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# THE BEST AND THE REST



hat an astonishing year of celebrations 2023 is turning out to be for Porsche enthusiasts. For starters, there's the Stuttgart brand's seventy-

fifth anniversary (and therefore a significant milestone for the 356), a landmark in Porsche history to be commemorated by a series of exciting events throughout the coming show season. We then gear up for autumn and the 911's sixtieth birthday. It's safe to assume there will be parties far and wide.

Even enthusiasts with only surface-level knowledge of Porsche products and the company's long and illustrious history will be aware of these anniversaries, but there are other significant - albeit less prominent - dates to be aware of this year. Immediately springing to mind, we have forty-five years of 911 SC to concern ourselves with, not to mention forty

years of the TAG Turbo F1 engine's debut, fiftyfive years of 908, seventy years of 550 and many more important chapters in the Porsche story besides. Needless to say, we'll be covering each in coming issues of Classic Porsche.

In this edition of the magazine, we mark forty years since Porsche made its Group C titan, the 956, available to customer teams. In doing so. Porsche unleashed a series of ambitious privateer development programmes, which saw the 956 and its successor, the 962, undergo changes often putting the factory team at a disadvantage. It was one of the most exciting times in sports car racing history and an era of motorsport revered by Porschephiles the world over, as demonstrated by crowds flocking to see the 956 and 962 at today's historic race meets, plus continued demand for these cars, which are often star lots in high-profile auctions.

Across thirteen pages, we pay tribute to ten of the most successful 956/962 privateers, as well as competitors who deserve an honourable mention for their efforts with these cars. We'll delve deep into the history of each team in dedicated features to appear in forthcoming issues of the magazine. For now, however, we're off to buy balloons and party poppers.



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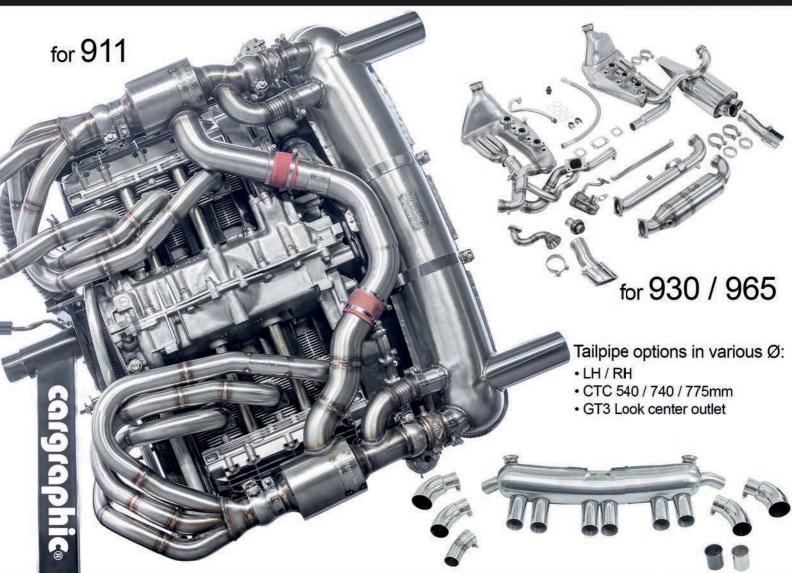
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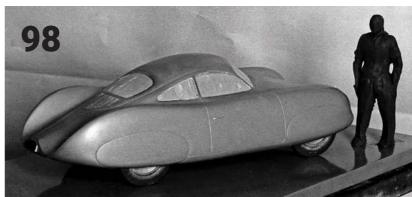






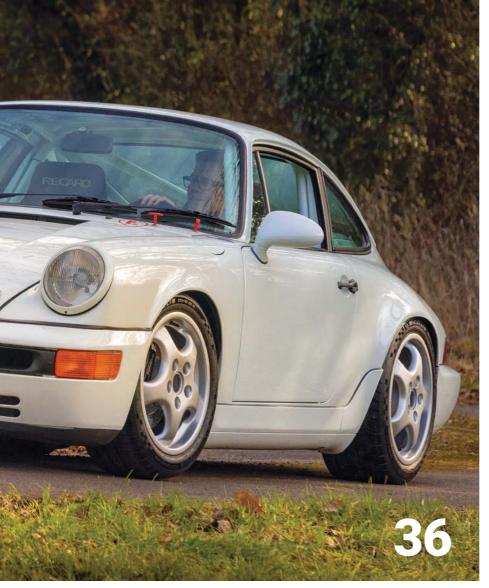






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# WHENLESS IS MORE

This latest build from Rindt Vehicle Design is very probably not quite what you think it is. Yes, it's a 911 Targa, but its underpinnings are really quite leftfield and surprisingly rare...

Words Steve Bennett Photography Dan Sherwood





ust like Arnie, we knew we'd be back.
Back to Rindt Vehicle Design, that is, not to save the world (although never say never). There's just so much to see and drive here. Make no mistake, this is a prolific outfit with a compelling USP: full control over all projects. That is to say every stage of a restoration or restomod build is carried out in-house. What's the old adage? If you want a job doing well, then do it yourself? It makes sense, but it's not always easy or practical to achieve. In the world of Porsche restoration and custom builds, it equates to a dedicated team of technicians expert in all areas, from bodywork restoration and fabrication, to engine rebuilds, electrics, trimming and painting.

Most specialists will farm at least two or three of these jobs out to the world beyond their workshop. And yes, they will nearly always be tried, tested and trusted third-parties, but when part of a project is in another company's hands, it becomes hostage to the supply chain. How many times has a restoration been held up by work being carried out elsewhere?

Of course, there are good reasons for most specialists to outsource. As Rindt's man at the top, ex-professional golfer, Brian Richardson, succinctly puts it, "It's expensive to do everything in-house, but equally, it's a massive advantage, too." Expensive? Well, all that expert talent and craftsmanship doesn't come cheap, nor does the space to accommodate what is effectively an artisanal production line, albeit a very slow moving one.

Rindt Vehicle Design's complex of rustic farm buildings

— a stone's throw from Windsor — looks every inch the

Porsche resto equivalent of TV's Repair Shop. The vibe

inside is rather similar, too. Beneath the vast oak beams and vaulted ceilings, there is an atmosphere of calm, methodical endeavour, where Porsches are created or brought back to life.

By far the largest area is that of build, where painted bodies wait to be fitted out, the necessary components stacked neatly by each shell. Beyond are two ramps for the heavy lifting of engine and running gear installation. It's an impressive space. Turn right and engines are being built. It's hard to ignore a twin-turbocharged air-cooled flat-six (being prepared for an all-out build) situated alongside a rather more standard-issue boxer.

Perhaps the biggest "massive advantage" Rindt has is its dedicated trimming department, where sewing

Above The body spent a full year in Rindt's metalwork department, such was the derelict nature of the Targa when the project started

**Below** Porsche Classic Communication Management brings Apple CarPlay into the classic 911's cabin



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**Above** Brandy-coloured leather is the perfect match for the green paintwork

**Below** Did you really expect anything other than a MOMO Prototipo steering wheel?!

machines clatter and leather and cloth are cut to create bespoke or factory specification interiors. Indeed, interior trim is very often what finishes a project and it's where

an owner can exercise creative flair, certainly in terms of colours and materials. Likewise, the modernising touches which make a restomod day-today usable, such as

a decent sound system and the connectivity required for retro-modern life.

Sizeable as Rindt's rural premises is, there's no room for the body and paint shop, which occupies two units a mile or so down the road. Again, here, it's hard not to be impressed at the scale of the operation, with no less than three Celette jigs and pegs to ensure factory tolerances for all bodyshell work. And there's plenty of Porsche carcasses in the works, some in generally fine

G-SERIES 911S WEREN'T ALL ABOUT THE IMPOSITION OF THE SAFETY MANDATED BODYWORK, REOUIRED FOR THE US MARKET

fettle, others, er, not quite so. But not to worry, it takes something truly shocking these days to render a classic Porsche beyond repair, and Rindt's team have all the

skills required. That said, it's not unusual for a body to spend up to three months on a jig (or more, as we'll find out) before painting. Talking of which, Rindt is well versed in Porsche's

vast colour palette and how to replicate the look and finish of the earlier paints used.

Tour over, it's clear we will be back again in the not-too-distant future, such is the abundance of air-cooled 911s in build. For today, Brian and right-hand man, Trevor Ward, have rolled out a couple of corkers to be driven and appraised. We'll keep the stunning restomod for our next issue. Suffice to say, it will be worth the wait. Instead, we'll go with something which is, perhaps, the very definition of 'less is more'. An interesting curio even, and not the most obvious starting point for a project.

First impressions? No prizes for spotting It's a G-series 911. The impact bumpers do rather give away the car's identity, but here's the thing: instead of car, owner and restorer automatically going down the backdate route, those tell-tale G-series traits have been retained and incorporated, while the sills have been removed for slight hint of retro. You're probably thinking we're in the presence of a 911 SC Targa dressed in an interesting shade of green. But, no, that wouldn't be the 'interesting curio' to which we refer.

The basis for this project is actually a narrow-body 2.7-litre 911 of 1974 vintage, that slightly odd period when the G-series cars were finding their feet and Porsche felt the 911 needed a four-car line-up: Coupe, S, Carrera and Turbo. It's probably fair to say the base 911 didn't rock the impact bumper look quite as well as the wider body cars. It didn't help, either, that it retained



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Above 2.7-litre flat-six has been fully rebuilt and, according to Rindt, has gained fifteen ponies in the process

the chrome window trims of the pre-1974 cars, which didn't work against the modern-looking, black bellows, black rubber bumper trim and overriders. The S, Carrera and, of course, the Turbo all sported a more modernising

black window trim and wider, blackcentred, sixteeninch Fuchs wheels, while the base 911 again looked rather quaint on narrow fifteens (or the never

# BRIAN DESCRIBES THE UNLOVED 2.7 TARGA STARTING POINT AS A "SCRAPPER", WHICH HADN'T BEEN DRIVEN FOR TWENTY-ODD YEARS

especially loved 'cookie cutter' style).

G-series 911s weren't all about the imposition of the safety mandated bodywork, required for the US market. That same all-important market also demanded a clean-up of engine emissions. The big story, then, was the arrival of Bosch K-Jetronic fuel injection, with its precise and continuous fuel metering. This had absolutely the desired effect on both emissions and economy, particularly in the US, where catalytic converters were a legal requirement. Not so good for power, though — US-spec 911s lagged behind their European counterparts, not helped by weaker-than-Budweiser 91 octane fuel.

In Europe and beyond, K-Jetronic delivered a double — or even triple — whammy of improved performance, economy/emissions and drivability. The base 2.7 of 1974 had a 150bhp kick in the tail, up 20bhp on the preceding

1973 911 T, rising to 165bhp by 1976. Not that it made any difference to sales. The base 2.7 just didn't capture the imagination of the 911 crowd, which would thoroughly buy into

the three-litre, wide-body cars. Unsurprisingly, the 2.7 and narrow-body style was dropped in 1976, when the 911 range was slimmed to two models: Carrera and Turbo.

Excuse the brief diversion, but what the above means is that the 2.7 fell rapidly down the 911 food chain. Many of these cars were culled or simply run into the ground, which is a shame, because the 2.7 is still a 911, after all. Moreover, this particular Porsche has a charm all of its own. And if there is a budget/entry-level G-series 911, then the 2.7 is it, providing you can find one. All of which hopefully justifies our assertion of the 2.7's 'interesting curio' status and thus prime candidacy for an interesting

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project. A blank canvas, even. Typically, this build was very much a collaboration between owner and restorer. Brian describes the unloved 2.7 Targa starting point as a "scrapper", which hadn't been driven for twenty-odd

years. "It was in a terrible state," he says. "The early G-series 911s seem to be more prone to rot, but ultimately, there is no Porsche which can't be saved.

## THE 2.7-LITRE FLAT-SIX MIGHT NOT HAVE BEEN APPRECIATED IN PERIOD, BUT PAST GRIPES WEREN'T GOING TO STOP RINDT

This one spent twelve months on the body jig. It may not make economic sense, but then very few restorations do. Projects like this are very much a personal expression. You can't really put a price on that."

While it was tempting to retain the original narrowbody look, doing so would have meant almost certainly a restoration back to standard specification, or perhaps a mild hot rod vibe. More obvious was to go wide, just as the contemporary customer base did. It's deceptive, but the arches have been re-worked to make them slightly wider than stock. Equally deceptive are the wheels. They look pretty much standard, but are, in fact, eighteen-

> inchers, hence the need for a more accommodating arch, perfectly filled.

The subtle metallic green paintwork is to Rindt's own recipe and looks stunning, splendidly offsetting

the black trim and the black Targa roll hoop.

The devil is in the detail, they say — the same green has been used to detail the bonnet badge and crested centre caps. Needless to say, the Targa roof has been fully restored and, though we didn't try it on the move, it fits good and tight.

After emerging from a year of body-build and paintwork, the shell then made the short journey to

Above Rebuilt with just enough mod-cons to make driving the classic 911 a totally viable proposition for everyday travel

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#### **911 TARGA**





Above The G-series 2.7 isn't the most loved of Porsche flat-sixes, but delivers more than enough poke when you hit 4,000rpm

**Below** Classic 911 Targa remains one of the most affordable routes into aircooled Porsche ownership Rindt's main assembly workshops to be united with running gear and interior. As you can probably guess, the entire car was subjected to the full 'nut and bolt' treatment, although not a great deal of the original "scrapper" remained, save for some suspension arms and casings, all of which were vapour blasted and zinc-plated where necessary or appropriate. The stance is achieved on stock Bilstein dampers, with re-set and lowered torsion bars, but more on this in our driving impressions.

The 2.7-litre flat-six might not have been appreciated in period, but past gripes weren't going to stop the Rindt engine shop devoting 120 hours to this unit's rebuild. Cue new pistons, barrels, connecting rods and a totally de-bugged and overhauled K-Jet system, which is key to getting one of these early injection engines running tickety-boo. Why not go for something more radical, or capacity enhanced? Well, despite the 165bhp donkey not being one of Porsche's better-known powerplants, it is the heart and soul of this build and, let's be honest, not every classic 911 has to be chucking out 300+bhp. Besides,

thanks to attention to detail and build tolerances, Brian reckons an extra 15bhp has been extracted. 180bhp is not to be sniffed at, especially when a standard 911 Targa of this vintage weighs in at just 1,120kg. The rebuilt 2.7 is bolted to the back of an equally fully rebuilt Type 915 transaxle. Done properly, these sometimes unloved and underrated gearboxes have a shift and a character all of their own. We'll find out soon enough.

#### **DRINKING IT IN**

Beforehand, it's time to get comfortable. If the exterior look is subtle, then the interior is equally so. The brandy-hued hide complements the custom metallic green and is 'detailed' with contrasting black stitching. And rather like a bodyshell can be de-seamed, the seats have been de-piped. The brandy theme extends to the custom door cards, which also feature a lightweight leather door pull and aluminium window winders. Also, check out the laser-cut, patterned speaker holes.

The dash top has been restored and trimmed in leather within a contrasting brandy stitch. The dials are particularly neat touch. They're standard, save for the machine-polished rim to each bezel, for just a hint of bling in an otherwise tastefully sober cabin. Finishing touches? A MOMO Prototipo steering wheel (obviously), plus a Rindt-branded milled wooden gear knob, handy USB ports and a Porsche Classic Communication Management (PCCM) head unit, allowing Apple CarPlay to bring a touch of the future to the past.

Time for a drive, which means less of the collective Classic Porsche 'we' and more of the personal 'me'. I'm the one in the hot seat, after all. I'm reverting to the first person because I have, on occasion, been somewhat scathing of the Targa concept, although not nearly as scathing as I have about the 911 Cabriolet. But like so many things in life, they start to make sense as you grow up a bit and the penny drops that not every 911 has to be a hardcore road racer, despite the fact the Targa is named after one. Sometimes it's okay to drift a little, a light



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breeze around the barnet, sun on your head, the sound of a flat-six in your slipstream. That's exactly what the Targa is all about. It's exactly what this build is all about, too.

Quite simply, this is a lovely Porsche to drive. It fizzes with 911 character and feedback. That careful build and matching of components is rewarded by an engine

feeling instantly responsive to the throttle, revving smoothly and seemingly lacking in inertia. Torque might be modest, but it's just where you want it strong,

# TORQUE MIGHT BE MODEST, BUT IT'S JUST WHERE YOU WANT IT STRONG, FROM 4,000RPM, CLIMBING TO NEAR 6,000RPM

from 4,000rpm, climbing to near a 6,000rpm redline when the mood suits. It's all usable, which is the best thing about the 2.7- you can make it sing and use everything on offer, but in a way that doesn't attract attention.

The 915 'box, since it's been mentioned in despatches? It's as good as they get. Never a ratio-swapper to be rushed, it rewards a methodical approach and definite pause in the neutral plane, before gently easing the shifter into the next gear. Typically, you shift with your shoulder, such is the range of the lever. It's all part of the 911's character.

I confess, I wasn't sure about eighteen-inch wheels on a 911 of this vintage, but in truth, they work just fine. Better than fine, because you wouldn't know they were so big. The steering is still delicate, and no heavier than standard. The Michelin Pilot Sports accurately read the road, transmitting detailed feedback. And the ride? I was keen to experience this, having run my own Carrera 3.2

on Turbo Fuchs with lowered torsion bars and standard dampers. I always thought it was a well-suited set-up for British roads, whether by luck or design.

Whatever, here again, I wondered whether eighteens and a low profile would have an impact, but no.

Compared to a lowered spring, a lowered torsion bar

always seems to retain more of its original compliance and allows the damper its full range. I confess, I probably spent rather more time driving this fabulous 911 around

Rindt's base than I should have, finding excuses to explore a criss-cross of B-roads that were doing a good job of debunking the theory the South East of England is a grid-locked nightmare.

Admittedly, the classic Targa's snake-hipped dimensions were rather more suited to the terrain than, say, a contemporary 911. Isn't this part of the appeal? Our rural roads have remained the same, it's us that's got bigger.

Eventually, I did find my way back. As I alluded to earlier, there was, after all, another Rindt build to be driven. A bruiser, in fact. The complete antithesis to this delicate Targa. I dare say there will be more to sample thereafter. For now, however, let's applaud Rindt and this 911's visionary owner for taking a derelict Porsche and turning it into something slightly more leftfield than your typical restomod build. If you want something similar, then you know who you should be talking to. **CP** 

Above Subtle body changes, bigger wheels and lowered ride height work with the bespoke green to deliver a Targa with real road presence

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#### 911 Carrera 2 GTS (997)

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# LIVEWIRE

Our look at what's happening in the wonderful world of air-cooled classics...



#### PORSCHE RECOMMISSIONS PARIS-DAKAR 959 DRIVEN BY ICKX AND BRASSEUR

A car capable of surviving 14,000 kilometres in the deserts and savannahs of Africa can go anywhere in the world, right?! The 959 Paris-Dakar mastered the gruelling rally from France to West Africa in 1986. The Porsche, in which Jacky lckx and Claude Brasseur finished second behind the winning French team of René Metge and Dominique Lemoyne (in an identical car) is now ready to by driven once again. The recommissioning has been carried out over the past few months by the Porsche Heritage and Museum team, together with colleagues from Porsche Classic. The multi-part 959 Paris-Dakar documentary posted to the Porsche YouTube channel offers exciting insights into the recommissioning process.

The starting line-up of the 1986 Paris-Dakar Rally was dominated by trucks and all-terrain vehicles. The trio of entered 959s therefore stood out, but even the third 959, entered as a service support mule and driven by project manager, Roland Kussmaul, and the team's race engineer, Wolf-Hendrik Unger, achieved a sixth place finish. To this day, the Porsche Museum has preserved the trio as part of its collection. "The winning car remains untouched and we keep it in a kind of time capsule, so to speak, with all of the physical traces of the rally preserved for as long as possible," explains Kuno Werner, Head of the Museum Workshop. Not so for the lckx/Brasseur 959, which is now ready to ride again.

#### **DIRT DON'T SLOW YOU DOWN**

During the car's disassembly, the team discovered sand and dirt from the African desert — following return to Zuffenhausen from the rally all those years ago, the body and mechanical parts had never been separated. "We found evidence the car had experienced water in its interior, a consequence of driving across rivers," says Werner. Small areas of corrosion where the Kevlar body parts ground against the metal frame as a consequence of the physical pressures of high-speed rally driving were conserved (rather than repaired) in order to preserve the history of the car. "We even left cable ties exactly where they were fitted during testing of the original parts in period," Werner reveals. "After all, this special Porsche's appearance cannot be recreated."

Gearbox expert, Klaus Kariegus, is a fan of the retained African dust and the authenticity it represents. "This car has proven its quality and durability. Even sand and dust from hard racing use could not harm the mechanicals. Extremely high-quality materials were used in the construction of the 959 Paris-Dakar," he tells us. "Only by keeping the dirt and damage experienced during the rally in 1986 can we tell authentically tell this Porsche's story and preserve it for future generations."

The Porsche Heritage team invited Jacky Ickx to the car's reveal following its "gentle overhaul". Ickx had the honour of being the first non-staff member to drive the recommissioned Porsche. "Memories from the race immediately came flooding back," he says. "The event team numbered just eighteen people. The rally was an unbelievable challenge for all of us, but also the perfect testing ground for Porsche's all-wheel drive system. Nobody expected the level of success we achieved."

By the time this issue of *Classic Porsche* hits newsstands, all episodes of 959 *Paris-Dakar* will have been posted to the Porsche YouTube channel, where you can also enjoy preview films of the new 992 Dakar.





# KREMER RACING 962 CK6-87 FINDS NEW OWNER AT AMELIA ISLAND AUCTION

As you'll see later in this issue of *Classic Porsche*, the 962 and its predecessor, the 956, are among the most important cars in the history of endurance motorsport. The success they achieved is unrivalled in the history of sports car racing — between 1982 and 1987, the 956 and 962 won at Le Mans six times, finishing 1-2-3 every year except 1987, when the last podium place was nicked by a Cougar C20, though it's worth noting this car was powered by the 962's Type 935 2.8-litre flat-six. In North America, the 962 won forty-eight of sixty-eight IMSA GTP races between 1984 and 1987, including 1-2-3 finishes at both Daytona and Sebring for three consecutive years.

Campaigned by the Porsche works team and well-funded private entries, the 956 and 962 captured the World Endurance Championship's manufacturer and driver titles (1982–1985), the World Sports Prototype Championship's manufacturer and driver titles (1986–1987), the IMSA GTP manufacturer title (1985–1988) and the IMSA GTP driver title (1985–1987).

Among the private teams racing Porsches in the period was Kremer Racing. Founded by brothers Erwin and Manfred Kremer in 1962, the eponymous team would achieve great success in the 1970s, producing bodywork of its own design for the 935, culminating with an overall win at Le Mans in 1979. Kremer would transition to the prototype class with the introduction of the 956, and arguably provided the Porsche factory team with its stiffest European-based competition throughout the 1980s.

For the 1987 season, Kremer purchased from Porsche a 962 (chassis 962-118), which the Cologne crew used for sprint races, Interserie and the World Endurance Championship. For Kremer's Le Mans campaigns, a separate 962 was built by the team itself, utilising a new Thompson aluminium honeycomb tub, renowned for its increased rigidity and lightness when compared to

## SPONSORSHIP WAS PROVIDED BY JAPANESE REAL ESTATE CONSORTIUM, LEYTON HOUSE, A FASCINATING AND ICONIC BRAND IN MOTORSPORT

Porsche's factory 962 tubs, which were made of aluminium sheet metal. Additionally, the Kremer car's body panels were manufactured from lightweight carbon-Kevlar composite. This custom 962 is the very Porsche pictured right.

