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PORSCHE
964
SPECIAL**

964 BUYING GUIDE OWN A MODERN CLASSIC



WINTER 2018 £4.95

Ultimate Porsche

**35
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A 911 HERO

10 PORSCHEs



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3.8-LITRES OF PIKES PEAK POWER

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THE NEXT CHAPTER

IN SPITE OF a life largely unloved, the 964 is finally getting the recognition it deserves as the model that propelled the 911 into the modern age. Regardless of whether you prefer four-wheel drive, two-wheel drive, turbocharged or naturally aspirated variants of the model, it's great to see so many of you showering love (and your hard-earned dosh) on restorations and modifications for this absolute peach of a Porsche, although we'd be even happier if prices stopped shooting skyward. Something tells us that's wishful thinking on our part!

Singer Vehicle Design has been a major contributor to the recent surge in appreciation for the 964, with the company's wild and wacky creations causing a buzz on social media. The unveiling of the firm's 500bhp build in partnership with Williams Advanced Engineering makes for the highest profile 964 to do the rounds in recent months. Check it out on page 16.

Elsewhere in this 964-themed issue of *Ultimate Porsche*, you'll find a comprehensive history of the model, a 600bhp Turbo packing Pikes Peak power, a buying guide and input from those of you who love living with the 993's predecessor. We've also taken the opportunity to showcase striking classic Porsches that sit outside of the six-cylinder fold, namely Alan Nielson's Mint Green 968 Sport and Brian Henderson's 912-powered 356, a slammed Super 90 on air ride that wowed

the thronging masses at the recent SEMA show in Las Vegas.

At the time of writing, Christmas (I apologise for using the C-word) is just around the corner. We've presented a selection of stocking fillers in this issue's 'recommended products' section, but for those of you wanting to treat your classic Porsche to handling upgrades during the festive period, you could do a lot worse than reading our Tech Talk feature explaining the design and functionality of different types of damper. View our findings on page 76.

For those working with a smaller budget, the gift (for you or a loved one, but probably for you!) of an *Ultimate Porsche* subscription is money well spent, particularly if you take advantage of one of our current offers, delivering a massive discount off the magazine's cover price. We ship worldwide, so no matter where you are, you can kick back and enjoy each and every issue after it lands on your doorstep.

Wishing you and your Porsche every success for the year ahead. I look forward to catching up with you in 2018!

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**SPECIAL
CELEBRATION
ISSUE**



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Porsche Classic Oil Service. Caring for the heart of your classic 911.

The Porsche Classic oil service for all air-cooled 911 models, including Porsche Classic Motoroil and a genuine Porsche Classic red oil filter*, is now available at participating Porsche Centres. Prices start from £299** for 911 models (up to 2.7l G model) and £330** for 911 models with an engine capacity over 3.0l (up to 993 generation). For more information visit www.porsche.co.uk/classic



PORSCHE

*Porsche Classic 'red' oil filter not applicable to 993 generation models. **Participating Centres only. Fixed price Classic Oil Service tariffs may be withdrawn or varied at any time. Oil Service includes Classic Motoroil and oil filter and associated parts. Excludes any additional items and checks.



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PORSCHE



WILD AT HEART

Ripping the factory engine out of a 964 Turbo might seem like madness, but it's the best madness going!

WORDS **Emma Woodcock** PHOTOGRAPHY **Andy Tipping**



964
SPECIAL
CELEBRATION
ISSUE



Dr. Frankenstein was repulsed by his creation. Cassandra implored Priam's sons to leave the horse outside the gates of Troy. As literature has shown us time and again, people get anxious when a rogue element is added to an ordered, sensible world. So it can be with modified cars; there are petrolheads who can't fathom why you'd take a hop, a skip and a cone air filter away from standard specification. Porsches, after all, are perfectly capable straight from the factory.

Raise the stakes to a prime cut of Pork and the cautious calls get yet more fervent. Rarity and ever-rising values are held as reasons not to do what could be done. Thankfully, a subversive subset of owners just won't listen! For these



Below 3.8-litre Andial flat-six was used to great effect by hill climb legend, Jeff Zwart, in his super-rare 964 RS Lightweight



guys, originality is nothing more than a blank canvas. Tate Askew, for example, chose to cover his 1991 964 Turbo in dreamy Pastel Blue. The creamy tone sings under the bright California sun, but there's plenty more to this Porsche than a fancy paintjob. About 600bhp more...

Our story begins in 2009, when Florida marque specialist, Brumos Porsche (yes, *that* Brumos Porsche), decided to part with a turbocharged M64 engine with significant racing history. This was no ordinary powerplant, having enjoyed life sandwiched between the rear quarters of a hill climb 911 owned by Jeff Zwart. That's serious provenance.

For those of you less than brilliantly versed in the world of American motorsport, allow us to elaborate. Zwart is one of the most prolific amateur racers in the USA. He's made a name

for himself by taking already-quick Porsches and hotting them up before attacking Pikes Peak, one of the globe's best-known hill climb courses. He's won eight distinct class categories in the Pikes Peak International Hill Climb contest (also known as The Race to the Clouds), each victory claimed from behind the wheel of a powerful Porsche (a 993 Turbo, a turbocharged 997 GT3 Cup, a near-standard 997 GT2 RS and a choice selection of other nippy 911s).

FLYING START

It was the 964 that kickstarted Zwart's gravel-spitting, wheel-spinning run of title-winning hill climb campaigns. More specifically, he was in charge of a Carrera 4 RS Lightweight, one of a limited run of twenty cars developed by Le Mans winner, Jurgen Barth, and designed >>

Rocky record

Pikes Peak International Hill Climb is an annual car and motorcycle event where participants are encouraged to reach the summit of Pikes Peak (the highest point of the southern front range of the Rocky Mountains in Colorado) in the quickest time possible. The track measures 12.5 miles and includes more than 150 tight turns, climbing 1,440 metres from its starting point on Pikes Peak Highway. The current record is a little over eight minutes.



to appeal to Stateside rally drivers.

» Combining the stock M64/03 engine of a 964 RS with a stripped interior, full roll cage and adjustable four-wheel drive, the rare car served as Zwart's regular ride in the Sports Car Club of America (SCCA) Pro Rally Open class from early 1993, but with Pikes Peak set firmly in his sights, the speed-crazed Californian felt he needed more power to tackle the challenging Colorado course.

A call to Andial, the West Coast-based respected independent authority on Porsche performance tuning – the company was acquired by the manufacturer's North American motorsport division in 2013 – resulted in the delivery of a 3.8-litre turbocharged flat-six to the Zwart residence. Plucked from a circuit racer and good for 600bhp, the engine was fitted to the RS Lightweight and promptly carried its new master to his first Pikes Peak class win.

After the event, he returned the cool Carrera to stage rally specification and handed the turbocharged powerplant back to Andial. Impressed by what Zwart had achieved, Brumos bods acquired the engine for a separate hill climb machine, but the project petered out, leaving the unit gathering dust in the firm's workshop for close to two decades.

And so we find ourselves in the spring of 2009, when the assembly of the bright blue 964 you see on the pages before you began. "I received a telephone call from Buddy Kennedy, parts manager at Brumos," says Tate, a South Carolinian custom car builder. "He told me the company had a very special engine in storage. He wanted to sell it to me!"

Tate didn't require much convincing. After hearing about the six-shooter's history and

specification, he shot down to the Brumos base in Jacksonville and bought the Andial 3.8 on sight. He considered his purchase a 'once in a lifetime' opportunity, but there was a fair amount of recommissioning work required before the engine was ready to return to action.

David Barrack, an air-cooled Porsche specialist, helped with extensive case and crank work, the installation of a Patrick Motorsports GT2 clutch kit and the replacing of the engine's 962 Air Research turbocharger with a more modern Garrett GT35R. Ultimately, Tate was in possession of a storied, restored engine with massive power on tap. It was time to find a car to play host to all those ponies.

DEFY EXPECTATIONS

Most people would have picked a non-runner or a lower-specification 911 to build up around an Andial flat-six, but not Tate. Instead, he found a genuine 964 Turbo and began an exacting build process after stripping the car to a bare shell. "I really did assemble the car around the engine!" he explains. Learn a little more about him and it's easy to see where his approach comes from. "He's a huge fan of Ruf Automobile, the German company that makes custom cars derived from unmarked Porsche chassis," confirms Paul Kramer, head of specialist Porsche dealer, AutoKennel (www.autokennel.com), and the man responsible for selling the modified air-cooled classic on Tate's behalf. "This 964 was a way of him being able to emulate a Ruf build."

While the car's bodywork remains predominantly standard, there are a couple of tell-tale details which display Tate's single-minded discipline. Nowhere is it clearer than on the roof. Not only has the sunroof »





Above Early Recaro LS seats have been trimmed with houndstooth inserts and equipped with electric heating

Right Tate installed a vintage Heuer Monte-Carlo rally timer



Peak power

Our story wouldn't be complete without a word from Jeff Zwart. "Alwin Spring at Andial was the first to suggest I swap my rally car's naturally aspirated engine for the big bhp unit he had in the company's workshop. I'd spent the best part of two seasons campaigning a 300bhp 964 RS Lightweight, so you can imagine how amazing it was to jump into the same car and suddenly be in charge of double the power! The extra bhp made a huge difference, especially when paired with short-ratio gears. Later, when I first saw Tate's Turbo, I was drawn to the attention to detail and how well the car sat. I had no idea my Pikes Peak engine was powering his very special 964!"



DRIVER

Q&A



PAUL KRAMER

Occupation
 Founder of AutoKenneI, a specialist Porsche dealer in California

First Porsche
 550 Spyder

Favourite Porsche
 I absolutely loved the Andial-modified 1978 930 I used to own

Best thing about this modified 964 Turbo
 It distils the best parts of Porsche's air-cooled, turbocharged engines

Worst thing about this modified 964 Turbo
 I can't afford to keep it!

» been ditched, but the car's rain gutters have been shaved flush. He tells us that it took him a week to achieve the finished results.

A more obvious aesthetic modification can be seen in the form of his 964's ducktail spoiler. Designed to fit over the engine's S2 intercooler (a part used by Porsche Motorsports North America in period), Tate made no fewer than thirteen different versions of the part until he was satisfied. Along the way, Akira Nakai, the tuner responsible for Japan's RAUH-Welt Begriff (RWB) brand got in touch. "We're now business partners!" beams Tate. "I build Akira's American cars in Atlanta. When I first heard from him, he wanted to include my custom ducktail in his Turbo builds." High praise from a man who has made his name creating some of the world's wildest-looking 911s.

FORGING AHEAD

A Rothsport Racing short shift kit, Bilstein PSS9 coilovers and a 993 engine grille (picked because it moves air more effectively than the earlier 964 part) soon joined the party. A rear window from a 1967 911 S was installed in response to Tate's desire to rid his ride of the horizontal defrost lines of the standard heated rear glass. Those Forgeline wheels? Custom made to evoke memories of the 917. The steering wheel? It's a genuine Abarth item, fitted in order to bring to mind a variety of classic Le Mans race cars. Add in old-school headlights, a Turbo S splitter, a 1976 930 rear script badge and that solid bright blue paintwork, and you've got a 911 that's doing retro right. It might not be an all-original 964 Turbo, but this car is clearly purely Porsche!



Above Reducing the weight of various flat-six components has resulted in a fast-revving motor ready to dash to big bhp in super-quick time

"It's my personal car," continues Tate. "I've covered 7,000 miles in it since completion of the build." This year alone, he's travelled cross-country to Monterey Car Week and has zipped to and fro Las Vegas on numerous occasions. Paul knows only too well why this Andial-engined 964 Turbo is so addictive. "It's astonishing how quickly its turbocharger spools. It's as though the car is in an insane hurry to get to wherever you're pointing its front end. In fact, in first and second gears, the nose of the car lifts. Every slip road becomes a pit lane exit!"

Long distance usability, unique history, timeless styling and lunatic speed. Who could want more from a 964?!





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Singer leads the band

964 restorations taken to a whole new level!



As we revealed a couple of issues ago, Porsche enthusiast, Scott Blattner, approached boutique 964

restoration outfit, Singer Vehicle Design, with a request for high-performance enhancements for his 1990 964. To meet the brief, Singer undertook what it calls a 'Dynamics and Lightweighting Study (DLS)' in partnership with Williams Advanced Engineering, part of the Williams Grand Prix Engineering group. Consequently, Singer engaged Williams and a formation of technical partners (including Michelin, Brembo and BBS) with a view to developing an all-new selection of 964 restoration and modification services.

Legendary Porsche engineers, Norbert Singer and Hans Mezger, participated as special consultants on the project, bringing their decades of experience in the field of aerodynamics and engine development. And here's the first machine to be produced as a result of this exciting collaboration!

Presented in Absinthe (a colour unique to the study) with Blood Orange leather, Scott's 964 features the 500bhp quad-cam, naturally aspirated flat-six we featured in our earlier report, a Hewland six-speed transmission, underbody and surface aero optimised through CFD analysis, improved suspension



(including EXE-TC adjustable competition damping and enhanced geometry), Brembo monoblock anchors and a combination of weight-saving materials, including magnesium, titanium and carbon-fibre, contributing to an overall weight of just 990kg.

"On a technical level, the study has resulted in an incredible restoration with the benefit of top drawer resources

and modern science. Artistically, it has been a chance to connect with the 964 on a new level," said Singer founder, Rob Dickinson, cousin of Iron Maiden frontman, Bruce Dickinson.

Moving forward, the restoration and modification of each client-owned 964 restored and reimagined by Singer in partnership with Williams will take place in Britain at a dedicated Singer





facility housed on the Williams campus in Oxfordshire.

“Being able to work with the 964, applying our expertise in aero, advanced lightweight materials and vehicle dynamics in order to optimise performance, has been a tremendous opportunity,” remarked Craig Wilson, managing director of Williams Advanced Engineering.



Jay Leno flies flag for 914

The 914 has endured a chequered history being regarded as less than a ‘proper’ Porsche by the same philistines who see the 924 as anything but a legitimate Stuttgart speed machine, but appreciation for the Targa-topped roadster from a new breed of enthusiasts is slowing seeing all variants of the 914

treated with the respect they deserve. Perhaps the biggest vote of confidence for the model has landed in the form of approval from denim-clad petrolhead, Jay Leno, who has just finished filming a 914-6 GT tribute for an episode of his much-loved TV show, *Jay Leno’s Garage*. Check it out at www.bit.ly/jayleno914



924 found overturned in woodland

Imagine walking in the woods, only to discover an overturned car down a steep embankment. The chances are you’d rush over to see if you could help the injured. Now imagine getting closer to the car – in this instance, a 1979 924 – and discovering it had been lying motionless for close to quarter of a century! The Jackson County Sheriff’s Office in Central Point, Oregon, reported this very finding, confirming the classic Porsche you see here was reported stolen in 1991. The transaxle’s metalwork is in remarkably good condition considering the fact that the car has been lying upside down in undergrowth for decades! No human remains were found inside the car, and at the time of writing, efforts were being made to recover it.

See you there...

BICESTER SCRAMBLE

Porsche Club GB has been invited to participate in the fifteenth Bicester Heritage Sunday Scramble, with preferential display parking for club members inside the motorsport hub’s large exhibition hangar. Set in the historic grounds of a former RAF base, Bicester Heritage’s series of Sunday Scrambles regularly attracts thousands of classic cars and enthusiasts. Tickets start from £4 per person, and the event takes place Sunday 7th January. For more info, visit bit.ly/pcgbscramble

AUTOSPORT INTERNATIONAL

Covering a large area of Birmingham’s National Exhibition Centre, the annual Autosport show brings together motorsport professionals and enthusiasts in an exhilarating display of cutting-edge technology from all levels of motor racing. In addition to the main displays, two trade-only days see a large number of performance equipment manufacturers occupy a dedicated engineering hall, which makes way for a display of race and rally cars during the busy public days that follow. Live entertainment and keynote speeches from industry professionals are features of this ‘must attend’ event, which takes place 11th-14th January. Buy tickets at bit.ly/autosportint

DRIVEN BY GERMAN DESIGN

Running until 14th January, Qatar Museum Gallery in Al Riwaq is hosting a vast exhibition of design objects from Germany, with numerous exciting automotive exhibits provided by the Porsche Museum in Stuttgart. Visit bit.ly/qatargermandesign for more information.

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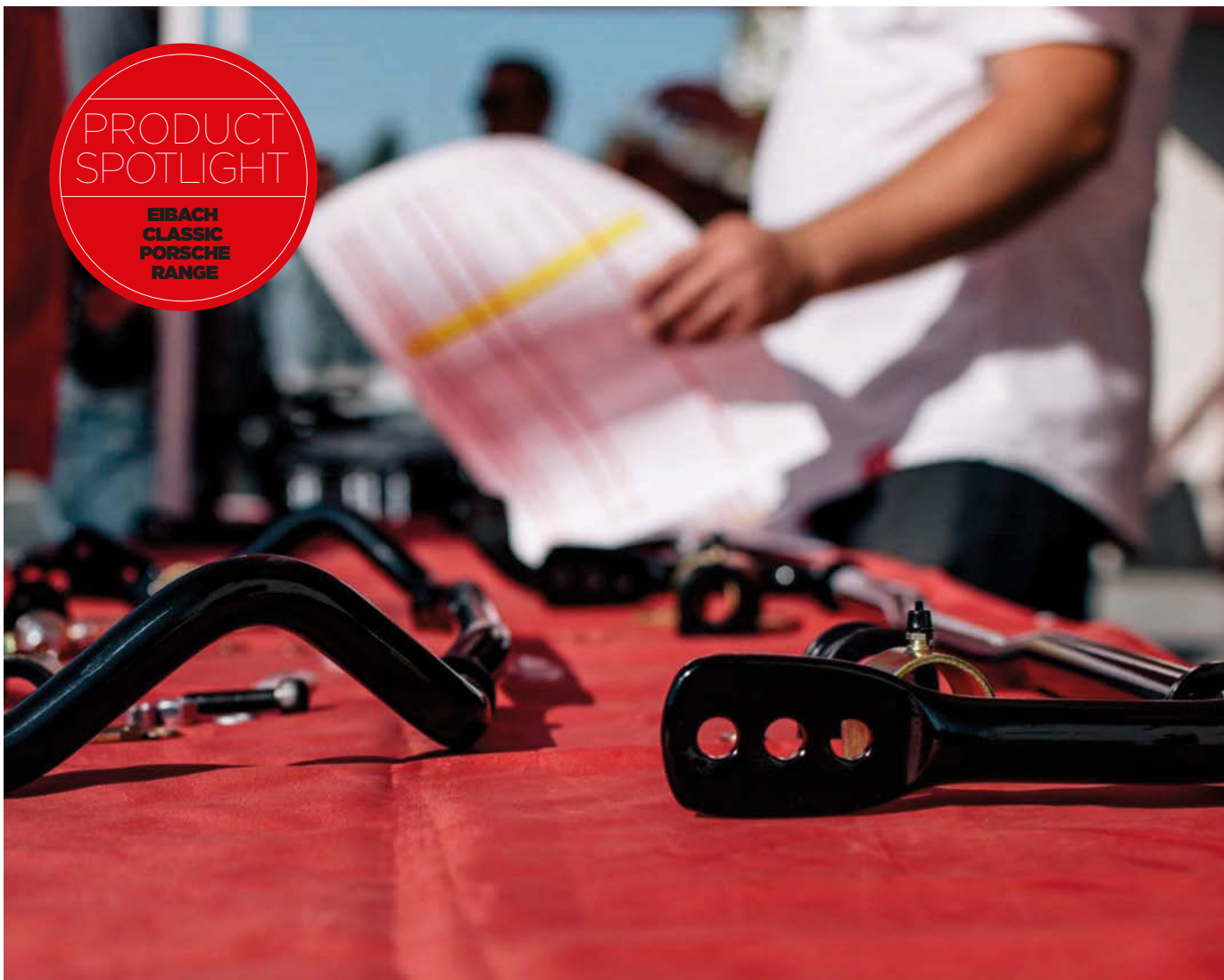
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SPOTLIGHT

**EIBACH
CLASSIC
PORSCHE
RANGE**



EIBACH CLASSIC PORSCHE RANGE

We have exclusive news from Eibach! The respected suspension component manufacturer is in the process of developing a range of new products (including high quality spring kits, anti-roll bars and wheel spacers) for classic Porsches. The 964 is the first model to be given the Eibach treatment, with the 993 and G-series 911 due to follow close behind.

