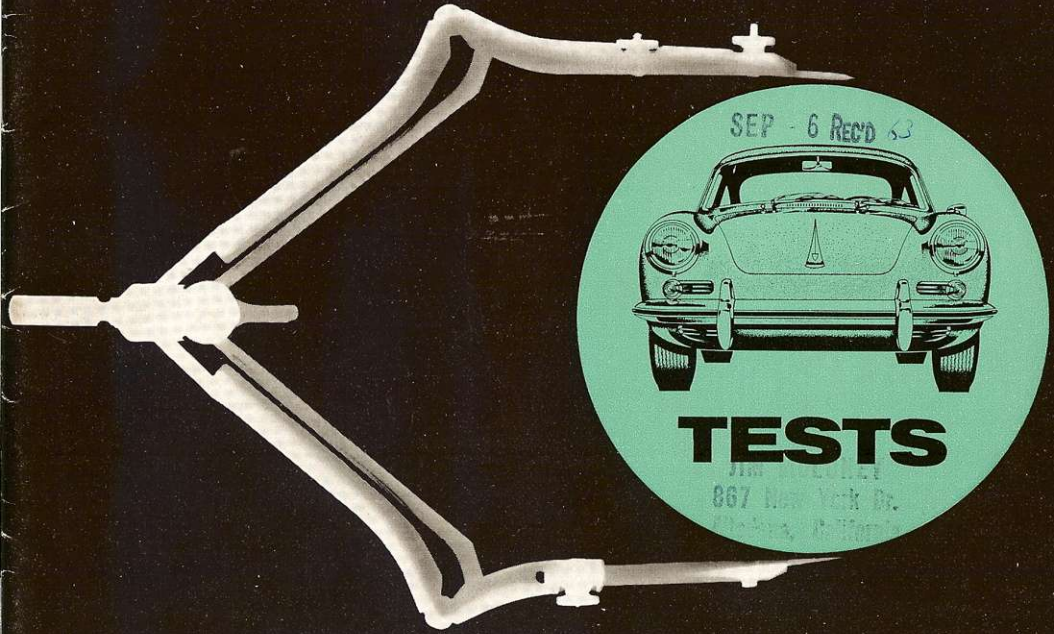
PORSCHE



TESTS

Well known journalists of famed motoring and sports magazines have recently tested the latest **PORSCHE** *models of Type 356 B. Their experiences and impressions have been compiled and printed in form of this little brochure*

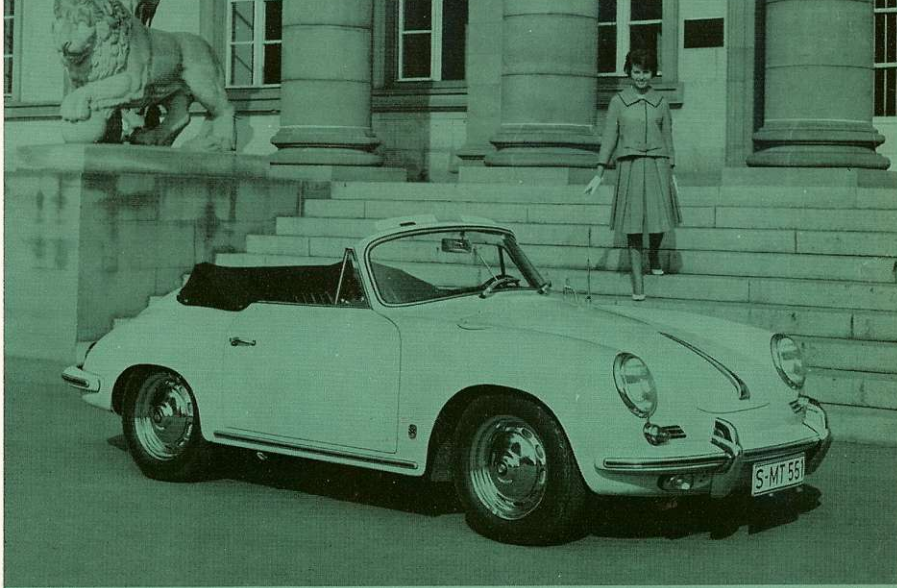
THE TIMES, London: As a genuine G. T. car, the Porsche is at the top of its class; comfortable and spacious, with an effortless performance and handling that outclasses some of its bigger contemporaries, yet with the lightweight compactness and thoroughness of design that many British drivers seek but seldom find in foreign cars.

"SOMETIMES a test car reveals its personality rather slowly and a neutral first impression is succeeded by a growing like (or dislike). The Porsche, on the other hand, has an immediate attraction for most people; several passengers expressed this feeling spontaneously before completing their first mile." That is what "THE MOTOR", in London, one of Britain's leading Motor Magazines, said after they had tested a Porsche Super 75.

HANSJOERG BENDEL, Swiss Correspondent for the well known American Motor Enthusiasts' Magazine "ROAD & TRACK", after roadtesting a Porsche Carrera 2-Liter (preproduction model), ". . . the Carrera 2-Liter is certainly one of the most desirable GT cars produced today; it is not cheap, and maintenance will not be quite as easy as on the simpler pushrod versions, but it should delight the owner looking for a car of high quality and exceptional roadworthiness."

JERRY SLONIGER, European Correspondent for American Motor Magazines, tested a Porsche Super 90 for "THE OVERSEAS WEEKLY" during winter weather. He wrote, "The fact that a Porsche will out-handle, out-perform and one-up just about anything in its class is no news. The fact that the Super 90, the hottest pushrod Porsche they offer will do all that and still behave like a lamb when you can't get it over 2,000 revs in the snow, is equally impressive."

GUENTHER MOLTER, European Correspondent for "MOTOR TREND", has been fortunate enough to drive every new model—including the Carrera 2-Liter—summer and winter, over the twisting highways of Europe. His comment after a Super 90 road test was, "'Experts' said the Porsche couldn't be significantly improved, but the Super 90 embarrassed them all. More of everything . . . and still an all-purpose car!"


