to five hours to free up, especially when the heat exchanger flanges are seized into the engine.’

TRANSMISSION

The earlier, 915 gearboxes suffer from a worn and badly set up shift linkage, and this, Robin says, causes people to force the gearstick when changing gear. ‘The 915 has a longer throw than the G50 ‘box, but a well set up 915 is a pleasure to drive, though needs a little bit of time for the oil to warm up. It’s common for the first and second synchromesh rings to wear, and the dog teeth to be broken off.’

Robin says the 915 will certainly be cheaper to rebuild than the G50, which has fewer mechanical issues, but adds: ‘The G50 gear stick knobs were leather covered and will be pretty grotty by now.’

SUSPENSION, STEERING

This is very reliable, with leaking shock absorbers usually the only problem – unless you bash a kerb. The suspension’s robustness can create a problem, though. Robin McKenzie says, ‘As a consequence the suspension geometry is often neglected, and the adjusters seize,

WHAT THE PRESS SAID

‘The 911’s suspension is in theory a far from perfect set-up for a superfast car but it’s been honed to cope with the engine’s ever increasing power. Over the years Porsche have greatly refined the once fierce chassis. Coupled with huge tyres, you have to be cornering very rapidly indeed to unstick the rear end – more normally you will experience only understeer.’

Fast Lane, Turbo Look 911 Carrera 3.2 Sport Equipment road test, October 1986

‘Porsche modifications have produced benefits. At long last there’s central locking, and the electrically adjustable seats give seemingly more headroom – a definite advantage for our six-foot plus driver. On the de-merit side, the modified heating system still fails to demist the car for the first eight miles.’

What Car?, Porsche 911 Carrera 3.2 long term test, November 1986

especially on the rear.’

The plastic bush in the steering column wears out, and replacing this entails removing the gauges and the fresh air inlet box. ‘So if the steering wheel is wobbly, expect a big bill,’ Robin warns.

BRAKES AND WHEELS

The brake calipers suffer from brake dust building up under the shims, which in turn stops the brake pad from “floating”. Check that the Fuchs wheels are in good condition. ‘Many will have been incorrectly refurbished, which is a shame, especially if they have been lacquered, as these will quickly corrode under the lacquer and require refurbishing again,’ Robin reveals.

BODYWORK

The wider wheel arches of this model have made no difference to corrosion issues, the main areas to examine being the bottom of the windscreen, the tops of the front wings where they meet the scuttle panel, around the headlights and at the petrol filler flap on the front wing. ‘Open the doors and look at the bottom of the catch plate and sill,’ Robin also advises. ‘Bubbling around the

Expect a Super Sport to handle and go in a similar fashion to a Carrera 3.2. That is to say, exciting and raw!



Right: Engine is familiar 3.2 flat-six as found in the Carrera 3.2, giving 230bhp. Below: Interior is also identical to Carrera 3.2, although might be better specced, options wise, in Super Sport form



USEFUL CONTACTS

Auto Umbau
Porsche
classicporsche
repairs.co.uk
A Bedfordshire classic Porsche specialist for a number of years, and steeped in air-cooled 911s. Offers sales and servicing/repairs, and our technical consultant for this Buyers' Guide

Design911
Design911.co.uk
Constantly expanding company offers a wide range of Porsche parts, and also nominates local fitting centres for them.

Euro Car Parts
eurocarparts.com
Carries a wide range of competitively priced independent parts

Acknowledgement:
We are grateful for the assistance with our historical research to Steve and Sue Edwards, 911 Carrera 3.2 Register Secretaries at Porsche Club Great Britain (01608 652911, **porscheclubgb.com**), and also to the Club's Archivist Peter Cook.

door catch and engine lid release handle means the catch plates, and more than likely the bottoms of the rear wings and the rear ends of the sills, will need replacing.' He reckons rectifying bodywork on this car is £10,000's worth.

ELECTRICS

The electrics, as Porsche installed them, are mostly trouble free, Robin having only noticed quite minor things. Dirt builds up on the backing plate of the rear light clusters, which then rust and allow water into the internals, but he says this also happens when people over-tighten the lenses and crack them.

However, he pays no tribute to alarm fitters. 'They are unlikely to have done a

reliable job,' he complains. 'We commonly find poor soldering and modules screwed into panels where they have caused damage to the bodywork. LEDs have been drilled into dashboards, and sometimes we find a number of holes from different alarms fitted over the years.'

PARTS AVAILABILITY

Parts availability, at least of mechanical items, is good. 'Porsche is one of the few companies that are very supportive of their older cars,' Robin says. 'Soft furnishings are generally not supported by Porsche, but there are very good, knowledgeable aftermarket suppliers who can provide most materials needed, but you have a real advantage if your interior is black.'

VERDICT

If there's not a 911 Carrera Super Sport in your garage, you've missed the boat unless you've a spare £100,000 floating around. But...do you really want one anyway? The truth is that they have the Turbo's sexy body and its uprated brakes, but fractionally less performance due to the extra weight (although only a few drivers could tell the difference), so in this case, arguably, more is less. So unless the bulges do it for you, we say settle for a normal Carrera 3.2 and keep a sizeable wad in the bank. **PW**

SPOTTED FOR SALE

Private seller
1986 911 Turbo Look coupe, white, black leather, recent clutch, Porsche Heritage certificate, £59,950, West Midlands

Porsche Centre
1987 Porsche Carrera 911 Super Sport coupe, white, black cloth, three owners, 24,000 miles, £150,000
Porsche Centre Leeds

Sports car specialist
1987 Porsche Carrera 911 Super Sport Cabriolet, red, black leather, zero miles since interior/exterior restoration, £99,995, Reading **knowlhill.com**

