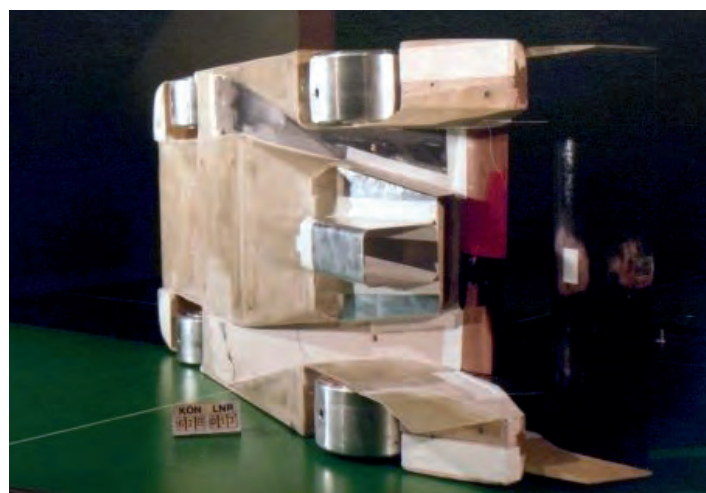
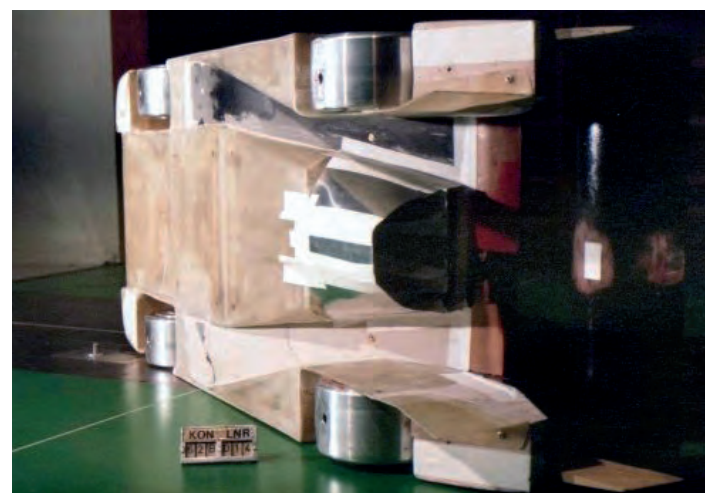


THE BEST FOR BOTH WORLDS



■ Singer ran a number of tests to see if he could find a better and more effective shape of the gearbox cowl by remodelling the underfloor. In test 62B-013 he had swapped the more ergonomic shape of the cowl as used on the 956s for a rectangular version with a deep bottom plate sitting level with the horizontal reference plate. It did little to influence the overall aerodynamic figures — positively or negatively — when compared to the 62B base model used earlier.

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■ For the next test the gearbox cowl was widened and featured rounded sides nearest the venturi, but contrary to what one would think this had almost no effect whatsoever, except for the aero balance moving slightly more to the rear.

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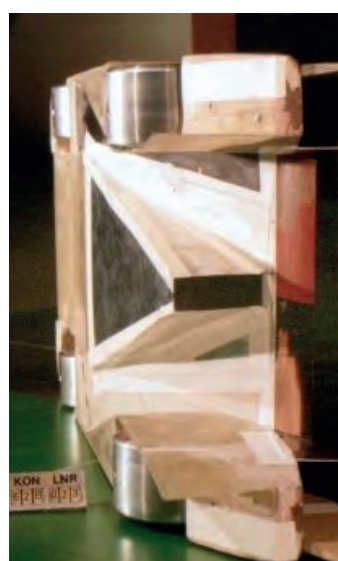
■ Trying to define a more productive underfloor, Singer took the engine and gearbox cowl out of the equation to set a new downforce baseline to start from. With just a giant diffuser under the car, the downforce produced dropped by some 35% since not enough air could be fed into the diffuser and the airflow thus got disturbed.

Unternehmensarchiv Porsche AG



■ Over the next ten tests Singer installed a box-shaped central cowl and progressively narrowed the width of it. Despite the volume of the venturi increasing the difference in downforce and drag numbers for each test was nominal.

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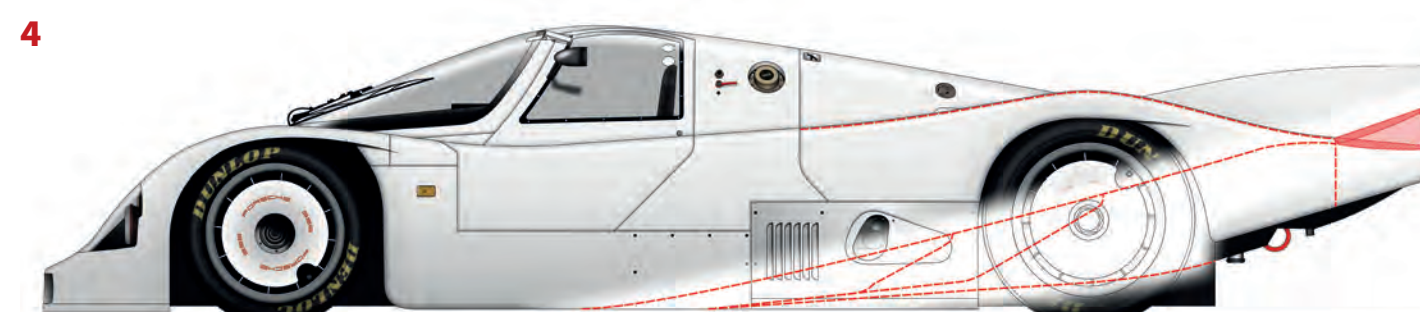
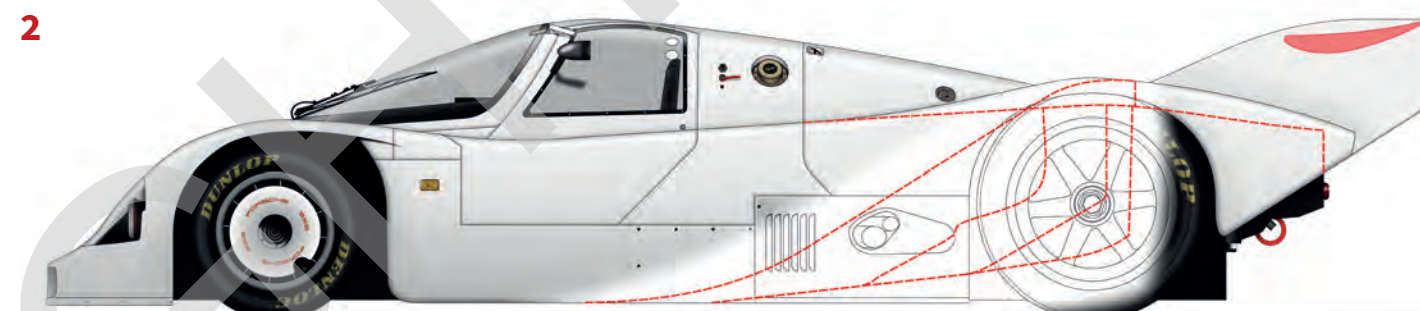
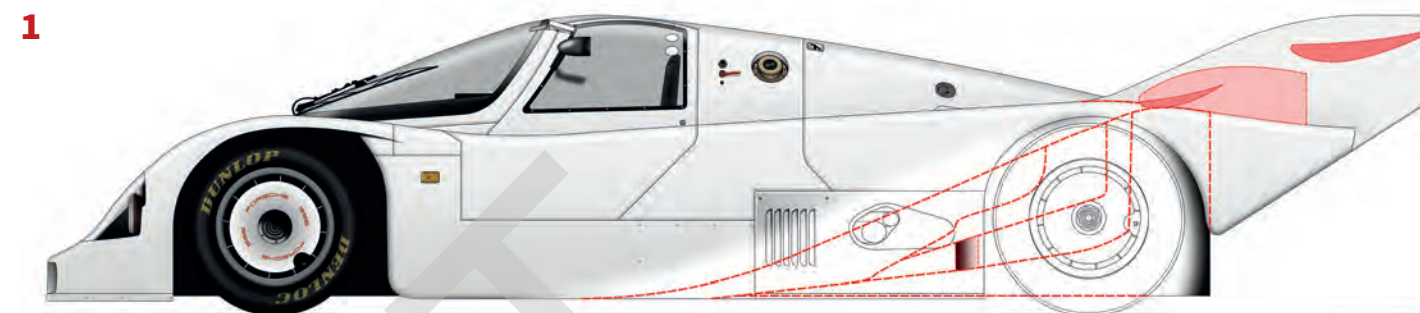
■ Singer tried to create the most effective venturi in which the airflow could be controlled, measured and steered the easiest and found this form, variation 62B-023, to generate the most downforce and have best L/D ratio of all models tested over the two days in the FKFS wind tunnel.

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in combination with moving the rear wing forward horizontally between the endplates by as much as 50mm, but with little significant changes in the numbers.

For the next tests in the 62B-series, Singer worked on various shapes and forms of the venturi in order to give the gearbox cowl the most aerodynamically productive shape possible and to establish the optimum venturi volume. On the 956, the cowl had followed the contours of the gearbox as tightly as was practically possible in order to minimise the negative effect of the obstruction on the performance of the venturi, but now Singer was keen to learn whether a simpler and more geometric shape could have a positive effect on the downforce generated.