S-MT 55

Günther Molter: **PORSCHE SUPER 90**

Twelve years of Porsche progress have been little short of remarkable. We have been fortunate enough to drive every new model including the new Carrera 2-liter, summer and winter, over the twisting high-ways of Europe—and the Super 90 is the best yet.

Current production concentrates on the 60-hp Nor-mal, 75-hp Super and the 90-hp Super 90. The 130 horse Carrera 2-liter GS is being built at the present time. Only 200 of them will be produced in Zuffenhausen. So the Super 90 is the most powerful in series production. Horsepower ratings, incident-ally, are German DIN roughly equivalent to 70, 88 and 105 bhp respectively.

As introduced at the Frankfurt Motor Show, all the 356 B Type Porsches have horizontally finned brakes with better heat dissipation, higher mounted bum-pers and headlights, new steering wheel, shorter and smoother gear shifting. The windshield of the Coupe and Hardtop has been enlarged so that even the smallest and largest drivers have an unimpared vision. Traffic lights as well as small children are easily visible. The rear window of the Coupe and Hardtop has also been enlarged to give better all around vision in city traffic. Especially when parking, the large window will be appreciated. The fresh air rent in front of the windshield gives ample ventilation to the passenger compartment. A new low fuel tank gives a larger luggage space and brings the fuel filler spout outside of the car. A larger front lid furnishes easy access to the spare tire as well as in-creasing accessibility of the luggage space. The fuel filler cap is now located in the right fender. The finishing touch was added to the different models by: an electric clock which is standard in all models, a gear shift lock which makes the car even more theft proof, a variable speed windshield wiper system keeping the windshield clear in even the worst wea-ther. On the other hand in a light rain the wipers do not have to race back and forth unneccesarily.

What is it like to drive a Super 90? First of all, the immediate acceleration of the 75-hp Super is still in the new engine. Then a great deal has been added to the top end so that we were able to clock a safe and comfortable 116.5-mph maximum. The engine is de-signed for 5500 revs over long periods with short bursts to 5800 considered practical.

The Super 90 we drove was equipped with Dunlop SB 5 braced tread tires. This tire is a wire cord type designed to run at low pressures, much as the Miche-lin X. But there the resemblance stops. Tread area is greatly increased—67 per cent more than Dunlop's fine B-7 nylon tire. Despite greater road contact, the

road resistance at top speed takes only 15 hp as compared to 29 hp for the Continental Supersport. Adhesion in turns is much better with the SB=5 than with any other tire and there is no expansion at high speeds—desirable for serious rallyists. The only inherent disadvantage is felt on cobblestone surfaces where the entire car vibrates at a very high frequency. The solution to that is to stay off cobblestone streets.

Before the 1960 models, Porsche had a reputation for oversteer. The very first cars were notoriously bad and needed so much careful attention that the name *Heckschleuder* (rear slinger) was applied. Steering improvements were made but there was still a slight tendency to oversteer—enough so that very fast motoring was a little dangerous for the new Porsche driver. The Super 90 shows absolutely neutral steering. (A compensating leaf spring has been added below the swing axles.) Entering a turn too fast, the car holds its line and doesn't break away. An additional virtue is the lack of roll. And there is no difference in handling when driving a series of fast left= and right=hand turns.

Recently, after driving the Mercedes 220=S, I commented that I had never before driven a car with such fine roadholding and "driving culture"—a combination of handling and steering characteristics, suspension, seating position, relation of driver to steering wheel, pedals and gear lever, and visibility.

Now I honestly believe that the Super 90 is even better. Seating, for example, is exactly on the center of gravity. The spine is so beautifully supported that it feels as if the body is held by a corset. This is important for prolonged high=speed driving; one can drive the Super 90 for hours without tiring. The new steering wheel is ideally sized and positioned in relation to pedals and gearshift while instruments, notably the all=important tachometer, are in perfect view.

Power increase on the Super 90 has been attained by two Carrera carburetors (Solex 40 JJ=4), larger intake ports and valves, compression raised from 8.5 to 9 to 1, and a freer flowing yet quieter muffler. The intake valve stroke has been increased by changing the rocker arm ratio. Camshaft remains unchanged from the Super.

Starting is quick and easy from cold; a hot engine requires two or three accelerator strokes. There are no acceleration flat spots and the car pulls smoothly from 1500 to 5500 rpm in fourth gear without protest.

The four=speed all=synchro=gearbox offers the most sensational fast shifting I know. It is no wonder that Ferrari and many others have adopted the Porsche ring synchronization.

Driving comfort is excellent. Torsion bars and telescopic shocks soak up every rough surface so that it is difficult to realize that this is a car with only an

81-inch wheelbase. Steering is not extremely light; it is easier to steer into a turn than in the turn itself. But steering is very direct and uneven road surfaces are not transmitted back into the wheel.

Porsche's drum brakes are without doubt the best on any production car today. Pedal pressure is light to moderate and there is no appreciable fade after a number of high-speed stops. Hands-off stopping is absolutely straight.

The tiny 1582 cc (96.5 cubic-inch) engine moves the Super 90 from a standing start in very good fashion:

0–60 kpg	(37.2 mph)	6.6 secs.
0–80	49.6	9.4
0–100	62.0	13.6
0–120	74.4	19.0
0–140	86.6	27.0
0–160	99.2	36.0

The Super 90 is surprisingly economical. On the Autobahn we checked fuel consumption. At a steady 75 mph the car delivers 20.5 mpg. Stepping the speed up to 85 increased consumption to 17.4 mpg. This engine likes the best grade of gasoline available.

This is an exciting car, a man's car, outstanding in every way and a real adventure in motoring. In past years we wondered; now we know the Porsche can be improved. The only question is where do they go from here?