Kremer raced the car at Le Mans in 1987 and 1988 — its only competitive outings. Sponsorship was provided by Japanese real estate consortium, Leyton House, a fascinating and iconic brand in motorsport circles. In a not-too-uncommon practice, this brightly coloured Kremer Porsche raced with the 962-118 chassis plate in period, but was later renumbered CK6-87.

For the 1987 24 Hours of Le Mans, George Fouché, Franz Konrad and Wayne Taylor drove the car and finished fourth overall. A year later, Fouché was joined in the same Porsche by Kris Nissen, and Harald Grohs. The trio placed eighth come race end. Chassis CK6-87 would remain in Kremer Racing's collection until it was "very reluctantly" sold to UK-based Porsche collector, Tony O'Neill.

In 2002, the car was sold to Henry Pearman, who added it to the largest collection of Group C Porsches anywhere in the world. Pearman passed ownership to collector and dealer, Paul Michaels, in 2007, after which, CK6-87 was mechanically refurbished and went on to appear at the 2008 Goodwood Festival of Speed. It then remained on static display until being purchased at Gooding & Company's Amelia Island sale in 2019. Gunnar Racing of West Palm Beach was subsequently tasked with returning the car to running condition. Invoices totalling more than \$41,000 outline extensive cosmetic and mechanical repairs. In a case of history repeating, CK6-87 was offered for sale at Gooding & Company's 2023 Amelia Island sale at the beginning of March. The final sale price? A cool \$907,000. Congratulations to the winning bidder.







PORSCHE April 2023 19

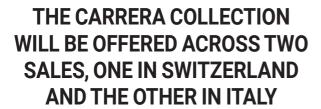
# SINGLE-OWNER CARRERA COLLECTION OFFERED IN NEW RM SOTHEBY'S SALE

International auction house, RM Sotheby's, has announced The Carrera Collection, an astonishing sale of Porsches, including various special and limited-production air-cooled 911s, as well as various 356s and a variety of models from other premium marques, including Alfa Romeo, BMW, Mercedes-Benz, Alpina and Chevrolet.

This remarkable 'no reserve' collection further underlines RM Sotheby's reputation as the leading auction house for selling single-owner collections and estate sales and comes hot on the heels of The Bavarian Legends Collection, which sold successfully in Munich back in November.

The Carrera Collection features an eye-popping array of nearly ninety cars, the majority being fine Porsches. A 1959 356 A Carrera 1600 GT coupe represents a stunning example of one of the marque's most significant early models, while other highlights include a 356 B 2000 GS Carrera 2 Coupe, a 993 GT2 Evo race car and not one, but two Carrera RS 2.7s. Another of the sale's interesting and desirable 911s, and one bound to appeal to collectors looking for their next rare Porsche, is the included 1997 993 Turbo S (pictured below), which served as a factory prototype.

"We are delighted RM Sotheby's has been entrusted to sell this astonishing single-owner collection," says the auction house's classic car specialist, Felix Archer. "The breadth of Porsche models on offer presents



a huge opportunity for fans of the marque, while the entire sale contains some truly rare and desirable models from a variety of manufacturers."

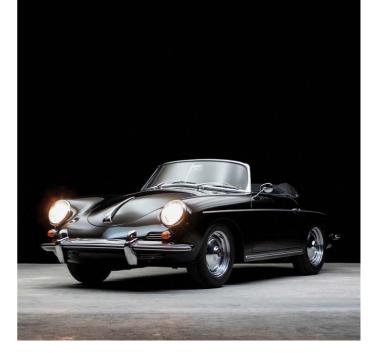
The Carrera Collection will be offered across two sales, one in Switzerland and the other in Italy. Specific details will follow, but for now, we can reveal the auctions are scheduled to take place in July.

The common thread uniting cars included in The Carrera Collection is impressive diversity. In addition to the sale's early 356s and hugely desirable 911s, for instance, is a fleet of 928s, all impeccable examples representing the best of each generation of Porsche's legendary V8-powered 'land shark'. We'll bring you further news as soon as specific details relating to individual lots are announced. In the meantime, we encourage you to register for an RM Sotheby's account (*rmsothebys.com*) to keep abreast of updates and to register for bidding.

As if this wasn't enough exciting auction news, Broad Arrow (a Hagerty company) has been appointed to host the Porsche Seventy-fifth Anniversary auction at Porsche Experience Center Atlanta across the weekend of June 8th-10th. This single-marque sale will present seventy-five (of course!) carefully curated classic and collectible Porsches.

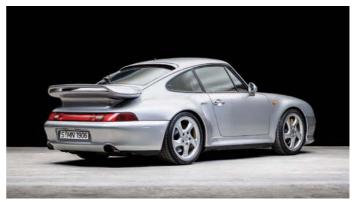
Every Porsche anniversary is worth celebrating, but seventy-five years of manufacturing and motorsport is especially noteworthy. Leading early consignments for the sale is the no.001/001 911 Classic Club Coupe, a unique Porsche Classic project created in collaboration with Porsche Club of America (PCA). Based on a 996-generation Carrera and enhanced through Porsche's Sonderwunsch (Special Wishes) programme, the car's one-of-a-kind modifications take inspiration from the 997 Sport Classic, a limited-edition model not approved for export to the USA. The Classic Club Coupe features the complete drivetrain from a second-gen 996 GT3 and will be offered without reserve.

Interested collectors are invited to contact a Broad Arrow specialist via *broadarrowauctions.com*, where further information will be released.













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#### PORSCHE REVEALS VISION 357 ON GT4 RS PLATFORM AS HOMAGE TO TYPE 356

Seventy-five years ago, on 8th June 1948, 356 No.1 became the first automobile bearing the Porsche name to receive its general operating permit. This marked the birth of the sports car brand we know and love. The company is kicking off celebrations during this special anniversary year with the Porsche Vision 357, a new design study paying tribute to the 356.

Liberated from regulations applying to implementation of a series model, the Style Porsche Team worked on expressions of future design philosophy, whilst staying true to

356 cues. The fundamental concept is reflective of the interplay between tradition and innovation: what would the 356

# AS WAS THE CASE WITH THE 356, PORSCHE IS PUSHING THE BOUNDARIES OF GLASS PRODUCTION

look like if it was in production today?

Built on the technology platform of the near 500bhp 718 Cayman GT4 RS, the Vision 357 is star of Porsche's special anniversary exhibition, hosted at the Volkswagen Group's DRIVE Forum in Berlin, which opened in January. The Vision 357 will be presented at South by Southwest in Austin from 10th March 2023 and at further international events during the course of the year.

"Thinking out loud about the future is one of the core missions of Style Porsche. Our design studies are the pool of ideas which will feed into the Porsche production cars of tomorrow," says Michael Mauer, Vice President of Style Porsche. "We are perpetually on the conceptual journey into the future of mobility. Time and again, our brand's history serves as a source of inspiration. Taking a look back at our tradition when developing a new concept car is not as

paradoxical as it might seem. Creative freedom is also important — this is where valuable ideas can emerge unfettered, ones that help us imagine our consistent design philosophy in innovative new directions."

The Vision 357's windscreen sharply wraps around the A-pillars. As was the case with the car's historic forebear, Porsche is pushing the boundaries of glass production — early 356s had a split windscreen with a bar down the middle, but the split design was replaced by a one-piece 'bent' windscreen for 1952.

The functional details are integrated and underpin the sculptural character of the Vision 357. This includes the concealed door openers

by the side windows and tail lights, which sit behind a patterned array of points in the bodywork. Another nod to the 356 is

the grille pattern at the rear, in which the third brake light is integrated.

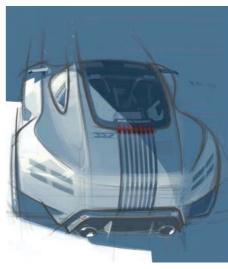
Like all current Porsche models, the Vision 357 features a four-point light signet at the front. The round design of the headlights is also a throwback to the characteristic lights of the 356. There are also parallels in the paintwork — the two-tone Ice Grey Metallic and Grivola Grey Metallic is a tribute to the various Porsche grey tones popular in the 1950s.

The twenty-inch centre-lock magnesium wheels are equipped with carbon-fibre aero discs. Visually, they also recall a legendary Porsche wheel — the 356 A and 356 B with drum brakes rode on rims with the notably large bolt circle of 205mm.

Some 78,000 examples of the 356 had been manufactured by the time of model discontinuation in 1965, but there will be only one Vision 357. Happy birthday, Porsche!









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#### **RECARO POLE POSITION LEATHER SEATS**

This new version of the road-legal Recaro Pole Position (ABE) racing shell — originally developed for the 964 Carrera RS — allows enthusiasts to no longer have to choose between an authentic classic racing bucket and modern safety standards. With its timeless shape and vintage-look seat covers, this superb seat will be at home in even the most sporty of classic Porsche interiors. The cushion inserts are trimmed in tartan fabric, while the outer panels are finished in black leather. Due to the fact the Recaro Pole Position is a shell-type seat, buyers will need to purchase a pair of side mounts (pictured, but sold separately) in order to mount the seat brackets. The brackets themselves are application-specific, so check with the team at independent Porsche parts retailer, Stoddard, before placing your order.

Price: \$2,325

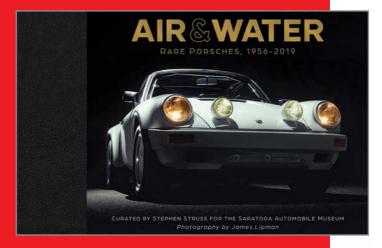
stoddard.com or call +1 440 869 9890



#### **AIR & WATER RARE PORSCHES 1956-2019**

The Saratoga Automobile Museum in New York has collaborated with architect, Steven Harris, to display twenty-two rare air-cooled Porsches, along with several of the most extreme water-cooled RS-badged 911s. From 1956 356 1500 GS to 2019 991 GT2 RS, this amazing Porsche collection includes Carreras, Speedsters and more, covering Stuttgart-crested sports cars from the past seven decades. All of the exhibit's cars have been captured in amazing visual detail by photographer, James Lipman, whose stunning images are accompanied by each Porsche's specification, history and period pictures, as well as driving impressions from leading motoring journalists. Comprising 288 pages and presented in 21.84x5.08x29.46cm hardback, *Air & Water* is on sale now.

Price: £54.99 (individually numbered edition £227.99) schifferbooks.com or search Amazon



#### **LN ENGINEERING CHAIN BOX COVERS FOR 911/930/CARRERA 3.2**

The OEM Porsche 911 air-cooled flat-six 'Mezger' chain box covers, like many of the factory's early cast covers, can be susceptible to corrosion and leaks caused by old age. LN Engineering's billet 6061 911 aluminium chain box covers are a direct fit to replace the originals and are machined to accept standard hardware and gaskets for all pre-964 911s (including 3.3-litre Turbo models) fitted with hydraulic chain tensioners. The machine work, optional anodising — choose between bright dip (looks like raw aluminium), matte clear, black, blue, red, green, gold, orange, purple, copper, penny or gunmetal — and precise gasket fitment provide a level of fit and finish above that of the factory cast pieces whilst staying true to the original design. Each kit includes pair of chain box covers. Order direct from LN Engineering today.

**Price: \$995** 

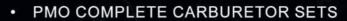
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#### **NEW CLARKE PRESSURE WASHER RANGE**

Tool manufacturer, Clarke, has released a trio of powerful pressure washers to suit different applications and budgets. The JET9500B features an efficient 2,400W induction motor, a 1,400ml detergent tank and an eight-metre pressure hose. The unit's adjustable spray nozzle includes high/low and pencil jet/ fan settings, allowing the user to adjust to their needs. Offering maximum pump pressure of 2,900psi and a flow rate of 420 litres per hour, this compact pressure washer rolls on rugged 160mm wheels and includes an integrated hose reel for easy storage. Meanwhile, the PL195B (pictured) is a powerful EURO5-compliant petrol-powered pressure washer built specifically for heavy duty applications. Featuring a tough, protective, collapsible all-steel frame, this particular pressure washer moves around on ten-inch tyres, making it ideal for transporting across rough ground. Maximum pump pressure is 2,640psi, with flow rated at 756 litres per hour. The petrol engine is a sturdy 6.5hp four-stroke unit. Included is a water pick-up hose, lance and gun. A highly compact 'hot wash' pressure washer rounds out this exciting range, which can be viewed in detail at the website of Clarke product retailer, Machine Mart.

Price: JET9500B £287.98, PL195B £634.80 machinemart.co.uk or call 0115 956 5555



#### CARBONE CB CUSTOM DOOR CARDS FOR 911/912/930/CARRERA 3.2/964/993

Two years ago, Porsche accessories specialist, Carbone, began development of a new type of door card for classic 911s, including the 964 and 993. The team's thinking centred around comfort for long-distance driving, such as road trips. The resulting designs included pronounced arm rests and pockets with enough depth to house a one-litre bottle of fluid. We're delighted to report Carbone has turned dream into reality, launching its 'CB' range of custom door cards not long before this issue of *Classic Porsche* went to print. Choose between leather or Alcantara for the base material and handles, or mix and match. You can also choose to customise the door cards for left- or right-hand drive, whether you want door locks, the stitch colour you'd prefer, plus whether to accommodate speakers and tweeters. Supplied as a personalised kit for home installation, everything is included for easy fitting — straps, brackets, bolts and washers come as part of the package.

Price: €2,700

carbone.pl or call +48 539 294 801



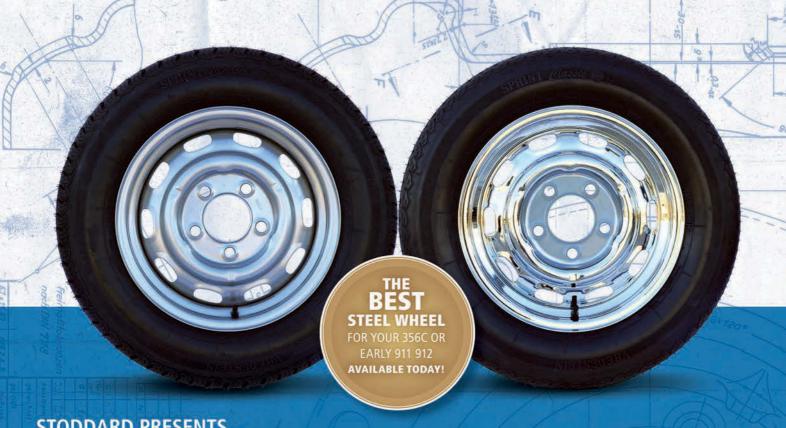
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Featuring outside tubing with a 41mm diameter for better flow and performance, these stainless steel heat exchangers from SSI are designed for use with normally aspirated air-cooled flat-sixes, from early two-litre units, to the 911 SC's three-litre powerplant. The design makes additional power by minimising intake charge disturbances at valve overlap, and by increasing the exhaust gas extraction effect. The volumetric efficiency — and thereby power output — is increased. Unlike all other aftermarket heat exchangers, these SSI products are designed to minimise the possibility engine-produced acids will internally corrode the enclosed primary tubes, behaviour allowing carbon monoxide to enter the passenger compartment. The adopted AISI 304 stainless steel tubing is highly resistant to the by-products of combustion. SSI uses only one-piece primary tubes, eliminating the possibility of hand-made welds cracking, and the resulting gas leaks.

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#### **NEW MAXILITE CUP-STYLE WHEEL**

Fuchs aside, one of the most popular OEM Porsche wheels is the soft-spoke 'Cup', as fitted to the 964 Carrera Cup and RS models. This timeless design perfectly underlines the sporty, cool and powerful character of a 1990s Porsche. We're pleased to report Europe's market leader in the field of retro-look Porsche wheels, Maxilite, has launched its own take on this evergreen classic. Available in a choice of 7.5x15, 7.5x17 or 9x17-inch sizes (with the option to stagger), this Cup-style wheel is suitable for all 928, 944, 964, 968, 993 and 996 models, as well as the 986 Boxster. Unlike the original Cup wheels, which were manufactured from magnesium, Maxilite's offering is aluminium, meaning it isn't prone to breakage, thereby delivering better performance and safety. And, reassuringly, Maxilite products are subject to TUV scrutiny (the toughest wheel test anywhere in the world).

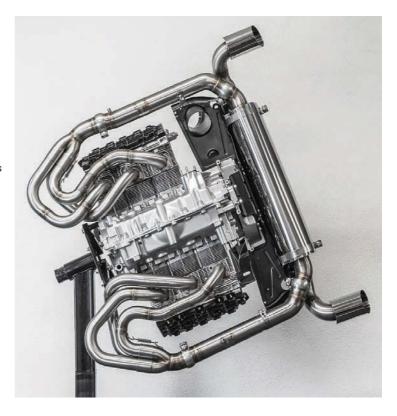
Price: 15-inch £315, 17-inch £333 maxilite.ch or call +49 234 935 1414



# CARGRAPHIC RSR/GT EXHAUST FOR 964 CARRERA 2/CARRERA RS

Treat your 964 Carrera 2 or Carrera RS to a motorsport-specification exhaust from the skilled metalworkers at leading aftermarket Porsche brand, Cargraphic. Fully manufactured from SS304L lightweight stainless steel, the system includes an absorptive silencer with CNC mandrel-bent pipework, band clamps and sleeve connections for easy installation and adjustment, reinforced lasercut brackets, plus collector boxes and AQ silencer inlet flanges positioned in a way to achieve maximum clearance of the host 964's valve covers (to avoid heat transfer). Delivering 25.8lb-ft additional torque and an extra 29.6bhp, this exquisite exhaust system reduces back pressure for freer flowing gases, promotes reduced operating temperatures, improved throttle response and a sound in keeping with the host Porsche - there is no drone, resonation or additional vibration experienced after installation. It's important to note, the system isn't compatible with Tiptronic-equipped 964 Carreras, and for fitment of the left-hand tailpipe, the valance corner needs a cut-out or, alternatively, a Cargraphic valance insert, which already features a cut-out and can be retro-fitted. 964 Carrera owners prepared to drive to Cargraphic's Landau (Germany) headquarters can take advantage of the firm's in-house fitting service.

Price: From €3,995 cargraphic.de or call +49 6341 968 911 0

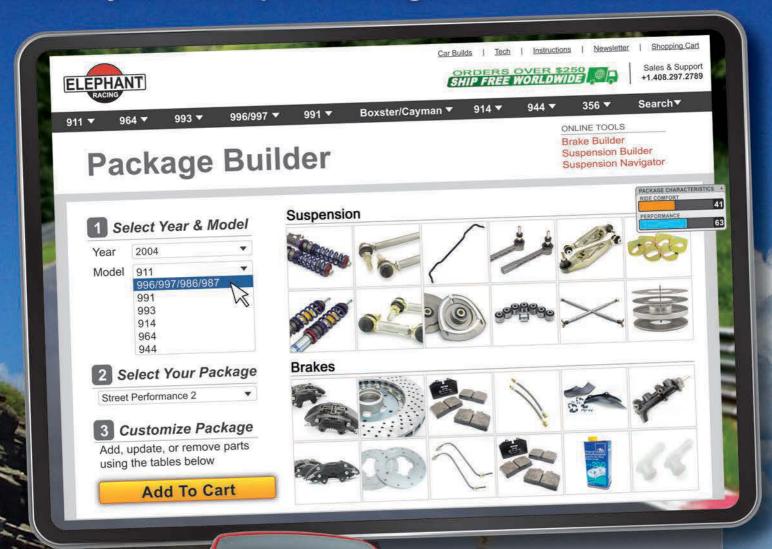


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The stock rubber rear shock mounts fitted to the M64 flat-six (964- and 993-series 911s) deflect under load, distorting suspension settings in the process. This can lead to premature and uneven tyre wear, poor grip, compromised handling and, in the case of cars destined for the track, slower lap times. Stomski Racing's monoball rear shock mounts ensure your tyre investment is maximised, delivering the best grip and the best handling. CNC-machined from aircraft-grade aluminium and anodised blue for great looks, as well as protection of metal surfaces, the design delivers maximum range, the most precise tuning, the smoothest suspension travel and, crucially, easy and accurate adjustment. Not only is the aluminium of aerospace quality, but each mount's monoballs are of the same calibre, as are the included stainless steel bushings. Supplied as a pair, these mounts form part of Stomski Racing's extensive selection of supporting suspension components for air-cooled Porsches, complemented by the company's range of tooling for carrying out routine maintenance and repair work on the same cars.

Price: \$402 (964 p/n SR035, 993 p/n SR036) stomskiracing.com or call +1 410 571 9779



#### **RENNLINE CARBON LEAD COVER FOR 964/993**

Replace your 964 or 993's worn or missing ignition lead cover with Rennline's tidy carbon-fibre alternative. The original Porsche part degrades over time, though it's true to say many have 'gone missing' after not being returned to their natural habitat by mechanics servicing the host flat-six in the distant past. Not only is Rennline's solution functional (keeping your car's ignition leads neatly organised and protected), it's also a great way to dress up your 911's engine bay. Manufactured from hand-laid carbon-fibre with a high-gloss, heat-resistant finish, Rennline's lead cover is a direct replacement for the original Porsche part and includes cable separators to hold each ignition lead in place. Installation is child's play — the job can be completed in a few minutes with basic hand tools.

**Price: \$150** 

rennline.com or call +1 213 224 7393



# STUTTGART CLASSICA CENTRE CONSOLE MAGSAFE CHARGER FOR G-SERIES 911

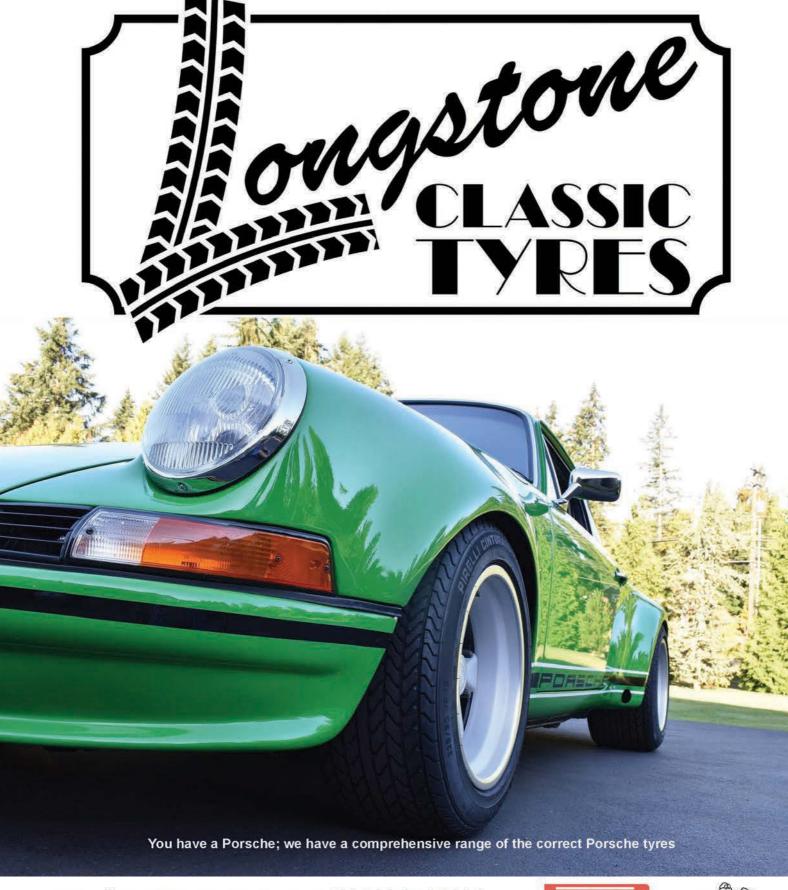
It's safe to say owners of classic 911s have, in recent years at least, been keen to introduce modern functionality to their cars without sacrificing the retro look of the standard cabin. Infotainment systems are a prime example of what we're talking about - the unbridled success of Porsche Classic Communication Management (PCCM) systems perfectly demonstrates the point we're making, and with the recent launch of Porsche Classic Communication Management Plus (PCCM+) for the 997-generation 911, early Cayennes and the 987 Boxster/Cayman twins, it's not unreasonable to suggest the trend shows no sign of slowing down. All this leads us to the Porsche accessory you see here. Fresh from air-cooled Porsche parts supplier, Stuttgart Classica, it's a specially moulded centre console for all G-series 911s. Designed to accommodate a MagSafe smartphone charger and featuring an aperture to comfortably accept most modern smartphones (160x105x10mm), this brand-new part is a direct replacement for the host 911's original centre console, which houses audio cassettes. For fans of originality, installation of Stuttgart Classica's part is entirely reversible - fitting is achieved by using the existing fixing tabs incorporated into the car's original centre console. Supplied in lacquered carbon-fibre or a plain black gel coat for trimming, each Stuttgart Classica centre console comes complete with a MagSafe charger and a twelve-volt power adaptor.