The firm's prototype 964 anti-roll bars were spotted at Eibachtoberfest (a popular

tuner event held at Eibach's Californian factory) and at SEMA a few weeks ago. Unsurprisingly, we were straight on the phone to our contacts at Eibach UK!

Consequently, we can reveal that the front anti-roll bar is solid with three-way adjustment, while the accompanying rear anti-roll bar is hollow, offering significant weight saving alongside much welcome two-way adjustability. Reassuringly, Eibach's engineers have been carrying out

testing of the parts on their own development 964, with the result being greatly enhanced handling from one of our favourite classic Porsches. We'll bring you more news regarding the continued development and the release date of these exciting components as soon as we have it. Watch this space!

Price: TBC

**Contact: sales@eibach.co.uk
or call 01455 285851**

MITTLER BROS TUBE NOTCHER

The Mittler Bros Ultimate Tube Notcher is essential kit for professional fabricators, vehicle preparers and roll cage specialists. It offers one of the quickest, quietest and easiest ways to notch tubing for a perfect TIG weld fit every time. Simply clamp the tube in the calibrated V-block swivel vice for an accurate and repeatable angle position. The vice can be set in single-degree increments. An adjustable height vice is available for offset notching. **PRICE: £4950** www.mittlerbros.eu



WEBCON CARB TPS KIT

Most aftermarket ignition ECUs are capable of running a 3D ignition map when used with a pair of sidedraft carburetors. All that's usually required is a throttle position signal. Webcon's carburetor throttle position kits are supplied with all parts required. The kit is compatible with most popular aftermarket ignition ECUs and a wide range of Weber and Dellorto carburetors. **PRICE: £91** www.webcon.co.uk



CORBEAU X RANGE FIA MOTORSPORT SEATS

Following the successful launch of its Revenge X and Pro-Series X seats a few months ago, the design and engineering team over at Corbeau has introduced the Revolution X and Sprint X models to its range of FIA-compliant motorsport seats. In fact, Corbeau has updated the design of all its motorsport seats to include enhanced mounting bolt fixing (increased from 8mm to 10mm in order to improve stiffness) and a revised composite layup that increases strength whilst keeping the look of the original design. Sprint X is the entry level offering in the range. It comes with two width options, three composite options, vinyl trim options, a choice of centre trim colours (black, red, blue or grey) and is compatible with four, five or six-point safety harnesses. Revolution X adds open head restraint and HANS zone for additional comfort. Both Sprint X and Revolution X can be ordered with Corbeau's celebrated Elite upgrade, enabling further personalisation through custom embroidery and extra colours.

Price: Sprint X £426
Revolution X £576

www.corbeau-seats.com
or call 01424 854499



KW VARIANT 3 COILOVERS FOR 944 TURBO

KW Automotive's Variant 3 coilovers represent state-of-the-art suspension technology designed to enhance your driving skills through a more enjoyable and focused experience behind the wheel. Independent compression and rebound damping options allow you to personalise your Porsche in accordance with the road or track surface you plan to attack. Adjustment of damper compression in the low-speed range is complemented by a high-speed setup designed by KW's engineers to maximise driver comfort. Individual height adjustment allows for a ride height drop of up to 55mm. TUV-approved, supplied with comprehensive documentation and designed by a manufacturer with a proven track record of developing race-winning equipment for powerful classic Porsches, this particular Variant 3 kit is aimed at the mighty 944 Turbo.

Price: £2497.50
www.design911.co.uk
or call 0208 500 8811



RENOVO PLASTIC WINDOW POLISH

Soft-top restoration and maintenance specialist, Renovo, has satisfied its customers requests for a product designed to take care of the soft plastic rear screen found at the back end of many Targas and Cabriolets. While ideal for cleaning all windows, screens (including safety helmet visors) and light lenses made from plastic or polycarbonate, the product's primary function is to tackle the age-old problem of microscopic scratches that form when plastic rear windows are folded. This condition makes your rag-top's rear screen look cloudy. Thankfully, Renovo's plastic window polish transforms milky white into crystal clear in a matter of minutes!

Price: £10.95
www.renovointernational.com



MOUNTNEY WOODRIM

Certain aftermarket products have become so entrenched within the automotive scene that they're held in high regard by pretty much everyone. The Mountney Classic Woodrim steering wheel is a case in point. It has graced almost every type of car that you care to mention over the years; it has never dipped in popularity, and it has never been out of production.
PRICE: £120 www.mountneytld.com



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RECOMMENDED READ

OUR LE MANS

Much has been written about Steve McQueen's epic motoring movie, *Le Mans*, but nothing documents the film, its production and the off-screen friendships it generated like *Our Le Mans*, a new book written by McQueen's co-star, Siegfried Rauch. Comprising 216 pages packed full of never-before-seen photographs (bolstered by images of interesting artefacts in Rauch's personal collection of *Le Mans* memorabilia), this hefty coffee table tome highlights the friendship the stars maintained right up until McQueen's death. Additionally, the film's real racing drivers have their say; Herbert Linge reminisces about McQueen's 908, Hans Herrmann and Richard Attwood wax lyrical about their victory at Le Mans (Porsche's first overall win at Circuit de la Sarthe), and David Piper, who lost a leg during the production, speaks about his experience on set. In short, this fantastic book offers completely new insight into the filming of a movie now regarded as a cult classic.

Price: £25
www.bit.ly/ourlemans



STRETCHABLE INDOOR CAR COVERS

These ultra-soft stretchable indoor car covers from Car Cover Shop are made from four-way polyester with elasticated hems front and back. A high density weave means the product is dustproof whilst being lightweight and machine washable. Crucially, the covers are breathable, which is vital in the fight against moisture build-up and paint deterioration during periods of inactivity. The interior fabric is non-scratch, ensuring the finish of your classic Porsche is kept in tip-top shape, while the exterior satin sheen looks superb and is available in a choice of red, black, light grey or blue. Where non-stretch covers sit awkwardly over the tricky lines of an older vehicle, these superb stretchable covers fit perfectly (thanks to a range of sizes), come supplied in their own zipped bag, and are the closest match we can find to the much-envied factory-supplied Ferrari car covers.

Price: From £99
www.carcovershop.co.uk



CLASSIC RETROFIT HIGH-POWER A/C BLOWER

This air-conditioning blower from Classic Retrofit is designed to replace the ancient (and often squeaky!) blower in classic 911s. The new design utilises a modern double-cage fan, enabling the flow of a greater volume of air than the original Porsche part can manage. As is the case with all Classic Retrofit parts, this brilliant blower is truly 'plug and play', bolting into place and making use of the host 911's standard electrical plug and Bowden cable. The unit's major attraction, however, is its parallel flow evaporator. This allows a 911 with a/c to rid itself of the chunky blower in the Smuggler's Box (LHD) or behind the passenger footboard (RHD). Two blowers in one? You betcha! Either pair the part with your 911's standard a/c system, or join the revolution and try one of Classic Retrofit's popular electric a/c conversion kits. Well, go on then!

Price: £954
www.classicretrofit.com or call 01825 830323





Classic Retrofit's CDI+ unit is a direct replacement for Bosch CDI boxes fitted to classic Porsche 911 models from 1969 to 1983 and 930/911 Turbo to 1989. Extensive development and rigorous dyno testing has proven the CDI+ unit to be a major improvement over the original Bosch CDI unit, with improved torque right across the rev range. Several failure modes of the original units have been 'designed out', protecting



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The units feature programmable soft and hard rev limiters, a shift light output and a fully mappable ignition curve. All units come with a USB cable and the programming software is free to download from our

website www.classicretrofit.com

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Ultimate Porsche

CAR OF THE YEAR 2017

We're inviting you to vote for your favourite *Ultimate Porsche* feature car

Do you know who makes the classic Porsche scene great? You, that's who. Whether you're building a future feature car or simply have a passion for Stuttgart speed metal, it's our readers who afford us the opportunity to showcase some of the very best German four-wheelers out there, so who better to decide which *Ultimate Porsche* star car should be crowned winner of our 'Car of the Year 2017' award?!

We've compiled a shortlist of

twelve tweaked and tuned retro rides that appeared in the 2017 editions of the mag. Each of the machines displayed on the pages before you is exceptional, but there can be only one winner... and it's your call.

Have a flick through the next few pages and reacquaint yourself with the cool creations in contention. After you've done so, point your t'internet browser at www.bit.ly/upcoty and cast your vote. It really is that simple! Voting closes Friday 5th January, and we'll announce the winner in the next edition of the magazine.

The contenders



WANT TO KNOW MORE?

Struggling to decide which Porsche on the list is your favourite? Want to make a more informed decision by reading each of the features that made these star cars famous? You're in luck! All previous editions of *Ultimate Porsche* are available to order as back issues either in print or digital formats. Visit bit.ly/backissuesup for hard copies of the mag, or download direct from the Pocketmags Digital Newsstand by visiting bit.ly/digitalup. Better still, take advantage of one of our low cost subscription



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911 S WICKY S/T RESTOMOD

Bought new by endurance racing hero, Andre Wicky, this awesome 1970 911 S was soon being pulled apart in the Swiss tune shop of Porsche racing legend, Jo Siffert. There, the 2.2-litre coupe was modified to Group 3 S/T spec, complete with a tuned 2.3-litre lump.

250bhp is transmitted to the asphalt via a five-speed straight-cut gearbox and wide Minilites wrapped in fat Michelin rubber. The rebuilt nuts and bolts are happy to accommodate 10,000rpm.

Following four years spent in the hands of the Wicky

Racing Team, this amazing 911 was stripped of its S/T trim and returned to stock spec. A priest in Wicky's hometown of Lausanne then bought the car before it was put into storage. Christie's art dealer, Thomas Seydoux, awoke the dozing 911 from slumber decades later before contacting his local Porsche specialist with an instruction to carry out a comprehensive rebuild, returning the car to Wicky specification in the process. Who would oversee the project? None other than Andre Wicky himself!



968 CABRIOLET

Aviation buff, Derick Gunning, bought this rare Mint Green 968 Cabriolet as a gift for his wife back in 2013. To say he struck lucky with his purchase is an understatement; the car's previous owner was a perfectionist who forked out a lot of money in order to have many of his pride and joy's mechanical components replaced or comprehensively overhauled. The same level of care and expenditure was extended to the car's folding roof, a part made to order in Germany and shipped to Derick in Cambridgeshire.

Interestingly, this gorgeous 968 was supplied new with wheels colour-matched to its bright bodywork. Painting the Cup rims silver has improved the overall look of Mrs Gunning's ride, as have brake calipers that have been powdercoated yellow.

The car's leather-laden cockpit is in a condition equally as top-notch as its exterior. This really is a 968 worthy of the 'no expense spared' tag, but will it be a winner in our Car of the Year competition? It's down to you to decide. Get voting!



911 SC FLACHBAU

It may be difficult to believe, but not all Porsche fans crave curves. Take IT technician, Gavin Cartawick, for example. The boy from Bournemouth harbours a deep love for the flat-fronted 935 race cars of yesteryear, an affection that led him to buy a 1980 911 SC Flachbau fifteen years ago. Since that time, the car has been kitted-out with Boxster brakes, Racer Group anti-roll bars, Bilstein dampers, a ported and polished top end, 993 camshafts, a revised valvetrain, a Carrera 3.2 inlet manifold, a K27 turbo, a TiAl

wastegate and 80lb injectors managed by a FrankenCIS ECU supplied by Dkubus Motorsport Design. The result? An estimated 300bhp from an SC that handles like it's on rails.

Comprising an enlarged front bumper, nine-inch wide wings, RSR-style rear quarters and box side skirts, the car's impressive Zeemax body kit was made as a one-off special order. The aggressive styling is enhanced by the presence of a giant Kremer rear wing, DP door mirrors and stealthy Image eighteen-inch staggered rims finished in black.



928 S2 POLIZEI

It might not be an original German police car (right-hand drive is a bit of a giveaway!), but Fraser Pemberton's 1984 928 S2 is no less exceptional than a 'plod squad' autobahn stormer. The white whale serves as its master's personal project and a promotional tool for his 928 spares business.

"Classic cars need to be fun," said the Porscheophile from Cheshire. "I see little point in having a motor you can't drive because you're worried about attracting stone chips. Polizei is far from the perfect Porsche, but if I ever need cheering up, a quick spin in the car puts a smile on my face!"

Mechanically standard, his S2 features a full public address system,

blues and twos, twin-tone paintwork and vinyl graphics, all of which combine to provide plenty of smiles to the mile. Genuine Polizei coats and caps do the same. Oh, and there's a replica firearm to wave about too.

Picky Porsche fans won't score this super S2 any points for factory originality, but it's difficult to ignore just how much fun Fraser has with his twin-tone, V8-propelled grand tourer. We love it, but does this front-engined classic rank high enough on your list of favourite *Ultimate Porsche* feature cars to take the top spot in our Car of the Year competition? Only time will tell! Be sure to grab a copy of our next issue to see the results.

911 SC 'RENNPIG'

Fifteen52 co-founder, Matt Crooke, bought the 911 SC known as 'Rennpig' as a rough and ready fast-road machine in a cosmetic state that was poor enough to allow him to care little for bodywork battle scars sustained during regular bouts of off-road action.

KW Clubsport coilovers, a Bisimoto exhaust, high-compression pistons, Borla throttle bodies, ARP fasteners and K&N filters join a large front-mounted intercooler tucked behind an RS-style bumper. Up-rated fuelling equipment (in the form of 996 Turbo injectors and AEM standalone management), distributorless ignition, a Quaife

limited-slip diff and Tarox six-piston brakes also join the party.

Designed in collaboration with self-styled 'Urban Outlaw', Magnus Walker, the Fifteen52 003 two-piece forged wheels on the car are a tribute to the iconic five-spoke centre-lock rims worn by the 917.

"A lot of people fail to understand why I keep the car looking so rough, but doing so means I can enjoy driving without worrying about the detrimental effect of scrapes and scratches generated as a consequence of spirited off-road use. Fresh paint and a pristine finish would make me think twice about using the car in anger," Matt tells us.



964 CARRERA 2 OUTLAW

Magnus Walker is a name synonymous with heavily modified early 911s, meaning the 3.8-litre 964 Carrera 2 the Sheffield-born Porsche nut has been driving up and down the mean streets of downtown LA came as something of a surprise to *Ultimate Porsche* readers when we showcased the car in our September issue.

The beast's powerplant is based on a 3.6-litre 993 M64. Increased displacement, new pistons, a lightened crankshaft, Rothsport Racing throttle bodies, custom headers, a GT3 exhaust and MoTeC standalone fuel management work together to produce a healthy 300bhp, while KW Clubsport dampers, Brembo Club Race

stoppers and Fifteen52 staggered rims contribute to an upgraded chassis.

Subtle vented wings, a stripped early 930 'whale tail', a bespoke steel roof (with an integrated channel matching the dimensions of the car's standard hood recess), smoothed bumpers, de-anodised brightwork and a gorgeous coat of OEM Slate Grey paint finish the raucous road rocket.

"Many of my more famous 911s are brightly decorated, often with race-inspired livery and block-coloured bumpers. My 964 has so many bespoke bodywork features that I wanted to keep its paintwork simple, hence the application of a single classic Porsche colour," says Magnus.



911 SC '73 RSR TRIBUTE

Frank Cassidy's awesome Signal Orange 911 started life as a humble SC before it found itself in the hands of the team at Porsche restoration specialist, Canford Classics. At that point, the car was a part-prepared shell being readied for a future dressed as an RSR backdate. Recognising the potential of using the impotent Porsche as a demonstrator for his business, Canford Classics main man, Alan Drayson, set to work transforming the car into the monster it is today.

A new engine lid, bonnet, bumpers, inner wings, battery boxes, slam panel and door details were sourced and painstakingly fitted, while all brightwork was restored or re-plated.

A full rebuild of the already-installed twin-spark MFI engine followed. Likewise, a fully refurbished 915 gearbox, a limited slip-differential, new coilovers, upgraded anti-roll bars, Carbon 12 brakes and staggered fifteens were added to the mix.

The car isn't wanting in the power or handling department, yet with all parties keen to end up with an RSR-fashioned 911 recognised for comfort as much as its ability to plant useable power to the asphalt, much attention was paid to the appointment of luxury interior trim. Consequently, deep pile carpets, sports seats and extra sound deadening make this nimble 911 the complete Porsche.

944 LUX 3B TURBO

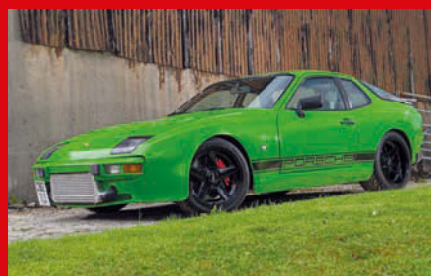
This mean green machine is the creation of agricultural engineer, James Howson. Frustrated at how slow his naturally aspirated 944 Lux felt under load, he sourced the 3B turbocharged straight-five from an early Audi S2 coupe. "Physically, the Audi engine slots into place without issue. It's shorter than the 944's 2.5, leaving plenty of space for ancillaries. That's not to say I didn't face any challenges!" he laughs.

The Audi lump was treated to new forged internals and a racy crank, a forward-facing Audi S4 inlet manifold, a O34Motorsport exhaust manifold, a Garrett T34 turbocharger, a Forge Motorsport actuator and DTA

S80 standalone engine management loaded with a custom map managing 371bhp brought to an abrupt halt by Compbrake anchors.

GAZ Gold coilovers, Azev five-spokes and Federal RS-R tyres deliver a purposeful stance, while the same paint used to coat Stagecoach buses (yes, really!), black side stripes, 924 Carrera GTS-style headlights and aftermarket side skirts give the tuned transaxle plenty more road presence.

Six cylinders might be good, but in this instance, five is significantly better. If you agree, you'd better get voting for this Hulk-like transaxle. Remember, all votes need to be cast no later than Friday 5th January.



