

PORSCHE 959 PROFILED

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AUTOCAR



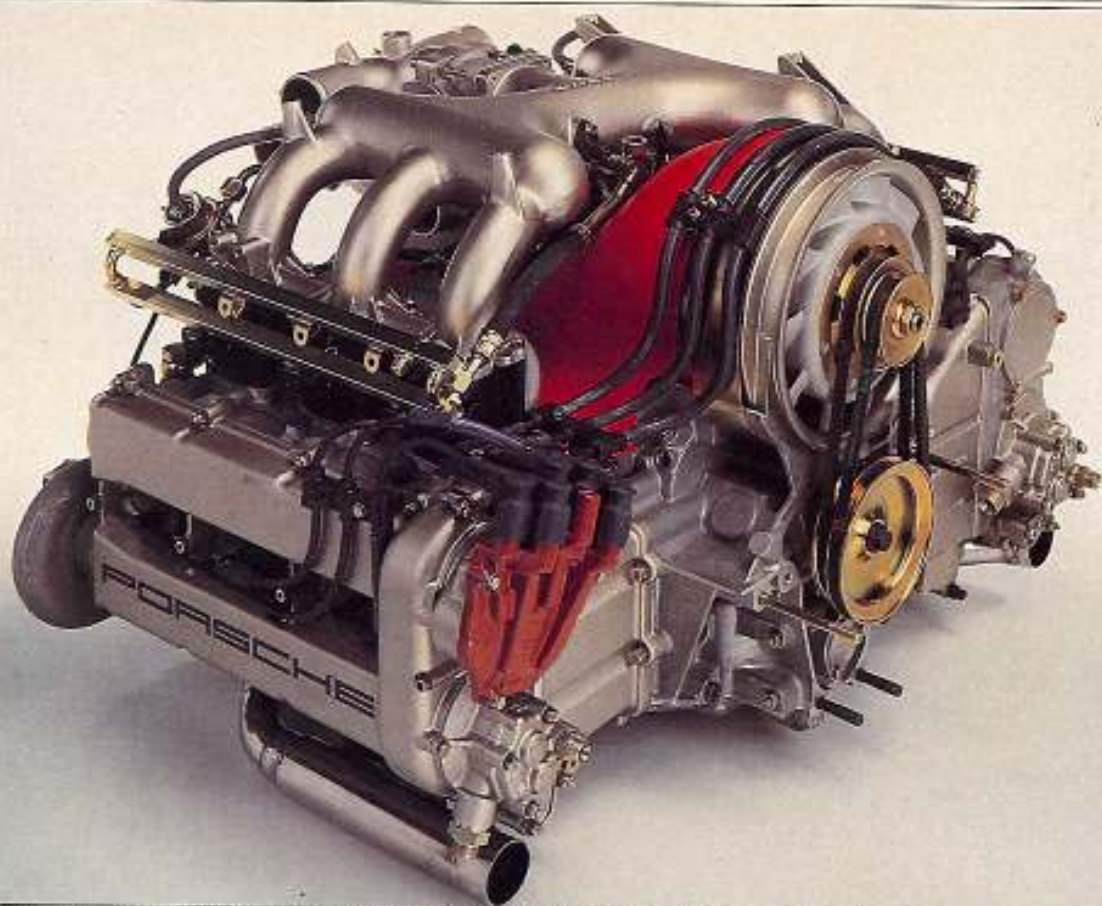
90 YEARS ON THE ROAD

CELEBRATING AUTOCAR'S ANNIVERSARY

PEAK OF PERFECTION

Porsche produces stunning cars, none more so than the 959. Mike Cotton samples its lightning speed





Racing parts are blended with future production components in the 2850cc engine with six-speed gearbox



Development of the Porsche 959 has been delayed, partly due to US emissions requirements. Its major rival is Ferrari's GTO

GREAT MARQUES 4: PORSCHE

"By the standards of a relatively small, successful German manufacturer, the 959 has been a long time coming"

One's first impression of the Porsche is of its striking appearance and sumptuous equipment, but it goes like the scary octopus at a funfair, leaves the passenger weak-kneed and full of wonderment at the racing car capabilities of the machine.