Price: £595

stuttgartclassica.co.uk or call 01386 701437



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Mans four times and
currently serves as a
presenter for ITV4. Find
him at @timbo\_harvey



reat to see so many people using their Porsches during the winter months. This proves (as we all know) Porsches are owned and used by true driving enthusiasts, though even the most knowledgeable of Porsche pilots can wonder what the most suitable tyres are for this time of year. In fact, it's a question I'm frequently asked, no matter the season. The answer, of course, depends on which car you own, how you drive and how many miles you cover, but before dealing with the detail, allow me to dispel a popular myth: the notion all tyres are round and black and therefore the average driver won't notice

but I found it funny to spot the Porsche test driver writing "feedback and progressive on limit breakaway" (I can't think why!) at the top of his list, while the Ferrari test driver simply scribbled "lap time".

Back to the question. I'm going to use Michelin tyres as my reference, chiefly because I have most experience with them. In some instances, there are actually five different Michelin tyres you could fit to a 911, from extreme winter snow tyres to those offering ultimate track grip on a sunny day. The extreme winter tyre is the Pilot Alpin 4, but you really only need this for cold winter conditions and best grip in snow. I'd recommend this product if you experience loads of the falling white stuff and don't mind changing tyres in







the difference between one tyre and the next. It won't surprise you to learn I have been lucky enough to drive many different cars rolling a wide selection of tyres. You'd be right to assume I can feel the difference between products, but I have also witnessed the so-called average driver experience the difference, too.

On new car launches, there will sometimes be two identical cars equipped with different brands of tyre, thereby giving drivers the rare opportunity to see if they can feel a difference. Jumping

# CHOOSE YOUR PORSCHE'S TYRES WISELY AND YOU'LL ENJOY THE BENEFITS OF SAFE MOTORING IN ALL ENVIRONMENTS

from one car to another with the only change being tyres is something most people never get to try, but the reaction is always the same: amazement. Drivers are genuinely shocked to discover they can feel the difference, having believed the myth all tyres are pretty much the same as one another. This leads to the inevitable question of choosing the right tyre for their car.

It's worth noting tyres developed specifically for your car (N-rated, in the case of Porsches) have been very carefully developed and tested to work best on your choice of vehicle. Each manufacturer has different requirements from a tyre, something I witnessed a few years ago on the launch of a new Michelin product in Dubai. Test drivers from different carmakers were in attendance and each was noting a long list of tyre performance characteristics, ranging from the obvious, including outright lateral grip, to the more subtle, such as consistent stability under braking. I won't list them all (there was something like thirty-two different parameters),

the spring. Ideally, you'll have two sets of wheels, allowing you to leave each set of tyres mounted on their rims.

Next up is the Pilot Alpin 5, which is a more usable winter tyre in general driving conditions (not just in snow, but in rain and low temperatures).

Again, this tyre really should be changed to a more suitable summer tyre come spring. Incidentally, until you have tried winter tyres, you won't believe how good they really are. Obviously, they're designed to work in the cold when a

summer tyre would be comparatively useless. If you use your Porsche during winter months, you shouldn't hesitate to buy this type of tyre.

Now comes what myself and many other Porsche owners consider the best all-round tyre: the Michelin Pilot Sport 4 S. When it comes to temperature and dealing with either wet conditions or dry summer days, this product has a large operating window and even works well on trackdays, though not as well as my final recommended Michelin products: the Cup 2 and the Cup 2 R. These really are the ultimate summer tyres for maximum grip on road and track, but their extreme compounds and lack of tread depth, not to mention block separation, means they only work well in dry, warm conditions. Don't make the mistake of thinking these are the first word in performance tyre design and are therefore capable of working effectively in winter. Instead, choose your Porsche's tyres wisely and you'll enjoy the benefits of safe, enjoyable motoring in all environment. **CP** 

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# **ALEX MANOS**

For many marque enthusiasts, the 911 Turbo (930) remains a dream drive, but in the USA — and Japan — the model was withdrawn from sale due to tightening emissions legislation effectively outlawing this powerful Porsche, which many know as the 'Widowmaker'. A late 1970s 930 has therefore become hugely desirable...

Alex Manos is owner of Beverly Hills Car Club, sourcing and selling some of the world's most beautiful and unique vintage automobiles, including a wide range of aircooled Porsches. View the firm's inventory at beverlyhillscarclub.com



sing a classic 911 Turbo in Los Angeles makes you feel like you're in driving paradise — in the shimmering sunlight, the Turbo purrs and sleeks its way along Pacific Coast Highway 1, the waves crashing against the rocks below, a light breeze ruffling your hair through the half-open window. What a turn-on it is to drive this outrageously sexy car. You probably won't be surprised to learn it is one of my favourite Porsches. The Turbo really is something else.

Officially the Porsche Type 930, the 911 Turbo first arrived on sale in 1974. These were new times for the Porsche motor company and new times for the sports car world, which was about to experience the Turbo's

The Turbo in my possession is relatively unique insofar as it carries an amazing colour combination (Petrol Blue Metallic with a black interior), is a 'matching numbers' 1979 930 coupe and has covered only 73,614 miles from new. The car makes use of a four-speed manual transmission and was built with air-conditioning, sports seats, power windows, sunroof, disc brakes in each corner, Fuchs wheels and the original spare tyre. Also included are service documents and receipts for recent work totalling more than \$6,000. The car is mechanically sound.

In 1978, Porsche made its first and biggest changes to the 930. These included enlargement of the engine bore by two millimetres to achieve the aforementioned 3,299cc, plus the addition of an air-to-air intercooler. A



brutal and ballistic acceleration. Of course, as we all know, the early 930 was equipped with a three-litre flat-six. It would take the best part of half a decade for displacement to increase, which it did, by ten percent. And at Beverly Hills Car Club right now, we have just such a 930: an early-bird version of the 3.3-litre 911 Turbo.

Marking up the American rarity factor for this particular 1979 car is the simple fact that the very next year, in 1980, Porsche was obliged to withdraw the 930 from sale in the United States due to the model no longer complying with emissions regulations. This was also the case for sales of the 930 in the Land of the Rising Sun — after 1980, the 911 Turbo was taken off the Japanese domestic market.

relief valve was installed to eliminate the turbocharger's pressure drop time — now the engine continued to deliver power when the foot was taken off the accelerator pedal. Also, the suspension of the updated 930 benefited from new anti-roll bars, firmer dampers and larger-diameter torsion bars.

Porsche also upgraded the brakes to stoppers similar to those used on the 917. All these changes increased the weight of the Turbo, contributing to substantial changes in the handling of the vehicle (when compared to the earlier three-litre model), but in the hands of a competent pilot, the supremely powerful 930 drives like a dream. The example at Beverly Hills Car Club? I love it so much I almost don't want to sell it. Take this classic Porsche for a spin and you won't want to go home without it. **CP** 





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# Steel wheel

Design: OE look steel - colour: silver

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## 16"- Steel rim

5,5 x 16 | ET 15 | 259,00 € all steel wheels with ECE number



# GREAT WHITE

Can a 964 Carrera Cup racer be tamed for road use? To find out, we strap in for what proves to be a drive on the wild side of Porsche life...

Words Steve Bennett Photography Dan Pullen







oad racer! There has to be an exclamation mark after such a statement, and while Porsche didn't invent the concept, it will forever be associated with epic closed road events, such as the Mille Miglia and Targa Florio, not to mention homologated RS and GT sports cars, built in road specification to satisfy the rules and regulations of international motorsport. Without Porsche's desire to compete, there would be no Carrera RS 2.7, which is a sobering thought.

Porsche has always had an active factory and customer motorsport programme. Indeed, from the 550 Spyder to the current generation of 911 Carrera Cup and RSRs, there has barely been a single Porsche race car unavailable off-the-shelf and ready to race. Every now and again, these very machines get re-purposed for the road. In the extreme, there is the madness of taking a 917 (think Count Rossi) and converting it for street use. Slightly less bonkers is the 962 road car concept, famously pitched by Vern Schuppan, Koenig, DP Motorsport and others. More likely — and more sanely — for the track-to-road treatment, however, is the 911.

There's no shortage of candidates, but since the advent of Carrera Cup in 1990, the number of former 911 racers has swelled to the point reverse engineering one of these cars for the road has become more than fair game. This is why I'm gingerly pointing one of Porsche's first Carrera Cup machines not out of the pitlane, but on to Surrey's B2128, with as much subtlety as I can muster. Having said this, much of the noise from this stripped-out racer is on the inside, which is likely why there is an intercom system, complete with headphones

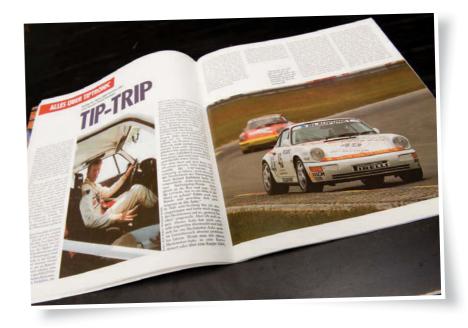
for driver and passenger. I'm also mindful of the fact this now road-legal racer was once driven by very handy wheelmen. No pressure, then.

Let's not race too far ahead. There's obviously quite a backstory here, not least the origins of Carrera Cup and the history of this particular Porsche.

Born out of the 944 Turbo Cup, which ran from 1986 to 1989/90, Carrera Cup was timed to take advantage of (and cash in on) the launch of the 964-generation 911. Porsche, headed by Ulrich Bez, reasoned the 911 was the "backbone" of the company and "therefore needed to be supported." What better way than going racing? Some thirty-three years on, this question has been

**Above** This Grand Prix White 964 Cup was originally dressed in Maxcom livery and helped to promote the launch of Carrera Cup France

**Below** Walter Röhrl tests a Tiptronic-equipped 964 Cup



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Above and below Despite its motorsport underpinnings, the 964 Carrera Cup is so closely related to its roadgoing siblings, converting for use on the road is a relatively straightforward affair

more than answered — Carrera Cup competitions are staged in thirteen different countries across the world, supporting some of the biggest race programmes out

there. In the UK, for example, Carrera **Cup Great Britain** serves as support act to rounds of the **British Touring Car** Championship, while winners of their respective domestic

### **THE FIVE-SPEED GETRAG G50 GEARBOX HAD CLOSER RATIOS** AND STEEL SYNCHROS, PLUS A LIGHTWEIGHT FLYWHEEL

Carrera Cup competitions can go on to race in Porsche Mobil 1 Supercup on the same bill as Formula One. No surprises the 964 Cup is based on the 964 Carrera

2. Developed for the track by Jürgen Barth and factory race engineers, Helmut Flegl and Roland Kussmaul, the Cup variant was relatively simple in its specification, which makes it quite suitable for a street conversion. Typically, bodyshells painted white were taken from the production line, minus underseal and sound deadening.

windows replaced

came from a welded-in Matter roll cage. Door trims were

Aluminium bonnet replaces steel up-front, while thinner

glass was used throughout. Extra safety and strength

simplified, manual electric (and contributed to the lightweight wiring loom), a lightweight race battery was used, as was a simple heater/

blower. A lone Recaro race seat faced a stock instrument panel on an otherwise cut-down dashboard. All of this contributed to dry weight of 1,120kg.

#### **TOWER OF STRENGTH**

Wimpy power steering was replaced by a manual rack. Bilstein race dampers and stiffer Eibach springs were used in place of the standard MacPherson struts, along with a purge on rubber bushes for ball joints and solid mounted suspension, Adjustable top mounts allowed configurable camber. Roll bars were two and a half times stiffer, as well as being five-way adjustable at the front and three-way at the rear, giving teams and drivers plenty of scope for the perfect set-up (or to get in a muddle!).

The 964 Turbo hadn't yet arrived at this point in the 964's development curve, but the force-fed model's bigger Brembo four-pot calipers and discs were already waiting in the wings. They were swiftly applied to the 964 Cup car. Perhaps unusually for a racer, the hydraulic brake master cylinder was retained, as was ABS, not only to save drivers effort, but also in a nod to promoting then relatively new anti-lock braking technology.

964 Cup racers rolled on what would simply become known as 'Cup' wheels, that is to say seventeen-inch fivespoke Speedlines (eight inches wide at the front, 9.5 at the rear) wrapped with Pirelli slicks. The 3.6-litre flat-six, meanwhile, was largely stock, although Kussmaul later confirmed only the very best engines were selected and



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further blueprinted. A lightweight air filter housing was developed for these air-cooled powerplants, which were, of course, sans power steering pump. Carefully ECUtuned for 98 RON fuel, 964 Cup power figures ranged from 268bhp to

272bhp, with peak power achieved at 6,700rpm. Not bad, given the standard Carrera engine developed 250bhp. And, despite being

### OF THE FIFTY CUPS ASSEMBLED, PORSCHE RETAINED TEN, RUNNING THREE AS GUEST CARS FOR THE LIKES OF MIKA HAKKINEN

track focused, the Cup engines retained a three-way catalytic converter, Germany being ahead of the PR curve on emissions and the green agenda.

The five-speed Getrag G50 gearbox had closer ratios and steel synchros, plus a lightweight flywheel and strengthened Sachs clutch. A limited-slip differential with a forty percent locking factor was added to the mix. Note 'synchros'. Porsche has long equipped its racers with a synchro (rather than straight-cut) gearbox, maintaining it makes for a more reliable and driver-friendly transmission, even if it comes at the expense of horsepower, thanks to the drag of a helical gear set.

Sticking with the gearbox theme, Porsche was keen to see whether it could use the 964 Cup racer to promote its new Tiptronic gearbox, no doubt recalling how Sportomatic transmission had been celebrated

for smashing the punishing eighty-four-hour Marathon de la Route on the Nürburgring when fitted to a two-litre 911 R. Drivers, Vic Elford, Hans Herrmann and Jochen Neerspasch,

were all enthusiastic about Sportomatic, which made life very easy indeed, taking the clutch out of the equation.

The Tiptronic experiment would prove interesting in back-to-back tests. With two lightweight (but not Cupspec) 964 development cars at Vallelunga, and with Kussmaul at the wheel of both, the four-speed Tiptronic equipped 964 was actually 0.1% faster than the manual. At the Nürburgring, the latter lapped just 0.15 seconds quicker. In truth, the fast Vallelunga circuit flattered the Tiptronic's four ratios. At the Green Hell, running on its own, the same was true. Perhaps it's time to view Tiptronic in a rather different light?

Above Roland Kussmaul is on record saying only the very best flat-sixes were selected and blueprinted for use in 964 Carrera Cup cars

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Above It's doesn't possess the most practical of interiors, but if you intend to use this car for trackday use, being able to drive to your favourite circuit and home again may prove a huge boon

**Below** Frunk and engine lid pins aside, there's little to visually separate the 964 Carrera Cup from an RS

A Tiptronic-equipped 964 Cup racer was built and campaigned, just the once, by two-time World Rally Championship victor and long-time Porsche test driver, Walter Röhrl, at the Nürburgring in 1990. He qualified sixth, but in the cut and thrust of a four-lap race, the Tiptronic and its four speeds didn't have the firepower or flexibility for racing combat against the manual Cup car's closer four ratios, combined with longer fifth. As Röhrl said on record, "Tiptronic is good, it is easy, I cannot over-rev the engine. It's the future of gearbox technology." Off the record, he revealed the system's shortcomings. "It is very hard for me, because I only have four gears," he commented. "Actually, I have just three usable gears because the first one is too short. I can manage to compensate on a circuit like the Nordschleife, but was seven seconds slower than the best Carrera Cup time. During practice, I was alone, meaning I could carry speed into corners, but in the race, the other cars slowed me down. After the corner, I had no momentum." Still, from the man who once described counter-intuitive,

steering wheel-mounted PDK button shifters as "shit", his appraisal was far from damning.

#### **NIFTY FIFTY**

Tiptronic gearbox diversion aside, in the spirit of 'build and they will buy', Porsche did just that, rolling out fifty 964 Cup cars at \$73,650 a pop between late 1990 and early 1991. Racing commenced in Zolder on 31st March 1991. An international field of drivers participated. Of the fifty Cups assembled, Porsche retained ten, running three as guest cars for the likes of Mika Hakkinen, Kevin Schwantz and the aforementioned Röhrl. Key engine parts and ECUs were sealed, and the top-three race finishers were scrutineered after each event to make there was no funny business going on.

Other countries came on board, year by year, starting with France in 1992, which brings us to the 964 you see here, currently for sale at Horsham-based Octane Classics, a company which has kindly offered us a drive. Tough life and all that.

As is often the way with race cars, it has taken a fair amount of sleuthing to ascertain the exact timeline and build of this Carrera Cup veteran, but research reveals it was one of the first fifty cars built. Number forty-eight, in fact. In Maxcom Computer livery, the car was used to promote France's then forthcoming 1992 Carrera Cup, but it never actually raced. Instead, the car was retired for a year or so, returning to the track for the final two rounds of the Belgian Belcar endurance series in 1994, with star drivers, Dirk de Weert, Ludo Plessers and Christian Lahaye, at the controls.

The trail then goes cold — a legal dispute over ownership saw the 964 placed in long-term storage from the end of 1994 to 2007, from which it emerged with a little over two thousand miles on the clock, tallying with its promotional/poster car work and its brief, two-race competition history.

Well-known Netherlands-based Porsche specialist, Speedservice, undertook to recommission the car and



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perform a precautionary engine rebuild. Turning it into a road-legal 911 wasn't a big job, given its near street-spec anyway, requiring little more than the relevant paperwork and a set of Michelin Pilot Cup tyres.

The car then made its way to the UK, where a patchwork of liveries was removed in favour of Weissachprescribed Grand Prix White.

# THE STEERING MIGHT BE UNASSISTED, BUT A DOLLOP OF APEX-HUNTING NEGATIVE CAMBER TAKES THE STING OUT OF IT

Sparingly used by its current owner, this rare 964 has most recently been in the professional hands of Precision Porsche for fresh plugs (that's all twelve), valve cover gaskets, fuel filter and brake fluid change. This is, then, a fighting fit 964 Cup ready to road race, which, of course, is where *Classic Porsche* enters the story.

Back to the B2128. Strapped firmly into the Recaro race seat and gripping the dished OMP steering wheel,

there is the small matter of £199,995 to consider. That's what Octane Classics are retailing this 964 Carrera Cup for. Too much? In the great scheme of air-cooled Porsches, probably not. This particular Cup car's racing

provenance might not be massive, but its sparing use means only 2,379 miles have been covered. Besides, original specification counts for a lot. And the price is line with

current 964 Carrera RS values, a model which the 964 Cup both pre-dates and most certainly influenced.

There are no surprises here, really. This car does rather drive like a hardcore 964 Carrera RS. Or even more hardcore, given the RS's raw and unforgiving reputation. Leaving that aside for a moment, the actual physical act of driving this Porsche is in no way hardcore. The clutch might be tougher, but it's perfectly manageable, and the

Above Want to see this very 964 sitting in your garage? Thanks to its availability through The Octane Collection, you can turn dream into reality, providing you've got £200k to spend

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gearbox is light and synchro-aided. The steering might be unassisted, but a dollop of apex-hunting negative camber takes the sting out of it.

And, of course, this is a super-narrow 911, which always helps, particularly with a leftie. It's the Porsche way. There's no point in making a car hard work to drive, after all.

Don't be misled, though. Even standing still, this 964's stance seethes with pent-up aggression. The controls might

# IT WOULD BE A COMPLETE FIB TO SAY THE SUSPENSION LIVES AND BREATHES WITH A TYPICAL UK B-ROAD

not be hard work, but the sheer sensory overload of noise, lightweight performance and unfiltered feel certainly is, in a very visceral and very rapid sort of way. The balanced and electronically tweaked engine responds with instantaneous vigour, and while 270 or so horsepower might not be a great deal in the here and now, it's more than sufficient in a 911 this light.

#### **TIPPING THE SCALES**

Back to the RS comparison and it's 1,120kg versus 1,230kg. Because the 964 is small and narrow, you can use it all in a way you can't in a modern GT Porsche. It's a wild ride in every sense. Dynamically, it's pure 911, but

turned up to eleven. You can sense the engine hanging out in the breeze, but the balance stays just the right side of edgy. Just. On this basis, it would be a complete fib to say the suspension lives and breathes with a typical UK B-road, whether it be the B2128 or otherwise. It doesn't, fighting the lumps and bumps every inch of the way. If

you really wanted to road race this 911, then perhaps opt for something a bit more bespoke and forgiving than the race-spec Bilsteins and springs. At least experiment with

spring rates. We would imagine teams would have had a choice of springs in period. If you were planning on track day adventure, then okay, perhaps leave things as they are. Whatever, UK roads demand something more akin to a tarmac rally car.

As an occasional light snack (raw meat, perhaps?!) or as an early morning blast machine to a cars and coffee meet, this bright white 964 would certainly blow the cobwebs away, but is it fair to try and tame a legitimate racer? It's rather like trying domesticate a tiger, surely? This road-race 964 Carrera Cup is certainly an acquired taste, but if you like your thrills served up raw, it's potentially the drive of your life. **CP** 

**Above** Switch spring rates and the Cup will be far more compliant on the road

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## **ALL-CARB DIET**

We take time out to visit the Sunbury headquarters of carburettor and fuel system specialist, Webcon UK, a company which has just launched a range of new Weber carburettor conversion kits for air-cooled flat-six engines...

Words and photography Dan Sherwood

ADAPTERS FOR OEM MANIFOLDS

ALLOWING PRACTICALLY ANY

CAR TO BE CONVERTED TO

A WEBER CARBURETTOR

utright speed can only offer so many thrills before becoming downright uncomfortable. The same can be said for limpet-like handling, but there's one area of automotive development almost universally appreciated among motoring enthusiasts, no matter how aggressive it might be. We are, of course, talking about the sound produced by an engine. Specifically, as we're sure you'll agree, there's simply no beating the aural delight of a normally aspirated flat-six being fed by carburettors. It's a gloriously throaty bark, as though AC/DC's Brian Johnson is gargling with a hand grenade.

For decades, one name has been synonymous with engines on a carb-fed diet: Weber. Before we take a journey down this particular rabbit hole, a little history lesson is in order.

The carburettor name is derived from the verb carburet, which means to combine with carbon (and therefore has

nothing to do with the stocking-and-bowler-hat brigade prancing around West End theatres). Essentially, a carburettor is a finely balanced piece of equipment designed to combine a gas (intake air) with a volatile hydrocarbon-based fuel (petrol

or LPG) in order to increase the available fuel energy.

#### **BACK IN TIME**

Carburettors can trace their lineage back to the nineteenth century - pioneers of carburettor design are known to have been active in the field as early as 1824. American inventor, Samuel Morey, is readily credited as being the first, a man who discovered how turpentine vapour mixed with air becomes combustible. Two years later, he designed and patented a two-cylinder engine with a carburetion unit preparing the fuel mixture.

