NEW

TOTAL 911 COLLECTION

PORSCHE 911

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- Every generation 1963-2015

In association with Total 911

Welcome to...

The Total 911 COLLECTION

Rennsport. Turbo. Carrera. Clubsport. Lightweight. There are many famous motoring icons associated with the legend that is the 911, Porsche's darling sportscar with more than 52-years of history to its name – and counting.

In this third instalment of the ever-popular Collection series, brought to you by the makers of Total 911 magazine, we look at every aspect of the Porsche 911's liturgy including those standout iterations above. First we take a look through each generation of the revered flat six sports car, from its humble beginnings in 2.0-litre form, through the addition of impact bumpers in the 70s and revised aesthetics with the 964 and 993, into water-cooling with the 996 and evolution of technology in the 997 and 991 generations.

After placing you in the driver's seat of decorated models from throughout the 911's history, we bring you the best of our track-and-road battles with our series of thrilling head to head tests – covering everything from a showdown of classics to a fiery gathering of every GT3 generation. Then, we take a look at scintillating project cars that have evolved the reputation of the Porsche 911 far away from its home at Zuffenhausen, Stuttgart. This includes cars that have carved a distinguished career at the race track, as well as exquisitely modified examples built by enthusiasts from around the world.

Of course, the Porsche 911 is nothing without the people that carry and develop its legacy, which is why we finish by bringing you interviews with key figures in the 911's lineage, from past factory drivers, designers and even celebrity enthusiasts.

This lavish Collection bookazine is your ultimate reading resource to celebrate all that is good and great about the most famous sports car in the world, the Porsche 911.

Imagine Publishing Ltd
Richmond House
33 Richmond Hill
Bournemouth
Dorset BH2 6EZ
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Twitter: @Books_Imagine
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Head of Publishing
Aaron Asadi

Head of Design
Ross Andrews

Editor
Lee Sibley

Senior Art Editor
Greg Whitaker

Designer
Perry Wardell-Wicks

Photographer
James Sheppard

Printed by
William Gibbons, 26 Planetary Road, Willenhall, West Midlands, WV13 3XT

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Test Drive

THE RAREST PORSCHE

A true one-of-a-kind, this 901 Cabriolet created a blueprint for the open-topped Porsche 911 over the last half century

Written by **Lee Sibley** Photography by **Phil Steinhardt**

These are the moments that, as a profound Porsche enthusiast, you live for. It's 9:30am on what will be a scorching hot summer's day in central London, yet far below the pavement lining the busy streets of the City we find ourselves in a tactfully nondescript garage devoid of windows to let in the bright sunshine. Nevertheless our location is immensely gratifying: we're kept cool by the ambient temperature of the ventilated bunker yet encapsulated by its primary occupant, a 901 Cabriolet.

When I say 'a' 901 Cabriolet, of course, I mean 'the' 901 Cabriolet. Such a rarity that it is a true one-off car from the factory, its extraordinary prominence lies with the fact it is the car that has shaped generations of the open-topped Porsche 911 as we know it.

Of course, many Porsche aficionados will suspect an anomaly is present when reading '901' and Cabriolet' in the same sentence. In terms of production cars, this is correct: the first 911 Cabriolet didn't arrive until 1983 under the last year of SC assembly. However, the concept of a Cabriolet 911 was born some two decades previously, when F.A. Porsche and his Zuffenhausen engineers investigated the possibility for an open-topped version of their new sports car to sit alongside its Coupe variant.

The year was 1963 and Porsche had just revealed the revolutionary 901 sports car to the world at the Frankfurt Motor Show. Due for release the following year, this new car won admirers for its sleek design and powerful flat six engine. The 901 held much promise.

Behind closed doors, testing of the all-new Porsche continued, and it is claimed that thirteen mules were assembled as prototypes – seven in 1963 and six in 1964. These prototypes **were made for a variety of specific purposes, be it to test**

suspensions, engines, even body styles. These prototypes were denoted by having the prefix '13' in their chassis number as opposed to the '300' attained to fully-fledged production vehicles and, to all intents and purposes, Porsche usually destroyed the cars once all relevant information had been garnered from them. However, two prototypes were saved. One is chassis 13 327, the seventh and last prototype built in 1963. Acknowledged as the oldest 901 chassis still in existence, this Coupe prototype was rediscovered in 1984 and has since been restored, still boasting a variety of those incremental details that never quite made it to production.

The other is chassis 13 360, built in June 1964, and is the very car sitting right before us in our central London hideaway some 51 years later. Being assembled close to the start of production as a '64 car, there are many striking similarities between it and the 80 early production models that carried the '901' nomenclature. This is because the idea of an open-topped 901 wasn't nurtured until very late in development.

However, in the midst of dwindling sales for the 356 Cabriolet, Butzi Porsche faced pressure from nephew and head of Marketing and Sales, Harald Wagner, to produce another open-topped sports car. Wagner insisted customers were asking after an open-topped version but the reality was, aside from initial drawings and mock-ups, no Cabriolet was planned. Besides, costs were precariously balanced – the 901 itself had become expensive to develop and adding another body style to the lineup would only stretch resources further.

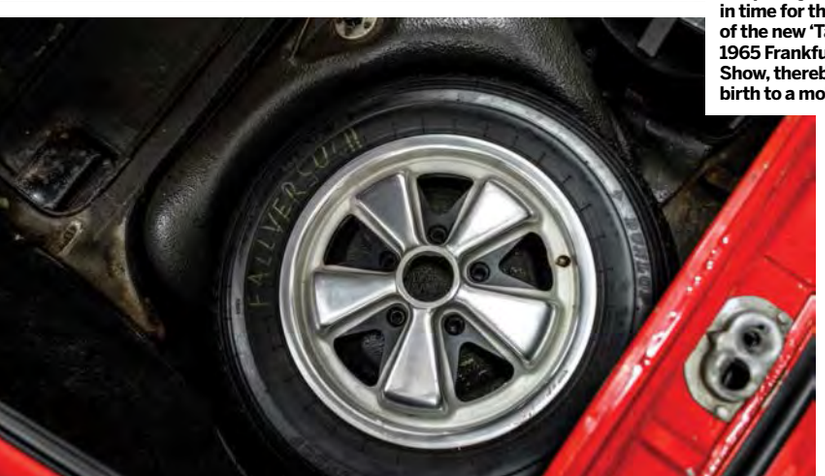
Wagner's efforts paid off, though. Effectively a Coupe with the roof chopped off at the top of its windscreen and along the base of its rear windows, 13 360 was coined internally as the 'Ploch Trenkler car' after the two engineers who created the concept and who, interestingly, were responsible for the reworked 356 Cabriolet models. Within a couple of weeks Ploch, Trenkler, and Gerhard Schröder (head of convertible design) had made a series of mock-up removable roof mechanisms for the car, including one that had a roll bar.

According to Porsche historian Randy Leffingwell, who writes in his book, *The Complete Book of Porsche 911*, a group including Ferry Porsche, Erwin Komenda (head of technical drawings of the 901/911), Hans Beierbach (head of Prototype design), Hans Tomala, Fritz Plaschka and Harald Wagner met to review the car on June 24th 1964. Komeda and Beierbach successfully argued the costs involved with necessary stiffening of the chassis – as well as the work needed to change the car's rear to accommodate a soft top mechanism – would render the concept an impossible task on a mass scale, and so Ferry approved the roll-bar design. Despite first being sent to Karmann for chassis reinforcements, it was decided that Gerhard Schroeder and Werner Trenkler would further assess and produce a roof mechanism for the car in-house.

"Its prominence lies with the fact it is the car that has shaped generations of the open-topped Porsche 911 as we know it"

Alex's car shows quite clearly where Zuffenhausen's engineers cut away the roof of this one-time Coupe in exploring the possibilities of a Cabriolet version

Further work around the 'B' pillar hints to the installation of a temporary rollover bar in time for the unveiling of the new 'Targa' at the 1965 Frankfurt Motor Show, thereby giving birth to a motoring icon



Thanks to the commencement of 901 deliveries (the first production 901 coupe, starting with chassis number 300 007, rolled off the assembly line on September 14th 1964), it was not until January 1965 that one Helmuth Bott (head of road testing at the time) was able to evaluate the stiffness of 13 360 with a thorough test drive. Bott found that after Karmann's work, the car was no worse than previous 356 Cabriolets he had driven, though he did note problems with excess noise and flapping of the soft rear window and top. Trenkler and Schröder duly addressed these issues and on February 1st 1965 chassis 133 60 emerged as the subject of a memo to two-dozen managers, engineers and designers.

It was stated in this memo that the car would have a stainless steel covered roll bar with a Porsche logo, a removable roof panel and a rear soft zipper removable window. And its name? The term 'Targa' was coined by Walter Franz, a Cologne Porsche dealer at a sales conference, to commemorate the Porsche wins at the Targa Florio. Harald Wagner liked the affiliation and realised 'Targa' meant 'shield' in Italian, subsequently promoting the car as 'Porsche's safety car' in response to the ongoing concerns about automobile safety in the United States.

The Targa design was duly registered and patented (no. 1455743) in August 1965, with designers Gerhard Schröder and Werner Trenkler cited as its inventors. Barely a month later, in September 1965, the Targa was revealed to the public at the Frankfurt Motor Show where two Targa prototypes went on display with mock roll bars. It is believed one of these was 13 360.The success of the 911 Targa model is well documented, but the story of 13 360, meanwhile, is one that stayed in relative hibernation until the turn of the millennium.

Acquired from Porsche by Manfred Freisinger between 1966-67, it's not clear if Freisenger bought the 901 directly from Porsche or from an employee as he had many contacts within Porsche due to his racing affiliation. Nevertheless, the Cabriolet then languished in one of his warehouses until 2001, when Myron Vernis in Akron, Ohio acquired it. Freisenger was looking for a 356B Carrera at the time, which Vernis had, and so a trade was done. The Cabriolet then resided Stateside until 2014, when the car was finally offered to long-time admirer and enthusiast, Alex Karidis. With a deal done, the 901 took six painstaking weeks to arrive at Alex's base here in central London.

Model	**901 Cabriolet prototype**
Year	**1964**
Engine	
Capacity	1,991cc
Compression ratio	9.0:1
Maximum power	130bhp @ 6,100rpm
Maximum torque	149Nm @ 5,200rpm
Transmission	Dogleg 901 five-speed manual
Suspension	
Front	Independent; MacPherson struts; torsion bars; hydraulic double-action shocks
Rear	Independent; semi-trailing arms; torsion bars; hydraulic double-action shocks
Wheels & tyres	
Front	4.5x15-inch Fuchs; 165/80/15
Rear	4.5x15-inch Fuchs; 165/80/15
Dimensions	
Length	4,163mm
Width	1,610mm
Weight	Unspecified
Performance	
0-62mph	Not tested
Top speed	Not tested

Other Porsche prototypes

A series of fascinating prototype projects have been commissioned by Porsche over the years, and some are better known than others. Here's three of the best that we saw from our visit to Porsche's secret Zuffenhausen warehouse last year:

Porsche Panamericana

To celebrate Dr Ferry Porsche's 80th birthday in 1989, Zuffenhausen presented him with this open-topped two-seater concept car called the Panamericana. Shown to the public at Frankfurt's motor show of that year, the concept raised eyebrows for its radical design that was unlike anything the company has ever pinned their prancing horse emblem to. Featuring a removal fastback roof, exposed front and rear wheels, and gregarious creases in its body, it's suggested that Ferry wasn't impressed, and the press lacked admiration at the time too. However, Porsche has maintained there were never plans to put the car into production, though elements of the design transcended onto the 993 era of 911 four years later.

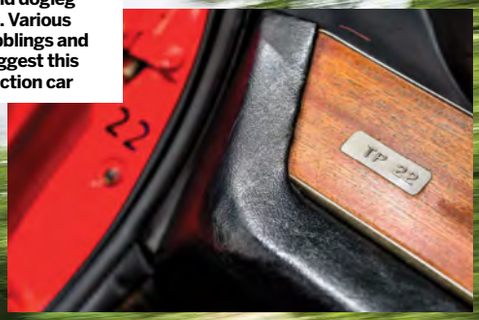
2.7-litre Turbo

The first 911 Turbo to leave Zuffenhausen may have sported that iconic whaletail wing and wider rear Fuchs but sitting above those wheels was a narrow body, while under the decklid the single KK turbocharger was mated to a 2,687cc engine rather than the larger 2,994cc capacity for which the 930 is known for. In fact, any allusions to a 930 build type are absent on this first Turbo, which was given the chassis number 9115600042, suggesting Porsche only had plans for a limited production run that didn't need extra chassis enhancements.

Extraordinarily, this 2.7-litre Turbo saw more than a hint of the light of day too, racking up over 30,000 kilometres under the steer of Louise Piëch.

Bulletproof 996

It may look like a production Carrera but then that's half of the genius behind this particular 996-era prototype. Even the spec of the car reads like any other first generation equivalent at first glance, complete with 3.4-litre water-cooled flat six engine and six-speed manual transmission. However, beneath that Ocean jade metallic hue lies a body that Porsche say is bulletproof. Open a door and things start to make sense: if the weight of the panel itself doesn't take you by surprise, the one-inch thickness of the glass pane will. The bulletproof body is made with Kevlar, though a monumental 300-kilogram weight may well hinder any immediate plans for this 996 and its occupants to flee a theoretical circumstance involving gunfire.



The Cabriolet prototype's mechanicals are standard 901 fare including a 2.0-litre flat six engine and dogleg 901 gearbox. Various interior scribblings and workings suggest this isn't a production car

"A stillborn open-topped project it may well be, but this prototype gave birth to the motoring legend that is the Targa"

It's clear that Alex is still as enamoured by the 901 Cabriolet as we are. Walking around the car and eyeing its idiosyncratic body styling, Alex muses, "I think it's both mind boggling and exciting that all the top people at Porsche from the time were personally involved with little old 13 360 and its development at some point or another, and that it now resides in my garage – rather than in the Porsche Museum!"

Ingesting the brilliantly un-restored Cabriolet up close exposes the many hallmarks of its unique, fascinating history. There's a shimmer in the light from exposed steel where the 'B' pillars used to be, the result of merciless cutting to remove the roof. Rivets are freely evident across the rump of the exterior and a quick 'tap' of each window reveals a plexiglass material rather than bona fide glass. A leatherette material from inside the rear quarters overhangs onto the lip of the exterior, however, much of the glue keeping it there has since worn away, leaving mere remnants still held tightly in position.

There are obvious holes above the windscreen complete with hooks that engineers will have used to attach the front of a roof to when raised, and scrawls on the metalwork in places are where engineers have made rough notes and observations. Though the two rear seats are in place, their discolouring suggests they've spent the majority of their life folded down, and there are, of course, no seatbelts to be found as there's no 'B' pillar to affix them to.

The prototype does come with early, unpainted iterations of the famous Fuchs wheels, and the spare tyre in the front compartment even has 'Fallversuch' scrawled on it, meaning 'research' in German. The mechanicals are standard 901 fare while the interior is unmistakably 901 with houndstooth seat centres. I'm told 80 per cent of the paint is original, and an odometer showing some 32,000 kilometres points to both the strenuous testing it endured at Zuffenhausen in the mid Sixties, as well as the gratuity of its owners in running the car since.

Alex turns the key and the car rumbles into life at the first time of asking, its 2.0-litre flat six engine full of zest as it settles nicely on tick-over. After a quick City drive the engine doesn't stay on for long, but that doesn't dampen my enthusiasm for this precious car. See, usually we're advocates of getting out and driving your Porsche at **Total 911** exactly as Butzi intended, actively deploring the garage queen and her polish-tainted army. On this occasion, however, we'll make a worthy exception. Such is the historical importance of this vehicle as it sews the fabric of the early 911 tapestry, we concede its final place of rest should be a museum – and we recommend that museum be the premises at Porscheplatz.

A stillborn open-topped project it may well be, but this prototype gave birth to the motoring legend that is the Targa, a car that at one time accounted for 40 per cent of all 911 sales and which celebrates half a century of existence today. This, right here, is preserved Porsche history at its most glorious. 911


CBU 573B

930 TURBO TARGA
THE SECRET TURBO

Never heard of a 930 Targa? You're not alone. Total 911 fires up the open-top factory Turbo few people know exists

Written by **Lee Sibley** Photography by **Phil Steinhardt**

I'll never forget my visit to an independent Porsche specialist during my second week in the Editor's chair at **Total 911**. Wandering around the busy workshops of the specialist (who shall remain anonymous), I noticed a black 3.2 SSE Targa on a two-poster ramp near the back. Mesmerised by its tea tray spoiler and bulging rear arches, I asked if it was a Turbo Targa.

"Oh, no," the salesman declared, "Porsche didn't make Turbo Targas." Naively, I took the salesman's word for it, yet fast-forward two short years and here I am standing next to one.

Of course, I have since forgiven said salesman (not before a gloaty email complete with a picture attachment) for his oversight, as the 930 Targa is indeed an extremely rare 911. Built during the 1987 and 1988 models years, just 193 Turbo Targas rolled off the Zuffenhausen production line. Of the 193, built between February 1987 and July 1989, it is reported that only 54 were right-hand drive, one of which is this devilishly hued Guards red example (complete with the wholly appropriate '666' registration plate).

Not only is the Turbo Targa rare in terms of numbers built, it's also unique in design: a symbol of Eighties extravagance, the concept of melding Turbo elegance and performance with the open-topped nature of a Targa has not been replicated by Porsche since, and will likely never be made again. It seems odd that a sports car like the 911, in being renowned for its longevity, should possess within its tapestry a model that represented a relative 'flash in the pan' in terms of its production life and numbers produced. It'd be relative to the provenance of the 993 GT2, if only the GT2 name did not transcend into 996 production and beyond.

The fallout here is that the Turbo Targa is uniquely pigeonholed as a Porsche with its own small subset of historical context, far away from the beaten track of more commonplace 911s. As a result, few people are aware of its existence (ask yourself, did you know?) and so this special, secret Turbo boasts an abundance of clout on paper at least. But is the reality just as awe-inspiring?

As I walk around the turbocharged Targa, still with its roof attached between the top of the windscreen and rollover hoop, I decide that in person its appearance isn't as awkward as I had expected, a small phenomenon perhaps instigated by the existence of the Turbo-look 3.2 SSE Targa. The bodywork is in flawless condition, perhaps ➲

Those wide rear arches and tea tray wing may be a familiar combination for a 930, but the presence of that Targa rollover bar is an unfamiliar sight

one of the best I've seen. Peering through the driver's side window, I find out why: a glance at the odometer tells me this Turbo Targa has covered just 10,000 miles in 27 years. Averaging just over 370 miles of motoring per year, it's no wonder you've likely not seen one of these on the road.

My visit to north London for a test drive in the Turbo Targa has fortuitously coincided with a delightfully warm, sunny day – perfect for enjoying this unique 930 in the way it was intended. I walk around to the passenger door and pull it open with a neat 'click' of the mechanism on the inner handle, before reaching in for the Targa roof key that I've been told is stowed in the glovebox. Upon finding it, I take a seat in the front passenger's pew and duly unlock the front of the removable roof from its inner fixing above the windscreen. Continuing the trend of a conventional Targa, I then exit the car and remove the roof by pulling it up and forward, before folding and then storing it in the front luggage compartment.

The rich sunshine is illuminating the Turbo's cabin, and now the somewhat ostentatious interior colour scheme begins to register. The red-and-cream contrast certainly lives up to the over-indulgence of the time, but even in comparison to today's more aesthetically daring concoctions, the interior here will be judged as garish by many.

At last taking my seat in the driver's throne, I conclude that the quality of the Targa's interior is typical for any 911 Turbo, being generous with materials and commendable in their comfort and finish. Being a 911 Turbo built near the end of 930 production, our Targa reaps the rewards of a more amenable G50 gearbox instead of the 915, though at first it feels clunky when shifting between gears, forcing me to give a quick prod of the accelerator pedal to enable a clean engagement as the oil warms up. Soon though, a long yet delightfully direct throw is recognisable from the much-desired G50 transmission, and the Turbo Targa is soon on its way with aplomb.

No doubt an elaborate weekend toy of a high-flying City worker upon its delivery from Stuttgart, the capital seems an apt destination for this sun-drenched drive. Heading into central London, I let the engine oil warm up before exerting the Turbo's famed surge of power.

Pleasingly, the Targa performs as a 930 should, with plenty of pull in the early stages of the rev range before that almighty whack from behind as the single turbocharger boosts just before 3,000rpm. The propulsion forwards is thrilling, though you must be acutely aware of engine revolutions so that the boost doesn't catch you out when manoeuvring. The open-top element makes the 930 experience all the more thrilling, particularly through the heightened sound of those air-cooled engine components working hard to push you up the road. This is slightly juxtaposed by the increase in wind pressure inside the cabin, which I can only imagine to be less than practical when at full song on an Autobahn, but at home on restricted duel carriageways in the City the breeze is perfectly agreeable.

930 in numbers

3.0-litre (1975-77): 2,850

3.3-litre (1978-89): 14,476*
(of which 193 Targa and circa 2,800 Cabriolet)

SE (1986-89): 946

LE (1989): 50

*Turbo was not legally available in the US 1980-1985

From the front, there's little to indicate a change in the 930s usual silhouette, though the illuminated front seats are a clue as to its Targa credentials

"Not only is the Turbo Targa **rare**, it's also **unique** in design"

Model	930 Targa
Year	1988
Engine	
Capacity	3,299cc
Compression ratio	7.0:1
Maximum power	300hp @5,500rpm
Maximum torque	432Nm @4,000rpm
Transmission	Five-speed G50
Suspension	
Front	MacPherson strut with torsion bars
Rear	Trailing wishbones with telescopic dampers and torsion bars
Wheels & tyres	
Front	7x16-inch Fuchs; 205/55/VR16
Rear	8x16-inch Fuchs; 225/50/VR16
Dimensions	
Length	4,491mm
Width	1,775mm
Weight	Circa 1,400kg
Performance	
0-62mph	Not tested
Top speed	Not tested

Offering an open-topped turbocharged experience, the Targa is nearly 15 times rarer than even the 930 Cabriolet

Handling of the Turbo Targa is slightly more contentious, however. The reworked roof and extra strengthening needed means this rare 911 weighs near on 1,400 kilograms – decidedly heavier than a 930 Coupe and around the same weight as a 993 Carrera 4. The result is a fairly firm ride for what is, to all intents and purposes, a lavish boulevard cruiser, while that extra weight is keenly felt over the rear when cornering.

However, high-speed manoeuvres are not the order of the day in the City, and the Turbo Targa doesn't feel out of place. While these busy roads are generally fraught with ballooning modern cars such as a Panamera or the original 'Chelsea tractor' in the Range Rover, the Turbo Targa still garners a huge presence, aided by that increased track from the eight-inch wide Fuchs (still looking chunky thanks to their now relatively small 15-inch diameter) and somewhat outlandish tea-tray wing. The classic looks of this Eighties 911 are not lost on locals piling out of offices for a hasty lunch break, and the Turbo Targa rightfully basks in its own glory down each street it visits, overshadowing any mass-produced contemporary supercar that crosses our path.

There's an exclusivity to this 911 that I've not felt before: it's genuinely a rarefied Turbo, a real maverick. And, while this rarity is the very core of its uniqueness, there's an element of sadness that Porsche hasn't revisited the platform since (the 991 Targa's innovative roof styling has prompted whispers of a possible turbocharged version, though Porsche sources tell me it wouldn't make financial sense to rework that roof mechanism and panoramic rear glass pane onto a wider body).

I return to base at Hexagon Modern Classics' showrooms and, parking up the 930 and re-affixing its roof, I'm left with a lot to ponder. The appeal of a 930 Targa – if you can find one – is huge. Not only is it a classic widebody 911 with iconic turbocharged 3.3-litre engine and G50 five-speed gearbox, it offers a more visceral experience thanks to its open-topped nature, in a platform that carries huge historical importance for Porsche (the 911 Targa came into existence decades before the Cabriolet, remember). Throw the ultra-low production numbers into the mix, and there you have a Porsche 911 so coveted that it'll be a collector's dream.

In the flesh it's certainly not flawed either. While its added weight means the 300bhp engine will have to work harder to exert the same inertia as a Coupe, there's little feasible compromise to the Targa's Turbo characteristics. Still powerful even by today's standards, I can't quite understand why this 930 represented a one-off.

But a one-off it was to be. Porsche duly turned their forced-induction intentions to the new 964-generation by the turn of the Nineties and, considering it took three attempts for a 964 Turbo to be spawned with an engine to call its own, there's no surprise that we wouldn't see another open-topped 911 Turbo until the 996 in 2001.

If you come across a genuine Turbo Targa for sale, don't rub your eyes – get it in your stable at the soonest convenience and have yourself your very own secret annex of Porsche 911 history. **911**

THE FORGOTTEN CARRERA

The Carrera 3.0 is probably the least-known of the impact bumper Porsches but this hidden gem is a class act, as Total 911 finds out...

Written by **Johnny Tipler** Photography by **Antony Fraser**

The name 'Carrera' is a term that has enjoyed a rich history with the Porsche brand for decades. Beginning with the Carrera Speedster in 1954, it has adorned Zuffenhausen cars since and found its way onto the 911 in some style in 1972 with the release of the Carrera RS. Today, the term is still used to signify the non-GT lineage of Porsche 911s. However, while 'Carrera' is well established in the lexicon of Porschephiles, there's an altogether lesser known 911 that nevertheless sports a 'Carrera' script on its decklid. That car is the 911 Carrera 3.0.

So called because of its 3.0-litre flat-six cubic capacity, it was in production from 1976 to 1977, succeeding the 2.7-litre 911s and preceding the far better known – and longer-running – 911 SC and 3.2 Carrera. The Carrera 3 is possibly the most concise suffix-handle of any 911. Just as the 906 race car from 1966 is known as the Carrera 6, the name is derived from the legendary Mexican road race La Carrera Panamericana in which Porsche excelled in 1953 and 1954. Thenceforth the Carrera epithet – which simply means 'race' in Spanish – defined the majority of Zuffenhausen's sports racing cars up to 1973 when the 911 2.7 Carrera RS harnessed the name to top-line road-going models. Devalued of late, it nevertheless has an inspirational cachet. While 'Carrera 6' refers to the 906-type number, Carrera 3 points up this 911's 3.0-litre engine capacity, and that is one of the car's key features.

The 1976 model year 911s – the G-programme 2.7 Carrera and Carrera 3 – represent a transitional plateau in the model's history. With a bombproof reputation, they combine classic looks and driving traits with more modern manners and relatively modest maintenance costs. Launched against a world background dominated by a Middle-Eastern oil embargo, fuel shortages and power cuts, prospects did not look great for the new generation of 911s. Suddenly, gas-guzzlers were not cool, and sales cascaded from 15,000 911s invoiced in 1973 to 8,000 in 1975. The earlier figure would not be exceeded again until 1986. Despite that, it was a time of consolidation, and the fact that Porsche stuck to its guns and kept faith with the 911 Turbo launch and then went on to release the 928 says much for its self-confidence.

While the 2.7 Carrera was an overlap car, bridging the transition from the 2.4 and 2.7 RS models, the Carrera 3 was the range-topper, powered by the 3.0-litre power unit. Those 3.0 litres in itself was a significant number with an evocative wow factor. Despite the fact the Carrera 3 was the cock of the roost for only a couple of years – superseded by the 911 SC for the 1978 model year – it ushered in two significant aspects in Porsche construction and specification.

Despite this inauspicious start, the middle years of the 911's life story from 1974 to 1989 turned out

to be a model of stability as far as its specification was concerned, never mind events in the Zuffenhausen boardroom. The frenetic changes in chassis dimensions, body styling, adoption of fuel injection and, most of all, shifts in engine capacity that characterised the late-1960s and early-1970s settled down into a pattern that endured with mild evolutions and just three really significant new introductions along the way.

First up in the canon is the 1974 2.7, with three models on offer: the basic 911 (replacing the 911T), the 911S (taking over from the 911E) and the Carrera 2.7 (superseding the 2.4-litre 911S) and shared its drivetrain componentry with the 1973 Carrera RS. As well as the controversial raised bumper line designed to appease American safety regulators, the cars destined for the US market were humbled by stifling emissions equipment. Available in the 1975 model year, the 930 Turbo took the automotive fraternity by storm, bringing Can-Am and endurance-race technology to the road. The 930 forms a continuous side strand to the main channel of 911 production. While the body style that endured from 1974 until 1989 with its rotund rear wheel arches and five-mile-per-hour impact bumpers characterised the mainstream 911s, the Turbo proclaimed its additional musculature with tea-tray rear wing and bloated front and rear arches to accommodate its fatter wheels and tyres. The Carrera 3 however lacked any form of rear wing, ducktail or whaletail. Though initially fitted with Fuchs alloy wheels, for the 1977 model year it was delivered with 16-inch-diameter cast aluminium ATS Cookie Cutter wheels as standard, wearing 205/55/VR16 front tyres and 255/50/VR16 rear, though in our case they were Bridgestone S0 tyres on Fuchs rims.

The Carrera 3, introduced in summer 1975, inherited the turbocharged model's stronger engine componentry – minus the turbo, of course, but with magnesium-alloy cases and Nikasil barrels – and was the real progenitor of this era. The Porsche line-up was three cars for the 1976 model year, the Carrera 3, and its siblings the 930 Turbo and the entry-level 2.7-litre 911, sold in Britain as the 911 Deluxe, a 165-horsepower model with electronic fuel injection. The front-engined 924 was waiting in the wings and unveiled in 1976, with its V8-powered sibling the 928 entering the fray a couple of years later.

"Just 3,687 Carrera 3s were built in two years compared with 58,000 911 SCs"

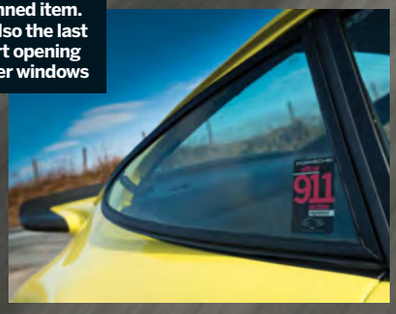
The Carrera 3 was available from the outset as a Coupe or a Targa with a black roof panel, and offered with a choice of three transmissions, four and five-speed manual 915 gearbox (first used as a production item in the 2.4-litre cars of 1973), or a three-speed Sportomatic, available on this model at no extra charge. However, the naturally aspirated Carrera 3 engine is basically the same as the blown 930 Turbo's, which was developed from the 3.0-litre RS engine, and that makes it virtually unburstable. But that doesn't mean it was merely a low-compression alternative to the 930 Turbo, because the compression ratio was raised from 6.53 to a much higher 8.521, and the ports were redesigned as well. It was fed by Bosch K-Jetronic fuel injection, a step up from the previous 2.7 Carrera's mechanical injection, and a five-blade fan replaced the earlier engines' 11-blade item. The Carrera 3 produced 197 horsepower at 6,000rpm and 255Nm of torque at 4,200rpm, and it could accelerate to 62 miles per hour quicker than the outgoing Carrera 2.7. However, its top speed of 143 miles per hour was lower than the previous model's 149, while its successor, the SC, topped out at 140. It wasn't until 1981 that the SC overtook the Carrera 3 and attained 204 horsepower thanks to higher compression and altered valve timing.

The Carrera 3 suspension set-up did not break any new ground. It combined MacPherson struts, lower control arms, longitudinal torsion bars, gas dampers and a 20-millimetre anti-roll bar at the front, and semi-trailing arms, gas dampers, a 23-millimetre transverse torsion bar and an 18-millimetre anti-roll bar at the rear. The Carrera 3 was lighter than its successor, weighing in at 1,093 kilograms, six per cent lighter than the SC, which weighed 1,160 kilograms.

The concertina-rubber and raised impact-bumper look that came in with the 1974 line-up was greeted with a certain amount of derision at the time, mostly on aesthetic grounds: what have they done to the pretty 911? But the new styling and what lay beneath it was imperative for the 911 to comply with the stringent new safety legislation in the USA and Europe, which meant that all cars had to be able to withstand a five-mile-per-hour impact without sustaining any damage.

Something more fundamental was afoot too. Porsches were as prone to rust as any other steel-bodied cars and few precautions had been taken to prevent it. Porsche now tackled the problem head-on by introducing zinc-dipped galvanised steel for the body panels and was the first manufacturer to offer a six-year corrosion warranty on its car's main bodyshell, excluding the wings.