Initially he tried the model without a gearbox in place but with an aluminium 'block-off' panel (model 62B-011), which slightly increased downforce for equal drag when compared with the base model 62B-009. In test 62B-012, a lowered ceiling



1 Wind-tunnel test 62A-037 showed a concept Norbert Singer had already tried a few years earlier on the Porsche 956. The engine deck was dramatically shortened, with a secondary wing installed between small endplates on the trailing edge of the deck. The ceiling of the venturi extended to the leading edge of the secondary wing, the latter thus helping to extract the air from underneath the car. Hot air from the engine was extracted through two rectangular slots cut either side in the gearbox cowl.

2 To make the venturi as wide as possible, Norbert Singer also looked at running 21in-diameter rear wheels, which could be 1in narrower than the standard wheels and still achieve the same footprint. In test 62CD-19, the venturi were dramatically angled upward, exiting in vents sitting above the engine deck and reaching as high as the top of the wheel arches. The engine deck in itself was shortened to the edge of

the venturi vents, except for the centre section covering the gearbox shroud.

3 For the 1987 Le Mans 24 Hours, Walter Näher suggested adopting 19in-diameter rear wheels, as used on the high-downforce cars in other races, but this required extensive reworking of suspension geometry, tail section and undertray among other things. There also was not enough time to make these changes, for what was suddenly decided to be the works team's last race. In March 1988, this set-up was tested at Paul Ricard in preparation of Le Mans, but not pursued, most likely for the same reasons.

4 At some point in his many wind-tunnel trials, Norbert Singer also tried a low-downforce Le Mans tail without a rear wing. Instead the trailing edge of the engine deck acted as an adjustable flap and could be set at a certain angle.

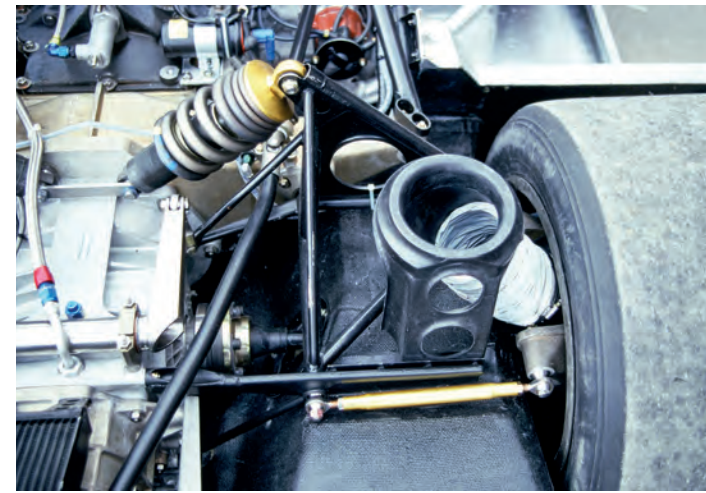
Guy Golsteyn

THE BEST FOR BOTH WORLDS



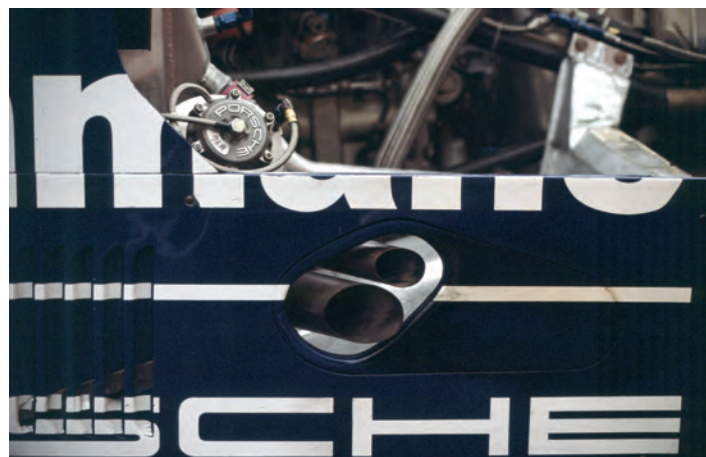
■ This is again 962 004, painted by the Stahl company but not yet stickered with Rothmans and Porsche branding. The clean appearance of the exhaust indicates the engine had probably never been fired up since being installed in the car. On the right can be seen the trailing edge of the rather short venturi. Customer cars usually equipped their cars with longer venturi with prominent fences on the sides.

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■ Detailed view of the right-hand rear suspension, Bilstein shock absorber and Schmitthelm coil, and titanium roll bar.

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■ Left side exhausts with the turbo wastegate just visible over the top edge of the aluminium body panel.

Peter Hoffmann



■ A look inside the right-hand sidepod, with the aluminium body panel covered in heat-repelling foil. Since the body panels, which were often removed when working on the cars, looked like one another without actually being identical, the chassis number was painted or stencilled on the inside. This is chassis 962 003, though the lettering underneath the chassis number seems to indicate the exhaust body panel served another car before being put on this one.

Peter Hoffmann

was clear: by running taller wheels and tyres, the width could be reduced while still maintaining the same footprint and mechanical grip, thus allowing for wider venturi. The width of the 'flat' engine had always put Porsche at a disadvantage *vis-à-vis* other manufacturers when optimising underfloor downforce, and any additional centimetre the venturi could gain in width was very welcome. For now, though, Singer concentrated on the top of the car by increasing the height of the wheel arches by 30mm. This dropped both downforce and drag to 1,877.61kgf and 446.26kgf respectively but did improve the L/D ratio to 4.207:1. Reducing the height of the venturi ceiling by 8mm further reduced downforce while some of it was retrieved by removing the 30mm wheel-arch extensions.

Singer then embarked on further fine-tuning of the model by shortening the venturi, playing with the venturi ceiling height, and experimenting with different sizes and shapes of

Gurney flaps, looking to optimise these details from variation CD-016 onwards. By now the length of the model's venturi had been shortened by some 150mm and the ceiling height had been increased by 45mm, while the 30mm vertical wheel-arch extensions were added again to mimic the aero effect should the car ever run on 21in-diameter rear wheels. Downforce was clocked at 2,056.63kgf for 458.92kgf of drag, netting an L/D ratio of 4.481:1 and a front aero of 42.06%. By CD-019, this figure changed to 32.62% as a result of lowering the venturi ceiling by 35mm and smoothing the higher wheel arches sideways into the tail section. When Singer finally got to using 4mm narrower wheels in combination with widened venturi — the purpose of the 21in-diameter wheels — for CD-026, the results were not exceptionally interesting, with 2,024.62kgf downforce and 488.61kgf drag for an L/D ratio of 4.144 and a 35.76% front aero. In the real world, however, the 21in rear



wheels would never be used or even tested, and quite likely neither Speedline nor BBS were ever asked to produce them, or Dunlop the appropriate tyres.

At the end of the second day of this session, Singer tried an innovative and imaginative new test procedure for the first time. For tests CD-033 through CD-035, he wanted to determine the effect of another car close to his subject car, by using the 1/5th-scale model of the low-downforce 956 along with variation CD-032, which featured the reshaped tall wheel arches but not the narrower wheels or wider venturi. In this form, CD-032 generated 1,936.31kgf downforce for 486.30kgf drag with a 38.38% front aero. With the 956 model placed 300mm behind CD-032 (1.5 metres behind in real life), the disturbed airflow going over the 962C model as a result of the second car sitting in its slipstream reduced overall downforce by 16%, mainly by losing well over 20% of downforce on the rear axle, which in turn moved the aero balance significantly forward to 42.47%.

With the 956 model placed 200mm in front of CD-032, overall downforce for the 962C dropped to 1,202.79kgf, a loss of almost 38% with the front axle alone losing over 59%. These additional tests did not, of course, influence the further design and development of the 962C, but they provided good evidence to show how perilous it could be to follow another car very closely at a speed 320kph (198.8mph) when approaching it to overtake, because at some point the car in front would 'take the air away'. A decade and a half later, this very issue was proved in a most visible way, when during the 1999 Le Mans 24 Hours the aerodynamically poorly balanced Mercedes CLR came too close in the slipstream of the Toyota GT-One it was following down a straight, lost all its front aero and took off like an aeroplane.

It is not clear how many further wind tunnel tests were conducted during the years Porsche ran the works Rothmans 962Cs, but it is interesting to note that — as with the 956 earlier — none of the special venturi, delta-shaped rear wings, 21in wheels or wingless longtails ever made it to the track. Instead, until the end of 1988, the 962C would always remain what it actually had been from day one: a 956 with a 12cm-longer wheelbase. Unfortunately for the competition it would also be just as successful and reliable as the 956.

■ The arrival of the new Motronic MP1.7-equipped Typ 935/83 engine required a substantially different layout for the radiators, turbochargers and exhausts. Combined with the revised regulations concerning the venturi, the bodywork of the earlier 'longtail' works 962C (1) evolved considerably for the 1988-specification model (2).