The first car driven by a petrol engine was unveiled in 1875 by German engineer, Siegfried Marcus, who made use of a device known as an atomizer. Although similar in operation to a carburettor, the atomizer employed steel brushes to spray the fuel mixture. Seven years later came Enrico Bernardi's design, which was used to fuel a tricycle and is the first carburettor to follow Bernoulli's principle (outlining how an increase in the speed of a fluid occurs simultaneously with a decrease in static

pressure or a decrease in the fluid's potential energy). Bernardi's work is widely regarded as resulting in the first 'true' carburettor.

Various inventors tweaked and developed this initial design, including Karl Benz, who in 1885, patented the first motor car to feature an internal combustion engine designed for mass production. The first carburettor to use a needle valve came in 1887, when British inventor, Edward Butler, used the design on his Butler Petrol Cycle, a petrol-powered three-wheeler built by the Merryweather Fire Engine Company in Greenwich, southeast London.

A few years later, Dr Wilhelm Maybach and Gottlieb Daimler invented a revolutionary carburettor design using both float chamber and needle valve, but the final leap in carburettor development came in 1900, when Butler evolved his design by utilising venturi tubes to

> immediately spray liquid fuel into air. This concept for carburettor design continued to be developed well into the 1920s, with only minor details changed. In principle,

however, the carburettor remained the same.

It played a key role in car manufacturing until the early 1990s, when then new European legislation required every newly designed automotive engine to be equipped with fuel injection. The use of carburettors continued until much later in Australia and Russia, but by the late 2000s, as far as the production of new vehicles was concerned, the carburettor was finally made obsolete.

As easy as it would have been for carburettors to have gone the way of the dinosaurs, the popularity of the classic car scene means there remains strong demand for these seemingly antiquated systems. UK-based fuel system parts specialist, Webcon UK, has tailored its business to cater perfectly for this growing market.

Founded in 1975 as a distributor for Italian OEM carburettor manufacturer, Weber, Webcon UK was originally known as Weber Concessionaires Ltd. It wasn't until the mid-1980s that founding owner, Mike Walton, saw fit to contract the name to the punchier Webcon UK. At the time, carburettors were still very much in their prime and Weber products were fitted to many of the era's performance vehicles, including those made by Ferrari, Alfa Romeo, Fiat and Ford. Porsche was heavily invested in working its way through various

Facing page Webcon's new Weber carburettor conversion kits have been designed for air-cooled flat-sixes ranging in displacement from 2.0 to 3.0



developments of fuel injection, but its cars, not least the 911, had made use of Weber carburettors for many years beforehand.

Initially, Walton's business focused its efforts solely on the supply of Weber carburettors to the owners of cars kitted-out with them when new, though he also recognised an opportunity to offer high-performance carburettor upgrades for motorsport applications.

Before long, he realised he could grow his company with

what was then a unique and groundbreaking concept. Allow us to explain.

At the time, many OEM carburettor designs were notoriously complex, delivered

### MANY DRIVERS OF NEWER CARS FITTED WITH ELECTRONIC FUEL INJECTION AS STANDARD WERE ALSO MAKING THE SWITCH

poor fuel economy and often suffered from reliability issues. They were also extremely costly to replace. Weber carburettors were not only more economical, but simpler, more reliable and, crucially, cheaper. Back then, it wasn't possible to simply chop and change makes of carburettors as you saw fit, but this was about to change. Walton's idea was to produce adapters for OEM manifolds allowing practically any car to be converted to a Weber carburettor, allowing owners to not only gain the benefits associated with Weber products, but also to save money in the process. The car's original airbox, Walton promoted, could be retained.

To achieve his goal, he recruited a number of topflight carburettor engineers, who spent the next decade developing a complete range of direct replacement
Weber conversion kits and associated parts for various
popular engines. As you can imagine, considering
motorists were faced with the choice of an expensive
and unreliable OEM fuelling solution or the chance to
swap to a Weber system offering reduced running costs,
Walton's conversion kits proved to be a huge success,
going on to influence major car makers in their decision
to use Weber carburettors as standard equipment.

Webcon UK's conversion kits opened up a whole new market for Weber carburettors — soon, Weber dealers were commonplace on the high street. This

allowed owners to walk through the doors of a motor factors and obtain a complete replacement carburettor kit, which could be fitted at home with the minimum of fuss. That said, it's important to note the carburettors which came with these kits were not designed as a performance upgrade. This meant the act of swapping to Weber products could be completed without the need to inform the car owner's insurance company, further adding to the appeal and limiting associated costs.

For a while, the direct replacement market was the driving force of Webcon UK's business, even outstripping output from the firm's always popular performance arm, specialising in supplying large-bore twin-choke carburettors, such as the sidedraft DCOE **Above** Martin Eva, Webcon UK's Sales Director, pictured in his natural habitat

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#### **SPECIALIST VISIT**













Above Old-school skills and supremely analogue equipment amounts to authentic, hand-built continuation sports cars

Below Webcon's Weber carburettor conversion kits for Porsche flat-six engines come complete with everything required for installation 45. Unfortunately, the boom wouldn't last — the arrival of electronic fuel injection systems and ever tightening emissions legislation saw the direct replacement carburettor market diminish.

#### **EVOLVING BUSINESS**

As a long-time powertrain partner with Magneti Marelli, the business diversified to meet the demands of a changing marketplace, doing so by reducing its carburettor stocks and offering more in the way of EFI components, such as fuel injectors and sensors. For a while, this avenue was thought to become the future of the business. Most major manufacturers had left carburettors behind, after all. In fact, such was the strength of Webcon UK's EFI product line, in 1999, the company was acquired by fuel injection specialist, Standard Motor Products. The parent firm eventually took the majority of the EFI business to its Nottinghamshire headquarters and left Webcon to do

what it does best: servicing the carburettor market.

As with fashion, the automotive aftermarket can be cyclical. Proving the point, by the mid-2000s, Webcon UK saw a resurgence of demand for its direct replacement carburettor kits, activity credited to the classic and modern-classic status of vehicles the company served when these cars were new. Unlike the classic motoring scene of old, where it was often frowned upon for an enthusiast to divert specification away from factory standard, a new wave of restomodders thought nothing of upgrading their cherished chariots — swapping from OEM to Weber carburettors was once again popular.

It wasn't just owners of carburetted cars experiencing the benefits of Weber's wares, though. Many drivers of newer cars fitted with electronic fuel injection as standard were also making the switch. To remain compliant with the law (and to pass an MOT test), however, only cars which didn't come with assembled with a catalytic converter (pre-1991) were permitted to switch from EFI to carburetion, chiefly because they don't need to make use of a closed-loop lambda system to control fuelling and emissions.

Obviously, owners of post-1991 fuel injected cars intended only for non-road/motorsport use had no such restrictions placed upon them.

The two-litre 924 is a perfect example of an electronically fuel injected model which can benefit massively from a conversion to carbs. For starters, the original fuel injection system can only deliver so much fuel before it reaches its limit, capping the potential for greater power gains. By removing EFI and fitting a pair of sidedraft twin-choke Webers, including the bespoke manifold which provides each of the carburettor's four barrels with its own runner into the head (to maximise airflow), a much higher rate of fuel can be run, leading to superior performance. On top of the extra shove, owners can also enjoy the benefits of simpler and more aesthetically pleasing components, as well as the glorious aural delights highly regarded as a by-product



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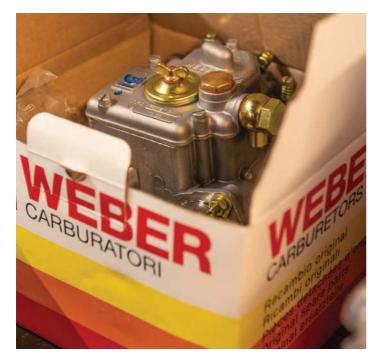


















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#### **SPECIALIST VISIT**











Facing page The business serves owners of all manner of vehicles, even those whose cars were equipped with fuel injection when new

Below Two different conversion kits are available for the Porsche air-cooled flat-six, each suitable for different engine sizes of running carburettors. All of this can add to the host vehicle's desirability and future value. Additionally, as mentioned earlier, this conversion can be cheaper than either replacing or fixing a faulty electronic fuel injection system.

Originally, many of the bespoke manifolds used for the fitting of twin-choke Weber carburettors were manufactured by outsourced suppliers, but over the years, Webcon UK has brought much of the manufacturing process in-house and now produces many of the manifolds for its conversion and performance carburettor at its factory in Middlesex. In fact, it was around the time of the boom in the classic car scene that the company was sold to a management buy-out team. In 2003, control was handed to Managing Director, Richard Welch, and Sales Director, Martin Eva. Unfortunately, the timing of the takeover couldn't have been worse — the very next year, the Weber factory in Guadalajara, Spain, which had been Weber's home since

moving from its place of origin in Bologna back in 1985, suddenly ceased trading.

The Weber production line was out of commission for eighteen months. It wasn't until new owners restarted the firm in a modern state-of-the-art facility in late 2005. Obviously, the drought in supply of Weber products was less than ideal for Webcon UK's new owners, but they had just enough stock to keep the concern afloat. Furthermore, by keeping in close contact with Weber as the takeover deal went through, Webcon UK found itself in the enviable position of exclusive European distributor for Weber carburettors, a role which has seen the British brand continue to expand — even a global pandemic was unable to dent its fortunes.

"The business had been steadily growing for years in accordance with the increasing popularity of the classic car market, but in lockdown, rather than seeing a decline, our order books simply exploded," confirms Eva. "Owners confined to their homes looked to use enforced downtime to pursue a hobby of tinkering with project cars. Many of these enthusiasts decided the time was right to fit new carburettors."

While it was great to see orders stacking up in record numbers, COVID restrictions placed on Webcon UK as a company meant Eva and his team were hamstrung, not just by a the need to operate a skeleton crew of socially distanced and PPE-kitted employees, but also the knock-on effect of supply chain shortages. "It was a challenging time, but we were able to return to a full-strength workforce in just twelve weeks. Supply issues aside, the business was back up and booming sooner than anticipated," he says. "This allowed us to start developing a number of new kits."

One of the most exciting new conversion kits to come out of this period of high productivity is Webcon UK's recently released 40 and 46 IDA3C kits for aircooled Porsche flat-six engines. "When we considered producing a new kit, we looked at the viability of Porsche and Ferrari models equipped with Weber carburettors









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in period," Eva reveals. "Although the Ferrari carbs are a simpler design and could have been redeveloped at much lower cost, we just didn't feel the Ferrari market was big enough for us to really benefit. Put simply, owners of classic Ferraris value originality over everything else. Even though the new carburettors are

made to the exact same specifications and drawings as the original Italian-made items, the fact they weren't built in Italy decades ago means they would be of limited interest

# MANIFOLDS, LINKAGES, FITTINGS AND AIR FILTERS, AS WELL AS THE CARBURETTORS THEMSELVES

Authenticity is less of an issue for many Porsche enthusiasts, who are happy to fit a modern production carburettor offering the looks, quality and performance to match the original."

#### **BELT AND BRACES**

To develop the kit, which includes everything you need for the conversion, such as manifolds, linkages, fittings and air filters, as well as the carburettors themselves, Webcon UK consulted various respected Porsche specialists. This crucial feedback loop ensured the kits could be tailored to ensure they offered the best fit, performance and longevity possible.

"One of the main points of discussion concerned the manifold design," Eva explains. "Not only did the specialists we spoke to recommend they be made from aluminium alloy to prevent them crumbling over time, but they also requested we strengthen the runners with additional ribbing to prevent cracking. A slightly taller runner design was specified as advantageous for improving torque, while precisely drilled holes for OEM grommets and leads were deemed an improvement for the conversion's on-car packaging."

The fact Webcon UK can react to these suggestions and incorporate them into its kits without the months or even years of red tape capable of blighting the efforts of OEM manufacturers shows just how adaptable the production process can be — the ability to make a series of changes to ensure the end product works and fits

as best it can is a

"We feel our new Porsche kits, with the 40 designed for two-litre to 2.4-litre engines and the 46 for 2.4 to three-litre engines, are an

excellent addition to our line-up," Eva continues. "They offer a solution for owners who may be looking for more powerful fuelling for their Porsche, but they're also suitable for anyone wanting to carry out a backdate on a previously EFI-equipped model. You could argue our kits even work for originality connoisseurs — simply remove the expensive and fragile factory carburettors, store them away for either show use or for when selling the host Porsche, and enjoy a fully compatible Webcon UK carburettor solution, which can be used daily. Our kits really do tick all boxes."

As well as Webcon UK's series of direct replacement carburettors, conversion kits and performance carburettor packages, the company also distributes a smorgasbord of fuelling and intake tract parts, including everything from service kits, filters and pumps to linkages, regulators and cylinder heads, plus much more besides. And with interest — and, indeed, values — in classic cars showing no sign of abating any time soon, we reckon this long-established company's future seems brighter than ever, allowing more Porsche petrolheads to hear the full force of their car's flat-six than ever before. **CP** 

Above Webcon's Middlesex headquarters is hive of activity, such is demand for the company's carburetion and fuel injection parts

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## Genuine Weber 40IDA3C and 46IDA3C now back in stock



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Created by a Porsche-loving family with their love of the 917 and Steve McQueen's Le Mans movie in mind, this eye-popping 914 makes use of a 2.4-litre oversized flat-six and is set to take on South Africa's Targa road rallies...

Words Johann Venter Photography Douglas Abbot



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PORSCHI





magine being able to order a Gulf-liveried 914 in the 1970s. This is exactly the thought process serving as the catalyst for the Targa-topped aircooled roadster you see on these pages. The work of Tim and Douglas Abbot, the project took on a life of its own when additional inspiration was provided by the two 918 Spyders finished in Gulf colours by the Porsche factory. Whether wrapped or painted, we suspect there are a number of 918s dressed in the iconic blue and orange branding, but Zuffenhausen only produced two, albeit at customer request. We have Vaughn Wyant to thank — he owns the Saskatoon Porsche dealership in Saskatchewan, Canada, and was hell-bent on getting his way.

His powers of persuasion worked, first by convincing Gulf to let him use its branding, and then by charming the suits in Stuttgart. Tim and Douglas took note, but why did they choose to apply Gulf paint and body graphics to a 914? Let's take a few moments to understand who the Abbots are before we delve deeper.

Abbot Cars is one of the foremost independent classic Porsche specialists in South Africa, founded close to fifty years ago by Tim's father, John Abbot. The company's workshop — situated a stone's throw from the legendary Kyalami race circuit — is where they maintain and restore air-cooled classics. The business has seen successive generations of the Abbot clan come into service, with Jen, Tim's daughter, becoming an integral part of the mechanical team, and his son, Douglas, focused on marketing. Tim has always been keen on 914s, more so after having restored a 1970 1.7-litre example in the mid-1980s, a car which won its class and was declared overall winner at a Porsche Club Concours

event. An altogether different Porsche, however, left a more indelible mark.

In November 1970, when Tim was ten years old, his father took him to the year's nine-hour endurance race at Kyalami. Abbot the Younger was mesmerised by the luminous yellow and red 917 short-tail piloted by Jo Siffert and Kurt Ahrens. The Porsche pairing could only achieve a second-place finish on the day (beaten to the top spot by the Ferrari 512 M driven by Jacky Ickx and Ignazio Giunti), but instilled in Tim a passion for the brand and a fascination for the 917 in particular.

Fast-forward to the 2008 Le Mans Classic. While Tim was enjoying seeing cars from his youth duke it out on track, he had a Eureka moment about the 914 he'd bought three years prior — he reasoned he could turn his project Porsche into a Marathon de la Route replica and enter it at the next Le Mans Classic. Marathon de la Route, an eighty-six-hour epic staged between 1965 and 1971 is to this day considered one of the most arduous and gruelling races ever contested, navigating the north

Above The Abbots are no strangers to the 914, having owned many, including the 1972 1.7-litre example previously owned by Bobby Lange, one of Porsche Club South Africa's founders

**Below** A model of the no.20 917 depicted in Steve McQueen's epic 1971 motoring movie, *Le Mans* 



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Above Interior features just enough comfort to help with the many hours of seat time required for long Targathemed road rallies

**Below** Flat-six has been heavily reworked with 2.4-litre crank, increased stroke and pistons from a 2.2-litre 911 S and south Loops of the Nürburgring for three and a half days straight. In 1970, Porsche entered three works 914/6 GTs into the competition, hot on the heels of a

highly successful Le Mans campaign, where the 914/6 GT had trounced all 911s in the field and finished just five places behind the winning 917, taking the GT

### TEAM ABBOT MANAGED TO CLINCH THEIR CLASS ON INDEX, LARGELY THANKS TO MAKING FAR FEWER PIT STOPS THAN RIVALS

class in the process. Car number one of the Marathon de la Route 914/6 GT trio was driven by Claude Haldi, Gérard Larrousse and Helmut Mark. It won after circumnavigating the Nürburgring 360 times, covering a massive distance of 10,184km. Car number three followed close behind, raced by Åke Andersson, Guy Chasseuil and Björn Waldegård. Car number three, raced by Claude Ballot-Léna, Nicolas Koob, and Günter Steckkönig, locked out the podium.

la Route tribute entering the Le Mans Classic proved to be extremely stringent. The car had to be built as close to original

Regulations governing Tim's 914/6 GT Marathon de

close to original FIA specification as possible. And, as a tribute, the car would only be accepted if none of the original Marathon de la Route 914/6 GTs

were entered. Even with the assistance of Red Bull F1 team boss, Christian Horner, summoned by Tim's brother, Anthony, who was working under Horner as head of Red Bull's engineering software division, the Abbot team failed to make it to the grid. The Abbots did, however, find a local endurance race with which to put their punchy 914 through its paces — on the 5th December 2009, they entered the Kyalami 9-Hour Retro, comprising a series of sprint races and the three-hour Springbok Series endurance race.

For the Springbok event, the 914's driver line-up consisted of Tim and Anthony, while the pit crew was made up of Douglas, then thirteen, and Jen, aged just eleven. An old army mate of Tim's from Cape Town led the charge as crew chief. Team Abbot managed to clinch their class on index, largely thanks to making far fewer pit stops than rivals, such is the fuel efficiency of a 914 built to GT specification. This wasn't end of the Abbot's 914 story, though. In 2018, they acquired a completely unscathed 1.7-litre model, bought new in Milan in 1972. When the owner immigrated to South Africa, he brought the 914 with him. It changed hands in 1998 and, for the following two decades, was cherished by Bobby Lange, one of the eleven founding members of Porsche Club South Africa, established some thirty years earlier.

This brings us to the 914 you see on these pages, adorned in one of the world's most recognisable racing liveries, which came about in 1967, when Ford



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dramatically scaled down its Ford Advanced Vehicles (FAV) and GT40 operations. John Wyer and John Willment effectively took over, forming JW Automotive Engineering (JWA). Grady Davis, a senior executive at Gulf and a man who owned his own racing GT40, saw potential in the newly formed JWA, and threw the weight of Gulf Oil behind the team. At the time, Gulf colours were orange and dark blue, but Davis was convinced a

paler blue suited the shape and contours of the GT40 much better. He was onto something — the combination of these two colours results in a

# IT ALMOST RUINED STEVE MCQUEEN, ENDED HIS PRODUCTION COMPANY, HIS MARRIAGE AND PLENTY OF FRIENDSHIPS

phenomenon known as *equiluminant*, where outlines are blurred, giving the suggestion of motion. Interestingly, Gulf would go on to become the first oil company in history to trademark its racing colours, Zenith Blue (3707) and Tangerine (3957).

Whilst admiring the Gulf-dressed 914/6 GT evocation at the Abbot workshop on the Beaulieu Country Estate, I'm flanked by Tim and Douglas. How did this 917-aping 914/6 GT come about? "I imagined Porsche coming to us in the 1970s and giving us a brief to design a 914 to invigorate sales. In 1970, there was much to celebrate, not least the 914/6 GT taking a hat-trick at the Marathon de la Route and coming sixth overall at Le Mans," Douglas smiles. "That same year, the 914 became Motor Trend's first Import Car of the Year and, in 1971, Steve McQueen's epic motoring move, Le Mans, was released,

rewriting the outcome of the 1970 race by depicting Gulf 917s taking first and second place, further increasing Porsche's cache and that of Gulf Oil. Taking all of this into account and being inspirited by what Vaughn Wyant did with his 918s, we came up with the concept for the 914 you see here. Without question, the only way to go was with the most recognised racing livery of the 1970s, but we also wanted to incorporate aspects of the 917,

the most obvious nod being our 914's front air-scoop."

Tim steps in to add further clarification. "I've always loved *Le Mans*. I went to see it at the cinema on release and bought

it as soon as it was released on VHS in the 1980s. To quote Jackie Stewart, it depicted an era of racing when sex was safe and motor racing was dangerous. With Steve McQueen's character, Michael Delaney, in mind, I was excited about the idea of incorporating aspects of the film's Gulf 917s into our 914 build."

Le Mans wasn't a box office success when it was released. It almost ruined Steve McQueen, ended his production company, his marriage and plenty of friendships. Worse still, endurance racer, David Piper, was involved in an accident during shooting and had to have his right leg amputated below the knee. Today, of course, Le Mans is a cult classic and anything associated with it has turned to gold.

917-024, for example, the short-tail 917 starring as the movie's race winner, sold at the 2017 Gooding &

Above Gulf racing livery and Porsche sports cars are a marriage made in heaven, as demonstrated by the superb Zenith Blue and Tangerine decoration covering this awesome customised 914

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Company sale at Pebble Beach for \$14,080,000, setting a new record for the Porsche marque. Incidentally, this same chassis was used for testing by JWA at Le Mans in 1970, but didn't participate in the race.

At the 2021 RM Sotheby's auction held at Monterey Car Week, chassis 917-026 was listed with an estimate of between \$16,000,000 and \$18,500,000. This car was

campaigned at Le Mans in 1970 by Mike Hailwood and David Hobbs under the number twentytwo, but Hailwood spun in the wet at the Dunlop Curve on lap forty-nine, hitting

### DEAD AHEAD IS THE INSTRUMENT BINNACLE, THE REV COUNTER SHOWING 10,000RPM AND THE SPEEDO REACHING 300KM/H

a stationary Alfa Romeo T33/3, ending the Porsche's race. Beforehand, however, this car was filmed in action by Steve McQueen's 908/2, entered into the event for the purposes of capturing rolling shots for the *Le Mans* flick. 917-026 didn't sell at the RM Sotheby's sale, but came close, with the highest bid reaching \$15,000,000.

We digress. Tim had the concept, but he needed to bring it to fruition. "Ten years ago, I was offered a pair of 914s I simply could not refuse. The 1972 914 1.7 formed the basis for this car, while the second 914 was a badly rusted 1970 1.7. We managed to salvage the latter's trailing arms, some other suspension parts, plus the gearbox linkages. Items we could make use of made their way into the Gulf build, the rest went into our workshop parts bin. From the get-go, though, I knew we'd build a 914/6 GT tribute. I didn't see the merit in restoring a non-matching numbers 914 1.7."

Considering he already owns a 914/6 GT tribute (the Marathon de la Route car talked about earlier), how would the Gulf project be different? "In 2019, Abbot Cars entered the 1,100km Targa Ramponi in Mpumalanga, the most eastern province in South Africa. The event is named after Giulio Ramponi, a famous Italian pre-war mechanic-come-racer who settled in South Africa when

he retired in 1968.
During the race, in which we'd entered a couple of 911s, it dawned on me the 914 we were busy building would be ideal for these Targa driving excursions.

Our Marathon de la Route tribute was developed for participating in historic racing. For Targa events, I wanted something more comfortable we could enjoy through sweeping mountain passes."