928 S4 4x4

Without question, the most 'Marmite' Porsche we featured in 2017 was Patrick Rodda's four-wheel drive 928 off-roader. Essentially an S4 sat atop the chassis of a Bronco 'Bobtail' MPV and powered by a five-litre 'Fox Body' Mustang V8, the Ford-infused transaxle proved to be a polarising force, encouraging 928 purists to take to social media criticising Patrick's treatment of what they saw as a perfectly good Porsche.

The twin-turbocharged S4's gears are shifted through a three-speed C6 automatic transmission that sends drive to the donor Bronco's New Process transfer box, allowing for high and low range abilities. The system is

controlled in-cabin through the use of B&M short shifters, while a Dana 44 axle sits at the front, complemented by a Ford nine-inch with a beefy limited slipper at the rear.

Patrick regularly uses his potent Porsche for desert driving (yes, that winch is bolted to the car's front end for a reason!), yet he's kept his S4's luxurious leather interior. Nice!

"Merging Ford and Porsche is like mixing oil and water. The solution will combine if you shake it for long enough, but it will almost always separate thereafter," he cries, referencing the challenges he faced creating what we've affectionately named 'Porsche S4x4'!

PICK A WINNER!

Cast your vote at bit.ly/upcoty

Competition closes Friday 5th January!



924 TURBO CARRERA GT TRIBUTE

As regular readers will know, unlike the dull, 911-obsessed Porsche-themed magazines sitting on newsstands, we love to champion the underdog, so it was with great pride that we featured Jayson Fletcher's 924 Turbo a couple of months ago.

The bright white Carrera GT tribute spent more than two decades in its state of suspended animation and treated to a rebuild. Part of the restoration process included refreshing and modifying the car's engine with new internals, a rebuilt turbo, a large alloy intercooler and fuel injection managed by an Emerald K6 ECU. Deutsch Nine 924 GTS headlights,

Volkswagen Candy White paint, restored split rims with polished lips and bright red centres, a Pro-9 Carrera GT front bumper and 944 leather were also added, along with a MOMO steering wheel and matching gear knob. Elsewhere on the car, Spax dampers, Kilen 30mm lower springs, Powerflex bushes and Goodridge brake hoses made an appearance.

Estimated to be producing 240bhp (or to use Jayson's preferred unit of measurement, "it goes like the clappers!"), the car has become a familiar sight at Silverstone Circuit, where it has taken part in 924 Owners Club events and has been put on display at the Silverstone Classic.

993 400R

Peter Nam is the man behind luxury vehicle tuning outfit, Vorsteiner. He's well versed in equipping BMWs, Mercedes, Bentleys and Ferraris with bespoke carbon-fibre trim, yet he's always wanted to bring his vision of the ultimate Porsche to life. Until recently, advances in automotive technology have been slow to catch up with his ideas, but he's now in a position to unleash his utterly amazing, Stuttgart-crested, 430bhp carbon-bodied creation.

Based around Peter's interpretation of a 993 GT3 RS – a model he feels is missing from the manufacturer's back catalogue – the Gunther Werks 400R is nothing short

of an automotive masterpiece. The car is the result of carefully blending analogue design practices (carried out by engineers from Porsche's own design department) and state of the art digital flow dynamics. In fact, the bewinged belter was produced by a thirty-five strong team over more than 5,500 manhours. Blimey!

The widest track on a road-going Porsche eliminates the 993's inherent understeer problem, with handling further enhanced by KW coilovers, RS uprights, a front-end hydraulic lift system and billet wishbones. Every part of the 400R is brilliantly over-engineered, including its Rothsport Racing four-litre flat-six.



944 TURBO 'THE PUNISHER'

Marvel's famous antihero, The Punisher, is the comic book character people love to hate. The Punisher-themed 944 Turbo built by Tomaz Cervantes is similarly arresting, with those who encounter it convinced they're looking at a Porsche stranger than fiction!

Assembled during its creator's recovery from a horrific motorcycle accident, the 400bhp turbocharged transaxle was formerly a development vehicle for the 944 modifying masters at Rogue Tuning. A host of engine and driveline upgrades had been bolted to the car, making it the perfect platform for Tomaz's unusual project.

A bare metal respray, Broadfoot Racing flared wheel arches, Koni

adjustable dampers, eighteen-inch split rims, 924 Carrera GTS headlights, a giant rear wing and Punisher graphics decorate the outside of the car, while its cabin benefits from a full retrim. Under the bonnet, a rebuilt engine features a ported and polished cylinder head, RARST forged rods, uprated fuel equipment, a K27/8 hybrid turbocharger, a 930 wastegate and a Lindsey Racing Stage 2 intercooler.

Tomaz not only loves The Punisher, he lives The Punisher, dressing as the character and taking his pristine Porsche to Comicon and Cosplay events where the terrifying transaxle acts as a promotional tool to help raise money for hospitals in New Mexico.



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Torque Driver

Pip Hammond

Our man Hammond may be 2017's BRSCC Toyo Tires Porsche Championship 924 class winner, but his success in landing the top spot wasn't as easy as many might have anticipated earlier in the season...

I've got a lot more respect for the difficult job race commentators have after trying my hand at their game when I was forced to sit out the recent 924-only race at Donington following a regrettable smash during the Rockingham round of the BRSCC Toyo Tires Porsche Championship. I'd had a challenging start to the weekend in Northamptonshire thanks to my 924 suffering a massive drop in oil pressure midway through qualifying. The fitting of my standard-spec spare engine (which was more than a hundred miles away) got me back up and running in time for race two. An attack of the field followed, and I was delighted to finish third after starting at the back of the grid.


I'd had a good streak of wins up until that point in the season. I was on course to meet my target of winning the 924 class championship, but being propelled into Rockingham's unforgiving banking at 70mph during the third race of the weekend after a four-car crash forced a 924 to be spat directly into my line of fire – not to mention the subsequent hit from behind I was subjected to by a Boxster – meant my title hopes were in jeopardy. Despite bagging fourteen consecutive wins in the preceding months, I couldn't afford to drop any more points.

The on-site medical team at Rockingham gave me a clean bill of health, which is more than can be said for my wrecked 924. There was no time to re-shell before for the event at Donington and the final round of the season at Brands Hatch, meaning I had to strip and rebuild the car as best I could in the hope of clinging on to my dream of winning the class championship. Fortunately, transaxle breaker, Woolie's Workshop, supplied me with a donor 924 front end, the result being that everything on my car from the bulkhead forward was replaced in readiness for a return to the track.

The car's race engine took a battering in the accident. Its bottom pulley looked to be in the same terrible state as the bent offside front wheel! Nevertheless, these wrongs were put right in time for myself and my PDC Racing teammate, Gavin Johnson, to hit Brands hard.



I won the first race of the weekend, thereby doing enough to ensure the title was mine before the final two races of the season got underway. Victory came as a huge relief! I ended up being class champion with 454 points to my name. Gavin came a close second with 411 points.

If there's a positive to be drawn out of my Rockingham smash, it is that the required remedial work has taken the pressure off the PDC Racing team during the winter months; a lot of the essential maintenance work we'd planned for my car is now already done. This gives us more time to dedicate to our corporate sponsorship responsibilities, which include visiting schools in the hope of getting youngsters interested in the field of automotive engineering. It sure beats trying to remember the names of a million drivers when trying to deliver a day's worth of fast-paced race commentary! 

Above Woolie's Workshop came to the rescue with a donor 924 front end

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There was no time to re-shell before the final round of the season at Brands Hatch



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Torque Specialist

Greg Howell

He may have created the look of some of the UK's top show cars, but paintwork and refinishing specialist, Greg Howell, makes no secret of his love for the timeless styling applied by Porsche to the 964...

After enthusing over air-cooled VWs as younger man, my transition to the world of classic Porsches was an easy one, made even more straightforward by the availability of 964s at sensible money. Granted, twelve grand isn't an insignificant sum, but compared to what even the tattiest examples are fetching today, it's safe to say that my decision to buy a 964 was well-timed, albeit by luck rather than judgment!

The red 964 I currently own nearly didn't come into my possession. I'd replaced my first 964 – a beautiful white show car – with a ropey black example I intended to restore in the interests of turning a profit, but the more I looked at the project, the more work I recognised needed to be done. At the same time, a mate bought what is now my red 964. He intended to turn it into a track warrior with a heavily modified engine, standalone management, a carburettor conversion, lots of machine work, a roll cage and revised bodywork, plus the inevitable suspension and brake upgrades. His plan of action looked good on paper, but he soon lost interest after working out the cost of building his dream machine.

That's the thing about 911s. They reward you with a brilliant drive and plenty of smiles to the mile, but you shouldn't enter into a Porsche restomod project thinking it's going to be cheap, even if you are in a position to do much of the work yourself. My friend found this out the hard way, and to cut a long story short, he sold his car to me after painfully accepting that his pockets weren't deep enough for the extensive work he was hoping to commission.

I'm lucky enough to have a friend who works at Porsche GB. He collected the car's engine and rebuilt it for me in the firm's motorsport department. Meanwhile, at my bodyshop, Southam Bodies (www.greghowell.co.uk) in Warwickshire, I stripped the car's shell in advance of rebuilding it with KW Variant 3 coilovers, BBS rims, a KW hydraulic lift system



and a few minor bodywork alterations, including a side repeater delete and a subtle tint that makes Guards Red look less 'orangey' under artificial light.

My 964's interior was expertly re-trimmed and its chassis was freshly undersealed. During the time I spent putting the car's component parts back together, I was struck by how over-engineered they are; 964s were exceptionally well-built at the factory, resulting in stability at high speed and superb handling. The model still looks fresh today, and even though I have a 964 of my own, I can't help but get excited whenever I see one of these quick, comfortable, gadget-laden speed machines out on the road. Don't hesitate to buy one if you get the opportunity to do so.

Above Greg's super-clean Porsche is affectionately known as the 'OCD 964', and it's not difficult to see why!

www.greghowell.co.uk

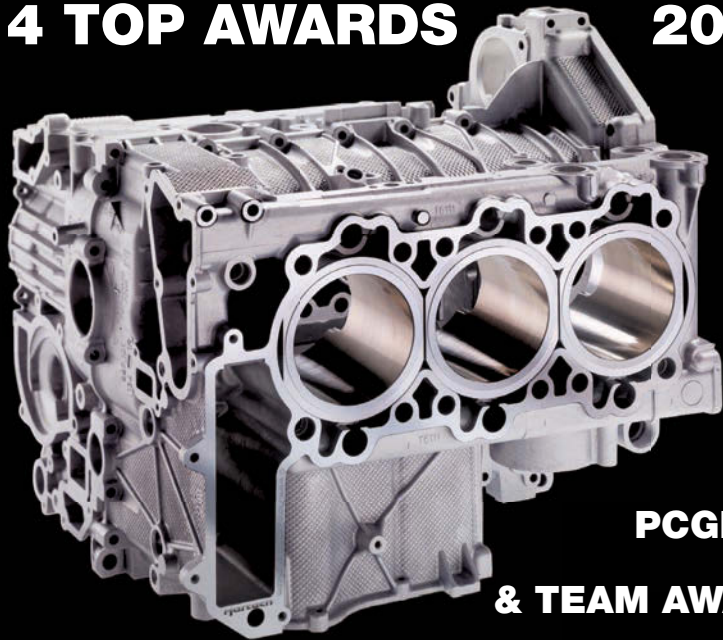


You shouldn't enter into a Porsche restomod project thinking it's going to be cheap



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Torque *Enthusiast*

Paul Lowe

Known to many by his social media handle, *@PorscheSauce*, Paul Lowe arrived at his passion for Porsche through the pairing of alcohol and driving. There's no need to raise an eyebrow, it's not what you think...

Back in the late 1980s, I was a sales representative for the now-defunct Romford Brewery Company. I spent a lot of time out on the road in my trusty red Ford Orion repmobile, until one day, my employer set myself and my colleagues a challenge. The proposition and reward was clear: whichever one of us sold the most Löwenbräu beer over a two month period would be thrown the keys to a nearly-new 911 Carrera 3.2 Cabriolet. Challenge accepted!

We were told that whoever came up trumps would be able to take the car home for a weekend. It didn't matter to me that the E-reg drop-top was decorated in Löwenbräu livery (the Munich-based brewery and Porsche have a long history of working together, most notably through the former's sponsorship of 962-103, better known as the Al Holbert Racing Löwenbräu Special, one of the most successful and recognisable 962s raced in period), for this was a rare opportunity to get behind the wheel of the era's defining sports car.

"Sell Löwenbräu," they said, and sell Löwenbräu I did. Loads of the stuff. I certainly shifted more than anyone else who was present at the promise of a 911! True to my employer's word, I was let loose with the promo Porsche at the end of the two-month sales binge.

The car wasn't very old, yet it had already covered 130k miles by the time I jumped into its pilot's seat. My suspicion was that every high-performing Löwenbräu sales rep across the country had ragged the nuts off this poor Porsche at some point in its short life, but the car drove beautifully in spite of the not inconsiderable distance and heavy lead feet it had been subjected to.

Bearing in mind I was used to pootling around in an Orion, setting foot inside the 911 was like boarding a spaceship! It went like stink, and I made sure I got full use out of the car in the four days it was parked on my driveway. Dawn til dusk, I was out and about enjoying every mile. I loved every minute. I was hooked.



I've been a fan of Porsche products ever since that time. It took me a while to be in a position to buy a Stuttgart-built sports car to call my own, but I did exactly that when I decided to add my name to the logbook of a Copenhagen Blue 944 S2. Since then, I've indulged my passion for Porsche by frequenting Le Mans (where I saw the manufacturer's 911 GT1s fly across the finish line in first and second place in 1998), meeting Magnus Walker, driving a variety of amazing 911s, buying a Boxster and establishing my increasingly popular *Porsche Sauce* social media channels. I'll let you take a guess at what my favourite beer is!

Above Löwenbräu 911 Carrera 3.2 Cabriolet brings a whole new meaning to 'drink driving'

Twitter and Instagram:
@PorscheSauce



True to my employer's word, I was let loose with the promo Porsche at the end of the two-month sales binge





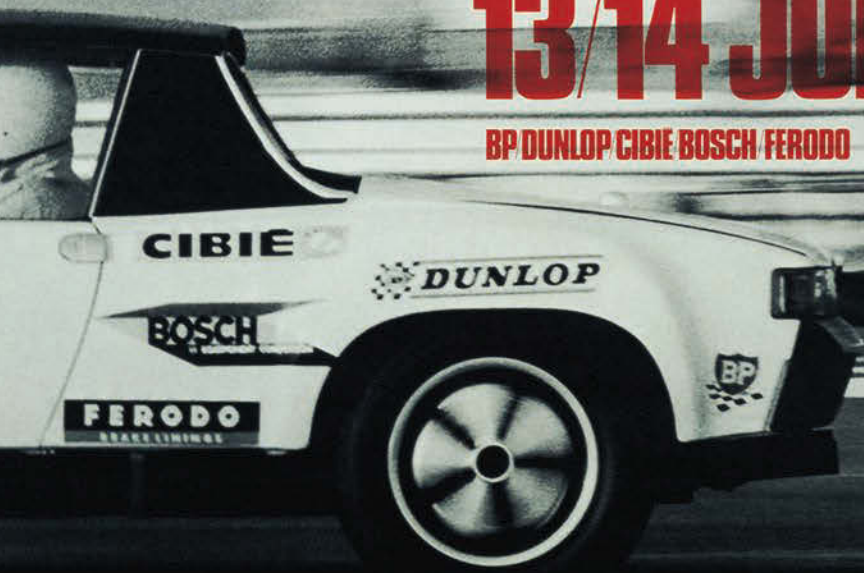
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FROM THE
VAULTS

THE MODERN CLASSIC

Featuring a raft of technologies first seen on the 959, the 964 was the first major updating and modernising of the original 911 concept

WORDS **Richard Gooding** PHOTOGRAPHY **Various**

The 911 SC and Carrera 3.2 (read all about the history of the latter by ordering a copy of the December issue of *Ultimate Porsche* at www.bit.ly/porschedare) breathed new life into the 911 concept, but increasing competition from an armada of European and Far Eastern manufacturers necessitated a more comprehensive reinvention.

Launched in November 1988, the 964 marked a sea-change in the 911's development. Porsche CEO, Peter Schutz, and chief engineer, Helmuth Bott, aimed to make the new model the most advanced car to wear the 911 badge. Indeed, many of the 964's key features were inherited from the earlier 959 project, bringing supercar technology to a much wider audience.

Despite Porsche claims that the 964 was eighty-seven percent new (when compared to the outgoing Carrera 3.2), changes to the iconic 911 silhouette were prohibited. Nevertheless, the car's polyurethane bumpers, aerodynamic rain gutters and flat undertray were all new components with clear cues from the 959. The 964's drag coefficient was improved to 0.32 over the Carrera 3.2's 0.39. Additionally, devoid of any superfluous addenda, the newer 911's passage through air was helped by a retractable rear spoiler which automatically extended at 50mph, eliminating the risk of lift at high speed.

Surprisingly, the first 964 to land was the Carrera 4, so-called because of its four-wheel drive system. Porsche purists may have howled into their Black Tower, but the manufacturer was keen to push the 911



1979 1981 1982 1983 1984 1985 1986 1987 **1988**

964
SPECIAL
CELEBRATION
ISSUE



964s (left) make up a large part of Porsche's 1990 product range

FROM THE
VAULTS





Top Wind tunnel testing the 964 at Weissach in 1987

Top right 3.6-litre 964 Turbo complete with factory Flachbau styling (note the headlights flush with wings)

Left Bright yellow 3.3-litre 964 Turbo S outside the Porsche plant at Zuffenhausen



States special

The 964 RS America was built to satisfy Stateside demands for an RS focused on the US domestic market. Using the 964 Carrera 2 as its base, key identifiers included a 'whale tail' rear spoiler, an RS identifier ahead of the rear wheels, and RS America script on the decklid. Inside, flat carpets and door cards, no radio, no a/c and no rear seats marked the semi-lightweight nature of the car, as did cruise control deletion and the removal of the 964's sunroof and power steering system.

THE MOST POWERFUL NATURALLY ASPIRATED 911 IN THE MODEL'S HISTORY, THE CARRERA 4 BOASTED 3.6-LITRES

envelope. Tellingly, despite sixty-nine percent of the Carrera 4's power being sent to its back end, many of the outgoing 911's driving characteristics were retained.

The most powerful naturally aspirated 911 in the model's twenty-six year history, the Carrera 4's flat-six M64/01 engine boasted 3.6-litres of displacement. Power was up to 250bhp with 228lb/ft torque delivered at 4800rpm, enabling a sprint to 60mph from rest in just 5.5 seconds and a top speed of 163mph. If the four-wheel drive system had caused consternation, this next-gen 911's performance certainly didn't!