Guy Golsteyn

Endnotes

- 1 Initially the engine was given Typ number 930/84.
- 2 All 962s and 962Cs would be delivered with the 120-litre IMSA-specification fuel tank, Group C teams just having to reduce the capacity by inserting plastic balls.
- 3 Ludvigsen: *Excellence*, Volume 2, pp. 910–912.
- 4 Barth and Büsing: *Porsche Typen, Band 3*, pp. 334–335.
- 5 Document kept in Unternehmensarchiv Porsche AG. It is interesting to note that at that time the car was not yet called a 962.
- 6 Quite a few publications mention that in January 1984, 962 001 was tested at Paul Ricard simultaneously with the PDK-equipped 956 and the first version of the 962C, all cars being driven by Ickx, Bell, Mass and Stuck. This, of course, is quite impossible, since Stuck only joined the factory team the following year, while the first 962C was not built until January 1985.
- 7 While the official company line was that Holbert had bought 962 103, the car was actually loaned to him by Porsche Motorsport in Germany. Only some months after his death in a plane crash in September 1988 was the car actually sold to the Holbert estate.
- 8 Ingram: *On Track*, 12 March 1984, *Omens From Above*, p. 22.
- 9 All measurements given for the wind tunnel tests refer to the 1/5th-scale model.
- 10 On the 956 LMB00 model, the rear wing measured 360mm in width and the trailing edge sat at 167mm instead of 166mm.
- 11 See also *Ultimate Works Porsche 956 – The Definitive History*, pp. 374–375.
- 12 Neither on the Porsche 956 nor on the 962 or 962C did the Porsche works team ever run louvres in the front fenders although they were frequently tried throughout the wind-tunnel development of both models. Only in 1989, when Reinhold Joest ran the development 962Cs with support from Porsche, did front fender louvres make their first appearance. By 1990, when Joest Racing became the *de facto* Porsche works team, they were gone again.

Chapter 5

A WINDY DAY IN THE PARK

Monza 1,000Kms
28 April 1985

'Neither the factory Porsche team, nor any other, would have caught us.'

MANFRED KREMER

Two weeks after Mugello, Lancia would get another chance to shine in front of the partisan tifosi and finally beat the old nemesis, Porsche. While a lot of teams had snubbed the opening round of this year's WEC, most of them were now present in the national park of Monza. This fixture had been the traditional season opener since the beginning of Group C and it was almost as if the teams had wanted to make a point by not showing up at Mugello.

For Richard Lloyd Racing, however, it had been a matter of sponsorship. Canon's marketing-driven budget paid for only one race in Italy, and priority was given to the much higher-profile event near Milan. It was the first outing for the Nigel Stroud-designed, aluminium honeycomb 956 106B on Goodyear tyres and, if pre-season testing was anything to go by, this could be a very competitive package. Over the winter, Stroud had further refined the car, which was now equipped with a carbonfibre undertray, helping to offset the weight increase of the home-made monocoque; the scales now showed 870kg instead of 885kg in Australia at the end of 1984. Aerodynamic revisions included a bigger, full-width subframe supporting the nose, to eliminate bodywork deformation that had hampered the car the previous season when under full aerodynamic load. The front wing was redesigned and now sat on two centrally mounted supports instead of being held between the endplates. Cooling was improved by closing the side ducting ahead of the rear wheels, which also increased the aerodynamic efficiency in that area. The engine was still prepared by Porsche's customer service and still burned Mobil 1 fuel, but this year this was to be of the so-called 'rocket fuel' variety, brewed more or less to the same specifications as used in Formula 1 and intended to increase output while staying within the fuel-consumption parameters. At least on paper, Jan Lammers and Jonathan Palmer looked like the most serious opposition for the works teams.

John Fitzpatrick Racing's only technical novelty consisted of Yokohama tyres, a switch entirely dictated by financial constraints. The lack of a major sponsor had prevented JFR from doing any significant development on its 956s, and also meant the driver line-up consisted of five drivers who had never raced a 956 before. In 956 102, Manuel López was joined for this race



Lengthy fuel-consumption tests during the practice sessions, even directly comparing the high-downforce 'short-tail' 962C with the low-downforce 'longtail' 956-83 spare cars, led to the works team again holding the best cards for the race. The out-of-sync pitstop of the Marc Surer/Manfred Winkelhock 962C, seen here being passed by the 'MIX' works 962C going into the Parabolica, gave the Porsche Kremer Racing team an unfair advantage when the race was suddenly red-flagged. Jacky Ickx and Jochen Mass had to settle for third place.

Malcolm Bryan

Chapter 32

STUNNING BY DESIGN

The famous Shell/Dunlop livery

'A good livery has to be immediately recognizable, especially on television.'

ROBERT POWELL

Ever since the old national colours in motor racing became overtaken by the corporate colours of sponsors, Porsche's works racing cars have featured some iconic liveries that remain recognised half a century later. The Martini-sponsored 917 L 'hippie car' of 1970 can be considered the first 'art car' to run at Le Mans, after Porsche house stylist Anatole Lapine came up with a wild design that was sprayed on the car using dozens of cans of green and purple paint and rolls of masking tape. And just a year later at Le Mans, Lapine's 917/20 'Pink Pig' (officially known as the *Trüffel-Jäger von Zuffenhausen*) was marked to represent cuts of pork and became probably the most celebrated racing livery ever seen.

This was an era when many aspects of society explored new boundaries and limits. By the end of the decade, however, motorsport had been transformed by sponsorship, and corporate interests increasingly directed how the racing cars that carried their identity should look. This was when young British designer Robert Powell started work at Porsche in Stuttgart.

Powell's ambition right from childhood had been to become a car designer and from school he went to art college. 'Back then it wasn't easy to become a car designer and I really didn't know how to achieve it,' he remembers. 'One day I saw an advert for clay modellers at Chrysler in Ryton-on-Dunsmore [on the outskirts of Coventry] and was able to get a job there and learn this amazing craft.' For 18 months, he perfected his skills and learned from experienced designers at Chrysler. Keen to move on, and fast, he wrote to British Leyland and promptly got an interview, followed by sponsorship to study vehicle design at the Royal College of Art in London. Following graduation, he rejoined British Leyland and stayed there until 1979. Early that year he heard from a friend at Porsche that the company was looking for designers, so he applied — and was offered a job.

His first task at Porsche involved working on car interiors but soon a new opportunity came along. He was asked whether he could develop a livery for a Porsche racing car, one that was due to enter the 1979 Le Mans 24 Hours after a last-minute deal with Essex Petroleum, sponsor of the Lotus Formula 1 team. Run by the flamboyant David Thieme, F1's original multi-millionaire jetsetter, Essex was now going to sponsor a two-car works Porsches team at Le Mans. The only problem was that Porsche had not even planned to be at Le Mans that year, focusing instead on development of the new front-engined 924

for a future racing career. But then Thieme made Porsche CEO Ernst Fuhrmann an offer he could not refuse.

Essex's corporate colours were red and blue, so Powell's Porsche canvas would be best in white. His work was first seen at the Silverstone Six Hours, where Brian Redman and Jochen Mass drove a singleton 936/78 as a shakedown before Le Mans. As with Martini 917s, 935s and 936s of earlier years, the actual Essex branding was minimal, the sponsor's identity instead represented by large blue and red areas around the cockpit and the central part of the engine deck and airbox, separated from each other by an S-shaped tri-colour line. The two big NACA ducts feeding air to the radiators in the sidepods were painted the same dark blue as the cockpit.

The most interesting aspect of Powell's design, however, was shown only five weeks later at Le Mans, where two 936/78s carried the same colours, but with the red and blue areas switched around on the second car. This bit of 'outside-the-box' thinking would define Powell's liveries for future racing Porsches. 'It was the wish from the racing department to have a reversible design so that when a car entered the pits the mechanics knew who was coming,' says Powell. Car-to-pit radio communication was still in its infancy at that time and different cars from the same team were often colour-coded.

After the 'national' 924 Carrera GTs of 1980 and the Boss-sponsored 944 LM and Jules-liveried 936/81s of 1981 — all Le Mans one-offs — Porsche's next big racing programme was the rejuvenated World Endurance Championship for which it created the Porsche 956. Having lost long-time Martini & Rossi sponsorship at the end of 1978 simply because it was unable to offer a season-long programme, Porsche managed to sign a new sponsor for the Group C era and begin a relationship that would become even more successful than the one with Martini. After liqueur and aperitifs, it was now time for tobacco — and the new sponsor was Rothmans.¹

Once again Rob Powell would be heavily involved in making the 956 look good. Under the guidance of Ginger Ostle, head of the interior design studio at Porsche, Powell and his colleague Roland Sternmann worked closely with Jerry Bright at Rothmans to create a livery so trendsetting yet timeless it was used again as a celebratory livery decades later, in 2018, on the works Porsche 911 RSRs at Le Mans.

The dark blue, red, white and gold of a Rothmans cigarette pack was rather more stylish and certainly more subdued than



■ Robert Powell's Shell/Dunlop livery was the first to break away from the traditional sponsor-imposed symmetry seen on race cars since the 1960s. The technical partnership with Shell and Dunlop went back decades, but the sponsorship deal was new. In 2020–21 the Porsche Museum meticulously restored 962 009 to its 1987 splendour.

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END OF AN ERA



■ The new Typ 962/90 had a shortened rear overhang with a twin-element gearbox-mounted rear wing and an elongated nose section with a narrower, squared leading edge and narrower throat leading to the *Singer-Delle*. Although Speedline was one of Porsche's long-term technical partners, the car sat on BBS wheels for these media presentation shots. Michelin now replaced Goodyear as tyre supplier.

Unternehmensarchiv Porsche AG

car returned to factory duty, presented in plain white and in 1988 Supercup trim.