We ask him to talk us through the transformation. "We took inspiration from the M471 package Porsche offered for the 914 in early 1971. This resulted in a roadlegal GT. Only twenty-three examples were assembled. These 914s came with a flat-six, flared wheel arches and wider Fuchs wheels, as we've replicated. Anton Dekker, proprietor of Exclusive Conversions, a highly accomplished fabrication firm with which we have collaborated over many years, provided the bumpers, the flared arches, boot lid, side skirts and sills, all in fibreglass. Fabricating the air intake into the bonnet proved to be the most challenging aspect of the bodywork. In short, we received a replica 917 bonnet

Above Prior to this Gulflivered beast, the Abbots built a more aggressive 914 modified with Porsche's Marathon de la Route entries firmly in mind

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Above Bonnet scoop is a direct nod to the 917 and was supplied by Bailey Cars, while the majority of the oversized bodywork was expertly fabricated by Anton Dekker at Exclusive Conversions

**Below** No prizes will be awarded for our latest Spot the Difference competition from Bailey Cars founder, Peter Bailey, who produces race-ready replicas of the 917 short-tail, Ford GT40 and Ferrari P4. Anton fashioned the intake into the fibreglass bonnet he produced for us. I should stress, this is a functioning intake, sucking in air to provide cooling for the oil coolers. After Anton's work was finished, we sent the car for paint — the body was finished in Zenith Blue and the bumpers and side-skirts were painted Tangerine. The famous Gulf insignia, together with the other decals, was then applied."

Tim goes on to explain the mechanical make-up of his potent Porsche. "We used a 1970 two-litre Porsche engine casing, as found on the 914/6 and the classic 911 T. The engine was fettled with a 2.4-litre crank, the stroke increased from 66mm to 70.4mm and the bore expanded from 80mm to 84mm in order to accommodate bigger 2.2-litre pistons from the 911 S. The cams are also from the 911 S — we had to

reconfigure the cylinder heads. Effectively, we increased capacity to 2.4 litres and fitted Weber 40 IDA triple barrel carburettors."

The engine sounds quite punchy, but has it been on a rolling road to measure output? "No," Tim explains, "but I can only assume power and torque figures are the similar to those of the 911 S 2.2, if not slightly better. In terms of horsepower, we're talking 190hp at 6,500rpm, while the torque figure would be 160lb-ft at 5,200rpm." That's quite a bit of poke for a car hardly weighing 1,000kg. What kind of stopping power does it possess? Tim smirks. "At the front, we've fitted Carrera RS 2.7 aluminium calipers with vented discs, whereas the rear features 914 solid discs with the handbrake incorporated into the caliper. As far as the suspension is concerned, we fitted Bilstein dampers with uprated springs."

#### **HEAVY INFLUENCE**

Douglas steps in to talk about the 917 cues incorporated in the mid-engined Porsche. "There's the air scoop, obviously, but in the cabin, the most telling addition is the replica 917 gear-knob, though the MOMO steering wheel is as close to that of the 917 as we could find. With closer inspection, you'll see how the rev counter goes all the way to 10,000rpm, again reminiscent of the 917. The speedometer displays a maximum of 300kp/h and we replaced the fuel and temperature gauges with oil pressure and oil temperature gauges, inserting a fuel gauge above the temperature controls. Dad wanted to ensure comfort was available for long Targa drives, which is why the seat bolsters, dash insert and door cards are covered in high-quality tan leather, which complements the orange exterior paintwork. The seat centres are trimmed in houndstooth fabric featuring a blue speck. We sourced the material from Polandbased Porsche accessories specialist, CarBone. I think it beautifully accentuates the blue body paint."

The interior is minimalistic. The door cars are a nod to the early RS, while a Bluetooth-enabled head unit carries  ${\sf NS}$ 



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a retro look. The fuel filler cap, meanwhile, carries the number twenty, referencing the Le Mans movie's star car.

Time to find out what this modified Porsche drives like. Access to the cockpit is achieved by unlatching the classic 914

shield-shaped door handle, which I've always considered a nice touch.

When opened, the door swings wide, which is helpful because entry over

a large sill into a low-slung compact cabin requires a fair amount of dexterity. Thankfully, the 350mm MOMO makes it easier to squeeze in.

The Recaro seats are reminiscent of those found in the BMW M1. The padding is definitely thinner, but by no means flimsy. Certainly, comfortable enough for a long stint behind the wheel. Dead ahead is the instrument binnacle, the rev counter showing 10,000rpm and the speedo reaching all the way to 300km/h, an indication this is no garden variety 914.

#### **MORE THAN MEMORIES**

As usual, the pedals are slightly off-centre, leaning toward the right. These floor-mounted pedals fall to the ball of your foot, while the metal stalks for the indicators and wipers, plus the interior door handles, take me back many moons to time spent in my mother's Beetle.

Crank the ignition and the Gulf machine sparks to life. With the engine right behind me, I can feel a tingle run down my spine. My heart rate spikes. First gear is left and down, the old dog-leg. Thankfully, this car has been fitted with the later side-shift gearbox, a vast improvement over the tail-shift, which feels like sludge. The clutch is well weighted and travels about halfway

before I detect rotation from the rear wheels.

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**THROUGH BENDS** 

Our jaunt takes us on narrow undulating country lanes within Beaulieu Country Estate. I'm impressed at how free-revving this engine is. 3,000rpm appears in a

> cinch and, before easy to hand and I'd call snappy. The

I can blink. I've reached 6,000rpm. The gear lever falls shifting is precise and methodical, but not exactly what

steering feels well weighted and balanced. It gives good feedback from the narrow road, characterised by plenty of twists and turns. The suspension is firm, evidenced by road imperfections communicated clearly through one's posterior and wrists. The brakes are excellent, with enough pedal travel to ensure control without neck-snapping. Of course, the low centre of gravity, plus the mid-engine layout, allows for tight turn-in through bends, a feat supported by Michelin Pilot Exalto rubber (225/50/16 at the rear and 205/55/16 at the front).

In summation, this is a perfectly balanced Porsche. Pleasingly, it isn't overly powerful, but requires commitment and involvement for the driver to get the best out of what's on offer. This 914 delivers a truly visceral experience, typical of a Porsche from the 1970s, and it's one we're sure Tim will put to excellent use on and away from Targa road races.

Talking of which, considering the balance of comfort, performance and awesome aesthetic the Abbots have achieved, we have no doubt Porsche would have had a hit on its hands had they offered this specification 914 in its showrooms in period. Thankfully, there are experts like Tim and Douglas around to assist in the present this is one instance where a gap is truly a Gulf. CP

Above The Abbots wondered what a Gulf-tribute 914/6 GT might have been like if offered by Porsche showrooms in period, and then set about creating it themselves

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## **BACK TO BASICS**

Continuing our series on chassis components and how they work, we shed light on some of the most commonly talked about suspension upgrades...



#### **BRAKE BIAS**

To understand how brake bias works, how you can improve/alter it and why you'd want to do so, we first need to understand exactly what brake bias is. In short, the term refers to how braking force is split between a car's front and rear axles. This ratio is critical for obvious reasons: too much effort at the nose of the car and the front wheels could lock, causing you to push on through the corner. Too much effort at the back and you might lock the rear wheels, causing an uncontrollable spin.

You might be wondering why you'd want to change factory settings, but bigger brakes, weight saving, stiffer suspension and other chassis modifications will affect the way brakes are biased. In fact, we can affect braking behaviour simply by removing a car's back seats — the resulting reduced weight will mean the amount of braking force needed at the rear will also be lessened. If we don't make braking adjustments accordingly, we might find ourselves in charge of a car with too much rear braking emphasis.

There are a couple of ways to alter brake bias, the simplest being a brake-proportioning valve. This is a valve which is installed in-line between the braking system master cylinder and the rear wheels. It can reduce the amount of braking force being applied to the rear and usually

ranges from zero percent (as standard) to a fifty percent reduction.

A more comprehensive (and more expensive) way of altering brake bias is to fit an adjustable bias pedal box. This item — common equipment on race cars — works with an adjustable balance bar operating two master cylinders:

one for the front braking circuit and one for the rear. By altering the balance bar, you can adjust the amount of pressure being applied to each master cylinder, thereby altering brake bias. Beside being more precise, the main advantage a bias pedal box has over a proportioning valve is the ability to take brake force from one system and apply it to the other. This isn't possible with a proportioning valve, which won't allow you to increase braking effort on any axle, instead allowing you to only reduce effectiveness of the existing system.

Bias pedal boxes are common on the trackday scene, offering drivers the ability to make fine adjustments while a lap is progressing. For example, when a car is taking part in a long track session or race, fuel usage will result in the car becoming increasingly lighter. In this instance, the driver may wish to tweak brake bias to compensate for altered chassis dynamics. Bias pedal boxes also allow a greater degree of



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#### **TOP MOUNTS**

A top mount's main job is to provide a fixing point for the damper, ensuring the damper won't fall through the turret top if suspension becomes unloaded. Top mounts contain a bearing to allow the damper to rotate smoothly and independently of the turret during steering.

Most top mounts are of concentric design and are non-adjustable. This works fine with factory suspension, but when you alter amber and caster angles by fitting adjustable traction control arms and compression struts, the stress on the top mount increases. Uprated top mounts help cure this problem and are usually made from billet aluminium and feature a heavy duty rose joint, rather than a standard roller bearing. The rose joint is centred within the mount, meaning no matter how much you rotate the top mount, the rose joint will remain central. Adjustable top mounts, however, are available in different designs, including a sliding mount and an eccentric mount. The sliding-style top mount usually consists of two components: one bolts to the damper, the other to the turret top. Rather than these two pieces being bolted together, a series of machined slots allows the two halves to be moved

independently. This gives backand-forth movement to enable adjustment of caster, while left-to-right movements allow adjustment of camber angles.

An eccentric top mount design features an off-centre rose joint. As the mount rotates, the rose joint and damper move around their own axis, meaning the position of the damper changes relative to the turret top. In one position, for example, you may have maximum negative camber, but rotate the mount 180° and you'll have maximum positive camber.

Bolt holes around the circumference of the mount are used to hold it in place and allow the part to be rotated, affording the user control over adjustment.

It's worth noting that with newer cars (and front-wheel drive vehicles in particular), camber and caster adjustment is achieved via adjustable top mounts due to the pressed steel design of lower control arms not lending

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itself to include adjusters.
In other words, where the top of
the damper is mounted dictates both
the camber and caster angles of the front
suspension geometry. Move the top of the
damper toward the centre of the car and you'll
see greater negative camber, move it outwards
to reduce the amount of camber. The same
is true for caster: move the top of the damper
toward the rear of the car and you'll see positive
caster, moving it forward and caster is reduced.

#### **ANTI-ROLL BARS**

Anti-roll bars (also known as sway bars) are fitted as one of the key components in a vehicle's suspension system. They can be fitted front and rear and their purpose is, as the name suggests, to reduce body roll during cornering. Think about a car you've been in where either as a driver or passenger you've turned into a sharp corner and ended up leaning out of your seat. For a right-hand turn, you leaned left and vice versa. The same thing is happening to the car — when everything leans to the outside of the turn, it pushes down on that side of the vehicle. As the change occurs, there's less load on the side of the vehicle on the inside of the turn and it lifts. This is body roll.

An anti-roll bar tries to reduce body roll in an effort to keep weight distribution more even across all four tyres through a corner. It does this by transferring forces generated through cornering from one side of the car to the other. An anti-roll bar on the front connects to the lower arms either side and is mounted with at least two bushes allowing rotation. By attaching to the lower arms, when the outside lower arm pivots up during cornering, the torsional force is transferred through the anti-roll bar to the inside lower arm and is also pivoted upward. This, in turn, helps the car to remain 'flat' through the bend.

An upgraded anti-roll bar is worthwhile if you feel your Porsche suffers excessive body roll through corners. A common upgrade is a thicker anti-roll bar 'lovingly borrowed' from a model higher up the pecking order, though all Porsche sports cars are well catered for on the aftermarket. As a rule, thicker anti-roll bars allow for better weight transfer side-to-side and can improve traction, but it's important to review your car's handling balance before buying new parts - it's possible to reduce traction by spending inappropriately. It's also worth noting the availability of adjustable anti-roll bars, whereby holes in the end of the bar allow it to be mounted at different heights to vary how stiff or soft the bar behaves. Adjustable anti-roll bars featuring fine tuning 'blades' are also available.

As a rule, front-wheel drive cars have a

stiff anti-roll bar at the front and a relatively soft bar at the rear. To improve traction and handling, the user would, therefore, be advised to start by replacing only the rear bar. In other words, it may be inadvisable to fit a performance anti-roll bar at the front and leave the original rear bar in place — the likely outcome would further decrease balance from front to rear, thereby reducing traction.

Rear-wheel drive cars can often make use of a stiffer rear bar and a softer bar at the front. Four-wheel drive vehicles vary depending on manufacturer and application. In this instance, there is no applicable rule of thumb. It's also worth noting some modern cars feature active anti-roll bars, whereby gyroscopic sensors, pumps and an ECU work to drain and pump fluid between dampers in a bid to control body roll.





#### **TRACTION CONTROL ARMS**

A traction control arm (also known as a track control arm or TCA) is used with a MacPherson strut arrangement on the front of many standard production cars, tying the front hub to the chassis to prevent the wheels from splaying out when the suspension is compressed, therefore controlling the track. On one end, the TCA is fixed directly to the hub, usually via a ball joint allowing the hub to rotate when steering, as well as allowing movement up and down as the spring is compresses and rebounds. On the other end, the TCA is fixed to the chassis or front subframe and usually features a rubber bush to allow the TCA to move, as well as helping reduce unwanted noise, vibration and

harshness (known as NVH in the industry).

The length of the TCA dictates the camber angle of the front wheels. Due to the fact most TCAs are non-adjustable, the user is stuck with the standard camber angle, whereas an adjustable TCA allows the length of the part to be increased, thereby introducing altered camber angle. The longer you make the TCA, the greater the distance between the bottom of the hub and the chassis — because the top of the hub is at a fixed point where it attaches to the damper body, it creates a pivot point. As you increase the length of the TCA, the whole hub pivots, changing camber angle.

Adjustable TCAs can be manufactured in a number of different ways, ranging from

fully rose-jointed motorsport-oriented parts to items made from exotic materials, such as billet aluminium and magnesium. The most common type is a modified standard-style unit suited to a wide range of applications, from fast-road cars to outright track monsters. Bolting into place in the same way as a standard TCA means no further modifications are required to introduce the part to conventional suspension — because they're a direct fit, TCAs with a ball joint fitment on the hub end are better suited to the majority of applications, though the quality of the ball joint used must be keenly observed. When you increase camber angle, you can increase stress in the ball joint. Poor quality ball joints will fail prematurely.

#### **ROSE JOINTS**

You'll have noticed how many high-end track and race cars feature rose joints in place of rubber or polyurethane bushes. A rose joint (also known as a spherical rod end bearing or Heim joint) offers greater precision than a bushing. The way a rose joint works is quite simple: it's a mechanical articulating joint. Essentially, it's a swivel ball with a hole in it, pressed into a circular casing with a thread attached to the other end. This allows the swivel ball to rotate freely within the casing, but also means there's a level of articulation, too. These are, however, the only directions the joint can move in, unlike a bushing, which provides a degree of 'give' and will move in all directions when force is applied

to it. This makes rose joints perfect for use in suspension components where you need the inner part to be able to rotate freely, but require the joint to be resistant to compression and expansion forces subjected to it under heavy breaking, acceleration and cornering loads.

The downside to the lack of flex in rose joints is that, unlike traditional bushings, they offer no compliance, transmitting more noise through the cabin and increased vibration. This would make a rose-jointed car hugely uncomfortable to drive on public roads, where a rubber or polyurethane bush would dampen the effect of bumps and deliver a much smoother ride. This isn't a concern for the track, where rose joints offer sharper handling characteristics. **CP** 



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## **BRAKE TIME**

Sports cars need to slow just as impressively as they can hit high speed. In this article, we answer commonly asked questions concerning braking systems...



#### What are brake pads made from?

Brake pads are often made from a variety of different materials. Standard street compound pads are usually a non-metallic composite of synthetic properties. They offer excellent bite in the cold coupled with low noise when called into action, but they lack high friction and their effect will 'fade' at relatively low temperatures when compared to performance pads.

At the other end of the scale, race compounds are usually fully metallic or ceramic in their make-up. Offering much

higher levels of friction, these pads are far less susceptible to fade, but they need to reach operating temperature to work effectively. In other words, their cold bite is poor. They're great for track work or 'spirited' driving, but not great for nipping to the shops and back.

A good 'middle ground' is a sport compound pad. Made from semi-metallic materials, the cold bite is good and the warm bite is even better. You may hear noise during operation (depending on driving style), but it's a small price to pay for big gains in friction and reduced fade.

#### Why are ceramic brake discs so expensive?

Ceramic discs are made from a compound of carbon and ceramic materials. The manufacturing process is complicated and drawn out — a single disc can take up to a month to produce. Ordinarily, ceramic discs are only used in ultra-high performance applications, such as motorsport or GT Porsches road cars used regularly at the race track.





## What does 'DOT' mean when it comes to rating brake fluid?

DOT is a system created by America's Department of Transport (hence 'DOT') to grade brake fluids based on their boiling points. DOT4 has a minimum boiling point of 230°C, more than enough for street driving. DOT5 has a much higher boiling point, ideal for racing. It's worth noting, DOT5 fluids include silicone-based ingredients, so check to make sure your Porsche's braking system is compatible.

## Why is it important to change brake fluid regularly?

Glycol-based brake fluid is hygroscopic, meaning it loves to absorb moisture. This is terrible for the continued effectiveness of brake fluid, primarily because it dramatically reduces the desired boiling temperature. Put it this way, just three percent water in DOT4 fluid can halve its boiling point. Over time, moisture can find its way into brake fluid via



micro-pores in a brake fluid reservoir filler cap, poor quality brake lines or compromised seals. Furthermore, moisture in brake fluid forms bubbles which causes spongy pedal feel. Don't ignore the manufacturer's recommended brake fluid service interval and always buy high-quality fluid.

#### What does bleeding brakes actually do?

Much like moisture, air will find its way into your car's braking system over time, so it needs to be bled out, much like the air that occasionally needs to be released from the radiator in your living room. The biggest problem with having air in your Porsche's braking system is that unlike brake fluid, air is compressible. This causes 'spongy' pedal feel. If left unattended for significant periods of time, complete brake failure may occur. Bleeding the brakes allows the air to escape.

## Why are bigger discs more effective than smaller discs?

When you increase the diameter of a disc (and change your car's calipers accordingly) the amount of braking torque exponentially increases. In theory, the bigger the disc, the faster you'll stop, but you're limited by how much grip your Porsche's tyres will allow. For example, depending on the quality of the tyre you've bought, discs over a certain size will force you to brake so hard that a loss of tyre grip encourages ABS to kick in (if the car is new enough to be equipped with the feature). Keep in mind the fact brake discs are very heavy

items which may affect the effectiveness of your car under acceleration. Of course, the recommended size of discs depends on the model of Porsche you own and your driving style, but the short answer to the question is that heavy cars require large discs for effective braking, while lighter cars can get away with running smaller discs.

## Why do many performance brake discs have grooves in them?

There are a couple of reasons for having grooves (or slots) and/or drilled holes in your car's brake discs. Firstly, the friction created

between pad and rotor under load produces huge amounts of heat. Toasty temperatures can lead to brake fade. Grooves and holes allow heat to escape. They also help to channel water, dirt and other unwanted materials away from the contact surface of the disc, thus helpfully serving to maintain maximum friction.



## Why do people fit braided brake hoses to their cars?

Braided hoses, such as those made by Goodridge or HEL, feature a Teflon inner



wall with an outside layer comprising strands of braided stainless steel designed to offer massively increased safety and durability over factory rubber hoses. Furthermore, OEM rubber hoses tend to expand during operation, whereas braided hoses retain their shape, allowing for a much firmer pedal feel. A firmer brake pedal means better feedback and better braking.





#### What is a hydraulic handbrake?

A hydraulic handbrake replaces a car's conventional cable-operated unit by connecting to the main braking system and using the same hydraulic pressure to clamp the rear calipers. The advantage of a handbrake of this nature is its immense power, but this setup is illegal for street use and will reward you with an MOT failure if you don't obey the rules.

#### Why is a hydraulic handbrake outlawed?

In addition to keeping your Porsche in place when you've parked it on a steep incline, a handbrake is considered to be your car's 'emergency' brake — a kind of backup in case your main braking system fails. The law states a road car's handbrake must be cable operated and fully independent from the main brakes.

## Why are fixed calipers regarded as being better than floating calipers?

Many modern cars come with floating/sliding calipers loaded with one or two pistons. When hydraulic pressure from the master cylinder forces the piston against the pad, the whole caliper is pulled inwards as the pads clamp down on the disc, hence them being referred to as 'floating'. A downside to this mode of operation is that the pads on the outer side of the caliper tend to wear unevenly. Another is that since the pistons need to travel so much, the brake pedal can feel unresponsive. Fixed calipers, like those on many Porsches, feature multiple pistons on each side. Since the pistons are clamping from both sides, the caliper doesn't need to move. It remains fixed in place. This allows for even pad wear, more effective braking and a firmer, more responsive pedal feel.

## Why are two-piece discs considered to be better than single-piece discs?

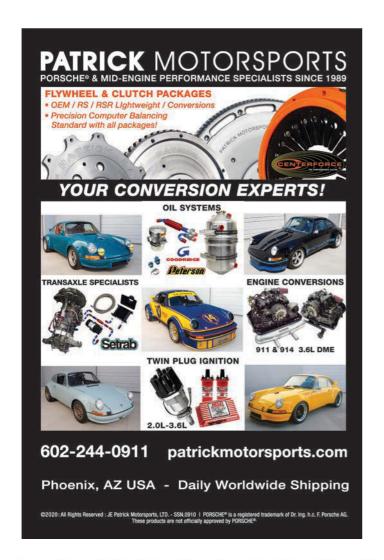
The last thing you want when flying down a straight at 100mph and slamming on your car's stoppers is sudden brake fade. Two-piece discs come supplied with aluminium centres often referred to as 'bells'. Surprisingly, the contact area between the disc and bell is minimal. This is great for heat dissipation and makes the disc very light. More often than not, a brake kit of this nature is overkill for a road car and, if retrofitting, you may need to invest in a bigger set of wheels to accommodate the increased size of larger calipers and their required brackets. Two-piece discs are a great idea for a modern high-output Porsche or one doubling up as a track toy. Additionally, you'll only have to replace the outer disc when it comes to servicing your brakes.

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# TEN OF THE BEST

This year marks the fortieth anniversary of Porsche making the 956 available to its customers. In this article, we look at ten of the most successful 956 and 962 privateers, as well paying tribute to Porsche drivers and team managers crucial to the success of these extraordinary racing machines...

Words Simon Davis and Dan Furr Photography Porsche, Petersen Automotive Museum, Dan Sherwood, RM Sotheby's

ack in 1982, Porsche unveiled the 956 in response to then new Group C racing regulations. A year later, in line with tradition and with an eye on making money, the Stuttgart company decided to release the formidable sports-prototype to customer teams able to stump up the DM630,000 asking price. This had the unintended consequence of spurring development of the 956 — as well as the subsequent IMSA-friendly 962 — independent of Porsche's Weissach research and development centre as each privateer concern sought to gain an advantage over the next.

The wide availability of the 956 and 962 created full grids and exciting racing, marking a high point in global sports car competition. Furthermore, privateers were responsible for extending the service life of the 962 beyond cessation of direct works participation. The Rothmans-sponsored factory team swept all before it and captured the World Endurance Championship of Makes from 1982 to 1984, coining 1985's teams title (introduced by the FIA in response to Porsche being

so dominant) thereafter. Ace drivers, including Jacky Ickx, Stefan Bellof, Hans-Joachim Stuck and Derek Bell, locked out the drivers championship from 1982 to 1986. Additionally, Bellof won 1984's Deutsche Rennsport-Meisterschaft (DRM) driving a 956.