The cabin of the Carrera 3 features 'tombstone' seats, of which the backrests resemble the outline of a tombstone, upholstered in a variety of materials from standard leather to velour for hot climates. Door panels have stitched decorative pleats



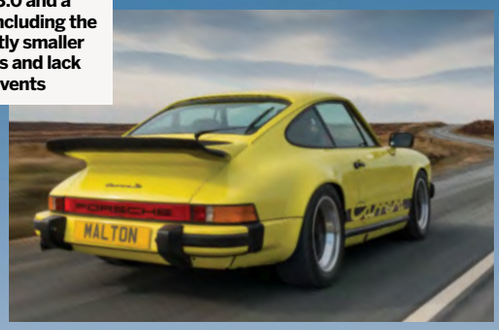
Connoisseurs will note the five-finned fan on the Carrera 3.0 as opposed to the usual 11-finned item. This was also the last 911 to sport opening rear quarter windows

The 930 engine

Engine longevity is a Porsche characteristic. Not only do the actual units happily go on working way beyond a normal sell-by date, but the engine lines also remain in production for years. They generally start off as a competition unit, typically honed in the negredo of endurance racing. The original four-cam Carrera engine designed by Professor Ernst Fuhrmann in 1953 served in a succession of racers from 550 Spyder and 356 Carrera. As the 901 and 911 flat sixes evolved from 2.0 to 2.7-litres through the decade from 1963 to 1973, so the 3.0-litre 930 unit remained the core powerplant until 1989, given a capacity hike to 3.3 litres in turbocharged form in 1978 and in 1984 to 3.2 litres unblown. True to form, the 930 first saw service in the 3.0-litre RS and RSR race cars active in 1974, providing the fundamental basis for the 930 Turbo powertrain introduced in 1975. That was designated 930/52, while the Carrera 3's naturally aspirated unit was 930/02. The 930 prefix endured, with 03, 20 and 66 derivations, until 1988, when the 964's 3.6-litre engine replaced it.

Model Year	Carrera 3.0 1976-77
Engine	
Capacity	2,994cc
Compression ratio	8.5:1
Maximum power	197bhp @ 6,000rpm
Maximum torque	255Nm @ 4,200rpm
Transmission	5-speed 915 gearbox, 3-speed Sportomatic optional
Suspension	
Front	MacPherson struts; lower control arms; longitudinal torsion bars; gas dampers; 20mm anti-roll bar
Rear	Semi-trailing arms; gas dampers; 23mm transverse torsion bar; 18mm anti-roll bar
Wheels & tyres	
Front	6x15-inch Fuchs; 185/70/VR15
Rear	7x15-inch Fuchs; 225/60/VR15
Dimensions	
Length	4,291mm
Width	1,610mm
Weight	1,093kg
Performance	
0-62mph	6.3 secs
Top speed	145mph

Look closely and you'll spot minor differences between a Carrera 3.0 and a later SC, including the 3.0's slightly smaller disc brakes and lack of interior vents



and carpeted pockets, plus a speaker in each side, while the dashboard contains the familiar 911 hotchpotch of switches with the centrally mounted rev counter dominating the driver's view, and the standard car's chunky leather-rimmed three-spoke steering wheel. Electrically adjustable, heated body-coloured door mirrors were fitted, as well as headlamp washers. An electronic speedo was an innovation and cruise control was optional.

Emissions regulations were being imposed thick and fast in North America and Japan, reflected in secondary air injection and thermal reactors being installed as a primitive catalytic converter for cars destined for those markets. Other improvements for 1977 included a more powerful fuel pump, clutch operation system, vacuum brake booster, along with centre vents in the dash for better ventilation. The controls were illuminated at night, and a red light reminded you to belt up. Rotary knobs for locking the doors were set into the door panels as an anti-theft measure, while the push-button locks on the door tops retracted completely into the door panels. You see how the Carrera 3 exemplified the whole 911 civilising process. There were a couple of other transitional features about the Carrera 3 as well; it was the last 911 to have opening rear three-quarter windows; and the heater controls were between the seats along with the handbrake lever. Stabs at modernity? Our car has a front strut brace and nicely crafted aluminium bonnet and engine lid stays.

Just 3,687 Carrera 3s were built in two years, compared with 58,000 911 SCs over five years.

"It feels lighter than a 3.2 Carrera, with a more sparkling performance to boot"

It's a rare bird in the UK: just 177 right-hand drive Coupes were imported. The Carrera 3 was dropped, along with the 2.7-litre 911, for 1978, making way for the SC. A short production life meant it became a sought-after model, although the SC that it spawned bore most of its physical attributes and running gear – though the wheel arches were slightly wider.Introduced late in 1983 for the 1984 model year, the 3.2 Carrera replaced the 3.0 SC, using the same body-chassis unit with a few detail improvements. Like the SC, there were Coupe and Targa body styles plus Cabriolet, Clubsport and Speedster versions. However, enough of the history.

Our feature car was delivered in May 1976 and has 99,000 miles on the clock. It has a sports airdam on the front and an integral whaletail engine lid. Original fitments, I'm told, but not to the overall detriment of the otherwise clean Carrera 3 look. It sports a new Sparco suede-rim wheel, and I'm sitting in what feels like a cross between a supportive bucket seat and an armchair. The belts are non-inertia reel, so you have to adjust them to suit yourself. The steering is beautifully direct, and it goes exactly where I point it. There's still a classic feeling to it, traces of its predecessor and elements of its successors too, but it doesn't come over like a relatively modern car like the 964. It belongs exactly in its era in that respect – the mid-1970s.

It has beautifully smooth revving, almost as if it's purring. A few years back it had an extensive engine rebuild and running gear overhaul at Provost Automobiles at Le Mans, which no doubt contribute to its alacrity. Up on the moorland roads above Rosedale I open it up, and the revs soar keenly up into 4,000-5,000rpm territory, the flat six growling happily. It has a firm ride, but we straddle the bumps with impunity. It is every bit as sharp and lively as a 3.2 Carrera, let alone an SC, sparkling with vivacity. The 930-spec brakes need firm pressure, but once you get the hang of how hard to press, they anchor up very rapidly. The 915 gearbox is beautifully notchy, and I ease the lever into the desired slot with no problem at all. There's no sense in which the Carrera 3 doesn't cut the mustard. It feels lighter than a 3.2 Carrera, with a more sparkling performance.

Downsides? Well, none that I can think of. The shift is trickily sprung in favour of reverse, so I do have to make a conscious effort when downshifting from fifth to fourth. But that's about it. You could easily fall in love with this car and use it on a day-to-day basis. In fact, it's one of the nicest 911s I have ever driven.

So, does being relatively rare mean there are bargains? Underrated, undervalued and misunderstood, unfortunately – but justifiably, though probably for the wrong reasons – the Carrera 3 has come in from the cold during the last couple of years and now fetches handsome six-figure sums. And that means this babe is now well beyond my reach: just when I thought there could be a hidden gem out there, I discover the Carrera has careered off. 911

LEICHTBAU

A product of the fabled Porsche Exclusive department, the 1992 Turbo S Lightweight was the fastest single-turbo production 911 ever built, as Total 911 investigates...

Written by **Kieron Fenelly** Photography by **Phil Steinhardt**

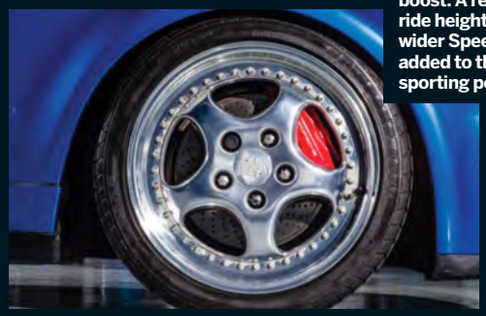
Porsche was a very different place in 1992 than it had been ten years earlier. The start of the 1980s had foreseen a dramatic revival of the company's fortunes and morale: 1981 would mark the start of six consecutive Le Mans victories, the Porsche F1 engine would power McLaren to world championships and above all, the 911 had been reinstated. A steadily appreciating US dollar ensured US sales became more and more profitable and a newly confident Porsche launched complex and ambitious projects to build a 4x4 twin-turbo supercar (the 959), a new 911 Turbo (the so-called 965), and it re-engineered the 3.2-litre flat six for private aviation. A measure of its renown, Porsche's research centre at Weissach even won a contract to redesign the European Airbus cockpit. The 911 itself grew heavier as equipment levels increased and the Sonderwünsch department had a long waiting list of private client customisations.

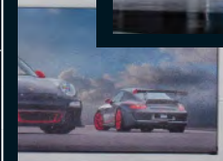
Then it all changed. First, the dollar sank: worth over three deutschmarks in 1985, within 18 months it bought barely a deutschmark and 50 pfennigs. Porsche's US sales halved and its fortunes declined dramatically: by 1988 heads were rolling. Finance director Heinz Brantizki became interim CEO and in 1989, former Weissach engineer Ulrich Bez returned to Porsche from BMW as technical director. Times were extremely lean: although the new 959 supercar had been launched to tremendous acclaim, it was over two years late and sold well below its manufacture cost; rumours of a takeover were rife and only Porsche's lack of borrowing, a legacy of Ferry Porsche's tight management, saved it from bankruptcy. The company pulled out of the North American CART series and it ended its Group C involvement where the 962 had been winning all before it. Among casualties in a reduced production range was Type 965, in what later became the 964 Turbo. Porsche had hoped to incorporate many of the 959's features, but the project became bogged in technical complexities, especially the engine, and Bez abandoned it.

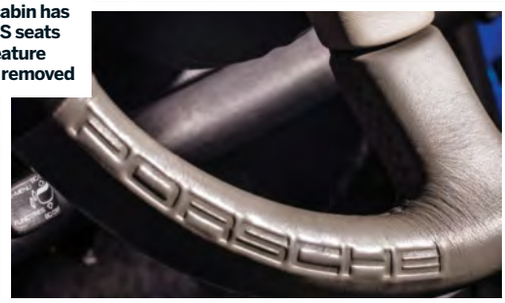
This presented a problem: the 964 Carrera 4 had been introduced in 1988 and normally the blown version should have followed a year later when production of the venerable 930 was scheduled to end. The lucrative Turbo market Porsche had virtually invented itself was one from which the company could ill afford to be absent. However, Zuffenhausen's ability to react to this kind of

Model	964 Turbo S
Year	1992
Engine	
Capacity	3,299cc
Compression ratio	7.0:1
Maximum power	381bhp @ 6,000rpm
Maximum torque	490Nm @ 4,800rpm
Engine highlights	M30/69SL engine; power steering pump and A/C equipment deleted; fuel requirement 98 RON; Standard Turbo 5-speed high-ratio gearbox; single mass lightened flywheel; LSD from stock Turbo, limiting slip up 100 per cent on overrun
Suspension	
Front	MacPherson struts; Bilstein dampers; specific short springs
Rear	MacPherson struts; Bilstein dampers; specific short springs; semi-trailing arms
Wheels & tyres	
Front	8x18-inch Speedline 3 piece wheels; 235/40/R18
Rear	10x18-inch Speedline 3 piece wheels; 265/35/R18
Dimensions	
Length	4,250mm
Width	1,775mm
Weight	1,290kg
Performance	
0-60mph	4.6 seconds
Top speed	180mph

The 61bhp hike came chiefly from a new turbo and more boost. A reduced ride height and wider Speedlines added to the car's sporting pedigree







The Turbo S Leichtbau is colloquially referred to as the 'Turbo'd RS' and for good reason. The cabin has lightweight RS seats and many creature comforts are removed

challenge always showed Porsche at its best – back to the wall and focusing on what it knew well and could sell profitably. Some characteristically lateral thinking suggested the 3.3-litre turbo engine from the outgoing 930 model could be transplanted to the new Carrera 2 964 chassis. The 330-horsepower 'Sportkit' option introduced for the 930 in 1987 had proved reliable and a version of this engine with some rework to incorporate a catalytic converter might just provide the basis for a quick new 964 Turbo. To save time, the 930's K-Jetronic fuel injection would be carried over as developing the Motronic would take too long. And so it proved: this existing compression ratio of 7.0:1 allowed use of 95 octane fuel and the revised 3.3-litre Turbo unit produced 320 dependable horsepower, despite the addition of a catalyst, which gave it enough of a margin over the 964 Carrera's 250bhp.

In a brave show of confidence, Zuffenhausen presented the new 911 Turbo at Geneva in March 1990, a full six months before it would be available, counting on retaining buyers who might otherwise have been tempted by the Honda NSX or Ferrari 348. And even if motoring journalists were initially rather sceptical, the 964 Turbo 3.3 certainly looked the part. Distinguished once again from its lesser siblings by its substantially extended wheel arches, it sat on wider section tyres clothed in the 17-inch Cup wheels and alone among 964s – except for the US-only RS America – it sported the whale tail, that potent symbol of everything that was outrageous about Porsche.

The Turbo's performance disappointed no one: *Auto Motor Und Sport* persuaded it to reach 171 miles per hour on the Autobahn and *Autocar* achieved 167 miles per hour on Milbrook's high-speed bowl, while most testers reached 60 miles per hour from a standing start in a shade under five seconds. Once again, a Porsche had met most performance expectations, and by the end of 1991 after little more than a year on the market, 3,660 3.3-litre Turbos had found homes. In Germany, Porsche noted that 25 per cent of buyers opted for the Sportkit X33, at DM 19,500 (about £8,000) hardly a budget upgrade, involving more boost and higher lift cams with larger inlet valves, but which in reality worsened turbo lag and low-speed pick-up. "Some of our customers can't get enough power," remarked Rolf Sprenger, whose Sonderwünsch department handled the X33 Sportkit cars. The idea of a Turbo S was born.

If the 1992 964 Turbo 'S' is often described as the turbocharged 964 RS, there is more than a grain of truth in this. Once again, Porsche was able to develop a model at minimal cost, especially when compared with the resources that had gone into the 959 and the aborted 965. The template for a 'lightbuild' Turbo, the Leichtbau, already existed: Roland Kussmaul had just prepared a stripped-out but essentially production 3.3-litre Turbo for the US IMSA GT series. The rules stated, among other things, that cars had to retain their standard air conditioning. After the trials and tribulations of the CART, this foray proved – as the IROC had 20 years earlier – another successful 911 campaign, the 3.3 Turbo winning IMSA in Brumos team colours in both 1992 and 1993.

By autumn 1991, Kussmaul's group in Weissach was already working on a road-going version of the IMSA 911, named the 964 Turbo S Leichtbau: following a traditional Porsche recipe, airbags, rear screenwiper, electric windows and seats, air conditioning and power steering were removed. Thin glass in side and rear windows and racing seats were fitted, while the bonnets and doors were made of glass-fibre reinforced resin. The standard Turbo chassis was employed, but with stiffer dampers and springs. An alloy strutbrace connected the tops of the front suspension mounts and larger front brake discs were specified, the auxiliary driving lights removed from the front bumper as per the 964 RS to provide brake ventilation inlets. The Turbo S distinguished itself visually with its air intakes in the rear wings and by sitting an inch and a half lower; eye-catching 18-inch three-piece Speedline wheels, a first for a production Porsche, dominated the arches, completing the effect.

In the engine compartment, the standard Turbo's 320 horsepower and 450Nm torque

"On a track the Turbo S Leichtbau handled as expected of a thoroughbred 911"

were increased to 381 horsepower and 490Nm respectively through a combination of 11 per cent higher boost, a larger turbocharger and the camshaft of the 3.6 actuating larger valves. A second oil cooler occupied space in the forward front wing, vacated by the air-conditioning condenser. Polished ports and intakes, a classic of the traditional tuner's art, completed the main engine modifications.

The more rigid suspension combined with travel reduced by 40 millimetres inevitably resulted in a harsh ride, almost on par with the 964 RS. This seemed to surprise journalists at the time, though the ride was such that the Turbo S tended to overreact to bumps, activating the ABS prematurely under braking. Peter Morgan remarked, "the S is loud, hard and sweaty, but fun with a capital F."

On a track the Turbo S Leichtbau handled as expected of a thoroughbred 911: "Most of the time it corners as if on rails, but it will tighten if you ask it just by easing the accelerator," said Paul Frère. "Power oversteer on a dry surface slide is possible, but you must be very accurate in your anticipation of boost: if it arrives too late you fail and if it comes too soon you are in trouble." The suddenness of the single blower boost was amplified in the Turbo S and in those pre-electronic catchfence days, to be driven anywhere near its high limits, this Porsche needed an expert at the helm. In a straight line, though, all parties agreed: the Turbo S was incomparable. Said Frère: "The stock Turbo is a very fast car by any standard, but the S is devastating: this is an exuberantly fast car reaching 100 kilometres per hour in 4.7 seconds, 200 in 14.2 seconds and going on to 290 kilometres (180 miles) per hour." Only the utterly uncompromising and far more expensive Ferrari F40 could beat this.

Porsche thought it might build 50 Turbo S Leichtbaus, but demand was such that ultimately 86 would leave the line, selling for a princely DM 295,000 each. Six right-hand-drive cars, all special order, came to the UK. One was bought by golfer Nick Faldo and another by Sheffield entrepreneur and Porsche recidivist (the Turbo S was his 12th) Peter Hartley. *Autocar* thought the act of simply purchasing the £128,000 Turbo S (£56,000 more than the stock Turbo) was significant enough to merit a four-page spread and despatched David Vivian to Weissach where he met Hartley, who had gone to collect his über-Turbo. In an entertaining piece titled Warp Factor 911, Vivian describes the "elegant dynamic" of the handing over of the keys by Rolf Sprenger, followed by a breathlessly exciting passenger ride around Weissach at the hands of a taciturn Porsche development driver and then the drive back to Calais, a real boy's own adventure with the terrible temptation to exceed Porsche's 5,000rpm running-in rev limit to which, in the best traditions, Hartley finally succumbed.

With a power-to-weight ratio only the more recent GT2s can better, even today the Turbo S is still a spectacular if challenging performer, which combined with its rarity, explains how it commands over three times its original asking price. **911**

Other Sonderwünsch 911s

By the mid-1990s, Porsche's manufacturing constraints combined with more demanding crash norms and strict type approval meant that scope for radical rework on cars straight off the production line was no longer practical. Sonderwünsch became Porsche Exclusive and more the purveyor of expensive, custom cosmetic upgrades. Below are ten classic Sonderwünsch productions over the preceding 20 years:

- 930 lightweight Turbo: Built using a 2.7-derived shell in 1975 for Porsche recidivist Herbert von Karajan after much lobbying by the conductor. Effectively marked the start of the Sonderwünsch department.
- 935-bodied Turbo: With sumptuous interior and 3.3 engine uprated to 375bhp for Mansour Ojjeh of TAG. Sold in 2014, apparently for little more than its original 1984 price.
- 930 SE: Run-out build of standard Turbo with 935 inspired flat nose; five speed gearbox and 330bhp engine upgrade.
- 930 SE Cabriolet: One of about 50 built and priced at £95,000, or two 3.2s. Five-speed gearbox and 282bhp US-specification engine.
- 964 Speedster: Narrow body, RS door panels and alloy doors, Cup magnesium wheels and lowered suspension. It is believed two were built in 1994.
- 964 Turbo S Flachtbau: 381bhp 3.6-litre engine and again with smoothed wings. In most eyes has aged better than 930 Flachtbau look.
- 964 Widebody Speedster: Only 16 of the 900 964 Speedsters had the widebody, with chassis and engine otherwise unmodified.
- 993 Speedster: Two apparently built, including one for Butzi Porsche who was seen in it for the last time at Gross Glockner Pass in December 2007 to celebrate his 70th birthday and Austria's highest hill climb.
- 993 Turbo Cabriolet: 14 built in 1995 for Munich dealer Fritz Haberer. Narrow body and 964 single turbo 3.6 (see **T911** issue 35) Probably the last heavily modified Sonderwünsch 911 off the line.
- 993 Turbo S: The final fling of the air-cooled Turbos in 1997. 450bhp, carbon fibre inserts in cabin and bespoke rear spoiler were prevalent here.

GT2 CLUBSPORT

RAW 993

With near incomprehensible power levels and few driver aids, the 993 GT2 does not offer a drive for the faint-hearted. Total 911 straps in and attempts to tame a Clubsport...

Written by **Glen Smale** Photography by **Ali Cusick**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Simply put, the Porsche 993 GT2 is one of the most breathtaking road-going race cars to come from Stuttgart's hallowed halls. Not only is it a technically outstanding and supremely capable GT car; it also ranks as one of the most striking 911s to ever see the light of day.

The GT2 story begins back in the early Nineties with the then-recent demise of the Group C era. Racing budgets for prototype race cars had gone ballistic, and against a backdrop of a slowing global economy, many manufacturers and private teams once again considered GT racing as an attractive and affordable alternative.

As required by the FIA, in order for a new 911 to be homologated in the then-new GT2 class, 100 units of the road car had to be built. No stranger to constructing sensational GT road and race cars, Porsche's engineers and developers, including Jurgen Barth and Roland Kussmaul, put their many years of racing experience to work in order to produce a racer that could qualify for the new GT2 class regulations. The first GT2 racers were ready for the 1994 racing season. However, Porsche had 21 of these cars (badged '911 GT') available for road use by April 1995.

Far from being a dressed-up 911 Turbo (the GT2 utilised a Turbo body) with a four-wheel-drive configuration, even the road-going GT2 was just rear-wheel drive, which reduced weight considerably. Then, in order to accommodate larger rubber for better grip, the GT2 had metal pared away from its wings to allow for the wider bolt-on plastic wing extensions (32mm at the front and 30mm at the rear). A substantial splitter, similar to that on the Carrera RS Clubsport, was fitted to improve the airflow around the front of the car, while the large adjustable rear spoiler had gaping inlets at the side that rammed air into the engine for better breathing.

The two-valves-per-cylinder 3.6-litre engine in the GT2, as used in the 993 Turbo, had several changes, which boosted the GT2's power by 22bhp to 430bhp. This came courtesy of an increase in turbocharger boost to 0.9 bar and a revised engine management system. For the Comfort-spec GT2, engine compression ran at 8.0:1, while dual, front-mounted oil coolers kept the oil temperature in check. Meanwhile, drastic weight reduction resulted in a hefty saving of just over 200 kilograms from the more luxurious Turbo.

The GT2 featured a new six-speed gearbox with longer gear ratios than the Turbo, but the ABS was identical. Cool air was channeled directly to the four-pot front brakes that featured larger cross-bored steel discs via air ducts in the front bumper. The suspension was lowered by 20mm, and the body shell also received additional strengthening and a front shock tower brace to aid that all-important rigidity.

For more adventurous drivers, a Clubsport factory option (M 003) was available. This included a welded-in Matter roll cage, installed in the naked shell prior to painting and assembly; no roof lining; fixed racing seats covered in Nomex cord; two car mats in place of fitted carpets; full harness seat belts (not just three-point belts, as in the Comfort-spec GT2) and a battery kill switch and fire extinguisher system, while the dual-mass flywheel was replaced by a clutch disc with torsional dampers.

To reduce weight, the side and rear windows were made of thinner gauge glass, while the doors and luggage compartment lid were of aluminium. The interior was devoid of normal comforts, with door cards merely fitted with manual window winders and door pull straps. On the other side of the door sat manually adjustable exterior mirrors. Back inside, the rear seats were removed for the roll cage. Should you want the best of both road and track use for your Clubsport, air conditioning (option M 573) and even a headlamp washer system could be specified.

Although the FIA required the aforementioned 100 units to be built for road use, Porsche built 173 of these cars from 1995-96 (with only a handful made at the end of 1996, these latter cars carrying a '97 chassis number). Later, a small run of just 21 cars were produced in 1998, but these, featuring different cylinder heads and larger K24 turbos, developed 450bhp, and are referred to as 'Limited' or 'Evo' models, as you'll find out on page 32. Although more powerful than the '95 model, these later 993 GT2s were heavier, as they featured steel doors and standard gauge 911 glass.

The stunning GT2 Clubsport in our pictures is currently residing in Thomas Schmitz's stable, who's more than happy to share his knowledge of the car with us. "This one is an original 993 GT2 Clubsport from the factory, and it is the only one that I know of in this very special colour, Riviera blue," he says.

Thomas then explains that this particular GT2 was used frequently by its first owner, a Luxembourg-based businessman, for trackdays. However, the original owner wanted even more

911 GT2 and GT2 RS production

Model	Year	Quantity
993 GT2 G1	1995-97	173
996 GT2 G1	2001-02	963
996 GT2 G2	2003-05	324
997 GT2	2008-09	1,242
997 GT2 RS	2010-11	510

Source: Porsche Archive

The interior spec isn't as minimalist as you'd expect here, thanks largely to the unusual addition of lightweight carpets. Likewise, the radio is superfluous against the flat-six bark

Model	993 GT2 Clubsport
Year	1995-1997
Engine	
Capacity	3,600cc
Compression ratio	8.0:1
Maximum power	430bhp @ 5,750rpm* uprated to 574bhp @ 6,280rpm
Maximum torque	398Nm @ 4,500rpm* uprated to 540Nm @4,560rpm
Transmission	Six-speed manual (G64/51)
Engine modifications	RS Tuning pistons; conrods; heads; gaskets; exhaust; revised engine mapping
Suspension	
Front	Fully adjustable H&R twin spring competition suspension
Rear	Fully adjustable H&R twin spring competition suspension
Wheels & tyres	
Front	9x18-inch Speedlines; 235/40/ZR18 tyres
Rear	11x18-inch Speedlines; 295/30/ZR18 tyres
Dimensions	
Length	4,245mm
Width	1,855mm
Weight	1,295kg
Performance	
0-62mph	3.9sec*
Top speed	189mph*
	*Applies to standard GT2 Clubsport

GT2 on the market

Following homologation of the racing GT2, the resultant road-going GT2 model came to represent the fastest and most powerful road car produced by the company in its day. The 1995 GT2 took performance to new levels, offering the enthusiastic 911 driver an opportunity to take his/her car onto the track to satisfy their performance driving desires, which served only to heighten the desirability of the model.

Is this current meteoric rise in value just a re-run of the 1989/90 classic car boom and crash, where prices reached never-before-seen levels? Thomas Schmitz is adamant that it isn't. The factors driving the market today are (among others) low interest rates and low returns in the property market, and so the investor or collector would rather seek out a limited-edition classic like the 993 GT2. A vitally important difference today is the advent of the internet, because this has opened up the market to a huge potential audience with buyers in all of today's emerging markets, such as China, India, South Korea and South America.

from the car, commissioning Bavarian company RS Tuning to work their magic. Having worked for teams like the Alzen brothers and Freisinger Motorsport, RS Tuning was instructed by the car's owner to give the GT2 a money-is-no-object upgrade. Work on the engine included fitting Carrillo conrods, bespoke pistons and aluminium L-ring head gaskets (as fitted by Porsche to their race cars), resulting in a monstrous 574bhp at 6,280rpm, with torque of 770Nm at 4,560rpm. This was achieved with a maximum boost of 1.2 bar, although a peak of 1.3 bar was seen on the dyno.

FIA-approved race exhaust catalytic converters were also fitted, with 100 cpsi (cells per square inch), as opposed to the 400-600 cpsi of an average road car. The GT2 also received a fully adjustable H&R twin-spring trackday suspension. The clutch system from a 993 RS was fitted, this being a single-mass flywheel, standard pressure plate and Sachs motorsport clutch disc with torsion spring dampers. For a time, the ring and pinion set was changed from the standard 3.44:1 to 4.0:1 – about 15 per cent lower – improving acceleration while lowering the top end, but later the standard set was replaced.

The GT2's body was further lightened by removing the aluminium doors and steel front wings, as well as the impact protection aluminium bars under the plastic bumpers, and replaced with kevlar units. The result is a scarily potent and lightweight 993 GT2 Clubsport.

With the hair-raising specification now firmly ensconced in my mind, it was time to get this very special turbocharged 911 out on the road.

With the harnesses holding me very securely to the bucket seat, I pull the lightweight door firmly closed by tugging on the simple door strap. The engine fires without hesitation at the turn of the key, as a deep, loud flat-six burble erupts into life.

Rather surprisingly, considering the Clubsport was created for trackdays or performance motoring, the interior isn't as sparse as you might expect either. It still has its fully functional, traditional 911 five-dial dash layout, and a radio – although I'll soon discover that this may as well not be there, as you wouldn't be able to hear anything over the noise coming from that ramped-up flat six. This car is still fitted with its original factory seats, but these have been custom-upholstered in leather and Alcantara with body-colour matching stitching. The steering wheel is from a GT2 racer.

We spent the afternoon winding through the picturesque North Rhine-Westphalia countryside. With the brutal, instantaneous power delivery on tap, we were grateful for the dry roads afforded to us by the warm late summer weather. Registering 42,000 kilometres on the clock, this GT2 is full of life, and you have to be on point to tame its enthusiasm for trying to constantly push you into next week. Even from a standing start, it takes only seconds to disappear from sight.

The acceleration was unlike anything I had experienced before; the experience was so raw and jolting, yet so exhilarating. The GT2 Clubsport is unbelievably purposeful in its execution, whether accelerating in a straight line or gripping the asphalt as it rounds a corner. The compact nature of the GT2 is a great feature for the driver too, as the car can be placed precisely when cornering thanks to its lightweight and nimble character.

The GT2 race car was made to compete on the international stage with the best in the world, where it claimed podium honours from 1995-98. These included class wins at major venues such as Daytona, Sebring, Le Mans, Nürburgring, Brands Hatch, Suzuka, Zhuhai and many more. As a car built for customers who wanted a slice of such an experience in a road car, the GT2 Clubsport excels as the brutal amalgamation of the 993 Turbo and Carrera RS models it was intended to be.

We returned to base, where I asked Schmitz to sum up the GT2 Clubsport. His reply is an apt way to conclude our feature: "The GT2, quite simply, is the ultimate air-cooled 911, full stop. There is nothing else air-cooled in the development chain that came after the GT2, so at the time it was at the top end of Porsche sports production cars, with the stripped-back Clubsport at the very pinnacle. Remember, the GT1 is half water-cooled half air-cooled, so the GT2 is the ultimate air-cooled 911 – that's it." 911

GT2 after the 993

The water-cooled 996 GT2 continued the tradition that had been created by the 993, with updated GT2s getting more power (2001-02 examples had 462bhp, while 2003-05 had 483bhp). More power and higher performance meant greater stopping requirements, and the introduction of Porsche Ceramic Composite Brakes (PCCB), first seen on the 2000 Turbo, were immediately available on the 2001 996 GT2 model. While the 996 GT2 may have lacked the raw appeal of its predecessor, tinged with a bit of civility, it was no less a driver's car, bringing performance driving within the grasp of a greater number of owners.

The first 997 GT2 appeared in 2007. With power pushed to a whopping 520bhp and top speed surpassing the magical 200mph mark, the 997 had truly joined the elite supercar club. Now packing a whole host of electronic driver aids, Porsche ensured the GT2 was not just the pinnacle of the 911 range, but that it also offered a high degree of safety.

Introduced in August 2010, the 997 GT2 RS was the most outrageous road-going 911 ever. The 3.6-litre turbocharged flat-six engine produced 620bhp, and at a relatively measly 1,370kg, it could rocket from standstill to 100mph in a mere 6.8 seconds. Top speed was 205mph. Porsche like doing limited-run cars, which saw just 500 of these GT2 RSs being built. Since its introduction back in 1995, the GT2 has been positioned as the top-performing 911. There is, however, some uncertainty about whether we will be seeing a 991 GT2 anytime soon, or perhaps at all.

The current four-wheel drive 991 Turbo S allegedly has a slightly better 0-62mph sprint time than a GT2 might have due to its superior four-wheel-drive layout. However, some might argue that to relegate the pared-back racer in the GT2 to the 'pending' folder based on a sprint time is sacrilege. After all, the GT2 is just a stroke short of being an all-out racer, and perfect for trackday work, while the Turbo S is aimed at the city or stockbroker market. Regardless, Porsche remains tight-lipped about the possibilities of a 991 GT2, so watch this space.


Carrera 3
GB
LK03 BLJ

996 C4S
THE PERFORMANCE UNDERDOG

Is the 996 Carrera 4S now the best Porsche 911 you can buy for under £20k?

Written by **Lee Sibley** Photography by **Daniel Pullen**

Since its inception in 1963, the Porsche 911 has garnered a deserved reputation: a popular yet exclusive sports car, while many desire a new 911 for their garage, few can actually afford one. However, 52 years of production – not to mention the fact that more than 70 per cent of 911s to leave Werk II are still on the road – ensures that vast models of this decorated icon are at the centre of an equally enviable used market.