On the first day, Wollek set some baseline figures with both cars, using Goodyear tyres (for the first time on 962 009). Front tyres were of 24.5-12.5x17 size in a 222 compound fitted to 13x17in BBS rims, with rear tyres of 27.5-14.4x17 in a 430 compound on 14.25x17 Speedline wheels. Wollek found that 962 009 understeered less, the reason being that the front-mounted oil coolers of Joest's 962 145 added 1% to its front-end weight. The gearbox-mounted rear wing of 962 145 seemed to have no influence on the understeer. Wollek did note, however, that 962 145 had better traction through the track's twistier sections, but the 'sprint nature' of its aerodynamics — elongated nose section, short rear overhang and detached rear wing — showed on the straight, where 962 009 revved at 8,130rpm compared with 7,950rpm for the 962/88. This translated into a slightly better lap time for 962 145, 1m 28.78s compared with 1m 29.14s for 962 009, but with much higher fuel consumption of 1.39L/lap or 42.121L/100km (6.706mpg) against 1.27L/lap or 38.484L/100km (7.340mpg). The 962/88 was thus 0.41% faster but used 8.63% more fuel.

On the third day, Stuck tried chassis 962 009 with two different front tyre sizes in a 240 compound, each time with 27.5-14.25x17 rear tyres in a 430 compound on Speedlines. The first size, 24.5-12.5x17, yielded an average lap time of 1m 9.74s and average fuel consumption of 1.748L/lap or 52.969L/100km (5.334mpg). The second size, 24.5-13x17, gave an average lap time of 1m 9.93s and fuel consumption of 1.740L/lap or 52.727L/100km (5.358mpg). Stuck reported no major differences in handling although he did feel that the car could be driven more precisely with the second set of front tyres. At the end of the day, the Typ 935/83 engine suffered a burned piston and had to be replaced.

these developments in the final year of the existing technical regulations remained to be seen, but the good news was that Porsche was back with a vengeance.

For Reinhold Joest, running the works Porsches was a big deal. From now on he would concentrate on the WS-PC and Le Mans, plus the IMSA classics at Daytona and Sebring, excluding guest appearances in the Interserie, the JSPC or other IMSA events. The 1990 season would be the least busy in the history of Joest Racing but the one with the most riding on it.

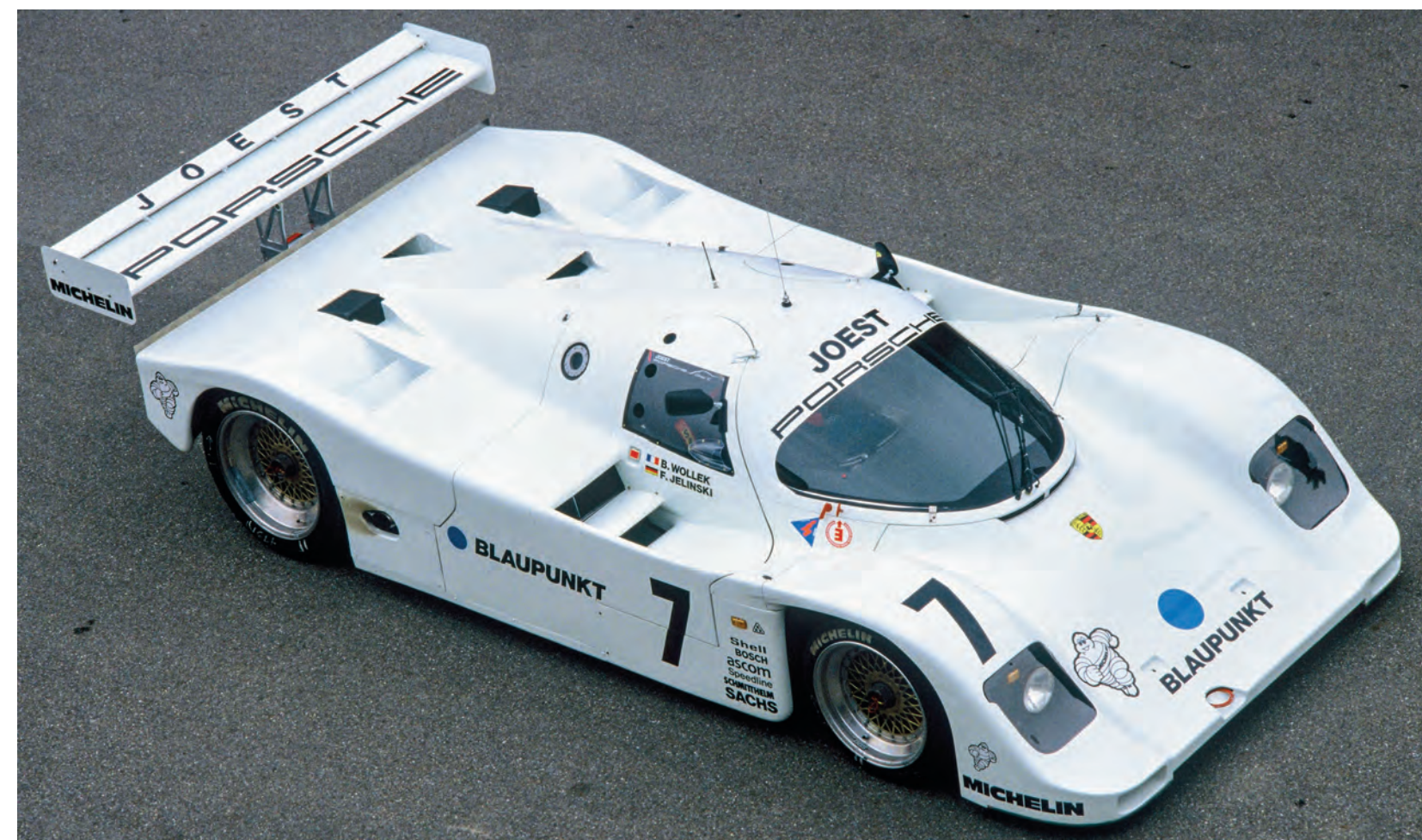
The main reason for Porsche's *volte face* was Dr Bez's vision for the company's future in sportscar racing. 'We owe it to our Group C customers to offer them a competitive automobile, which is why I have initiated the further development of [the 962C], to allow them, whether with big or small budgets, to be competitive against the giants. That is our long-term strategy, so therefore we will, when the 3.5-litre era begins, offer a Group C car with the 3.5-litre engine [that Porsche was building for F1]. We are, however, quite keen that this doesn't happen yet in 1991, but rather later. Even if our Group C car would be ready for the 1991 season, we would have maybe one or two cars, but never that many to supply one, two or more customer teams. That's why I have asked the FIA to allow our current cars to run in the championship for one more year.'¹⁴ Not only had Porsche returned to sportscar racing but in one fell swoop had also committed to the next-generation sportscars and thus to the Typ 962C's successor.

On the driving side, Porsche announced some strong and not unexpected names. While Bob Wollek and Frank Jelinski would

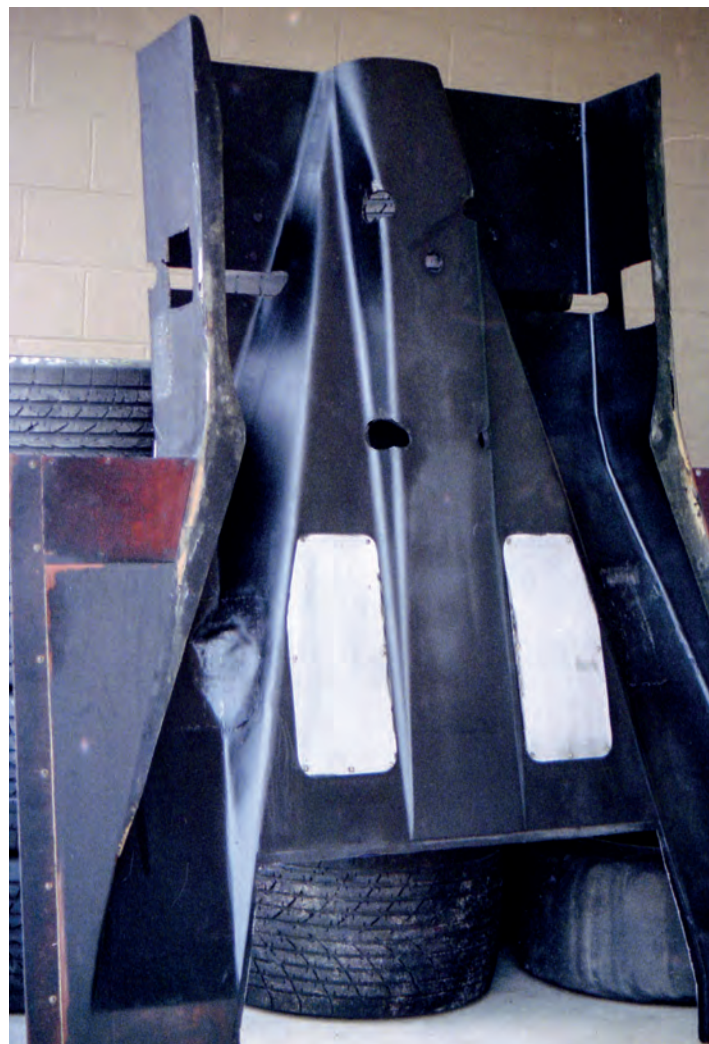
share the lead #7 car, the likes of Hans-Joachim Stuck, Henri Pescarolo, Derek Bell and others would take turns in the #8 car alongside Dr Jonathan Palmer, MD, who would be making his works Porsche debut. Since his last WS-PC appearance, at Spa with Richard Lloyd Racing in 1987, Palmer had been persevering in F1 but his prospects there had fizzled out after six seasons that had yielded only eight point-scoring finishes with underfunded teams like Zakspeed and Tyrrell. So sportscar racing was the next best thing for the good doctor and a works Porsche seat was a great opportunity.