PORSCHE SUPER 90

Jerry Sloniger:

One of the many things Porsche owners boast about is their air cooling which "neither boils nor freezes." With a Porsche Super 90 to test in the middle of winter it seemed an excellent time to see if the car is really that docile in snowy surroundings—and incidentally whether the prospective S 90 owner could expect his bomb to perform on less violent days around a ski resort, for instance.

The fact that a Porsche will out-handle, out-perform and one-up just about anything in its class is no news. The fact that the Super 90, the hottest pushrod Porsche they offer will do all that and still behave like a lamb when you can't get it over 2,000 revs in the snow (in second yet), is equally impressive. This latest version of the Stuttgart flat four had all the diamondlike luster we expected on the open highway but it was equally willing to potter between hotel and ski lift with the top down, never choking, fussing or missing a beat under conditions that are completely foreign to it—to wit, slow drives.

This is doubly noteworthy in a S 90 because this mill is well-and-truly tuned. The Super 90 replaced the Carrera de Luxe and they had to apply all of the extensive Porsche background to promote 90 healthy horses from 1.6 liters of pushrod engine. That was pretty close to a Carrera value a few years back—without the expensive handfitted engine and overhead cams. The manner in which the ponies were bred is a major part of this tale.

A quick peek under the lid shows item number one—two giant double Solex carbs from the Carrera line. They are mounted on "semiram" intakes that feed new heads with better flow and larger intake valves. Compression was boosted and higher, four-ring pistons fitted into special cylinder barrels that have a sprayed steel coat to promote smoother break-in and longer life. The blower puts out more cooling air. They also fitted lighter pushrods, stronger valves, beefier valve seats and stiffer springs.

That was enough to raise the 75-hp Super to 90 hp but it isn't the Porsche way to hot up the top end and let the bottom struggle. Porsche wouldn't buy a shorter motor life so they reworked the entire bottom end too (or rather the middle in an opposed four). Main bearing caps are stronger and of sturdier stuff on the faces and the con rods are huskier.

The sum is an engine that will boost a luxurious two seater up to 113 mph and do it calmly as if that were the normal thing. You have to keep an eye on that big central tach to stay out of the red zone, the power-plant is so eager. Incidentally, conditions prevented our usual top-speed test but the factory had recently run this exact car, top up, and recorded 113.5 as an average. It was fully believable, allowing for speedo error.

Our own acceleration figures point up one Porsche habit. They are not prone to get off the mark like a shot, but once rolling the rush of push is all there and then some in the 90.

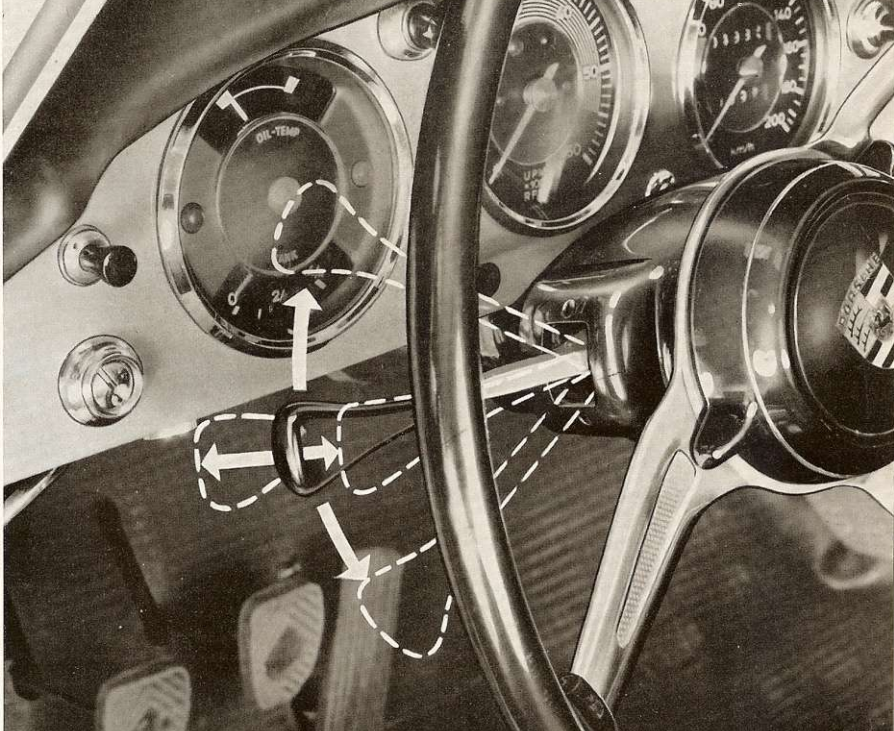
The body—a cabriolet—was naturally the 356 B design introduced in late 1961. This means bumpers raised $3^{3}/_{4}$ inches in front and $4^{1}/_{8}$ inches in the rear, higher headlights, brake cooling vents under the front bumper, new light-metal brake drums with axial cooling ribs and an improved water seal, new gearbox and a dished steering wheel with black rim, to name the highlights.

The fresh air rent in front of the windshield gives ample ventilation to the passenger compartment. A new low fuel tank gives a larger luggage space and brings the fuel filler spout outside of the car. An electric clock is standard in all models. A gear shift lock has made the car even more theft proof.

Those brakes are a typical Porsche trick. Previous Porsches were noted for fine braking but that wasn't enough for Zuffenhausen; they made them better and fitted Energit 999 linings to boot. Similarly they went after the gearbox—which was always considered one of the best features in a Porsche—and made it better. The handle is shorter and thicker and angled toward the driver. The throws from cog to cog are shorter too and it is literally impossible to beat the Porsche-patent synchromesh.

Shifting is only one driving pleasure with these cars. The steering is precise beyond belief, though a little heavier than you might expect. Forward vision is good and the black instrument dials are round, large and right where the driver can take them in at a glance. One minor complaint is the ash tray spotted under the center of the dash where it skins your knuckles on fast shifts from II to III. The pedals are well placed though the accelerator-return spring was stiff enough to tire the ankle on partthrottle cruises.

