

Compared to the huge sums spent by the „Bigs“ of the automobile industry for model changes, the cost of Porsche's new model are low. And yet the change that took place now in Zuffenhausen is a bigger event, than if the production line of Chevrolet, instead of the model 64, begin to spit out the Model 65.

Since its inception as a car brand Porsche took the name of an idea of the purpose bonded automobile. Not "transport" or "representation" but driving himself was the content of this idea. Somehow you could also drive with the other cars. But then drive like the Porsche you could only do with the Porsche. As a result, the small cars of the small Austro-Swabian work got more famous than other automobiles, produced in thousands of times larger quantity.

An old proverb says: Glory is easier to acquire than to preserve.

And so the question of the coming new model was invisible for years about the Zuffenhausen halls. When the first details were known, criticism was inevitable. So great the interest of the automotive world had to been towards a new porsche model, so different were the opinions about the correctness of the chosen design.

Among the most important features of the Porsche 356 retained:

- rear engine behind the rear axle
- Boxer arrangement of cylinders
- Air cooling

Have been changed:

- Front and rear suspension
- Steering
- Valve control

Considering these six points closer, you can see that an attempt was made deliberately, despite retaining the existing design to avoid their disadvantages. The front suspension on simple, acting on longitudinal torsion bars wishbones and damper struts takes much less space than the Volkswagen front axle of the 356.

This means more luggage space under the front hood. The same sense should have the choice of the particularly flat designed rack and pinion steering. The semi-trailing arm rear suspension instead of the swing axle provides better possibilities for controlling the overdrive of back-heavy car, and the valve controller with one overhead camshaft on each side eliminates the speed worries they had with the previous tappet rod motors.

But why is, that the air-cooled boxer engine was retained in the rear? Ferry Porsche leads for a variety of reasons, which we have discussed in detail in the history of the 911 (MOTOR REVUE 51).

Briefly, it is this:

- The rear engine provides the desirable sports vehicle high load on the drive wheels.
- in order to get enough interior space, in road sports car a rear motor can be installed just behind the rear axle.
- In order that the focus of the car shifts not too far to the rear, the rear engine must be as short as possible and lightweight.

Therefore boxer assembly and air cooling.

For Porsche, yet another reason to play a role: the engine and transmission were designed so that they can be used in future racing cars. In race cars, the engine ahead of the rear axle has proven to be the best one for propulsion and handling solution. This, in the Porsche 904 in the (still with the old royal wave motor) practiced solution, can be easily realized with the 911 engine by simply turning the unit around. But the normal arrangement behind the rear axle offers, by Ferry Porsche's opinion, good conditions if you want to use the 911 in competitions.

Body Criticism

As it stands, the 911, it can be considered athletic and powerful. The two-time baptism (the Peugeot sake) has not hurt him, he is, whether 901 or 911, a real Porsche and is always immediately recognized as such. Since our first report on a short test drive (issue 8/1964) only a few touch-ups were made: the dashboard got its final form, the seats were placed slightly higher, instead of two straight exhaust pipe ends, is only a one side bent available.

In terms of body design the 911 is like the 356, a two-seater with two auxiliary seats. After initially a four-seat Porsche was envisaged, they came back to this solution. "Cobbler, stick to your last", Ferry Porsche says slightly less impulsive. He prolonged the lasts by 10 cm, and this wheelbase extension was the interior benefit, without changing it in character. What is offered in the front compartment, is for Porsche drivers, considerably, without being able to stand the comparison with rear luggage compartments of other sports cars. The individually folding rear back seats provide for two-seater operating completely enough space, even if it is not an easily achievable trunk. For longer trips with more than two adults and one child the 911 is not suitable.

That we can enter well and sit very well, is also enjoyable as a matter of course. The good seats belong in such a car to a function, because only those who sit well, can drive well. The view is, as in most coupes, not very good towards the rear and rear side, forward it is excellent. The two high-arched front fenders are Ferry Porsches will; a continuous flat hood had more luggage space, but less external functionality means. In this respect the views of P. Ferry seem to have diverged as chief and son Ferdinand P. as a designer.

To sit comfortably in the rear, one must dream yourself back "as a child", and yet, upon boarding, you still stumble on the front passenger seat, which is not foldable far enough. Both front backrests allow small adjustment, both seats known from the 356 are comfortable and with durable upholstery.

There are, however, of the new bodywork a whole lot of details that are not resolved satisfactorily. This already began in the test car with the three keys (for doors, ignition and steering lock, glove box), all looked the same and again, forced to fumble - a disadvantage which is soon to be turned off. It continued with the doors that were difficult to close and lacked those accuracy, one must expect from high quality cars. Even more uncomfortable were the front vent windows, which were barely to be opened and no longer to be closed while driving - many cheap cars do have a rotating mechanism for this window. The rear vent windows are of dubious value, because they are not reachable for the driver and apparently sometimes draw in tailpipe emissions, despite a modified exhaust pipe.