BUYERS' CHECKLIST

An engine top-end rebuild may be needed at 100,000-120,000 miles, smoking is a symptom
Cylinder-head studs break, impossible for a buyer to spot
A failure to start is probably due to failed flywheel speed sensor
A faulty mass airflow sensor causes starting problems
Heat exchangers corrode and once rusted in place can be extremely difficult to remove
The exhaust system rots in the back box just below the tail pipe
On the earlier, G50 gearbox check for worn synchromesh, and crunching on first and second gears
Wobbly steering means a difficult to access bush must be replaced, requiring dash removal
Look out for badly refurbished Fuchs alloy wheels
Main rust areas are the windscreen base, front wings, side sills and the door catches

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356 Porsche for sale

1965 356C Coupe, car is a show car but a great driver, 9 out of a 10, have cared for said car 40 years, serviced and maintained very well, needs a new driver who really wants a real nice collectable car, worth more than asking price. Tel: 561 633 5901. Email: garyr356@aol.com (Florida, USA).
£85,000

P1218/026

356



356B Coupe

Absolutely beautiful 356B which was originally supplied in South Africa 1963 but has lived in the UK since 1970 with only three owners in that time. In 2015 the car was subject to a complete rebuild which included a bare metal respray, most importantly, the engine was completely rebuilt 100 miles ago using Shasta 1720cc pistons/cylinders which makes the car now very lively. Tel: 01484 721559. Email: tony@klassiker911.com (West Yorkshire) Trade.
£83,000

P1218/025

911

Arena Red 1997 993 C2S Turbo body

Full history, 21 service stamps, 17 main dealer, I have owned the car for 8 years, massive history file, the body is near perfect, all the problems sorted, engine, Tiptronic gearbox, running gear, all good, 137,000 miles from new, every MOT since 2000, gen Turbo S spoiler plus original one, I have spent £19,000, total receipts £38,000, like a 30,000 mile car, gen reason for sale. Tel: 07931 700432. Email: stephenjhulme@aol.com (Cheshire).
£52,500

P1218/001

911 (993) Carrera

1995, automatic with Tiptronic and sequential, owner from Dec 2010. Tel: +34 669 511850. Email: tomarshernan@icloud.com (Madrid, Spain).
£57,000

P1218/027



1976 3.0 911 Carrera Targa

Silver, 1 of 3500, only 1750 in Targa form, 64,000 miles, 10 owners from 1976 to 2000, specialist's report from purchase date including engine rebuild 2001 (new bolts and clutch etc), majority of MOTs present and some history from 1986 etc, whale tail, off the road for a few years. In family since year 2000, MOT 12 months although not required as historic vehicle, part restored paint only (pictures available) conducted by Paul's Restoration, Barwell, Leicestershire, 3500 miles in 18 years, excellent condition for 42 year old vehicle, excellent tyres and brakes, SSI exhaust system. On personalised plate 3 letters plus 911 not included in sale, real sensible offers for this iconic vehicle. Tel: Andy, 07976 763103. Email: cepukltd@aol.com.
Offers

P1218/024

911



1995 Porsche 993 Carrera 4 Coupe

6-speed manual, genuine 80K with full and comprehensive service history portfolio, metallic Iris Blue with contrasting marble leather, sunroof, air conditioning, highly desirable modern classic in stunning condition at only £62,995. Contact the Renaissance Sales Team: Tel: 01483 225878, Graham 07801 235272, James 07775 647037 or Email: sales@renaissance-classics.co.uk (Trade)
£62,995

P1218/018



911 3.0 SC 1982

This manual 5 speed 911 3.0 SC is finished in Light Blue metallic with blue leather interior, this iconic 911 3.0 SC comes with a specification that includes 16-ins Fuchs alloy wheels, electric sunroof and electric door mirrors. This beautiful vehicle boasts a fantastic, full service history. Tel: 01484 721559. Email: tony@klassiker911.com (West Yorkshire) Trade.
£45,990

P1218/033

911



996 3.4 2001(Y)

Lovely rare (for a 3.4) Seal Grey metallic, full history and just had MAJOR service inc brake fluid in July 2018, MOT until May 2019 (no advisories), 92K miles but is in use so will increase. Full black leather interior with Alcantara headlining, MO30 suspension in 2017, Dansk stainless exhaust, Michelin PS2s, FSH with documentaion, I am happy to discuss all aspects of the car. Tel: 07896 749657. Email: graeme.curry@outlook.com (Stockton on Tees).
£14,000

P1218/011



911 Carrera C2 Cabriolet

Absolutely stunning 911, very low mileage with well documented history to back it up, silver with blue hood and blue leather trim, comes with factory hard top, glass rear screen, cruise control, PCM, memory seat, sat nav, Bose upgraded sound system, full service carried out less than 3000 miles ago, valued at over £24,000 by the Porsche Owners' Club with printout, this is a truly outstanding example. Tel: 07947 417662. Email: p.simms@outlook.com (Blackpool).
£16,995

P1218/023

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DEALER TALK: DRIVER SOURCE

This month we visit Houston in Texas and speak with Jose Romero, whose company was founded in 2005 and deals in prestige classic sports cars (and also a few moderns), but has a special affinity for air-cooled Porsches



How long have you been in the Porsche business?

DriverSource opened its doors in May of 2005, so we are now nearing our 14th year here in Houston in Texas as specialists in classic Porsche and other collectable fine sports cars, all offered for sale in our extensive showroom.

What Porsches do you specialise in?

Our passion has always been for early 356s and air-cooled 911s. We have had the privilege to buy and sell some exceptional examples both in terms of rarity and unique character. Some of the "barn finds" we have bought and sold have been treasures, and letting go of them was sometimes difficult. We also have a soft spot for originality and history in a car. In addition, we have an affinity for the later, water-cooled 911 Carreras and 911 Turbos with low miles and/or in interesting colours.