Preliminary testing had already started in earnest at Paul Ricard in November/December 1989. This included the first work with new Michelin tyres, involving a comparison between Porsche's last available works chassis, 962 009, and Joest's Typ 962/88, chassis 962 145. Poor weather restricted activity at the first four-day session to the short 3.3km (2.1-mile) layout, with no running at all on the second day when the weather worsened. The drivers involved were Wollek and Stuck, the latter for only the last two days.

Chassis 962 009 had spent half a season with Jim Busby Racing — Porsche's favoured American partner following the demise of Holbert Racing — as the team's back-up car and sometimes second race car. After the Busby team's victory in the 1989 Daytona 24 Hours with its air-cooled '962 108' in Miller High Life colours, the factory had sent over 962 009, Stuck's ex-Supercup car, which soon received the Roman Slobodskyj-developed bodywork, Garrett AiResearch turbochargers and other local specialities, but all those were gone by the time the



VICTORIOUS IN EXILE



■ The underfloor and venturi of the 962C were still very much as they had been on the original 956, none of the mechanical parts they covered having changed size or position. Note the horizontal splitters inside the tunnels, reaching their maximum width where the tunnels curve from diagonal to longitudinal. These splitters helped to control the frequency of 'vortex shedding'.

Mike Fuller



■ John Winter, balaclava and gloves in hand, looks at the new rear wing as he prepares to shake down the updated car at Hockenheim. This is the newly built chassis 962 016, the last 962C with a works 0-number.

Karl David Jennings archives

never been used with carbon brakes. As Singer remembered: 'In those days we had rear-wheel steering developments going on in-house. I think there were also other companies working on this; I think Nissan did with its Skyline [GT-R]. And Paul Frère was driving it on the Nürburgring and was excited about it... We knew from our production development [they] had a 944, I think, and I once drove that car and it was surprising what potential you got from this.'³⁴

Singer continued: 'I think it was still Mr Bott³⁵ who said, "Let's try and see what we can get from the race car." In 1991 this was the end of Group C and we said, "OK, we do it, we'll try and see what we can get out of it..." It was driven by [former rally driver Walter] Röhrl and it was an advantage but it was not really a big step. The car made the driver feel more comfortable but on the stopwatch you didn't notice a difference, maybe one or two tenths.'³⁶ The technical reports from the Fiorano tests are kept in Porsche's corporate archives and indicate a gain of just 0.4 seconds for the carbon brakes over the steel discs after 107 laps, with Larrauri achieving best laps of 1m 14.43s (carbon) versus 1m 14.85s (steel).³⁷

Convincing or not, Porsche put carbon brakes on 962 011 before shipping it to Florida for Moretti and Sigala to race in Miami. Instead, it was the Larrauri/Schneider car 962 129 that produced the better result, with fourth place.

At the Sebring 12 Hours, Porsche scored its last IMSA podium finish of the year with third place for Moretti, Larrauri and Sigala in the Momo 962 145. The fact that the Joest Porsches had had trouble-free races at both Miami and Sebring, but still finished well off the pace, prompted IMSA to allow the cars to run henceforth with bigger, 41mm air restrictors.

For the rest of the season, starting at Road Atlanta, Moretti reverted to 962 011 while Larrauri received the brand-new 962 016, the last-ever 962C with a works 0-number. As with most of the later monocoques, it had been manufactured by Fabcar Engineering but does not appear in Porsche's records next to a customer monocoque number, unlike works chassis 962 006 through to 962 015.³⁸ The new car featured a Typ 935/84 3,164cc engine with late-specification cooling and the latest aerodynamic developments, the most striking feature being the two-tier, twin-element rear wing that had been developed by Norbert Singer with Joest engineers in Porsche's full-scale wind tunnel, and followed the trend for 'double rear wings' that Jaguar, Peugeot and Toyota had successfully introduced in the 1991 SWC, and in Jaguar's case in IMSA as well. The top tier, sitting in the airflow over the car, worked like any regular wing on all previous works 956s and 962s, but the lower tier worked with the airflow emerging from beneath the car, acting in effect as an adjustable extension of the underfloor venturi. The main plane elements of both tiers featured the same profile and chord, both in a fixed position. The smaller slotted flaps, however, were markedly different, with the narrow one on the top tier functioning as on any regular rear wing, whereas the wider one behind the main plane of the lower tier served to further extend the venturi. Although initially made in Germany, this carbonfibre aerodynamic marvel was then produced by David Price's DPS Composites company in Britain, like the rest of the new bodywork, and was first track-tested at Hockenheim by John Winter. Other aerodynamic changes were a lowered engine deck, revised front wheel arches, inward-sloping sidepods with horizontal side splitters, and an elongated nose section.

Although all these changes made the 1992 IMSA version

■ For the rest of the 1992 IMSA season, the Joest Porsches were further evolved aerodynamically to keep them competitive against the latest works cars from Toyota, Nissan, Mazda and especially Jaguar, which had 'imported' one of the previous year's world championship-winning 3.5-litre XJR-14s. This is Oscar Larrauri in chassis 962 016 on its debut at Road Atlanta, with Gianpiero Moretti in 962 145 close behind.

Motorsport Images/LAT



the technically most advanced 962C yet, they were not enough to enable the car to compete with the other works teams. In an ultimate attempt to finally clinch the IMSA title, Jaguar³⁹ had sent over its 1991 world championship-winning XJR-14 — the 'F1 car with a roof' — for Davy Jones, while on behalf of Toyota Dan Gurney had built the ultimate street fighter in the Eagle-Toyota Mk.III. Even Geoff Brabham and his NPTI Nissan, champions for the past four seasons, had to stand back and watch in awe as the Toyotas cleaned up and Jaguar regularly

■ As seen at the Phoenix IMSA race, the further aerodynamic development of the 1992 Joest Porsche was obvious from the way the air accessed the radiators through the doors and the hot air from the brakes was extracted from the wheel arches. The main eye-catcher, however, was the twin-element, two-tier *Doppelflügel* rear wing, with its lower plane working in unison with the underfloor diffusers.

John S. Allen



shot itself in the foot. All that was left for the Joest Porsches were fourth places at Road Atlanta and Watkins Glen, plus a few more finishes in the lower reaches of the top 10.

Joest Racing fared better in the Interserie but spoiled its title chances by skipping the Mugello, Zolder and Brands Hatch double-headers. Where the team did show up, most often with Larrauri in 962 011 and Winter in 962 016, it faced stiff opposition from Porsche Kremer Racing, which had built a WSC-specification, 962C-derived K7 spyder for Manuel Reuter. While Reinhold Joest played from Porsche Motorsport's song sheet, the Kremer brothers successfully composed their own music and Reuter duly won nine races *en route* to the title. Larrauri nevertheless claimed five victories and Winter one, helping the Argentine driver to win the coveted Porsche Cup, his first title of any kind since winning the 1982 European F3 Championship. Larrauri then left the team, and top-level sportscar racing, to compete in the Italian GT Championship.

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First published in August 2022

978-1-907085-92-5
978-1-913089-31-3 (Collector's edition)
978-1-913089-64-1 (Owner's edition)

Published by
Porter Press International Ltd

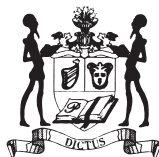
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www.porterpress.co.uk

Edited by Mark Hughes
Designed by Martin Port

Printed by Gomer Press Ltd

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Porter Press International

Ultimate WORKS PORSCHE 962

The Definitive History



Volume Three

The Cars and People

Serge Vanbockryck

962 005

Monocoque: 962 005 (Porsche AG)
Production number: unknown
Type: 962C



■ Chassis 962 005 — 15 June 1986 — Preis von Württemberg, Hockenheim — Hans-Joachim Stuck — 1st. Guy Golsteyn

Delivery date: February 1986 (50th car delivered)
Monocoque designed by: Horst Reitter (D)
Manufactured by: Porsche AG
Materials used: Aluminium
Bodywork designed by: Norbert Singer (D)/Eugen Kolb (D)/Manfred Hochkönig (D)
Manufactured by: Badische Waggonfabrik Rastatt (D)
Materials used: Kevlar/Carbonfibre/Fibreglass/Aluminium
Car built by: Porsche AG
First owner: Porsche AG
Number of races: 4 (2 WS-PC, 2 SC)
Number of wins: 2 (2 SC)
Total race distance: 1,655.032km (1,028.392 miles)
Accidents: 0
Drivers: Hans-Joachim Stuck (4 races), Derek Bell (1)

Chassis 962 005 was the first of Porsche's factory lightweight Supercup cars, built specially for its attack on the new German sportscar championship. Unique features included carbonfibre bodywork, a smaller battery, narrower brake discs, smaller rear hubs, aluminium front hubs, a Porsche-made carbonfibre front anti-roll bar, no radio and the first fully water-cooled engine. Following the 1985 crashes involving Manfred Winkelhock and Stefan Bellof, all monocoques from 962 005 onwards (for works and customer teams alike) saw the number of rivets used on the sills increased to add rigidity and thus passive safety for the driver. Like most other works 962Cs from 1986 onwards, 962 005 also featured PDK transmission. The total weight gain from all this was some 41kg.