MODERN METAL

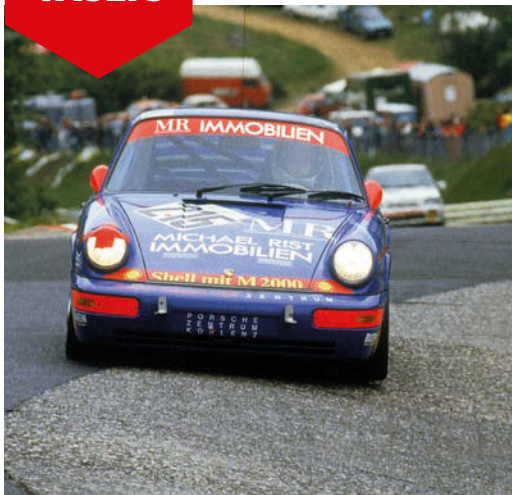
It wasn't just the model's engine that was substantially revised. Underneath the familiar lines and stovepipe front wings lay a coil-spring suspension system (the long-used 911 torsion bar setup finally junked) as well as ABS and power steering as standard equipment. The rear-mounted powerplant remained unhindered by the new safety systems – speed freaks could still wag the 911's tail, even if it did require more provocation than ever before!

The 964 was launched as a coupé, although it didn't take long for Cabriolet and Targa variants to materialise. Each car represented a thoroughly rejuvenated 911, with twin front airbags for USDM builds, a redesigned climate control system, a three-way catalytic converter and a ten-year anti-corrosion warranty. Even though it hid its advancements beneath an admittedly decades-old shape, the 964 was as modern as a Porsche production car got when the 1990s were drawing near.

With the new decade came a two-wheel drive 964 in the form of the Carrera 2. It shared the fourby's engine, but was the first Tiptronic-shifting 911 thanks to the option of a four-speed, electro-hydraulic semi-automatic gearbox. Furthermore, in March 1990, the ante was well and truly upped with the debut of the 964 Turbo at the Geneva Motor Show. Time restraints and a stalled project which aimed to replace the classic 911 Turbo (930) with a car codenamed 969 (see boxout) meant the turbocharged 964 used the same 3.3-litre engine as the 930. Revisions to fuel management, however, plus a new intercooler, a revised inlet and an uprated exhaust system meant power was up to 320bhp with a 0-60mph dash of just 4.7 seconds. Wider rear wheel arches and a new version of the legendary 'whale tail' rear spoiler also set the turbocharged 964 apart from its lesser-powered stable mates.

Of course, there were still those who thought the 964 Turbo a tad tame. The Turbo S of 1992 redressed the balance. Creature comforts, including airbags and sound deadening, were removed, while a front strut brace and lowered suspension improved handling around tight corners at speed. Packing 318bhp, the car known as 'Leichtbau' was hardcore and ready to race. It was also rare, with only eighty-six examples produced, all of them now worth serious money.

A year later, a new forced induction version of the M64 engine replaced the 3.3-litre unit used in the 964 Turbo up until that point in time. 0-60mph was now achieved in 4.5 seconds. Additional kit included a limited-slip differential and eighteen-inch

**FROM THE
VAULTS**


Speedline wheels. A production run of just twelve months made the Stuttgart speed machine highly sought after and expensive, yet this 3.6-litre lout was hardly the end of the 964 Turbo story...

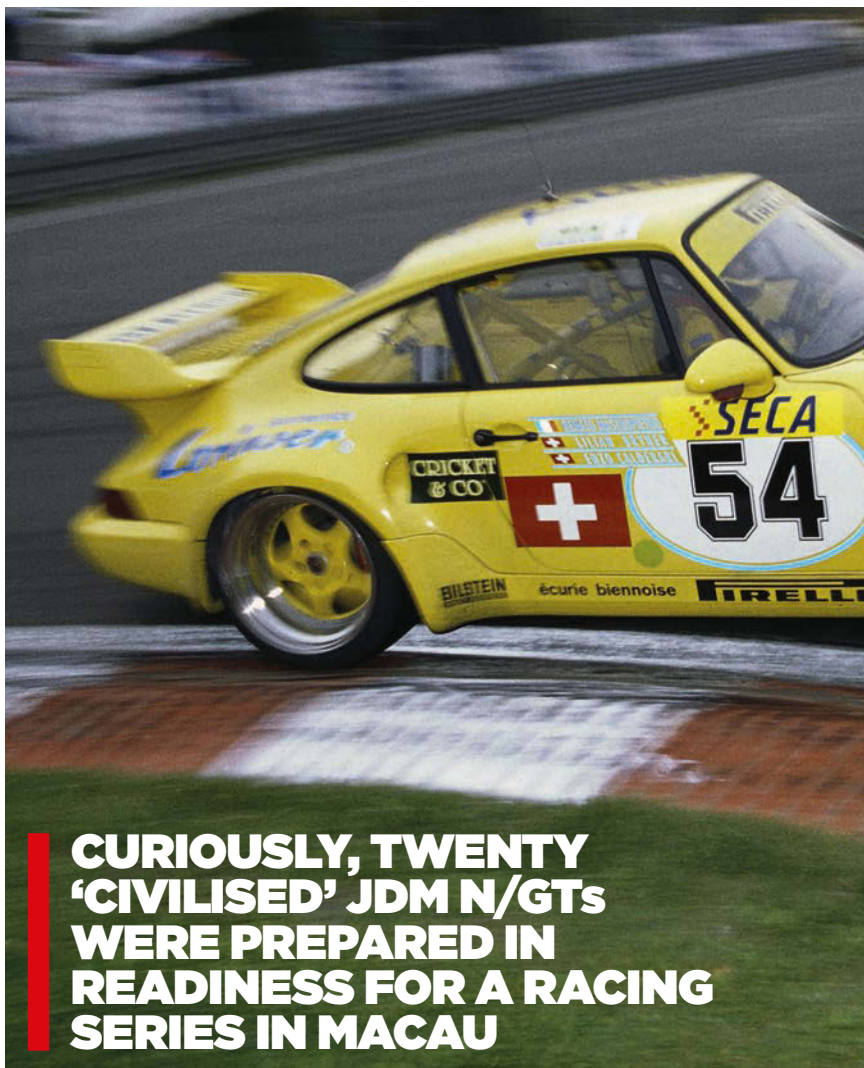
At the time of the 993's arrival in 1994, close to ninety 3.6-litre Turbo chassis were collecting dust at Zuffenhausen. With them, Porsche created the 964 Turbo 3.6S. Attracting a price tag amounting to £130k, the car was revealed at the Paris Motor Show. 385bhp and 383lb/ft torque was available to order in both standard and 'Flachbau' configurations. In fact, seventy-six Turbo 3.6Ss were dressed with the instantly recognisable sloping front end!

Porsche Exclusive (the factory special order department) built each Turbo 3.6S. The model included a host of desirable features, chiefly the X88 engine, X92 front spoiler, X93 rear spoiler and X99 wing vents. Previewing the look of the imminent 993, Flachbau builds featured headlights that sat flush with the front wings.

BARE NECESSITIES

While the 964 Turbo provided plenty of pace, its stock trim still made many consider it too luxurious to be anything other than a comfortable missile. A more engaging drive was demanded by Porscheophiles. Enter the Carrera RS of 1990. Channelling the same lightweight recipe as the legendary RS 2.7 of 1973, the 964 was placed on an extreme diet in order to lose 150kg over its Carrera Cup sibling (see boxout). Unsurprisingly, there were no rear seats or door pockets, no power windows or electrically operated mirrors. Pull-straps replaced interior door handles, while drivers perched their posteriors on race-style Recaros. Power steering was ditched on left-hand drive cars.

Truly track-focused, the Carrera RS featured 3mm thick plastic windows as well as an aluminium bonnet and a lightweight rear bumper. Power was only up 10bhp over the Carrera 2, but a lightweight flywheel made



CURIOUSLY, TWENTY 'CIVILISED' JDM N/GTs WERE PREPARED IN READINESS FOR A RACING SERIES IN MACAU

the car's engine far more responsive. The accompanying five-speed G50 gearbox was kitted-out with improved ratios, while more aggressive brakes and stiffer suspension helped to deliver the rawest 964 yet. Attracted by a car sitting 40mm closer to the asphalt, 2,405 buyers invested in the RS.

If you found the M001-coded RS too extreme, soundproofing, electric windows and power seats were offered for eleven M002 RS Touring cars. Conversely, if you didn't think the M001 was outlandish enough, 290 M003 N/GT racing versions came equipped with blank metal interiors, a fire safety system, plywood foot boards, a Matter roll cage and engine kill switches. Curiously, twenty 'civilised' N/GTs were prepared for the Japanese domestic market in readiness for a racing series in Macau. RS carpets, RS Touring seats and a leather-clad roll cage featured prominently.

A super-rare 964 badged as the Carrera 2.8 RS was sold briefly in Europe. Combining the Turbo's body with a 3.8-litre engine, the

Top Mega-rare 3.8-litre 964 Carrera RSR strutting its stuff at Spa Francorchamps in 1994

Right 964 Turbo body and wheels combine with naturally aspirated power to deliver this 'thirtieth anniversary' Carrera 4

1979 1981 1982 1983 1984 1985 1986 1987 **1988**



964 supercar

Dubbed 'Type 965', the 964 Turbo started life as a 959-aping 375bhp all-wheel drive model tipped to be launched as the 969. A PDK gearbox and 993-style headlights were standard. Slated for production in 1991, an annual build target of 2,500 units was set. Tooling was made accordingly. Just eighteen months ahead of launch, however, Porsche pulled the plug due to rapidly declining sales and difficulties containing the cost of engine development (blown 3.3-litre, 3.5-litre and V6 options were tried). Sixteen prototypes were made, all but one of them destroyed.



IT'S ONLY IN THE LAST FEW YEARS THAT ENTHUSIASTS ARE EMBRACING THE 964'S HIGH-TECH UNDERPINNINGS

► fifty-one examples built weren't limited to road cars – an RSR version participated in the F1-supporting Supercup series. Fitted with a dry-sumped 3.8-litre M64/04 engine, the 350bhp rocket ship smashed the 0-60mph barrier in just 3.7 seconds!

It's also worth us mentioning the Carrera 4 Lightweight, a DM285,000 964 developed by Porsche racing legend and Le Mans winner, Jürgen Barth, after he discovered twenty-two all-wheel drive chassis left over from the 953 rally cars of 1986. Intended to entice competitors on the American rally scene, the Carrera 4 Lightweight is considered to be near-priceless today.

MIX AND MATCH

More civilised 964s included a Carrera 4 built to celebrate the thirtieth anniversary of the 911 in 1993. The model combined the 964 Turbo's body and wheels with the standard car's naturally aspirated engine and lifting rear spoiler.

It wasn't just hard-tops which hogged the limelight; in tribute to the 356-based America Roadster some forty years earlier, 250 964 soft-top America Roadsters also paired the Turbo's body, wheels, brakes and suspension with a naturally aspirated engine.

Inspired by the Carrera 3.2 Speedster, the Carrera 2 Cabriolet-based 964 Speedster of 1993

repeated the chopped-windscreen, humped-rear recipe. Supplied in standard or lightweight RS-aping 'Clubsport' trim, plans for production volume totalling 3,000 cars were well wide the mark, with just 936 examples built. Only fourteen of those featured steering wheels on the right side, and only twenty enjoyed aggressive 'Turbo Look' bodies.

The 964 thoroughly reinvigorated Porsche's flagship sports car. The model's job was a tall order: lay the foundations for future 911 development by propelling the cool coupé into the modern age. 62,172 sales suggest a case of mission accomplished.

That said, not everyone views the 964 with the affection it deserves. It became very much the 'unloved' 911 – many thought it too modern to be considered a classic, others said it wasn't modern enough to keep up with the model's successor, the 993. Others complained about the 964's driver aids (safety equipment). It's only in the last few years that enthusiasts are embracing the 964's high-tech underpinnings and retro styling. Companies such as Singer Vehicle Design are reimagining the 964 by reintroducing it with old-school 911 styling and thoroughly modern, high-powered mechanicals. Bespoke, luxurious, no-compromise 964s are the order of the day, and there's no shortage of buyers. Get in on the act before it's too late!



Above Three 964 Carrera 4s (coupe, Targa and Cabriolet) line up for the 1990 model year

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Porsche 911T 1971 Coupe 2.2L
Manual Gearbox, LHD, Irish Green
1515 with Black leatherette interior



Porsche 356 C Coupe by Reutter
1964, Manual Gearbox, LHD
Original colour code: 6412 Bali Blue



Porsche 911 Carrera 3.2L 1985
Manual Gearbox, LHD, Iris Blau
Metallic with Black leather interior



Porsche 911T 1973 Coupe 2.4L
Manual Gearbox, LHD, Sepia Brown
with Dark Brown interior



Porsche 993 Carrera 4 Cabrio
1998, Manual Gearbox, LHD,
Brand new factory cabriolet hood
fitted recently.

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HIGHLAND FLING

With the glorious roads of rural Scotland on his doorstep, Alan Nielson is enjoying plenty of seat time in his rare 968 Sport

WORDS Davy Lewis PHOTOGRAPHY Steve McCann







In this day and age, it's rare for the vast majority of us to be able to fully exploit the abilities of our cars. Whether you own an attainable classic (hello to all you 944 owners out there!) or the latest incarnation of the 911, most of us are at the mercy of Britain's crumbling and congested road network. For a lucky few, however, things are rather different.

Scotland may get its fair share of 'interesting' weather, but when it comes to great driving roads, the Celtic countryside boasts some of the best you'll find. Mile upon mile of snaking blacktop finds itself punctuated by challenging hairpins, dramatic crests and very little in the way of traffic. Add breath-taking scenery, and you're in driving nirvana.

Alan Nielson, the owner of this rare and immaculately presented 968 Sport, is one of the lucky ones. "I'm based in central Scotland, meaning I have access to fantastic local roads," he smiles. He's certainly taking advantage of the fact – the front-engined Mint Green marvel is the ninth Porsche to appear on his driveway

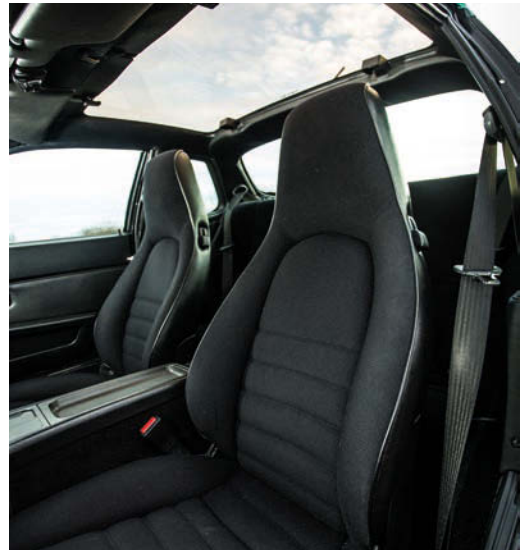
after his passion for the brand kicked-off with the purchase of a 924 many moons ago.

"I was in the market for a Sierra RS Cosworth," he recalls. "It was while searching for the fast Ford that I came across the 924. I took it for a test drive and was surprised at how well-built the car seemed in comparison to the Blue Oval. I was also impressed by how much cheaper the 924 was to insure!" Little did he know that his first foray into Porsche ownership would lead to a lifelong love affair with Stuttgart's finest.

A trio of 924s and a matching number of 944s (including Turbo-badged variants), a Grand Prix White 911 Carrera 3.2, a Boxster and a 968 Sport is an impressive car history by anyone's standards. "I've enjoyed every Porsche I've owned," he tells us, before admitting that his decision to sell the 911 so soon after completing its restoration was, perhaps, a little hasty. "A friend kept pestering me for the Carrera. I ended up giving in to his demands, although it's a move I regret. That said, the car's windscreen used to mist for fun, making it hard work to drive unless

Options open

The 968 Sport is a Club Sport by birth and is acknowledged as such by Porsche in Germany. Indeed, 306 Club Sports were optioned with the 'CS Luxury Package' and a rear 'Sport' script badge. This UK-only model was supplied with a manual gearbox and offered with an M030 brake and suspension option consisting of firmer springs, Koni dampers, stiffer anti-roll bars and cross-drilled brake discs. M030 cars will have the edge at a race track, but the kit's limited compliance makes it less forgiving than the stock setup on UK roads. 968 option 220 was a limited-slip diff often specified with the M030 package.



Above Trick glass sunroof was a special order item limited to just fifty units

Left Airbox stickers highlight the presence of the car in Hartech's Bolton workshop for servicing and maintenance jobs prior to Alan's ownership

the weather was agreeable! As far as transaxles are concerned, I miss the power of my 944 Turbo. I loved its old-school laggy approach to boost, yet on balance, I'd say my 968 is the best 'all-rounder' I've owned to date."

The 968 Club Sport may get all the glory (two-time WRC champ and celebrated Porsche test driver, Walter Röhrl, claimed it to be the finest handling Stuttgart-crested car he'd ever driven), but the UK-only 968 Sport is also a belter. Essentially a Club Sport with added luxuries, the Sport's chassis is tight and communicative with an overall balance that few sports cars can match. Furthermore, the model's three-litre inline-four perfectly complements its exquisite handling abilities.

In today's world of willy-waving power figures, it's easy to forget that twenty-odd years ago, we were wowed by sports cars producing what are now considered to be a modest number of ponies. With the latest crop of hot hatches producing in excess of 300bhp as standard, an old Porsche with a 'mere' ➤



DRIVER

Q&A

**ALAN NIELSON**

Occupation
HGV driver

First Porsche
924

Favourite Porsche
This one

Best thing about your Mint Green 968
Its handling

Worst thing about your Mint Green 968
Nothing. I love it!



THE SPORT'S POWERPLANT FEATURES
VARIABLE VALVE TIMING, DELIVERING A
GUTSY, ACCESSIBLE PUNCH

» 240bhp may sound a little underwhelming, but little could be further from the truth.

The Sport's powerplant features variable valve timing, delivering a gutsy, accessible punch. "It's not what you'd call a fast car by modern standards, but it still shifts!" laughs Alan. "The back end will step out if provoked, but it's predictable and easy to correct." That dialled-in, 'analogue' driving experience is why Porsche's transaxle range remains so popular; it's fair to say that this distinctive Sport gets pedalled in a spirited manner.

"It's to be taken out and enjoyed!" exclaims Alan, shortly before revealing to us that his nifty 968 is still making use of its original clutch, a part that shows no sign of giving up the ghost. "My little boy loves the car. We've even been camping in it!"

His Sport's chassis has been further sharpened with the addition of aftermarket dampers. Porsche and Bilstein have been bedfellows for many years, so when it comes to fast-road applications, the suspension manufacturer hits the nail on the head every time. "Bilstein B6 shock absorbers are a tad firmer than standard, but they're perfect for my needs," confirms the HGV driver from Tullibody. He's also enhanced his 968's braking capabilities with grooved discs, EBC pads and Goodridge braided hoses, but perhaps the most striking aspect of his immaculate Sport is its colour. Yes, you're looking at OEM Mint Green, but not all is as it seems at first glance...

"The car is painted gloss black!" reveals Alan. "I paid to have a few minor dents repaired and considered a full respray in the original colour, but knowing how difficult it is to keep black looking good, I opted for a Mint Green vinyl wrap instead." The work was entrusted to PTW in Perth. "The firm removed my car's lights, door handles and bumpers in order to ensure a perfect finish. In fact, the work PTW did is so good that most people think I'm driving a genuine Mint Green 968!" he laughs.