What other services do you provide?

Our service department offers specialist expertise in rare and European makes, with friendly and knowledgeable experts committed to providing customers with the expected level of service and quality. We're also well known as one of the premier automotive storage facilities in the US: "The Vault" is our high security, climate-controlled environment for members' most treasured cars.

What's your cheapest, and most expensive Porsche presently in stock?

The cheapest we have in stock is a 1967 short-wheelbase Porsche 911 garage find "project", for

sale at \$42,500. The most expensive Porsches we presently have are a 1956 Porsche 356 Pre-A Speedster priced at \$350,000, and 1997 993-model 911 Turbo S for \$425,000.

What would you recommend as the best "first Porsche" to buy?

With regard to air-cooled Porsches, which are our passion, I would say a 1987 to 1989 911 Carrera 3.2 in coupe form. This has the improved, G50 transmission, is very reliable, and there are still great ones out there.

Where do you get your stock from?

We primarily purchase our cars from individuals, collectors, other dealers, and classic car "brokers" all across the US. We occasionally buy cars from auction, and we have also purchased some important cars from other countries.

What warranty do you give, or sell?

None

What's 'hot' at the moment?

1974 BMW 2002 Turbo! Sorry, to keep it Porsche specific, very early 356s, and any other excellent low mileage perfect condition Porsche. From our experience, keen buyers and collectors looking for investments desire the best of the best in this market, and will not consider cars below that standard.

What's best value at the moment?

We have seen that early 930 Turbos, and also 993 Turbos and the Turbo S have undergone

a price correction after a significant rises in value, but have now stabilised. These are incredible machines, both beautiful to look at and to drive. And as the younger generation of buyers begin to turn their attention to build quality, rarity and driving pleasure, I think we will see the market for these cars climb again.

Name a car that you recently sold, that you would happily have kept for yourself

1997 Porsche 993 Turbo S – My all-time favourite Porsche. Why? Drive one and you will know.

What car do you drive every day?

In Texas we drive pick-up trucks, it's a thing! I have four Porsches in my collection, but we have a warm and humid climate so in the summer they are parked. Come fall, and spring, we have excellent open roads to take them out for a jog!

What are your plans for the future?

To grow our dealership further and continue establishing a great reputation and relationships. Additionally, we are always working very hard to improve our stock and bring excellent motor cars to market.

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HOW LONG HAVE YOU BEEN IN THE PORSCHE BUSINESS?

HELPING YOU RUN YOUR PORSCHE

Keyless Entry on your modern Porsche is convenient, but as security experts have been pointing out, it makes the car easier to steal, and using a scanner (pictured), thieves, who have worked out where the owner lives, can capture the electronic data on a key from outside the property, and open and start the car without the key.

However, you can make thieves' lives much more difficult. Scanners can receive information through walls and windows, but metal is an obstacle. So put the key in a metal container or buy a metallised signal blocking pouch designed to shield electronic keys. On keyless systems, including Porsche's, you can manually set the key to function only as a traditional key, which we're told also foils scanners.



HELPING YOU BUY YOUR PORSCHE

BARGAIN BASEMENT

Air-cooled Porsche prices are through the roof, and even 996s are stabilising. But the dirt cheap Porsche does exist. You probably won't be surprised to hear that the original, 986 Boxster leads the way here – on Auto Trader alone, we spotted 45 of them under £5000, 31 of them 2.5s or 2.7s, and 13 of them the S. But now Cayennes are in this price range, too, Auto Trader offering 15 below £5000. The 2004 Cayenne S with 101,000 miles was yours for £3995 – a lot of metal for the money!

Time was when 924s and 944s made up the ranks of cheap Porsches, but they've now mostly migrated to the classic websites and carry much higher prices. Just seven sub five grand 'transaxle' cars were on Auto Trader when we checked.



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914

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Offered is the first 914-6 from 1969 which was imported by Porsche UK, license DGU914H, used by many car journalists at that time. Reports and magazines + full restoration information is present. With the car are two 914/6 engines, the non matching is in the car, the original matching engine is also there, however condition unknown. Original 14-inch Fuchs alloys, buy before the Brexit makes it difficult! The car is registered in the Netherlands. Info www.l-c-c.nl. Tel: +31 6 5107 5329 (Netherlands) Trade. **€115,000** P1218/005

924

**924 Turbo**

One owner, non sunroof model, 1st January 1980, matching numbers, original bill of sale, extensive history file containing the original order acknowledgement letter from Porsche, 123,000 miles, Pasha interior, HPI clear, contact for more details and pictures of this 924. Tel: 07779 911911. Email: info@paulfrench.co.uk (Warwickshire). P1218/043

928

**1992 Porsche 928 GT 5.0 Coupe**

Rare manual, genuine 118K with full and comprehensive service history portfolio, metallic Cobalt Blue with contrasting full cream leather piped sports interior, climate control, sunroof, cruise, absolutely stunning condition throughout, exceptionally rare and desirable modern classic at only £39,995. Contact the Renaissance Sales Team: Tel: 01483 225878, Graham 07801 235272, James 07775 647037 or Email: sales@renaissance-classics.co.uk (Trade) **£39,995** P1218/019

OTHER MARQUES

**VW Corrado 2.9 VR6**

1995, 159,000 miles. Spec includes: BMC induction kit, Milltek exhaust, Weitec coilovers, Momo steering wheel and recently refurbed 16-in Vento Cup Speedline wheels. Full MOT and service history with extensive paperwork. This car has been meticulously looked after and comes with many original spares. Tel: 07463 796312 (Surrey). **£5750** P1218/021