In the German ADAC Supercup, Porsche won the 1987 title, whilst Hans-Joachim Stuck took the drivers crown in both 1986 and 1987, piloting a 962 finished in Blaupunkt and Shell sponsorship livery respectively. The works team retired from the fray at the end of 1988, leaving various high-calibre privateers to defend Porsche's honour in the face of stiff competition. Chief among rival teams were Jaguar,

Sauber-Mercedes and Japanese car makers.

To mark the fortieth anniversary of the 956 becoming commercially available to Porsche's customers, we've listed ten of the best 965/962 privateer racing teams in all their multicoloured splendour and technical variety. Think we've missed a team from the list? Tell us about it on the Classic Porsche Facebook page, which you can find by hopping on to your favourite internet browser and visiting facebook.com/classicporschemag.







Facing page Richard Lloyd Racing 962-200 is one of the most historically significant Group C prototypes ever to wear the Porsche crest

Right It's easy to think of only Rothmans-liveried factory Porsche Group C motorsport machines, but many eager independent teams competed with the 956 and 962







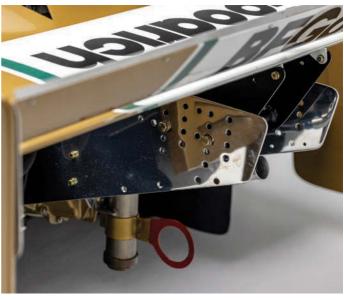


# 10 JIM BUSBY

graduate of the Californian hot rod and drag racing scene, Jim Busby started his long relationship with Porsches in 1975. He drove for Brumos, Kremer Racing and John Fitzpatrick, in addition to his own team. Attracting the financial backing of BF Goodrich from 1982 enabled him to purchase two customer 962s from the factory, plus a third car from John Fitzpatrick for the 1985 season.

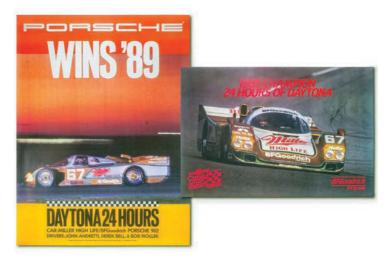
Running a two-car IMSA team, Busby won at Riverside. In the years 1986 through 1988, his team could do no better than half a dozen second places, but a severe crash at Daytona, trapping Jan Lammers, motivated Busby to improve the 962's safety. He paid for the tooling to enable Jim Chapman to construct a stiffer honeycomb chassis, which he sportingly sold to other teams to avoid any more drivers getting hurt.

In 1989, the team's cars were resplendent in colours of the Miller brewing company and, following Al Holbert's death, emerged as Porsche's favourite customer team for any new 962 developments. Busby's engineer, Roman Slobodinskyi, extensively modified the rear body aerodynamics, which included a lower-mounted rear wing. The team triumphed in the 24 Hours of Daytona and recorded its third and final win at West Palm Beach, before transferring allegiance to Nissan the following year.



#### **ANORAK FACT**

Porsche loaned one of its works 962s (a car Hans-Joachim Stuck raced in the Supercup) to Jim Busby, but he didn't use it after being concerned its chassis was more flexible than the Chapman monocoque. Separately, chassis 962-108C (pictured), was delivered to Busby for use in the IMSA Camel GT Championship and is rightly regarded as the fastest of all 962s produced. The car won the 1989 24 Hours of Daytona.







# **9** JOHN FITZPATRICK

acing driver, John Fitzpatrick, had his first experience with the Zuffenhausen marque in 1967, becoming a regular Porsche driver for Kremer Racing, Georg Loos and Dick Barbour, before establishing his own team for 1981. Generous JDavid Racing sponsorship funding enabled Fitzpatrick to buy the second 956 customer chassis for 1983. When Guy Edwards introduced support from tobacco firm, Skoal, mid-year, another 956 was purchased.

The team worked on improving the model's aerodynamics and by blanking off underside cooling air ducts, which gained a ground effect advantage exploited in the wet at the 1983 1,000km of Brands Hatch, when Fitzpatrick and co-driver, Derek Warwick, beat the works team.

# TOGETHER T-BIRD SWAP SHOP, FITZPATRICK RACING WAS THE FIRST TO CAMPAIGN THE 962 IN EUROPE

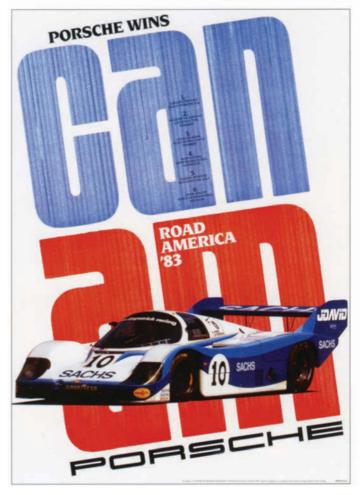
Uniquely, Fitzpatrick raced the 956 in America during a couple of 1983 Can Am events (the 956 did not meet IMSA regulations), winning at Road America. The third victory for the team was achieved by Thierry Boutsen at the 1984 DRM Norisring race.

Together with Preston Henn's T-Bird Swap Shop, Fitzpatrick Racing was the first to campaign the 962 in Europe. After the demise of JDavid Racing, Skoal financed a two-car team for Fitzpatrick's 1984 season, followed by a variety of sponsors thereafter. The increasingly high cost of sports car racing ultimately proved too much, however, and the team closed its doors at the end of 1986, selling its assets to Dauer.

### **ANORAK FACT**

Jerry David Dominelli (JDavid) operated a foreign currency speculation investment fund ,which turned out to be a Ponzi scheme. He was arrested in early 1984 and subsequently sentenced to twenty years in prison. The scale of his fraud is estimated to have been in excess of a massive \$80,000,000.











# RICHARD LLOYD

ecca record producer, Richard Lloyd, made his motor racing debut in 1967. He achieved success in the 1970s British Touring Car Championship with a Volkswagen Golf GTi and established the tuning company, GTi Engineering, thereafter. From 1981, he raced a 924 Carrera GTR. Sponsors, Canon, were

sufficiently impressed to support a 956 for the 1983 season.

In continuing its association with the Stuttgart marque through adopting the 956 as its racer of choice, Lloyd's team was thrust into the upper echelons of sports car racing, but despite enlisting the assistance of top wheelmen and

enjoying continued support from Porsche, it remained difficult to topple the works 956s. "If we do the same things as the factory team, we'll never beat them," Lloyd conceded.

His solution was to design a bespoke 956 aluminium composite honeycomb monocoque and base chassis in partnership with renowned race car engineer, Nigel Stroud, a man who would later go on to design Mazda's rotary-engined 787B, winner of the 1991 24 Hours of Le Mans. After much development work, the team's custom creation — structurally superior to that of Porsche's works cars — emerged as a 956 GTi-106B, a name sanctioned by Porsche and intended to separate this particular Group C track attacker from the 956s fielded by the factory team. Bodywork alterations included carbon-fibre front and rear wings (the latter a two-piece design), while a whole new front suspension arrangement was introduced.

Unfortunately, a serious accident at the 1,000km of Spa in 1985 necessitated the build of a replacement chassis, by which time the 962 (an evolution of the 956) had already been adopted by the works team, not least due to the 956 being ineligible for North America's IMSA GTP Championship on the grounds of safety — the driver's feet were ahead of the front axle centreline. When building its replacement 956 GTi chassis, Lloyd's team introduced 962 design cues, including shifting the cabin further back.

The 962's success is well documented, but Lloyd once again found himself chasing the Porsche factory team, leading him to approach Stroud with a commission for an updated version of the pair's previously developed honeycomb chassis in readiness for the 1987 World Sportscar Championship. Designated 962-106B, the resulting car's win



at the year's Norising street circuit in Germany proved the design had huge potential, which the team hoped to realise with the first chassis of what would become known as the Richard Lloyd Racing 200 Series. It's the car you see on this page, designated RLR 962-200 and retaining the pushrod front suspension arrangement from the earlier 956 GTi, but now incorporating a carbon-fibre honeycomb panel behind the dashboard

and centre spine for even greater rigidity. The standard 962 chassis is a sheet aluminium monocoque, but the stiffness delivered by the honeycomb design forming the basis of Lloyd's cars meant much firmer spring and roll bar rates could be adopted, thereby keeping downforce more consistent.

Unlike many other privateers, Lloyd had a policy of hiring only professional (rather than gentleman) drivers. Lloyd himself tapered his involvement behind the wheel. The team, which closed after 1990, won five races, including the 1,000km of Brands Hatch in both 1984 and 1986.

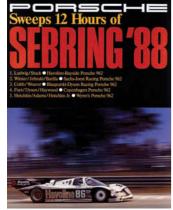
# UNLIKE MANY OTHER PRIVATEERS, LLOYD HAD A POLICY OF HIRING ONLY PROFESSIONAL DRIVERS

#### **ANORAK FACT**

When Richard Lloyd travelled to Stuttgart to collect his new 956 (the sixth customer chassis), he asked for a Porsche fob to attach to the car's key. Porsche refused his request.



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# **BRUCE** LEVEN

rom a single truck in 1964, to the 1987 sale of his \$60,000,000 per annum business, Bruce Leven acquired his wealth from, well, rubbish. From the late 1970s, with his Bayside Disposal race team, he competed almost exclusively in Porsches, the highlight being victory in the hard-fought 1981 12 Hours of Sebring. Sharing driving duties in the team's 935 was Leven's fellow countrymen, Hurley Haywood and Al Holbert.

Leven acquired the first 962 customer chassis, which wasn't delivered until April 1984. In the meantime, Porsche entered a works car at Daytona, inviting Mario Andretti and his twin brother, Aldo, to take up driving duties. This upset Leven and other US Porsche customers, each expected to run at the daylong endurance event. Porsche attempted to



placate them by explaining how the factory wished to iron out bugs with the 962 before commencing customer deliveries.

Bayside Disposal's best season was 1987, when the team recorded six of its ten wins with the services of Jochen Mass and Bobby Rahal at the wheel, significantly helping Porsche capture the IMSA championship. The team's two most important victories, however, were in the 1987 and 1988 12 Hours of Sebring. Even so, with Nissan opposition proving faster, Leven withdrew Bayside Disposal from competition after 1990's outings at Daytona and Sebring.

#### **ANORAK FACT**

Following delivery, Leven rented out his new 962 to Al Holbert before the latter's own 962 arrived.

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DRIVING PASSION



# 6 ROB DYSON

ob Dyson made his fortune founding DKM, one of America's largest broadcasting groups. After attending the Bob Bondurant Racing School in 1973, he competed in Datsuns and Pontiacs. In 1985, his team took a leap into the big league by acquiring Bruce Leven's 1984 962. Drake Olson won the team's debut at Lime Rock, a unique achievement among the American privateers.

In 1989, the team took an IMSA sabbatical in favour of Indy Cars. Upon its return in 1990, and following Jim Busby's switch to Nissan, the Dyson car took over the mantle as the most developed 962, complete with revised aerodynamics and suspension. Only one further victory was achieved, however, bringing the number of total wins to twelve, second only to Al Holbert's tally among the American squads.

### **ANORAK FACT**

In 1988 and 1989, against his own team, Dyson drove five IMSA races for fellow 962 privateers, AJ Foyt and Bruce Leven. He also competed in the 1986 24 Hours of Le Mans for Richard Lloyd Racing, finishing ninth in his sole appearance at Circuit de la Sarthe.









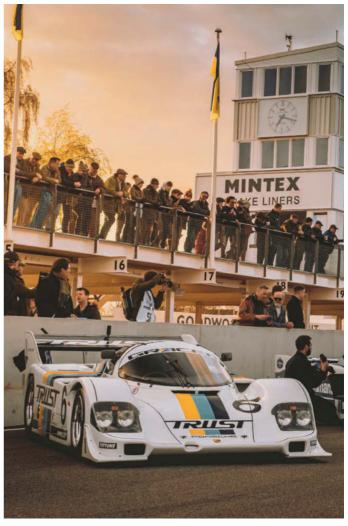
# 5 NOVA ENGINEERING

stablished in 1973, Japan's Nova Engineering undertook various automotive industry design and development work and ran a domestic racing team. From 1983 through 1991, Nova ran the 956 and 962 for various sponsors, including Trust, Iseki, Advan, From A and Taisan, all key players in the Japanese sports car scene born from the economic boom of the 1980s. Initially, Porsche suspected Nova could be a front for a major Japanese car maker to acquire a 956, but this fear was quickly dispelled and the Stuttgart concern soon provided full support in recognition of the Japanese domestic market's commercial importance for the same of Porsche sports cars.

Porsche won the All-Japan Endurance/Sports Prototype Championship from 1985 through 1989, thanks largely to Nova's results. Drivers included Vern Schuppan, Naohiro Fujita, Kunimitsu and Kenji Takahashi, Kenny Acheson, Hideki Okada and Stanley Dickens, a roster which won the driver's championship in 1983, as well as between 1985 and 1989. The Fuji Long Distance Series for Teams — held concurrently and based on Fuji circuit results — also fell to Nova from 1983 through 1988. The team achieved a total of twenty-five race victories between 1983 and 1989.

#### **ANORAK FACT**

When Nova placed its order for the eighth customer 956, it requested a factory driver to sit in the cockpit. Porsche, having just dropped Vern Schuppan from its regular squad, asked the Australian if he would be interested. He readily accepted.



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# AL HOLBERT

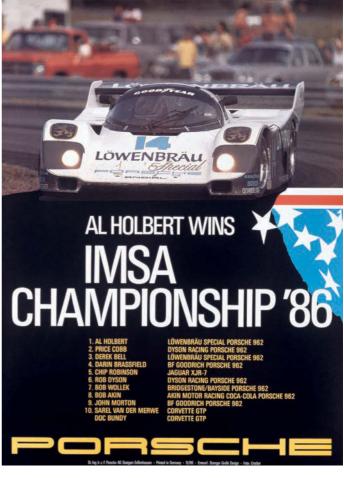
on of Porsche dealer and racer, Bob Holbert, Al started racing Porsches in 1971, won the 12 Hours of Sebring twice and became a member of the Porsche works team yielding three Le Mans victories. An obsessive engineer and good manager, cool headed Al "was probably the best development driver I have ever worked with," according to regular partner, Derek Bell.

In 1985, Holbert became the director of Porsche's new North American motorsport division, which provided race support services and helped make the 962 competitive for all US entrants. The team enhanced the model's downforce and constructed its own chassis, inspiring US manufacturers, Fabcar and Chapman.

Holbert Racing ran the 962 exclusively in the IMSA series with smart Löwenbrau and Miller liveries from 1984, picking up twenty-four wins, including the 24 Hours of Daytona in 1986 and 1987. All but one of these wins featured Al behind the wheel — he was champion driver in 1985 and 1986, whilst his teammate, Chip Robinson, triumphed in 1987.

The Championship of Makes fell to Porsche for four seasons from 1985, largely due to Holbert's success. Having retired from driving after the Sebring enduro in 1988, his team came to a premature end following his death in a light aircraft crash that September.





#### **ANORAK FACT**

As the competitive life of the 962 began to fade in the face of machinery from on-track rival, Nissan, Holbert had plans of building a sports car for Porsche using the manufacturer's then new Indy Car engine, but following his death, the project failed to materialise.





# 3 WALTER BRUN

wiss slot machine millionaire, Walter Brun, commenced racing in the mid-1960s, having his first taste of Porsche in 1971. Halfway through the 1983 season, he started to run a 956 for himself, other gentleman drivers and top professionals. Switching over to the 962, he and his team continued to compete until the end of 1991, notching up thirteen victories in the World Endurance/World Sports Prototype Championship, DRM and Interserie.

Like others, Brun adapted his 962s with John Thompson monocoques, but his team is perhaps best remembered for the sheer variety of multicoloured liveries covering its cars. Brands represented include Fortuna, Gaggia, Guffanti, Jägermeister, Repsol, Schiesser,

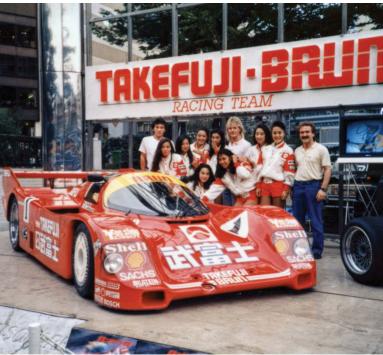
# IN 1984, BRUN ENTERED WORKS DRIVER, STEFAN BELLOF, INTO RACES WHICH THE FACTORY IGNORED

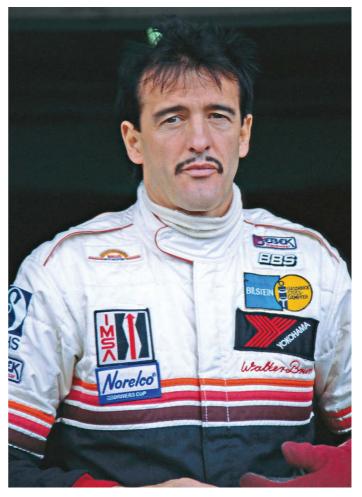
Torno and Warsteiner, to name but a few. With his large roster of drivers, Brun would often run three cars at races. His operation also competed in IMSA from 1986 and dipped its toe into the Japanese scene in 1989 (with Alpha Construction sponsorship).

In 1984, Brun entered works driver, Stefan Bellof, into races which the factory ignored, thus helping the young German win the 1984 DRM drivers championship. Tragically, a year later, Bellof was killed while driving a Brun 956 at Spa. The pinnacle of the team's fortunes was winning the 1986 World Sports Prototype Championship of Teams, something which no other 956/962 privateer accomplished.

### **ANORAK FACT**

In 1988, Walter Brun joined forces with Giampaolo Pavanello to form the EuroBrun Formula One outfit. Unfortunately, in three seasons, the team managed to start only fourteen out of forty-six races.













ologne-based Porsche garage proprietors, Manfred and Erwin Kremer, started their business in 1962 and were racing two years later. For the following twelve years, Manfred was engineer, while Erwin took on the role of driver. The pair became known for developing their own versions of Porsche's race cars, efforts culminating in Kremer Racing winning the 24 Hours of Le Mans in 1979 with its bespoke 935-based K3, driven by Klaus Ludwig and the Whittington brothers.

The Kremers took delivery of the first customer 956 in 1983 and, later, worked with master fabricator, John Thompson, to develop aluminium and carbon-fibre monocoques for the 962. These were lighter and stronger than the factory chassis, leading to the visually different 962 CK6, which enjoyed its last outing at Le Mans in 1993.

In 1987, Kremer Racing experimented with placing a turbocharged 928 V8 engine in a 962, and was the first European team to enter the popular and lucrative Japanese championship, which it did from 1987 to 1989 with cars dressed in now iconic Leyton House sponsorship livery, winning two races in the process.

Although Kremer Racing only triumphed once in the World Endurance Championship, the team scored eleven Interserie wins, one in the DRM, plus three non-championship victories. The 962 also contributed to Kremer's success in the 1992 Interserie, won with Manuel Reuter at the wheel of a 962-based CK7. Volker Weidler and Bernd Schneider added the 1987 and 1990 Porsche Cup to Kremer's trophy haul. Sadly, Manfred Winkelhock and Jo Gartner lost their lives in Kremer 962s, tarnishing an otherwise glorious record of achievement.

### **ANORAK FACT**

The first 956 customer chassis (101) was initially ordered by English television presenter and racing driver, Alain de Cadenet, but he failed to secure the appropriate financial backing, leading Kremer Racing to pick up his cancelled order. In its first three races with Kremer, this special car was driven by Formula One world champions, Alan Jones, Mario Andretti and Keke Rosberg.

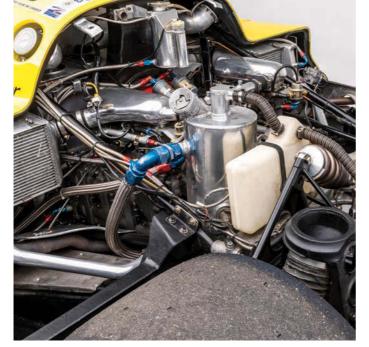








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# REINHOLD JOEST

oest Racing was the most successful of Porsche's customer 956/962 teams, notching up forty-nine wins in the World Endurance/World Sports Prototype Championship, DRM, Supercup, Interserie, IMSA and non-championship races. Joest enjoyed the closest factory relationship, especially between 1989 and 1990, when Porsche threw its weight behind the team following works withdrawal.

Prior to the launch of the 956, Reinhold Joest had personally spent twenty years racing Porsches, occasionally as a works driver. He ordered two of the initial batch of twelve 956 customer chassis,

# DRIVING A JOEST 956, BOB WOLLEK WON THE UNIQUE 1983 EUROPEAN ENDURANCE CHAMPIONSHIP FOR DRIVERS

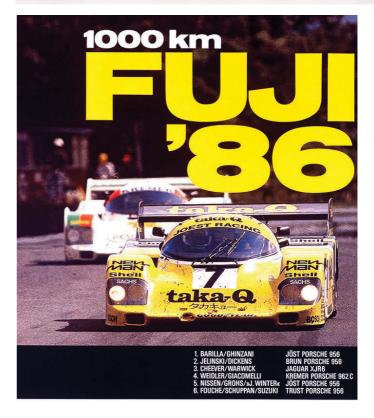
running one car for Dieter Schornstein, who would go it alone in 1984. Joest immediately set about modifying the 956's engine for greater strength and fuel efficiency. He also set about improving underbody aerodynamics. The reward was two consecutive victories at the 24 Hours of Le Mans (1984 and 1985), supported by New Man livery sponsorship.

Driving a Joest 956, Bob Wollek won the unique 1983 European Endurance Championship for Drivers. Joest pilots also carried off three Interserie championships, two DRM titles and one Supercup. Joest drivers also made the Porsche Cup their own, scoring eight wins between 1983 and 1992. A winless 1990, however, inspired the team to successfully concentrate on IMSA and Interserie for the 1991, 1992 and 1993 seasons. Consequently, the Wald-Michelbach squad achieved three Supercups for teams, as well as the 1991 Interserie championship.

### **ANORAK FACT**

The same chassis (117) was used to win Le Mans in both 1984 and 1985, a feat which, incredibly, Joest repeated in 1996 and 1997 with its TWR-Porsche WSC-95.











# ALSO COMMENDED

#### **PRESTON HENN**

Founder of the Fort Lauderdale Thunderbird Drive-In cinema and Swap Shop flea market, Henn ordered a 956 and established a UK base to race in a few rounds of the World Endurance Championship for the 1983 and 1984 seasons. His only noteworthy result with the car was a second-place finish at Le Mans in 1984. He also competed in selected IMSA events with a 962 from late 1984 through 1986, winning the 1985 Daytona and Sebring races.

#### **BOB AKIN**

Running with Coca-Cola sponsorship, Akin, who inherited the Hudson Wire company fortune, contested the IMSA championship with a 962 from 1984 to 1987, having previously raced 935s. When he retired in his first 962 race, he was openly critical of the car and felt it needed custom development for IMSA. Partnered by Hans-Joachim Stuck and Jo Gartner, he won the 1986 12 Hours of Sebring.

#### **TRUST**

Initially part of Nova Engineering, Japanese car accessory business, Trust, broke away for 1985 through 1991 with Iseki and Nisseki sponsorship. Trust retained the services of Vern Schuppan, who was unimpressed with the split, and went on to win three Japanese sports car races in 1985 and 1986. In addition to its domestic programme, Trust also appeared at Le Mans, finishing thirteenth overall in 1990, but scored a regrettable DNF in 1991.

#### **VERN SCHUPPAN**

Encouraged by Rothmans, works driver, Vern Schuppan, established his own team in Japan in 1987, enjoying a close rapport with Porsche. Remarkably, there were occasions when he competed against his own team, whilst driving for Trust. Schuppan's team won two races in 1988 and 1989, as well as the 1989 Fuji Long Distance Series. His team's final 962 outing yielded third at Daytona in 1992, when the car was driven by Roland Ratzenberger, Hurley Haywood, Eje Elgh and Scott Brayton. Schuppan went on to develop the 962 for road use, giving rise to the ill-fated 962 CR.