The interior is full leather, but the new design of seating is so snug that you're not likely to slide around on the cushions. There are devices, strange to the 911 Turbo man, enabling the driver to command the ride height, and a four-way lever from the column, like a cruise control, to override the 4wd system. More items are new: the six-speed pattern on the gearlever knob, the tachometer that reads to 8600rpm, and the headlamp shrouds are no longer in view. It's rather like meeting an old friend who's had a facelift: "Hello Turbo... er, it is Turbo, isn't it?"

No mistaking that noise when the engine fires up, though. A Porsche man knows the sound of a flat-six when it comes within earshot, and he'll know this throaty voice, even if it does belong to something as outlandish as the new four-wheel-drive 959 Group B rally race car.

Our first encounter with the car came at Weissach where, having seen the 959 in cut-away form at the Frankfurt Motor Show, our senses were attacked by a 10-lap ride around the Porsche test track with chief tester Gunther Steckkonig.

Compared with the Ferrari GTO, which most people regard as the Porsche 959's strongest rival, the Stuttgart factory has allowed the 4wd car a gestation period of almost elephantine duration. The Ferrari was unveiled at Geneva in March 1974 and now, we hear, the 201st is about to be built for Niki Lauda, the twice World Champion in Ferrari Formula 1 cars meriting the extra car.

By contrast, the first elements of the Porsche 959 were seen at Frankfurt in 1981, a fairly definitive 'Gruppe B' car appeared at the same show in 1983, but the series of 200 won't commence until the spring of 1986.

By the standards of a relatively small, successful German manufacturer, the 959 has been a long time coming, reflecting the complexity of the machine. The first delay of consequence was due to the decision, which came from the top, that all future engine developments must be capable of carrying full California-standard emissions equipment and the American market (which accounts for half of Porsche's production) must never be disadvantaged in the power race.

When chief executive Peter W. Schutz handed down that instruction

THE HISTORY OF PORSCHE

Ferdinand Porsche was an old man by the time the first car to bear his name appeared in 1948. He was born in 1875, the third son of a tinsmith, in Mattersdorf, Austria.

He produced his first car design, the electric powered Lohner-Porsche, in 1900. He then joined the Austro-Daimler firm, remaining there from 1905 to 1923, when he was involved in a boardroom disagreement and left to take up a job with Daimler-Benz, until yet another stormy board meeting saw him walk out in 1928.

In 1929, Porsche joined Steyr, but the world financial crisis heralded a merger between it, Daimler and Puch. Porsche had no option but to leave, this time finding a managerial job difficult because of his reputation as a champion of workers' rights. Setting up his own design company, in 1930, he produced cars for Wanderer, Zundapp, and NSU, as well as the trend-setting, rear-engined Auto Union grand prix cars and the legendary KdF-Wagen — alias the Volkswagen.

Before World War II Porsche had completed plans for a mid-engined sports coupé, which was to become the Type 64, finished in time for the abortive Berlin-Rome road race of 1939.

After the war, members of the Porsche family were lured to Baden Baden in the French military zone to design a new 'people's car', but a change of political climate saw Porsche and son-in-law Anton incarcerated for aiding the German war effort. It was to be 1947 before Porsche's daughter, Louise Piëch, managed to extract her father and her husband from jail.

The first production sports Porsche was designed at Gmund in 1947 by Ferry Porsche, son of Ferdinand, and long-time Porsche associate Karl Rabe. These original Volkswagen Beetle-based cars were produced only spasmodically at Gmund, with full scale manufacture starting at the Reutter body works in Zuffenhausen in 1950.

Ferdinand Porsche died in 1951, but by now the Porsche car was selling well, thanks mainly to the interest shown in the Type 356 in the USA. In 1956, the company was allowed to

restart production at its pre-war Zuffenhausen, Stuttgart factory, with a third plant opening shortly afterwards.

In 1964, the Porsche company produced a new design, the Type 901, later called 911, to replace the by-now aged 356 series. This car is still in production, refined and updated.

Porsche has always had links with the Volkswagen concern, so there was no real surprise when, in 1967, the two firms agreed to build the 914 mid-engined design. It would make sense for both concerns: for Porsche, lacking capacity, it was the only way to build a cheap sports car, and for Volkswagen, the only way to go up-market with a sporty image. The car effectively failed because it cost almost as much as a 911, and wasn't recognised as a true Porsche by many.