That opens up the doors to a few more parties who covet their own piece of motoring legend, and the depth and breadth of the 911's heritage means there's much available. From high-end exotica down to entry-level sports car territory, this in principle adds weight to the school of thought that to a certain degree, there is a 911 available for everyone.

However, there's a very real argument that this is no longer the case. The mass inflation in prices of classics has, by and large, pushed the Porsche 911 just out of reach for those wanting their very own staple of Zuffenhausen flat six for relatively elementary money.

Despite this, there's one generation from the 911's heredity that's still within the grasp of the entry-level buyer in the form of the 996. Save for both iterations of 996 GT3, which has seen values double to around £60,000 in the past three years, the first variants of water-cooled 911 have enjoyed an immunity from the unprecedented hike in values (the term 'enjoyed' is attributed to the point of view of buyers, of course). As such, a good example can be had for less than £20,000.

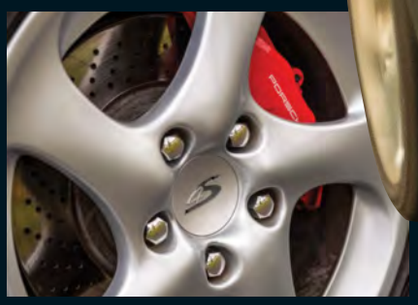
While that presents an 'in' opportunity for many to source a well looked-after 911 with a reasonable amount of miles on the clock, the choices available are negligible. Buyers will largely be limited to the pick of the 996 Carrera lineup – 996 Turbo prices start a little further on at around £25,000 – but before you turn your back on the classifieds, remember there's an altogether more special iteration in the form of the 996 Carrera 4S.

Built between 2001 and 2005 as a Gen2-only model, the 996 C4S follows on from the rich heritage of the 993 C4S, and as such boasts a 'Turbo look' and a healthy array of options as standard equipment. Not surprisingly, the 996 C4S was a salesroom success: over 23,000 of these were sold worldwide in either Coupe or Cabriolet form, with manual or Tiptronic transmission. Obviously, the real driver's spec was a Coupe body with six-speed stick shift, and Total 911's most admired C4S colour combination is Seal grey bodywork with a black leather interior, as showcased by our car on test here. The C4S cost £63,450 without options when new and examples exchanging hands for less than a third of that price today are reason enough behind it being the performance Porsche bargain beneath the £20,000 mark. We're excited to see if the maths transcends into a pleasant reality.

There's a lot to take in about the 996 C4S that differs from the conventional 996 Carrera. The Turbo's 60 millimetre wider body is utilised here, draped over a Turbo-spec chassis that pulls the C4S 10 millimetres closer to the floor than a standard Carrera. Included in the upgraded chassis specification are the 330-millimetre drilled discs and 'Big Red' callipers all round, while the five-spoke alloy wheels appear identical to the 996 Turbo. The only difference is that the spokes on the turbocharged 996's wheels are hollow. While the fixed rear wing and side air vents feeding intercoolers on the Turbo do not follow onto its lesser-powered brethren, the C4S does gain that gorgeous reflector panel between the rear light clusters. It's a style icon evocative of the early pre-impact bumpers and still utilised today on all-wheel-drive variants.

Minor revisions they may be, but these subtle changes act in concert to provoke a presence with the C4S that simply cannot be matched by any other Carrera from the era.

The enchantment continues inside. The cabin is still delightfully traditional 911 territory, despite that relatively modern exterior. The dials have been brought in closer to the central tacho and more thought has clearly gone into arranging the various heater and PCM controls, in line with other 996-generation 911s. However, the C4S does away with the nasty plastics adorning the dashboard and door cards that is otherwise found in 996 Carreras, instead opting for the more lavish use



Your £20k 911: 2005-2015

At less than £20,000 today, the 996 C4S represents remarkable value for your money. However, a look back through even recent history shows how radically the Porsche used buying market has changed. Here's what 911 you could have bought ten years ago for the same money, referenced of course using the specialist classifieds section in our own magazine:

3.2 Carrera

A 1989 Guards red 3.2 Carrera Coupe could be bought from Essex-based specialist Paul Stephens in late 2005. Complemented by air conditioning, Sports seats, 16-inch Fuchs wheels and a full service history, the price was £15,995, equivalent to around £21,000 today.

964 Carrera/4

Unloved at the time, two and four-wheel drive 964 Carrera Coupes were banded around at as little as £14,995 with several specialists selling examples with a generous spec including Cup alloys and Sports seats. One example even came in the ultra-desirable Amethyst hue.

930 3.3

Even examples of the turbocharged 911 in 3.3-litre 930 guise could be purchased for around £20,000 just ten years ago. Specialist Cars of Malton were advertising two examples in early-2006, with a Marine blue, marine hide-equipped variant advertised for £18,995. Admittedly the example was left-hand drive, but that's a small sacrifice for anyone wanting to drive home the supercar that likely adorned their bedroom wall in the 1980s.

G-series 911S

For the impact-bumper era beginning in 1974, Porsche realigned the model range and the 911S now sat as the middle option between the basic 911 and 2.7 Carrera. Coupe and Targa variants of the 173bhp car often came in well below our threshold here, with a Californian example from Porsche brokers Fuchs advertised at just £9,500.

"It took years, but finally Porsche had a water-cooled 911 Carrera worth shouting about"

Model Year	996 C4S 2003
Engine	
Capacity	3,596cc
Compression ratio	11.3:1
Maximum power	320bhp @ 6,800rpm
Maximum torque	370Nm @ 4,250rpm
Transmission	Six speed manual/ Five speed Tiptronic
Suspension	
Front	Independent; MacPherson struts with coil springs; anti-roll bar
Rear	Independent; multi-link; MacPherson struts with coil springs; anti-roll bar
Wheels & tyres	
Front	8x18-inch; 225/40/R18
Rear	11x18-inch; 295/30/R18
Dimensions	
Length	4,435mm
Width	1,830mm
Weight	1,495kg
Performance	
0-62mph	5.1 secs
Top speed	174mph

of stitched leather as found inside the Turbo. As such, the C4S's cabin is an opulent place to be – exactly what sitting in a Porsche 911 should feel like. With the flat six duly fired up and the oil brought up to temperature, the 996 C4S is ready to impress on a spirited test drive in the countryside – and impress it does.

The main source of pleasure is the superb handling capabilities demonstrated by the Carrera 4S. Despite being an all-wheel-drive 911, the car feels like a traditional, rear-driven Porsche. Only five per cent of power is fed to the front wheels via a front-mounted viscous coupling under normal driving conditions, though that can vary by up to 40 per cent when needed. The system is more sophisticated than the all-wheel-drive 993 before it, namely thanks to the introduction of Porsche Stability Management, co-developed at the time with Stuttgart neighbours Bosch. Understeer is reduced as a result, and there's plenty of grip available without detracting too much from that idiosyncratic 911 driving experience. On these cold and soggy Essex B-roads staging our test, we still find it easy to lean the car right into the corners at speed, all the while compelled by how the 911 refuses to break traction despite our particularly zealous commitment.

If speed needs to be scrubbed from the C4S at any point then it's in good hands: those aforementioned 'Big Red' four-piston callipers and 330-millimetre discs provide more than adequate stopping power – remember, a similarly priced 997 Carrera doesn't come with those Big Reds as standard equipment. The brakes inspire confidence under concerted driving and, abetted by a delightfully stiff chassis unmatched by a lesser 996 Carrera, allows the driver to brake later into a corner without upsetting the balance of the car.

Then there's the pace of the C4S. Despite carrying an extra 65 kilograms in weight over the Gen2 996 Carrera 4 – a direct result of the heavier Turbo chassis – the C4S doesn't feel compromised, sprinting to 62 miles per hour in a shade over five seconds. While not as zesty as a GT3 of the time, the 3.6-litre flat six powering the C4S is nice and torquey. Peak torque arrives at just 4,250rpm, meaning that shove of maximum acceleration is never too far behind a squeezing of the throttle pedal. What's more, with the absence of the turbocharging equipment (accounting for 95 kilograms in weight being omitted from over the rear axle), the C4S doesn't suffer with the same power understeer that's a marked characteristic of the 996 Turbo.

However, the 996 C4S isn't perfect. While the water-cooled M96/03 engine emits a delightful, mechanical 'whirring' noise akin to the resonance of the air-cooled generation before it – something today's DFI engines severely lack – the flat six here is far too quiet when working hard, which detracts from the visceral experience of piloting such a decorated sportscar. Many who bought a 996 C4S new obviously thought the same at the time, and so a healthy proportion of models come with the optional (and switchable) Porsche Sports Exhaust to amplify that flat six bark.

Others may remark that while the stiff chassis is great in aiding drivers looking to use the Carrera 4S chiefly for spirited driving, the car's hefty weight can make the suspension feel a little clunky when simply pottering around town. Damping on the similarly priced 997 Carrera is slightly softer and may be the better overall lifestyle choice for some, but there's a caveat here in that 997 Carrera values could slip further still while 996 values have bottomed out for some time.

That's not to detract from what is a 911 offering sensational value in the 996 C4S. These cars are well specced – keep an eye out for those with the optional X51 Powerkit – and some will have benefited from the replacement intermediate shaft bearing for added peace of mind. The result is a car that's a delight to drive, offering an experience that appeals to the senses – exactly as a 911 should. Now over ten years old, it is not quite a car for the modernist, though it has the power and chassis execution to stand up to most of today's sports cars.

It may have come some three years after the introduction of the 996-generation but in the C4S Porsche finally had a water-cooled Carrera to shout about. That it can now be had for what the used Porsche market now dictates as entry-level money is outstanding news for those investigating a first foray into 911 ownership. Without question, this is the 911 performance bargain: for £20,000 or less, there is no better. 911


S 4.0
RS 4.0

997 GT3 RS 4.0

PORSCHE'S LAST STAND?

The 997 RS 4.0 provided a brilliant finale to Porsche's 'Mezger' GT3 dynasty. But is it the last patron of the traditional RS as we know it?

Written by **Kieron Fennelly** Photography by **Alisdair Cusick**

You have to go back a quarter of a century to find the origins of the Porsche 911 GT3, when sports car-racing at a world level more or less dried up with the demise of Group C. It was Jürgen Barth, then Porsche's competition manager, who together with Patrick Peter and Stéphane Ratel, conceived the BPR Global race programme based on production sports and GT cars. In its first season, the 3.8-litre 964 RSR dominated the field, but within a year competitors had caught up. To succeed the RSR, Porsche developed a turbocharged version of the 993 in the GT2, which proved very effective in class B. However, producing a 996 successor in 1999 became more difficult: testing at the Nürburgring indicated that a turbocharged GT2 even with 600bhp would no longer be competitive.

It was inconceivable that Porsche could be without a racing presence, so Weissach turned to the GT3 production class as a lower-cost alternative. But building a competitive non-turbo 996 was also problematic: the new water-cooled M96 engine's 'integrated dry sump' was really a wet sump, unsuitable for the lateral forces generated in racing. Engine builder Herbert Ampferer devised a dry sump unit comprising a bespoke 24-valve cylinder head mated to the GT1 block, itself a derivative of the 964/993 bottom end. Technically, this unit was a success, with a 100bhp/litre potential. However, commercially Porsche would need to sell many more than the homologation minimum to amortise the development cost. Thanks to some lateral thinking by Ampferer and engineering director Horst Marchart, by deciding to use this new engine as the basis for the forthcoming 996 Turbo as well, volumes stretching into the tens of thousands would bring down parts costs and justify the design.

Enthusiasts recognised immediately that the road-going 996 GT3 launched in autumn 1999 had reignited the flame of the much-missed RS. Better still, while previous RSs had been lightened and fettled 911s off the line, the new 996 GT3 was a more rigorous conception built at Weissach from the chassis up. A forged steel crankshaft supported by seven plasma-nitrided bearings, an eighth carrying the intermediate shaft and titanium connecting rods and forged pistons showed that Porsche was taking no chances with a basic design that would last until 2012. Water cooling and the superior respiration of the four valve head allowed a much higher rev limit – race engines went up to 9,000rpm, which Porsche limited to a more conservative 7,800rpm. The Gen1 GT3 set the template for the GT3 and RS dynasty. No other sports car could be so effective on the track yet adapt itself so readily to road use. It became the 911 all Porsche fans would aspire to.

The first 996 GT3 RS arrived with the Gen2 GT3. Keeping strictly to the RS tradition, around 50 kilograms were saved thanks to a bonnet, rear wing and window in polycarbonate. A stiffer, lower

"Only a minority of the 600 built will even see the light of day, let alone a racing circuit"

For a race-bred 500hp machine, the 997 GT3 RS 4.0's functional styling could almost be described as restrained

Timeline of the water-cooled RS

1999 996 GT3
Unabashed track-focused 911 with bespoke engine and suspension sets standard for GT3 dynasty; Comfort and Clubsport versions only.

2003 996 Gen2 RS
50kg lighter than Gen2 thanks to polycarbonate bodywork. Unofficially 400bhp; race springing too harsh for road.

2007 997 3.6 RS
Henceforth with C4 widebody, PASM and uprated suspension; same power as 997 GT3, but lighter thanks to polycarbonate parts.

2010 997 3.8 RS
3,797cc and 450bhp bespoke switchable PSM. Clubsport cabin; more developed aerodynamics to add greater stability.

2011 997 RS 4.0
Unprecedented adaptation of Cup engine with racing crank and head; most powerful yet dynamically accessible analogue GT3 ever.

"We wanted to make this god-like engine available in a street car"

suspension was fitted, and the engine modified with the Cup car's intake and exhaust ports. In theory this added 20bhp, but Porsche still homologated the GT3 RS at the 381bhp of the standard car. Only 300 were built, of which 113 right-hand-drive examples came to the UK.

With circuit-biased springing and no electronic catch fencing other than ABS, the first RS was generally considered too extreme for the road, so with the 997 RS, Porsche revised its approach and enhanced the model's appeal. The addition of PASM endowed it with road as well as track usability, and the RS's lightweight genetics meant that 20 kilograms were saved over the GT3 Clubsport by using carbon fibre rear wings and a polycarbonate rear window. A single-mass flywheel and short-shift gearchange were also included. The major interest in the Gen2 997 RS, which appeared in early 2010, was its engine. Bored out to 3.8 litres, it enhanced torque and output, which rose to 450bhp. There was more under the skin, with various dynamic improvements: as well as PASM, the latest RS featured a bespoke three-stage PSM which could be fully on, traction control only or completely off; and Active Engine Mounts added to stability.

In three models and a mere seven years, the 911 RS had evolved from a barely disguised competition 911 – that off the track travelled best on a trailer – to a brilliant track car that was also pliable and comfortable enough to drive to the 'Ring and home afterwards, yet thanks to intelligent electronic assistance feel secure in the worst Eiffel weather. From steering and throttle response to outright go and sheer versatility, the 3.8-litre 997 RS was unquestionably the class leader. There continued to be no other sports car with its range of accomplishments. With the next 991 model looming and in the knowledge that this would be a very different car, 911 – and indeed, track enthusiasts – wondered seriously whether the Gen2 997 RS would be the last of the line. They reckoned without the input of Weissach and GT3 programme manager Andreas Preuninger.

Before drawing the curtain on 997 RS development, Porsche Motorsport had one more trick up its sleeve. It took the 4.0-litre GT3 RSR competition engine and created a road car, the RS 4.0. In a celebrated interview, Preuninger described their thinking with refreshing directness: "We wanted to make a last batch and enrich the flavour with some race parts from the GT3R and the GT2 RS. We wanted to make this god-like engine available in a street car."

Specifically, this involved using a crankshaft derived from the GT3 RSR and titanium connecting rods. Substantial reworking of inlet and outlet enhanced cylinder filling and the additional capacity was achieved by increasing the 3.8's stroke from 76.4 to 80.4mm. A longer stroke is not a conventional method of tuning a high-revving engine, but in the case of the 4.0, a lower compression ratio allowed more aggressive ignition timing and a rather fuller torque curve. As Preuninger put it, though, when it comes to extracting more power, there is no substitute for cubic capacity and with the 500PS 4.0 – "That's 125PS per litre, the strongest of any naturally aspirated flat six." He was keen to point out that despite this and even more than the 3.8, the 4.0-litre is easy to drive on the road, claiming he had been commuting comfortably to Weissach for several months in the development car.

The aerodynamic aspect of the 4.0 RS once again represents quite an advance over the 3.8. The rear spoiler has a nine-degree tilt, as opposed to six degrees on the 3.8. This enhances rear downforce by 195 kilograms at top speed and the seemingly delicate-looking blades on the sides of the front bumper balance this extra downforce. The upshot is much improved stability, and if maximum speed is no higher this is irrelevant, because Porsche's intention was engine response, poise and handling.

The fact that the 4.0 is six seconds faster than the RS 3.8 around the Nordschleife speaks for itself. Its suspension has not escaped revision either: rose joints from the GT2 RS lower suspension arms enhance control, and helper springs reduce unsprung weight. Their purpose is to absorb some of the initial load, allowing the main springs to be relatively stiff without compromising ride quality. The 4.0 RS is squarely in the kilogram-saving tradition, with lightweight plastics for all glass areas except the windscreen and doors, and extensive use of carbon fibre around the body – even the carpeting is thinner gauge. The business-like ➲

RS 4.0: market watch

The irony of the best driving GT3 RS yet is that only a minority of the 600 built will even see the light of day, let alone a racing circuit. Already a collector's piece during their brief production run, GT3 specialist JZ Machtec, who kindly provided the car used in our photography, reports that the RS 4.0 is now worth £200,000, and that demand still exceeds supply. Could it even be that the last of the traditional 911 RSs will eventually become as valuable as the 911 that started it all, the 1972 2.7 RS?

As well as its fire extinguisher and harnesses, the RS 4.0 has a race car's aerodynamics, as shown by the precision engineering of the rear wing

The cockpit may be track-orientated, but as the RS 4.0 is also intended for touring, it has none of the bare-metal starkness of the GT3 Cup model

Lightweight plastics and carbon fibre again made up the body of the very last 997 GT3 RS, paired with a reworked engine and better aerodynamics

cabin has none of the painted metal of a Cup car, however – a reminder that this Porsche is once again intended as much for road use, and remains a remarkably civilised place where air conditioning is a standard, if deletable fitting. Nevertheless, this RS still manages to shave 15 kilograms off the unladen weight of its predecessor.

The first impressions of the RS 4.0's ride are firm as you would expect, but never jarring. Those helper springs really seem to be effective; then, of course it is that engine which Mr Preuninger is so pleased with that makes itself felt. With ten per cent more horsepower, you might imagine the RS 4.0 would be a street ahead of the 3.8, but raw acceleration was never Weissach's objective. Rather, it is the way the power is deployed, for although the published torque figure is not much higher at all (a mere 22lb ft increase), the 4.0-litre flat six pulls noticeably harder in the mid range, making it an easier car to drive on the road than the 3.8. On the track, GT3 exponents have said that in the 4.0-litre they can approach corners a gear higher: by not being at peak revs they can clear the bend before needing to change up. For most track enthusiasts who are not top-flight racers, this means faster and smoother progress.

Moreover, Porsche's detail adjustments to the 4.0's suspension mean more benign handling. This isn't in the sense that demands on the driver are reduced as they are on double-clutch and more electronically regulated competitors, but as the limit is approached, the 4.0 is more forgiving than the earlier, harder-sprung RSs. It is still, however, a proper GT3 RS: the six-speed gear change is heavier than the stock 997's, and the clutch and steering are weighted to allow competent drivers to modulate inputs, balancing this Porsche around the curves through his own ability, and this GT3 remains the thinking driver's track car.

California-based Jesse Menczer is an experienced GT3 exponent, having owned a 3.6-litre 997 version, which he says he "campaigned hard" for five years before acquiring his RS 4.0. "The big difference is the engine: the 3.6 has to be wound up to 5,600rpm, while the 4.0-litre is more tractable, making it easier to drive on the street. On the track it's more forgiving, and it's easier to reach the limit, but on that limit the 4.0 is perhaps less certain than my 3.6 was. There are times on the track when the RS 4.0 feels too softly sprung, so while the street ride is uncannily smooth for a GT3, this does compromise ultimate circuit behaviour."

Jesse emphasises that he has found these limits only after many laps of practice at Laguna Seca.

Model Year	997 GT3 RS 4.0 2011
Engine	
Capacity	3,996cc water-cooled flat six
Compression ratio	12.6:1
Maximum power	500hp @ 8,250rpm
Maximum torque	460Nm @ 5,750rpm
Transmission	Six-speed manual, single-mass flywheel
Suspension	
Front	Lower wishbones and MacPherson struts with combined coil springs and dampers; antiroll bar
Rear	Multi link with parallel wishbones, combined coil springs and dampers; antiroll bar; PASM and PSM
Wheels & tyres	
Front	9x19-inch centre-lock alloys; 245/35/ZR19 tyres
Rear	12x19-inch centre-lock alloys; 325/30/ZR19 tyres
Dimensions	
Length	4,460mm
Width	1,852mm
Weight	1,360kg
Performance	
0-62mph	3.5 secs
Top speed	193mph

Significantly, he has clocked the 4.0 RS four seconds quicker than his 3.6 RS in standard trim, though he thinks the 4.0-litre's rear wing and front splitter fitted to the 3.6 would have reduced the earlier car's lap time by at least a second. He attributes the remaining gap to the engine and larger tyres of the wide-body RS 4.0.

"To put the 4.0-litre into perspective, I collected it from the factory and did a two-week tour of Europe, including six circuits. We fitted two people's luggage plus two crash helmets into it and travelled comfortably the whole time. You might be able to lap a fraction quicker in a Lotus Exige or a Radical, but you certainly wouldn't want to drive across a continent in them. The RS has Bluetooth, a USB port and air conditioning – I deliberately didn't order the stripped-out version. On the other hand, aspects of Porsche marketing make me smile – as if carbon fibre inserts and fabric door handles are going to make any difference!

"RS 4.0 prices have gone up since I bought mine because the 4.0 is the last of the Mezger/manual gearbox line, and of course, because of the speculative element. As a rare Porsche, the RS 4.0 could well be the next 2.7!"

The RS 4.0 imparts an immense, incomparable level of satisfaction then, and it is no surprise that *Autocar* described the 4.0-litre as "the finest Porsche ever to wear a number plate." Surely there can be no better epitaph for the last 'Mezger' GT3?

That could well be where the intrigue lies. As predicted, the latest 991 GT3 does indeed represent the 'next generation' of sporting prowess in the 911. The advance of electronics from gearbox to suspension creates a 911 that operates technically on an altogether higher plane, and shows that Porsche remains at the forefront of technology. Advanced PDK transmission means that drive is effectively never disconnected, and the subtle rear steering aligns the car with greater precision, bringing higher cornering speeds. The 991 GT3 generation opens its dynamic firmament to a wider range of owners because it takes over so much of the decision-making that was once the driver's.

The new 475bhp, 3.8-litre engine with a dizzying compression ratio of 12.9:1 is clearly a technical masterpiece. For the first time, though, it is no longer the same engine as used by a GT3R in competition. Whether it will be able to retain that much-admired GT3 RS reputation for unimpeachable reliability in the long run remains to be seen – and in the meantime, the 997 GT3 RS 4.0 is serving as the last bastion of the traditional RS as we know it. 911

TARGA ON TOUR

Can our colossal road trip, encompassing 1,500 miles and five countries in three days, suitably champion the new 911 Targa's touring credentials? Zuffenhausen here we come...

Written by **Lee Sibley** Photography by **Phil Steinhardt**

It had only been ten weeks since our 991 Targa rolled fresh off the factory floor at Zuffenhausen, before being added to a Porsche consignment destined for British shores. Yet there I was, on an early Sunday morning in Blighty, preparing to drive the 911 all the way back to its original point of manufacture.

Of course, it's not uncommon for enthusiastic owners to make similar journeys in the other direction after paying the £1,160 premium to collect their new 911 from the factory, but driving a Porsche 'back home' has a romance to it that brought about giddy excitement as I left the Dorset coastline behind me and pointed the Racing yellow Targa in the direction of London to pick up my photographer for the excursion.

From there, my next meaningful appointment was scheduled for 9.30am the next day at the Museum on Porscheplatz some 600 miles away (more on that can be found on page 40). This would make for a real-world acid test for Porsche's reworked Targa concept, where the agenda is as much about grand touring excellence as it is automotive sporting prowess.

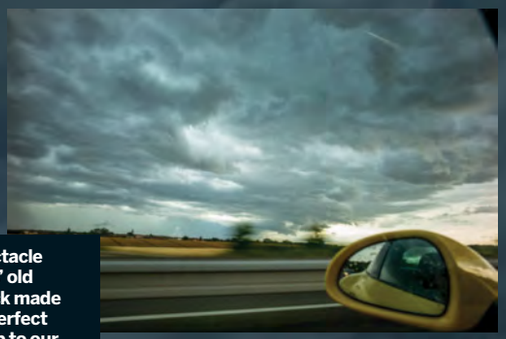
After collecting Phil and his plethora of photography bags – all fitting in a generous front luggage compartment devoid of a removable roof canvas, as per the old roll-bar Targas – we made our way towards the Eurotunnel to France.

En route to mainland Europe, we exchanged our respective views of the Targa concept and its place in the 991 line-up. "The recent generations haven't been a Targa in my mind," says Phil, former owner of a 993 C4S. I quite agree with him – and it seems Porsche do too, offering this redesign to alleviate clashing with the large sliding sunroofs now offered on 991 Coupes.

Transcending to our first impressions of the Targa in 991 form, I was happy to note that with the roof up, rolling wheel noise wasn't significantly different to that of a 991 C4 Coupe, and that's despite the 10mm increased contact patch all round afforded by the tyres wrapped around the 20-inch Carrera S-spec wheels of our 991.

The route

"The 991's PTM-clad all-wheel-drive system kept **complete composure** to all four wheels"



The spectacle of Reims' old race track made for the perfect backdrop to our 911 Targa... before the tumultuous weather took hold

Glancing above my head, there was space aplenty between myself and the underside of the roof, which spread forwards with a beautiful, curvaceous sweep not seen before on a roll-bar Targa. It brought a Coupe-esque feel to the interior, and save for the realms of daylight bursting over my left shoulder from the sweeping glass pane behind, I may have been fooled (looking forwards, of course) that I was indeed at the wheel of a 991 Coupe.

This feeling was supplemented by the driver's seating position, which had the textbook 991 affiliation of being low down with a bolt-upright back support, while the electrically assisted steering made for a light, pleasant sensation through the wheel. In fact, pleasant was the buzzword to surmise my 991 Targa experience thus far – much like the trip in general. As we loaded onto the train bound for Calais, contentment ruled supreme.

However, by the time we'd disembarked and the Targa's Pirellis had completed their first revolution on French soil, it became clear the atmosphere's pleasantries had decided to call it a day back at the English border. The weather had dramatically changed: gone was the fairly pleasant British summer's day, replaced by a menacingly overcast skyline, though humidity remained high.

Undeterred (our schedule allowed no room for trepidation), we pushed on and duly found the E-15 out of Calais. Switching the digital distance metrics from mph to European-friendly kph on the Porsche's trip computer during our train journey, I elected to sit at the requisite 130kph and headed south on the toll roads towards the Reims-Gueux circuit, where we stopped for lunch.

Rolling into Reims, the famous old grandstands and pit boxes almost stumble upon you rather than you upon them, the buildings from the old start/finish line interrupting the quiet and largely flat surrounding sunflower fields. Officially closed as a circuit in 1972, the main straight remains oh-so evocative of its past racing credentials, characterised by repainted advertising from the era emblazoned across the timekeeping pavilion and pit boxes. I duly pulled the 911 over by the pit boxes, rolling to a stop before turning the key towards me in the ignition and applying the airbrake.

It was almost spooky that the surrounding grandstands, now sealed off via five-feet-high fencing, were once treated to howling V8s piloted by racing greats such as John Surtees resonating through the bricks and mortar. The only aural sensation to be heard on this bleary Sunday afternoon, though, was the splattering of a rust-tinged Renault Twingo driven by an old man in a white vest, trundling past as he headed in the direction of Gueux.

The unkempt-looking gentleman treated Phil and I to a menacing glare as he ambled past, and while I pondered whether it was the British numberplate adorning the Targa or its bright-yellow hue that was the source of his gripe, Phil jumped out to prepare some photographs. I eventually followed suit and vacated the Porsche, and as Phil got to work capturing our heritage-rich sports car in its apt environment, I jumped the waist-high brick wall that separated the pit boxes for more of a look-see.

Approximately 15 minutes had passed when my ears were engulfed by the high-pitched, quick-revving note of numerous superbikes. Looking back at the road from beyond the pit wall, I saw six people jump from the saddles of four bikes, shutting the engines off and making for my direction. With the risk of some sort of remote French purge at the forefront of my mind, I glanced over at Phil to gauge his assessment of the hot-footed French men and women, though I realised he too was now running in my direction. Then I heard the drumming on the tin roof above me, which got louder. And louder.

No sooner was I joined in the pit box by the six hasty motorcyclists and a thoroughly breathless photographer, then the freak shower unleashed its worst all around our shallow shelter. The rain was howling, visibly bouncing back up off the road and firing off in all directions from the wings of the 911 and superbikes nearby.

Gazing at the near slick tyres adorning the superbikes, I could see why they stopped: these were no conditions to be attempting to stay upright on two wheels. I then laughed at the misfortune of my own situation, gazing across at the forlorn Targa and its fabric roof taking a hammering from Mother Nature. Sod's law, I think they call it.

What's more, the burst of heavy rain endured at our Reims pit stop was to be a precursor to the conditions for the rest of our jaunt across eastern France and into Germany's Black Forest.

Almost relentlessly, the heavens opened. It rained. It thundered. It rained again. Lightning struck. It rained some more. Debris from trees presumably struck by the lightning were strewn across the toll roads as we traversed around Metz, and troughs of water ran freely across the highways, unnerving the other vehicles around us. I prepared for the car to start skitting over the stream-like surface, but to my relief the 991's PTM-clad all-wheel-drive system (utilised on all new Targas) kept complete composure to all four wheels. Unsullied by the madness around the car, the Targa remained planted to the road, with only one or two moments of 'wobbling' when changing lanes. Better still, instead of playing the role of the precarious ➲

Conditions may have been unfavourable for an open-top 911, but the 991 Targa 4's road holding shone en route to Zuffenhausen

sports car driver edging his pride and joy tentatively along the slippery highway, I found myself striding forwards with assured confidence. I was impressed.

As the mid-evening drew in, the rain stopped and ineluctable French toll roads were soon replaced by quaint German towns as we passed Saarbrücken. Outside was still humid and the sweepy, single carriageway carving through the empty Black Forest was bone dry, the area somehow evading the venomous storms hampering its French neighbours.

Fun needed to be had after our dour run in the wet, so I pulled over and held down the button emblazoned with a roofless 991 silhouette in the middle of the centre console. A whining noise emanated from behind as the kinematics began disassembling the top of the car (remember, the Targa must be at a complete standstill for the roof to operate as the rear screen falls back over the clusters), and the canvas is suddenly pulled away from above my head. The process feels quicker than the 19 seconds quoted by Porsche, but not quick enough for me to want to play traffic light roulette with the system when stationary in town.

There's no denying, though: the kinetics are impressive. Sure, there's a lot of mechanical work to be done to simply remove the canvas above the driver's head, but then the idea of a manually stowed roof today would be a draconian sentiment not in line with the opulence of the Porsche brand. My only note of contempt is the four steel arms on either side of the glass screen when raised are distinctly unsightly, but I acknowledge Zuffenhausen's attempts to address this by colour-coding them to match the hue of other body panels.

With the roof down and stowed neatly behind us, I activate the Sport setup and deploy the Sport Exhaust option to compliment. This was more like it: the raucous bark of the flat six was enlivening to the ears, and we pushed on with aplomb through the forest towards Stuttgart.