During a cold start the engine heater transports the oil smoke, produced in large quantities, inside. The inside handle for the front hood is mounted so clumsy, that if you have him found at his hidden place, you can only open it with body dislocations; the operation of the adjacent tank lid closure was a hit and miss - at first they succeeded rarely. With fast driving, there was a lot of wind noise, which still increased the already high level of noise and the test car was not free from rattling noises from different parts of the body. The button in the steering wheel center for noisy but ugly sounding horn was difficult to operate, and the flap for fresh air intake in front of the windshield is not closed tightly.

All this may be flaws of the beginning, but in such an expensive car they can not be uncritically accepted. As a counterbalance, there are some good new details: the wiper and washing unit on the steering wheel for momentary or continuous operation in three stages proved as an important support for safe and fast driving in wet winter days; the wiper itself still operates reliably even at high speed; the concave arranged instruments with the tachometer in the center are easy to read; the handle on the right door is well attached. The door opening buttons on the front edge of the armrests are a new but not bad variation of the apparently inexhaustible theme "door handles inside". A good quality and handy tool packaged kit is included - this is a rarity in these days.

In standard the 911 has two heaters: by lever handle regulated motor heating and independent of the motor, a gasoline electric heating. It has come to this most complicated solution, because the effect of motor heating at low speeds (city traffic, slow driving in convoy) is too low. When the engine is warm you do not need the additional heating, the (distributable by slide floor of the vehicle in a known manner) engine warm air is just fine. But with fast driving she brought oil mist into the interior. The auxiliary heating can be switched to outside air or circulate the air inside, also it can be either continuous or set so that a thermostat turns off after reaching a certain internal temperature. In cold weather, the thermostat in the test car turned off just before it was really warm, and for driving fast enough, the effect of the additional heating alone is not enough. It is probably also intended mainly as auxiliary heating and for slow driving.

To which extent the front ventilation is refreshing in hot weather without using the hinged windows, we could not try. On request, as was the case in the 356, an electrically operated sunroof is available

Performance luxury

The crucial difference of 911 compared to the previous normal Porsche models lies in the engine and transmission. But we must not be misled about the idea that the transition to two liters and six cylinder car is another "major" character. A two-liter Porsche already existed, the Carrera, and the 911 is different from the Carrera only in that it is a modern designed engine.

Benefits

- High performance through strong, free-revving engine
- Excellent adaptation to all Five-speed driving conditions by transmission
- Good brakes
- Rich Body equipment

Disadvantages

- Unsatisfactory directional stability in crosswinds and on uneven surfaces
- Road-sensitive, high holding forces requiring steering
- Loud engine noise
- Body in several details still not completely satisfactory

He is, however, just like the Carrera, with the previous 1.6-liter Porsche more closely related than with large-volume sports car, as they build about Jaguar, Aston Martin, Ferrari or even Iso Rivolta.

Almost more important than the six cylinder and the increase in capacity is - compared to the 1.6 liter tappet rod engines - "unleashing" the speed of the red mark on the tachometer which begins at 6800 U // min -. That are for Porsche drivers new orders of magnitude. the rated speed of 6100 U // min and the maximum torque speed which is at 4200 U // min, the 911-machine identified as high-rotating sports engine. 130 hp from two liters of displacement produce a specific output of 65 HP // liter because you can not expect cozy steam engine characteristics.

Porsche combined this engine with a five-speed gearbox. The five gears were evenly distributed over the entire speed range; So it is neither the first gear only as starting or off-road gear, nor the fifth gear only to be regarded as a quick and gentle cycle. The 1st gear is about the translation of a normal 1st gear, the fifth gear corresponds to a normal IV. Gear. Thus, since all five gears are driving courses, the consequence is clear: we must shift more than with a four-speed transmission.

This has consciously taken into account in order to gain an advantage, which has great driving skills stimuli Porsche: it offers speed options like no other car. It has in every situation below 180 km // h at least two gears available, one of which allows the driver to always take advantage of the engine's maximum power range between approximately 5500 and 6800 U // min. What does this mean, can be described as difficult. What kind of car you can shift back already at 170 km, and then to have an accelerating transition to full engine power available?

This one another more than fast gear transition areas are the most fascinating feature of the 911. It's kind of a power and torque luxury where you can swim here. Of course, he caused a sense of such baths: Joy of shifting, conscious gear selection. The 911 can be driven with poor shifting - just think, for example, the first gear away and drive like a normal four-speed transmission, then you get along well indeed, but is usually located in a little too low speeds. In tight bends, particularly in the city, it is unavoidable even with such gentle driving, to shift occasionally to the first gear. If you want to be fast on roads with sharp curves, then you need him to shift even very often, because at about 2500 U // min the engine, is running (down to 1000 U // min) smoothly and clean, but does not like to. This means that the 30 km // h is no longer enough, 2nd gear at full acceleration; you need the 1st, after all ranges of up to 60 km // h.