In the early 1970s, Porsche decided to break with convention and market its first front-engined design — this was to be the 928. However, the firm first marketed the 924 model, commissioned by VW, which wanted a new cheap sports car to replace the 914 but required it to resemble the projected new Porsche. When VW dropped the idea, Porsche decided to continue, entering an agreement with Audi to manufacture the car at the old NSU works. The car still used many VW mechanical parts, with the engine developed by VW from the Audi 100 powerplant.

Throughout its history, the Porsche firm has suffered few real crises. The only major upheaval occurred in 1971, when turnover dropped sharply. Virtually everybody in charge of a department was a member of the Porsche or Piëch family: Ferry Porsche and sister Louise Piëch saw to it that family members were excluded from day-to-day company affairs, although they retained a financial stake in the company. Ferry's son Butzi went off to Porsche Design, the consulting arm of the firm, while Ferdinand Piëch went to Audi — which explains the close ties between the two firms, and the fact that Porsche and Audi do not compete against each other in international rallying.

In 1983 he put the 959's development back a year, and the more recent decision to include power steering in the specification accounted for a further six-month delay. One can argue all day about the relevance of catalytic converters to an ultra-high performance road car, the 2.85-litre, 24-valve engine of which is a direct descendant of the World Championship-winning 956 and 962C racing cars, but the fact is that the 959 model will be equally at home in California as on the German *autobahnen*, or at Le Mans, and will be able to develop its 450bhp over long periods without destroying the emissions equipment. It seems hardly possible that, a mere two years ago, the German motor industry was united in its stand against emissions equipment for Europe, stating that conditions are so different, and speeds so much higher over here, that a whole new technology would have to be developed!

When the 4wd car first appeared as a *studie* it was a comparatively straightforward design produced, as much as anything, to affirm the future of the 911 model under Schutz's management. A driveshaft was run forward from the turbo model's four-speed gearbox (conveniently located ahead of the rear engine) to a 924 Turbo model's transaxle situated between the front wheels, with normal shafts driving those wheels. There was more interest, perhaps, in the cabriolet hood.

At that time it was regarded as a potential rally winner... slot in a 956 engine, developing up to 700bhp according to boost, and away we go! It had only to beat the Audi quattro, equally handicapped, if you like, by having a five-cylinder water-cooled engine inconveniently slung forward of the front wheels, and it was with this prospect in mind that Rothmans and Dave Richards set up an independent Porsche-equipped rally team based at Silverstone.

Just as the specification became ever more complex, so did the priorities for the machine. The arrival of the Peugeot 205 Turbo 16, a Formula 1 car for the forests, signalled the end of any real prospect that the 959 would be an international rally winner. Rather, its application would be in the marathons, or 'raids', and the success of the prototype 4wd 959 in the 1984 Paris-Dakar Rally was real encouragement.

That, though, didn't have the fully electronic all-wheel-drive control that is a leading feature of the definitive car, and the success of the Rothmans-backed 959 on the Pharaohs Rally is far more indicative of what the car can do. Next stop is the Paris-Dakar raid in January, and ▶

◀ another full-scale factory effort co-ordinated by Jacky Ickx, who will again lead the team.

And racing? Again, there are many sceptics who cannot see the need for a complicated 4wd car on tarmac, but perhaps they underestimate the capabilities of the 959. Peter Falk tells us that the 959 will be homologated into Group B towards the end of 1986, and the following year it will be run as a works car, or team, at Le Mans. In the States, Al Holbert already has provisional acceptance for the 959 in IMSA's GTO category, and though it's never going to be an outright winner, it will surely pin Group B rivals by their cars.

Ideally, the 959 should be a mid-engined car, but it would not then be faithful to the 911 concept. The 911 Turbo bodyshell is the starting point, though widened in the engine bay and with different pick-ups to accept the fully coil-sprung, 956-type transverse arm suspension (which replaces torsion bars); dual shock absorbers are seen front and rear, and the suspension has the automatic capability of lowering itself at speed, to a mid-position at 35mph, and to a ground-hugging low setting at 75mph... the 959 has ground effects, you see, to find more roadholding than a customer could ever expect to need on public highways.