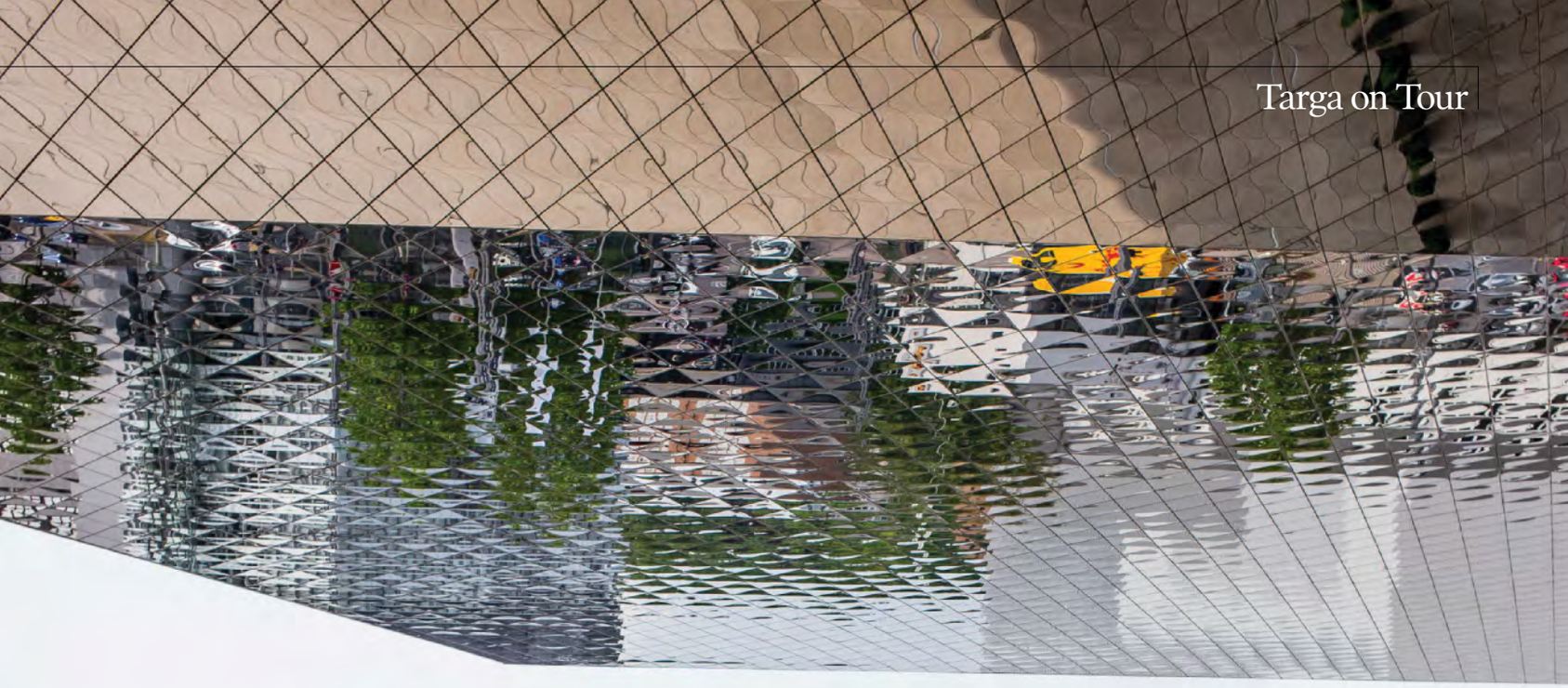
Though the sound of the Targa was illuminating the evening, its pace through these twisty, smooth roads wasn't. To my mind, the 3.4-litre DFI engine has always felt particularly lethargic as the needle makes its way around to the business end of the tacho at 6,000rpm – and now the 350hp engine has to contend with an additional 110 kilograms of weight thanks to that complicated roof system and all-wheel drive. As such, the Targa 4 feels slow for a 911. The 3.8-litre 'S' engine should put paid to that, and it'll sit lower, too; as a standard suspension without PASM attached to the hubs bearing 20-inch wheels, this is the tallest-riding 991 I've piloted, and though there's little issue with weight transfer outside of the usual 911 reportage, visually the car would benefit from a hankering to the floor in line with its sports car remit, as opposed to the step-out height requisite of an executive station wagon.

Late into the evening, we reached our destination at the Hotel Meridien at Stuttgart, providing us with only a short drive across the city to Porscheplatz the following morning.

The new day brought with it a revamp in the weather, and as we cajoled the 991 through the busy rush-hour streets of Stuttgart, my excitement grew the closer we got to Zuffenhausen. Situated in a largely industrial area north of Stuttgart, the approach to Porscheplatz is decidedly unassuming as you drive down Schwieberdinger Strasse – until you reach the brow of the bridge over the railway line, where you'll be greeted by the striking modern building of the Porsche Museum and the more familiar sight of a Porsche OPC behind it on the left. By the time you reach the roundabout at the bottom of the bridge, it's impossible to not realise you've driven into the epicentre of the Porsche manufacturing dynasty. The Targa was home.

As I parked up in the immaculate, white-walled car park beneath the Porsche Museum, I realised that despite the atrocities of the driving conditions the day before, the 991 Targa hadn't missed a beat. There are only small idiosyncrasies that need ironing out: the main being with the roof down but windows raised in the Black Forest, concerted wind buffeting in the cabin was revealed at speeds above 50mph, though lowering the windows by around an inch put paid to this.

However, not only does the new Targa look great, it's far from a case of style over substance; the new concept works. Exciting yet economical, sporty yet stable, the Targa had proven itself as the perfect tourer in all conditions – justified in my decision to turn around at Zuffenhausen and drive the Targa back to Blighty again just two days later. Targa on tour? On tour some more, please. 911



"The Targa had proven itself as the perfect tourer in all conditions"

Targa to Zuffenhausen in numbers

1,530	Total miles on trip computer
28.6	Average mpg
5	National territories driven through
22	Total hours driving, plus 37 minutes
96	Average speed (in kilometres)
42.40	Total toll fees (in Euros) accrued through France
180.88	Litres of 98 octane fuel consumed
4	Thunderstorms driven through
240	Minutes driven with roof down


086
076
REY 66IK
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GT3
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"The shriek of three hard-working flat six engines is augmented by the raucous Sport exhuasts"

Head to Head

GT3 BLOODLINE

Total 911 takes the inside line on the evolution of the GT3, seen by many as the pinnacle of a pure, track-focused Porsche

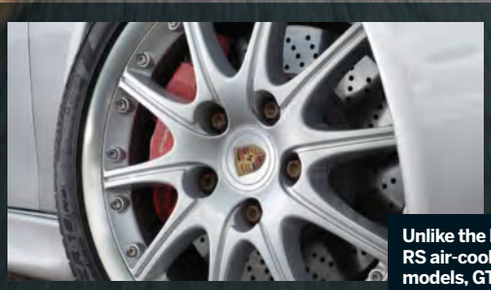
Written by **Kyle Fortune** Photography by **Chris Wallbank**

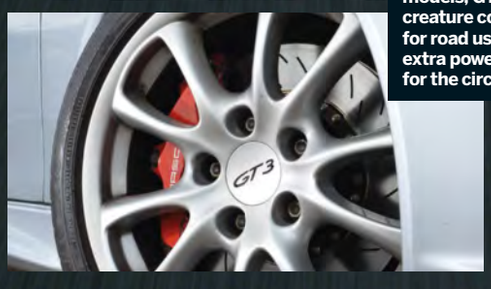

MICHELIN
MICHELIN
MICHELIN
PORSCHE
RLT 75

As a demonstration of automotive Darwinian theory, there's no better image on these pages than the line-up of GT3 rumps. A sub-set genus removed from its ordinary Carrera relation, the GT3 evolved, as all the best Porsches do, in pursuit of success on the track. Not since the 993 RS had Porsche taken its Carrera and honed it to deliver so much more, adding a layer of involvement and intensity that the standard cars simply cannot deliver. Different cars for differing purposes, the GT3 itself evolved into even more of a specialist sub-set: the GT3 RS.

Those homologation tearaways aren't here though; today is a celebration of the GT3 on its own – a car that in 1999 wowed with its ability, taking its engine from motorsport, yet not robbing its driver of the comforts that the RS models traditionally did. The 996 GT3 saw no weight reduction over the standard Carrera: despite the loss of its rear seats, it tipped the scales at around 30 kilograms more. There was no thin glass, soundproofing, pull strap doors, alloy or carbon panels here; instead, the GT3 came with luxuries like air conditioning and electric windows.

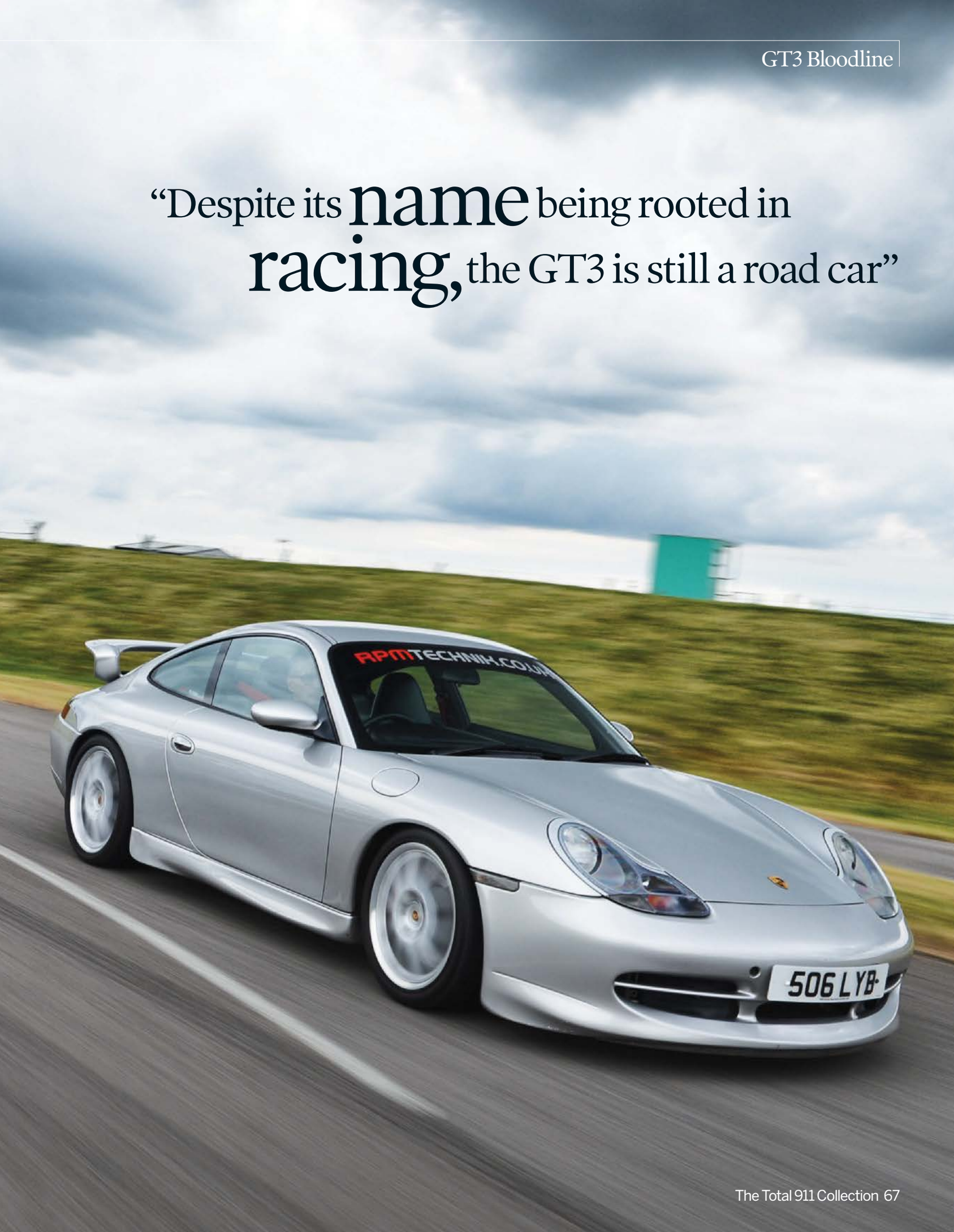
The GT3's additional performance was derived not from weight loss, but from more power. A useful 60bhp was added to the 911's output, the 360bhp arriving from the GT3's 3.6-litre dry-sumped flat six at a heady 7,200rpm and peak torque of 273lb/ft at 5,000rpm. It's an engine that has become legendary, being able to trace its





Unlike the hardcore RS air-cooled track models, GT3s had creature comforts for road use, with extra power ready for the circuit

"Despite its **name** being rooted in **racing**, the GT3 is still a road car"



Walter Röhrl ensured that more power, greater precision and improved turn-in was the blueprint for the 996.2 GT3

"As sensational as the steering is, it is the engine that defines the GT3"

roots back to the 911's air-cooled ancestry and top-flight racing. The so-called Metzger engine shares little – if anything – with its regular 911 relations, save for where it's positioned. In the GT3, that engine allowed Porsche to quote a 0-62mph time of 4.8 seconds, 100mph arriving just 5.4 seconds later. Porsche also quoted a top speed of 187mph, but that was said to be a touch conservative.

Looking at the silver 996.1 co-owned by Peter Walmsley and John Moss, it's striking how pure and unadorned it looks. That was part of the appeal for the pair, who have a number of other interesting Porsches to enjoy. "Looking for a GT3, it had to be an early one. Our car has high miles, but it was maintained fastidiously, a leak down and compression test revealing it to be within new parameters," says Walmsley. It can be used on road and track, although Walmsley admits that the lower suspension it rides on does somewhat compromise it for road use.

Despite its name being rooted in racing, the GT3 is still a road car. The first 996 exemplifies that, its suspension revisions being not so extreme as to slow it down. As the first of its species, it is arguably the most delicate to drive. This is helped in no small part by its size: sitting inside the 996's cabin, it feels narrow, allowing it to be enjoyed better on the type of roads that escape traffic. The steering feel has always been a GT3 hallmark, and the first generation doesn't disappoint. It's been a few years since I drove one, and yet the rich information reaching the driver, providing real confidence with which to explore the GT3's limits, are still fastidiously fresh in the memory.

As sensational as the steering is, it is the engine that defines the GT3. The 3.6-litre's motorsport DNA is obvious in its quest for revs, although it's underpinned by plentiful torque throughout the entire range. Thank the relative lack of mass it's moving; it might not have featured RS-like weight removal, but the GT3 still tipped the scales at a relatively lightweight 1,350 kilograms. Like the subtlety of its styling, the way the first GT3 goes about its business, riding with surprising composure and remarkable control despite its obvious focus, being easy yet utterly involving and enjoyable, is remarkable. I remember a conversation a year or so ago with Autofarm's Josh Sadler, where he described the 996 GT3 as criminally undervalued. He's not wrong, although the market has started to take note. Buy one while you can.

If the 996 GT3 of 1999 was a signal of intent, the Gen2 car in 2003 took it to another level. Unique suspension carriers, revised and even more focused suspension, exclusive rear wishbones, GT3-specific brakes, wider rear wheels and some serious engine revisions make for an even headier mix. Some 3.5 kilograms were removed from the engine, the VarioCam variable valve timing giving a better spread of power, and the loss of the crank damper and lighter con-rods, valves and pistons add up to even faster response and a higher rev limit. Peak power grew to 381bhp at 8,200rpm, and torque also increased to 284lb/ft, allowing for a 0-62mph time of 4.5 seconds and a 190mph top speed.





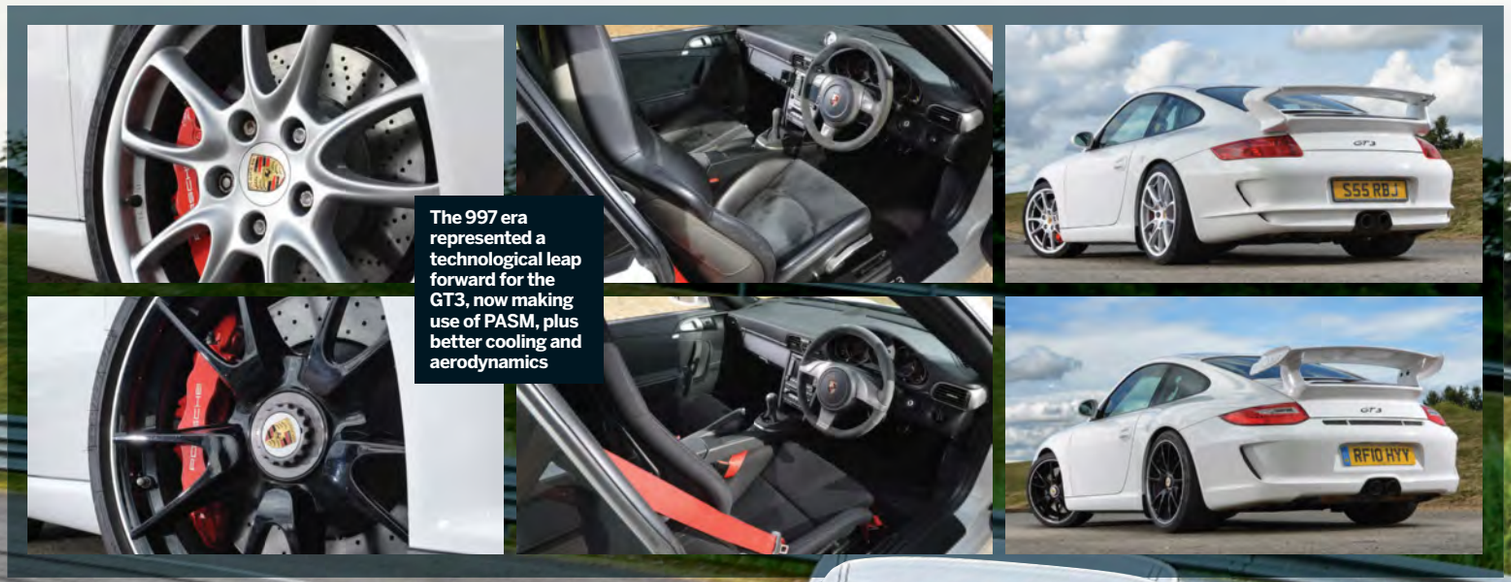
Model Year	996.1 GT3 1999-2002	996.2 GT3 2003-05	997.1 GT3 2006-08	997.2 GT3 2009-12	991 GT3 2013-
Engine					
Capacity	3,600cc	3,600cc	3,600cc	3,800cc	3,800cc
Compression ratio	11.7:1	11.7:1	12.0:1	12.2:1	12.9:1
Maximum power	360bhp@ 7,200rpm	381bhp @ 7,400rpm	415bhp @ 7,600rpm	435bhp @ 7,900rpm	468bhp @ 8,250rpm
Maximum torque	370Nm @ 5,000rpm	385Nm @ 5,000rpm	405Nm @ 5,500rpm	430Nm @ 3,250rpm	440Nm @ 6,250rpm
Transmission	Six-speed manual	Six-speed manual	Six-speed manual	Six-speed manual	Seven-speed PDK
Suspension					
Front	Lower wishbones and MacPherson struts with combined coil springs & dampers; antiroll bar	Lower wishbones and MacPherson struts with combined coil springs & dampers; antiroll bar	MacPherson struts; coil springs; antiroll bar	Lower wishbones and MacPherson struts with combined coil springs & dampers; antiroll bar	MacPherson strut; cylindrical coil springs with internal dampers; electric power steering
Rear	Multi-link with parallel wishbones, combined coil springs & dampers; antiroll bar	Multi-link with parallel wishbones, combined coil springs & dampers; antiroll bar	Multi-link; telescopic dampers; coil springs; antiroll bar	Multi-link with parallel wishbones; combined coil springs & dampers; antiroll bar	Multi-link; cylindrical coil springs with coaxial internal dampers; active rear-wheel steering; electronically controlled dampers
Wheels & tyres					
Front	8x18-inch; 225/40/R18	8.5x18-inch; 235/40/R18	8.5x19-inch; 235/35/ZR19	8.5x19-inch; 235/35/ZR19	9x20-inch; 245/35/ZR20
Rear	10x18-inch; 285/30/R18	11x18-inch; 295/30/R18	12x19-inch; 305/30/ZR19	12x19-inch; 305/30/ZR19	12x20-inch; 305/30/ZR20
Dimensions					
Length	4,430mm	4,435mm	4,445mm	4,460mm	4,545mm
Width	1,765mm	1,770mm	1,808mm	1,808mm	1,852mm
Weight	1,350kg	1,380kg	1,395kg	1,395 kg	1,430kg
Performance					
0-62mph	4.8 secs	4.5 secs	4.3 secs	4.1 secs	3.5 secs
Top speed	188mph	190mph	192mph	194mph	196mph

The external changes are subtle, Paul Cantoni's stunning light metallic blue Gen2 car demonstrating the changes. Coming with the 996's post-facelift headlights, the aero revisions are arguably better incorporated, particularly around the rear. Even so, flat-topped wing aside, it would be easy to dismiss the Gen2 as one of its more common 911 relations, so meek are the changes, although you're left in no doubt that it's something special behind the wheel. Like its predecessor, it feels small. The cabin is fairly stark, with even the biggest 996 fans being unlikely to argue that its interior was a high point in Porsche design and material quality. Let's just say it's functional and inoffensive, and leave it at that. Visually, it might not be very different, but it feels like a far more potent proposition on the road. It is undoubtedly a more physical and demanding car to drive, thanks in no small part to the more focused suspension. Road imperfections and cambers that would be noticeable but shrugged off in the early car are more obvious here, the 996 Gen2 GT3 requiring more attention more of the time.

Add the greater power, which builds with more force than you'd believe given the relatively small on-paper changes, and the 2003 car represents a far more intense experience. Different to the point where some might enjoy the greater usability of the earlier car more, it's less likely to give you surprises on poorer surfaces.

The gearshift's feel is improved, the Gen2 feeling more like the homologation machine it represents. Porsche tasked Walter Röhrl with improving it, and he had clearly defined goals: more power, greater precision, an improved turn in and less unsprung mass. Porsche offered PCCB carbon ceramic brakes as an option to achieve that, the 350mm front discs with six-pot calipers giving the GT3 greater stopping potential on track. And, around that most decorated track of the Nurburgring Nordschleife, Walter managed to shave over seven seconds off the Gen1 car's time, which can be concluded as mission accomplished – just don't go trying to match it.

With the Gen2 GT3, the creep of technology was apparent, but it wasn't until the 997-based GT3 arrived in 2007 that Porsche would add PASM and Traction Control to its most focused of 911s. The purists might have decried it as sacrilegious, but those changes brought the best of its two predecessors and blended it into an incredible package. Revealed at the Geneva Motor Show in 2006, it went on sale in Europe in May, and August in the UK.



The 997 era represented a technological leap forward for the GT3, now making use of PASM, plus better cooling and aerodynamics

The engine, again a development of that exotic, high-revving flat six, remained at 3.6 litres, its peak revs rising to 8,400rpm – some 200rpm higher than previously. Output increased to 409bhp for a specific output of 114bhp per litre, this being the highest output for a naturally aspirated production engine. Performance increased too, Porsche's figures saying the 0-62mph sprint took 4.3 seconds and 100mph arriving in 8.7 seconds, that latter figure showing the growing chasm in performance it offered over the 10.2 second Gen1 GT3. The top speed was quoted at 192mph – which, as is Porsche's norm, is likely to be a conservative estimate.

Looking more like a race-refugee than any of its predecessors, the 997 GT3 is unashamed in its purpose. From the deep front splitter with its five air intakes, the lower black portion adding a couple more to the mix, to the larger 19-inch

The 991 GT3 represented a break from tradition, ditching the Metzger engine in favour of new DFI technology

The 991 is the first GT3 to utilise a C4 widebody, a custom usually saved for the GT3 RS

alloy wheels and more purposeful rear wing, the GT3's intent is obvious, Roger James's car providing a good representation of how many Porsche fans might describe how a GT3 looks. Aerodynamics and cooling requirements more heavily influence its look than ever, the trailing edge on the bonnet, bi-plane rear spoiler and ram-air effect inlets on the engine cover being far more obvious here.

Underneath all that, the technical specification has taken a leap, most apparently with the addition of PASM, the GT3 driver now able to choose between a stiffer sport setup for track work and a slightly less compromised road setting. It works too, the 997 GT3's suspension managing to ride with real finesse on even poorly surfaced roads, especially as the speed rises – as it so easily will.

The gearshift, with a revised, quicker and more accurate action, gains shorter ratios from second to sixth for improved response and acceleration, while Porsche fitted a shift light in the rev counter; just in case the screaming flare of the flat-six reaching maximum revs wasn't enough to remind you to select another ratio – not likely given the incredible note from the new, ten kilograms-lighter exhaust with bypass flaps acting on engine load and speed. Traction control, derived from that of the Carrera GT, also featured, Porsche understanding its audience and leaving its thresholds usefully high, even more so when you press Sport.

With wider front and rear tracks, the body that Porsche boasted was some eight per cent torsionally stiffer. The Pirelli Corsa or Michelin Cup tyres on 235/35ZR19 front and 305/30ZR19 rear wheels, and a limited-slip differential and weight under 1,400 kilograms enabled masses of grip, the usually mighty traction and the sort of braking power GT3 owners expect coming courtesy of 350mm brake discs with six-pot calipers up front and four-pot at the back. With the PCCB option, the front discs grew to 380mm, the curb weight lightened by 20 kilograms and your wallet by nearly £6,000.

That much-discussed traction control system was in Porsche's launch literature to "ensure traction particularly on wet surfaces," and anyone who has driven a GT3 on damp or fully wet roads is likely to testify to its usefulness. It incorporated three different electronic systems: Automatic Brake Differential (ABD), Automatic Slip Control (ASC) and Engine Drag Control (EDC), the latter preventing wheels locking up should you downshift too early.

The purists might have lambasted the addition of electronic intervention, but the reality on the road was nothing short of sensational. The 997 GT3 took the car to new levels, with the balance on offer and the confidence it gives you to push it to the very limits and beyond having to be experienced to be really believed. As far as drivers' cars go, the GT3 has always been representative of the pinnacle, but what's remarkable is how far Porsche manages to push that from the earliest 996 model to this car just eight short years later. Both offer supreme driving experiences, but the gap between them in every area of their respective performance range is enormous.

That's not to belittle those that came before the 997 GT3. Indeed, such is the pace of development that only two years would pass before Porsche offered a new GT3 experience. The 997 GT3 Gen2 would do what its previous Gen2 models had done, taking the already incredible base car and further honing it. In 2009, that would see the GT3's engine finally grow in capacity, the familiar 3.6 litres of GT3s before it swelling to 3.8 litres, specifically 3,797cc. Output grew to 435bhp as a result, that arriving at 7,600rpm. Torque also increased to 317lb/ft at 6,250rpm, and the maximum engine speed again got higher, now being 8,500rpm.

"The GT3 evolved, as all the best Porsches do, in pursuit of success on the track"

Problems with con-rod bolts damaging the crankcase hampered the arrival of the 991 GT3, though most owners have now had their Porsche fitted with replacement engines

The engine changes included the addition of VarioCam adjustment on the exhaust side as well as the intake, the freer-breathing engine seeing quicker response and even greater performance. 62mph arrived in 4.1 seconds, and 100mph in 8.2 seconds. The top speed was still quoted at under 200mph, with 194mph cited as the official number. Visually, the Gen2 997 GT3 differs little over its predecessor, the larger wing – with its 3.8 scripted endplates – sitting above a rear bumper featuring three additional cooling vents, the front splitter containing less intakes for a smoother and less fussy look. LED lighting was present too, with driving lights up front and within the rear lights.

Visually, John Westbrook's car might differ little, but the effect of the aero changes give the 997 GT3 Gen2 double the downforce of its predecessor. PSM allowed the switching off of both the Stability Control and Traction Control systems, while revised PASM allowed finer control, aided by the addition of centre-locking nut wheels, which reduced unsprung mass. Again, the option of PCCB brakes was offered to further improve that (and induce heart-stopping retardation), while the 997 GT3 Gen2 also added the possibility of specifying Porsche's Active Drivetrain Mounts. All that upped the thrills even further, the 997 GT3 Gen2 representing a fitting end to what some might consider the last of the truly driver-focused GT3s.

I count myself as one of them, the 991's shift to PDK and away from its famous engine to one based on the standard Carrera's unit being something that I approached with trepidation. However, as reviewed by myself on these very pages from the launch last year, reservations that the GT3 in its 991 incarnation had lost something proved unfounded. Everything is right with the GT3, even if you're able to give your left hand and foot a rest.

Rob Turl, the owner of this 991 GT3, said: "Within 50 miles of driving the 991 GT3, I had to have it," adding that he promptly got rid of his 997 GT3 in the meantime. Admittedly, it's a different GT3 experience, but one that's true to the goals of the original. The engine might be different as more in line with a ramped-up Carrera unit, but the 3.8-litre unit remains naturally aspirated and delivers 475bhp at 9,000rpm. That's over 115bhp more than the original, its 7:30 Nürburgring lap time and 3.5-second 0-62mph sprint underlining the quick pace of development in the GT3 bloodline.

Just as detractors have cited greater technology as robbing previous GT3s of their appeal, only to be won over in reality, the PDK transmission, Porsche Torque Vectoring and electronic rear-wheel steer facilitates the GT3's quest to be a fast road car even further. Turl admits that this might be too fast, the GT3 having reached a point where there are few places it can be truly exploited on the road. This is arguably true of the 997s and 996s before it, but it's brutally punched home the first time you push the 991 GT3's accelerator to the floor.

Evolution is a curious and beguiling thing, the GT3's rapid transition from pure, unassisted sports car to one adopting the very latest technologies being clear. What remains true is that every one of them, however different, remain at the top of their respective games and defining their eras perfectly, yet retaining a singularity of purpose that marks them out as greats. They will redefine your idea of performance driving, regardless of which you choose. Porsche's commitment to the small hardcore of drivers seeking out the very finest, most extreme, yet comparatively affordable 911 is really something to be truly thankful for. **911**


3.8
PORSCHE
GT3
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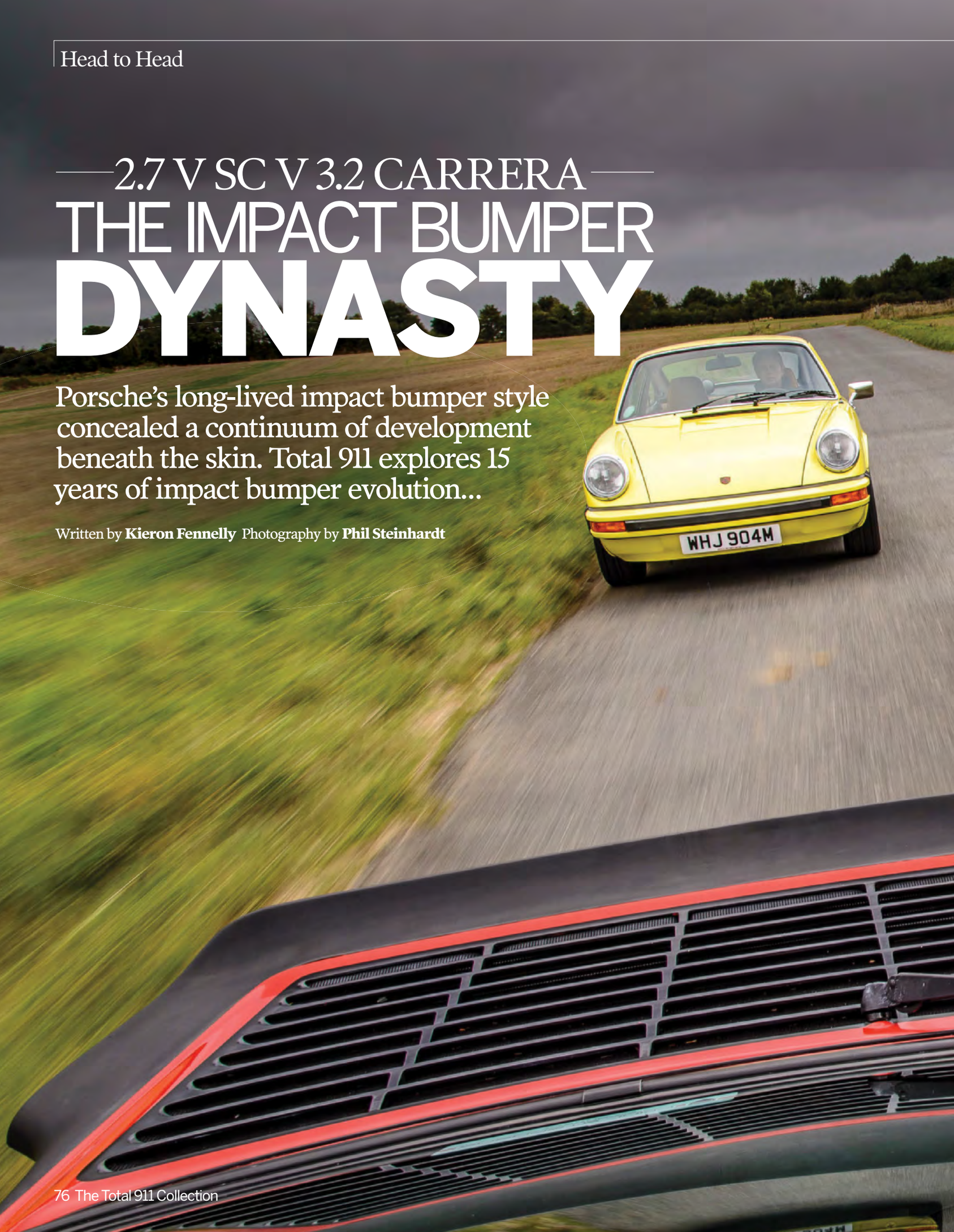
2.7 V SC V 3.2 CARRERA

THE IMPACT BUMPER DYNASTY

Porsche's long-lived impact bumper style concealed a continuum of development beneath the skin. Total 911 explores 15 years of impact bumper evolution...