That the 2nd gear between 50 and 100 is as well like a "vision", the 3rd between 80 and 150, one can easily imagine when looking at the speed diagram. Such acceleration pleasures offer only a few, usually significantly more expensive cars with large-volume-engines. The German main competitor of the 911, the 230 SL, whose transmission denote detractors as "single-speed gearbox" must clearly admit defeat in nearly every driving situation. At high power and relatively small displacement, many gears are undoubtedly the right recipe.

Wind and waves

Dealing with five gears requires, even if they are so soft and clean operating like the new Porsche transmission, a certain skill and driving skill attention. Especially the 1st gear must be targeted clean, otherwise you end up in the IV, or, in severe cases, even in reverse. Female drivers will not always have pure joy, and unfortunately even less to steering and brakes.

Concerning the space, it is understood that Porsche has chosen a rack and pinion steering, but from the driving forth it may be doubted whether this was the right choice. The steering requires high holding forces in fast corners, and also the steering into tight bends is not easy.

There is also a drawback that seems serious: on uneven ground, steering responses are palpable, and because the car is not very directional stabil, on roads with longer bumps and varying curvature ("cambered roads") each of these influences affects as a small direction-deviation, which must be collected and corrected by the driver.

This requires - mind only on bad roads - permanent steering wheel rashes. Instinctively, by fast driving, we stick possibly in the middle of the street, so you have room to both sides. Too sudden movements or even jerking the steering wheel has an uncomfortable affect, you better don't do this at all.

That the directional stability is a weak point, has not only to do with the steering. It is not surprising, because with the previous Porsche models it was the same. This characteristic is located substantially founded in the rear weight distribution and is strong visible in all rear-engine cars, depending more or less on the weight distribution.

On a flat road surface and no cross-wind the car remains safely on track at high speeds; it can be run "on loose reins" and requires no steering corrections. But as soon as you encounter a laterally directed influence, a one-sided floor elevation or reduction or a gust of wind, so that it has to be balanced with the steering, the rear of the car is responding with a proper motion. the driver must keep the vehicle in direction with the softest possible steering wheel swings.

In gusty crosswinds these direction deviations are so plain to see that in the upper speed range - about 160km // h – you do no longer feel comfortable, even it can be driven safely even quicker with other cars. To what extent the body shape is responsible for the crosswind sensitivity can be difficult to assess – with a "streamlined" sloping rear the wind attack point is always far ahead, and a far in the back center of gravity is then given a long "lever" on which the wind tries to turn off the vehicle. This now once given disposition could probably be better compensated by a less nervous responsive steering as the pinion steering rack.

Far less disturbing than the straight-line behavior make the rear engine properties noticeable in cornering. Oversteer can be achieved when using a lot of power at the wheels and abruptly pulls the car in fast corners. However you need is a little counter-steering movement that virtually comes naturally to keep the car under control. The border area where a controlled four-wheel slippage occurs is quite wide, unpredictable sudden movement does not exist. The car behaves good-natured and safe driving in curves.

An important role in driving behavior (in curves and on the straight line) plays the air pressure. The minimum air pressure of 1.8 atm // 2.0, which we took the car, he tended more to understeer. We then went to the pressure for long distance highway driving at full load, 2.0 // 2.2 atmospheres, in which he shows what has been described unproblematic curve behavior. The directional stability seemed to us to be better at this higher pressure.

A lot of power on the ground

The high rear load raises so many problems, but also has its advantages: the power of the motor can be brought to an unusually perfect way to the floor. Even with harmless little touring car, it often happens that in the first gear your wheels spin and it is not uncommon with powerful cars also in the higher gears. In sports car with high performance and front-mounted engine, it is almost self-evident that the rear wheels can be made to leaving by accelerating in curves. This "artificial" oversteer is not unpleasant for the driver, because it improves the control of the car, but it reduces the maximum attainable speed in curves, because the available driving force can not be fully utilized. The extremely high averages, which are driven, with today's relatively weak engined Grand Prix cars, are, not at least due to the fact, that the central engine chassis, in contrast to those of the "Boliden" of former times, make a full utilization of power in curves possible (and many races consist almost entirely of curves).

So it is not just theory, when Ferry Porsche takes the high load on the drive wheels as a principle. With no front engine (and certainly not front wheel drive) cars, it is possible to use the driving force as safe as in the 911. The enormous boost, which is available on the 2nd and 3rd gear at nominal speed, can be brought on ground in curves, even when largely wet, though of course not on gravel or ice. This not only provides a sense of security, but also when it comes down to it, high averages. In mountain race, for example, each wheel spin means lost seconds.