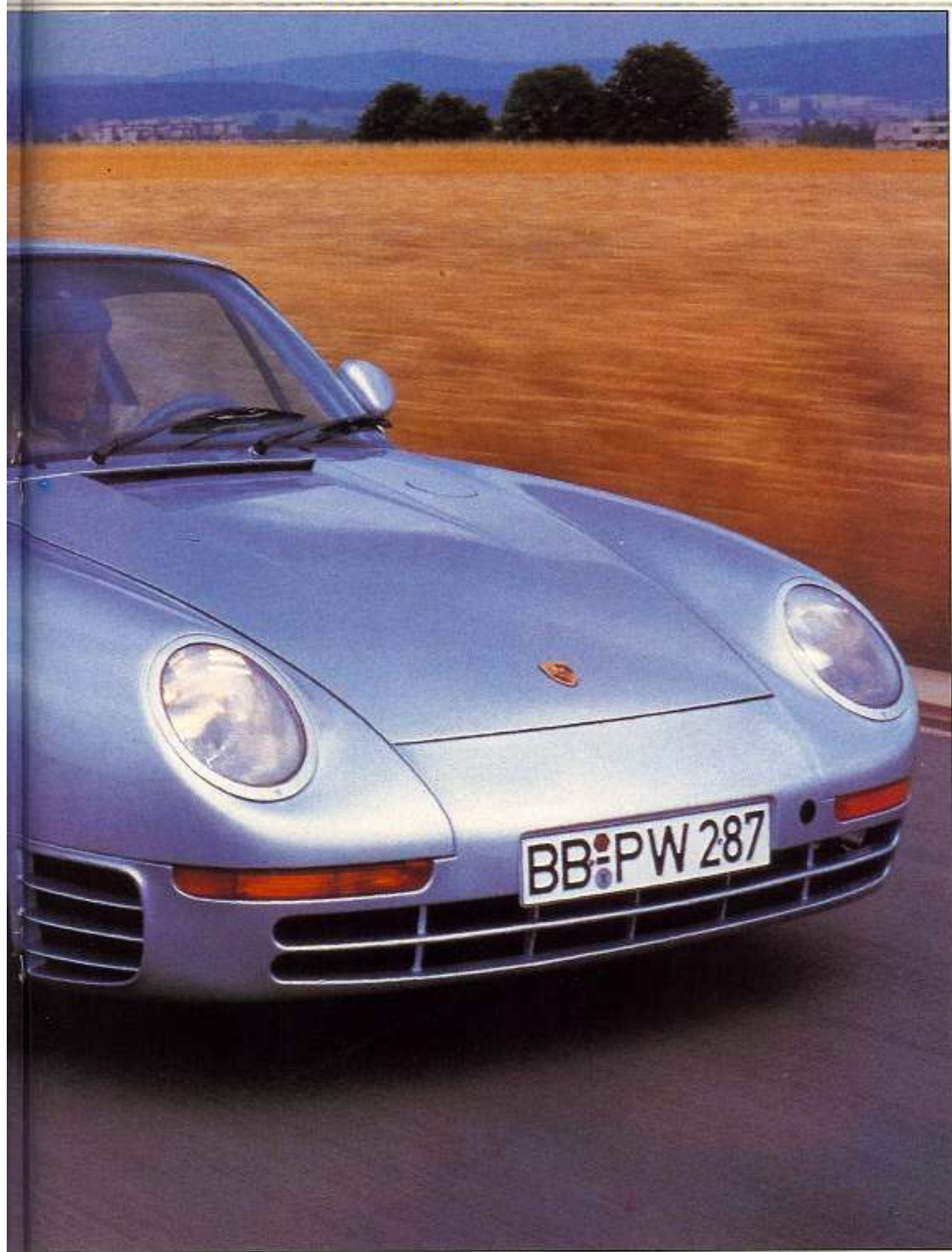
The galvanised steel monocoque is clothed in lightweight outer materials, polyurethane and Aramids, to transform the shape of the 22-year-old design to a more aerodynamic, 0.32 coefficient style, including an integrated, effective-looking rear wing. The 959 has steadily put on weight, of course, and the 200 highly equipped customer cars are no featherweights at 1450kg, though the further 20 type 961 evolution cars for competitions will be much nearer the 1100kg minimum for the 4-litre class.