Written by **Kieron Fennelly** Photography by **Phil Steinhardt**




XHR 911T

While little changed on the outside in 15 years, it was a different story beneath the skin for the impact-bumper 911s

In 1974, the 911 underwent its first major styling change, becoming known as the impact bumper model. This enjoyed an impressive 15-year life, which is all the more remarkable considering the 15 years after that would produce no fewer than four separate 911 designs. However, although the 911's appearance both inside and out remained essentially unchanged, this does not mean there was a developmental stasis – far from it, in fact.

Over the period, Porsche twice rebuilt the engine with improvements to performance and economy, made incremental changes to the suspension to enhance handling and ride as tyres became wider, and introduced servo brakes and a hydraulic clutch. Effectively, there were three distinct 911 models during this decade and a half. Therefore, although they're superficially similar, the impact bumper models exhibit significant detail differences according to the period in which they were manufactured.

The new G-series was presented at the 1973 shows as the 1974 model year range of 911. Looking back, it is hard to imagine how difficult a time this was for Porsche: 60 per cent of its sales were in the US, and draconian new emissions legislation combined with uncertainty about safety norms was destabilising for all car manufacturers. For its part, Porsche had seen several more established German manufacturers disappear in the Sixties, and never excluded the idea that this fate could befall the Zuffenhausen firm too.

But if Porsche lacked confidence, it was not apparent in its new design: the company's interpretation of the particular US requirement for 5mph impact-resistant bumpers was masterful. Wolfgang Möbius melded the requisite fenders with the 911's lines so skillfully that after only a short time, it appeared to many observers that the 911 had been styled around them, and it stood in complete contrast to pantomime offerings from respected makers such as Volvo.

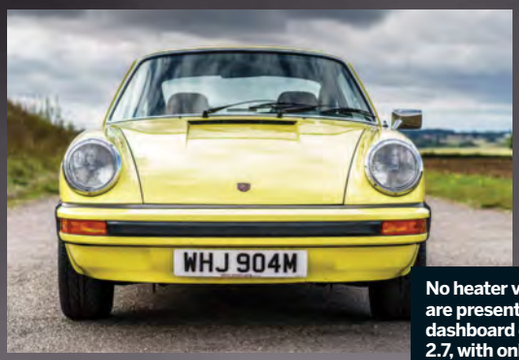
On the emissions side as well, Porsche's ingenuity was a class apart from its competitors, and especially the indigenous American manufacturers, whose rustic V8s were strangled by emissions constraints, losing as much as two thirds of their horsepower. Continuing where it left off with the F-series 911, Porsche again offered three models of 911. All models now used the 2.7-litre engine capacity seen on the previous year's RS, and the top of the range was now called the Carrera. The 'S' was now the next down, and the base model, the former 'T', was now plain 911.

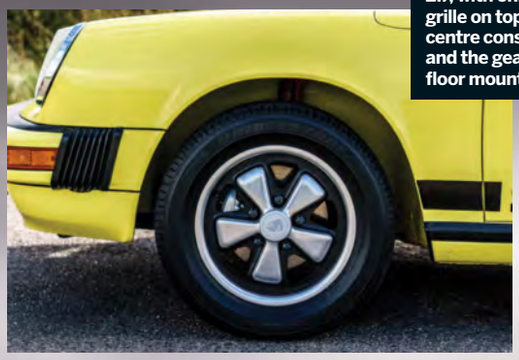
While the Carrera still used mechanical fuel injection and retained the 210bhp of the RS, as such it could not be homologated for the US, which was given the choice of the 911 and the 911S. These used the latest offering from Bosch, its K-Jetronic fuel injection, which metered out fuel with rather more precision, enabling resultant exhaust gas to be processed by the soon-to-be mandatory catalytic converter. Porsche had been moving cautiously towards emission standards for some years – the 2.4-litre capacity introduced in 1971 deliberately reduced compression ratios so that lower-octane fuel could be used, and was tuned for lower peak torque. With the further increase in capacity to 2.7 litres, Zuffenhausen engineers were able not ➲

2.7: European v RoW

As early as 1967, Porsche had to withdraw the European version of the 911S from the US because of emission controls. Japan, which with the US effectively constituted the rest of the world at that time, then followed suit. When the Americans introduced mandatory catalytic converters in 1975, Porsche was ready, having developed electronic injection with Bosch that delivered the fuel required to achieve the 14.6:1 air-to-fuel ratio required for successful functioning of the catalyst. The drawback was this resulted in engines that could not quite rev with the zest of their predecessors. For this reason, the Carrera RS 2.7 and the 1974 Carrera 2.7 were never homologated for the US as their plunger pump mechanical injection, which under load dispensed petrol with the generosity of a fire hose, could not be made compatible with catalysts.

Two iterations of 2.7 were thus made, though visually there is almost no external difference between the European and RoW versions. The impact bumpers of 911s destined for the US contained horizontal springs not fitted (because not required by law) to the European 911; the sharp eyed would spot post 1979 RoW cars which sat almost an inch higher to meet US crash regulations. Glancing under the tail would also reveal the latter's additional catalyst plumbing and under the engine cover there are detail differences to the air induction system. For this reason, converting a US import to Euro spec entails more than simply removing the catalyst. The RoW engine's intake system is specific and would need modifiying to run with an uncatalysed exhaust; such intervention could easily turn into a top-end rebuild.





No heater vents are present in the dashboard of the 911 2.7, with only a speaker grille on top. There's no centre console either, and the gear lever is floor mounted

Model	911 2.7
Year	1974
Engine	
Capacity	2,687cc
Compression ratio	8.0:1
Maximum power	148bhp @ 5,700rpm
Maximum torque	235Nm @ 3,800rpm
Transmission	Four-speed, five-speed variant optional
Suspension	
Front	Torsion bar, strut/damper
Rear	Torsion bar, strut/damper
Wheels & tyres	
Front	6x15-inch, 185/70/15
Rear	6x15-inch, 185/60/15
Dimensions	
Length	4,291mm
Width	1,610mm
Weight	1,075kg
Performance	
0-60mph	8.5 sec
Top speed	130mph

"Even in base-spec guise, there is much appeal to the G-series 911"

just to maintain power output, but by using lower profile camshafts obtain a significant rise in the torque. This was no little achievement when other manufacturers could meet the emissions norms only by detuning.

In other respects, the G-series represented a timely updating: gone were the rather squashy seats, replaced by the integrated headrest variety offering better support which weighed only half as much thanks to their plastic frames. They also looked sportier. The cabin's chrome fittings, replaced by a chunkier generation of knobs, disappeared in the main, and these were the first 911s to be fitted with the Goodrich spacesaver wheel.

The 2.7-litre in our pictures is the base 911, a left-hand-drive car in yellow with what is described as 'cinnamon' upholstery. An ex-US car, it has authentic Fuchs wheels, an option on this model, and manual wind-up windows. A genuine 43,000 mile car, its interior is quite remarkable, with an immaculate brown and fawn checked upholstery and dashboard that today would be extremely difficult to replace convincingly.

The exterior too is impressive with stunning brightwork. This is a rare 911 in spectacular condition, and it is also a pleasure to drive. The flat six fires lustily and the immediate impression is how light and easy to manoeuvre this entirely unassisted car is, the thin-rimmed steering wheel transmitting feedback in the usual Porsche fashion. Once warmed up, the 2.7-litre 911 is sprightly rather than rapid, but still very responsive. There was no criticism of this 911's performance at the time, with a 0-60 in 8 seconds and a 130mph top speed, and this yellow example feels quite capable of those figures aided by its smooth dog-leg first gear 915 gearbox.

In the days before full galvanisation of the shells, European 911s simply rusted away, so much of the value of this 2.7 lies in its superb period condition, but beyond its classic looks, the real joy is the authentic period feel it transmits. It steers with encouraging accuracy, and is completely at home on the winding roads of our test route, and so it is

Model	911 SC
Year	1978
Engine	
Capacity	2,994cc
Compression ratio	8.5:1
Maximum power	180bhp @ 5,500rpm
Maximum torque	265Nm @ 4,300rpm
Transmission	Five-speed 915
Suspension	
Front	Torsion bar, strut/damper
Rear	Torsion bar, strut/damper
Wheels & tyres	
Front	6x15-inch, 195/65/15
Rear	7x15-inch, 215/60/15
Dimensions	
Length	4,291mm
Width	1,626mm
Weight	1,180kg
Performance	
0-60mph	6.5 sec
Top speed	141mph

"The SC took the body of the previous top 911 with its flared arches"

a true sports car that away from the drudgery of modern traffic you would take out for the sheer pleasure of driving. Even in base-spec guise, there is much appeal to the G-series 911 in both aesthetical pleasure and driving dynamics.

By 1978, Porsche was no longer a single-model company. The transaxle 924 was well established, the 928 had just won the Car of the Year award, and the naturally aspirated 911 had been joined by a turbocharged version, already in its second iteration. To simplify the range and because, if only in the view of CEO Ernst Fuhrmann and his design chief Tony Lapine, the 911 was no longer intended to be the dominant product, it was reduced to a single model – the 3.0-litre SC.

Thought by some to stand for 'Super Carrera' (though Porsche never substantiated this), the SC took the body of the previous top 911, the 3-litre Carrera (a car that succeeded the 2.7-litre variant with a new engine derived from the first 930), with its slightly flared arches, which added an inch and a half to the width.

But the SC was no cosmetic update. The 3.0-litre engine, though remaining unchanged with a capacity of 2,994cc, received a new crankshaft with larger main bearings for greater overlap and stiffness. Though the SC produced marginally less power than the Carrera, to some extent because of the air pump, fitted to satisfy stringent US – and other rest of world – emissions regulations, its revised valve timing delivered more torque over most of the rev range.

It would also perform on the 91 Octane fuel, which was then the best available in the US, and its breakerless electronic ignition ensured more consistent combustion. The flat six was simply moving with the times: petrol in Europe had almost trebled in price, and the latest Porsche 911 required 20 per cent less than a decade previously and ran on the cheapest brand. This was achieved with no reduction in performance: the base 180bhp SC covered 0-60 in 6.3 seconds and comfortably exceeded 140mph.

Other changes heralded by the SC, besides a far more accurate, electronically governed rev ➲

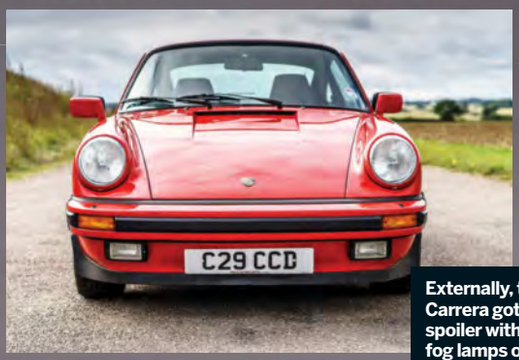
The SC gained much-needed heater vents as well as a new steering wheel design, though the same clocks with red needles were carried over from the Carrera 2.7/3.0 era

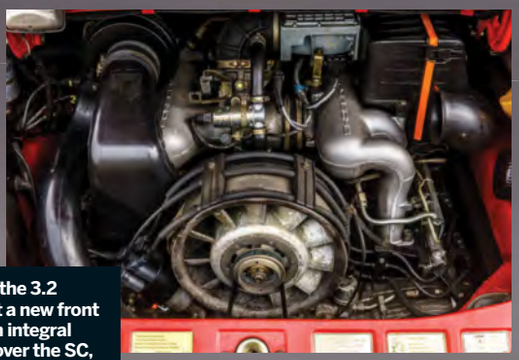
Evolution of the SC

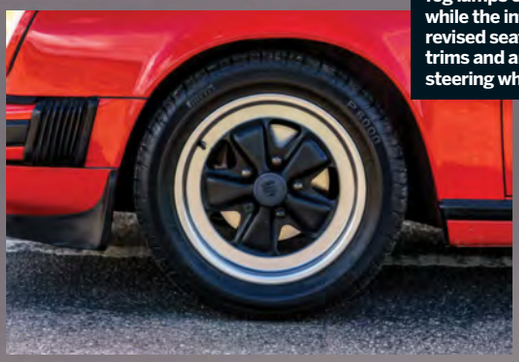
Tuners were quick off the mark to see the latest 911 in 1978 sported 20bhp fewer than its predecessor, and both Alois Ruf and Max Moritz soon offered 3.2-litre SC versions with 217bhp, with Ruf apparently selling several hundred of his conversion. In fact, Porsche was initially constrained not to make the new 911 as fast as the 928, and the SC conveniently ran out of steam a couple of mph slower than the new flagship front engined Porsche.

By 1980, Fuhrmann had gone though and Zuffenhausen was able to announce an upgrade for the SC to 188bhp, the compression ratio lifted from 8.5 to 8.6:1 and a larger cooling fan fitted. It was said this fan would allow top speed running on new stretches of autobahn where going flat out for half an hour was now feasible. Company historian Paul Frère also observed that 188bhp was closer to the real output of the SC in the first place.

The further upgrade to 204bhp, the fruit of Schultz's restarting of the development programme, was straightforward: a jump in the compression ratio to 9.8:1 made for a more efficient and economical engine now that it was clear that 98 Octane would not be withdrawn in Europe. This also had the effect of stealing some of the tuners' thunder too.







Externally, the 3.2 Carrera got a new front spoiler with integral fog lamps over the SC, while the interior got revised seat fabrics, trims and another new steering wheel design

Model	3.2 Carrera
Year	1984
Engine	
Capacity	3,164cc
Compression ratio	10.3:1
Maximum power	231bhp @ 5,900rpm
Maximum torque	284Nm @ 4,800rpm
Transmission	Five-speed 915, Five-speed G50 from 1986
Suspension	
Front	Torsion bar, strut/damper
Rear	Torsion bar, strut/damper
Wheels & tyres	
Front	7x16-inch, 205/65/16
Rear	8x16-inch, 225/50/16
Dimensions	
Length	4,291mm
Width	1,652mm
Weight	1,210kg
Performance	
0-60mph	5.6 sec
Top speed	152mph

“The 3.2 feels like a very fast, exciting car, even by today’s standards”

'Sport' rear wings were commonly optioned over the 'flat back' look; Bigger 16-inch Fuchs were a late option; not only is the 3.2 Carrera more powerul, it's also the cleanest engine too

limiter, were servo brakes – Porsche recognised the trend to lighter controls (an easier clutch spring was also fitted) and inevitably the 911, now galvanised, was getting heavier, weighing 60 kilograms more than the previous 2.7. Critics were impressed that the power brakes had lost none of Porsche's legendary feel.

Underneath, the SC featured thicker antiroll bars, 18mm at the front and 20mm at the rear. After minor revisions for MY1980, the 1981 SC was uprated to 9.8:1 and though no claims for increased torque were made, peak torque moved 200rpm higher to 4,300rpm and the 3.0-litre engine was back to the 200 bhp (204bhp in fact) bracket of the previous Carrera. *Auto, Motor & Sport* recorded sub six seconds for the 0-100km dash and 149mph top speed. The capabilities of the K–Jetronic too were developing, and on four-star petrol the revised SC was the most powerful (non turbo) 911 to date, yet used 21 per cent less fuel.

Our test SC is probably as close as it is possible to get to the feeling of that original car. The interior in dark trim, matching the navy blue bodywork, is the basic specification that retains the chrome window surrounds. Chequered cloth seats with leather facings, though the other surfaces are vinyl, are soft by today's standards, and the driver seems to sit quite high. As this is a base specification, the 911 still has wind-up windows, and externally no 'Sport'-spec rear spoiler is fitted.

On the other hand, the specification does include the original 'cookie cutter' wheels, less esteemed at the time when the Fuchs was the rim to have, but all the more attractive to modern eyes because of their rarity. The 3.0-litre engine sounds deeper than the 2.7 and the clutch needs to be fully depressed for clean changes, as is the nature of Porsche synchromesh. The SC on wider tyres is a shade heavier to manoeuvre than the 2.7-litre 911, and once underway, it feels distinctly torquier. It would take a longer test to decide whether those extra 30 horses really make a difference in performance terms, but the servo brakes are lighter and the SC does not roll as much, feeling more stable in corners. Again, it is a car to enjoy on challenging secondary roads like these, its tactile feel making it another thinking driver's car.

It was Fuhrmann's block on significant 911 development that delayed a further increase in capacity. His departure early in 1980, however, meant that Porsche could once more get on with development and use the logical combination of the 74.4 mm stroke of the Turbo with the 95mm bore of the SC to make 3,164cc for the so-named 3.2 Carrera. New pistons raised compression to 10.3:1 and maximum power rose to 231bhp, still at 5,900rpm with seven per cent more torque. All the road tests of the time comfortably exceeded 150mph, yet with Bosch's LE injection, which included over-run fuel cut-off, the 3.2 Carrera could claim to be ten per cent

The 2.7 911 needs high revs to have fun, the SC enjoys a better torque range, while the 3.2 feels more opulent all round


C29 CCD
TWR RHX

more economical than its predecessor. Externally some minor tidying up included incorporating the foglamps in the front valance, and tyre widths were a size up on the SC's, while the 3.2 Carrera also sat on 16-inch wheels.

The 3.2 Carrera evolved several body styles: a Targa, Cabriolet, Turbo-look and even a Speedster variant, but mechanically it went its five-year course virtually unchanged except for the switch in 1986 to a Getrag gearbox with conventional cone synchromesh, which Porsche concluded was more appropriate for contemporary traffic. The 915 gearbox with its expensive oil cooler had reached the limit of its torque capacity and the Getrag design also had the more usual 'H' gate shift with first-second and third-fourth planes and was mated to a hydraulic clutch. No significant further development of the 3.2 Carrera would take place though, because within a year of its launch, Porsche had begun work on its successor, project 964.

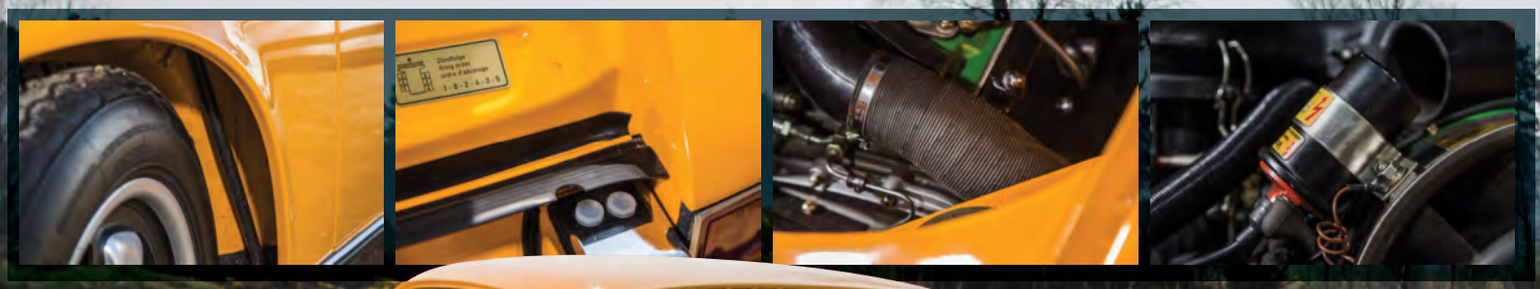
Our test car, a 1984 model finished in Guards red with its dark interior, feels more modern, though essentially nothing major has changed from the SC apart from another steering wheel design. Electric locking, windows and mirrors are now the norm, and the rear quarterlight no longer pivots open. The black carpet and door fittings feel more plush, and together with electrically adjusted seats are part of the reason why the early 3.2 Carrera weighs around 50 kilograms more than the SC. Ten per cent more horsepower and seven per cent more torque ensures that the 3.2 Carrera is quicker off the mark than the SC, though the performance difference barely matters.

The 3.2 Carrera does feel slightly heavier than the SC and 2.7-litre 911, and it handles perhaps fractionally less nimbly, but against that it does have more firepower. Once loosened up, it feels like a very fast, exciting car, even by today's standards. To drive, it is not quite as subtle as the 2.7 or even the early SC, but its greater torque makes progress marginally easier. It is still just as much a thinking driver's car, but reflecting better body control and progress in suspension and tyre design, it is a slightly more forgiving, but no less rewarding an instrument.

Until the impact bumper models, Porsches were relatively rare cars, but their long production run and striking design gave the impact bumper 911 much wider currency. Backed by season after season of competition success, the outwardly unchanged 911 became the benchmark sports car. Ferraris and Lamborghinis might have offered higher top speeds, but they would never tolerate being driven at 200kph-plus day after day, which was what Porsche owners had come to expect, and the Italians would always be more expensive to buy and complicated to maintain. As car fashions evolved, the impact bumper 911 seemed to ignore them. Only a high end sports car with the engineering integrity and character of the 911 could get away with not offering servo assisted steering or ABS brakes or even an automatic transmission option in the 1980s, yet the 3.2 was still selling strongly when production ended in 1989.

Our three models exemplify the subtle evolution in the 15 year life of the impact bumper 911: the yellow 2.7, superbly light and responsive, if by today's standards a little skittish, but huge fun; the blue SC, more discreet, a shade easier to handle, its greater torque and power keeping it firmly in the exclusive fastest sports car club; the more solid and substantial red 3.2, more potent still than its older sisters, but more controlled, more mature.

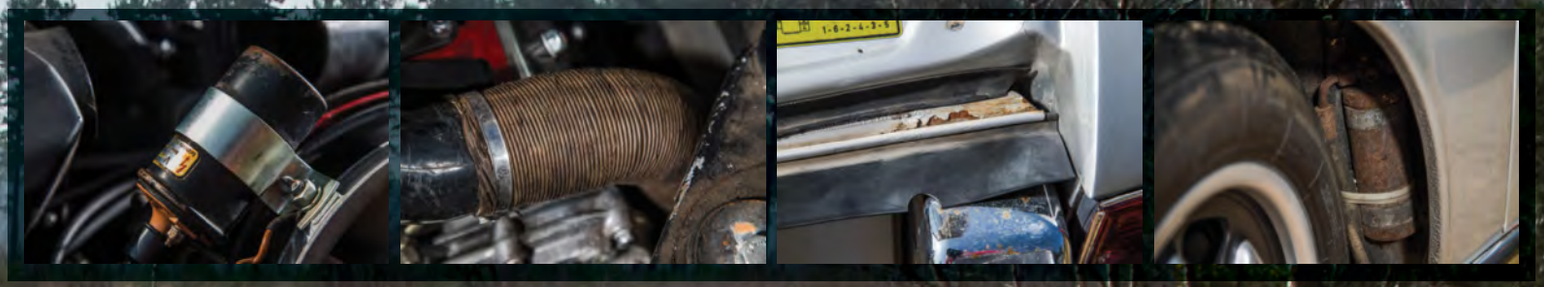
Today, given the choice between the three evolutions of impact bumper here, the 3.2 might be the choice of the head with its superior build quality, performance and more reliable mechanicals, but the non conformist 2.7, so wonderfully light and deft, could be the choice of the heart despite being the lowest powered. **911**



GROWING OLD GRACEFULLY

There are two ways to let your classic 911 age in style, but which one is the right choice for you? Total 911 takes two 1972 examples to investigate...

Written by **Josh Barnett** Photography by **Ali Cusick**



Zuffenhausen claims that "over 70 per cent of all Porsches ever built are still on the road today." It is a statistic that bears testimony to both the famed reliability of the brand's output and the passionate support for cars like our beloved neunelfer. However, despite the impressive survival rate, do not think the remaining contingent of cars from Werk II exist in equality. No. There are two predominantly different means to keeping your classic Porsche 911 alive: preservation or restoration. The former aims to keep the car in working order but allows it to age gracefully, while the latter intends to renovate the car to a factory-fresh condition.

Perched here in the UK's south coast sunshine, both pre-impact bumper 911s are celebrating their 43rd birthday in 2015. Each car represents one side of the preservation-versus-conservation coin and it is now my job to try and decide which approach to classic Porsche 911 ownership is more rewarding. It's a question I continually struggle to answer during office musings, but thanks to the loan of these two cars by early 911 specialists Canford Classics, I can now put my theories into practice to reach a definitive conclusion.

In the preservation corner sits the silver 911 2.4S. Alan Drayson and the Canford team have simply wiped the dust off the distinctive silhouette and warmed the 190-horsepower flat-six engine before handing the keys over to me. It's a reasonably laissez-faire style of maintaining a classic, only replacing and repairing components when truly necessary, but it stills results in a car that fires up when commanded.

At first glance it doesn't look too worse for wear either. In fact, it looks immaculate – causing a problem for our photographer, Ali, as we anticipated a little bit more of a visual difference. However, as you dig a little deeper, evidence of this car's life becomes ever-more evident. The door handles, resplendent from a distance, are actually showing signs of pitting, the paint on the lip of the left rear arch has been scuffed slightly and the famous red fibreglass fan cowling – a 911S trademark – is starting to crack and craze around the edges. Inside, there are similar signs of everyday wear and tear: the steering wheel's leather has been polished to a shimmer by years of use, there are scuffs on the iconic dashboard and there's a slight tear on the driver's-side door seal.

Don't for a minute think this is a Porsche that doesn't meet **Total 911**'s fastidiously high standards, though. While I may have spent the last few minutes reeling off a shortlist of this 911's 'faults', I have had to go around the car with a fine-tooth comb to find them. This is still a Porsche

you would be proud to own. Canford Classics have kept it in beautifully original condition and, if anything, there is something poetic about every imperfection. Each scuff and scrape tells a potential story – that trip to Le Mans, those early-morning drives in the LA canyons. The owner's will to preserve rather than restore has resulted in a car that lays its history out in front of you. It shows you that despite its rarity and six-figure asking price, this is a 911 not afraid of getting out the garage and doing what it does best: enthralling its driver.

By comparison, the Signal yellow 911 2.4E's immaculacy truly holds up to my nit-picking. Thanks to the meticulous restoration carried out by Alan's team, I can't find a visual imperfection anywhere. The door handles are blemish-free, the paint mirror-smooth and the fan cowling's edges as crisp as the day they left the factory.

Achieving this level of detail doesn't come easy. After a recent move to their new countryside premises, Canford currently quotes around a year to completely overhaul a classic 911 to the degree of this 911E. As they settle into their idyllic surroundings, Alan is hoping that will reduce to somewhere between six and nine months, but even then, if you want your car restored to perfection you're looking at a long stint out of the driver's seat. This isn't the option for those who like to live in the moment. Or those without deep pockets.

We didn't broach the subject of cost here (there would be little point as the intricacies of each project can differ largely to the next), but with every small detail taken care of by Canford, you're probably looking at needing a spare £100,000 or thereabouts. However, the results speak for themselves. This '72 911E could now quite happily show its face at any number of concours competitions. At least 90 to 95 per cent of the required work was carried out in-house at Canford Classics, from the initial strip-down through to the excellent respray, engine rebuild and gearbox refresh. If parts cleaned up well they were granted a stay of execution, but where necessary, components were replaced with new items to return this car to showroom-ready condition.

Alan's team are careful about where they source their parts from, too. While the ever-expanding Porsche Classic service takes a lot of its business during a restoration project, Canford also hunts out for stock among a band of respected resellers. For example, while the rear reflectors could be bought from Porsche, Canford prefers to search for original items as these come stamped with both the Porsche crest and the Bosch logo, just as the car would have been when it was new. Attention to detail like this ensures perfect fit and finish throughout, a must for the money and time spent on the project.

With the pair of air-cooled flat sixes suitably warmed up and now idling away happily, it's time to finally get behind the wheel. This is always a momentous occasion with any pre-impact 911, such is the character these cars exude, yet as I stroll toward the Signal Yellow 'E', the sensation is heightened by the car's pristine condition. I feel like I've just arrived at Zuffenhausen in 1972 to pick up a brand-new Porsche.

My awe is intertwined with more than a few nerves though. I'm acutely aware of every rivet in my jeans as I lower myself into the driver's seat, trying my best not to slide straight across the über fresh seat bolsters. Lee, who's taken up his seat in the 911S, is ready to go, but I instead opt to simply

This '72 E has been comprehensively overhauled, from a retrimmed steering wheel right through to reproductions of the original engine bay stickers

sit for a few minutes, soaking up the atmosphere. A smile creeps across my face. It's perfection. The new owner is definitely not going to be disappointed when he takes delivery. However, like me, he may be mildly intimidated.

Don't get me wrong, I'm not scared of piloting this 911 – I've driven many more imposing Porsches – but I am scared of properly driving this car. It feels like I've just bought a Rembrandt and I'm going to take it home in a plastic carrier bag. The level of artistry in its restoration is almost too good to put into motion. Still, my job requires me to slot that 915 'box into first gear and head off...

Denim jacket folded on the passenger seat, my '70s daydream could not be more unadulterated, especially as my mirrors are full of another 1972 Porsche. In reality, the level of restoration has probably taken this car beyond what would have been achieved on the Zuffenhausen production line in period, however, as per his target, Alan's work hasn't made it feel "too new".

The retrimmed wheel slips seamlessly through my hands at each corner without looking out of place in its classic surroundings. The entire

experience is faithfully characterful. The steering is light but perfectly precise and the brakes have that firm feel and sharp retardation that is only achieved with fresh pads and rebuilt callipers. In my left hand, the 915 transmission takes its time to warm up, but when it does, there's little to no slop on the lever when in gear. If anything, the gearbox needs a few more miles to wear in as the third-to-fourth shift sometimes baulks, even when the oil has reached its operating viscosity. No doubt it is one of those little 'snags' the Canford team will eradicate during this final phase of the restoration.

"People think it only takes a few days to finish off a restoration," Alan explains. "But it can take up

From a distance, this '72 S looks just as good. However, perusing it with a fine-tooth comb unearths pitted door handles and flaking paint, highlighting its patina




911E 2.4	Model	911S 2.4
1972	Year	1972
	Engine	
2,341cc	Capacity	2,341cc
8.0:1	Compression ratio	8.5:1
165bhp @ 6,200rpm	Maximum power	190bhp @ 6,500rpm
206Nm @ 4,500rpm	Maximum torque	211Nm @ 5,200rpm
915-type five-speed manual	Transmission	915-type five-speed manual
	Suspension	
MacPherson strut; telescopic damper; torsion bar; anti-roll bar	Front	MacPherson strut; telescopic damper; torsion bar; anti-roll bar
Trailing arm; telescopic damper; torsion bar; anti-roll bar	Rear	Trailing arm; telescopic damper; torsion bar; anti-roll bar
	Wheels & tyres	
6x15-inch Fuchs; 185/70/R15 tyres	Front	6x15-inch Fuchs; 185/70/R15 tyres
6x15-inch Fuchs; 185/70/R15 tyres	Rear	6x15-inch Fuchs; 185/70/R15 tyres
	Brakes	
282mm internally vented discs	Front	282mm internally vented discs
290mm internally vented discs	Rear	290mm internally vented discs
	Dimensions	
4,163mm	Length	4,163mm
1,610mm	Width	1,610mm
1,077kg	Weight	1,075kg
	Performance	
7.5sec	0-62mph	6.6sec
137mph	Top speed	140mph




to a 1,000 miles to 'snag' a car," he continues. While not quite chasing their tails, ensuring each project is delivered free of faults can be a painstaking process and the Canford team remind me to share any little problems I encounter when I return from my test drive. Other than a slight over-fuelling problem in the mid-range, I'm struggling to find faults with this 911E. It's a joy to drive.

Parking up in nearby Wareham Forest, I carefully extract myself before one final session of ogling at the immaculate workmanship. The time has come to jump into the preserved 911S. It has a lot to live up to, even if it is one of my favourite 911s of all time.

I'm instantly more comfortable, though. It's not that the Pepita sports seats are more supportive. No, instead I'm psychologically more at ease in this 2.4S. The years of wear are reassuring to someone like me who just wants to get out and drive. While I was inclined to treat the 2.4E with the finesse of an ancient manuscript at the British Library, this 1972 911S is like slipping on that battered pair of loafers. They may have a few scuffs here and there, but they still do the job and still look great doing it.