Comfort is beyond belief in the reclining seats and the padded and trimmed top is absolutely draft and



Instruments and Controls
Combined dimmer, light and turn signal switch

space for touring luggage fo

And finally, the handling
astounded with the B line.
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PORSCHE *carrera 2*

Hansjoerg Bendel:

Let's look back a few years: When the first Porsche appeared in 1948, it was little more than a hotted-up VW beautified by a streamlined coupe body—made of aluminum at that time—produced in very small numbers in very small workshops at Gmünd in Austria. The 1131-cc, air-cooled flat-4 engine had been talked into producing 40 bhp, the transmission incorporated that remarkably solid crash box good for a) delightfully professional, doubleclutched changes, or b) changes without any use of the clutch, or c) the production of horrible noises without apparent ill effects, and the brakes used the original small VW drums. Top speed was around 87 mph, and the car soon got a reputation for "difficult" cornering because of a strong addiction to oversteer. To the surprise of many, this modest theme—just like that of the VW itself—proved capable of fantastic development. After Porsche had returned to Stuttgart, large-scale production methods were adopted, and numerous improvements made later models faster, quieter, more refined and led to better handling and reliability.

The most obvious development concerned the push-rod engine. Enlargements first to 1300 and then to 1500 cc brought racing units which, when fed with alcoholic beverage, produced up to 98 bhp (DIN measurement, i.e., with all accessories and silencer) and propelled coupes and open 2-seaters at speeds exceeding 125 mph.

For some time these engines collected success after success, but in 1952 Ferry Porsche and his staff realized that, for serious racing, the days of the simple pushrod unit were numbered. A completely new, flat-4 engine of 1500 cc was built, air cooled again, but incorporating 4 overhead camshafts; the result was an initial power output of 115 bhp at 7500 rpm.

In an open 2-seater, driven by pre-war ace Hans Stuck, this engine had a few experimental sorties in 1953; entrusted to Hans Herrmann, it made its first successful bid for top racing honors in the 1954 Mille Miglia, where it delighted its creators by placing 6th overall and winning the 1500-cc class. Even today, the racing career of this design is anything but over, as the 1961 Porsche GP team started this season with a fuel-injected version credited with about 165 bhp—nearly 50 % more than the original design target.

In the same year of 1954, this engine also commenced a second career which, as far as the private Porsche owner is concerned, is of even greater direct interest: It was installed in one of the Austrian-made aluminum coupes and appeared in the Liège-Rome-Liège, one of the toughest long-distance rallies ever; driven by Polensky and Linge, it beat the entire competition and came first in general classification.

The winning potential of this combination was so convincing that series-production was decided; christened "Carrera" in honor of the Mexican Road Race and recognized as a "series-production GT car," it has since distinguished itself in countless events.

The Carrera, produced first with 1500, later with 1600 cc, was meant for the driver interested in serious high-speed motoring. Many Carreras never faced a starter's flag, and there was really not much point in preferring the more sophisticated engine and its exacting demands on maintenance unless the superior performance in the upper speed range could be exploited—the pushrod units were cheaper to buy and to run, less noisy and, in daily use, just as fast. One Carrera specialty merits recording: To this day, all pushrod engines have been cooled by virtually the original VW fan. This was not good enough for the 4 ohc engines, for which a powerful blower with twin rotors was evolved; at high revs, huge quantities of air were expelled underneath the engine, which on dry roads produced the most spectacular clouds of dust and a distinct "atmosphere of racing."

As the years went by, even the big touring cars got more power and began to trespass into performance regions hitherto considered private Porsche hunting grounds. To enable the air-cooled fraternity to keep in front, even in straight-line acceleration, something

more powerful than even the Super 90 was desirable. The 2-liter "Carrera 2" was the answer.

This model was introduced at the Frankfurt Motor Show in the fall of 1961; its body has all the latest modifications mentioned in R&T's December 1961 issue (larger window area, modified front hood, fresh-air inlets ahead of windshield, external fuel filler cap, twin cooling air inlets on engine cover), while the chassis specification is identical to that of the Super 90, with its rear swing axle with transverse equalization leaf spring. In other words, body and running gear are modified in detail only; it follows that in comparison with the Super 90 and the 1600 (tested by R&T in March '60 and October '61), no radical departures are to be expected.

The only thing completely new is the engine. Porsche has often been named among those constructors who are wizards at achieving results which others (or theory) consider impossible; when it was decided to provide plenty of torque at low speeds—for real acceleration—and smooth, flexible running, even the fathers of the Carrera agreed that this could best be achieved by a little more displacement: When the 4-ohc engine was first laid down, it had already been decided that the design should permit a maximum size of 2 liters, and this then was the volume selected for the Carrera 2. With 92-mm bore and 74-mm stroke, it is decidedly oversquare; its peak power of 152 bhp (SAE rating) at 6200 rpm is definitely below the figure attainable by this unit in racing tune; maximum torque comes at 4600 rpm on a long, flat curve. In the interest of smoother running, longer life and easier maintenance, bearings are plain throughout, in contrast to the early models' roller bearings for the mains and connecting rods.

Our test car was fitted with the "European" gearbox; for cars supplied to the U.S., standard ratios in 3rd (1.227) and 4th (0.885) are slightly "slower," in the interest of a little more pulling power.

As explained previously, we did not expect any surprises from the chassis; when we threw our test gear into the back of the car, we were prepared to find a well-known package in which only the new engine would merit special comment. In a way, we were right, because all the well-known features are there: the very comfortable Reutter seats, the quick gearchange, the familiar surroundings and, above all, the unmistakable feel of a quality car built for the connoisseur. But we did have a pleasant surprise. Apparently the "unchanged" chassis has again been subject to subtle detail development, which makes itself felt as soon as one takes the wheel. The steering is a little better—improved response with reduced vibration feedback—and there is unmistakable pro-

gress in the way the car keeps glued to the road at all times. There is better stability under fierce acceleration, at full speed and under heavy braking, and experiments like braking in a corner can result in a slightly ragged line but practically never bring real trouble.