Fuchs wheels were never available as a 968 cost option, leading Alan to invest in seventeen-inch replicas wrapped in Toyo Proxes T1 Sport tyres. The keen-eyed among you may also have noticed the car's unusual sunroof; 968 Sports were available with a metal tilt-and-slide unit, but the part atop Alan's pride and joy is predominantly glass. "It was part of a special order of fifty glass sunroofs commissioned by Porsche owners a short while ago. I was lucky enough to be able to put my name down for one of the limited edition panels, which lets a huge amount of light into the car's cabin and is a direct replacement for the factory part," he confirms with a smile.

He has no intention of parting with his pretty Porsche. "I honestly don't know what I'd replace it with," he concedes. "The 968 is powerful and practical, unlike my brother's 997!" It's good to know this stunning Sport will continue to be Alan's Highland fling for many more years to come!



Above The UK-only Sport has long been regarded as the best of both worlds in terms of balancing a 968's practicality and performance

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Builds

HELL FOR LEATHER

Since our last update, Dan has been playing a game of hide and seek...

WORDS AND PHOTOGRAPHY **Dan Furr**



A couple of issues back, I revealed the shagged upholstery occupying the cabin space of my 951. The rear seats were particularly ruined, a condition that led me to investigate the availability of professional retrimming services. Pretty much every company I spoke to confirmed the significant extent of the damage, with more than one consultant suggesting a far more cost-effective solution would be to source replacement seats from a breaker. I have to admit, the thought had already crossed my mind, which is why I'd been keeping an eye on what was being advertised through owners clubs and on popular online auction websites.

A complete Linen leather interior soon presented itself as available for purchase through eBay. I was ready to 'snipe', but the great condition of the set – including door cards and all seats – attracted furious bidding in the auction's final moments, concluding with a frankly ridiculous sale price. Yes, the leather was in good nick, but it wasn't *that* good!

Encouraged by the monies the expensive Linen leather generated, the owner of a second set advertised his collection of 944 Turbo interior trim on eBay a short while later. Presented in excellent overall condition with the only complaint being superficial bolster wear and the need for a thorough clean (the photos

make the cosmetic state of the leather look worse than it is), this haul of hide came complete with front seats, rear bench and uprights, plus the bonus of a spare boot carpet in excellent – if somewhat dirty – condition. Located an hour away from home, and with a deal amounting to half the final sale price of the leather I'd previously been looking at secured, I pounced.

This turn of events occurred just before we went to print, leaving me little time to organise bolster repair work, but I've been speaking to various automotive leather specialists keen to help out, and I anticipate being able to show you the fruits of their labour in the not too distant future. I realise this doesn't satisfy those of you who have emailed me requesting more detailed project updates, but the bottom line is that until serious work begins on the project in the new year, my primary concern has been to steadily stockpile parts in readiness for the car's return to the road. Of course, it doesn't help that I've got half a dozen other automotive projects competing for my attention (yes, that's my Rolls-Royce Silver Shadow II caught in shot)!

The primary cause of damage to the car's fabric-centred seats appears to be a leaky sunroof, evidenced by the steady drip, drip, drip of water inside the cabin after I cleared the grime clinging to every body panel. Needless to say, new window and sunroof seals are on my ever-buoyant shopping list.

Facing page Dan gave his 944 Turbo a good hiding. Geddit?!

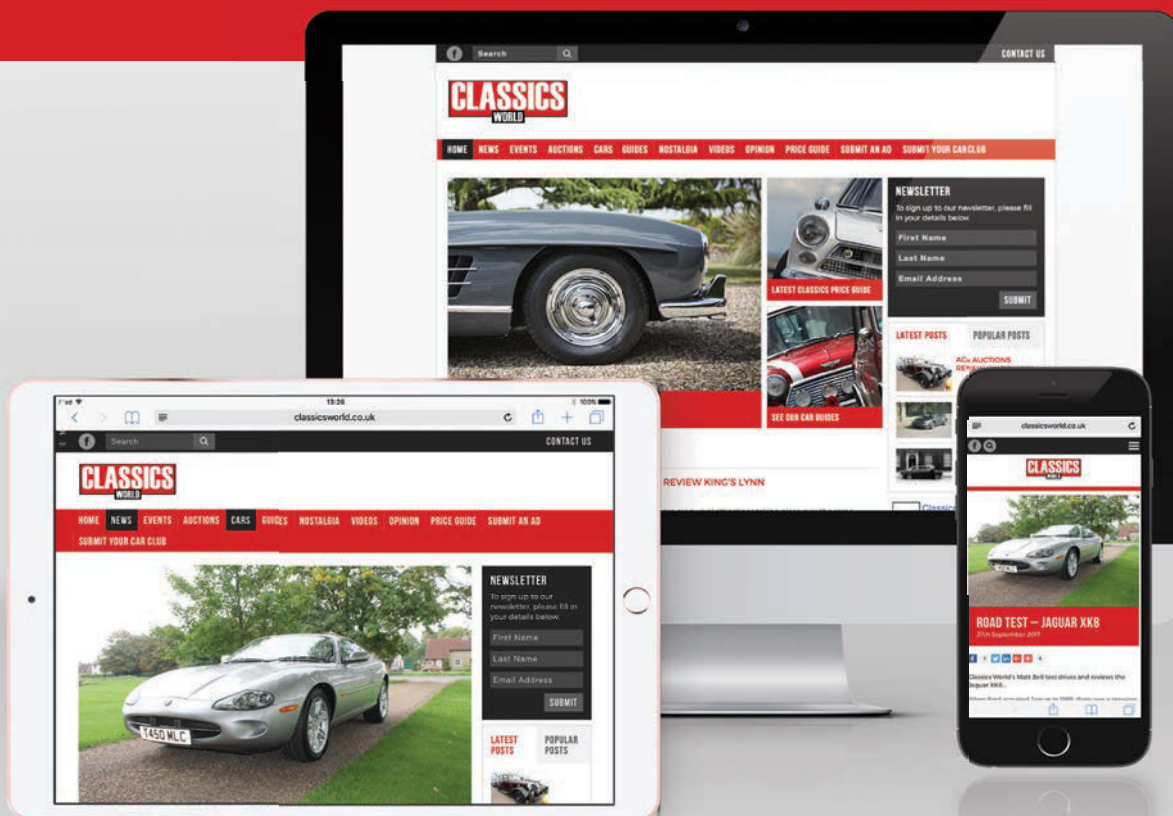




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Helmuth Bott

A hugely influential figure responsible for some of Porsche's biggest breakthroughs

WORDS **Tim Pope** PHOTOGRAPHY **Porsche AG**

Few have contributed to the development of Porsche products (and the brand as a whole) as much as the company's former executive vice president for research and development, Helmuth Bott. The Swabian was born in 1925 and joined Porsche as a production assistant in 1952, swiftly propelling himself up the chain of command. By 1955, he was head of the manufacturer's 'experimental department' before landing the role of driving test director in 1962. Present at the birth of the 911 concept, he would steer the ship during his time spent in the role of director of development, not to mention his hugely influential stint as a key figure on the Porsche board of directors.

Known as a man who recognised and rewarded talent, Bott promoted Porsche employees and the company's motorsport programmes to great effect, with Le Mans, Paris-



later due to a lack of funds. It is this experience that made him the approachable, free-talking boss many at Porsche loved to work for. Indeed, there are many stories of Bott's generosity when it came to rewarding his subordinates for a job well done. Moreover, during long trips away for motorsport or car development purposes, he would 'dig in' with his staff, often playing cards until the early hours, or treating his team to leisure activities, including trips to the cinema or the nearest watering hole.

As far as Porsche history is concerned, Bott's hand can be detected in some of its most important milestones. Of course,

Despite his senior position within the Porsche hierarchy, Bott never forgot his humble roots

Dakar and TAG Turbo achievements representing just some of the race and rally success he contributed

to. Identifying the need for safety as well as silverware, he initiated crash test programmes, pioneering manufacturing processes, and championed the catalytic converter, albeit if the host vehicle could produce the same power with or without the part fitted. Against all odds, this was achieved with the 944 Turbo.

Despite his senior position within the Porsche hierarchy, Bott never forgot his humble roots as an apprentice mechanic. He started his spanner-wielding career as World War II drew to a close, but prematurely ended his training two years

there was the development and production of the 911, but he was also heavily involved in establishing the Weissach development centre (he penned much of the planning) and the four-wheel drive system that would lead to the arrival of the 959 and 964 Carrera 4. In 1985, he was honoured by the German government with its highly-respected Order of Merit of the Federal Republic of Germany, and he was awarded an honorary doctorate in 1987. A year later, after thirty-six years working for Porsche, Helmuth Bott retired. He died in 1994.



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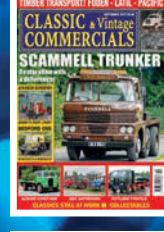
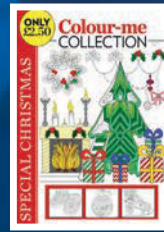
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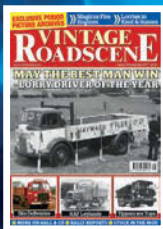
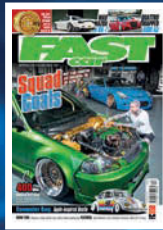
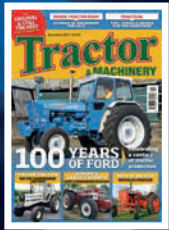
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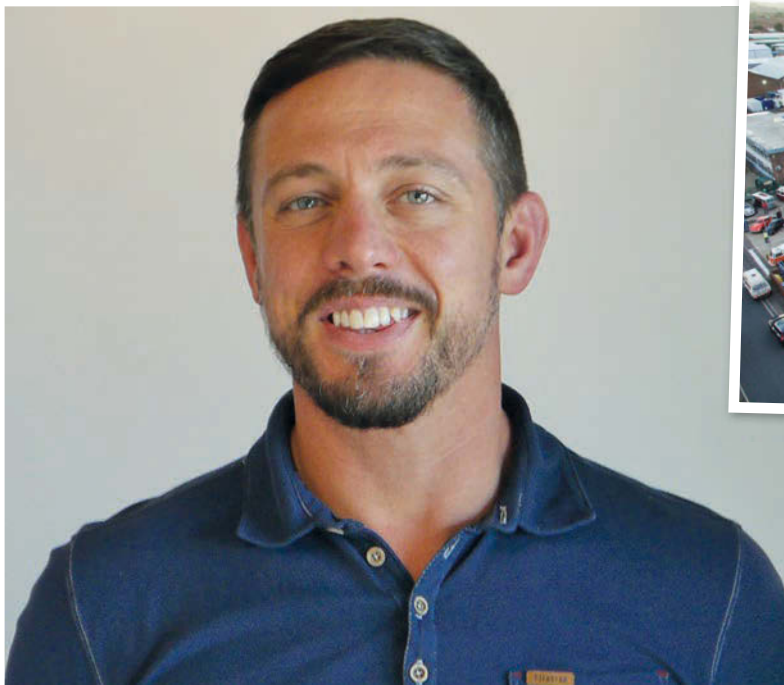


TICKET BOOKING COMING SOON!



Five minutes with...

Barney Dines



Who are you and what do you do?

I'm Barney Dines, Managing Director at Heritage Parts Centre.

Pleased to meet you, Barney! Describe Heritage Parts Centre to *Ultimate Porsche* readers who might be new to the firm.

The company is an enthusiast-driven supplier of parts for classic Porsches. Our founder is the proud owner of a 993 Carrera 4, and you can often see a 944 Turbo S, a Cayman and my own 997 Carrera 2 in the staff car park!

Whereabouts is the company based?

We occupy a two-acre site that plays host to a 45,000ft² warehouse in Shoreham, not too far from Brighton.

How many people currently work at Heritage Parts Centre?

We're a team seventy-five strong, including sales, warehousing, product and IT specialists. Additionally, we've just employed a Quality Engineer who'll be assisting the firm's product development and manufacturing arm as we start reproducing classic Porsche parts in-house.

Above Heritage Parts Centre's West Sussex headquarters regularly plays host to meets, emphasising the company's credentials as an outfit run by enthusiasts for enthusiasts

Has Heritage Parts Centre always been a Porsche parts specialist?

The company established a name for itself selling replacement components for classic VWs. Over the course of the past three decades, the business and the range of products it stocks has expanded dramatically. Serving owners of classic Porsches was the logical next step.

Which Porsche cars does Heritage Parts Centre cater for?

Most 911s, Boxsters, Caymans and transaxles.

What's your favourite Porsche?

An early 911 Targa.

What was your first Porsche?

My 997 Carrera 2.

What's the best thing about owning a classic Porsche?

No other car makes you feel as connected to the driving experience as a Porsche.

Can we follow Heritage Parts Centre's adventures on social media?

You certainly can! Search for Heritage Parts Centre on Facebook and Instagram. You can also visit the company's regularly updated website at www.heritagepartscentre.com, where you can browse our ever-expanding portfolio of parts for Porsches, place orders and read our recently-established online magazine.

Thanks for your time, Barney. It's appreciated!



Porsche people



Go cars, not show cars. That short sentence is all that's required to understand how organisers of World 964 Owners (also known as W90) view the Porsches their members are in charge of. Sure, you can polish and pose with your modern classic, only taking it out for a run on the sunniest of days, limiting mileage to the shops and back, but if that's your attitude, you'd be better off filling in a 'show and shine' contest application form than riding with these guys.

Not that they consider W90 to be a car club. "It's an organisation that operates on the fringes of Porsche society," proclaims the website (world964owners.com). "No fees, no vetting, no committees, no purists, no hierarchy, no rules."

964

SPECIAL
CELEBRATION
ISSUE

“It liked to mark its spot on my driveway!”

Championing the model that signalled a new dawn for the 911, the London chapter of World 964 Owners invited us to one of its regular meets.

WORDS Dan Furr PHOTOGRAPHY Alan Schaefer





Porsche people

Established in 2011, W9O is the brand developed by a small number of London-dwelling 964 owners who regularly got together to consume vast quantities of caffeine whilst chatting endlessly about their cars. Coffees turned into lunches, lunches turned into afternoon drives, afternoon drives turned into track days, track days turned into mountain tours, mountain tours turned into... er, go-karting. The point is, these guys use their 964s in all driving conditions throughout the year without care for rising or falling classic car values. Our kind of Porsche people!

Today, W9O's original London contingent is complemented by chapters all over the world. Amsterdam, Paris, Toronto, Montreal, Geneva, Seattle, New York and Miami are just some of the bustling cities with their own organised concentration of enthusiastic 964 owners gathering beneath the W9O banner. Despite this global reach, when it came to pulling together the 'Porsche People' feature for this 964-themed edition of *Ultimate Porsche*, it made perfect sense to point our cameras at where it all began.

FINE SELECTION

Dropping in on an informal meet of the W9O's London chapter (seven of the group were in attendance), we were struck by the variety of 964s on display. From mild to wild, each car stood out against the other.

MIL7 911, Tim Richardson's Guards Red Carrera 2, is about as close to stock specification as we were exposed to on the day. The Virgin Atlantic strategy manager's desire to maintain factory fresh mechanicals has seen his car kitted-out with new engine internals and refreshed suspension. "I have a lifelong love of air-cooled Porsches," he tells us. "I used to own a 993, which to my mind is a far more refined 911 than the 964, but driving the earlier car feels like much more of an event," he adds. And he should know - he's not shy of hammering his red rocket to Le Mans each year, and he tells us that he's planning to embark on a road trip across the Alps in the not too distant future.



DRIVER

Q&A



TIM RICHARDSON

Occupation
Strategy manager for Virgin Atlantic

First Porsche
993 Carrera 2

Favourite Porsche
The 964 Turbo featured in *Bad Boys!*

Best thing about owning a 964
The roar of the flat-six

Worst thing about your 964
The lack of air-con on warm days



His is a sentiment echoed by Stanley Leask, owner of J30 SGL, a red Carrera 4 converted to two-wheel drive with the addition of an early 993 six-speed gearbox (a unit that features shorter ratios than those fitted to later examples of the last air-cooled 911). "The 964's four-wheel drive system is fine if you use your Porsche for long, leisurely road trips, but I'm keen to explore the performance potential of my car at the track, hence converting it to two-wheel drive," he says.

To assist him in his quest for high horsepower, he commissioned JAZ Porsche in St Albans to carry out an engine overhaul with the addition of Cup-spec camshafts, strengthened head studs, a free-flowing straight-through exhaust, an uprated intake, carbon-fibre





Left Tim's beautifully presented Carrera goes to show that you don't need to go mad on mods when it comes to enjoying a 964

Above and below Carbon-fibre, six gears and a wealth of other mechanical upgrades applied to Stanley's two-wheel drive Carrera 4 combine to produce a respectable 305bhp



DRIVER

Q&A



STANLEY LEASK

Occupation
Boss of a construction company

First Porsche
944 Turbo

Favourite Porsche
My car!

Best thing about your 964 Carrera 4
Its 993 six-speed transmission

Best thing about 964 ownership
Being in charge of a modern car with classic styling





THE 964 IS AN AWESOME PLATFORM WHICH CAN BE USED TO BUILD AN EVEN MORE AMAZING SPORTS CAR

DRIVER

Q&A



JACK PEGORARO

Occupation
Lobbyist

First Porsche
This one

Favourite Porsche
935/78 'Moby Dick'

Best thing about your
964 Carrera 4
Its engine

Least favourite thing
about your 964
Its four-wheel drive
transmission before
the conversion



►► airflow pipework, a MAF conversion kit and a Specialist Components Typhoon 2 ECU loaded with a custom map. The result? A solid 305bhp brought to an abrupt halt by 993 Turbo brakes nestled behind split rims wrapped in Michelin performance rubber.

REINVENTING THE STEEL

Jack Pegoraro, the man behind YouTube channel, Number27 (www.bit.ly/number27vids), has taken a different approach to transmission tuning. Resprayed in a fetching coat of Adriatic Blue, his Carrera 4 (K104 GSF), has been converted to two-wheel drive, but retains its original gearbox. "Nick Fulljames at Redtek carried out the work for me, but I made sure we weighed the car's stock transmission parts against the equivalent Carrera 2 components in order to ascertain just how much lighter my

964 would be as a consequence of keeping its original kit," he explains. He tells us that at least 67kg was saved on this part of the build alone, with noticeable 'slowdown' (caused by excessive factory bulk) virtually eliminated when lifting off the throttle once his car was up and running.

Corbeau buckets, lightweight Werk wheels, a carbon-fibre bonnet, a sunroof delete, a polyurethane gearbox mount, coilovers, an RS shifter, a drilled MOMO steering wheel and a blower delete contribute to even more weight saving (an estimated total of 200kg), enabling this blue beast to tackle tracks faster and quicker than ever before, although Jack is keen to point out that he doesn't want his car to become a dedicated attacker of asphalt. "I've added extra sound deadening to make long road trips more enjoyable," he grins. "I still intend to get plenty of use out of my car on the public highway!"