I have yet to drive two 915 'boxes that behave in exactly the same way and this preserved five-speed unit continues that trend. Where the 911E was tight and notchy, the S's shifter is silky smooth between the gates. Yet the years of active service are not forgotten: there's ample in-gear play on the long, canted lever and the stick is noticeably more vague between the gate. Similarly, while by no means nonexistent – the car has, after all, been kept perfectly road worthy by Canford – the brakes aren't as sharp in the 911E. I'd favour the Signal yellow's stoppers over the Silver bullet but it wouldn't be a deal breaker.

While accurately comparing the two engines is impossible, given the 25-horsepower difference between 'E' and 'S' tunes, the preserved engine belies its slightly tatty aesthetics. It is full of the sprightly 911S character I loved in issue 120 thanks to the fact it has long since been run in. However, when following the car early, the slight blue haze from the exhaust tip shows it's not long until at least the piston rings and barrels need a check.

After jumping from the restored 911E, it's hard not to notice the imperfections that have crept into the genetic make-up of this 911S. My eyes constantly zero in on the dashboard scuffs and, if this were my car, I could not live with that small rear arch scrape. Yet as I said earlier, this is still a fantastic Porsche. It is the very definition of a 'usable classic'. I wouldn't be afraid to wheel this car out at every opportunity.

By comparison, the 911E would take either a lot of attention, money or time off the road to be maintained in its currently incredible state. I can't decide if the visual perfection this would result in outweighs my fear at spoiling it with dirt, stone chips and oil smears. After a day in the 911E I can truly sympathise with the garage-queen mentality.

Yes, I'm copping out of a definitive decision, but I truly can't choose. Each choice has as many positives and negatives as the other. I can't tell you which to choose, as it's such a personal decision. If you want to feel like you've owned the car for just a few minutes then a full restoration is the only way to go. It may be expensive and time-consuming but it is the only way to satisfy your inner perfectionist, where you will have a blank sheet of paper onto which you can write your car's history. However, be warned; you will be scared of overusing your 911.

Conversely, if you want to feel like you've owned your Porsche for years, preservation is the path for you. Your 911 will turn into a treasured heirloom. Every adventure will bring with it a new scar, a new story to tell over a beer at the end of the journey. You will never be afraid of hitting the open road, but you may end up wishing that scratch and that scuff weren't there.

Whether you choose to preserve or restore, you won't be disappointed with owning a classic Porsche 911, for ultimately, their charm will always transcend their condition. **911**

SPEEDSTER

From 356 to 997, Porsche's Speedsters have enthralled four generations of Zuffenhausen faithfuls. Total 911 heads to the coast to find out what makes them so special

Written by **Lee Sibley** & **Josh Barnett**
Photography by **Daniel Pullen**


G397 TAG

Speedster: undoubtedly the nine coolest letters in the Porsche lexicon. One mention of this legendary Zuffenhausen moniker brings to mind images of the glamour of the Hollywood scene in the Fifties. First appearing in pre-A 356 form in 1954, the Speedster became intrinsically linked with American car culture and Porsche's formative years. However, the iconic status garnered by the original car meant that the Porsche Speedster sub-brand soon transcended its early US-based roots.

Over three decades after the last production 356A Speedster shell rolled out of Stuttgart's Karosseriewerk Reutter, the alternative open-top Porsche was reborn on the 911 Carrera 3.2 platform. Zuffenhausen's board had recognised that the company's heritage needed to be celebrated and ever since, the Speedster has become a limited edition addition to the 911 range.

While it may have been intended for the American market, the decision to reimagine the Speedster aesthetic on certain generations of 911 has seen Stuttgart create some of the most sought after cars in the company's history. Now, for the first time, we've gathered all four generations back together to chart the Speedster's storied history and get behind the wheel of the coolest quartet of Porsches ever created.

We start in 1950 when Porsche's sole US importer, Max Hoffmann, requested a special model of the 356 to appeal to the burgeoning post-war US market. A year later, Porsche presented the aluminium-bodied Type 540 to Hoffmann. Known as the America Roadster, the car was a commercial failure with only 17 sold when it was released in 1952. It's $4,600 list price was simply too high to compete with the influx of British and American sports cars that were flooding the market.

With America still accounting for 33 per cent of all 356 sales, though, Hoffmann persisted. The result was the pre-A 356 Speedster, a cut-price, low spec sports car designed with sporting pretensions. After the demise of Glaser Karosserie, Reutter stepped forward to build the Speedster, incorporating a lower, easily removable windscreen, simple cloth roof and no side windows into the immediately iconic design.

Initially featuring a 1,488cc flat four (available in 55bhp 'Normal' and 70bhp 'Super' specifications) the pre-A Speedster was a red-hot hit, with the 200 prototypes selling out quickly in 1954. A year later, Porsche had to produce over 1,000 Speedsters to satisfy the US's insatiable demand for this simple Stuttgart sports car.

1956 saw the first major revision to the 356 platform with the release of the T1 A Series cars. The Speedster saw its engine capacity increased to 1.6-litres, while the steel wheels were widened to provide better road-holding but reduced from 16 to 15 inch diameter items, a move designed to improve comfort. The low windscreen still remained (as did the idiosyncratic chrome strip running along the car's waistline), although the quarter lights

> "1956 saw the first major revision to the 356 platform with the release of the T1 A Series"

seen on the pre-A models were removed. For the T2 generation of 356A released a year later, further revisions saw the tailpipes moved into the rear bumper over-riders and the bee hive brake lights replaced by teardrop items.

The 356A Speedster, like its forefather, remained a sales success thanks to its low list price but by August 1958 the model was phased out in favour of the Convertible D, a car that shared many similarities with the Speedster, but saw the return of standard roll-down side windows and higher profit margins for dealers.

Climbing behind the wheel of Mark Sumpter's 1956 Signal Red 356A T1, the Speedster has an uncanny ability to immediately make you feel like the coolest person on earth. Peering out through that iconic windscreen, barely cossetted by the lightweight classic bucket seats, is a surreal experience (and one that Porsche enthusiasts are willing to pay north of £300,000 to enjoy). The thin, twin-spoke Bakelite has an elegance that any later design has failed to match, while the three green dials and colour-coded metal dashboard further highlight the Speedster's simplicity.

On the move, the 356 Speedster is undoubtedly best as a boulevard cruiser, with incredible levels of wind noise and buffeting at high speeds, yet for a chassis built nearly 60 years ago, the handling is surprisingly sprightly and direct (even if the all-round drum brakes can provide more than a few scares). The four-speed gearbox is a joy to use, while the 60bhp flat four in Sumpter's car feels remarkably energetic all the way through to its 4,500rpm redline, burbling away with a brassy, thrumming soundtrack. The original Speedster never fails to put a smile on your face, proving its place in Porsche folklore at every opportunity.

During the Porsche 911's formative years, however, the Speedster's legend appeared to have been largely forgotten by the Zuffenhausen elite as engineers set about creating the Targa and, later on, Cabriolet body styles, providing ample open-top choice for Porsche buyers. The Speedster's absence was not helped either by Stuttgart's financial struggles during the late Seventies and early ➲

Model	**Porsche 356A Speedster T1**
Year	**1956**
Engine	
Capacity	1,582cc
Compression ratio	7.5:1
Maximum power	60bhp @ 4,500rpm
Maximum torque	110Nm @ 2,800rpm
Transmission	Four-speed manual
Suspension	
Front	Torsion arms; hydraulic dampers; anti-roll bar
Rear	Torsion arms; radius arms; hydraulic dampers
Wheels & tyres	
Front	4.5x15-inch steel wheels; 165/80/R15 tyres
Rear	4.5x15-inch steel wheels; 165/80/R15 tyres
Brakes	
Front	280x40mm drum brakes
Rear	280x40mm drum brakes
Dimensions	
Length	3,950mm
Width	1,670mm
Weight	760kg
Performance	
0-62mph	13.9 seconds
Top speed	99mph

Above Right: The 356 leads the charge as Porsche's original Speedster concept…

Right: …even though its simplicity is far removed from the design ethos of the latest 997 variant


G397 TAG


PORSCHE

Eighties; a special edition car would surely have been the straw that broke the camel's back.

Yet, with Peter Schultz's appointment to the head of the company in 1981, the Porsche 911's future was revitalised, thanks in no small part to the launch of the 3.2 Carrera. By June 1986, Schultz had already dreamt up the first 3.2 Speedster concept with a design that featured flared wheel arches, no roof whatsoever and a dramatically lowered Perspex windscreen inspired by the 356.

A few months later, Helmuth Bott produced a second prototype (this time on the outdated SC body shell) refining Schutz's ideas with a humped, rigid tonneau cover over the rear seats and a wrap-around windscreen that extended all the way back to the B-pillars. This car undoubtedly provided the main inspiration for the car that wowed and appalled the crowd in equal measure at the 1987 Frankfurt motor show, where a Clubsport spec car was unveiled with a hard-shelled cover that transformed the open-top 3.2 Carrera into a single-seat sports car.

For the production version released in 1989, the styling had been toned down, with a double-hump fibreglass cover hiding a simple fabric roof (that Porsche claimed was purely for weather protection only). A more traditional windscreen was fitted, although it was significantly lower and more steeply raked than the standard 3.2 Carrera glass. The running gear was straight out of the later 3.2s, including the improved G50 gearbox, however the Speedster was offered in both narrow and Turbo body shells, the later proving most popular.

In the flesh, the wider hips of the 930 shell certainly suit the Speedster aesthetic. While it doesn't look as dainty as its 356 inspiration, the 3.2 is not found wanting when it comes to presence. If anything, it looks better in the metal than it ever does in photographs. It's no wonder this car is one of the most sought after classic 911s around.

Without the extra rigidity of the Coupe's roof, the 3.2 Speedster is undoubtedly more suited to leisurely jaunts rather than out-and-out tarmac searing pace. But, with only a 10 kilogram weight penalty over its hard-topped brethren, the Speedster feels lively whenever you want to stretch that 231bhp flat six – and you will most definitely want to do that.

With barely any sound deadening, the 3.2 Carrera powerplant comes alive aurally in the Speedster, providing a soundtrack unlike any other classic 911. Howling away at the upper echelons of the rev range, the flat six's vocals permeate the entire experience without overpowering it. Combined with the slickest pre-89 gearbox we've ever driven, this 3.2 Speedster (another part of Sumpter's open-top collection) is a sub-zero silver bullet. ➲

Model **Carrera 3.2 Speedster**
Year **1989**
Engine
Capacity 3,164cc
Compression ratio 10.3:1
Maximum power 231bhp @ 5,900rpm
Maximum torque 284Nm @ 4,800rpm
Transmission Five-speed manual G50-type
Suspension
Front Independent; MacPherson strut with torsion bar springs; anti-roll bar
Rear Independent; semi-trailing arm; telescopic dampers; torsion bar springs; anti-roll bar
Wheels & tyres
Front 6x16-inch Fuchs alloys; 205/45/R16 tyres
Rear 8x16-inch Fuchs alloys; 245/60/R16 tyres
Brakes
Front 282mm vented discs
Rear 290mm vented discs
Dimensions
Length 4,291mm
Width 1,775mm
Weight 1,220kg
Performance
0-62mph 6.0 seconds
Top speed 148mph

Model **964 Speedster**
Year **1993-94**
Engine
Capacity 3,600cc
Compression ratio 11.3:1
Maximum power 250bhp @ 6,100rpm
Maximum torque 310Nm @ 4,800rpm
Transmission Six-speed manual
Suspension
Front Lower wishbones and MacPherson struts with combined coil springs and dampers; anti-roll bar
Rear Semi-trailing arms with combined coil springs and dampers; anti-roll bar
Wheels & tyres
Front 7x17-inch Fuchs alloys; 205/50/ZR17 tyres
Rear 9x17-inch Fuchs alloys; 255/40/ZR17 tyres
Brakes
Front 320mm vented discs
Rear 299mm vented discs
Dimensions
Length 4,250mm
Width 1,652mm
Weight 1,340kg
Performance
0-62mph 5.5 seconds
Top speed 161mph

Left: Most 964s were built in narrow body form, offering a vastly different presence to that of the 3.2

Right: In terms of equipment, Porsche stuck to what it saw as a winning formula for the 964, with RS-style trim and a Clubsport steering wheel

Model	**997 Speedster**
Year	**2010**
Engine	
Capacity	3,800cc
Compression ratio	12.5:1
Maximum power	408bhp @ 7,300rpm
Maximum torque	420Nm @ 4,400rpm
Transmission	Seven-speed PDK
Suspension	
Front	Lower wishbones and MacPherson struts with combined coil springs and dampers; anti-roll bar; PASM
Rear	Multi-link with combined coil springs and dampers; anti-roll bar; PASM
Wheels & tyres	
Front	8.5x19-inch Fuchs; 235/35/ZR19
Rear	11x19-inch Fuchs; 305/30/ZR19
Brakes	
Front	Xxx
Rear	Xxx
Dimensions	
Length	4,440mm
Width	1,852mm
Weight	1,540kg
Performance	
0-62mph	4.4 seconds
Top speed	190mph

With a fantastic coastal view to enjoy along our test route, the first 911 Speedster is in its element, so much so that it is hard to see how Porsche could have improved on this near-perfect creation.

Improve on it they did, though. Backed by strong sales of the first Speedster in 911 guise, Porsche were buoyed into producing another variant just four years later under the 964 programme. Based on the rear-driven Carrera 2, the 964 Speedster featured, like its predecessor, no rear bench and a manually-operated hood that folded neatly under a double-bubble glass fibre panel behind the seats. The hood, much like the raked windscreen, was borrowed from the earlier 3.2 Speedster and simply fitted to the 964's newer coachwork. Limited specification once again was the order of the day – manually operated exterior mirrors were housed in the later 'teardrop' covers, with RS-style door cards and a choice of Recaro buckets or Sports seats.

The majority of 964 Speedsters sold were narrow bodies sitting atop 17 inch Cup alloys – usually colour coded to match the hue of the bodywork – with just nine wide body cars known to be in existence. A right-hand drive 964 Speedster, such as the Polar silver example on our road test, is also a rarity, as only 14 were built to this specification. However, a 964 Speedster of any iteration is considered a rare find today as only 900 examples were built, Porsche blaming tough economic conditions at the time for its relative sales flop.

Personally speaking, we consider the 964 to be the least prettiest of our Speedster quartet. Usurped by its wider-bodied company, the 964 purveys a very different look to the broad, squat visuals associated with a traditional Porsche Speedster. Its ride height looks almost unnaturally high, though this is a flaw that befalls every example of this second-generation 911 Speedster.

Middle left: Deviating from the Speedster blueprint of simplicity, the 997 is lavished with extra features as part of its luxuriously high specification

Right: Powerkit and PDK gearbox ensures the 997 needs a different driving style to any other Speedster

"Many original hallmarks transcended to the 997"

At the wheel of the 964 – fitted here with an optional Clubsport item – the sensations are very different, though. The last 36 months has witnessed the ascending reputation of the 964 as a desirable modern classic and this Speedster is no different.

While not matching the sporting finesse of a fixed-roof equivalent, the 964 boasts a beautiful blend of organic Speedster experience mated to improved handling that the comparatively antiquated G-series just can't match. ABS-assisted brakes for the first time provide ample stopping power when called upon, while there's little fuss to be made from operating the improved heater controls (which, if you're at the mercy of the UK's interchangeable climate, you certainly will need to get acquainted with).

The 964's powertrain is equally impressive. It's M64 engine produces a zesty 250bhp that's entirely usable on public roads, delivered to the rear wheels via a G50 gearbox that boasts an effortlessly crisp throw (and shorter than that of the 3.2). Backed by the improved agility of a reworked chassis, the 964 here is a contender for 'most enjoyable


Speedster
23 UP


23 UP

drive' as our four Speedsters continue to snake through twisting B-roads among the rolling Sussex countryside. In fact, it doesn't take long to surmise that it's a great shame so few 964 Speedsters saw the light of day. Those 936 examples that did get built were far short of the 3,000 that Zuffenhausen were rumoured to have predicted. The 911 Speedster was duly put to bed – and many thought for good.

There was to be a wait of 16 years before a new Porsche Speedster left the factory (not including the two 993 Speedsters built by Exclsuive for Jerry Seinfield and the Porsche family, of course). Built to celebrate 25 years of the Porsche Exclusive department, just 356 examples of the 997 Speedster were made, available in just two colours: real blue, or white, as seen in our pictures. The 997 remains the only water-cooled Speedster ever to roll out of Zuffenhausen, and it's not just in engine cooling where the 997 differs from those previous three generations of Speedster before it.

Whereas the blueprint for the 964 was to cut mass where possible, the 997 sacrifices weight saving in the quest for extravagance, weighing in at some 50 kilograms more than its Couped Carrera brethen. The result is a long way away from Max Hoffman's famous remit for an open-top Porsche with limited specification, but the latest Speedster was built only after consultation with selected would-be buyers. As such, the 997 Speedster is lavished with added equipment including a Powerkit, PDK gearbox, PASM, PCM sat-nav and cruise control, while electrically adjustable heated Sports seats are a welcome additional convenience too. A 44-millimetre wider 'Turbo' body coupled to a front end from the 997 Sport Classic (with a deeper, vented front lip) ensures the Speedster of its exceptional presence on the road.

The last Speedster instalment may represent a considerable evolution to Porsche's open-top icon, but many original hallmarks transcended to the 997. Its iconic windscreen line is achieved

thanks to a 66 millimetre-shortened item, though its rake angle is the same as that of regular Carrera contemporaries. Other classic Speedster hallmarks still evident include black stone guards ahead of the rear arches, that double-bubble rear deck over the roof stowage department (now waterproof), plus genuine Fuchs wheels resplendent in their larger, modern 19-inch form.

From inside, it's hard to ever forget you're sitting inside a very special 997. Aluminium kick plates with illuminated 'Speedster' script greet you when opening either door, with a unique build number emblazoned here and on a dashboard-mounted plaque. The rear bench is replaced with carpeting, as per the Speedster dictum, and a chequered strip running up both seats is colour-coded to the painted dashboard panel inserts. Look beyond the Sport Design wheel with paddle shifts from the driver's seat and you'll see a tachometer with more 'Speedster' script in its centre, too.

The ride is firm as you may expect, so there's little need to ever deploy the harder PASM setting for this lavish street crawler. The 997 feels every bit as heavy as its 1,540 kilogram net weight suggests, and while the Powerkit orchestrates a linear power curve with noticeably more low-down torque, this is still very much a modern-day boulevard cruiser with mod cons thrown in for good measure.

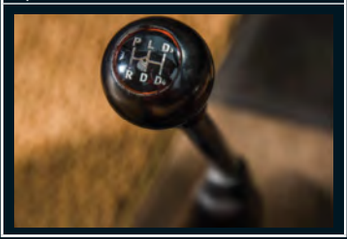
Bizarrely, that means the 997 Speedster has reached something of a juxtaposition in terms of its overall image: for while it can be considered a very good special edition 997, it is also arguably the least favoured Speedster as it digresses so far from that original bloodline. However, the ace here is that these technological mod cons can be turned off, giving that simple Speedster adage of basic motoring – merely man and machine working together – back to you in an instant. A 911 Coupe may well be the desired choice for performance Porsche driving, but when it comes to a gentleman's drive, there is none better than the iconic Speedster – no roof needed. **911**

SPORTOMATIC V TIPTRONIC V PDK

The 911's long list of two-pedal variants often gets overlooked, but can you find driver involvement with your left leg lying around? Total 911 finds out...

Written by **Josh Barnett** Photography by **Alisdair Cusick**

911 E
1972
Sportomatic



From the 2.4-litre 911E to the latest 991 Carrera via a 993 variant, our latest group test covers over 40 years of the 911's legacy. However, I am not charting the traditional history of Zuffenhausen's legendary sports car today, something that has been done with regular occurrence in the past 12 months. No, I'll leave such a celebration for the 911's Diamond Anniversary in 2023. Instead, my attention is turned to each car's gearbox, hidden away under the trio of enduring silhouettes before me.

At **Total 911**, we're usually seen stirring a manual variation, my preferred shifting method of choice. Yet the ascendency of PDK now leaves me in a minority when it comes to new 911s. This gear-shifting is undoubtedly the 'air-cooled versus water-cooled' debate for the 21st Century, with the issue coming to a head last year as the 991 GT3 was released with a compulsory PDK unit. Nearly 12 months (and one scintillating test drive) since that revelatory announcement, I am still not enamoured with PDK, even if it is a technological marvel.

The issue of non-manual 911s is not a new one though. Since the late Sixties, you could choose to make your left leg redundant at the helm of a 911, with all three Stuttgart stunners before you leaving the factory bereft of a clutch pedal.

In our manual-versus-PDK test last year, I conceded that Porsche's Doppelkupplungsgetriebe "outperformed the manual in every area". Even then though, I still reached for the keys to the manual at the end of the day in a display of deep-rooted traditionalism that, if extrapolated to its logical extremes, would have me hunting for my dinner

PDK proves slick, smart and sporty, perfectly capturing the 911's do-it-all character – but it is too clinical?

rather than heading to my local supermarket. The very concept of these 911s is anathema to me, but ever the intrepid investigator, I am determined to find one to my liking. Having not driven a PDK 'box for a while, I'll start with the 991. Maybe absence has made my heart grow fonder.

The mechanics behind PDK never fail to astound me. Effectively, the seven-speed transmission is split into two gearboxes, all housed within the same casing. Incredible. Two concentrically mounted wet clutches are connected to two separate input shafts. The larger, outer clutch – measuring 202mm – drives the solid, inner shaft, to which all the odd-numbered ratios are mounted. Second, fourth and sixth gears are connected to the hollow outer shaft, driven by the smaller, 153mm inner clutch.

While in a traditional manual it is the movement of the gear lever that activates the gear-selector forks, PDK uses electro-hydraulic actuators controlled by the ECU. When accelerating in second gear, third is already pre-engaged on the other shaft. The upshift itself comes when an electronic signal to the clutch actuators sees a transition from inner to outer clutch in less than 100 milliseconds. The same process is in effect (albeit reversed) during decelerations, while the ECU controls the myriad shift patterns depending on a number of metrics. Readings are taken from all over the car to determine the perfect shift style for the situation, with Normal, Sport and Sport Plus adjusting the length that the computer holds onto each gear.

It really is a seamless system. Pootling around town or cruising on the motorway is an effortless experience in fully automatic mode. Under gentle driving I can barely perceive the gear changes, while the 'box's brain always proves smarter than mine when it comes to stretching my fuel mileage.

PDK continues to excel as I push on. Still fully automated, its gear changes remain predominantly natural, downshifting on the way into corners before changing up on the way out. Coupled with barely a hint of power loss during each shift and the ability to focus on my left foot braking, PDK is undoubtedly the fastest way to make progress in a 911; something that shouldn't be a surprise given its initial development for the 956/962 prototypes during the Eighties.

Despite a two-decade convalescence before its production deployment in 2008, PDK has its foibles. For all its lighting-quick shifts and rev-matching prowess, the kick-down function is still too easy to activate, even if the transmission's transition from seventh to second is effortless. This is especially annoying in Sport Plus mode, when heavy throttle applications should be expected, and I can't help but feel detached from the full 911 experience, even when using the paddles or sequential shifter. Call the cliché police, but it's all a bit 'PlayStation'.

It's also incredibly evident how far PDK has already progressed since its inception in the Gen2 997. The 991 is noticeably more fluid, with the ECU's ability to learn and adapt to your driving style more pronounced. The automotive industry's rapid progress means that the heavily computer-reliant PDK has already aged once. In 20 years time, will it simply feel outdated?

My fears about ageing aren't unsubstantiated. While the PDK is very much an automated manual in both design and operation, the Tiptronic system – a stop-gap solution during PDK's 25-year development – is very much an old-school automatic transmission, even if it did break a few boundaries upon its release in 1990.

The engineers at Porscheplatz realised that for a car with such sporting credentials, a regular automatic transmission would not suit the 911's character, nor the wishes of potential owners. Collaborating with gearbox gurus ZF, and electronics specialist Bosch, Porsche set about creating the world's first semi-automatic gearbox, with the resultant transmission debuting on the 964 in four-speed form.

Although the ability to switch into a 'manual' mode was a new one 24 years ago, Tiptronic's mechanical underpinnings were, in reality, anything but. A torque converter was employed to transfer the engine's rotation to the gearbox, with the transmission's internals using the sun, planet and ring gears traditionally utilised in fully automatic gearboxes. While operation of such an automatic is simple, the mechanical reality is a lot more complex, my English rather than Engineering degree not leaving me well placed to do so.

In (very) basic terms, a torque converter is a fluid coupling between the flywheel and transmission input shaft. The internally finned housing is bolted to the flywheel, with transmission drawn in through its centre as the crankshaft rotates. Centrifugal force causes the fluid to spin the edges, powering a turbine blade that is connected to the gearbox input shaft.

Inside an automatic gearbox, rather than the two clusters of ratios normally seen in a manual 'box, three distinct, concentrically mounted gears are

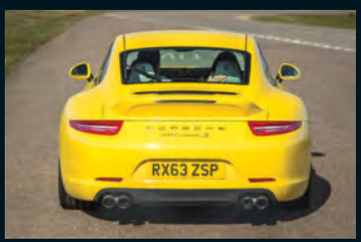
Ready for launch

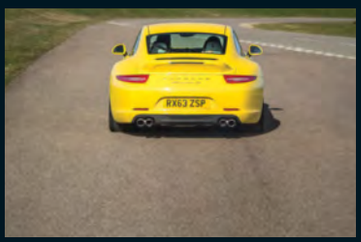
Traditionally, due to the power losses and time taken for the torque converter to lock up fully, automatic cars have accelerated more slowly than their manual counterparts. For example, the 993 Carrera Tiptronic is a mighty 0.8 seconds slower from 0-62mph than the stick shifter.

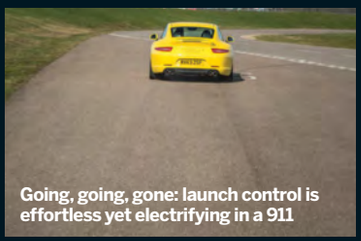
However, thanks to borrowing much of its design from a manual transmission, PDK actually helps your 911 accelerate faster. Like-for-like, the dual-clutch 'box is 0.2 seconds faster than a manual 991 Carrera. Yet, PDK has an extra weapon in its drag strip arsenal if you spec the Sport Chrono package: launch control.

In Sport Plus mode, hold your left foot on the brake and slam the throttle pedal down through its kick-down zone. The ECU will lower the rev limit to around 6,500rpm and a 'Launch Control activated' message will be displayed on the digital fourth pod. From here, you have a few seconds to release the brake and perform the ideal standing start. The PDK will even automatically shift up at peak power, while PSM will quickly monitor the available traction and adjust the power delivery accordingly.

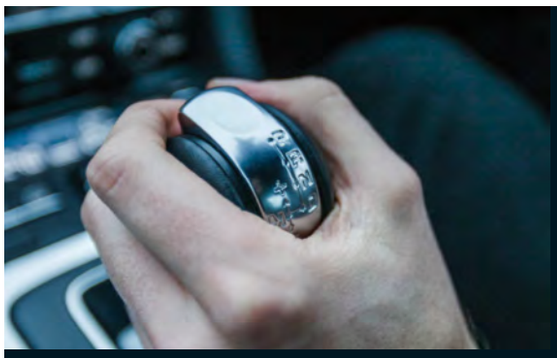
The end result is a lightning-fast launch with minimal fuss, shaving a further 0.2 seconds off the standard PDK 0-62mph time. It's even more impressive in the latest Turbo S, where the combination of 560hp and PTV can see 0-62mph sprints in under 3.0 seconds!

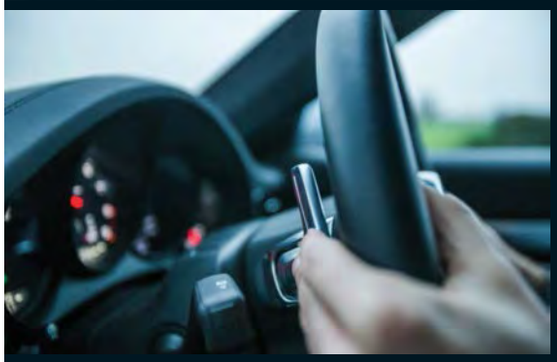


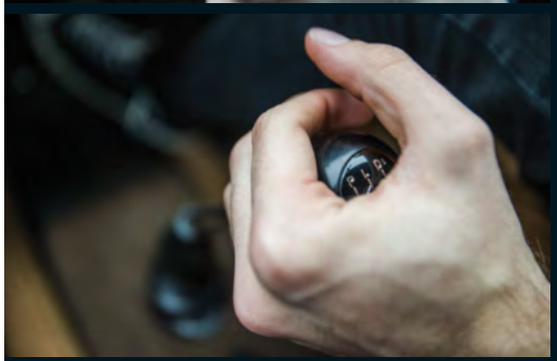


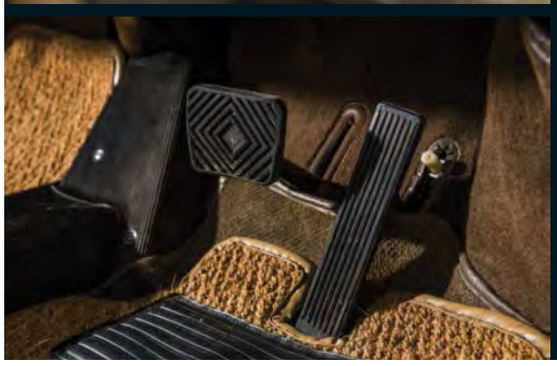


Going, going, gone: launch control is effortless yet electrifying in a 911









Driving a Tiptronic 911 is relatively easy, yet the clunky downshifts spoil an otherwise involving 993 experience

used: an outer ring gear, an inner 'sun' gear and a set of 'planet' gears mounted on a carrier between the former two. With one gear remaining stationary at all times, three different input/output pairings can be made (one of which is a reverse speed). Therefore, something like Porsche's four-speed Tiptronic required two sets of ring, sun and planet gears.

Myriad clutches and bands enable each gear change, with the shift point dictated (in the most basic systems) by a circuit formed out of hydraulic shift and throttle valves, as well as a governor. The harder you accelerate, the more pressure the throttle valve exerts on the shift valve, requiring a greater engine speed to open the latter and cause the governor to shift gear. This is why normal automatics change up early during gentle driving, yet are able to adjust for spirited blasts. In addition, Tiptronic featured various embryonic computer controls that purportedly learned your driving style and adjusted accordingly.

As well as the sequential shift gate, our Porsche 993 also features steering wheel-mounted shift buttons as part of the Tiptronic S system introduced in 1995. With both buttons capable of shifting up and down, they feel ergonomically awkward. It's incredible that basic PDK 911s use a similar setup a quarter of a century later.

The sequential lever is therefore the more enjoyable 'manual' option, with a much longer throw than the equivalent PDK unit but greater spring loading. It provides a welcome tactility to the experience of changing gear (though the lever's attempts to ape a mechanical system eventually feel contrived). Pushing the lever to change up, I'm surprised at how quick the response time is too, with a relatively swift shift rattled off without undue delay or jerkiness.

Unfortunately, the same can't be said for coming down through the gears. Expecting an instantaneous response was naïve, but the system's propensity for shifting when it, not I, is ready quickly grates, as does the transmission's inability to automatically rev match. Downshifts during spirited excursions are coupled with an unsympathetic lurch forward as the engine speed jumps up to match the wheel speed, making me long for JR Motor Company's manual 993 Carrera instead.

In auto mode, Tiptronic behaves sensibly enough for the most part (although it does have a tendency to pull away in second rather than first). However, despite all the Porsche development and engineering nous, at its heart is very evidently still an old-school automatic that likes to change down readily on the exit of corners. Ultimately, Tiptronic is merely a pretender to manual's crown, even if it does have the added novelty that standing starts feel like you're launching a flat six underground train, such is their smoothness and soundtrack.

From the 996 generation onward, Tiptronic did benefit from an extra ratio, while the mechanicals from ZF and electronics from Bosch also improved efficiency, speed and shift patterns. PDK understandably blows it into the water though. If only Zuffenhausen could have implemented it at the time, rather than making us persist through 964, 993, 996 and 997 Gen1 variations.