BOXSTER

Boxster 987 2.7

2006 reg, 43,000 miles, FSH, MOT April 2019, Arctic Silver, black roof, leather seats. Tel: 07922 471710. Email: wood.keithr@gmail.com (Stourbridge). **£10,995** P1218/028

REGISTRATIONS

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300 RS	911 FEG
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REG 911E	CAR232A
S911 LER	911 FJX
996 POR	930 FF
POR 997T	XXX 911C
POR 911K	991 PD
POR 911N	911 RWS
POR 911Y	918 MHH
993 POR	S918 POR
993 RUF	A993 XXX
VNZ 911	TON 997X
964 MC	997 CSS
964 GC	WBZ 911
RED 911H	P993 POR
RSR 911K	CAB 911X
RSR 911T	VOP 911S
RSR 911X	RS15 ACE
B911 RSR	A911 DPG
RUF 911T	P911 SCH
911 SCR	WAG 944S
RS18 POR	RS68 RSR
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911 XN

'911 XN' registration number

Registration number '911 XN' available for immediate transfer or supplied on retention for use at a later date, £4750 inc vat and transfer. Tel: 01289 309930. Email: grahamedmundson@gmail.com. **£4750** P1218/017

POR 82T

'POR 82T' cherished plate for sale

Drive a 1982 Porsche? The best plate for an '82 Turbo or Targa! On retention certificate ready for placement, DVLA fee included. Tel: 07739 642684. Email: richard@db9.org.uk. **£6995 or offers** P1218/002

JJI 9115

Registration for sale

'JJI 9115', number on retention. Tel: 07810 058297. Email: s-blakeley@sky.com. **£2000** P1218/006

**Cherished plate 'R911 TUR'**

Plate is currently on a car but can be reassigned, very easily looks awesome on the car. Tel: 07790 469507. Email: a5h911@aol.com. **£7500** P1218/042

JND 911

'JND 911'

Original 1948 registration number, ready for immediate transfer, £2880 inc transfer to your car. Tel: 01289 309930. Email: grahamedmundson@gmail.com. **£2800** P1218/012

**SWANN or SWAN**

Super number plate for anyone named SWANN or SWAN. It isn't often that you can get a perfect name plate, so grab this whilst you can, on a long running retention certificate. Put it on your car now or save it for later, at just £1699 it is a real bargain, excellent investment for the future, pass it on to your children. Tel: 07858 580557. Email: saltydog1@gmail.com. **£1699** P1218/007

REGISTRATIONS

**'P911 PAV' registration**

The last missing piece of your marvellous Porsche 911, a privately owned P911 registration on retention with all fees paid until 2027, suitable for all cars from year 1996+, please note that the car is NOT included. Personal pickup of retention certificate with cash payment or next-day delivery with prepaid bank transfer available, price negotiable. Tel: +44 7872 334017. Email: hball62@hotmail.co.uk. **£9110** P1218/041

NLG 991T

Registration 'NLG 991T' for sale

An interesting registration number 'NLG 991T' for sale, currently on my motorbike but easily transferred, buyer to pay fees. Tel: 07764 229155. Email: peter.bull@horizon aerospace.com. **£850** P1218/040

RSL 911C

'RSL 911C' RSL 911 Carrera plate

The ultimate plate for your RSL 911 Carrera or recreation, available for immediate transfer or on retention for use at a later date, £5850 inc vat and transfer. Tel: 01289 309930. Email: grahamedmundson@gmail.com. **£5850** P1218/010

LEZ 911

'LEZ 911' registration for sale

Until recently on my 964 but have now decided to sell the registration, on retention certificate, no VAT or other charges to pay. Telephone with offers. Tel: 07425 153194. Email: lezdawes@gmail.com. **£3500** P1218/039

**JACKSON, JACK, JACKO, JAXXO**

Excellent personal number plate for anyone named Jackson, Jack, Jacko, etc, etc, 'JAXXO'. Overseas move forces the sale of this cracking plate, I have now put it on a retention certificate to make the transfer of ownership simple, you can put it on your vehicle now or keep it until you want to, absolute bargain and sure to appreciate in value. Tel: 07858 580557. Email: saltydog1@gmail.com. **£1800 ovno** P1218/008

AUCTION/SHOWROOM/CLASSIFIED

MARKET WATCH

Classic Porsches, along with the modern GT models, are still fetching high prices, but Brexit is definitely cooling the market. And for some within the Porsche community, that is a welcome development, making cars more affordable for enthusiasts, David Sutherland reports



Annual Silverstone Auctions Porsche only sale saw a general softening in the market

In the UK you can see the Brexit effect in many aspects of commercial life, as confidence wanes ahead of the March EU leaving date: falling new car sales, an all but dead London property market, and general reluctance to commit large amounts of money until we know what the future holds. And that this is becoming evident in the Porsche classic market in the UK was the message from the fourth annual auction held by Porsche Club Great Britain in partnership with Silverstone Auctions. 'For the first three sales it seemed like the market was racing ahead, but prices are beginning to soften,' commented the Club's General Manager, Chris Seaward.

But if that wasn't good news for sellers and auctioneers' premiums, for Chris it was music to his ears: 'It's making the cars more accessible. We want members to be able to afford

the cars, and have pride of ownership, and to bring them to events.'

Hence the sale, held at The Dallas Burston Polo Club in Southam, Warwickshire on 26th September saw little in the way of the dramatic, estimate-busting prices usually seen at the likes of Amelia Island in Florida in spring and Pebble Beach in California in August. Nonetheless, the majority of the 25 cars sold achieved prices within their upper and lower estimate ranges, just five going for less than the lower estimate figure. A total of 42 cars were entered, one was withdrawn before the day, and 16 did not sell (a slightly worse unsold rate than in 2017), though these were still being offered post-auction at a fixed price, so Silverstone's hit rate may improve.