DRIVER

Q&A



SIMON HURLSTONE

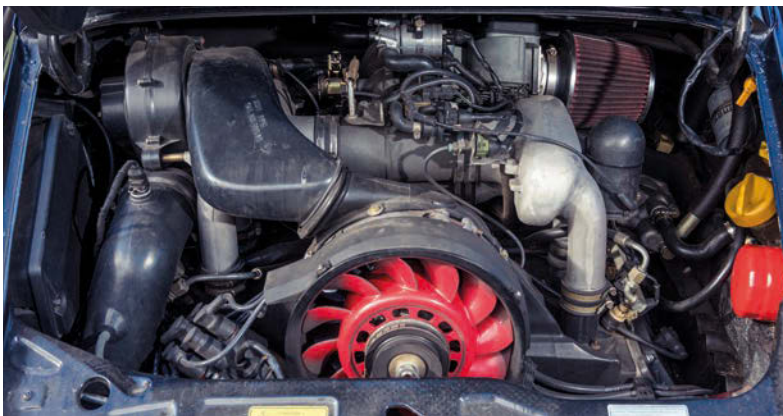
Occupation
IT specialist

First Porsche
996 Carrera 4

Favourite Porsche
Any 356

Best thing about owning a 964
Precision driving

Worst thing about your 964
Its uncompromising way of tackling humps in the road!



Similarly, Simon Hurlstone's black RS replica (H887 NJB) splits its time between road and race circuit, putting in regular appearances at Cadwell Park, Snetterton and Brands Hatch. Stripped, caged and built by Jasmine PorschaLink in 2009, his black belter sits brilliantly on Bilstein suspension and colour-coded 996 GT3 multi-spokes hugged by Nankang NS-2R tyres.

"I sourced the car from within W90," says the 34-year-old IT manager. "The previous owner was in possession of various RS and GT-badged Porsches, yet he was convinced this 964 was better than most in his fleet!" he gasps.

Simon bought the car more or less as it's presented here, although he intends to add even more in the way of modifications in order to personalise his retro ride. "A set of BBS split rims is definitely on the cards," he reveals.

Like his W90 brethren, he's not afraid to use his angry-looking Porsche in anger. Furthermore, he's happy to say he's not worried about leaving it in his local supermarket car park. "Don't get me wrong, I love a cool classic that's in mint condition, but there's a school of thought you'll find when chatting to W90 guys that emphasises how non-elitist we are as a group. Naturally, this good sense promotes encouragement when it comes to modifying and not worrying about attracting scuffs and scrapes!"

Alex Spring had rather more than concerns regarding cosmetic blemishes on his mind after buying his Carrera 4 (G125 MWN) half a decade ago. "It liked to mark its spot on my driveway!" he laughs. To say his white wonder was in need of work is an understatement. "Oil was leaking, the car's brakes were less than clever, its alternator was shot to bits, its suspension was beyond tired, and that was just for starters!" he sighs. Much mechanical love followed ("I got through three starter motors!"), as



Facing page Jack's adventures driving, maintaining and modifying his two-wheel drive Carrera 4 can be followed on his popular YouTube channel

This page Simon's 964 rolls on 996 GT3 wheels and was assembled by Jasmine PorschaLink in 2009



Porsche people



» did KW coilovers, refreshed brakes and Dynamic Speed eighteen-inch Fuchs reps. Fortunately, the car's bodywork was in excellent overall condition. "Despite the problems my 964 purchase came bundled with, I wouldn't hesitate to recommend the model to anyone thinking about buying a classic 911," he stresses. "That said, unless you pay a massive premium, you're bound to end up with a 964 in need of work. Thankfully, they don't cost a huge amount to run, especially if you're prepared to do undertake much of the maintenance yourself," he adds.

FREE THINKING

As if to prove the point, Alex Jenkins explains his rationale for buying G219 VSE, his black Carrera 4, instead of the Ferrari 308 he had in his sights eight years ago. "I took the Porsche for a test drive in the rain and couldn't stop grinning!" he smirks. "Back then, there simply wasn't the same value in a 964 as there is today, meaning that unlike what would have happened if I'd bought the 308, I was free to modify and work on the 964 without worrying about any impact on the car's financial worth. When it comes to nuts and bolts, there isn't a thing I haven't left untouched!"

His car's engine has been transformed from factory-prescribed power to an estimated 280bhp through the appointment of Cup cams, a derestricted exhaust and an aftermarket ECU. Suspension upgrades include Bilstein dampers, H&R lowering springs and thicker anti-roll bars.

"I also own a Nissan Skyline R32 GT-R," says the software company director. "My GT-R and the 964 are of the same vintage, and both

DRIVER Q&A



ALEX SPRING

Occupation
Builder

First Porsche
912

Favourite Porsche
1973 Carrera RS 2.7

Best thing about
owning a 964
It's a perfectly usable
sports car

Worst thing about
your 964
The price of parts from
main dealers



feature four-wheel drive, yet they couldn't be more different. Put it this way, the Porsche is a safe ride with understeer that can be corrected quickly, whereas the Nissan wants to kill you!"

Listening in to our conversation is Frank Cassidy, no stranger to the pages of *Ultimate Porsche*. Indeed, his Signal Orange Carrera RSR 2.7 tribute is one of the contenders on the shortlist for our Car of the Year award (see page 24). "I have to agree with Alex," he says. "The 964 is an awesome platform which can be used to build an even more amazing sports car capable of keeping up with modern metal. »»



DRIVER Q&A



ALEX JENKINS
Occupation
Owner of a software development company

First Porsche
This one

Favourite Porsche
917K

Best thing about your 964 Carrera 4
The noise!

Best thing about 964 ownership
It's a 911 that doubles up as an everyday car

Left The time Alex has spent with his white 964 has been a real labour of love

Above and below Why would you want a Ferrari 308 when you can modify a Carrera 4?!





Porsche people



DRIVER

Q&A



FRANK CASSIDY

First Porsche
964 Carrera 4

Favourite Porsche
Black Betty, my 1990
964 Carrera 4

**Best thing about your
964 RS**
It's incredibly focused

**Worst thing about
your 964 RS**
The speed it gets
through tyres and fuel

» Better still, for those of us who appreciated the model long before the rest of the world caught up, the formerly-low cost of buying a 964 meant we could 'hot rod' to our heart's content without having to spend a fortune."

RSR 57R is his left-hand drive Summer Yellow RS, an extraordinary machine that lived its entire life as a hill climb battler before landing at Chez Cassidy four years ago. The car has great racing pedigree, which makes for interesting history, but the very same colourful past is responsible for what was incredibly poor cosmetic condition by the time the car caught Frank's beady eye.

"Mechanically, the car was sound. I was also pleased to discover that it had always been stored indoors, meaning there was no sign of rust to be found anywhere on the shell. Nevertheless, I commissioned a sympathetic restoration, adding matte black BBS wheels along the way," he recalls.

New suspension bushes, a new clutch and



Above Frank's not-so-mellow yellow RS was a hardcore hill climb weapon for many years

a replacement lightweight flywheel were also added for good measure. "The 964's chassis is incredibly sophisticated compared to that of older 911s. It doesn't feel stiff by today's standards, but it's still better than much of what followed, and is perfectly at home on the road or at the track," he smiles. And with this gathering of air-cooled classics regularly being put to the test in both driving environments, you'd be brave to say otherwise!



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BOOKSALE

THE LOW LIFE

Slammed on air ride and rolling on raw Rotiforms, this 356 Super 90 was one of the recent SEMA show's star cars

WORDS Emma Woodcock PHOTOGRAPHY Andy Tipping



Car show. Those two words convey the basic concept of the Specialty Equipment Market Association (SEMA)'s annual, four-day trade happening at the Las Vegas Convention Centre, but this duo of single syllables can't even begin to convey the scale of the occasion. Think of the biggest indoor event you've visited and double the floorspace. Now double it again. Now triple it. You're still nowhere near close enough! Showcasing the best and brightest of American automotive modifying culture and motorsport, the SEMA show features 10,000 trade booths spread across

six cavernous halls and a driving demonstration arena. There's even a shuttle bus to help visitors navigate their way around the place!

Naturally, each of the show's exhibitors wishes to grab your attention. Towering off-road 4x4s, muscle car restomods and manufacturer concept cars dominate the floor, each more vibrantly painted or insanely overpowered than the last. There's plenty for fans of Stuttgart metal to see too; all the biggest names in Porsche tuning were present at the SEMA show in November, with Singer Vehicle Design, RWB, Magnus Walker and our friends at Gunther Werks exhibiting their wares. Against a backdrop of those guys and their cool >>





» creations, it takes something truly special to stand out.

It's just as well, then, that Brian Henderson specialises in cars that catch the eye. As president of Rotiform Wheels, a globally renowned aftermarket rim manufacturer, he can claim at least partial credit for a huge number of the modified moderns that pop up on social media, but his trio of personal Porsches are all him. His 964 came first. Originally gloss black with lowered suspension and Ruf-style five-spokes, the car has since gained Mint Green paintwork, Recaro A8 reclining buckets and the intricate latticework of Rotiform LHR alloys. At the time of writing, the altered Carrera is being turned into a 4.1-litre monster that should be ready to hit the track come springtime.

Brian's second Porsche is rather more practical. Taking the form of a 991 that gets used daily, "my seven-year-old twin girls fit in the back and love it!" Of course, the cool coupe didn't stay standard for long – it scrapes the ground on air ride and rolls on bright blue Cup-style rims. It's an interesting car, but nowhere near as fascinating as his slammed Super 90.

"I thought the effect of old and new Porsches parked together would go down well at SEMA!" he explains. "I built the 356 first. It's a 1960 example and used to belong to a friend of a friend who'd completed the bodywork before I took on the project. After finishing it, I turned my attention to the 991 and installed its air suspension," he adds.

OCEANS APART

His instincts were correct. As soon as the show opened its doors, punters flocked to the pair of Porsches and immediately started posting photos of them on social media. Before long, the 356 had become a SEMA sensation, with dozens of websites both sides of the Atlantic naming it as one of the show's star cars.

The overwhelmingly positive reaction to such an unusual build caught Brian by surprise. In fact, the only off-the-wall comments came from people wondering if the Porsche was real or replica. "Before the SEMA show, I assumed 356 fans would hate what I've done with my Super 90, but I didn't hear a single negative remark. Everyone found something to enjoy on the car, including the 356 purists in attendance!"

As a Super 90, Brian's 356 was produced with the 1600 S-90, the most powerful engine offered in the 356 range at the time of the car's manufacture. Sodium-filled valves, Solex 40 P II carburetors and a peak output of 90bhp amount to a unit considered desirable by collectors. It's a special powerplant, produced for just three years, and in Brian's car it's... absent! If slammed stance and massive alloys weren't enough to get tongues wagging, then perhaps news of an engine swap will?! Not that you'd realise it at first glance. Or second glance, for that matter.

In place of the original 356 lump, Brian has fitted the structurally-similar four-pot from a donor 912. Open the car's engine cover now, and once you've finished ogling at the diamond-quilted leather that borders



IN PLACE OF THE ORIGINAL 356 LUMP,
 BRIAN HAS FITTED THE STRUCTURALLY
 SIMILAR **FOUR-POT FROM A DONOR 912**



Facing page Tweaked 912 engine is surrounded by leather and loaded with an MSD electronic ignition system

Right We're struggling to find AccuAir touchpad air ride controls on Porsche's original 356 Super 90 cost option list!



Rotiwhat?

Rotiform is a big name in the world of modern tuning, so much so that the company's wheels have become *de rigeur* in some circles. It's surprising, then, to discover the firm was established less than eight years ago! Since that time, the initial range of two Rotiform rim designs has expanded to the current collection of almost one hundred different styles, including a wide range of finishes, many of them brightly coloured. The Californian concern has also carved a name for itself in the field of motorsport, with many professional drift teams choosing Rotiform products for their sideways sliders. There's a Rotiform presence in the UK too. Visit www.rotiform.co.uk



DRIVER Q&A



BRIAN HENDERSON

Occupation
President of Rotiform Wheels

First Porsche
The 964 I'm modifying

Favourite Porsche
The same 964

Best thing about your 356 Super 90
The wheels, the engine, the suspension... all of it is awesome!

Worst thing about your 356 Super 90
Absolutely nothing

the 'bay, you'll be struck by twin pairs of horizontally opposed cylinders, auxiliary belts hung off the back, a massive flywheel housing towards the front and air intakes towering from either side of the block. In other words, with the exception of a conspicuous MSD electronic ignition system, it's as though nothing has changed!

MOVING STORY

Don't go judging this book by its cover. The 912 engine has been built up to Stage 1 specification, gaining 90mm Durabar cylinders, JE pistons, an MK stainless steel exhaust and a Precision full-flow oil filter. The result is 110bhp, a useful life over the 912's stock eighty-nine horses. The rest of the driveline has seen similar improvement, with the gearbox benefitting from a Dave Foltz rebuild, a SPEC Kevlar clutch and a lightweight Willhoit Auto Restoration flywheel.

Additional changes can be seen beneath the hood. Luggage space is a long-distance memory, the void filled instead with a custom fuel tank and two huge canisters. They're part of the car's bespoke air package, a system which makes use of air bags controlled by AccuAir e-Level digital management operated by an in-cabin touchpad, enabling Brian to rise his ride to road-usable height, or for it to fall to the floor as he wishes.

He entrusted the design and implementation of the super-suspension to Sadistic IronWerks. Impressively, the Californian company's engineers managed to fit the kit without having to alter any of the car's bodywork. The result gives this Super 90 its lower-than-low look, but also ensures it can be returned to stock specification with ease. Impressive stuff.

After the work was completed, Brian was



ready for his 356's crowning glory – a brand new set of Rotiform rims! He opted for seventeen-inch three-piece alloys featuring a multi-hole design that echoes the look of steelies fitted to race-ready 356s in period. Less than a week after the bright wheels (and their Nankang NS2 tyres) were fitted, the car was loaded onto a trailer and dragged to Las Vegas for its highly anticipated unveiling at the SEMA show.

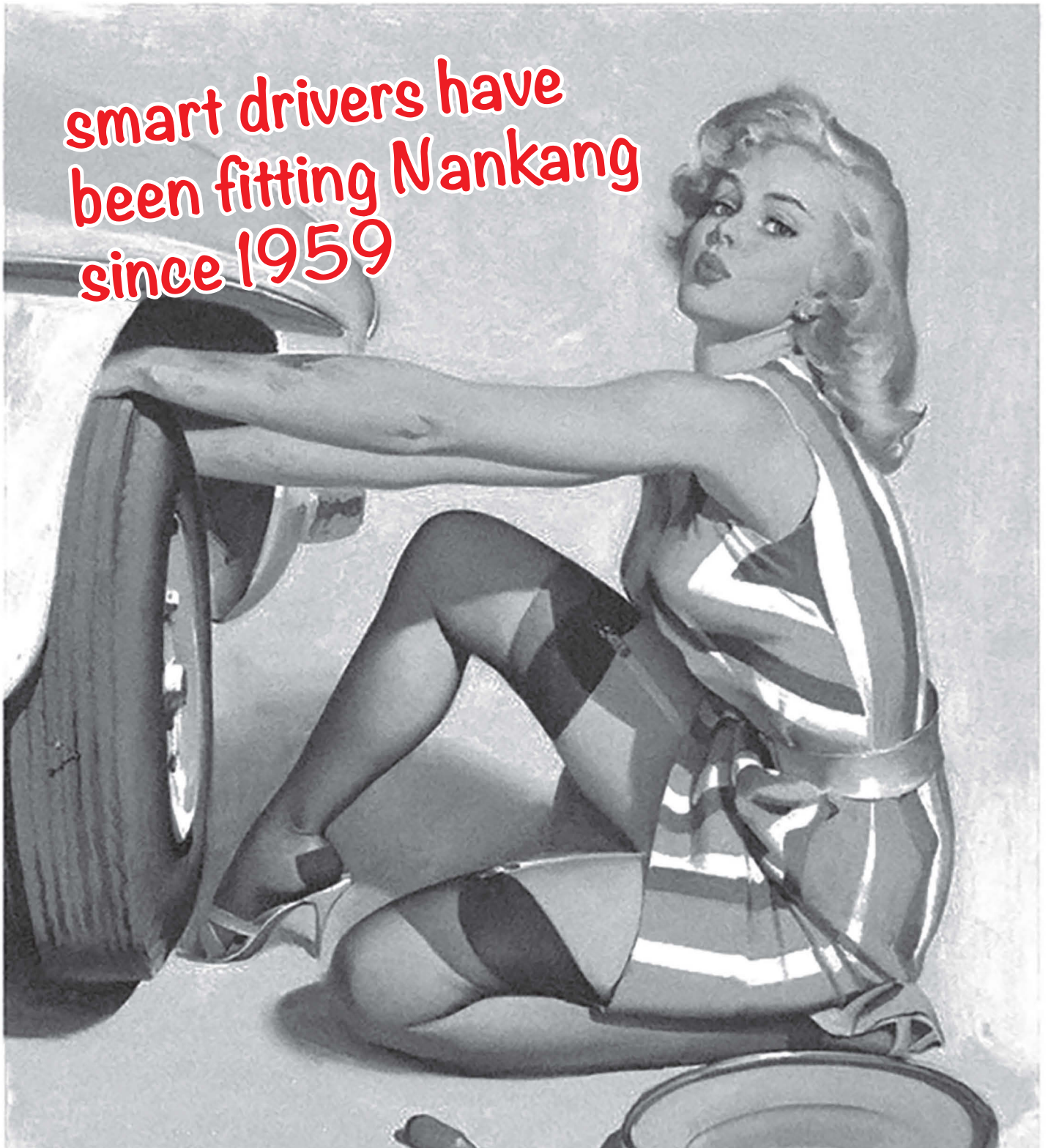
Now that the event is over and done with for another year, Brian is looking forward to racking up plenty of miles in his modified Super 90. "It delivers a completely different driving experience to my 964 and 991," he reflects. "The 356 is more of a cruiser. As if to prove the point, before the year is out, my wife and I plan to use the car to take a leisurely trip up and down the Pacific Coast Highway."

Sun, sea and miles of Californian coastline. We're pretty sure this fantastic show-stealer is going to enjoy its new lease of life!

Above There's no denying just how cool this Super 90 looks, whether static or on the move



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Dampers are key when it comes to influencing the handling abilities of your classic Porsche. Here's how they work...

Shock and awe

Many owners of classic cars will admit to regarding suspension tuning as an alien concept. This lack of knowledge encourages some to make do with non-configurable handling kits that can be bolted into place and forgotten about. In fairness, application-specific equipment is usually designed and built to a high standard, but a 'one size fits all' solution is less than adequate for those of us who like to exercise a range of driving styles on varying road and/or track surfaces.

WHAT IS A DAMPER

Before we take a look at the different types of adjustable damper, we must first understand what a damper is and how it works. As we all know, suspension's primary job is to keep tyres in contact with the ground. Without a damper, a compressed coil spring will force the host vehicle's chassis to oscillate when the force on the spring is released.