It is likely that part of this improvement must be credited to the late-model "round shoulder" tires but, whatever the reason, the balance is perfect.

This is not useless luxury. The high torque promised on paper is certainly there, and when climbing winding mountain roads it is very easy to accelerate out of a corner with too much steam; under conditions such as this, the exceptional controllability is quickly appreciated.

The car's acceleration is truly exhilarating. The clutch takes quite a bit of throttle without protest, and when one finds that it is time for 2nd gear, down comes the stick in a flick, more acceleration, and other cars pass by as if in reverse. High up in the speed range, this is it—the effortless superiority of the true high-performance machine.

Performance figures are almost exactly as claimed by the manufacturer. Best recorded speed was 126 mph (Porsche says 124.5) and our acceleration times were just slightly slower than those given by a graph included in the specifications. Unfortunately, our test car was wanted "back as soon as possible," so we had no opportunity to check the fuel consumption. However, we have reason to believe that owners will find it easy to get better than the minimum 16.8-mpg figure indicated.

In the body department, the most notable innovation concerns the fresh-air intake, combined with electric fan and a separate heater which is situated in the front compartment, ahead of the battery. This combination is effective and (at last!) permits windshield defrosting without running the engine; it has the amusing peculiarity that, after switching the engine off, the burner continues with burbling noises until all the fuel previously aspirated is used up—which may lead to uninitiated parking lot attendants calling the fire squad when faced with a car obviously about to explode! At present, no figures are available concerning the additional fuel consumption of this heater but, anyhow, the extra comfort is worth something.

Points of criticism: When we first laid eyes (and ears) on the new engine, in the autumn of 1961, we were struck by a silkiness totally unusual for this kind of power unit. It was therefore with high expectations that we approached our test car. But these expectations were not entirely fulfilled: There was

too much noise inside the car, and the engine appeared to have that certain roughness well remembered from older Carreras. In fairness, we must record that we tried a preproduction model, so we can only hope that this peculiarity will have disappeared on the cars supplied to customers. A second remark concerns the body as a whole. It is certain that Porsche has never tried to be "à la mode," and bless it for that—but after 14 years with an almost unchanged shape, even the accustomed eye begins to notice some signs of age. The instrument panel, for example, is higher up than is usual nowadays, and visibility could only benefit from a lower waistline.

Also, of course, the rear seating compartment remains impossible—at least for grown-ups—for distances over 5 miles. No doubt comparatively small production figures do not invite frequent body changes, even less so when the existing shape has many proven advantages and a solid following, but, in spite of this, we feel that Porsche should start to look ahead—if it hasn't already done so.

As a whole, the Carrera 2 is certainly one of the most desirable GT cars produced today; it is not cheap, and maintenance will not be quite as easy as on the simpler pushrod versions, but it should delight the owner looking for a car of high quality and exceptional roadworthiness.

DIMENSIONS

Wheelbase, in	82.7
Tread, f and r	51.4/50.1
Over-all length, in	158
width	65.8
height	52.3
equivalent vol, cu ft	315
Frontal area, sq ft	19.1
Ground clearance, in	6.0
Steering ratio, o/a	16.0
turns, lock to lock	2.5
turning circle, ft	36
Hip room, front	2x21.0
Hip room, rear	
Pedal to seat back, max.	42.0
Floor to ground	10.0

CALCULATED DATA

Lb/hp (test wt)	16.6
Cu ft/ton mile	84.4
Mph/1000 rpm (4th)	19.6
Engine revs/mile	3060
Piston travel, ft/mile	1485
Rpm (a) 2500 ft/min.	5150
equivalent mph	101
R&T wear index	45.4

SPECIFICATIONS

Curb weight, lb	2220
Test weight	2520
distribution, %	43/57
Tire sitze	165-15
Brake swept area	149
Engine type	flat-4, ohv
Bore & stroke	3.62x2.91
Displacement, cc	1966
cu in	120
Compression ratio	9.5
Bhp (a) rpm	152 (a) 6200
equivalent mph	122
Torque, lb-ft	131 (a) 4600
equivalent mph	90

GEAR RATIOS

4th (0.852)	3.78
3rd (1.130)	5.01
2nd (1.765)	7.83
1st (3.090)	13.7

SPEEDOMETER ERROR

30 mph	actual, 25.0
60 mph	54.0

PERFORMANCE

Top speed (4th), mph	122.7
best timed run	126.0
3rd (6800)	101
2nd (6850)	65
1st (6850)	37

FUEL CONSUMPTION

Normal range, mpg	16.8/23.5

ACCELERATION

0-30 mph, sec	3.3
0-40	5.3
0-50	6.9
0-60	9.2
0-70	12.4
0-80	15.8
0-100	27.2
Standing ¼ mile	16.9
speed at end	83

TAPLEY DATA

4th, lb/ton (a) mph	131 (a) 92
3rd	290 (a) 70
2nd	575 (a) 50
Total drag at 60 mph, lb	115

PORSCHE SUPER 75

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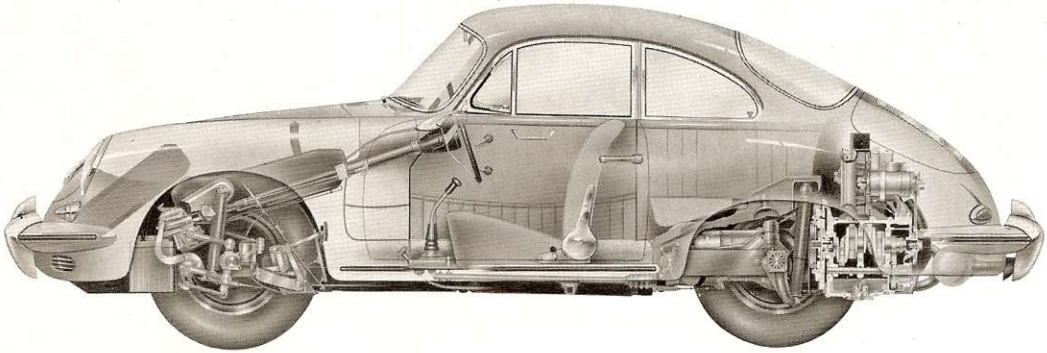
"The Motor," London