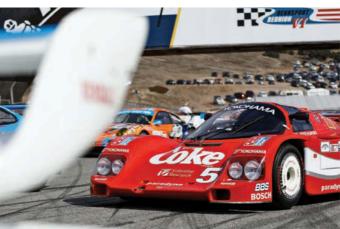
#### **WALTER LECHNER**

Austrian racing school proprietor, Walter Lechner, first raced a rented 956 in 1986 under the guise of Pametex Racing. This inspired the purchase of his own cars. Subsequently, the Walter Lechner Racing School team competed mainly in Interserie and Supercup from 1987 to 1990, with sponsorship predominantly from American bourbon whiskey brand, Jim Beam. Lechner won a total of six Interserie races, the driver's championship in 1987 and 1989, as well as the 1989 team title.

### **JOCHEN DAUER**

German racing driver, Jochen Dauer, began racing an ex-John Fitzpatrick 962 in 1987. Support came from Victor computer sponsorship. Dauer's small team managed to sample the World Sports Prototype Championship, Interserie, Supercup, non-championship races and even IMSA. He won the 1988 Interserie driver and team championships with two wins. He's most famous for creating the Dauer 962 road car, which Porsche converted back into a racer to win the 1994 24 Hours of Le Mans. **CP** 









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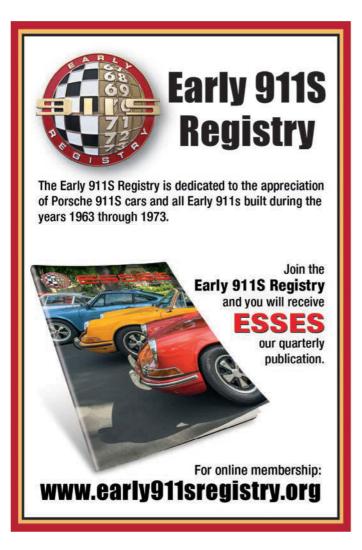


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PORSCHE



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rrespective of how much or how little you work on your Porsche, having a tool kit comprehensive enough to take care of basic maintenance is a must — no enthusiast wants to be stuck, unable to drive their car due to an easily rectifiable error. With this in mind, we've partnered with Britain's number one specialist tools and workshop equipment retailer, Machine Mart, to bring you the opportunity to win a Clarke professional ninetypiece tool kit housed in a five-tray steel cantilever tool box. Each tray features individual tool position inserts and outline drawings, the latter ensuring each component can be easily located. What, then, is included in the kit?

There's a half-inch drive ratchet handle, a pair of half-inch extension bars (five inches and ten inches in length), 10/11/12/13/14/15/16/17/18/19/20/21/22/24mm half-inch sockets, a half-inch drive universal joint, 21mm and 16mm spark plug sockets, a quarter-inch drive ratchet handle, eleven quarter-inch drive sockets in 4/4.5/5/5.5/6/7/8/9/10/11/12mm sizes, a quarter-inch extension bar (three inches in length), a screwdriver handle accompanied by twelve 25mm bits, an 18mm snap-off knife with ten blades, a three-metre steel measuring tape, six-inch long-nose pliers, six-inch diagonal side cutters, water pump pliers, ten-inch locking pliers, 1.5/2/2.5/3/4/5/5.5/6/8/10mm hex keys, twelve metric spanners (six to seventeen millimetres), plus three flathead screwdrivers and two crosshead screwdrivers of various sizes.

Machine Mart operates sixty-five tool and machinery superstores across the United Kingdom, offering quality branded equipment ranging from air compressors, wood-burning stoves and tool chests, to generators, water pumps, welding gear, pressure washers, heaters, woodworking paraphernalia

and everything in between. The company is constantly upgrading and expanding its portfolio of products to give customers the very best in choice and value for money, with each purchase backed by expert advice from friendly and knowledgeable staff offering fiercely competitive prices.

All Clarke products comply with the latest British and European safety standards and marking directives. All are thoroughly tested and inspected by the brand's own in-house research and development team, and each product is vigorously subjected to strict quality control processes. Clarke specialist products are further inspected by independent thirty-party, government-approved test houses. To be in with a chance of winning the pictured ninety-piece tool kit, all you need to do is answer the following simple question:

Which city is named on the Porsche crest?

- a) Stuttgart
- b) Chicago
- c) Oxford

Head to **www.bit.ly/clarke90** and register your answer. The competition closes Friday 3rd September and is open to readers worldwide. Good luck!

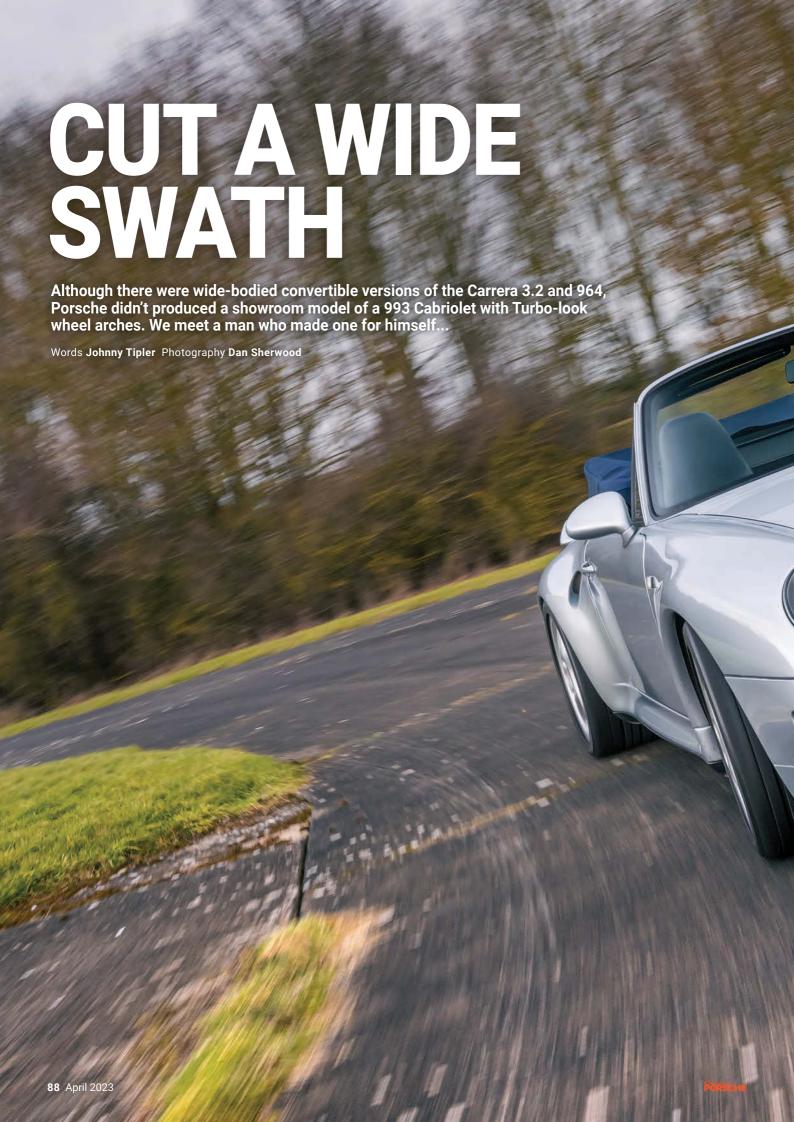
### CONTACT

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#### TERMS AND CONDITIONS

Entries close at 23:59 on Friday 21st April 2023 and the winner will be drawn Monday 24th April 2023. The winner will be notified within twenty-eight days of the close of entries. The editor's decision is final and no correspondence will be entered into. Entry is free. Employees of Kelsey Media and their family members are not eligible to win. Asterisk denotes approximate value of prize. Only one entry permitted per person. Bulk entries will not be accepted. There is no cash alternative and the prize is not transferable. If any prize or product is lost or damaged during the course of delivery to the recipient, Machine Mart will provide reasonable assistance in seeking to resolve the problem. It will not always be possible to obtain a replacement for lost or damaged goods and, in this event, no financial compensation will be paid by Kelsey Media or its affiliates. We reserve the right to cancel the competition if circumstances change beyond our control. Classic Porsche and 911 & Porsche Morld are Kelsey Media branks. Kelsey Media are lakes no responsibility beyons promoting this competition. Kelsey Media or its competition. Kelsey Media prane with its strict multi-layer privacy notice. For full details, visit kelsey.co.uk/privacy-policy. If you have queries regarding Kelsey's data policy, you can email our Data Protection Officer at dpo@kelsey.co.uk. Submitting data indicates your consent to the rules outlined here.

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M

any people frown upon certain words being used to describe appearance. 'Fat' is one such label, but in this instance, I invite those of judgemental ilk to come up with a more

appropriate epithet to describe the swollen Turbo-esque wheel arches of the 993 Cabriolet belonging to Chronis Tsiligkeridis. Bulging? Bulbous? Unlike a broad-beam narrowboat, where the whole hull is widened, only the Porsche's arches are larded up.

Enough fatty talk. The story of this impressive, wide-bodied, drop-top 993 began some twenty years ago, when you could pretty much say what you liked and not get

THE GORGEOUSNESS OF THE MODIFIED 993 CABRIOLET BODY WE BEHOLD BELIES THE BARBARIC CRUDITY OF THE OPERATION

cancelled. Chronis, who speaks with an entrancing Greek lilt (think Zorba), was living in his native country and bought the car from a seller in Austria. It was a regular 993 Cabriolet in left-hand drive, complete with innocent standard narrow body. It didn't stay that way for long, though.

Chronis wanted something out of the ordinary, different from the regular 993. "I was always fond of Porsche's wide-body 911s. Surprisingly, the 993 convertible was the only model in the range not offered from factory with the option of wide Turbo look." Of course, he's right. When you run the Turbo-arched droptop inventory through your memory bank, you'll recall its immediate predecessor, the 964, was made in wide-

arch format, as were the earlier Carrera 3.2s, known as Turbo-look and Sport Equipment SSE models. The water-cooled 996 and 997 Cabriolets were available in wide-bodied design, provided you ordered a Carrera 4S version. Chronis recognised the missing link and decided to go about filling it.

"I figured I could make my own 993 Cabriolet widebody and set about creating it. Obviously, back then, classic cars were not worth as much as they are in the present. Today, if you had a perfect low-mileage 993 Carrera in totally original shape, you'd think twice about

cutting off its wheel arches and inserting new ones from a Turbo. Back in the day, however, a car like this was worth a lot less money — modifying it was not really an action

viewed on the same level as destroying the Holy Grail."

Chronis went ahead and placed an order with independent parts retailer, Design 911, for brand-new replacement Turbo wing panels manufactured by Danish Porsche spares brand, Dansk. Going the whole hog, at least as far as handling was concerned, he also ordered new suspension componentry, including Bilstein coilovers, which he rightly assumed would sharpen up the ride. He also decided to upgrade the brakes, buying a set of 'Big Red' calipers and pads, the kind ordinarily equipping the 993 Turbo. They were shipped in from the USA, Chronis having found them available on an especially good offer. "I had a friend who was regularly flying back and forth to the US. I asked him if he would

Above Friends reunited — Chronis and his bespoke Turbo-look 993 Cabriolet, joined together once again following a near two-decade absence from one another

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## 993 CABRIOLET













Above The car was exactly as Chronis last saw it, complete with Turbo-aping kick plates and steering wheel-mounted remote control for the retro Pioneer MP3 player

**Below** Design 911 supplied the 993 Turbo quarters, which were expertly grafted to the Carrera Cabriolet body mind bringing 100lb packages to me, and he agreed to courier them, one packet each month." The Cabrio also needed a set of wheels to fill out those broader wings. Consequently, it is endowed with a set of eighteeninch Turbo Twists, shod with Michelin Pilot Sport tyres (225/40 ZR 18s on the front, 265/35 ZR 18s at the back).

With all parts to hand, Chronis had the transition performed in 2002, whilst he was in Greece carrying out his compulsory military service. I ask him where the metalwork was done, but unfortunately, the specialist responsible is long gone. "I can't remember the name of the place, but the firm went out of business in 2007. It was a company in Greece, that much I do know!"

The delightful gorgeousness of the curvaceous modified 993 Cabriolet body we behold belies the barbaric crudity of the operation which created it. The job the bodyshop was tasked with was brutal: slice off the standard wheel arches, weld on wider replacements, roll over the edge and repaint. There's a concise — if slightly alarming — online tutorial for the work, authored by the good folk at Design 911. Point your browser at bit.ly/design911turbo and enjoy the read.

After the job was finished, Chronis kept the car for eighteen months, enjoying a few top-down trips around sunny Greece during this time, but then he came upon a 993 Turbo coupé with intriguing provenance. It had evidently been either owned by, or at least passed through the hands of, Porsche deity, Walter Röhrl. Adding to this provenance, the great man's signature was on one of the door cards. "As soon as I learned of this, my heart was set on owning the car," declares Chronis. A little bit fickle, do we think? "I wanted a really fast 911 and saw this as my opportunity. I decided to sell the Cabriolet." We've all been there, done that. Seduced by the fast lady.

In 2003, with the Turbo purchase lined up, Chronis despatched the drop-top to the UK in the custody of his friend, David. "I was still in Greece doing my military service, which is why I asked David to take my 993 to the UK and sell it for me. I wrote the ad and placed it in various publications. Almost immediately, a British Porsche enthusiast living permanently in France said he would like to secure ownership. He posted a cheque to me, and when it was cleared, he visited the UK and collected the car." In a nutshell, the transaction was carried out by friend, David, without Chronis ever actually meeting the buyer. If I seem to be labouring the point, my reason for doing so will become clear shortly.

The buyer drove his Turbo-look Cabriolet to his home in the South of France, and there it lived for the next two decades. Here's a thing. Back in the halcyon days of *Performance Car* magazine, I briefly traded back pages with one Jeremy Clarkson. My column was named *Second Chances*, in which I reviewed a model of car no longer made, but which had an exalted status (Alpine-Renault A110, for example) or had maybe just gone out of style (Lotus Esprit Turbo, anyone?). Chronis, it turns out, has a similar take on his own Slim-Fatboy 993 Cabriolet. Like getting back together with an old girlfriend who should never have been dumped in the first place, in 2022, he spotted an ad in the motoring press for a car looking very much like his bespoke



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# 993 CABRIOLET











Above Dry storage in France has kept the car in time capsule condition, including the tax disc Chronis treated it to in April 2005

Facing page Forty thousand miles suggests this particular 3.6-litre M64 air-cooled flat-six is barely run in 993 creation from two decades earlier. Nostalgia is a powerful thing — he decided to make a play.

"I reasoned it was highly unlikely there was another wide-body 993 Cabriolet in Arctic Silver with Metropole Blue seats. I'd put a brand-new soft-top on my car prior to selling. The 911 being advertised had a pristine fabric roof. I contacted the vendor, who confirmed it was my old Porsche! He recognised my name from the paperwork accompanying the car." As it happened, the contact was a middleman, just like David had been for Chronis many years beforehand.

After a little negotiating, a deal was provisionally struck over the telephone — the owner agreed not to sell the car to anyone else before Chronis had stumped up his hard-earned cash. "He told me he wanted the car to return to my ownership because of my history with it. Two days later, I travelled over to France to be reunited with the Porsche."

When Chronis looked at its mileage, he was shocked to discover that, in almost two decades, the silver stunner had covered less than a thousand miles each year. "The guy must have just stood around looking at the car!" he laughs. It transpired the seller occupied a house with a heated underground garage, in which he stored a small collection of Porsches. He wasn't in the habit of using them often. The Cabriolet had been driven sporadically during its first and second summers in France, but spent most of its time thereafter laid up in air-conditioned bliss, alongside a selection of other classic Porsches. When the owner decided to downsize his collection because of impinging old age, the muscular 993 Cabriolet found itself up for grabs.

Chronis did the deal, but before making the trip to the South of France, he'd been on tenterhooks. "The prospect of seeing the old logbook with my name on it, plus all the documentation from when I originally owned the car, was just unbelievable. I was stunned because I knew for certain it was my old 993, although it was carrying new private plates. I really didn't know what

to expect. I wondered if it had been smashed? Maybe repainted? Two decades is a long time. The finish of the body conversion I had done in Greece was near perfection. The car was mint, as though it had just rolled out of the factory. How would it look in the metal almost twenty years later?" Pleasant relief abound when Chronis finally saw the car and recognised in was in pretty much the same condition as when he'd sold it many years previous.

That said, not driven for perhaps seventeen or eighteen years, the car was in need of immediate recommissioning. Although thrilled at getting reunited with an old friend — with whom he'd had an intimate, if whirlwind, relationship — Chronis had some tasks to perform. "Back in 2002, the tyres I had fitted to the car were new. It was rolling on the same rubber in 2022. The treads were still virtually unworn, but they were all cracked. They needed to be replaced as a matter of urgency. I also had to install new fuel lines, a new fuel tank and a fresh fuel pump, primarily because the original fuel pump was seized through lack of use. And, of course, I had a full service carried out in France before driving the car back to the UK."

Reverting back to British registration might not have been that simple. The French registration process is labyrinthine and arcane, as my Côte d'Azur-domiciled daughter, Keri, found out recently, when transferring her Volkswagen from UK to French plates. "Contrôl Technique is insane," affirms Chronis, "but luckily, after the seller bought the car from me, he kept it on UK registration throughout the many years it spent France. I really don't know how he managed with the French MOT, the Contrôl Technique."

Naturally, Chronis is happy to have the car back home again. "I wanted to resume ownership because of all the memories I have with this 911, not to mention all the work involved in the wide-arch transformation." He has a fairly large collection of cars, including a Brumos RSR replica, which we featured on the cover of the September



2021 issue of *Classic Porsche*. Then there's the 'Walter Röhrl' 993 Turbo and two 930-generation 911 Turbos, one being a 1976 build, the other from 1977. "I've also got a 928 GTS, a 924 Carrera GT, a 944 Turbo S and a few other Porsches." It seems as though he has a classic Porsche for more or less any occasion. "I've always liked Porsche sports cars. Whenever I've had the opportunity

to buy an interesting Porsche at a good price, I've done so, especially if I'm in a position to keep it. The only exception is the 964 Turbo 3.6. They're very difficult to obtain because

# THERE'S ALSO THE POINT ABOUT ITS UNIQUENESS, BEING A 993 MODEL DERIVATIVE THE FACTORY NEVER MADE

the factory made only forty-two examples in right-hand drive. Three of them have passed through my hands. I sold one for around £40,000. It's worth nearer £240,000 today! This is the model I wish I'd kept above all others."

Chronis is eager "to wrap some flesh around the skeleton of the story," as he puts it. "I transformed a standard 993 Cabriolet into something more extravagant, then sold it in a moment of madness. The fact it has come back to me is amazing. This is a very unstressed 993, having covered only 40,000 miles. It features a VarioCam engine and, as far as the cosmetics and mechanicals are concerned, is in as-new condition." There's also the point about its uniqueness, being a 993 model derivative the factory never made — as a volume production car, at any rate.

Chronis is a professional money man, dealing in property and classic cars, with a keen focus on Porsche products. He first became interested in the marque at the age of fourteen. "I've always liked Porsches. When I was nineteen, I moved to the UK to start university. From my savings, I decided to buy a 944 Turbo. I was always keener on left-hand drive cars, so by the time I was pushing twenty, I went over to Germany and picked up a really nice late-spec 944 Turbo, stuck it on German

export plates and drove it back to the UK. While I was in the process of getting the car registered in the UK, I discovered British insurance companies wanted to charge me a premium as much as the car was worth. I had little choice but to sell it. In fact, I took out an ad in the May 1998 issue of 911 & Porsche World magazine."

Thankfully, he managed to make three grand profit.

The fact the pound was worth a lot more than the euro certainly helped. And so, the seed was sown for further motor trading. Every six months or so, Chronis returned

to Germany, bought a car which he ran legitimately for six months on temporary insurance and German export plates, sold it and repeated the process. "From that point onward, I've never looked back. My regular line of work was in the private banking sector, but as a hobby, I was sourcing cars for colleagues. After the 993 wide-body project, I decided to quit banking and have since been trading in property and classic cars."

Based at Silsoe, Bedfordshire, he is located on the same trading estate as Porsche repair and maintenance outfit, Auto Umbau, though his is more of an ad-hoc operation. "I buy and sell cars for people I know," he admits. "I don't really have a showroom, though I do have premises where I store cars. I don't operate normal office hours. I simply act as an agent, finding cars for people or selling on their behalf. To my mind, it's not so much a full-time job as a hobby."

His has been an interesting journey, certainly for the unsuspecting 993 Cabriolet, which found itself one minute looking like a sleek, trim drop-top, the next, a somewhat broad-shouldered macho poseur on the Grand Corniche. If cars could talk! Mind you, this one would be multilingual, having had time enough to learn Austrian, Greek, English and French. **CP** 

**Above** Have you ever bought a Porsche you owned previously? Drop us a line — we'd love to hear your story

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# **TOUCH OF CLASS**

Following the end of the second World War, Porsche designed a Grand Prix car for Turin-based brand, Cisitalia. Lesser known is the work Porsche conducted designing a sports car for the Italian concern. The resulting Type 370 had the potential to cause a mega-stir among denizens of the two-litre class...

Words Karl Ludvigsen Photography Porsche Corporate Archives, Ludvigsen Partners

ndustrialist and passionate car enthusiast, Piero Dusio, was destined to illuminate Italy's gloomy post-war years with the brilliance of a comet's tail. Born in the state of Piedmont in 1899, he gravitated to its capital, Turin. Becoming Italy's first maker of oilcloth (a close-woven cotton duck or linen with a coating of boiled linseed oil to make it waterproof) at the age of twenty-seven, he expanded his operations to produce other fabrics, of which he was the main supplier to the Italian army. Wealth earned allowed him to enjoy his love of motorsport.

Starting with a Maserati in 1929, Dusio established Scuderia Torino in 1938 and equipped the team with four 1.5-litre 'voiturettes' from Trident. That same year, he participated in

the Mille Miglia
with an Alfa
Romeo, placing
an excellent third
overall behind
Alfa's works cars.
He also raced
a Siata before

# DIFFERENT DEMANDS OF THE TWO CARS WOULD MEAN DIFFERENT APPROACHES WERE REQUIRED FROM PORSCHE

outbreak of the second World War. In 1943, gaining a jump start on rivals, Dusio established a mechanical engineering company, which two years later became Cisitalia Automobili. Translated into English, Cisitalia means 'this side of Italy'. Effectively, he was referring to all of Italy.

Dusio made a fortune during the war by producing boots for the army. With Cisitalia occupying an imposing office block and workshop at number 251 on Turin's Corso Peschiera, he was a charismatic figure in Piedmont's industrial centre and the moving spirit of its proud Juventus soccer team. As early as October 1944, he began thinking of building his own race cars, confiding his plans to close colleagues.

When the war was over, he started with small singleseaters for private owners. In this, he was assisted by Fiat man, Dante Giacosa, and later by automobile designer, Giovanni Savonuzzi, who brought the Fiat-based D24 to race-readiness. Some forty of the little spaceframed cars were made.

From an initial concept by Giacosa, Savonuzzi evolved a two-seater version of the single-seater by widening its space frame. To get maximum performance from the Cisitalia Type 202's 1.1-litre Fiat engine, he perfected a super-streamlined coupe body in the wind tunnel of the Turin Polytechnic. In its realisation by coachbuilder, Alfredo Vignale, its stabilizing tail fins were a prominent feature. Tests on the Autostrada found the car capable of 125mph from only sixty-one horsepower.