In fact the Porsche that exceeded its upper estimate by the biggest margin wasn't a classic, but a practically

brand new, 400-mile, 2018 gen 2 GT3 with manual transmission that sold for £191,250 including 15 per cent buyer's premium. That was £16,250 over the upper estimate, but the price spoke more about the heat of the current Porsche GT market, being almost £80,000 above the GT3's before-option list price. Another "modern" that gave its seller a pleasant surprise was the 2008 997 GT2 Club Sport that carried a £110,000 hope but made over £19,000 more, at £129,375.

Those that exceeded their estimate by a more modest amount were a 1972 911 2.4T at £97,875, which was £7875 above, a 1958 rally prepared 356A at £82,125 (£7125), two 1998 993-model 911 Turbo S examples for £126,000 (£6000) and £185,625 (£625), a limited edition 1989 930-series 911 Turbo LE with 30,000 miles achieving £151,875 (£1875), a 1992 964-model 911

Carrera RS at £151,875 (£1875) and a 1974 911 RSR lookalike at £95,625 (£625).

We wonder if the seller of the no-reserve, 1986 924S which was described as 'requiring some light re-commissioning' was happy with the £1350 it sold for. However, the single vendor offering the two Ruf-modified 911s would certainly have had a disappointing Friday.

The 2002 Ruf RTurbo, the German tuner's ex-press car and star of a Nürburgring video, was expected to go for between £180,000 and £220,000, and the 1998 993 Turbo-based RUF BTR2 £150,000 to £200,000. Silverstone Auctions billed these as the centre-piece of the Porsche sale, and a trio of Rufs exceeding their estimates at 2018's Pebble Beach suggested their prospects were good – but both went unsold, and post-auction the BTR2 was being offered for £165,000 and the RTurbo at £229,500. Another high-priced but over optimistically pitched Porsche was the rare 1963 four-cam 365C which arrived with a £550,000 to £650,000 estimate but was last seen dangling a £545,000 price tag.

So what was stuff in the "affordable" bracket selling for? Let's call that £20,000 or thereabouts, and not surprisingly this was, if you exclude the £19,833 308 Super N tractor, 'transaxle' territory. An early, 1978 example of the V8 cruiser, the 928, made £14,440, towards the lower end of its estimate, while a 1994 968 Sport sold for £20,230.

How much longer good four-cylinder water-cooled

cars will remain cheap is uncertain, and a 1994 968 Club Sport with 61,000 miles made a decent £31,500. But Seaward told us there had clearly been some incorrect "guiding" with respect to these and other models. A one-owner 944 Turbo with 6300 miles did not sell at between £40,000 and £50,000, and was being offered post sale at £46,000, while a 1994 968 Club Sport – widely regarded as the most collectable of the mainstream 924/944/968 family – and owned by a motoring journalist colleague of ours, failed to make its reserve somewhere between £36,000 and £42,000. Post-sale it was offered for £39,675.

One particular air-cooled 911, a 1986 "Turbo-Look" Carrera 3.2 looked a relative bargain, £42,750 for a wide-bodied Carrera a rock-bottom price (more on this in our Super Sport Buyers' Guide elsewhere is this issue). But we consider the 996 Turbo among the best value 911s, especially when compared to the 930 Turbo which can be two, three times the price. A 2002 911 Turbo, with the preferred manual gearbox and power-enhancing X50 engine pack, and which showed a mere 55,000 miles and a 'seamless' maintenance history, sold for £37,083, which is the going rate, in or out of auction. But allow us on this magazine a little self indulgence when we name what we felt was the outstanding bargain of this Porsche sale: a full set of 294 911 & Porsche World magazines, issue one to August 2018, under the hammer for £12! **PW**



924S, £1350



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964 RS, £151,875



993 Turbo S, 185,625



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P1218/009



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P1218/049

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P1218/047

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P1218/048



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P1218/046

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P1218/051

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'JAZ 911'

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P1218/060

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PARTS



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Bought 2 'new' boxed Becker Cascade Pro 7941 from a German dealer recently at £1K each, used one in my classic car and was going to keep the other as 'investment' but no longer have the car (or a 1 DIN slot to put it in!). Really good bit of kit, out of production now, comes with the last version of mapping Navteq made. It's FM radio, Bluetooth phone, aux in, complete with new antenna/mic mapping in original packing and unlock card. Also extra Navteq maps for west Europe and UK, needs to find a good home, looks very at home in a vintage Porsche or classic car, looking for £599 for quick sale, currently listed on ebay as well: 142929659661. Tel: 07947 319393 (Middlesex).
£599

P1218/052



Complete gearbox for 1964 Porsche 911

All complete, in good condition, no broken parts. Tel: 07537 129889. Email: dd6557680@gmail.com.
£15,000

P1218/045

Cayenne spare wheel

Genuine Porsche Cayenne alloy wheel with Continental Sport Contact 255/55R18 tyre, no damage or repairs, 4 - 2.5mm tread, used as full size spare, pictures available. Tel: 07766 160594. Email: mawarman@supanet.com (Derbyshire).
£65

P1218/029

PARTS

**Boxster hard top for sale**

To fit a 987 model in Seal Grey, collection only from Brackley, perfect condition. Tel: 07711 182888. Email: pr@trade-events.co.uk.
£995

P1218/020

**Space saver tyre**

Older but unused tyre, no wheel. Tel: 07563 556276. Email: ss9design@sky.com.
£80

P1218/044

Genuine 911 Porsche parts 1965-'67

Front brake calipers (48mm pistons), front wishbone arms with new ball joints, rear brake calipers, rear trailing arms with hubs and stub axles, all refurbished. 5.5" and 6" x 15" deep dish Fuchs wheels, Weber 40 IDTP carburetors, spacesaver 15" wheels, 4.5" x 15" steel wheels, Hardi fuel pump (new) plus many more parts. Tel: Brian, 07770 962354. Email: info@classicporsche.com.
P1218/014