Sometimes a test car reveals its personality rather slowly and a neutral first impression is succeeded by a growing like (or dislike). The Porsche, on the other hand, has an immediate attraction for most people; several passengers expressed this feeling spontaneously before completing their first mile. Essentially its charm springs from a very rare blend of first-class sports car virtues with touring car amenities and from the overall balance of its design. A surprisingly large percentage of the most desirable cars available have some features which fall far below the general standard—it may be noise, heavy controls, harsh suspension, an unpleasant gearbox, uncomfortable seats, a bad driving position, poor visibility, etc. The Porsche is not perfect and it does not reach the highest standards in everything but it does get the "above average" rating in more aspects than almost any other sporting or G.T. car we have tried.

The 356 B series comprises nine models, a permutation of three different body styles with three 1,600 cc engines of different power output. We had the intermediate engine giving 75 bhp net, half-way between the 60 bhp of the standard model and the 90 bhp of the Super 90. The three bodies, all of which are mounted on a platform chassis of great rigidity, comprise a detachable hardtop, a detachable convertible and a fixed head coupé. The last, which we tested, is

the traditional low-drag body, still very similar in shape to that of the first Porsche which was introduced in 1949 and which was based largely on Volkswagen mechanical parts.

Thirteen years of development have left few if any of the original components unaltered but the general layout remains the same with a rear-mounted air-cooled flat-four engine, swing axle independent rear suspension and front wheels mounted on twin parallel trailing links. The usual tendency for cars to grow in size and weight has been largely resisted and although increasing refinement has brought some weight penalty, this 17½-cwt car is one of the very few machines available to a buyer who insists on luxury in a compact and agile form.



First Impressions

The unusual comfort of the front seats confirms that correct shaping is more important than soft padding. The upholstery is quite hard but body weight is well distributed over its surface and the adjustable rake back rests support the whole length of the spine whilst also giving satisfactory location against substantial cornering forces. *The Motor* staff, who vary rather extravagantly in height from 5 ft. 4 ins. to 6 ft. 5 ins., had to admit that the fore and aft adjustment was entirely adequate.

A low floor is a desirable feature and although the pedals are spaced well apart an angled organ-type throttle allows easy and natural heel and toe operation of brake and accelerator; the left foot has plenty of room to rest when it is not working the clutch or the plunger type windscreen washer. A manual dip-switch is combined with the direction signals and headlamp flasher in a convenient finger-tip control projecting from the left of the steering column. The steering wheel is placed high enough to leave ample room above the legs and low enough not to interfere with an excellent view down the short sharply sloping bonnet. The rear view is also comprehensive and this latest Porsche, with front and rear windows enlarged since the end of last year, shows a useful improvement in all-round visibility over earlier models.

At night this visibility is maintained by powerful headlights with a good spread and in bad weather by extremely effective windscreen wipers, with a heavy contact pressure. Although variable wiper speed is no longer a novelty, these have the widest speed range we have yet encountered. The facia is neat and practical with well-separated switches and large, clearly marked instruments. No oil pressure gauge is fitted but there is an oil thermometer as a reminder that oil temperatures fluctuate more widely in air-cooled than in water-cooled engines. The instrument was not calibrated in degrees, but we never got the needle anywhere near the red warning sector even after quite a number of miles at or near maximum speed.

Road Impressions

The thoughtful design of the seats and controls makes a new driver feel at home very quickly and his acclimatization is accelerated by the Porsche gearbox, which for many years has set something of a standard by which others are judged. Long connections to the rear-mounted gearbox isolate the lever from engine vibration whilst introducing a degree of flexibility which is no disadvantage in practice. All four forward ratios have synchromesh and, perhaps because this car had done only 500 miles when we took it over, bottom gear was always heavy to engage, but the other changes were light, and very fast. An unusual and most attractive feature is the quietness of

the lower gears which give maximum speeds of approximately 30, 50 and 80 mph at 5,500 rpm. It seems natural in the Porsche to run up to 5,000 rpm (the beginning of the red sector on the rev. counter) quite regularly and not, as in most cars, only when in a desperate hurry; thus in ordinary driving one comes near to repeating the excellent acceleration, figures shown in the data panel. The mean maximum speed of 106.6 mph was recorded with less than 1,000 miles on the clock and would probably improve appreciably after a lot more running in.

Obviously the smoothness of the flat-four air-cooled engine is a major factor in encouraging this sort of use; as heard from outside the car or by reflection from walls through open windows, the power unit is not quiet but its remote position and effective insulation prevent the direct transmission of mechanical sounds to the interior leaving only a deep-throated and not unpleasant combination of intake and exhaust noise. When throttled back for high-speed cruising most of this disappears and generally the engine has a relaxed air as though working well within its limits.

Wind noise round the very well-streamlined and well-sealed body is extremely low with all the windows shut; a separate cold air inlet makes fully closed motoring possible in mild weather but the front or rear quarter lights must be opened to induce a substantial flow of air. If the side windows are wound down very far, a most unpleasant buffeting airflow is established.

Multiple Carburation

We have said that the engine enjoys turning fast and a green sector on the rev. counter from 3,000—5,000 rpm indicates the region in which the needle should be kept for high-speed motoring, but it is certainly not inflexible. Two double-choke downdraught carburetters provide a separate inlet tract for each cylinder and there is ample evidence that carburation is unusually clean. Smooth, even pick-up is possible from below 1,000 rpm and the steady speed fuel consumption figures are particularly good. An 11½-gallon tank with a reserve tap and a touring fuel consumption of nearly 36 mpg make a cruising range of 400 miles possible at moderate touring speeds. In our hands the car was driven as hard as possible nearly all the time and with a good deal of rush-hour town motoring thrown in the overall figure of 26 mpg was creditable. No rich mixture device is fitted—a few strokes of the throttle squirt in enough fuel from the accelerator pumps for cold starting and almost immediately the engine will idle reliably without use of the hand throttle provided.