The damper reduces these oscillations to zero in the quickest time possible; a spring and damper which are factory matched will provide a stable ride and will have been designed to deliver maximum tyre contact with the road or track. You can tell if a vehicle is under-damped - it'll feel 'wallowy', much like the feeling you get bobbing about on a boat. In contrast, a vehicle that is over-damped will feel harsh and uncomfortable when travelling over bumps in the road.

BUMP AND REBOUND

When talking about dampers, there are two terms that are regularly repeated: bump and rebound. Bump, also referred to as compression, is when a coil spring is compressed, forcing the piston rod into the damper. Rebound is when the compressed spring returns to its earlier state, forcing the piston rod out of the damper.

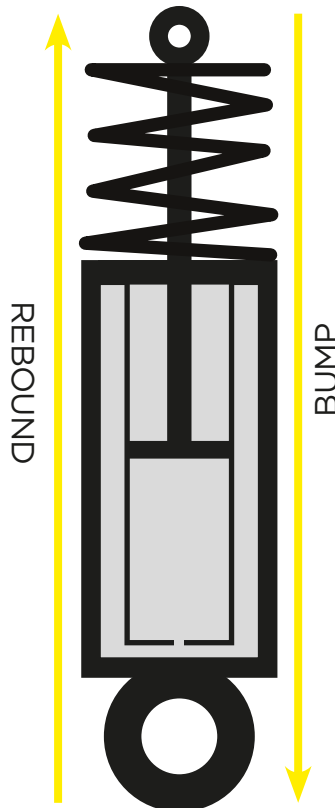
SINGLE-ACTING

Single-acting dampers are more or less obsolete, but as their name suggests, they control a single action, namely the rebound stroke of the damper. Bump settings tend to

be soft, offering little resistance and allowing the spring to absorb most of the shock. The damper is required to control oscillation on the rebound stroke.

DOUBLE-ACTING

Modern dampers tend to be double-acting. This means they offer resistance on the bump stroke as well as on rebound. The spring still absorbs most of the shock when running over uneven surfaces or potholes, but resistance to bump means the damper can control some of the pitch and roll of a car during hard cornering. As you can see, correct damper choice is essential when it comes to configuring the handling of your classic Porsche - dampers that are too soft for the intended application will encourage excessive pitch and body roll!



High-end GAZ Shocks dampers come with the option of remote oil reservoirs

TWIN-TUBE

Twin-tube dampers are what you'd expect to find in regular OEM applications, whereas comparatively more advanced monotube dampers are usually reserved for performance vehicles. The main difference between the two designs is that a monotube uses the body of the damper as its cylinder (or 'tube'), whereas a twin-tube damper features a second cylinder inside its body. When the piston is forced inside a twin-tube cylinder, the oil it moves has two available routes at its disposal. Which one it takes depends on the speed of the oil movement.

LOW-SPEED

When driving over a slightly uneven road surface (or when cornering during steady driving conditions), the speed which the piston rod extends from the cylinder is relatively slow. In this case, the oil that's being displaced can flow from ports in the base valve or piston at a slow speed. The flow rate is sometimes referred to as 'leak setting'.

HIGH-SPEED

If your car travels over a pothole, the speed which the piston rod enters the cylinder on the bump stroke is incredibly fast. In this scenario, the oil cannot flow out of the base valve ports fast enough. Enter the second available route! Taking the form of precision-machined holes in the piston, each outlet is blanked-off by

shim stacks, but when the pressure exerted overcomes that exercised by the shims, they deflect, allowing the oil to pass. The rate of oil flow is controlled by the strength of the shim stack.

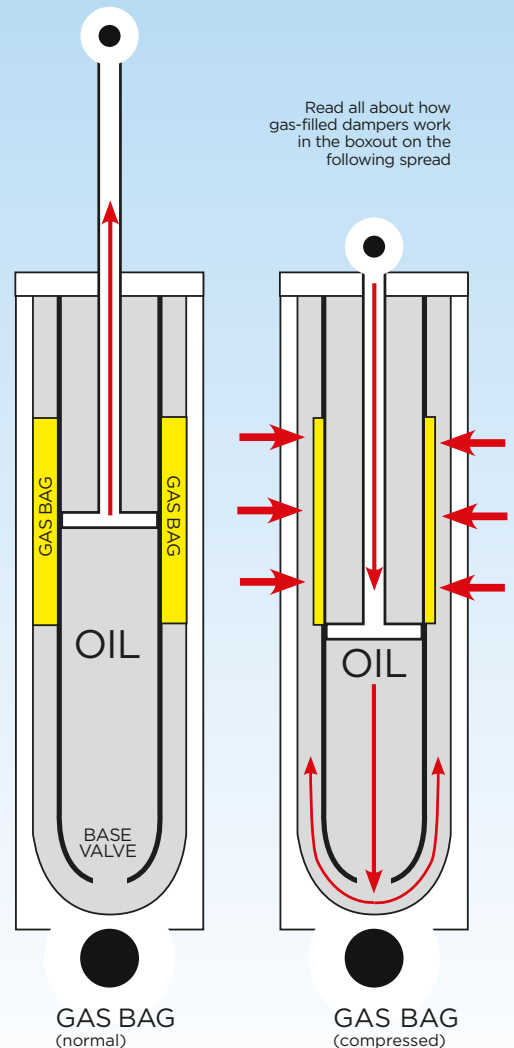
The shims are thin pieces of sprung steel of varying thickness and diameter. When the oil passes through the piston under load, the shims bend out of the way in order to allow the oil to pass quickly. The amount the shims can move depends on their thickness, diameter and number. Obviously, a thinner, small-diameter shim offers less resistance and softer damping force than a more substantial shim.

The shims are stacked in a pyramid fashion on both sides of the piston, with the largest diameter shim positioned closest to the outlets.

The shims on the topside of the piston control the oil flow when the piston is being forced into the cylinder (bump), whereas the shims on the underside of the piston control the flow of oil when the piston is retracting (rebound).

The shims are held in place by a spacer shim, which itself has an effect on the damper's qualities. For example, if you have a spacer shim with a thickness of 1mm, the blanking shims can flex 1mm to allow more oil to flow past them. If you have a spacer shim measuring just 0.5mm thick, then the blanking shims can only move half as much, reducing the flow of oil.

Read all about how gas-filled dampers work in the boxout on the following spread



ADJUSTABLE TWIN-TUBE DAMPERS

When it comes to adjustable twin-tube dampers, the basic setup is the same as non-adjustable parts, but with the addition of a capillary tube that runs parallel to the main cylinder within the body of the damper. Oil transfers between the cylinder and the capillary tube via a cross-drilled hole in the rod guide at the top of the cylinder. The capillary tube links to the adjuster valve, flowing oil through it. Within the adjuster is a spring. The amount of preload on the spring can be increased or decreased by the user, altering the pressure at which the oil can travel into the outer reservoir of the damper body. It is this type of adjuster which controls the high-speed settings for both bump and rebound.



Twin-tube damper with smaller capillary tube to allow adjustment



Damper ride height can be adjusted with a simple thread

ADJUSTMENT

As we've established, most performance dampers offer a form of adjustability. This can vary from simple ride height adjustment to multi-position bump and rebound settings on the damper body or via a remote reservoir.

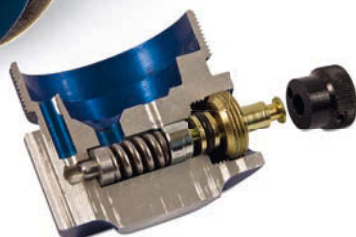
RIDE HEIGHT

Ride height adjustment is self-explanatory. The way it works is for the user to control an adjustable spring platform which travels up and down the damper body by way of a simple thread, thus altering the distance between the car's chassis and the ground.

TWIN-TUBE COMBINED BUMP AND REBOUND ADJUSTMENT

This is where things get a tad more complicated! On a twin-tube damper, the most common adjustment is for both bump and rebound to be altered by a single adjuster on the bottom of the damper body. The adjuster is really a screw that controls a bypass valve comprising a

Bump and rebound is tweaked with a single adjuster on most twin-tube dampers



The image above shows a remote reservoir attached to a three-way adjustable monotube damper

poppet valve and a spring. The screw allows varying amounts of preload to be applied to the spring. When the oil in the capillary tube reaches a pressure which exceeds that of the preload, the poppet valve is forced back, allowing oil from the capillary tube to pass at a rate determined by the setting you selected on the adjuster, which will encourage either a soft or hard ride.

TWIN-TUBE SEPARATE BUMP AND REBOUND ADJUSTMENT

For separate bump and rebound control on a twin-tube damper, bump is controlled with the familiar 'adjuster at the bottom of the damper body' design, but rather than a long capillary tube linked to the cylinder by a cross-drilled guide, there is a shorter capillary tube which links the base valve to the adjuster. This allows you to dial in a bump setting without affecting rebound, which can then be adjusted from the top of the damper by turning a shaft that runs through the centre of the piston rod to its base where a plate and spring reside. Turning the shaft preloads the spring on the valve, affecting the rate of oil flow.

MONOTUBE THREE-WAY ADJUSTMENT

Like twin-tube damper control, bump and rebound on a monotube damper can be controlled by a single adjuster, or they can be controlled independently of one another. Remote reservoirs are a different kettle of fish, providing a third tier of adjustment. In this instance, high and low-speed settings can be configured on the bump stroke as well as on the rebound stroke; the rebound settings are adjusted in the same way as you'd expect from a single-bodied damper



(via a needle valve in the centre of the piston), but there are separate controls for low and high-speed bump settings.

As mentioned earlier, when the damper is on the bump stroke, the oil is forced into the remote reservoir through a needle valve or the spring valve. Which route it takes depends on the speed the oil needs to flow. A car going around a corner, for example, will encourage pitch and body roll, meaning the movement of damper oil will be slow and progressive. Now imagine a car hitting a kerb. The bump of the damper will be fast and aggressive, requiring the damper oil to move into the remote reservoir at speed. The oil won't be able to flow through the needle valve quick enough, so to avoid a catastrophic build-up of pressure, the spring on the high-speed adjuster is



Er... anyone remember how it goes back together?

opened. To reiterate a previous point in this feature, the rate at which the oil can flow is determined by you and your preferred damper adjustment settings.

FOUR-WAY ADJUSTMENT

Many consider four-way adjustment to be the very best damper design. These units have independent adjustment for low and high-speed settings for both bump and rebound. As you can probably imagine, four-way adjustable dampers are very expensive and are rare on race cars, let alone track or road cars!



Dampers with a remote reservoir offer increased levels of control

GAS-FILLED

When you hear the term 'gas-filled' being banded about by mates discussing the dampers on their classic Porsche, you could be forgiven for thinking the parts they're describing are filled with gas instead of oil. In actual fact, gas-filled dampers feature both properties! A purely gas-filled damper would be of no use due to gas being compressible, and therefore offering no damping force whatsoever. Oil - or a similar synthetic fluid - is used to offer resistance as the piston does its thing.

As outlined earlier, when the piston rod enters the damper, it displaces oil. To avoid the hydraulic mechanism locking, there needs to be an air gap within the damper that'll accommodate the shifted fluid. Sadly, the air gap can cause problems on faulty dampers, leading to oil aeration and cavitation, which results in drastically reduced damper performance for your car.

GAS BAG

To help reduce cavitation, some twin-tube dampers are fitted with an internal gas bag. The design means the gas is kept completely separate from the oil; the gas bag is compressed by

the oil which is displaced by the piston rod. The damper can be filled to the brim with oil without fear of oil aeration. Even so, leading British damper manufacturer, GAZ Shocks, uses more reliable oil-resistant closed-cell matting in place of gas bags. The matting works in exactly the same way. In other words, whether the damper features an internal gas-bag or closed-cell matting, the material need only compress enough to equal that of the oil being displaced by the piston rod.

FLOATING PISTON

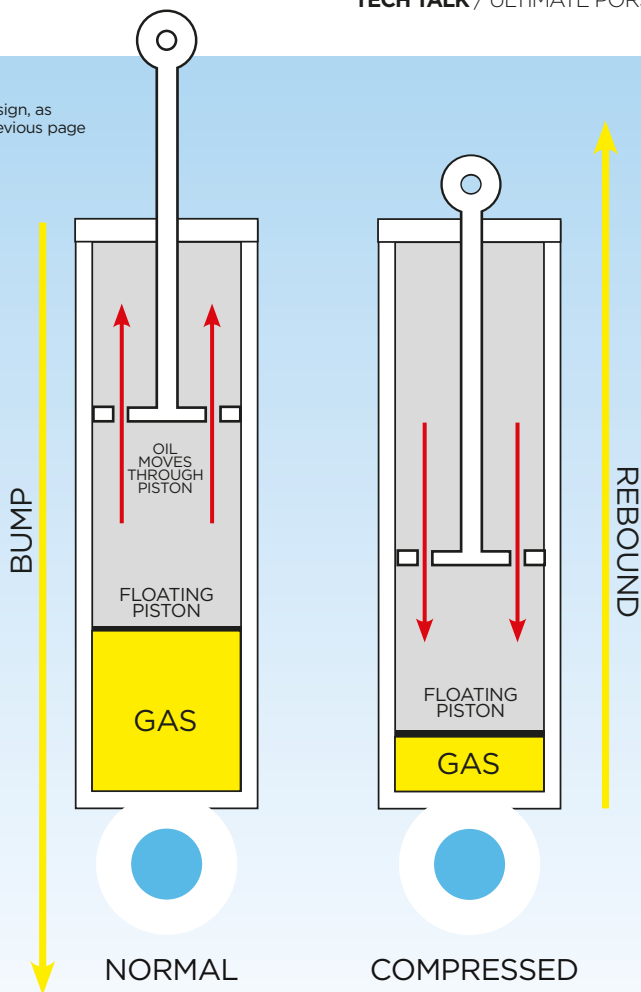
The bottom of a monotube damper is charged with high-pressure gas. A floating piston with a slide ring and an o-ring seal keeps the oil and gas apart. Traditionally, the gas used in monotube dampers is nitrogen and pressurised somewhere between 160psi and 200psi. When the oil is displaced by the piston rod entering the damper, the oil forces the floating piston to compress the nitrogen beneath it. Like the aforementioned gas bag and GAZ's closed-cell matting, the amount the gas compresses only needs to be equal to the amount of oil displaced by the piston rod.

Leading British damper manufacturer, GAZ Shocks, uses oil-resistant closed-cell matting in place of gas bags

GAZ closed cell matting (left) has replaced older gas bags



Floating piston design, as outlined on the previous page



MONOTUBE

The body of a monotube damper doubles up as the cylinder in which the piston rod moves. As is the case with a twin-tube damper, the piston will have valve ports machined into it, allowing for varying oil flow characteristics. Monotube shim stacks are usually made up of five shims per stack. This allows for more accurate damping control through precise oil metering, a necessity due to the fact that monotube dampers feature much larger pistons than their twin-tube counterparts.

NEEDLE VALVE

Instead of having a control valve fed by a capillary tube at the bottom of the damper, adjustment can be made at the top. To make this possible, the piston rod is gun-drilled and has a shaft running through its centre. At the end of the shaft is a needle valve. This valve alters the amount of oil allowed to pass through the centre of the piston, a condition which influences low and high-speed settings.

REMOTE RESERVOIR

Some ultra-high performance monotube dampers are equipped with remote reservoirs.

This damper design works exactly the same as a single-bodied unit, but rather than all the oil being stored in the damper body, the remote reservoir (a canister) allows extra oil to be carried, which helps with cooling and degrading issues, especially in endurance racing environments. Another advantage of a remote reservoir is its ability to allow the adjustment of high and low-speed settings on the bump stroke.

The rebound stroke is controlled in the same way as a on a single-bodied unit (via shim stacks for high-speed, and through the needle valve for low speed), yet when it comes to remote reservoirs, the number of shims on the bump side of the piston are reduced in order to allow the piston to move through oil more easily. The bump settings are then controlled by the valves in the remote reservoir.

To enable this functionality, low and high-speed control valves are fitted. As the piston rod moves into the cylinder of the damper, the oil it displaces is transferred through a hose into the remote reservoir. The flow of oil is controlled by the low and high-speed valves.



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Under the hammer

Hammer time!

Silverstone Auctions held its annual NEC Classic Motor Show Sale a few weeks back. Here are some of the highlights...

WORDS Dan Furr PHOTOGRAPHY Not Lord Lichfield



1978 924

This striking 924 was used from new by AFN to compete in the single-model 1978 Porsche 924 Championship. Registered as AFN 18, the car was driven by Nick Faure and finished fourth in the series. Tony Dron then took the driving seat in 1979, bagging silverware at Castle Combe before the striped transaxle was used to attack British speed and endurance records. Driven by Dron, Andy Rouse and Win Percy at Snetterton, the car covered over 2,000km in twenty-four hours at an average speed of 77.31mph. In 1992, AFN

18 was re-registered as BLF 96S and competed in the 924 Championship for the following three years, finishing second before spending four seasons competing in hill climb competitions and the Autofarm Speed Championship. In 1998, this colourful 924 was returned to its AFN colours, but was registered SORN until 2013 when it was recommissioned. Complete with its original engine, this mega motorsport machine is fully road legal and has covered just 19,733 miles, almost all of them at the track.



1989 930 LE

An incredibly low number of 930 LEs were produced (one per UK dealership), with each car featuring colour-coded wheels, top tinted windscreen, rear air intake ducts, electric sunroof, a choice of special paint and upholstery colours, heated electric seats and gold 'Turbo' interior stitching. Each LE also features a gold plaque on its centre console, and a gold gear

knob top as recognition of the model's place in 911 history. This example has covered just 49,893 miles. The original service booklet shows a full complement of stamps from various specialists, including AFN, Porsche Rivervale, Strasse, and Porsche Cardiff. The latter removed the car's engine in 2015 for an overhaul, resulting in a highly collectible classic Porsche in tip-top condition.

SOLD FOR
£82,125

**BIG
SPENDER**



SOLD FOR
£21,938



1990 944 S2

The car presented here is a last-of-the-line, right-hand drive 1990 944 S2. Delivered new through Merlin Porsche of Cardiff on the 7th March 1991, this stunning coupé looks particularly striking in the rare combination of Turquoise Blue Metallic and Marine Blue with Linen leather upholstery. This 944 has been well-maintained, presenting both mechanically and cosmetically in superb condition. It even won the Porsche Silverstone Concours

contest in 2016, an achievement that belies the current mileage of 89k miles, verifiable and supported by a fully stamped service booklet autographed by various OPCs and independent marque specialists. There's an impressive history file too, including many past MOT certificates and a wealth of invoices. Small details (two sets of keys, factory stickers still in situ, and a complete Porsche tool-roll) help support claims of dutiful ownership.



SOLD FOR
£52,875



1989 964 CARRERA 2

This particular 964 is a UKDM right-hand drive Carrera 2 coupé originally delivered on 6th October 1989 to its first owner, a Mr. Martin Bennett, by Dick Lovett in Swindon. Finished in Guards Red with a cream leather interior piped in red, the cabin features grey carpets. Having had only three former keepers, this crisp Carrera really is in fabulous condition inside and out. The flawless finish of the paint and sublime condition of the hide is in part due to the fact that the car has covered only 54,429 miles from new, an attractive feature that saw a bidding war break out, culminating in a final sale price of a shade less than fifty-three grand.