The 2850cc engine (95mm bore, 67mm stroke) is a blend of racing parts and future production components, with chain-driven twin camshafts on each bank, hydraulic valve adjustment (like the 928S and 944), fan-forced air cooling for the cylinder barrels but water cooling for the four-valve cylinder heads—the latter finally overcomes the problem of heating the cabin effectively. The twin KKK turbochargers are the latest type, with water-cooled bearing housings, and twin air-to-air intercoolers, but real progress has been made in the area of boost control, for the turbos work in series, rather than in parallel, one pulling strongly at low revs and the other when full throttle is applied, and at higher engine speeds. The Bosch Motronic system is mapped to take ▶



Special cast magnesium wheels include tyre pressure sensors, with dashboard read-out

GREAT MARQUES 4: PORSCHE



GREAT MARQUES 4: PORSCHE

"As a flagship for Porsche and as an ultimate symbol for the 200 owners, the 959 serves real purpose"

Care of boost pressure, turbine operation, and wastegate control, in order to make the 450bhp engine totally flexible and free of power 'humps'. All that, by the way, will be achieved on lead-free 95 octane fuel!

At its first stage drive goes to a new six-speed gearbox, also used by Audi on the latest quattro Sport. An electronic 'brain' under the seat controls the most advanced component of the whole car, the completely automatic torque-splitting mechanism which decides how much power to take to the front wheels.

The cast magnesium wheels are special, too. The centre-lock wheels have hollow spokes, pressurised by air in the Dunlop Denloc SP Sport D4 tyres (235/40 VR17 front, 255/40 VR17 rear). Since 1980 Porsche has used a Bosch-originated pressure warning device on its race cars, four tiny lamps on the fascia giving a warning if the pressure drops at any corner, and this system is now incorporated in the 959.

This masterpiece in modern technology isn't going to be cheap: the German price is quoted at DM410,000, and Porsche GB is at pains to point out that, with Special Car Tax and VAT, the customer can brace himself for a high mortgage sum in the region of £135,000, give or

take the odd thousand. There won't be a right-hand-drive version, but as many as six examples will reach these shores next year... meaning that 194 will be sold in Germany, America, and other world markets.

Our lasting impression of the 959 came when Herr Steckkonig wheeled out on to the track and floored the throttle. Imagine standing on your brake pedal at 60mph... OK, straining at the seat belts, nothing but a piece of webbing keeping your passenger's face out of the windscreen? Now imagine that force coming up *behind* you, pinning you back into the cushions. Perhaps, because of the road car's springing, the G-force is even more impressive than in a pukka 956 racing car, for the 959 is hurtling towards the first corner, a downhill right-hander, at unimaginable speed.

Steckkonig hits the brake pedal quite hard, actuating the 956-size ventilated discs, changes down a couple of gears, then stabs again at the throttle to hurl the Porsche through the turn. More gearchanges, lots of them as we sample the full menu of ratios, then brakes again, more neck-straining cornering.

At each upward gearchange the turbo wastegates give a discreet sneeze, and as far as I could tell the

rate of acceleration was hardly diminished as the 959 neared the end of the one-kilometre straight at 250-km/h (155mph). If they say it'll do 300km/h, or 186mph, I for one will not argue.

There's a vehicle bridge over the track, at the nearest point to the main buildings, and it's soon filled with people peering over the rail. I've never quite understood the attraction of looking at the M1 from a bridge, though lots of people pass happy hours doing just that, but this was something else—high-grade Porsche technicians, starting their lunch hour by watching Steckkonig exercising a 959, giving it bags of wellie!

I can see that some are timing us; he probably knew that anyway. He responded, giving the rear tyres some heat treatment, and reckoned that we were now lapping quicker than the type 934 racing car ever did, a decade ago. It's not that we had more power, and the weight of the 959 is at least 300kg greater, but simply, "it handles better, it's so much easier to drive."