944 fuel tank

Metal fuel tank off 1987 944, good condition. Tel: 07523 967889 (north east).
£80 ono

P1218/015

TRIED & TESTED

With *911 & Porsche World's* international Porsche adventurer, Johnny Tipler

997 GEN 1 3.8 S * 2005 '05' * 97,400 MILES * £19,995



So the first 997Ss are finally crossing the £20,000 watershed: a modern 180mph 911, or a daily-use Porsche for half the going rate of a (dry) weekend-only air cooled model. First registered in May 2005, this Atlas grey coupé began life in Keighley and initial service work was carried out by PC Leeds at two years and 17,500 miles. Thence it moved north east with the second of its eight owners, then resided in the west Midlands receiving scheduled attention at PC Wilmslow and Ramus Porsche. Finally in 2016 it headed south, its most recent oil service carried out by Brookspeed Porsche in Southampton at 89,800 miles in August 2017 and the same dealer changed the brake fluid at 94,900 in February 2018. The brake discs are new suggesting these may have been replaced at the same time, but no invoices accompany the service record book.

The paintwork is mildly faded – it would no doubt respond to a good polishing and is undamaged apart from the odd stone chip. The paint inside the front arches has lifted at their vulnerable bottom edges which catch all the road debris. The attractive 'lobster claw' wheels which helped to define the first 997 and becoming rare today have some very minor kerb scrapes; Bridgestone Potenza at the front are new, the rears, amply grooved on their insides, are worn down almost to the wear bars on their outer treads. Inside, the leather upholstery has lasted well and still has that agreeable leathery odour. Door cappings and dash in the same material are also pleasingly

unspoiled and, as ever, the dark carpets might benefit from a clean. The only item needing attention is the broken rocker switch which activates the boot, meaning it can be opened only with the key. The engine compartment is dirty, but no weeps are apparent to a cursory examination of the underside.

A switchable sports exhaust is fitted and in the 'on' position means firing up this 997 will usually turn heads in the vicinity. Idling smoothly after a cold start, the 911 pulls away without any undue noises; the clutch, on the heavy side, bites at mid-travel and the six-shift moves easily across its gate. Steering is precise and responsive and the 3.8 both flexible and ready to pull hard when asked, though perhaps lacking a little zest at the very top-end. The new brakes provide the expected massive retardation with correct pedal pressure and travel. The well preserved cabin has no rattles and though the ride is smooth, there are some rumbles underneath and the PASM does not appear to be working. Combined with the uneven rear tyre wear, a four-wheel geometry check is surely called for. The oil pressure gauge sticks, and the battery which only just manages to turn the engine is probably on its last legs.

This is a 911 for an owner who knows Porsches: it appears fundamentally sound, but will require some expenditure on suspension and possibly engine diagnostics; the vendor is happy to arrange a borescope examination. Given these caveats, here potentially is a bargain 997. **PW**

CHECKLIST

BACKGROUND

The 997, a comprehensive re-shell of the 996, also turned the 'S' into a more powerful version, the gen 1 engine taken out to 3826cc and 30 more bhp. The new 911's lines met universal approval, as did the updated cabin with its notably better and tidier fascia. The troublesome intermediate shaft of the M96-7 remained though, now supported by a larger bearing. Anecdotally, the incidence of failure is rather lower; over 100,000 of the gen 1 997 were built. With its optional equipment, the car sampled here would have cost over £71,000.

WHERE IS IT?

Auto Options Direct has been selling cars in East Berkshire since 2005 and specialises in lower end premium cars, particularly sports cars and convertibles and usually has BMW Z4s, Mercedes SLKs and two or three Boxsters in its stock. Recently it has started to focus on the first generation Cayman and 996s and 997s as well.

Auto Options sources many of its cars from premium marque dealers which have taken them as trade-ins which do not fit in their own offering; other cars are often direct purchases from owners. Auto Options valets cars, renewing an MOT with less than six months validity, but otherwise aims to sell cars as they stand: "We prefer to sell at a lower price and move cars rather than hold on to them," says director Gary who adds that he would hope to turn over 20–25 cars month from a similar sized stock.

Auto Options Direct: autooptionsdirect.co.uk
GU47 9DB 01252 878331

FOR

Original standard specification with generally good bodywork and leather interior; manual gearbox; regular service record

AGAINST

Suspension geometry needs resetting. Engine may benefit from diagnostic check.

VERDICT

Early 997Ss don't come much cheaper: will suit buyer who knows his 911s and is ready to invest in some mechanical refurbishment.

VALUE AT A GLANCE

Condition	●●●●●●○○
Price	●●●●●●○○
Performance	●●●●●●○○
Overall	●●●●●●○○



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£695 P1218/055

1977 Porsche 911 parts for sale, and 2.4

911 parts, bonnet, boot lid, bumpers, various instruments/sundries; 2.4T R7 engine and gearbox, instruments, ancillaries. Tel: 07879 466740. Email: keith@seatown.co.uk. P1218/030

Pagid brake pads

Pagid brake pads, official Porsche parts only slightly worn, were on a Porsche 996 GT3RS, 2 no Pagid U2405P40, 2 no Pagid U2707. Tel: 020 8941 8582. Email: martin_illingworth@btinternet.com (Middlesex).
£250 P1218/031