Driven by Hans-Joachim Stuck, 962 005 won the first two races of the 1986 ADAC Supercup, at the same time scoring a first sprint win for the PDK, exactly a week after Stuck and Bell

had done the same in a WS-PC race. After that year's WS-PC race at the Nürburgring, where both 962 003 and 962 004 were damaged in the same accident, 962 005 doubled up as the new regular WS-PC mount for Stuck/Bell. While testing a new ABS braking system during practice for the Supercup season finale at the Nürburgring, Stuck crashed and damaged the front of the car beyond immediate repair, leaving the team with no option but to graft the 'Supercup back end' of 962 005 to 962 002, the team's regular WS-PC spare car.

In early 1988, the unrepaired 962 005 was sold to Vern Schuppan, but never used again in contemporary racing. In 2002 it was restored to works Rothmans spec by Group C Ltd (UK). In 2012 it was owned by Ed Palmer (USA) of the Kundensport company. Palmer later sold the car to former racing driver Charles Nearburg, who brought it to the 2015 Porsche Rennsport Reunion V at Laguna Seca.

Date	Event (championship)	Race number	Entrant (team)	Sponsor(s)	Driver(s)	Engine Type/capacity	Engine builder	Cooling	Compression ratio	Turbo Make/type	Injection Make/type	Gearbox Type/ratios	Lubricants Engine/gearbox/wheel bearings	Suspension Shocks/springs	Wheels	Wheel size Front/rear	Tyres Make/compound	Tyre size Front/rear	Brakes Discs/calipers	Brake pads	Weight (kg)	Qualifying Position/time/driver	Results Status	Notes
26 Apr 1986	48. Int. ADAC-Eifelrennen, Nürburgring (D) (SC) - Qualifying Race 1	1	Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 14x19	Dunlop Denloc	325/625-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	882	1st 1m 50.12s Stuck	1st 11m 5.79s	Equipped with PDK transmission and water-cooled Typ 935/82 engine. Stuck qualified on pole in damp conditions. In first qualifying heat, took lead ahead of Sullivan (Joest 956/84), Gartner (Kremer 962C), Baldi (RLR 956/84), Winter (Joest 956), Jelinski (Brun 962C), Brun (Brun 962C) and Hoffmann (M&H).	
26 Apr 1986	48. Int. ADAC-Eifelrennen, Nürburgring (D) (SC) - Qualifying Race 2	1	Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 14x19	Dunlop Denloc	325/625-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	882	10th 11m 5.79s Stuck	1st 10m 47.7s	In second heat, won from Gartner (Kremer 962C), Sullivan (Joest 956/84), Jelinski (Brun 962C), Baldi (RLR 956/84), Winter (Joest 956), Brun (Brun 962C) and Hoffmann (M&H).	
27 Apr 1986	48. Int. ADAC-Eifelrennen, Nürburgring (D) (SC)	1	Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 14x19	Dunlop Denloc	325/625-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	882	1st 21m 52.96s Stuck	1st 1h 0m 22.50s	Engine developed oil leak in race morning warm-up. No time to change engine, so forced to race with oil warning light coming on in right-hand corners. Dropped to 2nd at start behind Gartner (Kremer 962C), but took lead again before end of first lap. Won ahead of Gartner, Sullivan (Joest 956/84), Baldi (RLR 956/84), Jelinski (Brun 962C), Brun (Brun 962C), Winter (Joest 956) and Schuster (Brunn 936C).	
11 May 1986	Internationales ADAC-Avus-Rennen, AVUS (SC)	1	Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 14x19	Dunlop Denloc	325/625-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	(850)	-	-	Race cancelled.	
14 Jun 1986	Preis von Württemberg, Hockenheim (D) (SC) - Qualifying Race 1	1	Dr. Ing. h.c. F. Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 13.5x19	Dunlop Denloc	325/615-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	885	1st 1m 54.07s Stuck	1st 9m 58.74s	Beat Group C qualifying record by 1.1sec. Won QRI from Ludwig (Joest 956/84), Brun (Brun 962C), Wolle (RLR 956/84), Jelinski (Brun 962C), Bell (Brun 956), Weaver (Kremer 962C), Winter (Joest 956) and Dauer (Zakspeed).	
14 Jun 1986	Preis von Württemberg, Hockenheim (D) (SC) - Qualifying Race 2	1	Dr. Ing. h.c. F. Porsche AG (Porsche AG)	Blaupunkt	Hans-Joachim Stuck (D)	935/82 2,994cc	Porsche	water-water	9.0:1	KKK K273060 11.11	Bosch Motronic MP1.2	2612/00	Shell TMO-SR 5W40 Shell S.6909 Klüber WNRB medium white	Bilstein Schmitthelm	Speedline 13x17 13.5x19	Dunlop Denloc	325/615-17 330/730-19	Porsche Ate/Porsche	Pagid RS4-2	885	10th 9m 58.74s Stuck	13th -3 laps	In QR2, engine failed to start for formation lap. Electronics changed and 3 laps lost. Stuck completed final 2 laps of race and finished 13th. Engine and electrical components changed overnight.	



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24 Late-specification door locks, once operated by some of the greatest endurance drivers in history, now meticulously restored.

25 The steering wheel for the restored 962 008 (right) compared with an original standard wheel (left). The red 'OVER TAKE' button triggers a program within the MP1.7 ECU to give a 10-second increase in turbocharger boost pressure of 0.2bar, normally enough to make a clean pass. **26** The main cross beam, affectionally known in German as the *Ochsenhorn* ('ox horn'), to which the rear suspension is attached. **27** Brembo steel brake discs, 30mm thick and 330mm in diameter, are drilled and ventilated. Only at the very end of the 962's life did Porsche test carbon brakes.

28 The footwell, with left-side footrest missing.

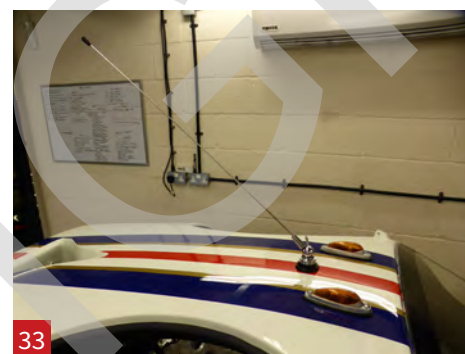
29 One of the radiator/oil cooler air intakes is being repaired and restored. When restoring a Porsche 962C, Katana always tries to keep as many original parts as possible, except when safety overrides this philosophy. **30** The erstwhile Shell/Dunlop nose section has been repaired and sanded. Note that the lower top part of the nose is straight on this Le Mans-spec nose section to reduce front downforce, whereas the nose section of a high-downforce 962C is slightly more concave to achieve the opposite result.