For a road-going version of the racing Type 202, Pinin Farina was engaged to adapt Savonuzzi's concept. His marching orders from Dusio were to create "a car wide like my Buick, low like a Grand Prix car, comfortable like a Rolls-Royce and light like our single-seater." Farina did so with consummate style, creating an iconic coupe, which made its first appearance in Milan during September 1947, followed by a concours event at Lake Como's Villa d'Este as short while later.

Breaking new ground with its low hood and oval grille, the production Cisitalia 202 was justly hailed as an immaculate landmark design. Dusio made plans to produce five

hundred such cars in coupe and convertible styles. They were to sell for some \$5,000 domestically and up to \$7,000 in export markets. This was a time when the most expensive Cadillac cost around \$5,000.

With the launch of its Farina-designed coupe and hot on the heels of racing successes, Cisitalia was one of the brightest stars of post-war Italy. Its Corso Peschiera plant was humming with a staff of 350 employees working on the construction of road cars and race cars, but this wasn't enough to fulfil Dusio's automotive ambitions. From the outset, he'd dreamed of building and competing with a proper Grand Prix Formula One machine. By 1946, he was eager to tackle the highest pinnacle motorsport had to offer.

A fortuitous series of links forged a chain connecting Dusio to the Porsche engineers lodged in Gmünd. The first link was a letter from Carlo Abarth to Ferry Porsche's sister, Louise. Once he had established contact, regular correspondence developed between Abarth and the Porsche family. Drawn into the correspondence was Rudolf Hruska, an Austrian engineer living near Merano.

A clever and ambitious man, Hruska was well known to the Porsche clan. Born and educated in Vienna, he had gone to work for a German truck firm in 1937. There, he'd

Facing page Leading characters in the drama that was Cisitalia were (from the left) Piero Dusio, his son, Carlo, and Giovanni Savonuzzi, who brilliantly enlivened Italian motorsport in the 1940s



been recruited for the growing Porsche design office by its chief designer, Karl Rabe. From 1939 through 1941, Hruska had served as a coordinator of the Volkswagen project, providing liaison between the Porsche engineering staff in Stuttgart and Volkswagen production staff in Fallersleben.

#### **WHEELS IN MOTION**

Free to move at a time Porsche staff were quarantined in Austria, Hruska and Abarth played an important role in arranging projects between Dusio and Porsche. The final contract with Cisitalia, dated 2nd February 1947, included its funding of the design of two Gmünd pet projects: a small tractor (Type 323) and one of Josef Mickl's jewel-like water turbines (Type 285). The main projects, however, were a Formula One Grand Prix car (Type 360) and a sports car (Type 370). Dusio's dream of a Cisitalia F1 car meant this project would be emphasised, though the proposed sports car also made considerable progress, as we are about to discover.

Different demands of the two cars would mean different approaches were required from Porsche. While the Type 360 had a new design of parallel-link rear suspension, the Type 370 didn't exploit such novel rear geometry. Instead, it was given conventional rear swing axles with transverse torsion bars, akin to the Beetle's design. Typical Porsche suspension with trailing arms 6.3 inches long appeared at the front.

Nor did the Type 370 take advantage of Cisitalia's established use of tubular space frames, as the Type 360 did. To avoid the need for costly press-tooling, a ladder-type tubular frame was specified with side members 120mm (4.7 inches) in diameter. To these, a steel

platform would be welded to add stiffness. Bodywork of either steel or aluminium was to be used.

In accord with Dusio, the Type 370 was laid out in three versions to suit different customer bases in the marketplace. Working at the Cisitalia offices in Turin, Porsche designer, Erwin Komenda, prepared initial layouts for two types of passenger car in the latter half of June 1947. Two models, a three- and a five-seater, would be mainstream passenger cars with engines overhung behind the rear wheels. The sports-racing two-seater version, referred to as the 'Mille Miglia' car, was mid-engined.

The two-seat version shared a 94.5-inch wheelbase with the three-seater, while the more capacious Type

**Above** Cisitalia occupied majestic premises on Corso Peschiera in Turin

Below Cisitalia employed the basic shape established by Savonuzzi in this Nuvolari roadster version of the 202, so named after the great Tazio Giorgio Nuvolari drove a sister car to second place in the 1947 Mille Midlia



100 April 2023



Above In profile, the Pinin Farina-designed Cisitalia 202 coupe showed its immaculate lines, which hid a tubular structure, with tubes passing above the doors and down the A-pillars to eliminate the need for truss structures along the sides

Below 1947 Cisitalia Type 360 Grand Prix car (front) and 1950 Volkswagen Beetle (behind) on display at the Porsche Museum

370 was stretched to 114.2 inches. Track of the 'civilian' editions was 57.1 inches against a narrower 51.2 for the sports-racer (to reduce its frontal area). Disc wheels with

knock-off hubs were specified for the competition car, with conventional fixings for the road models.

Dusio's Type 370 was driven by a variety of engines in

end, the crank drove a lower half-speed gear, which turned the oil pumps, as well as bevel gears to the shafts

FROM THE 1,976CC ENGINE

each of which took WITH FOUR DOWNDRAFT CARBURETTORS, PORSCHE FORECAST 120BHP AT 6,000RPM

the drive from both camshafts. Initially. a pair of shafts with bevel gears was proposed, but this was replaced by two twin-belt drives late

the blower drive.

in 1947. In traditional Porsche fashion, the generator was concentric with the fan's rotor.

driving the twin-overhead camshafts on each bank.

An axial-flow cooling blower was specified, as was a

large internal oil cooler. Two schemes were prepared for

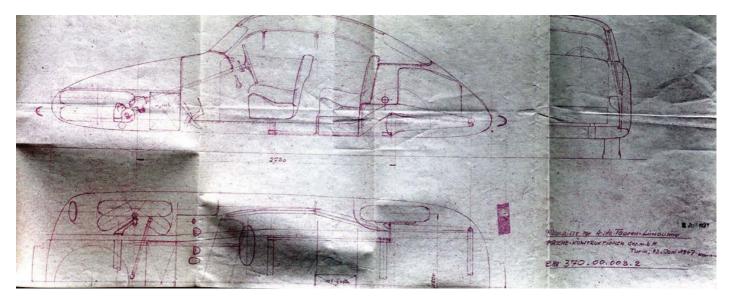
The final choice, design-detailed in full, was a horizontally opposed boxer-eight, complete with five main bearings and a combination of gear and chain drive to its twin overhead camshafts. As in the V8, finger followers opened the valves. With equal bore and stroke of 68mm and 7.0:1 compression ratio to suit petrol fuel, the street version of the V8 (with restricted carburetion) would deliver 100bhp at 5,000rpm.

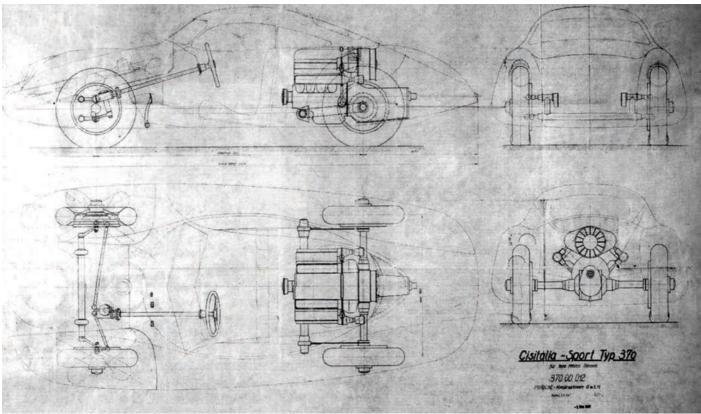
With four downdraft carburettors, Porsche forecast 120bhp at 6,000rpm from the 1,976cc engine. This was not an ambitious goal for the time. Maserati's sportsracing six of 1947, for example, developed 130bhp at 6,000rpm, thanks to its very high compression ratio of 11.0:1, possible because the engine burned methanolbased racing fuel, which was widely used at the time. Running on gasoline, Ferrari's 166 SC V12 was rated at 130bhp at 7,000 rpm, with a compression ratio of 8.0:1. We can be confident the V8 would have been developed to higher output.

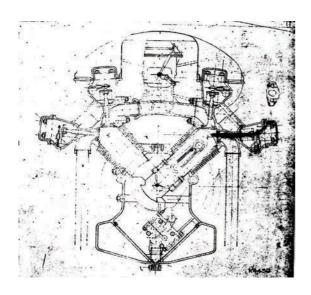
Equipped with Leopold Schmid's new split-ring synchromesh (invented specifically for the Cisitalia projects), the Type 370's five-speed transaxle had a set of step-down gears at its input. The objective of this, said Rabe, was "to lower the centreline of the crankshaft to only some ten millimetres above the centreline of the rear

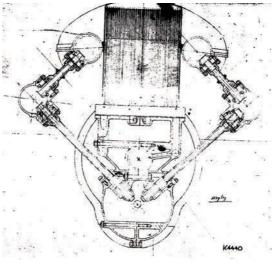
## the several studies produced by Porsche. All were air-cooled two-litre units. The initial design showed a ninety-degree V8. Highly unusual for such an engine was a proposal to split its crankcase vertically, holding it together around the main bearings by upper and lower cross-bolting and closing the case with rows of bolts top and bottom. At its clutch





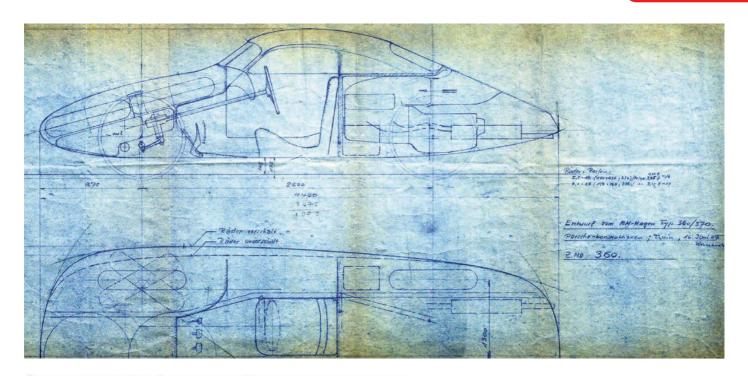


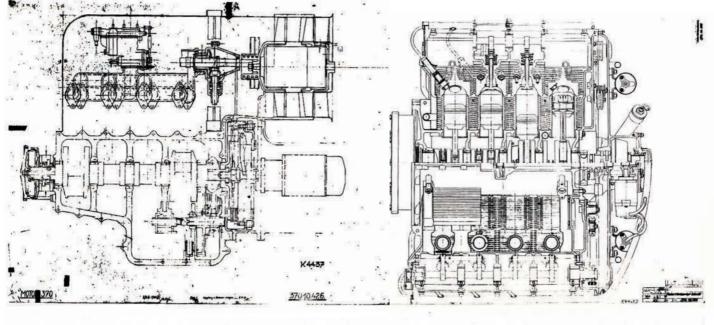


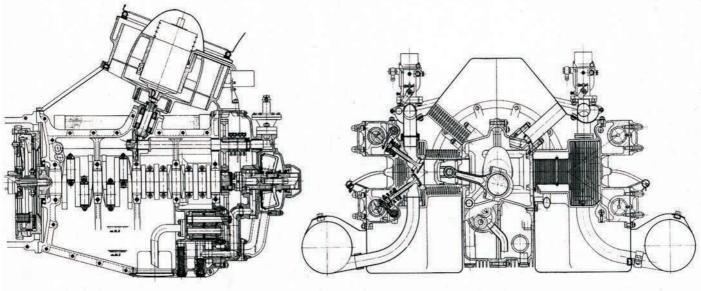


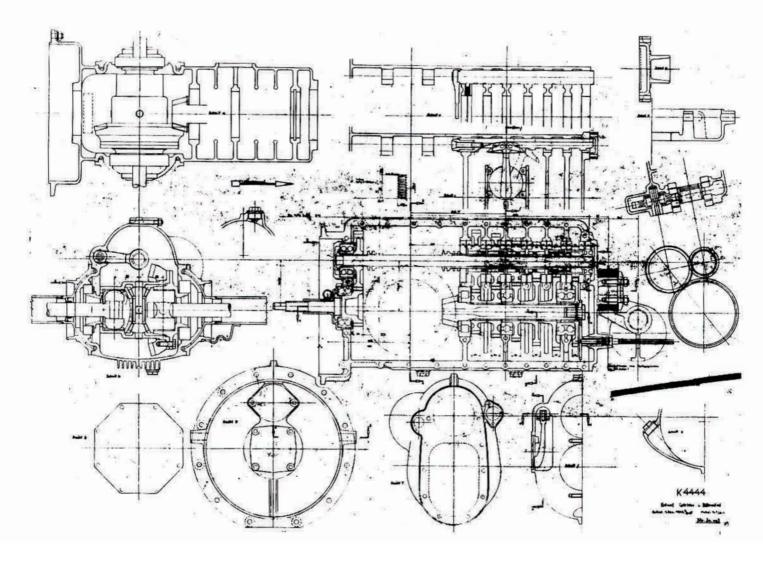
Above Working at Cisitalia in Turin on 23 June 1947, Erwin Komenda propounded this layout for a five-passenger Type 370 that would have its air-cooled engine positioned behind the rear wheels

Left and facing page
The air-cooled V8 engine
proposed for the Type
370 broke new ground
in having its crankcase
divided vertically, around its
crankshaft, instead
of horizontally









axle. Hitherto, this had been some 110mm. The engine's new lower positioning requires dry sump lubrication with two oil pumps and an oil reservoir offset to one side."

The step-down gears provided speed reduction of 1.6:1, while ratios of 3.22:1 and 3.57:1 were specified for the spiral ring and pinion. The selector shaft for the gearbox was

to be operated hydraulically by a lever at the steering column, needing only a push up or down to go from one ratio to the next. The clutch too

# THE AIM OF PLACING AT LEAST FORTY PERCENT OF THE CAR'S WEIGHT ON THE FRONT WHEELS AT ALL TIMES

was hydraulically actuated. Three rubber mounts would carry the engine and transaxle.

For the Type 370 two-seater, Gmünd engineers forecast a drag coefficient of 0.25, very low for a practical road car. This was to be achieved with a coupe body which enclosed all four wheels in the manner of the Volkswagen Type 60K10 (commonly referred to as the Porsche Type 64 and developed for the cancelled Berlin-Rome road race scheduled to take place in September 1939), similarly having wider bodywork at the front to accommodate the steered wheels. The greenhouse was narrow — though not to the extreme of the 60K10 — above quarters which rose at the rear

to form stabilising fins that hewing to the heritage of Savonuzzi's Cisitalia designs. Two spare wheels were carried in the nose, which (just like that of the 60K10) had a small grille behind, from where the horns sounded. Here was a project advancing the thinking of the Porsche team in general — and Erwin Komenda in particular —

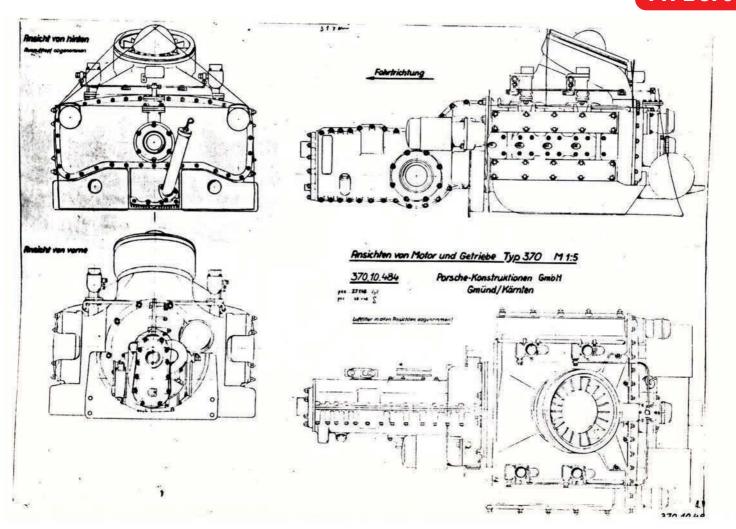
on the subject of high-performance sports cars. The racing Type 370 was a more muscular and purposeful interpretation of the concept responsible for shaping the

60K10. The Type 370 retained the Volkswagen's skirted wheels, which were confirmed by wind-tunnel testing as offering the ultimate in low form drag, albeit at the expense of the larger frontal area needed to accommodate turning front wheels. The net effect was found to be beneficial.

Both versions of the Type 370 were specifically laid out by Komenda and Rabe with the aim of placing at least forty percent of the car's weight on the front wheels at all times, thereby promoting confidence the steering and braking would always be effective. This was in keeping with the principles on which Ferdinand Porsche insisted in his rear-engined designs. Needless to say, he took Previous page Erwin Komenda's drawing of a sports racing Type 370, complete with covered wheels, suggested the use of an in-board engine

Above At the input to the transaxle (designed by Porsche for the Type 370) was a pair of gears to lower the engine's position — gear selection was sequential, using the same system of synchronization invented for the Type 360 Grand Prix car

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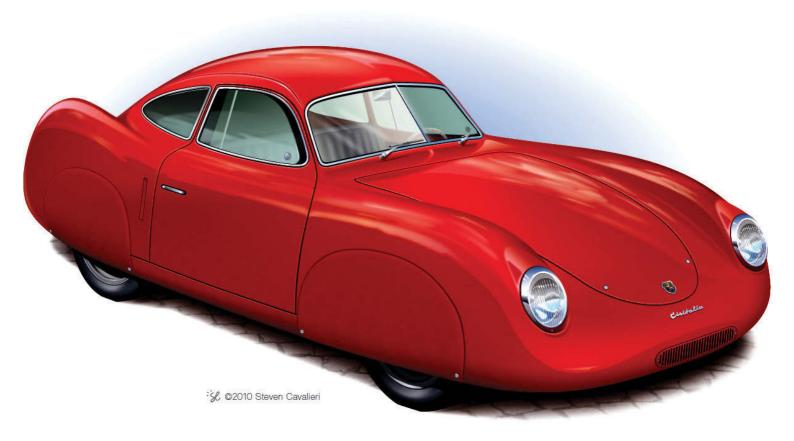




**Top** Porsche's Wolfgang Eyb depicted the complete power package for the Type 370 Cisitalia in his drawing of 27th January 1948 — its transverse muffler was positioned for the five-passenger version

Above and right Italy's Graphicar created these convincing images of the completed Type 370 'Mille Miglia' Cisitalia, which would have substantially advanced sports cars in the late 1940s





close interest in the details of the Type 370. In the event, it was a near thing, with the road cars having a forecast sixty-one percent on the rear (with driver and some fuel aboard), while in the same condition, the 'Mille Miglia' model had fifty-four percent of its weight rearward. Working as they were for a client whose existing cars were water-cooled, as was the Cisitalia Grand Prix car they had designed,

Porsche engineers might have been thought likely to use the same method for the Type 370. Had the brief been for the mid-engined Mille

# HAD CISITALIA ASKED FOR FRONT-MOUNTED ENGINES, THE CHOICE WOULD INEVITABLY HAVE BEEN LIQUID COOLING

Miglia model alone, liquid cooling would have been the probable choice — it had been in their own precedent, the design of the 1,493cc V10-propelled Type 114, though this car didn't make it to the prototype stage.

**BRAVE THE ELEMENTS** 

Their decision to plump for air cooling was almost certainly driven by their desire to combine the use of rear-mounted engines — overhung at the rear in the passenger versions — with self-imposed constraint on rear-wheel loading. Inherently lighter, the air-cooled eights were equally suited to either position. Had Cisitalia asked for front-mounted engines, the choice would inevitably have been liquid cooling.

On the final layout of the various Type 370s, discussions went back and forth between Gmünd and Turin into late 1947. Meanwhile, Cisitalia's home-grown sports-racing cars were doing well enough, as shown by their performance in the Mille Miglia of June 1947, in which Tazio Nuvolari finished second in spite of

a twenty-minute delay for ignition repairs. The Pinin Farina-bodied Type 202 coupe, which would cause such a sensation in the autumn, was also being readied in Turin. For the further evolution of these models, Giovanni Savonuzzi was working on an advanced

1.5-litre sixteen-valve four during 1947.

The upshot was that Rudolf Hruska reported to the

Porsche team in Gmünd that Cisitalia didn't want to proceed with the racing version of the Type 370. Emphasis was now to be on the passenger-car variant, as Hruska

confirmed at a meeting with the Ferry and Ferdinand Porsche on 18th November 1947.

Worked out near the end of the year were coachwork plans to provide "raw principal bodywork designs", together with a chassis layout as a pattern for the coachbuilders. The aim was to have Komenda carry the designs to Cisitalia in Turin no later than 10th January 1948. These would serve as a guide for Pinin Farina's team, which would build the bodies. Regrettably, the Type 370 remained only a design in all of its versions, for already in 1947, it was evident work on the Grand Prix car was overstraining Cisitalia's resources. Nevertheless, design work on the passenger-car version of the Type 370 continued well into 1948 before it was definitively ended by the Italian company's collapse.

Drawings, a scale model and renderings (see on previous spreads) showed the 'Mille Miglia' version of the Type 370 would have been a serious shock to the rest of the two-litre class of racing sports cars. We can only imagine what could have been. **CP** 

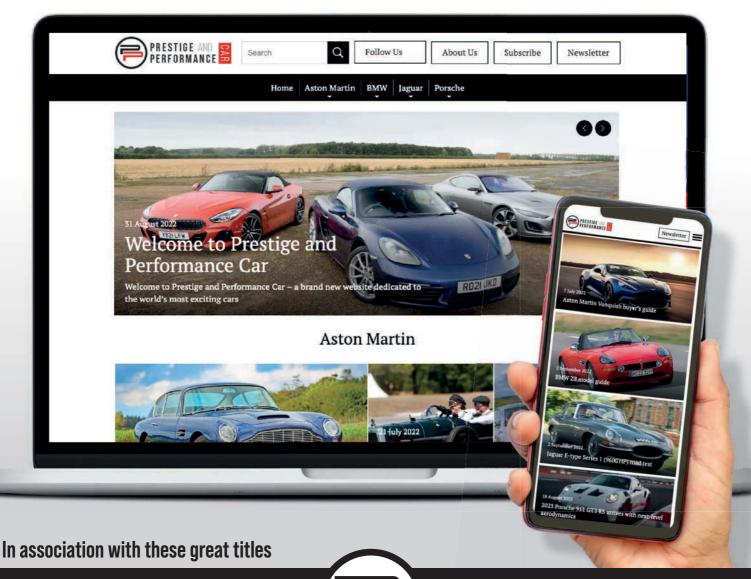
Above Steven Cavalieri's depiction of the Type 370 Cisitalia Mille Miglia coupe not only gives us an accurate idea of what it would have looked like in the metal, but also demonstrates how the Type 370 was an important step in the evolution of Porsche's thinking about sports car design

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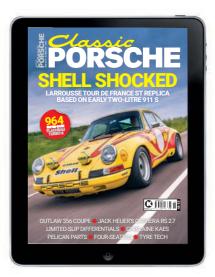
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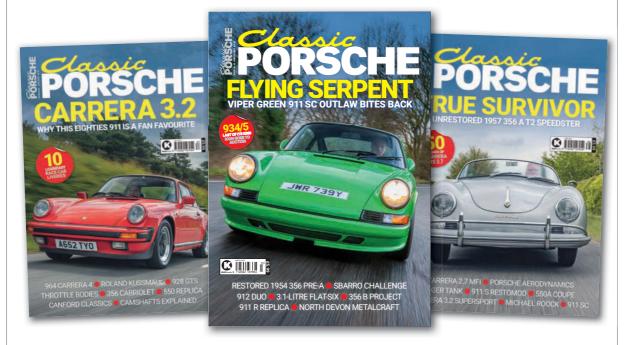
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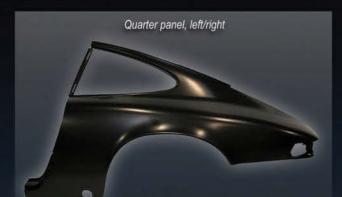






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