Under the hammer

UNSOLD!



1993 928 S4

Finished in Cobalt Blue, this gorgeous 928 S4 failed to generate much in the way of excitement at the NEC, leading the car to return from whence it came at auction end! It's difficult to understand why there was such little interest, especially when you consider the five-litre grand tourer's superbly presented exterior, a beautiful leather-laden cabin and fresh carpets. Mechanically, the car is in excellent order, having covered less than 77k miles. Not even a comprehensive service record stamped by Official Porsche Centres was enough to have punters reaching for their wallets.

**SOLD FOR
£41,625**



1967 912

First available to European Porsche fans as a replacement for the 356 in 1965, the 912 became a market segment leader (especially in the USA), outselling the 911 by a staggering margin. The four-cylinder sports car featured much of the same DNA as its six-pot sibling, and this restored '67-plater is an excellent example of why the 'baby 911' was so popular. Featuring a new windscreen, new OEM body panels, an engine rebuild, new carpets, refurbished Fuchs wheels and distance covered amounting to just 88k miles, this much-loved 1.6-litre fun machine fetched more than forty-one grand at the NEC, proving that it's not just 911s commanding decent dosh when it comes to rear-engined classics.



**SOLD FOR
£39,375**



1995 993 CARRERA 2 TIPTRONIC CABRIOLET

This right-hand drive 993 Carrera 2 Cabriolet was supplied new in China on 8th August 1995 by Jebson Motors of Hong Kong, one of the region's best-known Porsche dealers. Finished in the beautiful colour combination of Guards Red with a full black leather interior, this Tiptronic-driven rag-top was ordered with many factory-fitted individual accessories, including air-conditioning, a wooden steering

wheel (with integrated Tiptronic controls), a matching gear selector and handbrake lever, eighteen-inch alloy wheels, electric seats, tinted front screen, lumbar support and a snazzy on-board computer. Pampered all its life, the car entered the UK a few years ago, whereupon its speedo was changed from km/h to mph, and its mileage was updated from 21,481 kilometres to 55,500 miles.



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Buy & tune

PORSCHE 964

The 964 successfully bridges the gap between 911s old and new. Here's what to look for when buying this fantastic modern classic...

WORDS **Phil Thornalley** PHOTOGRAPHY **John Colley**

In the wake of the technological masterpiece that is the 959, the 964 was a new take on the 911 concept. It represented one of the biggest progressions in the history of Porsche's flagship sports coupe, with the manufacturer's design and engineering team claiming their new product as having eighty-five percent new parts when compared to the outgoing 911.

The familiar 911 silhouette remained, but the 964 featured streamlined aerodynamics, integrated bumpers, new suspension and a 3.6-litre flat-six pumping out close to 250bhp.

There was oodles of electrically-driven gadgetry to marvel at too, most notably a rear wing that presented itself automatically in readiness for high speed thrills.

If you've read our history of 964 on page 38, then you'll know that the 964 was initially only available in four-wheel drive Carrera 4 guise. The two-wheel drive Carrera 2 landed a couple of years later, favoured by many due to its lightweight chassis and less

complicated transmission. Targa and Cabriolets were available no matter the 964 you preferred, with 3.3-litre and 3.6-litre Turbos, plus 3.8-litre RS and RSR badged special editions following close behind.

At the time of its release, many considered the 964 to have too many driver aids to be a true 911, as though Porsche had somehow diluted the formula that had ensured the survival of its air-cooled range for so long.

Nevertheless, new styling cues designed to promote a 'family' of cars were shared across the



964
SPECIAL
CELEBRATION
ISSUE

It's true to say that for many years, the 964 was the unloved 911

Porsche product range, a move that visually distanced the new arrival from its ancestors. This was all the ammunition a large number of 911 die-hards needed to dismiss the 964 as a disposable Porsche that would never be held in high regard.

It's true to say that for many years, the 964 was the unloved 911, with examples often seen dripping oil and being treated to less than regular servicing and maintenance. Today, a generation of Porsche fans who grew up in the 1980s and 1990s are rewriting history, lavishing expensive restorations and tuning kit on their 964s. The model is, after all, the poster car many of these guys pinned to their bedroom walls!

Today, boutique restorers, such as Singer Vehicle Design, are championing the 964, elevating its status to one of the best 911s money can buy. Prices have increased accordingly, so be sure to spend your hard-earned wisely by reading through this buying guide in advance of emptying your wallet.



BODY

964s were built using galvanised body panels, meaning that even though the newest example was assembled more than two decades ago, you shouldn't expect to find rust when inspecting your prospective purchase. That said, check around the windscreen seal, door bases, light apertures and wheel arches for paint bubbling or early signs of corrosion.

Examine panel gaps carefully. 964s treated with less respect than the model currently commands may have been driven carelessly – accident damage should be treated as a real concern. Don't worry too much about gravel rash or stone chips (these cars were meant to be driven fast!), but if the overall condition of the bodywork on the 964 you're looking at is less than ideal, then consider what other aspects of the car might not be in tip-top condition.

Rag-tops should be checked thoroughly for tears and nicks, especially around their edges. Thankfully, faded black roofs can be easily restored through the application of canvas roof restoration treatment products from the likes of Renovo. Cabriolet roofs and/or their plastic windows can be easily replaced.

The 964 RS and other special editions need to be checked with a fine-toothed comb for authenticity, so make sure you instruct a

specialist (such as Revolution Porsche or Autofarm) to carry out a thorough inspection for you. Buying a fake is an expensive mistake to make!

IDENTITY

The 964's recent journey from zero to hero is nothing short of staggering, but those who bought the polyurethane-bumpered 911 when prices were low did so without having to worry too much about affecting the value of their car through neglect. In other words, when buying a 964, be absolutely sure there's a stack of paperwork to support regular servicing and maintenance, ideally carried out by a recognised Porsche specialist or main dealer. Furthermore, be sure that quality components have been used when it comes to identifying any mechanical work.

Spend a couple of quid at mycarcheck.com where you can download a history report outlining any insurance claims, change of registration number, recorded mileage and whether there is any outstanding finance on the car. You should also enter the vehicle's details into the DVLA's online MOT database, a service which will return all passes, failures and advisories registered as far back as records are stored.



Buy & tune

TRANSMISSION

You won't have to search long before finding 964 owners who have converted their Carrera 4's four-wheel drive system to match the two-wheel drive setup of the Carrera 2. There isn't anything wrong with the Porsche fourby configuration, but many Carrera 4 drivers simply feel disconnected from their 964s after experiencing the thrill of piloting a Carrera 2. At the end of the day, it comes down to personal preference, so test drive both types of 964 to determine which you prefer.

The Carrera 4's extra chassis equipment does add significant weight (resulting in easy understeer), but the model is recognised for being a brilliant tourer.

Early 964s suffer from a problematic dual-mass flywheel. Hugely unreliable, the part was replaced in all 964s in late 1992. Check to make sure the 964 you're looking at is fitted with the later item. Signs that you might be in possession of a car with the early design include heavy vibration at low revs and lumpy idle. RS models don't feature a dual-mass flywheel, so the lucky owners of these cars have nothing to worry about.

From 1990, Carrera 2s were offered with the four-speed semi-automatic Tiptronic transmission. It's a reliable bit of kit, but another example of optional 964 equipment that many think makes the driver feel less engaged with the car he or she is in charge of. If you're tempted to buy a Tiptronic 964, then listen out for a noisy torque converter.



The Carrera 4's extra chassis equipment does add significant weight, but the model is recognised for being a brilliant tourer



ENGINE

Early 964s are well-known for dripping oil at an alarming rate due to the manufacturer's decision not to fit a gasket to the cylinder base. Later cars (1991 onwards) made use of a redesigned cylinder base and a seal designed to stop lubricant escaping, but 964s of all ages seem to like losing oil for fun, so don't be overly alarmed if there's evidence of a drip on the driveway. Be sure, however, to check that the oil isn't leaking from the oil pipes between the engine and oil tank. Replacement pipework isn't expensive, but the tank is, and it may be damaged during installation, so consider letting a specialist take care of this tricky job for you.

High mileage 964s aren't to be dismissed, especially if you plan to get regular use out of the car you're thinking of buying; as is the case with almost all Porsche-engineered powerplants, the 964's bottom end is rock solid, but top end rebuilds are needed the closer you get to the 100k mile mark. Signs that the work is required include a drop in power and increased oil consumption. The fix includes



replacement valves, guides and piston rings.

Naturally aspirated engines feature twelve spark plugs and twin distributors linked by a rubber belt. The belt weakens over time due to a build up of ozone within the distributor housing that eats into the rubber. If the belt snaps, you'll experience an immediate lack of power, but if the rotor arm has

stopped in an awkward place, it may continue to encourage a plug to spark, which will destroy the corresponding piston. Check the service history to see when the belt was last changed. Fortunately, there's an easy fix to cure the ozone issue – a retro-fitted 993 distributor air vent can be installed at the same time as a fresh belt.

Broken cylinder head

studs can present themselves in the form of oil leaks, lumpy idle or misfire under load. The key to a successful purchase is to make sure you drive before you buy; shelling out for a 964 on t'internet and waiting for the delivery of your new ride before you've taken it around the block and back is a bad idea.

When it comes to turbocharged 964s, the same rules apply as you'd expect from an inspection of a 930. In other words, look for blue smoke from the exhaust (a sign of failed turbocharger oil seals), excessive white smoke on start-up (from cars that are in regular use) and a lack of boost. If you suspect the snail-shaped bhp booster bolted to your Turbo's flat-six to be at fault, then don't be tricked into thinking you need to pay for a new part from a main dealer. Many specialist turbocharger repair and upgrade specialists, including Turbo Dynamics, Turbo Technics and Owen Developments, will happily return your faulty turbo to an 'as new' state, and you may be surprised at how cost effective it is to enhance the part with modern turbocharging technology.



The 964 Turbo was released in 1990 as successor to the 930. The newer car received a mixed reception due to its use of the same (albeit modified) 3.3-litre engine as its predecessor. The 3.6-litre Turbo was released in January 1993, limited to a production run of less than 1,500 cars.



Buy & tune



BRAKES AND SUSPENSION

The suspension Porsche fitted to the 964 was fantastic, but as is the case with any older vehicle, rubber bushes deteriorate over time. New bushes are readily available, as are polyurethane replacement parts from Powerflex.

It's worth investing in four-wheel laser wheel alignment and a full geometry setup to get the very best out of the 964's handling abilities. This service won't be particularly expensive, but will transform the way your car feels. After all, twenty-odd years of road and track action is likely to have altered factory settings through wear and tear.

The 964 was the first 911 to come fitted with ABS. This upgraded braking adds an extra level of safety to a much enhanced 911 package, but the age-old problem of aluminium calipers with backing plates made of steel can make pad replacement difficult. If in doubt, consult a specialist.

Professional upholstery repair or retrimming services aren't exactly in short supply

INTERIOR

964 interiors are typically hard-wearing, so there's no need for you to take on a car with ripped hide or worn carpets. Then again, the presence of seats in poor condition is a massive bargaining chip, so use them to your advantage. Replacement seats, carpets and headlinings are easy to come by, and professional upholstery repair or retrimming services aren't exactly in short supply.

Damp or discoloured carpets in Targas or

Cabriolets are a sure-fire sign that the soft-top of the 964 you're looking at is leaking. New roofs are readily available, although the motors powering them may need to be stripped and rebuilt if you experience problems with operation. Likewise, check to make sure that all of the car's creature comforts work as they should. Particular attention should be paid to electric windows, seat movement, air-conditioning systems, dash dials and head units.

In 1990, the 964 Cup was made available for those wishing to compete in the Porsche Carrera Cup. Rated at 265bhp, the model featured a multi-point weld-in roll cage, upgraded brakes, suspension with a ride height drop of 55mm, ABS and a catalytic converter.





SERVICING

As mentioned earlier in this guide, good service history is vital. Check to make sure there's a complete stash of paperwork and no unexplained periods of being off the road. Ensure all fluids, filters and timing equipment have been changed in accordance with the manufacturer's instructions. Ask what grade and content of oil has been used. This applies to transmission oil as well as the engine oil.

If you're about to buy a car that's been left standing for a while, invest in new timing equipment. This can be bought from Heritage Parts Centre at reasonable cost. If you don't want to take on the work yourself, speak to a Porsche servicing and restoration specialist.

Ensure you change the oil on your 964 every five thousand miles, or at least once a year, whichever comes first. Take the opportunity to inspect the car's bodywork and mechanical components, making adjustments where necessary. Be sure to check the car's power steering system for troublesome leaks.





Buy & tune



TUNING

The 964 was the Porsche that brought the 911 into the modern age, and with it came a thirst for personalisation in the form of enhanced performance. Airflow upgrades (including free-flowing intakes and larger exhaust systems with 993 heat exchangers) rank high on the list of popular 964 mods, although there's a lot to be said for taking influence from the RS by simply reducing the overall weight of your car through the removal of any cabin equipment you consider to be supplementary to requirements. This is a no-cost alteration, and as we all know, less weight equates to a quicker car!

Talking of which, 964 seats are heavy. Composite buckets from Cobra or Corbeau will make a big difference, albeit at the expense of comfort on long journeys. Manual steering racks will enable you to ditch a mass of hydraulic steering equipment, and as outlined earlier, converting a Carrera 4 to two-wheel drive will drastically reduce weight whilst transforming the driving experience.

Optimise handling by fitting polyurethane bushes, coilovers and by investing in

focused geometry. Transmission gearing upgrades on manual cars will also make for a snappier drive, while a lightweight flywheel will make the car rev much faster, although expect a more 'agricultural' transmission sound through reduced flywheel damping when travelling slowly.

ECU upgrades – either in the form of 'off the shelf' chipsets or standalone management – will alter fuelling and increase power. Turbochargers can be comprehensively rebuilt with modern internals at significantly less cost than a like-for-like replacement part. Sticking with the theme of forced induction, those of you feeling ambitious could do a lot worse than investigating supercharging solutions. And, of course, there's the option of an engine transplant; fitting a larger displacement powerplant (maybe a unit with twin-turbocharging capabilities?!) is a direct route to bigger bhp.



PRICE

Long gone are the days when you could buy a used 964 for less than the cost of your granny's new Ford Focus, but with prices certain to continue rocketing skyward, perhaps now is a good time to grab a 964 to call your own? Here's what we found online:

1990 CARRERA 4 COUPE

124k miles, black paint, black leather, replacement engine at 90k, recently repaired accident damage

£37,500

1990 CARRERA 2 CABRIOLET

67k miles, Guards Red, Linen leather, black roof, full dealer history, immaculate throughout

£39,911

1991 CARRERA 2 COUPE TIPTRONIC

32k miles, Japan supplied, left-hand drive, Midnight Blue paintwork, black leather, D90 wheels

£49,900

1994 CARRERA 2 COUPE

47k miles, Guards Red, black leather, no sunroof, main dealer service history, full MOT

£66,500



CONTACTS

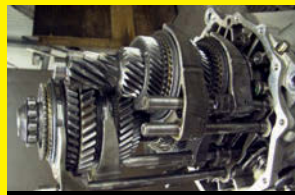
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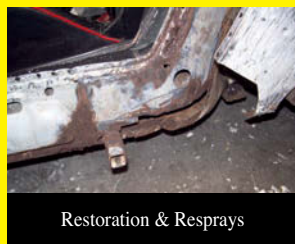
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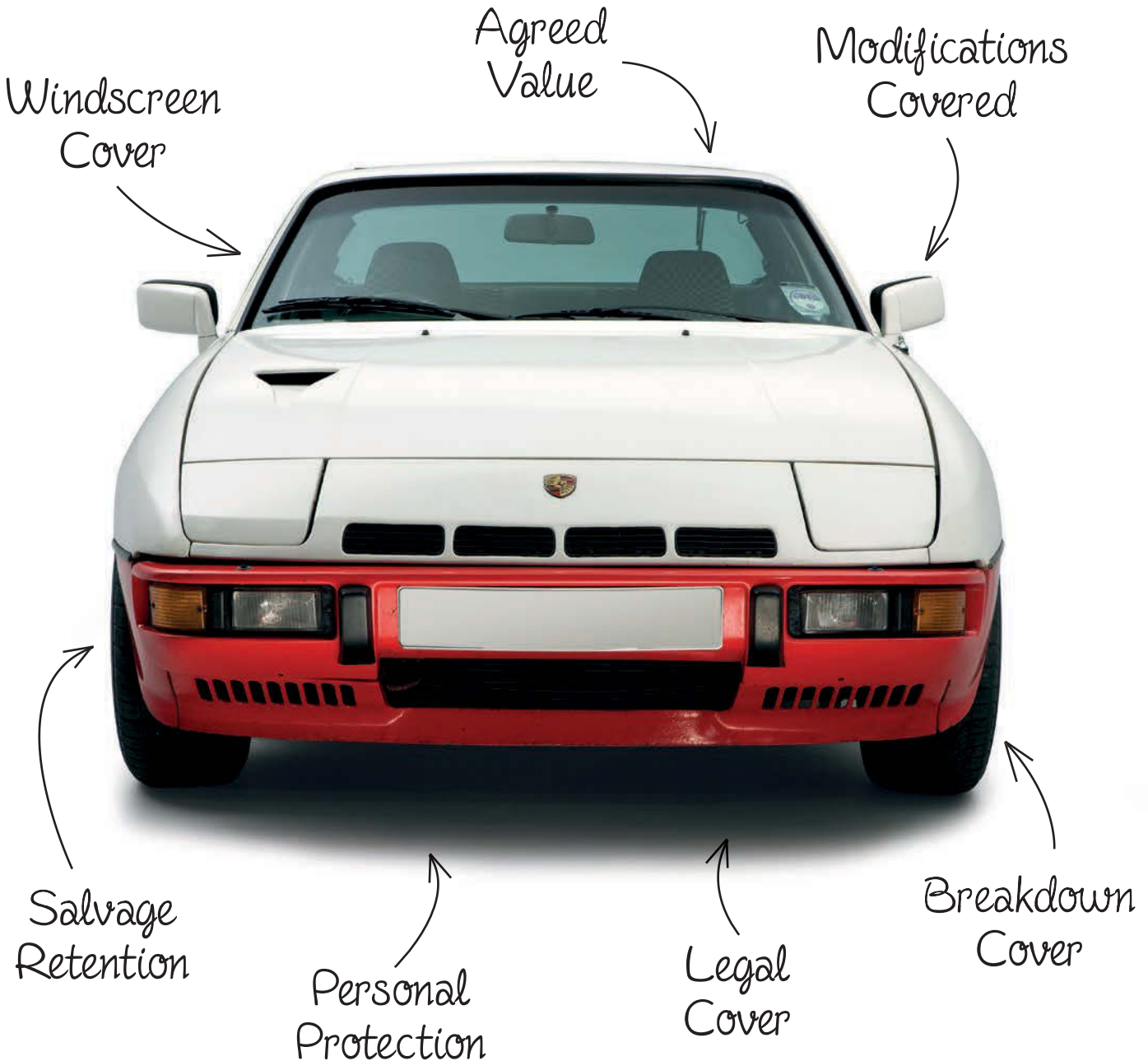
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