Another beneficial effect of high wheel load is finally noticeable under braking: the danger of locking of the rear wheels is far lower than front-heavy car. The 911 can brake down fully very safe from high speeds, and even on slippery surfaces, it allows high delay. The results of our brake measurement (see diagram) belong, both in terms of the amount of the delay and the uniformity of response, to the best that we have achieved so far. This is particularly remarkable because the method of heating (repeated full acceleration and braking down on a steep slope), the brakes claimed the more so the higher the engine performance. The 911 obtained during this ordeal, which precedes the hot measurement of speeds up to 160 km // h.

For all the stresses that can occur even at very high driving for normal road use, this brake system should be quite sufficient. You can of course also tiring: when fully accelerated many times in the lower gears and brakes down again, the effect can finally after. When racing so harder sponges are required, then, of course, to set the pedal.

The pedal power under full braking is, as our chart shows, by no means high. A disadvantage of the 911-brakes, however, is, that for low delay at low speed it is already a relatively high pedal power necessary, ie, in the city traffic,. This has nothing to do with security, but complicates the operation. Steering and brakes require a lot of strength in normal operation. more and more sports car introduce a power steering and power brake and it is therefore not quite to be understandable that they are not provided on the 911. The installation of a servo brake provides technical difficulties, since the short-single intake not allows a vacuum servo the usual way. But there are still other support systems available, and the application on the 911 is conceivable.

What applies to the operation, also applies to the ride comfort: the 911 is a very masculine car. The suspension, like most single wheel suspensions, has the advantage, that it responds well to small and medium sized bumps and prevents strong vertical motions of the structure. But the spring travels are naturally more limited than in comfortable limousines, and also the short wheelbase ensures that longer bumps, especially those that go across the entire roadway, affect the car. Compared to the 356 type the progress is clearly to be seen only at points of detail which to measure most in direct comparison.

The 911 shows, the transverse axis of stability is different, due to suspension of the selected species, a little more body roll than the 356. But at least the distinguished advantage of an almost slope free driving of the 356 is maintained to some extent by a strong front anti-roll bar. As far as we can tell, after the short test time, the driver and passengers of different sensitive types, feel quite well on long trips in the 911.

More unpleasant and disturbing than the suspension is the permanent driving noise at high speed. It is not only the before mentioned wind noise, but even more the diverse sounds of the engine, which are produced mainly by fans, intake manifold and valve train. A look at our noise diagram shows that the interior noise up to 140 km // h in fifth gear (in the lower gears it is of course stronger) at approximately the same level as in the small car and midsize cars up to 1.5 liters capacity. Over 140 km of // h it is still rising considerably - listening to the radio is impossible, and the conversation between driver and passenger is difficult. This affects the disadvantage that at the sound of many high frequencies are involved, the more felt by the human ear as the decibel measurement device.

That the higher performance involve a higher consumption as one is used from the tappet rod, four cylinders, is not surprising. The 911 spent with us about as much as the Carrera depending on driving style 12-16 liters // 100 km. Oil consumption was as we drove a lot with full power to make a finding to the engine thoroughly, he claimed approximately 0.15 liters // 100 km. The oil is because the 911 has a dry sump lubrication, filled into the separate oil reservoir next to the engine. For control serves an oil gauge, which is combined with the fuel gauge together on a scale left on the dashboard. This device delivers a detailed display only in idle at an oil temperature about 60 degrees while during driving the display varies because the within the engine floating oil capacity is dependent of speed, temperature and oil pressure. The total amount must not exceed 8 and a minimum of 5 amount liter.

On the 911 are obvious compromises - such as the steering - in addition to convincing features such as high power and their optimal exploitability. You must declare some disadvantages, including the sensitivity to wind and road-side influences, and some properties that do not interfere with each, as the strong driving noise, the limited trunk or necessary for steering and braking force. Some errors, including especially the small defects in the body, are likely relatively easy to fix, while others are justified in the design of this car and will not be easy to mitigate.

That the Porsche 911 has fascination, it can not be denied. It has more of it than many others cars built by innocuous normal recipes. What it is, is hard to say - it's actually driving for the sake of driving that was here made as the principle, that agglomeration of automotive power in an engine-gearbox-drive-unit of just how complicated and ingenious design. He is certainly not a „Allerweltsauto“, the 911. Compared to its competitors from Untertürkheim, the 230 SL, the 911 has to offer not only outwardly more functionality, but can also be seen as a real sports car from driving.

On the 911, the hopes for the future of the company Porsche are based, but he's probably just the starting point of a set of possible variants, a new beginning, to which in Zuffenhausen much mental work will be focused on

Because fame is easier to acquire than to preserve.

Reinhard Seiffert