Sensitive Steering

It is well known that early Porsche had the appreciable oversteer that is often associated with rear engines

and swing axle suspension und which demanded considerable skill in fast driving. Suspension and tyre development have now eliminated premature rear-end breakaway and left a car which can be driven extremely fast on winding roads without exceptional technique. Drivers who prefer more understeer can have it if they order the modified rear suspension which is standard on the Super 90 and available on the Super 75 as a factory-fitted optional extra. This consists of a crentre-pivoted transverse leaf spring which allows the use of thinner torsion bars giving a reduction in rear roll stiffness of about 20 %. Our test car was not equipped with this extra spring.

In general, the high-geared steering is reasonably light if not, perhaps, as light as one would expect with a high-efficiency mechanism and only $7^1/_2$ cwt on the front wheels, but considerable effort is needed to hold it into a sharp corner taken really fast when self-centring is very pronounced. Textile braced tread German Dunlop SP tyres (an optional extra) may have been partly responsible for this but, in return, they grip the road tenaciously in wet or dry conditions. In the limit, it is still the back wheels which break away first but they do so fairly gently; this limit can be postponed to still higher speeds by cornering with the power on; with i.r.s. and 58 % of the unladen weight on the driving wheels a good deal of power can be used with advantage even in the lower gears.

It is very noticeable that the Porsche responds best to those with a light, sensitive and relaxed touch and any attempt to grip the wheel and direct it forcefully results in jerky cornering and erratic straight-running. Normally it needs little correction at high speeds, but changing cambers, to some extent, and cross winds, to a considerable extent, can cause high-speed wander.

The roll stiffness is very great, the centre of gravity low and the rear roll centre high, a combination which diminishes lean on corners to a very small amount but introduces a characteristic lateral rocking motion into the ride as camber changes are followed closely and rapidly. Springing is comfortable but very firm so that there is some well-controlled vertical movement on ordinary roads but really bad roads are absorbed with unexpected ease; washboard surfaces, pot holes, bumps and ridges disturb neither its road clinging nor the monolithic feel which is an outstandingly pleasant result of a very rigid rattlefree structure and well-insulated suspension. This is one of the few cars where cornering speeds are indicated by the sharpness of the bend and not by the roughness of its surface.

The deceleration figures taken from 30 mph show that the brakes are powerful and fairly light but, although they proved entirely adequate for motoring in this

country, they fall below the standards set by good modern disc brakes. At low speeds and low pressures they made a loud and rather gritty rubbing noise and when stopping really hard from fast cruising speeds high pedal forces were needed and a slight judder was observed. A rapid succession of hard stops from 60 mph produced increased pedal travel and some fade. The pull-out handbrake, mounted under the facia, is extremely powerful and held the car with ease on a gradient of 1 in 3, but it is rather awkward to release and tends to remain in a half-way position unless pushed firmly back.

Luggage room under the front bonnet is rather limited but there is plenty of room inside the car when the occasional seat backs are folded flat and luggage can then be secured by straps which are available as an extra. For short journeys it is quite possible to put two average-size adults in the rear seats provided that the front ones are pushed forward to give kneeroom.

In many ways a light small-engined car with a really high performance gives a keen driver the maximum satisfaction but, in this country at least, most of the vehicles which rival the Porsche for speed and agility lack its refinement comfort and carrying capacity. It is amazing that it still has so few competitors or imitators.

DATA

CONDITIONS: Weather: Dry, warm, negligible wind. (Temperature 64°—66° F., Barometer 30.1 in. Hg.) Surface: Dry tarmacadam. Fuel: Premium grade pump petrol (97 Octane Rating by Research Method).

INSTRUMENTS: Speedometer at 30 mph 3% fast; Speedometer at 60 mph 4% fast; Speedometer at 90 mph 6% fast; Distance Recorder 2% fast.

WEIGHT: Kerb weight (unladen, but with oil, coolant and fuel for approximately 50 miles) 17½ cwt.; Front/rear distribution of kerb weight 42/58; Weight laden as tested 21¼ cwt.

MAXIMUM SPEEDS: Flying Mile: Mean of six opposite runs 106.6 mph; Best one-way mile time equals 108.5 mph. — "Maximile" Speed: (Timed quarter-mile after one mile accelerating from rest.) Mean of opposite runs 100.3 mph; Best one-way time equals 102.3 mph. — Speed in gears (at 5,500 rpm): Max. speed in 3rd gear 81 mph; Max. speed in 2nd gear 52 mph; Max. speed in 1st gear 30 mph.

FUEL CONSUMPTION: 51.5 mpg at constant 30 mph on level; 50.0 mpg at constant 40 mph on level; 47.0 mpg at constant 50 mph on level; 41.0 mpg at constant 60 mph on level; 37.0 mpg at constant 70 mph on level; 35.0 mpg at constant 80 mph on level; 30.0 mpg at constant 90 mph on level; 24.0 mpg at constant 100 mph on level. — Overall Fuel Consumption for 1,733 miles, 67.5 gallons, equals 25.7 mpg (11.0 litres/100 km). — Touring Fuel Consumption (mpg at steady midway between 30 mph and maximum, less 5% allowance for acceleration) 35.8 mpg. Fuel tank capacity (maker's figure) 11½ gallons (including 1.1 gallon in reserve).

HILL CLIMBING at sustained steady speeds: Max .gradient on top gear 1 in 12.0 (Tapley 185 lb./ton); Max. gradient on 3rd gear 1 in 7.6 (Tapley 290 lb./ton); Max. gradient on 2nd gear 1 in 4.5 (Tapley 490 lb./ton).