Porsche Turbo 2 wheels and tyres

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£1500 P1218/032

PARTS

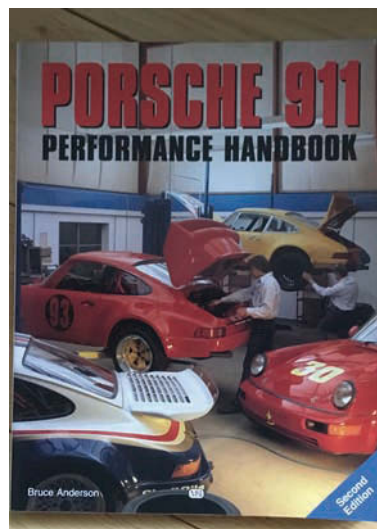
996 tyres

225/40 ZR 18 92W tyres, Zeta Alventi tyres, 7mm tread, no damage, no repairs. Similar tread pattern to Pirelli P Zero Rosso, pictures available. Tel: Martin, 07766 160594. Email: mawarman@supanet.com (Derbyshire).
£45 for the pair P1218/022

Various parts

Set 17-in 993 Carrera Cup alloys fitted with Continental Sport Contact 2s; also various 911SC parts: headlight washer bottle, outer sill covers and rubber strips, various plumbing tubes and pipes, rear wiper, window motor, headlight rims and glass, and much more, no sensible offer refused. Tel: Graham, 01258 455029 (north Dorset). P1218/034

MISCELLANEOUS

**Porsche 911 Performance Handbook**

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£4.50 P1218/057

911 & Porsche World

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£55 P1218/003

Porsche Post mags 07/2005 - 04/2010

Complete set of Porsche Club GB Porsche Post magazines editions from July 2005 to April 2010, free to collector, moving home so sadly these have to go. Tel: 07943 226282. Email: john.colbourne@icloud.com.
Free P1218/035

Outdoor cover for 997 Carrera 2S Gen2

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Free P1218/037

911 & Porsche World magazines for sale

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WANTED

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P1218/054

Urgently wanted

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P1218/016



WANTED

Wanted all Porsche models pre 2005!

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Deadline for inclusion in the January issue is 8th November (February issue deadline 6th December).

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TRIED & TESTED

With *911* & *Porsche World's* international Porsche adventurer, Johnny Tipler

BOXSTER RS 60 SPYDER * 2008 '08' * 52,940 MILES £21,995



The ubiquitous Boxster is the most democratic Porsche: £4000 buys a usable if slightly doubtful elderly example, twice that can net you a decent 3.2, while ten times this sum finds a nearly new four-cylinder 718 with the controversial if ballistic flat four turbo. This Tried & Tested concerns itself with a ten year old 3.4 priced at roughly half that: the RS 60 is another of Porsche's special edition models, this one marking the end of the 987.1. It is based on the Boxster S, but with a catalogue of extras – sports exhaust, PASM and the 3.4 tuned to 303bhp; the cabin has leather upholstery including ventilated sports seats, silver-grey seat belts to match the largely blemish-free GT Silver bodywork, automatic a/c and cosmetic touches which include RS 60 door thresholds, a unique gearknob and de-cowled instruments. There is also a fascia plaque to inform you that this is no.1476 of 1960, the number chosen to commemorate the 1960 718 RS 60 racer. Besides the special paint shade, 19 inch wheels, here shod with almost new Goodyear Eagles, are standard and the front spoiler is slightly deeper; a decade on this Boxster is for sale for half its original retail price.

A four-owner car first supplied by PC Wilmslow, PC Sussex carried out servicing in 2010, 2012 and 2014; an independent garage undertook this in 2016 and vendor Cridfords has just performed a major service. As is this vendor's modus operandi, it has also carried out remedial work renewing brakes (and fluid), replaced the exhaust flange bolts

and a clutch spring; the non-functioning a/c was restored with new radiators and hoses and the coolant hoses, though not failing, were renewed at the same time. For the same reason, the hood cables which tend to stretch were also replaced. So this newly fettled Boxster is ready, you might hope, for another 50,000 miles.

The blue-grey leather cabin is impressively finished, a distinct improvement on the 987's usual black plastics. The interior has worn well, the only wear being slightly frayed stitches on the driver's seat. Compared with the 981 cabin the 987 feels quite intimate and if the control panel on this gen 1 car looks rather dated, the controls are unworn and everything works. The 3.4 fires with a pleasant burble, the clutch immediately feels right and the gearshift is still pleasantly taut (987-997 cables can stretch making the shift feel loose). Once warmed up the RS 60 responds enthusiastically to the driver's right foot. The steering is nicely weighted and has that delightful but difficult-to-describe organic feel compared with the electrically driven racks of later Porsches. The ride is firm and no rattles or squeaks spoil the impression of a well maintained example with seemingly nothing to reproach. It does have the very last of the M97 engines, but these seem to cause little trouble. "It's the gen 1 Carrera S that fails," says Jonathan Leach. "We have three in bits now, but I don't ever remember having to dismantle a gen 1 987. With a ten year old car, there are always things you have to watch which is why we did the coolant pipes and the exhaust flanges." Not strictly necessary, but



CHECKLIST

BACKGROUND

When launched in 1996, the final Boxster design was remarkably close to the much praised 1993 concept and this contributed to its appeal. Once more Porsche was offering an entry level model, but unlike the previous transaxle range, it was bang up to date, and clearly the best handling sports car in its class. Not even Tiff Needell managing to snap the Boxster's cable gearshift on Top Gear could dent the waiting lists. Over 20 years the Boxster has never lost its early momentum, reaching parts of the market other Porsches could not and improving with each generation.

WHERE IS IT?