With PDK too clinical for my Luddite tastes, and Tiptronic's performance blunted by its technological era, I'm holding little faith in enjoying the oldest car on test: a Sportomatic-equipped Porsche 911 2.4E. The pre-impact era is, in my eyes, the epitome of what a 911 should be, with each car in my previous 911S group test proving incredibly involving, thanks in no small part to the manual gearboxes. Removing this key ingredient from the mix will undoubtedly blunt the experience, no?

Sportomatic was introduced in 1967 – just three years after the 911 went on sale to the public. Unlike both the PDK and Tiptronic 'boxed cars I have just stepped out of, this 1972 911E cannot change gear on its own. However, just like its two more modern brothers, Sportomatic 911s are still devoid of a clutch pedal, although the manual's traditional H-pattern gear lever remains.

To change gear, a micro-switch is activated whenever the gear lever is depressed slightly. As soon as you touch the gear knob a solenoid is set in motion, opening a pneumatic valve and causing a vacuum cylinder to disengage the single-plate dry clutch. This then allows you to move through the gears in the time-honoured fashion, making my role an integral part of the driving process, even if the torque converter also fitted by Porsche will allow me to stop in gear.

The least 'automatic' car here, the Sportomatic 911E doesn't suffer its lack of a clutch pedal, proving enthralling

Until now, I have never hesitated to jump straight into a 911. However, the thought of controlling the gear change purely with my left hand has me pondering for a few minutes before setting foot inside the 1972 'E'. "Don't overthink it," says owner John Aucott, who I've asked along for my initial test drive.

Like the 915 gearbox that would have adorned a similar manual 2.4-litre 911, the transmission is initially reticent to go into first gear (or 'L' for Low, as it is confusingly labelled in Sportomatic cars). We're soon underway with minimal fuss though, aided by the lack of no tricky period clutch. 'L' is definitely imbued with short legs, as I'm soon required to change into second – also as 'D', the gear Porsche recommend pulling away in under normal conditions.

I reach for the lever early, only to realise that I can no longer pre-empt my shifts. Touching the lever while still hard on the throttle would cause a costly over-rev, as the clutch would inadvertently become disengaged. Pausing until the exact moment I want to change, I then lift off the throttle before effortlessly moving the lever downward. That's it. Gears have been shifted and we're back to chasing the horizon again. For a system that's over 40 years old, it feels magical. There's a smile of childlike wonderment creeping across my face every time I shift.

Hard accelerations in the 911E are initially met with the slipping feeling that only a torque converter can provide. For the first 300-500rpm of each hard throttle burst, that idiosyncratic electric-like whirr punctuates the air before my ears are once again attuned to the sound of an air-cooled flat six punching beyond 3,000rpm. Other than this idiosyncrasy, the Sportomatic functions in much the same way as a manual. With some practice, you can even blip on your downchanges, all while left-foot braking. No wonder Vic Elford liked the system, supposedly towing his caravan to race meetings during his tenure as a works driver with a Sportomatic 911.

Elford was convinced of the system during the 1967 Marathon de la Route, an epic 84-hour race around the Nordschleife where the Brit triumphed alongside Jochen Neerpasch and Hans Hermann in a Sportomatic-equipped 911R. 48 years later, I find myself agreeing with 'Quick' Vic.

Given my predilection for manual 911s, it is possibly a cop-out to declare the Sportomatic transmission my favourite. But it combines the clutch-less ease of an automatic with the involvement of a standard H-pattern. Some called it the answer to a question that wasn't asked when it was realised, but Sportomatic stayed around until 1980, proving that it wasn't a fad. PDK may be most people's automatic king, but back in the heyday of analogue sports cars, Porsche proved that you can lose the clutch pedal without losing your grin. **911**

Model Year	911E 1972	993 Carrera 1996	991 Carrera 2014
Engine			
Capacity	2,341cc	3,600ccc	3,436cc
Compression ratio	8.0:1	11.3:1	12.5:1
Maximum power	165bhp @ 6,200rpm	285bhp @ 6,100rpm	350hp @ 7,400rpm
Maximum torque	206Nm @ 4,500rpm	340Nm @ 5,250rpm	390Nm @ 5,600rpm
Transmission	Four-speed with automated clutch and torque converter	Four-speed Tiptronic semi-automatic	Seven-speed PDK automated manual
Suspension			
Front	MacPherson strut; telescopic damper; torsion bar; antiroll bar	MacPherson strut; coil springs; antiroll bar	MacPherson strut; coil springs; antiroll bar
Rear	Semi-trailing arm; telescopic damper; torsion bar; antiroll bar	Multi-link; telescopic dampers; coil springs; antiroll bar	Multi-link; telescopic damper; coil springs; antiroll bar
Wheels & tyres			
Front	6x15-inch Fuchs; 185/70/HR15 tyres	7x17-inch alloys; 205/50/ZR17 tyres	8.5x20-inch alloys; 245/35/ZR20 tyres
Rear	6x15-inch Fuchs; 185/70/HR15 tyres	9x17-inch alloys; 255/40/ZR17 tyres	11x20-inch alloys; 295/30/ZR20 tyres
Brakes			
Front	282mm discs	304mm drilled and vented discs	350mm carbon ceramic discs
Rear	290mm discs	299mm drilled and vented discs	350mm carbon ceramic discs
Dimensions			
Length	4,163mm	4,245mm	4,491mm
Width	1,610mm	1,735mm	1,808mm
Weight	1,077kg	1,370kg	1,400kg
Performance			
0-62mph	7.5 secs	6.4 secs	4.6 secs (4.4 secs in Sport Plus)
Top speed	134mph	168mph	178mph

991 SUPERTEST

This year's Targa release completes the non-GT line-up of the latest-generation Porsche 911. But which body, chassis and engine combination provides the most exhilarating driving experience? Total 911 takes to the utopian asphalt decorating north Wales in the ultimate Carrera cross-examination...

Written by **Lee Sibley** & **Josh Barnett** Photography by **Ali Cusick**


RF63 DSU
A911 FWD

The monotony of the M4 motorway was quickly dealt with by the four 991 Carreras, before the crossing into Wales signified the start of the driving fun

What's your idea of the perfect road trip? Be it a quiet, Sunday morning blast in that revered air-cooled 911, or a cross-continental epic in a modern supercar, we all harbour a vivid dream – some perhaps executed – of that idyllic drive.

My own utopian road trip can be aptly personified across the next 11 pages: consisting of a deserted mountain pass on a hot summer's day with a mouth-watering flat-six ensemble to complement. As well as Ali Cusick and his camera, I'm joined by my staff writer, Josh, and owner of this fine publication, Damian, for this extraordinary road trip, organised with one titillating mission in mind: to test the 911 Coupe, Cabriolet and Targa models in our possession.

Now, our three new sports cars chewing up the blacktop among the idyllic setting of north Wales may share the same gorgeous shade of Sapphire blue and a flat-six boxer engine, but this is where most of the similarities end. Instead, the three of us are piloting a tasty treble of 991s, each representing a delectable iteration of new 911 Carrera. The differences between the Zuffenhausen trio before us make for fascinating cross-examination: two are open-topped; a different two have all-wheel drive; another two have manual gearboxes, and all have diverse power outputs. This, then, is the supertest of the entire 991 Carrera range, as we dissect each engine and chassis and delve into the options list to discover the very embodiment of the current 911 outside of its Turbo or GT lineage.

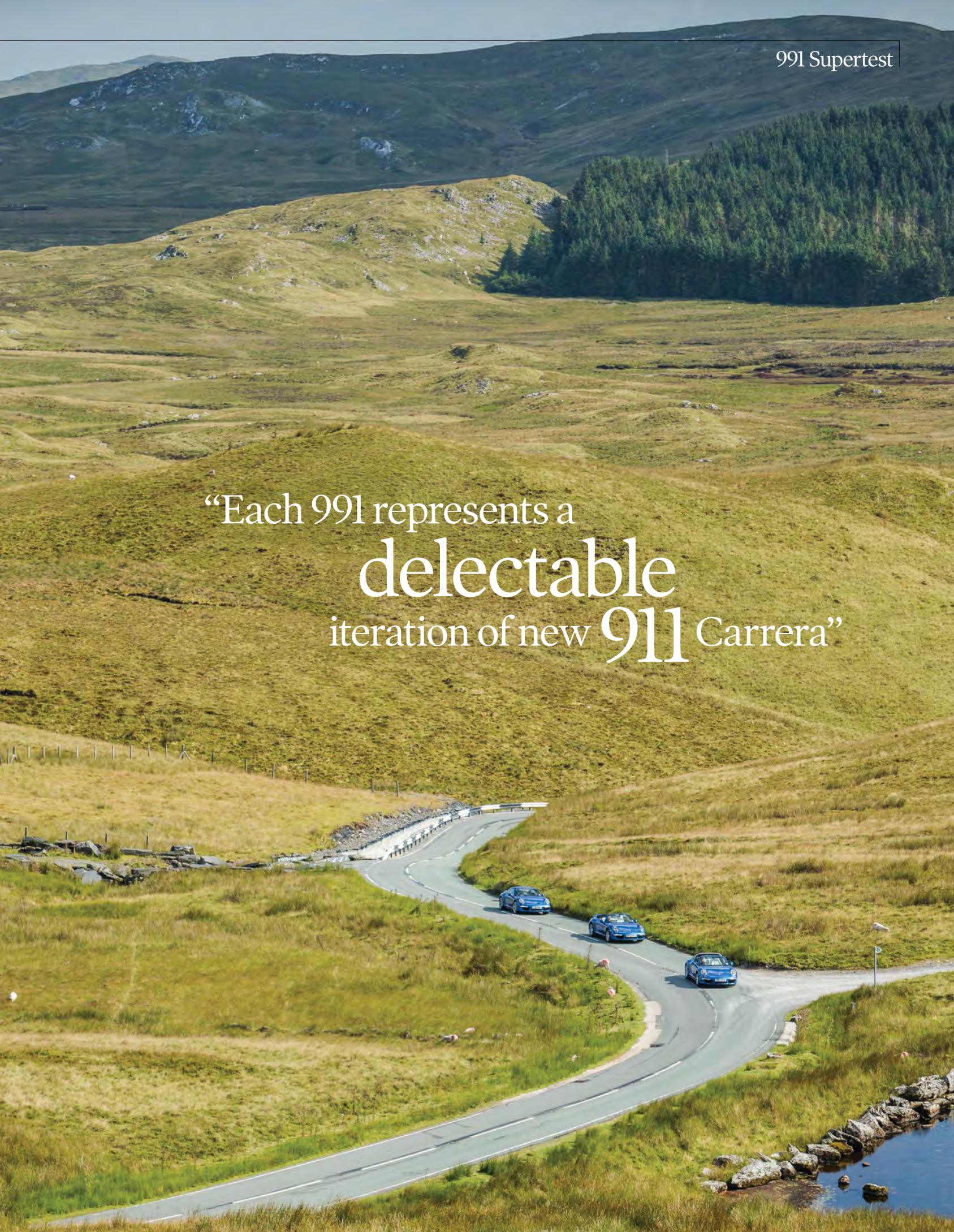
Our earlier journey from Porsche GB's headquarters in Reading was fairly nondescript, the convoy of Carreras settling into an amicable

Sport Chrono: Do you need it?

The Sport Chrono package is a debatable option. From the driver's seat, all that appears to have been added is a centrally mounted stopwatch/clock and a button marked 'Sports Plus' on the centre console. Push that button, and there are some noticeable changes to the dynamics that some drivers may find a necessity, but at £1,085, we'd argue that the money could be better spent elsewhere.

The most prominent transformation is the sharper throttle response. It's a welcome tweak, providing greater adjustability mid-corner, and it works especially well with the higher-stability management threshold that Sport Plus mode activates.

Sports Chrono also provides dynamic engine mounts, but in reality they make very little difference, even during spirited road driving. The rest of the package predominantly seems to focus on turning on various modes that you can activate at the touch of a button (such as PSE and PASM), while the Launch Control feature and auto blip (the former on PDK, the latter on manual) are entertaining, but little more than party tricks.



"Each 991 represents a delectable iteration of new 911 Carrera"

Battle of the open-top: Cabriolet v Targa

Here at **Total 911**, it is generally accepted that the Coupe is the ultimate Porsche 911 body style. It is the only car that truly provides the silhouette synonymous with Zuffenhausen's darling sports car, and thanks to plentiful chassis stiffness, it also offers the most dynamism among the three 991 Carrera shapes available. However, that doesn't stop us from comparing the two open-top choices, especially as for the first time in nearly a quarter of a century, convertible connoisseurs have two truly distinct choices before them.

First off, when it comes to the visuals, the new Targa wins hands down. It's a truly gorgeous car that seems to grab people's attention wherever it goes (especially in the luscious Sapphire blue hue). Looks-wise, it's possible that it's even prettier than the Coupe, with the silver roll bar providing extra aesthetic interest. In comparison, the Cabriolet is still the least appealing visually despite the bulbous rear haunches having been reworked. What's more, thanks to the efforts of Zuffenhausen's engineers, the roofline nearly matches the perfectly proportioned Coupe and Targa.

Yet, when it comes to the job of providing an enjoyable al fresco motoring experience, the Cabriolet is definitely the car to have, especially if you intend to embark on any long-distance, top-down trips. The fabric roof (reinforced with a titanium frame) folds away at an impressive pace, and can be operated with the car rolling, albeit below 31mph. Conversely, the Targa's electro-mechanical system can only be activated at a standstill, and takes a further six seconds to 'de-roof' compared to the Cabriolet.

Once underway, it becomes more apparent which 911 provides the more consummate open-top experience. Wind noise and buffeting in the Cabriolet is surprisingly minimal to the point that you'll be putting the roof up not to get some respite from the air, but from the sun. The electrically operated wind deflector that raises above the rear seats does a superb job of preventing any uncomfortable gusts around the cockpit, allowing you to enjoy the superb engine sound that resonates from behind.

In the Cabriolet, the idiosyncratic engine note is amplified, making it more enjoyable aurally than even the Coupe. What's more, basking in the unseasonably hot Welsh sun, the extra breathing room of the Cabriolet makes it a truly unforgettable experience for all the right reasons.

Conversely, in the Targa, buffeting is the major detractor. At any speed over 50mph, the air crashes noisily against the upper edge of the roll hoop. The effect is unbearable at times, especially on steady speed cruises. A 911 for the motorway this is not. Lowering the windows by an inch or more can remove the effect, but this only serves to dish out an uncomfortable blast of air to your face. On the Welsh lanes, the effect isn't so pronounced thanks to constant fluctuations in pace. However, the wind always overcomes the engine note (even with PSE on), removing a major draw of the 911.

Where the Targa does well, though, is in its chassis balance. For all intents and purposes it drives like a Coupe, with the same confidence when cornering (no doubt aided by the 4's wide rear track). The front end is sharp, while the Cabriolet (admittedly in standard Carrera spec) is much softer and wallowing. The latter often requires more driver involvement to drive quickly, but the Targa, with its supreme poise, is ultimately the faster point-to-point, despite weighing in at over 100 kilograms more than our Cabriolet.

This weight may not manifest itself in the Targa's cornering performance, but it does require the additional grunt of the S's engine, as Lee found out last issue. Conversely, the lack of precision from the Cabriolet means that if this is the open top 911 for you, the S's chassis is a must, even if like-for-like the Cabriolet costs £600 more than the Targa.

"When it comes to visuals, the new Targa wins hands down"

pace as we entered Wales via the Severn bridge. 45 minutes later and north of Abergavenny, the roads begin to take on some character: boring duel carriageways make way for exciting B-roads that dart through glorious, sweeping valleys. Rising to the occasion, the three of us elect to push on. I'd started the day in the 3.4-litre Cabriolet, with standard suspension and bigger-profile tyres, which begin to feel noticeably soft in the corners under spirited driving. I find myself craving more precision on turn in, the frustrations only exacerbated by the sudden build-up of traffic through Builth Wells, which this weekend is playing home to the annual Royal Welsh Agricultural Show. Working the heavy clutch pedal as we crawl through the nostalgic, narrow streets, I reason that as amicable as the Cabriolet is for roof-down pleasantries, I yearn for a more precise driving setup for the glorious roads that await us in the afternoon.

We use the traffic as reason enough to take a fuel stop and swap cars, giving us a chance to sample the second 911 in our trio of Sapphire blue test mules. I climb in the Powerkitted C4S Coupe, mated to a manual 'box. This feels more like it: PDCC on a lowered sport suspension offers a much more focused experience from the driver's seat, and it doesn't take me long to revel in the immediate pace of the 430hp Coupe.

After spending the afternoon blasting towards our destination of Ffestiniog in north Wales, we turn off the A470 trunk route – intermittently laden with slow-moving caravans and coaches – in favour of a deserted mountain pass heading for Bala.

The B4391 is in many ways the complete road, with a faster, well-sighted lower section making way for tighter and more technical corners the higher you climb up the mountain.

We'd waited all day for the next 30 minutes of tantalisingly twisty asphalt, and the road – as well as the 911s – were not about to disappoint. As the occasional single-seat racer, Josh was the first to peel away despite piloting the lesser-powered 350hp C2 Cabriolet. Undeterred, I take chase in the Coupe, spurred by confidence in its delightfully rigid chassis. This C4S really is the most complete 991 Carrera I've driven, but then it should be, given its £107,000 all-in price tag.

In fact, I soon realise that the C4S with Powerkit makes me look good, as any pace lost from clumsy, over-zealous braking on the tight B-roads is quickly recuperated from a lively mid-range offered by the mighty 430hp Powerkitted flat-six. The PCCBs fitted to the Coupe mean only a gentle prod on the brake pedal from the ball of my right foot is enough to shed pace from the Porsche. It takes me a while to get used to the sensation of not having to jump ➲

Powering the 991: 3.4 v 3.8 v Powerkit

Blasting up a North Welsh hillside, it's hard to find fault in any of the engine configurations found in our three Sapphire blue 991s. As we wind up one wonderfully inviting pass among our stunning scenery, the howl of flat sixes bouncing off the sheer rock face to our right is enough to move even the staunchest of water-cooled doubters. In cannon, each azure rocket launches forward, the sports exhausts adding extra theatre to an already impressive scene. On reflection, though, each powerplant enjoys its pros and cons, with a source of propulsion being perfect for nearly every driver.

The 3.4-litre engine mounted in the 991 Carrera is, on paper, the weakest of the three motors. Its 350hp can only propel a manual Coupe to 62mph in 4.8 seconds, with our heavier Cabriolet achieving the same sprint a further two tenths slower. Below 3,000rpm, the engine has a decisive lack of torque that can leave you red-faced against modern German turbo-diesels. On the flip side, the engine's obvious lack of potency instead manifests itself with some seriously impressive fuel economy statistics; here, you can reasonably expect ratings of 30 miles per gallon plus with concerted, regular driving.

Yet, this is not to write off the 3.4-litre DFI engine entirely. On the Welsh lanes and passes, you simply have to keep the crank speed high to realise its full potential. The complement of peak power is provided just 100rpm below the redline, necessitating lots of second and third-gear blasts, which really brings out its best. It feels more old-school than the 3.8 engines, where you have to maintain a fluid driving style. Combined with the perfectly matched manual 'box, it's a rewarding experience.

That's not to say the 3.8-litre motors are not fulfilling. The standard, 400hp engine in the Carrera S (or in our case, a Targa 4S) is probably the best engine on test. The extra 400cc of capacity provides more bottom end, with the supplementary 50Nm of torque allowing you to take corners a gear higher than the 3.4 and still maintain your forward momentum. What's more, in the heavy Targa, the 3.8 is a necessity, providing the extra shove needed to counter the roll-hoop-endowed sports car's ample mass. It is the best all-round engine, and it is no surprise that it is equally as enjoyable when mated to a PDK gearbox as it is to the (slightly tedious) seven-speed manual.

The speed that this car can develop at is more than enough for the majority of enthusiastic motorists, yet Zuffenhausen still feels the need to offer the Powerkit for the S's engine, as fitted to our tested 4S Coupe. At 430hp, it is the most powerful Carrera ever, but with a £9,388 price tag, it isn't cheap (even if Sports Chrono, dynamic engine mounts and PSE are thrown into the deal). The internal modifications wield yet more torque too, making overtaking the plethora of caravan-towing tourists a breeze, but under spirited driving, it is easy to worry more about losing your licence than the scenery and road ahead with all that pace endowed in the Powerkit. Such is its proclivity for sprinting the tacho round too, the manual gearbox feels like an agricultural choice. Instead, for this motor, we would definitely make a beeline for the PDK.

Model	991 Carrera 4S Coupe
Year	2014
Engine	
Capacity	3,800cc
Compression ratio	12.5:1
Maximum power	430hp @ 7,500rpm
Maximum torque	440Nm @ 5,750rpm
Fitted options	Powerkit including modified cylinder heads, new camshafts, new intake manifold, centre radiator and Sports exhaust; Sport Chrono Package; dynamic engine mounts; PCCB; 20-inch Sport Techno wheels; Sapphire blue metallic paint; ParkAssist front and rear; Bluetooth telephone module; automatically dimming mirrors; Sports seats Plus
Transmission	Seven-speed manual
Suspension	
Front	MacPherson strut; coil spring; internal dampers; antiroll bar
Rear	Multi-link; coil springs; coaxial internal dampers; antiroll bar
Wheels & tyres	
Front	8.5x20-inch Sport Techno alloys; 245/35ZR20 tyres
Rear	11x20-inch Sport Techno alloys; 305/30ZR20 tyres
Dimensions	
Length	4,491mm
Width	1,852mm
Weight	1,445kg
Performance	
0-62mph	4.4 secs
Top speed	188mph
Fuel consumption	28.5mpg (combined)
Total price	£106,999

"Pleasingly, each Carrera has so far offered so much fun at the wheel"

Model	991 Targa 4S
Year	2014
Engine	
Capacity	3,800cc
Compression ratio	12.5:1
Maximum power	400hp @ 7,400rpm
Maximum torque	440Nm @ 5,600rpm
Fitted options	Sapphire Blue metallic paint; Agate grey/Pebble grey bi-colour interior; PDK; Sport Chrono with Dynamic Engine Mounts; Sports exhaust; ParkAssist front and rear; automatically dimming rear mirrors; PDLS; Porsche crest embossed on head rests; Sports seats Plus; SportDesign steering wheel with paddleshift; heated seats; Bluetooth telephone module; ISOFIX on front passenger seat
Transmission	Seven-speed PDK
Suspension	
Front	MacPherson strut; coil spring; internal dampers; antiroll bar
Rear	Multi-link; coil springs; coaxial internal dampers; antiroll bar
Wheels & tyres	
Front	8.5x20-inch Carrera S alloys; 245/35ZR20 tyres
Rear	11x20-inch Carrera S alloys; 305/30ZR20 tyres
Dimensions	
Length	4,491mm
Width	1,852mm
Weight	1,575kg
Performance	
0-62mph	4.4 secs
Top speed	182mph
Fuel consumption	28.2mpg (combined)
Total price	£109,531

Model	991 Carrera Cabvriolet
Year	2014
Engine	
Capacity	3,436cc
Compression ratio	12.5:1
Maximum power	350hp @ 7,400rpm
Maximum torque	390Nm @ 5,600rpm
Fitted options	Sapphire blue metallic paint; Agate grey/Pebble grey bi-colour interior; Sports exhaust; ParkAssist front and rear; heated seats; Porsche crest embossed on head rests; Bluetooth telephone module; SportDesign steering wheel
Transmission	Seven-speed manual
Suspension	
Front	MacPherson strut; coil spring; internal dampers; antiroll bar
Rear	Multi-link; coil springs; coaxial internal dampers; antiroll bar
Wheels & tyres	
Front	8.5x19-inch Carrera alloys; 235/40ZR19 tyres
Rear	11x19-inch Carrera alloys; 285/35ZR19 tyres
Dimensions	
Length	4,491mm
Width	1,808mm
Weight	1,450kg
Performance	
0-62mph	5.0 secs
Top speed	178mph
Fuel consumption	30.1mpg (combined)
Total price	£86,553

The idyllic B-roads around Ffestiniog and Bala made for a natural proving ground in which to test the three 991 Carreras

on the pedal to scrub speed, but after a short while of acclimatising, I become smoother in the Coupe and really start to let it sing.

However, I daren't get too carried away: the halo-like glowing of the LED front lamps fitted to the Targa 4S remains a permanent fixture in my rear-view mirror. Damian has found his groove, keeping the heaviest car of our trio on point with big-number revs and lightning-quick gear shifts from the PDK's aluminium Sport Design steering wheel paddles.

Pumped with adrenaline, we carve through the canyon-like scenery, taking full advantage of the sweeping, twisty roads now totally bereft of traffic. In fact, our state of ecstasy prove detrimental to our time-keeping abilities: we've nearly missed our much-anticipated sunset shoot. Interrupting the shrill cry of the flat six piercing my eardrums in the Coupe's cabin, Ali's voice comes over the walkie-talkie's airwaves: "Gents, we have a ten-minute window to get our shot before it's too late." Bugger. We zip back to our lakeside location on Ffestiniog's outskirts and position the cars with military-esque regimentation. With a sigh of relief, we make the sunset shot and decide to call it a day. It's only a short drive into Ffestiniog, and three 991s amble back into town ahead of a well-earned night's rest for men and machines alike.

"What a day. I could quite easily do all of that again, this very minute," Josh enthuses as we disembark from the trio of Porsches and head for our rooms in a quaint B&B. I can't help but nod in agreement. Each Carrera has so far offered so much fun at the wheel that stepping away from them for even a short period seems utterly incomprehensible to the driver in me.

We awoke early the next morning after a light sleep, still physically tired but mentally invigorated by the day's agenda to attack more great driving roads North Wales had to offer. Walking to the car park where 1,180hp of Sapphire blue Carreras sat waiting, we swap keys once more for a steer of the third and final car.

Now, it was my turn in the Targa 4S, and after a scintillating yet effortless stint in the Coupe the day before, I was apprehensive as to the performance credentials of the heaviest Carrera on our test.

I needn't have worried. In contrast to the soft, sluggish character of the 991 Targa 4 I took to Zuffenhausen last month, the 3.8-litre 'S' engine here takes little time to prove that it's a better fit for the Targa concept. There's much less roll in the Targa 4S compared to the spongy Cabriolet chassis, and steering is wonderfully positive as a result.

Brakes

The engine you'd like fitted to your 991 (be it the 3.4-litre DFI Carrera engine or 3.8-litre DFI Carrera S powerplant) will determine what brake options are available 'out the box', so to speak. Those who opt for the lesser-powered 350hp unit will have the four-piston alloy monobloc calipers fitted with 330mm discs all round, while a prerequisite for the 3.8-litre engine are bigger, six-piston alloy monobloc calipers and larger 340mm discs up front, with the four-piston caliper and 330mm discs at the rear. Calipers on S models are painted red in a nod to the 'Big Red' brakes formerly seen on 911 Turbos, with calipers on the standard Carrera appearing in an anodised black hue.

While some may find the four-pot brakes on the 3.4-litre car more involving (as you really have to stamp on the pedal to reduce the 991's speed), the six-piston 'Big Reds' provide noticeably more conviction, with less effort required from the driver. However, for £5,787, there is a premium choice in the form of PCCB.

Porsche's lighter ceramic brakes excel in a competitive track environment, scrubbing speed from the 911 at a stupendous rate. What's also noticeable with the PCCB (as fitted to the 991 C4S with Powerkit for our road test) is how quickly that speed is scrubbed: only a quick 'dab' of the brake pedal is required for the 911 to noticeably have its velocity shredded. However, the well-known caveat to ceramics is their tendency to 'squeal' around town after only concerted road use.

For the track, ceramics are simply majestic in their conviction, letting you out-brake your rivals before hitting the apex on turn-in while offering minimal fade under prolonged stress. For everything else, Big Reds are more than adequate, delivering confidence-inspiring stopping ability in every road situation with commendable urgency.






PDK is another welcome addition to the Targa 4S's touring credentials, though there's little time to sit back and bask in the comfortable sun-drenched cabin. Josh has already disappeared ahead in the C4S Coupe, followed by Damian, who's equally handy at hustling the plucky Cabriolet through corners with pace.

As morning turns into afternoon, our Carrera convoy heads back south, with one last special stop-off point planned. The impressive Elan valley sits in the very centre of Wales, where it incorporates 70 square miles of lake and countryside. More aptly for our Sapphire blue contingent, the area is blessed with a beautiful, snaking route slowly descending from the top of the valley to its base. The road's width is much narrower here, so no overtaking was to be had, but it allowed the three of us to spread out from one another and become immersed in dancing each 991 down to our stop-off at the abandoned mine around six miles in.

After another exhilarating drive, we reach the mine. Ruinous in appearance and remote in location, it sits in the very base of the valley, with unkempt granite slabs rising steeply to the summit above. We bring the 911s to a stop in front of the mine, allowing Ali a suitable backdrop in which to take care of the final detail shots of each Carrera.

As Damian and Josh head over to explore what was left of the mine, I simply stand in silence, listening to the pinging of metal from our three hot, static Porsches as they attempt to cool down. At this, I ponder: what do I make of our 991 experience on the supertest?

The 991 in its entirety is a thrilling sports car to pilot. What's more, although it may well be a world away mechanically from the revered classics so rightly adored throughout every issue of this very magazine, I was relieved to find that the 991 still offers that inherent Porsche 911 experience if you really go looking for it.

With Ali soon signalling the completion of the pictures to Josh, Damian and I, we all swap keys once more and fire up the requisite Porsches for the final drive home.

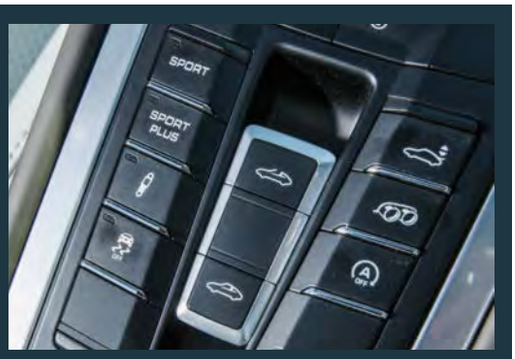
And that's where we'll leave you: three Sapphire blue 991s alone in the Elan valley, zipping back along in close unison as the road twists and turns and dives and climbs under the glare of the hot summer sun, the shriek of three hard-working flat six engines augmented by the popping and growling of the raucous Sport exhausts. There's still a gruelling three hours and 160 miles of driving left to do, and yet I couldn't care less. 911

PASM and PDCC

As technology progresses, so too does the number of configurable parameters on your 911. PDCC (the active anti-roll system) is only available to specify alongside Porsche Active Suspension Management on Carrera S models. This means it cannot be added to a sports car with passive dampers, but that's okay, because ultimately you need the entire package in order to reap the full benefits.

The Cabriolet (an unlikely stead to analyse a 911's handling potential) is the only car on test with the passive damper setup. It feels incredibly soft, rolling extensively into the corners. This makes it incredibly forgiving, yet its lack of precision hampers it when you feel like pushing on (even if it feels more like a classic 911 than a 991 to drive).

By comparison, the Coupe, which features the full compliment of PDCC and PASM, is an incredibly accomplished sports car. The stiffer suspension is still perfectly compliant over poor road surfaces (though motorway cruising can be slightly crashy), while the anti-roll control is superb, promoting plenty of front-end grip. It's possibly the most dynamically competent setup we've ever driven; it's that good, and the 20mm lowering makes the car look pleasantly purposeful. You could possibly run without the PDCC, as the Targa on test did, but it doesn't really make sense; with the stiffer suspension and improved roll control complimenting each other perfectly, the 991 chassis is imbued with incredible poise and pace.



991: Our choice

We've driven every iteration of 991 Carrera and sampled every significant option, so what's our ultimate new 911? Lee and Josh have used the configurator on the Porsche consumer website to piece together their own utopian 911. The brief? To keep the total price below the £100,540 required for a 991 GT3. Their final, theoretical 991s are below.

Lee's 991

I originally chose a C4S Coupe, but found that I was fast encroaching on GT3 territory with my options, so had to opt for the narrower, rear-driven 'S' at £96,720 all in.

The 'S' package presents a far more purposeful 911, with 'Big Red' brakes and more torque the nearer side of 6,000 revs being more alluring to me. I also think PDK suits the 'S' engine better, allowing for lightning-quick shifts between gears that the lethargic and overworked seven-speed manual just can't compete with.

I wanted a sports car capable of meandering through town in style and comfort, before calling on scrupulous performance and balance for trackdays. 400hp and PDK will see to the performance side of the bargain, while PDCC with PASM will allow me to load the 911 into corners. Sports seats Plus complement all environments: adjustable side bolsters will keep me rooted in place. For longer journeys the adjustable depth of the seat bottom will give greater support to my knees, and my aural sensations will flip between PSE and Bose.