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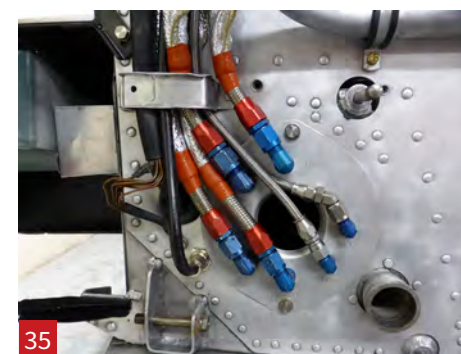
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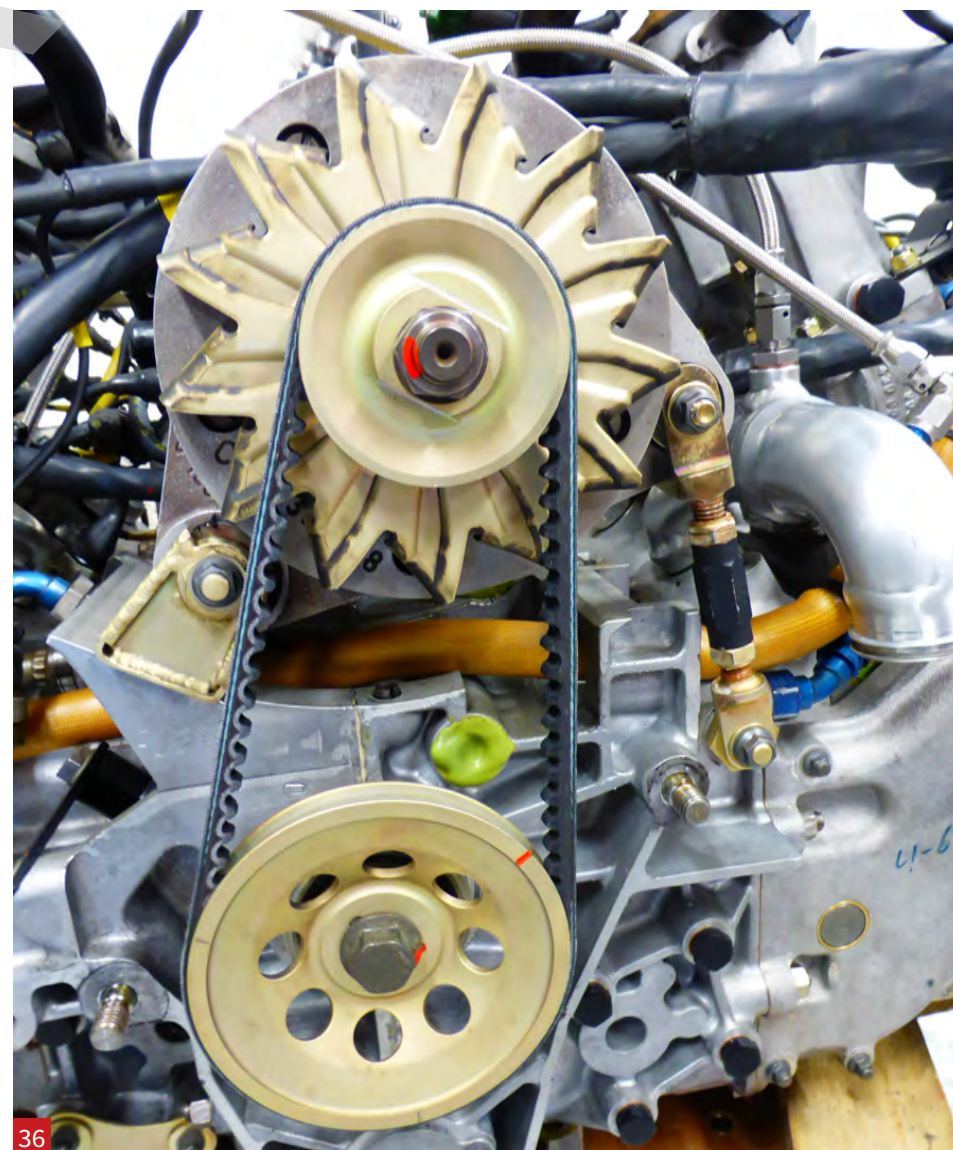
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31 The primed tail section of 962 008. **32** The painted cockpit section; to the rear of the car, next to the wall, can be seen the engine and tail section support as well as the front of a rare Schuppan 962 CR. **33** Pitlane recognition lights and radio antenna have been fitted. In order to provide the necessary greater range, the antennae used at Le Mans were substantially longer than those used on shorter circuits. **34** The heart of the MP1.7 Motronic system consists of the ECU (electronic control unit), the DCU (dash control unit) and the EMZ (ignition amplifier). The two sets shown here are to be sent to Robert Bosch GmbH in Stuttgart, Germany for restoration and testing. Both the ECU and DCU have internal batteries that must be replaced regularly — a specialist procedure. **35** The fuel, clutch and air jack lines pass through a cover panel in the rear of the chassis. **36** The Bosch alternator in its special magnesium case drives directly from the crankshaft pulley.





962 LM GT 003

VIN: WPoZZZ962LMGT003

Monocoque: 962 176 (Fabcar Engineering)

Production N°: 24/90

Type: Dauer 962 Le Mans

Delivery date: April 1994 (110th car delivered)

Monocoque designed by: Horst Reitter (D)

Manufactured by: Fabcar Engineering (USA) for Porsche AG

Materials used: Aluminium

Bodywork designed by: Achim Storz (D)/Gert Hildebrand

(NL)/Norbert Singer (D)/Eugen Kolb (D)

Manufactured by: Lola Composites Ltd. (UK)

Materials used: Kevlar/Carbonfibre

Car built by: Porsche AG on monocoque 962 176

First owner: Porsche AG

Number of races: 1 (1 NC)

Number of wins: 1 (1 NC)

Total competition distance: 4,685.701km (2,911.567 miles)

Accidents: 0

Drivers: Hurley Haywood (1 race), Yannick Dalmas (1), Mauro Baldi (1), Max Welti (T)



■ Chassis 962 LM GT 002 — 18–19 June 1994 — 62èmes 24 Heures du Mans — Hans-Joachim Stuck, Thierry Boutsen, Danny Sullivan — 3rd. Guy Golsteyn

Chassis 962 LM GT 003 was the third and final Dauer built by Porsche and was — numerically — the works team's second car. It was sponsored by FATurbo Express, a Swiss transport company and long-time sportscar sponsor via different Porsche teams, since the owners of FAT, the Schwingen brothers, were avid Porsche fans. At the 1994 Le Mans 24 Hours, 962 GT LM 003 briefly led the race at the end of the first hour, and did not lead again until 20 laps from the finish when the leading Toyota hit trouble. At the Norisring DTM race, one week after its Le Mans triumph, it was driven for a few demonstration laps by Porsche Motorsport boss Max Welti together with 962 LM GT 002 driven by Thierry Boutsen.

After the Le Mans win, the car was given to Reinhold Joest — whose team formed the nucleus of the Le Mans Porsche Team — as per his contract with Porsche stipulating that he could keep the car in the event of victory.

Joest immediately sold it to Helmut Schwingen, who already owned 962 177. The car was subsequently loaned to the famous Musée National Collection Schlumpf in Mulhouse, France, where it resided for years, and later to the Musée de l'Automobile in Le Mans. Eventually it was sold to an unknown collector in the US who had the car looked after by Kevin Jeannette of Gunnar Racing fame. It was one of the show stoppers at the Porsche Rennsport Reunion VI at Laguna Seca in California in 2018.

Date	Event (championship)	Race number	Entrant (team)	Sponsor(s)	Driver(s)	Engine Type/capacity	Engine builder	Cooling	Compression ratio	Turbo Make/type	Injection Make/type	Gearbox Type/ratios	Lubricants Engine/gearbox/wheel bearings	Suspension Shocks/springs	Wheels	Wheel size Front/rear	Tyres Make/compound	Tyre size Front/rear	Brakes Discs/calipers	Brake pads	Weight (kg)	Qualifying Position/time/driver	Results Status	Notes
Jun 1994	Private tests, Weissach (D)	36	Le Mans Porsche Team (Porsche AG)	FAT Turbo Express	Hans-Joachim Stuck (D)	935/85 2,994cc	Porsche	water-water	9.5:1	KKK K272 3067 11.11	Bosch Motronic MPI.7	956/01 Shell TMO-SR 5W40 Shell S.6909	Sachs Schmitthelm	BBS 11x18 13x18	Goodyear Eagle GT 25.0/10.0x18 26.5/12.5x18 Radials	Brembo	-	1016	-	-	-	-	Shakedown for Le Mans.	
18-19 Jun 1994	62èmes 24 Heures du Mans (F) (NC)	36	Le Mans Porsche Team (Porsche AG/Joest Racing)	FAT Turbo Express	Hurley Haywood (USA), Yannick Dalmas (F), Mauro Baldi (I), Thierry Boutsen (B), Derek Warwick (GB) ¹	935/85 2,994cc	Porsche	water-water	9.5:1	KKK K272 3067 11.11	Bosch Motronic MPI.7	956/01 Shell TMO-SR 5W40 Shell S.6909	Sachs Schmitthelm	BBS 11x18 13x18	Goodyear Eagle GT 25.0/10.0x18 26.5/12.5x18 Radials	Brembo	-	1016	7th 3m 54.85s Baldi	1st 344 laps	-	-	Both Dauers suffered from high tyre wear in Wednesday's and Thursday's qualifying sessions. Stuck took T-car to see whether tyre wear was chassis-related but encountered same problems. Tyre wear therefore related to weather conditions (see also: 962 LM GT 001). Baldi took start and ran 4th on opening lap behind Ferté (Courage), Bell (Kremer) and Martini (Toyota), and ahead of Raphanel (Courage), Wollek (Toyota), Gonin (WR) and Stuck (Dauer). Moved into lead on lap 12. Pitted on lap 14 (4.52pm) for fuel, tyres and driver change, Dalmas rejoining. After 1 hour, ran 5th behind Stuck (Dauer), Martini (Toyota), Fouché (Toyota) and Pescarolo (Courage), and ahead of Fabre (Courage), O'Connell (Nissan) and van de Poele (Nissan). Dalmas failed to engage reserve and ran out of fuel on lap 28 on way to pits, needing marshals to push car on pitlane. Pitted on lap 29 (5.59pm) for fuel, tyres and driver change, Haywood rejoining 2nd. Pitted on lap 44 (7.02pm) for fuel, tyres and driver change, Baldi rejoining. Pitted on lap 59 (8.05pm) for fuel, tyres and driver change, Dalmas rejoining. Pitted on lap 74 (9.07pm) for fuel, tyres and driver change, Haywood rejoining. Pitted on lap 75 (9.13pm) with broken driveshaft. Lost 13min and dropped to 6th. Pitted on lap 89 (10.22pm) for fuel, tyres and driver change, Baldi rejoining. Pitted on lap 104 (11.25pm) for fuel, tyres and driver change, Dalmas rejoining. Pitted on lap 119 (0.27am) for fuel, tyres and driver change, Haywood rejoining. Pitted on lap 135 (1.33am) for fuel, tyres and driver change, Baldi rejoining. Pitted on lap 150 (2.35am) for fuel, tyres and driver change, Dalmas rejoining. Pitted on lap 166 (3.41am) for fuel, tyres and driver change, Haywood rejoining. Pitted on lap 182 (4.47am) for fuel, tyres and driver change, Baldi rejoining. Pitted on lap 197 (5.48am) for fuel, tyres and driver change, Dalmas rejoining. Pitted on lap 213 (6.54am) for fuel, tyres and driver change, Haywood rejoining. Pitted on lap 229 (7.59am) for fuel, tyres and driver change, Baldi rejoining. Moved back into 2nd by 8.00am. Pitted on lap 244 (9.01am) for fuel, tyres and driver change, Dalmas rejoining 2nd. Pitted on lap 260 (10.07am) for fuel, tyres and driver change, Baldi rejoining 2nd. Pitted on lap 275 (11.08am) for fuel, tyres and driver change, Dalmas rejoining 2nd. Pitted on lap 291 (12.14pm) for fuel, tyres and driver change, Haywood rejoining 2nd. Pitted on lap 306 (1.21pm) for fuel, tyres and driver change, Dalmas rejoining 2nd. Pitted on lap 323 (2.27pm) for fuel, tyres and driver change, Baldi rejoining 2nd. Passed Krosnoff (Toyota) for lead on lap 325. Stayed in lead until end. Pitted on lap 335 (3.18pm) for fuel, tyres and driver change, Dalmas rejoining in lead. Only led 22 laps of entire race, of which 20 were at the end.	
26 Jun 1994	200 Meilen Norisring (D)	36	Le Mans Porsche Team (Porsche AG)	FAT Turbo Express	Max Welti (CH)	935/85 2,994cc	Porsche	water-water	9.5:1	KKK K272 3067 11.11	Bosch Motronic MPI.7	956/01 Shell TMO-SR 5W40 Shell S.6909	Sachs Schmitthelm	BBS 11x18 13x18	Goodyear Eagle GT 25.0/10.0x18 26.5/12.5x18 Radials	Brembo	-	1016	-	-	-	-	-	Demonstration run together with 962 LM GT 002 driven by Thierry Boutsen. First-ever drive in a 962 for Porsche Motorsport boss Max Welti.