Cridfords is well known in the Porsche retail firmament. Jonathan Leach started trading in Weybridge then moved to Ripley, before settling in 2014 in Ewhurst deep in rural Surrey. "I particularly liked this site because it had not only a traditional car showroom on the main street, but also a workshop," says Jonathan. Cridfords regards itself as one step down from an Porsche Centre and its pricing tends to reflect this. The workshop is comprehensive with four hoists and an MOT bay together with the latest geometry alignment rig. Cridfords services around 25 cars a week, and rebuilds both water and air-cooled engines. The stock of 30/40 Porsches sells at the rate of five or six per week.

cridfords.co.uk

FOR

FSH and evidence of light use; unmarked body and quality interior, lively tweaked 3.4.

AGAINST

Plenty of cheaper gen 2 3.4s

VERDICT

You can pay less and there is no shortage of choice, but this RS 60 is just different enough from standard issue to make it feel special.

VALUE AT A GLANCE

Condition	●●●●●●●●
Price	●●●●●●○○
Performance	●●●●●●●●
Overall	●●●●●●○○

good preventive maintenance.

The Boxster is ubiquitous and there are plenty of younger examples cheaper than this one. The RS 60 is, however, slightly special and nicely equipped: it is not difficult to imagine a buyer somewhere ready to spoil themselves with this one. A worthy special edition, for a change. **PW**



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TIME MACHINE

Editor Bennett peruses the archives of *911 & Porsche World* from days gone by. What's changed? That will be everything and nothing...

DECEMBER 2001 (ISSUE 93)

The all new 996 Targa featured on the front cover of the December 2001 issue, with its slick sliding roof, a feature that started with the 993 and continued with the 997, before reverting to the retro look, hoop style of the 991. Editor, Horton, was dispatched to Austria to drive, while current Dep Ed, Brett Fraser, fired off the pics.

Truth of the matter is, that once you've detailed the slick sliding roof arrangement, there isn't really much to say, particularly since the Targa was mechanically identical to the Carrera 2. Indeed, perhaps what swung the Targa for us, over anything else, was the convenience of the opening rear tailgate! Simple things and all that.

In his 'Motorsport month' column, Michael Cotton argued the case that the 911 was past its sell by date as a competitive force in sports car racing, following some high-profile defeats to BMW's M3 GTR and the Ferrari 360. Development of the rear-engined machine had been stretched to its limit. Surely it was time for the Boxster to take over, its mid-engined layout far more suitable for the task. Of course it didn't happen, and Porsche did, amazingly, manage to squeeze some more from the 911, but it's never been the dominant force that it once was. Interestingly, in order to remain relevant in recent years, Porsche has had to effectively lobby for a change in the rules, to turn the GTE Pro Class, 911 RSRs from rear to mid-engined, to stand a chance against the BMWs, Ferraris and Fords. Our man, Cotton, was kind of right then. It just took about 16-years to happen.

DECEMBER 2012 (ISSUE 225)

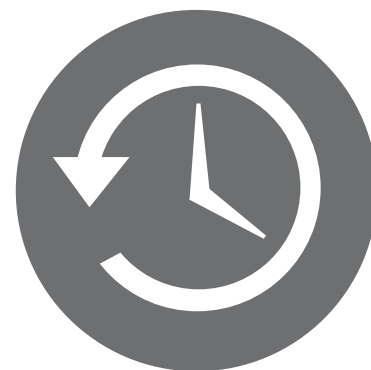
Underrated, was the coverline, or should that have read 'Unpopular?' The theory was to gather a bunch of 911s that were flying under the radar, and therefore the value curve, and so we collected a 911T, 911SC, early, non Varioram 993, 996 C2, gen 1 997 C2, a roll hoop Targa and a Cabriolet, the perception being that these were the 911s to be avoided, for a variety of reasons, that had become, somehow, accepted wisdom.

Pre the air-cooled boom this had some basis, as good 911SCs could still be had for £15k (as evidenced in the classifieds) and a 911T was the cheapest way into a classic looking 911. If you'd have bought any of the air-cooled cars in the feature, it would have been a smart move. The two water-cooled cars, however, are still in the same position, but that's slowly changing. Don't get left behind this time!

Talking of buying cars, a quick flick through the 'Our cars' pages and there I am buying yet another 944. A 2.5 Lux, in Diamond Blue metallic, it turned out to be the best one I ever had, too. Sold it to make way for my 996, perhaps following the above advice!



Something along the lines of what Michael Cotton might have been alluding to was featured in this issue: namely a Boxster with a 996, 3.4-litre engine transplant. Distressingly for the owner, the 2.5 Boxster's IMS bearing let go, but Autofarm came to the rescue, sourcing an engine and creating a properly fast Boxster.



DECEMBER 2007 (ISSUE 165)

Some issues bring back certain memories, and not always Porsche related. The December 2007 issue, produced in mid October, reminds me of putting the magazine together, largely on a lap top from bed, with the help of very strong pain killers, having comprehensively jiggered my back.

Back to the Porsche side of things, and it was a good issue, proving that the drugs clearly did work! Our regular columnists had plenty to say. Keith Seume debated whether Porsches had become just too common, while Peter Morgan celebrated the business nous and inspirational leadership of Wendelin Wiedeking. In retrospect, you have to say that Keith was probably right, and that Wiedeking was largely responsible for that, while turning Porsche into the world's most profitable car company. History also tells us that the 'Wunderman' then got rather ambitious and by 2012 he was gone and Porsche was being bailed out by VW...

On the domestic front, the London Congestion Charge was being rolled out, which would see most Porsches paying £25 to enter, save for the 2.7-litre Boxster and Cayman, which would pay only £8. What mpg could we squeeze from one we wondered? 36.4mpg, and that was trying!



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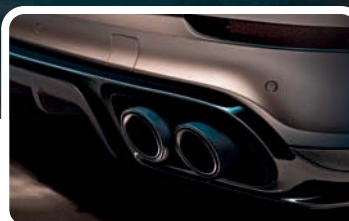
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