Josh's 991

Yes, I've specced up a manual 991 Carrera Coupe to £84,888. That's a whopping £13,708 of options, but I've got everything I really want. I feel in love with the 3.4-litre engine and the fact that I had to push its limits during fast driving, while the manual gearbox with the standard brakes makes heal-and-toeing a joy (no Sports Chrono for me, here).

I have added the PASM sport suspension, which not only provides stiffer damping, but also lowers the whole car by 20mm, aiding dynamics and visuals. PSE, for me, is a must, as it is plenty loud enough and full of character, but can still be turned off when I want to quietly cruise along (aided by the addition of cruise control).

Inside, I've got heated and ventilated Sports Seats Plus for all-season comfort, plus an Alcantara Sport Design wheel and gear knob for a bit of motorsport character. Externally, Sapphire blue has fantastic depth and iridescence, while the Carrera S wheels are, in my opinion, beautiful.

"Climbing into the seat of this 997 Rennsport is as good as it gets"

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PORSCHE'S *LOST* LEGEND

The first fully homologated racer to leave the factory has been a footnote in the 911's motorsport legacy. We set the record straight with a scintillating test drive

Written by **Josh Barnett** Photography by **Daniel Pullen** & **Ulrich Trispel Collection**

During the Porsche 911's formative years, racing efforts from the factory were few and far between as the motorsport department at Zuffenhausen was tasked with developing mid-engined prototypes capable of overall victory in prestigious endurance events around the world. This steadfast focus on outright glory was to pay off spectacularly as first the 907 secured a 1-2-3 at the 1968 24 Hours of Daytona, before the all-conquering 917 triumphed at Le Mans in 1970 and 1971. However, the latter proved too dominant, with the CSI (the competition arm of the FIA) effectively banning the 917s with the introduction of a three litre limit for 1972.

Porsche voted with its feet, turning away from front line sports car racing and leaving its customer teams to take up the charge with the now uncompetitive 908. Meanwhile, back at the factory, the 911 was finally given the wholescale attention it was promised during the R programme in 1967. Only four factory prototype 911 Rs were ever built, leaving the other 20 906 Carrera-engined customer cars unhomologated for GT-class competition, forcing them to officially race among the prototype ranks.

After the R's cameo, Porsche offered the T/R kit in 1968 and 1969, providing competitors with a kit of motorsport parts that turned the 2.0-litre 911T into a track-ready racer before the 2.3-litre ST superseded it in 1970 and 1971. Like the T/R, the ST was not a full production model, instead providing customers a selection of performance parts (such as flared arches and lightweight body panels) from which they could cherry-pick to create their ideal competition car although,

officially, only 33 911 STs were actually ever built in the period.

For 1972 though, with no prototype programme on the cards, Zuffenhausen built this: the 911 S-R, Porsche's first fully homologated Group 4 racer. Based on the newly introduced 2.4-litre 911S, the S-R was a factory built 'Renn' version, with the M491 option bringing an enviable number of upgrades over the normal S road car.

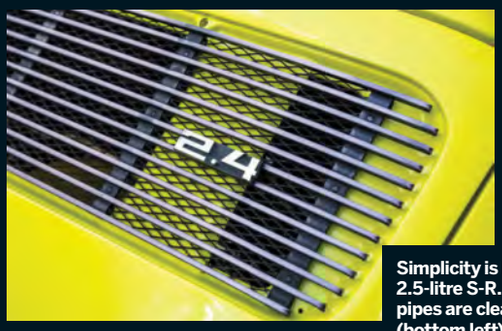
Under the aluminium deck lid sat a specially developed 911/70 flat six. The 2.4S's 70.4 millimetre stroke was retained, but new aluminium alloy barrels saw the cylinder bores increased to 86.7 millimetres, resulting in a healthy 2,492cc. Interestingly, rally S-Rs were given the 911/73 version, which saw a slightly reduced capacity of 2,466cc thanks to its 89 millimetre bores and 66 millimetre stroke (the latter figure the same as the original 901). In race trim, the intake and exhaust ports were polished and featured larger valves, a twin-plug ignition system was utilised, and the Bosch mechanical injection featured high-butterfly intakes specifically designed for racing. The end result was 270bhp at a heady 8,000rpm and 262Nm of torque on offer.

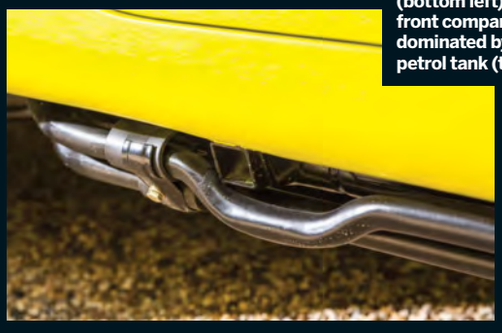
It is this engine that has me immediately enthralled, bursting into life with a twist of the key and an ample prod of the throttle. As it warms up, just above idle, the flat six rumbles imposingly from the twin tailpipes of its racing exhaust system, but it is once it's fully under way that the real magic happens. Under hard acceleration it is unquestionably the loudest 911 I've had the delight to drive in this job (aided no doubt by Porsche's removal of all the cockpit sound deadening). Yet, rather than simply making a noise for the sake of it, the S-R's tone is truly beautiful, full of nuanced sounds that permeate throughout my skull, ridding me of all other thoughts. There's a purity to the engine's note that is testament to the air-cooled flat six's organic nature. As the engine races passed 6,000rpm, the timbre goes ever higher before silence suddenly punctuates the moment. I slot the 915 gearbox (fitted with an extra oil cooling pump on the S-R) from second to third, making a deliberate dogleg across the gates then stepping back on the gas.

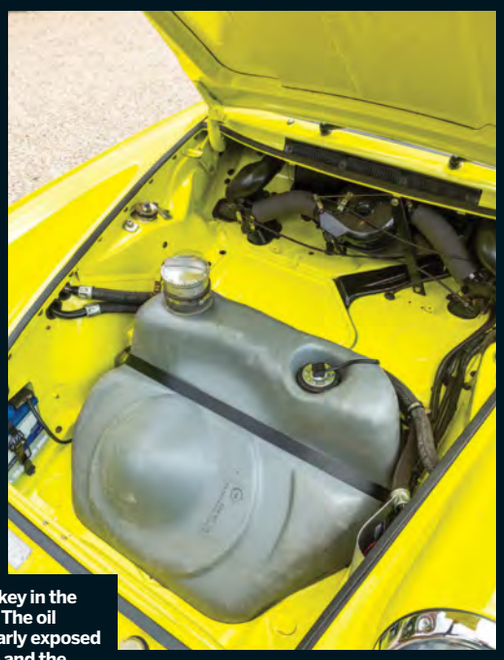
Watching the red needle of the 10,000rpm rev counter dance around its arc, backed by the idiosyncratic music of a racing 911 motor, is a truly surreal experience, as if I'm starring in a period movie about the Seventies motorsport scene. Briefly I'm up to fourth before braking and blipping my way back down to second as the unburned fuel crackles through the tailpipes on the over-run.

If this car were nothing but that engine, it would still be perfect. But, parked up at Hedingham Castle (home of the famous 'Classics

Model	**911 S-R**
Year	**1972**
Engine	
Capacity	2,492cc
Compression ratio	10.3:1
Maximum power	270bhp @ 8,000rpm
Maximum torque	262Nm
Transmission	Five-speed manual 915-type
Suspension	
Front	Independent; MacPherson strut; torsion bar; lower wishbone; anti-roll bar
Rear	Independent; semi-trailing arm; hydraulic damper; torsion bar; anti-roll bar
Wheels & tyres	
Front	8x15-inch Fuchs; 215/55/R15 tyres
Rear	9x15-inch Fuchs; 270/45/R15 tyres
Brakes	
Front	283mm vented 911S discs; magnesium quick-release callipers
Rear	290mm vented 911S discs; aluminium callipers
Dimensions	
Length	4,163mm
Width	Unknown
Weight	960kg
Performance	
0-62mph	5.0 secs (dependent on gearing)
Top speed	150mph (dependent on gearing)







Simplicity is key in the 2.5-litre S-R. The oil pipes are clearly exposed (bottom left) and the front compartment is dominated by a large petrol tank (top right)

at the Castle' Porsche show), it's hard not to be drawn in by its undoubted aesthetic beauty too. This is what all 911s should look like. Muscular enough to emasculate standard classic 911s (and stand out from the resplendent 18th Century Georgian mansion behind it), yet retaining the iconic purity of the standard neunelfer silhouette, the S-R is a triumph of form and function. Both the front and rear arches have been widened; the former items would find their way unchanged onto the following year's 2.8 RSR, while the latter are the same as flares fitted to the ST two years previous. At the front, the chin spoiler – designed by Tilman Brodbeck – features two gauzed vents designed to provide cooling air to the larger oil coolers (unique to the S-R).

Inside those imposing arches sit eight and nine-inch-wide Fuchs alloys, complete in that beguiling satin finish. The dual circuit brakes feature ventilated discs at all four corners, with an aluminium version of the 908's quick-release callipers included as standard at the front. However, this particular example features the optional magnesium items at the front, with special aluminium callipers at the rear. Despite the lowered suspension, the S-R still sits surprisingly high by modern standards yet, as a car designed for competition at the Nürburgring Nordschleife, its lofty stance is wholly understandable. If anything, it simply adds to its period charm.

Like all of the racing 911s that had gone before it, the S-R was put on a crash diet. As well as the aluminium deck lid and rear panel, the doors were a unique lightweight design while the bonnet was made from fibreglass, underneath which sits a plastic 110-litre fuel tank, perfect for endurance racing. Totalled up, the weight saving regime knocks 115 kilograms of the mass of a standard 911S 2.4, quite remarkable given the road car's relatively lithe starting point. As expected, on the road, the S-R's low weight provides the car with agility unmatched by any road-going 911S.

My test route finds me tackling a right-left-right sequence of second and third-gear sweepers. The succession of direction changes would normally be enough to start upsetting the rear-engined dynamics of almost any 911, yet the S-R's resolve to grip the bitumen remains steadfast (no doubt aided by its widened stance and huge Michelin TB15 tyres). If anything, the S-R's ability to switch its course feels more akin to a mid-engined racer than a standard 911, such is the lithe nature of its beautifully balanced chassis. I push a little harder to see if its colours change and my extra commitment begins to uncover the traditional 911 character, with the front end beginning to wash away through the entry to each turn. However, the S-R is so incredibly user-friendly (not what I was expecting from a thoroughbred racing

Many of the interior details pre-empted what would be seen on the 911 Carrera RS and RSR the following year, including pull-cord door handles and a deleted glove box (bottom left and centre)

911 from the Seventies) that I'm instantly able to overcome the initial understeer.

Normally, a gentle lift would help to tuck the nose towards the hedge, sharpening the line and enabling me to get back on the throttle on the corner exit. Yet, with Richard Attwood's words from issue 118 ringing in my ears, I instead chose to adopt the 'proper' 911 driving style, getting harder on the gas than sense suggests, forcing the S-R to just break traction, gently pushing the rear end round and switching the car's dynamics from slight understeer to the most minute degree of oversteer. With the soprano flat six singing, I'm shooting out the corner with more speed than I could imagine possible, using the extra torque over a standard 2.4S to cover ground at a ludicrous (yet linear) rate.

I've never tried to drive a classic 911 like that before, yet in the S-R, it – and I – feel totally unflustered, both man and machine working well within their limits. Despite having never even set eyes on a real S-R before today's test, it feels like I've known this car for eons.

The experience is no doubt aided by the remarkable simplicity that greets me inside the cockpit. There are just four dials (the clock deleted as standard) while the Scheel bucket seats are as ergonomic as they are stunning. Driving wise, it's just you, three perfectly placed pedals, the wonderful 380 millimetre padded leather sport steering wheel and the best 915 five-speed gearbox I've had the pleasure to stir. Nothing dilutes the organic driving experience and the S-R is all the better for it.

Unarguably the best classic 911 driving experience money can buy doesn't come cheap, though. This particular 2.5-litre S-R is currently up for sale at respected specialist Maxted-Page with a healthy seven-figure price tag: "Values have historically sat just above a 2.7 RS Lightweight and below a 2.8 RSR," explains proprietor, Lee. Of course, something that I have so far neglected to mention is that the valuation takes into account this particular S-R's impressive history.

Overall, just 21 S-Rs were built by Porsche (with any other cars from the period built by teams such as Kremer from a kit of bits). This particular car – chassis no. 911 230 1195 – was sold new by Porsche's Munich dealer to Anton Fischhaber, a talented Bavarian racer who on occasion raced for Zuffenhausen in a semi-works capacity. At a cost of DM 49,680 when it was delivered in April 1972, the S-R was hardly cheap in period, costing around $4,500 more than a 2.7 RS Touring would cost the following year. Yet, Fischhaber ('Toni' to those who knew him) put it to good use, winning the GT class in the 1972 European Hill Climb Championship. Today, while the EHCC still exists as an FIA-sanctioned series, hill climbing is predominantly a niche area of the motorsport world. However, at the time of the S-R's creation, racing up some of Europe's toughest climbs was a prestigious business. Bear in mind that, just a few years earlier, Porsche designed the 909 Bergspyder solely for European hill climbing. Can you imagine Weissach doing the same today?

Fischhaber was dominant during his three-year tenure with no. 1195, winning nine times (with a further 13 podiums). After taking the '72 hill climb crown, Fischhaber was beaten to the title the following year, although the German still took third place at the challenging Krähberg hill climb (pictured on page 69). He regained his title in 1974, although by this time his S-R had been converted to 3.0 RSR specification to keep up with the fierce competition. Fischhaber also took his yellow S-R to the Nürburgring 1,000km, finishing 14th overall in both 1972 and 1973, driving alongside Leopold van Bayern (a prince of Bavaria).

Like many S-Rs, no. 1195's competitive years may have been short-lived but it certainly crammed them full of silverware. Having had a taste of this 911's abilities, that is no real surprise, especially given that the S-R platform laid the foundations for the 2.8 and 3.0-litre RSRs, two of Porsche's most successful 911 racers. However, as I take one slide back into the classic bucket seat for a final blast back to Maxted-Page's rural HQ, the history doesn't matter to me. Instead, as the flat six once again roars into sonorous life, it is the here and now that I am revelling in, driving Zuffenhausen's finest road-legal yet incredibly race-ready creation. Just perfection. **911**


PORSCHE
TÖL-Y 25


80
79
78
RECARO
Valvoline
CIRCLE
IMPORTS
MICHELIN
SCCA PRO Rally
4
Eibach
ANDIAL
PORSCHE
NO FEAR

PIKES PEAK 964

JEFF'S FIRST 911 CHAMPION

The famed Porschephile Jeff Zwart tells the story of how his modified 964 was built to take on one of the greatest hillclimb events ever – and win

Written by **Andrew Krok** Photography by **Andrew Tipping**

Jeff Zwart's driving career started in a 1964 911, chassis number 35. There might be no better way to get a person hooked on Porsche, no better way to give a man an emotional tie to a specific car from a very early age. The 911 would come to define Zwart's career at the wheel in a number of ways.

After moving away from automotive photography, Zwart began directing television commercials, many for Porsche itself. In fact, if you've seen a Porsche advert sometime between 1989 and today, odds are you've seen his handiwork.

Prior to the car seen gracing these pages, Zwart got his start in road racing, specifically Formula Fords in the Eighties. Eventually, he made his way to rally, a sport he gets excited about to this day. "The dirt, the gravel... running at speed through forests, mountains... I love all of it," Zwart tells us.

Before he ever arrived at Pikes Peak, it was right at the top of his to-do list. "Pikes Peak was probably a dream of mine as far back as my Road & Track days. It's a great event with a rich history, and many of my favourite drivers have conquered the mountain in the past," Zwart recalls. "When everything came together, when I had both the Porsche and the opportunity, it was finally my time to have a go."

Zwart's choice to run a 964 wasn't just due to his long history with the brand; in fact, the 964 provided the precise formula to allow him to race it. "The 964 marked the first time the 911 was available from the factory with all-wheel drive," Zwart said. "This finally allowed me to drive a 911 in the US Rally Championship's Open Class."

The standard 964 C4 wasn't enough for him, though. "What I really wanted was a 964 C4 ➲

Lightweight, a rare model that was unavailable for street-legal sale in the United States. The US Rally Championship required a road-going, licensed vehicle." Thankfully, Zwart had a mononymous ace up his sleeve – Andial.

Well before Andial was absorbed into Porsche Motorsport, it operated as one of the premier shops for all things related to 911s in motorsport. Through Andial, with the obvious blessing of Porsche Motorsport, Zwart was able to source all the 964 Lightweight components that he needed to turn the car into the rally beast of his dreams.

Many of the 964 Lightweight's special parts came directly from Porsche's involvement in the Paris-Dakar rally, specifically its 953 program, which was the predecessor to the Übermensch that is the 959. This includes the trick dual-knob setup that allows the driver to shift the AWD system's torque delivery, which happens to be one of Zwart's favourite parts of the car.

"It's one of the most dominant things you notice when you take a look inside," he says. "I used the manual torque split all the time, even against what some would consider common knowledge. When it was very slippery, in the winter for example, I would actually shift the torque bias more to the rear. You might think that torque up front would help, what with four driven wheels and all, but it was the opposite. Since there's no weight over the front wheels, too much torque up front would make the car understeer like mad."

Another unique touch in this car, although not part of the suite of Dakar-bred technology, was the pressurised transmission bell housing. After enough time in the dirt, the standard bell housing would accumulate too much dirt and sand, and the clutch would begin to slip. By using a trick system that created a pressure differential inside the bell housing, air would only leave the area, not enter it. After that, slippage was never an issue.

Perhaps the largest custom addition to this build was the engine, a one-off flat six build inspired by another motorsport icon. "When the 964 was being built in 1993, we decided, per the rules, that the best motor we could install at the time was the 3.8-litre unit from the Carrera RSR," Zwart says. Having driven the original RSR at Daytona that year, he felt comfortable placing his faith in it. The 964's heart would go on to beat to the tune of 300 bhp.

> "Zwart has tackled Pikes Peak a total of 15 times with 10 different Porsches, resulting in seven class championships across four different classes"

Zwart's first season with the 964 went well, but there was room for improvement. "It worked well right out of the box," Zwart explains, "but on some of the more hardcore rally stages, the rear suspension lacked the dampening control we needed." The suspension might have held up fine in Europe, but US rallies featured terrain significantly more frustrating than the stages across the pond.

To remedy this, Zwart went to a local off-road specialist to have a completely custom rear suspension designed. "Between the '93 and '94 seasons we rebuilt the rear suspension using a custom setup," Zwart tells us. "It was quite literally developed, built and tested in a single winter. When it came time for the '94 season to start, the car felt amazing."

In addition to the rear suspension upgrade, the chassis was further strengthened for the rigours of American rally. A full Kevlar undertray was developed to keep rocks from sending the car to an early retirement. Furthermore, the front and rear suspension points were bridged to the roll cage, which made the car "extraordinarily stiff," Zwart says with a laugh.

Now, it was time for the main event, the climb that Zwart had looked forward to for most of his life. But before the race could start, Zwart and his cohorts knew that there could be trouble with the 3.8-litre RSR flat-six. "Altitude is not an air-cooled motor's best friend," Zwart remarks. "Thankfully, Andial came to the rescue once again."

Zwart knew that Andial had been running turbocharged engines in IMSA at the time, so the decision was made to swap the naturally aspirated engine out in favour of the turbocharged one. So for the 1994 Pikes Peak climb, and for that race only, the 964's engine was replaced with a single-turbo, 3.6-litre IMSA unit producing a whopping 550 horsepower. Some final tweaks were also made to better accommodate for the change in altitude.

"This was particularly funny for me, because here's a car that I've become so intimately acquainted with. I knew its ins and outs," Zwart recalls. "Yet after the engine swap, I got in and it was a truly massive transformation. There's just so much going on when you nearly double the

Model	964 Carrera 4
Year	1989
Engine	
Capacity	3,7746cc
Compression ratio	11.4:1
Maximum power	300bhp
Maximum torque	488Nm
Engine modifications	3.8-litre RSR motor swap
Transmission	Five-speed from 953
Suspension	
Front	Coil spring with Koni shocks
Rear	Coil spring with separate shock absorber reservoirs
Wheels & tyres	
Front	6x16-inch alloys; 6/66-16 tyres
Rear	6x16-inch alloys; 6/66-16 tyres
Dimensions	
Length	4,250mm
Width	1,652mm
Weight	1,247kg
Performance	
0-62mph	4.9 sec (estimated)
Top speed	125mph

Many parts were sourced direct from the Porsche factory to turn this 964 into a Carrera 4 Lightweight of sorts. A 550bhp turbocharged engine was used for the Pikes Peak-winning run, before switching back to a 3.0-litre RSR flat six


RECARO
RECARO
Valvoline

horsepower; in fact, at the time, it was the fastest car I'd ever driven. There's something interesting about a car that feels the same as ever, yet at the same time feels totally, wholly different."

Despite having to make some last-minute adjustments, Zwart's 3.6-litre gambit paid off. The 964 would go on to win the Open Class championship at Pikes Peak that year. In turn, this victory kick-started a relationship with the mountain that continues to this day. As of when we went to print, Zwart has tackled Pikes Peak an incredible total of 15 times with ten different Porsches, resulting in seven class championships across four different classes.

The 964 might have been his first love affair with Pikes Peak, but it wouldn't be his last. Some other notable hillclimb rides include a 997 GT3 Cup car, a 700-horsepower 911 GT3 Cup 'Turbo Hill Climb Special' from BBi Autosport, and a stock 997 GT2 RS, which Zwart drove from Southern California all the way to the race in Colorado, some 1,000 miles across the Rocky Mountains.

The GT2 RS serves Zwart as a reminder of just how far the 911, and racing in general, has come in the 20 years he's spent racing: "When we went to Pikes Peak in '94, it was a cool moment, because we were running a full race engine at 14,000 feet, not exactly common practice back then. When I drove that car, there was a pylon next to my seat that had a knob on it. This knob had to be articulated in three different ways to control the fuel mixture, and I had to fiddle with it while driving up the mountain. Fast forward to 2011, when I took a GT2 RS up the same mountain. That RS has more power than my 964 will ever have, yet I didn't have to do anything. I just drove; the computers took care of adjusting the mixture. Everything's done behind the scenes now, despite only 20 years passing in between."

After the race, the original 300-horsepower engine was returned to the 964. "Literally one week after Pikes Peak, the car was reassembled to US Rally Championship spec, and I was rally racing in Prescott, Arizona. I won, too. So within the span of one week, I raced the 'same car' in two wildly different events and won them both," Zwart says.

Since then, the 964 has lived on as one seriously hardcore road car. "The 964 has always been street-legal, and I make sure to keep it registered so I'm able to take it out and drive it around, whether it's just around town or to a local show so that others can share it," Zwart tells us. "It's race ready, but at this point it's just so unique, and people see Porsche rally cars so infrequently, that it's nice to let others get an idea of Porsche's rich motorsport history."

Despite being heavily modified, the 964 has proved to be very reliable. "In the 1993 season, I was being paranoid, and I considered buying a second transmission. I was told that the transmission in the car would be 100 per cent bulletproof, but I remained skeptical. Naturally, that remains the only transmission I've ever had. It's still in the car today, and I haven't had a single problem with it."

The 964 might not have changed, but Pikes Peak has; most notably, the upper portion of the race was changed from dirt to asphalt, making it a road race from start to finish. This hasn't fazed Zwart, though; he remains eager to give it a go. "It takes more knowledge, more preparation... it's almost a completely different race," he says. "The intimidation factor isn't there, but these days, now that I'm driving cars with 700-800 horsepower, I'm having far too much fun to notice." 911

Jeff Zwart's top ten tips for conquering Pikes Peak

1) Stay up on personal fitness: Pikes Peak has 156 turns, 13 of which are first-gear hairpins. It's nothing but motion and activity.

2) Mountain biking is perfect training for Pikes Peak: It takes place at altitude, forces you to read the trails at speed, and gives you a thorough workout.

3) Stay hydrated: Altitude hits the body hard, and hydration is important no matter the altitude. I don't mean to sound like your mother, but it's good advice.

4) Stick with the sections you're racing: Don't try to learn the whole mountain at once. Focus on key areas and keep driving them.

5) Repetition is key: You'll never learn the mountain in one run. It takes a year of fermenting and percolating to give you a halfway-solid base of knowledge.

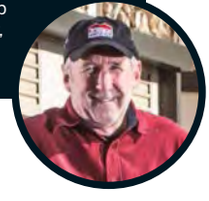
6) The weather is unpredictable, so come prepared for all conditions: In 1995, it snowed so hard that we couldn't even make it to the summit, and this was in the middle of July.

7) It's nothing like a regular race: There are no laps. It requires 10-12 minutes of straight concentration, and every turn is different than the last.

8) Practice is not the race: Practice is in the morning, and the race is in the afternoon. Temperature, light, weather... it's all subject to wild change.

9) Drive way past what you can see: If you only drive to the limit of your vision, then you simply won't be going fast enough.

10) Never stop learning: Every new trip to Pikes Peak can teach you something, whether it's about you, the car you're driving, or the asphalt.



RUF CTR

Don't judge a book by its cover: this pretty creation from Porsche 911 tuners Ruf was the world's fastest car of 1987, as Total 911 discovers...

Written by **Kieron Fenelly** Photography by **Daniel Pullen**

The story goes that Alois Ruf cut his teeth working on Porsche 356s in his father's garage. When he inherited his father's eponymous business in 1974, the sensational 2.7 RS was already rapidly establishing itself in competition. Alois Ruf saw the possibilities of modifying Porsches for owners so that they could go even faster. Connoisseur of Porsche's flat-four and six engines, he knew achieving more power without compromising driveability was not simply a matter of polishing ports and bolting on bigger carburettors. From the outset, the Ruf approach would be characterised by bespoke engineering of such integrity that within a decade it would lead to granting of manufacturer status.

The appeal of turbocharging was irresistible and Ruf's first effort was a Porsche 930 bored out to 3.3 litres, which appeared in 1977, some months before Zuffenhausen's own 3.3. With his next car, Ruf beat Porsche to it again in 1978 with a 3.2-litre, 217-horsepower edition of the 180-horsepower 3.0-litre SC. This caused a stir among 911 fans dismayed that the Zuffenhausen flat-six had lost 30 horses since the 2.7 only three years earlier and Ruf sold several hundred of his 3.2. This model also proved he was just as adept at improving the naturally aspirated engine. However, turbocharging had greater appeal in terms of outright performance, which could really differentiate a Ruf from a factory Porsche and also lift Ruf above the status of mere tuner.

1981 saw the introduction of the Ruf Turbo with a five-speed gearbox – when the 930 still had four – and within two years Ruf presented his BTR (Gruppe B Turbo Ruf), a 930 bored out to 3.4 litres with a claimed 374 horsepower. *Road & Track*'s, Paul Frère drove the BTR to 306 kilometres (190 miles) per hour at VW's test track in Ehra Liessen, the fastest Frère said he had ever driven. This turned out to be a warm up for the main event. In 1987, Ruf launched the CTR: the further

With nearly 500bhp and no driver aids, the Ruf CTR is a pure driver's car

100 horsepower and better aerodynamics of the CTR made the difference. The Ruf won *Road & Track*'s world's fastest car contest again, at a truly impressive 339 kilometres (210 miles) per hour.

The CTR was no stripped-out racer any more than earlier Rufs: classic 911 enthusiast Frank Hendrickx has kindly lent us his own CTR, a 1987 model, and this is a beautifully appointed car. Selling for double the price of a top-of-the-line 930, Ruf was already dealing with a rather different clientele. This CTR is described as burgundy red, exactly the colour Porsche used in its advertising, and the interior is in tobacco brown leather, extending to the dashboard and door upholstery. The seats are black, deep Recaro buckets. Ruf's changes to the 911 interior include his own instruments, a 350 kilometres-per-hour speedometer and the dominant rev counter, which here goes to 8,000rpm, has the needle working clockwise in the great tradition of competition cars. Ruf also fits his own steering wheel. There is no pretence of rear seats: the plush matching brown carpet extends across the space with an elastic net to hold luggage in place.

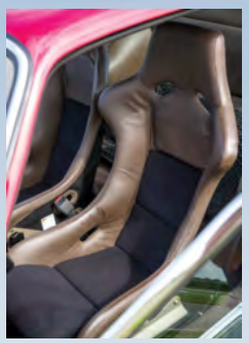
All these modifications are tastefully carried out as per the Ruf hallmark, and this extends to the exterior. The CTR is based on the narrowbody 3.2 Carrera, but the rear wings are subtly enlarged to accommodate 17-inch Speedline wheels and 255-width tyres. Also subtle is the removal of the rain gutters, which involves work to the chassis and inside the roof to enhance rigidity. The gutterless look is such an improvement that it is surprising that Porsche put off this change until the 996. The flag door mirrors are replaced by small racing mirrors, again shades of competition 911s. At the front, a deeper valance with the fog lights built in has a neat central plastic grille and the discreet lip at the bottom is reputedly that of the 935s. The rear bumper is similarly modified. A glass fibre moulding, it is different from the stock impact bumpers and is distinguished by the ventilation slots cut in the sides. This is not done for effect, but to duct airstream to the turbochargers. Twin exhausts complete the changes. The wing is like the 930's, but set at a lower angle for optimal downforce. The doors, lighter to open despite retaining electric window winders, are in aluminium, as is the engine cover and front boot, a part of the reason why the CTR weighs nearly 200 kilograms less than the 3.3-litre 930. A nod to Porsches of a previous age, the CTR has a side-mounted oil filler, exactly like the 1972 'E Series' 911.

The most spectacular difference is the engine compartment. In place of the stock intercooler is Ruf's own air filter, which together with the fan dominates the engine bay. The turbochargers themselves are mounted out of sight, down low in the rear wings, their presence indicated by the cooling radiators on each side. Air is fed to these intercoolers in fixed steel pipes that contribute to general stiffness. The Ruf uses single-plug ignition, but twin injection. Out of sight, bigger 98-millimetre Mahle pistons contribute the larger 3,367cc capacity. The whole engine compartment is a model of rational and accessible layout; it is clear this is re-engineering, not tuning. But this does not necessarily mean greater complexity: Joe, Frank Hendrickx's mechanic, has dismantled and reassembled these engines and says they ➲

Coining of the 'Yellowbird' name

It was *Road &Track* that coined the name 'Yellowbird' after Frère's 339-kilometre (210-mile)-per-hour exploit in a yellow CTR and the name really gained currency after Ruf test driver Stefan Roser's memorable lap of the Nürburgring, now recorded for posterity on YouTube. "But the CTRs could be any colour you wanted," says Joachim von Beust. His orange car was built in 1989 to a sort of Clubsport specification – a more austere interior, fitted roll cage and lighter seats, the front valance where air intakes replace the fog lamps: "In fact, the CTR is a bit like the AC Cobras built after the 1960s – they are all different. The customer specified want he wanted and Ruf built it."

Ruf's press releases described the CTR as having 469 horsepower, a slightly odd figure and it is said that this was in fact the lowest dynamometer reading of all the CTR engines tested – nearer to 500 was the average figure, but typical of Ruf's propensity for understatement, he chose to announce the most conservative figure. Over seven years, Ruf made 29 cars from shells bought from Porsche, and rebuilt a further 20 or 30 from clients' own 911s. In what was becoming a Ruf tradition, when Porsche finally adapted a five-speed gearbox for its 930, the Pfaffenhausen firm went one better with its six-speed, developed with Getrag.



Plenty of changes abound over a 911, most noticeably in the engine bay where a huge CTR airbox replaces the usual intercooler on top of Porsche's flat six

Model	Ruf CTR
Year	1987
Engine	
Capacity	3,367cc
Compression ratio	7.5:1
Maximum power	469bhp @ 5,950rpm
Maximum torque	553Nm @ 5,100rpm
Engine modifications	Twin turbocharger, twin intercoolers
Transmission	Five-speed manual gearbox (LSD optional)
Suspension	
Front	Gas-filled struts and torsion bar
Rear	Wishbone & torsion bar
Wheels & tyres	
Front	8.5x17-inch Speedlines; 215/45/ZR17
Rear	9.5x17-inch Speedlines; 255/40/ZR17
Dimensions	
Length	4,290mm
Width	1,775mm
Weight	1,170kg
Performance	
0-62mph	4.8 secs
Top speed	208mph

"With a power-to-weight ratio well over 400bhp per tonne, the next corner always arrives much earlier than anticipated!"