ACCELERATION TIMES from standstill: 0-30 mph 4.5 sec.; 0-40 mph 6.8 sec.; 0-50 mph 9.1 sec.; 0-60 mph 13.5 sec.; 0-70 mph 18.5 sec.; 0-80 mph 23.1 sec.; 0-90 mph 33.0 sec.; 0-100 mph 50.4 sec.; Standing quarter-mile 18.8 sec.

ACCELERATION TIMES on upper ratios: 10-30 mph 3rd gear 7.9 sec.; 20-40 mph Top gear/3rd gear 13.1/7.7 sec.; 30-50 mph 12.5/7.3 sec.; 40-60 mph 12.9/7.7 sec.; 50-70 mph 14.9/9.1 sec.; 60-80 mph 15.8/9.6 sec.; 70-90 mph Top gear 18.2 sec.; 80-100 mph Top gear 28.0 sec.

STEERING: Turning circle between kerbs: Left 31 ft. Right 30 ft. Turns of steering wheel from lock to lock 2½.

BRAKES from 30 mph: 0.98 g retardation (equivalent to 30½ ft. stopping distance) with 95 lb. pedal pressure; 0.87 g retardation (equivalent to 34½ ft. stopping distance) with 75 lb. pedal pressure; 0.55 g retardation (equivalent to 55 ft. stopping distance) with 50 lb. pedal pressure; 0.21 g retardation (equivalent to 143 ft. stopping distance) with 25 lb. pedal pressure.

SPECIFICATIONS

ENGINE: Cylinders 4; Bore 82.5 mm; Stroke 74 mm; Cubic capacity 1,582 cc; Piston area 33.2 sq. in.; Valves Inclined overhead (push-rods); Compression ratio 8.5/1; Carburetters twin Zenith NDIX double choke downdraught; Fuel pump solex mechanical; Ignition timing control centrifugal; Oil filter by-pass; Maximum power (net) 75 bhp; at 5,000 rpm; Piston speed at maximum bhp 2,430 ft./min.

TRANSMISSION: Clutch 7.1 in. Haussermann sdp; Top gear (s/m) 3.61; 3rd gear (s/m) 5.01; 2nd gear (s/m) 7.81; 1st gear (s/m) 13.69; Reverse 15.77; Final drive spiral bevel gears, 31:7; Top gear mph at 1,000 rpm 20.3; Top gear mph at 1,000 ft./min. piston speed 41.8.

CHASSIS: Ate hydraulic drum brakes (2LS at front); Brake dimensions 11 in. dia. by 1.58 in. wide drums front and rear; Friction areas: 121 sq. in. of friction lining operating on 218 sq. in. of rubbed drum surface; Suspension: Front: Independent by transverse laminated torsion bars, parallel trailing arms and antiroll bar; Rear: Independent by swing axles and transverse torsion bars; Stock absorbers: Front and rear Koni telescopic; Steering gear ZF worm and peg with hydraulic damper; Tyres: 5.60—15 standard, 165—15 Dunlop SP (on test car) or Michelin X at extra cost.

pair of properly upholstered occasional seats behind them, folding into a wide luggage platform, and space for soft baggage under the front bonnet. Carrying sufficient luggage for a month's Continental touring would present no problem.

As both front seats, contoured for real leg and back support, are adjustable fore and aft and for rake, or to recline fully for sleeping, a tall driver can find the correct driving position—with the dished steering wheel at the ideal angle. The headlamps are powerful and well set, and a finger-tip flasher, dipper and indicator lever can be flicked from the wheel.

An instrument panel layout notable more for clarity than siting of switches is supplemented by a solid, sporting gear lever, large pedals and foot-button screenwasher. Comprehensive equipment includes an efficient fresh air heater, rear window demisting, dipping mirror and petrol reserve tap. With a gear change lock and electric clock (working) as standard, it is not a car that cries out for extra accessories, although the makers list 47, including an electric sunshine roof for £ 138.

When the foot firsts meets the Super 75 throttle it is hard to believe that the flatfour air-cooled engine in the tail is of only 1,582 c.c., such is its pick-up. In 380 miles at the Porsche wheel in Britain I enjoyed its responsive behaviour under all conditions; patient in traffic, and always ready to surge away up to the 100 mph mark on the open road.

Although the driver sits low he has a clear forward view over the downswept bonnet, and feels a nice compactness about the car when manoeuvring, even if the high rear window cuts backward visibility.

Full use of the gears extracted a vigorous performance: 30 mph was reached from standstill in 4 sec., 40 in 6.8 sec., and 80 in 22 sec., the correctly spaced gear ratios giving a usable maximum of 30 mph in first, 52 in second, with third running freely up to 80–85 mph.

Without exceeding the 5,500 rpm red line in top gear the Super 75 reached 110 mph, although cross-winds made it difficult to hold a steady line at more than 100 mph. Its smoothest cruising was around 75–80, at which pace the engine—which gives a lusty roar through the lower gears—was reasonably quiet, and wind noise was negligible. Of the gear change it is enough to say that the ring synchromesh on all four forward ratios provides a crash-proof and lightning movement.

Braking, under fairly firm pressure, was smooth and progressive at all speeds. Handling was surprisingly predictable for what used to be a decidedly over-steering car, and I found fast cornering one of this car's many driving pleasures—breakaway coming only gently when it was pushed to the extreme, but with easy correction. Steering is direct, there is no pitch or roll, and the suspension is strongly damped. Particularly impressive was the rigidity of the whole

STEERING: worm and peg.

GEAR RATIOS: top, 3.61 to 1; thi
first, 13.69 to 1.

BRAKES: hydraulic drums, front and

SUSPENSION: front, independent,
and anti-roll bar; rear independent,

TYRES: 5.60 by 15.

DIMENSIONS: overall length, 13 f
height, 4 ft. 3½ ins.; ground cle
36 ft.; weight, 17½ cwt.

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