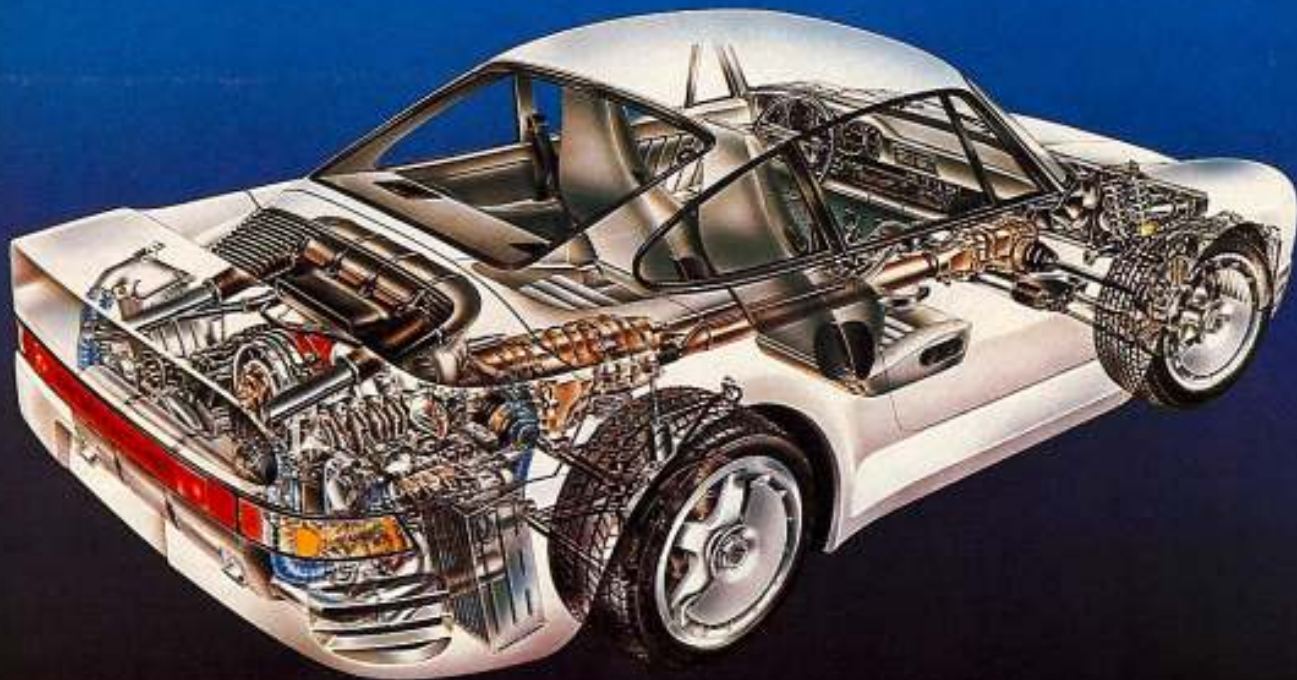
Many a scare story is told about those wayward, tail-happy 911s, but despite having a 450bhp power plant behind the rear wheels, the 959 never appeared to present any problems at all, though having the capability of flicking the tail out to order. All-

wheel-drive cars are supposed to 'corner on rails', but that all depends on how the torque split is arranged.

All the same, Steckkonig felt that there was a touch too much oversteer, 'something we can cure by playing with the springs and dampers.' Only when the tail was provoked out of line was there any hint of the 4wd system at work, the steering wheel beginning to fidget in the driver's hands, and to all intents and purposes this is something that the owner will never need to be aware of. It's there, like the ABS anti-lock brake system, to be at his side unobtrusively when the going gets tough...

As a flagship for Porsche, and as an ultimate symbol for the 200 owners, the 959 serves a real purpose, though one wonders where in the world it can be driven to its full potential. Probably the Stuttgart firm will never make another road car as powerful as this, for at Weissach they call it 'Professor Bott's toy', the head of research and development having put everything he's got into it.