¹ Driver was announced for this car at some point, but never drove it at this event



Chapter 72

BOB WOLLEK

Brilliant Bob

When their son was born, Alfred and Alice Wollek thought the first name 'Bob' sounded rather nice. But this was Strasbourg, in occupied France in 1943, and the collaborating officialdom was not too keen on American-sounding shortenings of traditional first names. So 'Bob' became 'Robert', and to please the German occupiers even more, the officials suggested the addition of a German first name as well, so the boy's full name became Robert Johann Wollek. As soon as the Germans were ousted from eastern France, the toddler's middle name was changed to Jean but henceforth he would always be called Bob. Unbeknown to the little fellow, or his parents, German connections would play a key role in his adult life, through the cars he would race, the teams he would drive for and the championships and accolades he would win.

Bob Wollek first showed his fiercely competitive nature on skis. While on a family holiday in the Vosges, his father observed the boy's talent and, following advice, decided to send him to the Alps to hone his skills. Aged 15 and now based in Chamonix, young Bob quickly became junior French champion. That first title was followed by the world military title in 1965 (during his national service) and two university world titles the year after. He became a member of the French national skiing team and selection for the 1968 Olympic Winter Games in Grenoble would have been a formality until an unfortunate fall at the end of 1967 sidelined him. With that, Wollek promptly left the skiing world without looking back and turned to another newly discovered passion — motorsport.

■ Bob Wollek will forever be associated with Porsche, the manufacturer with which he won countless sportscar races all over the world, driving for the teams of Erwin and Manfred Kremer, Georg Loos, Reinhold Joest, Preston Henn, Bruce Leven and Jim Busby. Only in 1986 did he join the works Rothmans team.

Jean-Marc Teissèdre

As luck would have it, Renault sponsored the national skiing team and offered its members favourable prices on all models. Wollek's skiing friend, Christian Best, bought an R8 Gordini that the two took for 'a spin' in the Rallye du Mont Blanc in September 1967. Rather than dividing themselves as driver and co-driver, they swapped places after every special stage and finished 19th, winning their class. At the end of the year Wollek enrolled in the ACO's racing school at Le Mans and took part in its *Volant Shell-ACO* scholarship, finishing third while François Migault won. This result was good enough to add to his ambition and in early 1968 he did a course at the Bugatti Racing School, led by Charles de Cortanze, father of André, who would become technical director of the Renault, Peugeot, Toyota and Pescarolo sportscar programmes.

De Cortanze recognised Bob's talent and selected him and five others for the *Trophée Alpine-Le Mans*, of which the main prize was a drive in the Le Mans 24 Hours with the works Alpine team. Wollek duly won the shoot-out and thus made his official road-racing début driving a works 1.3-litre A210 prototype down the *Hunaudières* straight on the test day in April 1968. As that year's Le Mans was postponed from June to September due to civil unrest in France, Wollek's first proper race was the Spa 24 Hours in July, sharing his personal Renault R8 Gordini with Alain Serpaggi to finish 27th, before claiming an excellent 11th place and second in class at Le Mans with Christian Ethuin in the A210. Between these events, a few more rallies served to further sharpen his car control and netted a fine third place in the *Ronde Cévenole* driving a Group 2 R8 Gordini.

Figuring that in rallying it would never be possible for a privateer to compete with the works teams, Wollek decided to give single-seaters a try in 1969 alongside more endurance racing and some rallying. The new Formula France was in its second season and Alpine had built a car for it, the A340B. His father picked up the bill so all Bob had to worry about was to get used to open-wheel cars and beat the competition. But the going was tougher than expected and he finished only seventh in the standings, his best result second place at Dijon. He returned to the works Alpine team for Le Mans, this time partnered by that other ski ace, six-time world champion and



Chapter 78

MARIO ANDRETTI

Founder of the dynasty

Born in Italy on 28 February 1940 in the village of Montona, Mario Andretti and his twin brother Aldo did not have an easy start in life. Just a few months after their birth, Benito Mussolini took Italy into the Second World War on Germany's side with ruinous consequences. By the end of the war, Istria, the region of Italy where the Andretti family lived (now mostly part of Croatia), had been occupied by Yugoslavia, a situation that was formalised by the Treaty of Paris in 1947, causing many Italians to flee. Among the refugees was the Andretti family, who ended up finding shelter in an old monastery in Lucca, sharing a large hall with nine other families, with only blankets hung from the ceiling to provide any privacy. Eventually, in June 1955, the family was able to emigrate to the United States and arrived in Nazareth, Pennsylvania, where an uncle of the twins already lived.

Long before they left Italy, Mario and Aldo had dreamed about becoming racing drivers in their home country. In cinemas, newsreels often showed Italian heroes Luigi Villorresi, Alberto Ascari and Giuseppe Farina in Grand Prix racing in their Ferraris, Alfa Romeos and Maseratis, and the young Andretti boys knew this was what they wanted to do. In the year before their departure for the New World, they went to watch the Mille Miglia, which Ascari won in a Lancia, and the Italian Grand Prix at Monza.

Once in America, the twins were thrilled one evening to hear the noise of high-revving car engines close to their uncle's home, and then even to see the beams of headlights racing round: they had stumbled upon a local NASCAR race! By

1957, they were building their own Hudson race car with some friends and two years later they made their race debut at the Nazareth Speedway, sharing the car on alternate weekends without their parents' knowledge. They entered the Limited Sportsman Class, and after the first four races, which resulted in two wins apiece, they competed on dirt tracks as well. But at the end of the season Aldo was badly hurt in a crash and only then did their parents find out what they had been up to.

Despite a big telling-off from his father, Mario continued racing and netted 21 wins from 46 starts in the 1960 and 1961 modified stock car seasons. Focused on making his career in open-wheel cars, he moved into racing so-called midgets during 1961, starting in the winter races run by the American Three Quarter Midget Racing Association, hoping to get noticed by teams competing with full-size midgets. By 1963, he was in such demand that he competed in over 100 races that year, sometimes in different states on the same weekend.

In 1964, the year he became a naturalised American citizen, Mario made his debut in the United States Auto Club's Championship Car series, finishing 11th in Doug Stearly's Elder-Offenhauser 61FE at Trenton Speedway. Ninth place in Lee Glessner's Meskowski-Offenhauser 58D at the infamous Langhorne Speedway (nicknamed the 'Widow Maker') was followed by a regular seat for the rest of the season with Al Dean's crack team, Dean Van Lines Racing, in a Blum-Offenhauser 64E, achieving a best result of third at the Milwaukee Mile, which was only his fifth IndyCar race. In USAC Sprint Cars he raced Rufus Gray's Chevrolet all season, winning at Salem Speedway and scoring four other podium finishes. In Midgets, he raced Bruce Homeyer's Watson-Offenhauser to victory and a second place at the Memorial Stadium in Daytona.

Continuing into 1965 with his 1964 car as well as a Hawk-Ford I and a Kuzma-Offenhauser 60D, Mario won the USAC Champ Car title with Dean Van Lines. Although his 16 races brought only one victory, at Indianapolis Raceway Park, he piled up the points thanks to six second places, three thirds and two fourths. While runner-up A.J. Foyt started from pole position ten times and won five times, Andretti's consistency paid dividends and with it came stardom.

■ Mario Andretti debuted the very first Porsche 962 at Daytona in 1984 and raced the last works 962C at Le Mans four years later.

McKlein