It's a technical showcase as much as anything, a laboratory for a host of developments which will find their way into the 911 range in years to come. You really can't help wondering what the 911 will be like as it rolls off the production line in 1999! ▶



The bodyshell of the 911 Turbo was the starting point for the design. Different pick-up points are used for the suspension

GREAT MARQUES 4: PORSCHE

"The current rate of investment at Weissach runs at DM 75 million — 10 per cent of annual turnover"

Professor Ferdinand Porsche founded his company in December 1930 as a consultancy, the brilliant designer having four engineers on his staff. At today's date there are 2400 engineers and technicians on the payroll, working in a high-tech environment at Weissach, 15 miles from the original office in Kronenstrasse, Stuttgart. In Zuffenhausen, meanwhile, another 5100 employees get on with the business of making sports cars, a comparatively recent activity dating back to 1948 . . .

Porsche is an international name, prominent for the cars that are sought-after in most countries and for racing successes, but the real scope of the services provided is known to comparatively few people, a coterie of engineers in motor and allied industries. Few companies, certainly none in the motor business, would have 32 per cent of their workforce employed in research and development, nor would 40 per cent of the R&D turnover be accounted for by outside contracts, even for potentially rival companies — though Porsche is so faithful to the two-door, 2+2 concepts that it regards its position in the marketplace as unique, and sees no-one else as a rival.

Developments in the early years were, perhaps, rather more spectacular than those in modern times. Prof Porsche's first contract was to develop a medium-size luxury family car for the Wanderer company, some aspects of which were reproduced in the 'car for the masses' which later became known as the Volkswagen Beetle, another of Porsche's designs. Prof Porsche also designed and developed the fabulous pre-war Auto-Union cars, one of which was a first-time winner, in 1934, driven by Hans Stuck, father of the man who became World Endurance Champion this year in a Porsche 962C.

Wartime development activities included the Kübelwagen military versions of the Volkswagen, tanks (including the ill-fated 'Mouse', a 188-tonne monstrosity that never saw active service) and a refined rocket motor for the doodlebug, an import that Porsche Cars Great Britain Ltd wouldn't have touched with a barge-pole, had the company then existed! Of a more peaceful nature, Porsche also developed wind-power generators, one of which was in service on a farm near Stuttgart in 1944. It is a concept that is still under development even today.

Within NATO, Porsche was responsible for the Leopard tank and the Weasel scout car, and the 166-acre Weissach facility includes a tank proving course (also useful for testing rally cars) within the multiple road circuit that's used for testing road and race cars. Among the most recent



959 supercar is a product of Porsche's extensive facilities at Weissach, a well-financed base

extensions to the test and development facilities is Europe's most modern exhaust emissions laboratory, built at a cost of £5.75 million a couple of years ago; the current rate of investment at Weissach runs at DM 75 million, or 10 per cent of Porsche's annual turnover.

While the manning of the Zuffenhausen factory has remained virtually constant over the past five years, despite production having risen by 20 per cent, staffing at Weissach has increased by 240 per cent, reflecting the emphasis being given to R&D, and outside work, by chief executive Peter W. Schutz. Since his appointment in 1981 he has cancelled the 911's demise, and instituted intensive development of the 959 which we went to drive. The famous flat-six air-cooled unit has now been cleared for use in aircraft

(Schutz is a keen pilot) and more advanced versions are on the way.

Most of Porsche's current activities for clients are kept secret, a typical 'patient and doctor' relationship, but those who are proud to have Porsche input are Lada and SEAT, the Spanish manufacturer being a notable example of those who would go to a specialist company rather than build up their own R&D overnight.

While Porsche has set a record for Le Mans victories, there were always the doubters who thought that the Germans were taking sweets from babes, especially since Ferrari and Matra pulled out of the endurance scene. "They wouldn't last five minutes in Formula 1" was an oft-voiced opinion . . . and it has given the Porsche engineers particular pleasure to have designed, developed, and built a 1.5-litre V6 turbo unit for

clients TAG, enabling Niki Lauda to win the 1984 World Championship in his McLaren, and Alain Prost to achieve the same success this year.

Only 100 or so men work in the competitions department headed by Peter Falk, in a new department right in the centre of the Weissach facility, well removed from the main offices. They, more than any, are the ones who represent the company to the outside world, for Porsche regards race track achievements as a means of advertising — a substitute, even. It's quite incredible how many people, buying a Porsche for the first time, will say: "I always wanted a Porsche . . . now I can afford one!"

This attitude, which is likely to have taken root through victories at Le Mans, creates a ready market for the road cars, and Prof Ferry Porsche has always been aware of that. ■