

## PORSCHE 904

*Porsche continues to offer the private owner an outstanding value in the competition field*

PHOTOS BY GORDON CHITTENDEN

WHEN THE MODEL 550 Porsche appeared in American road racing in the mid-Fifties, it brought a new dimension to the sport in this country. Prior to its becoming available to private owners, campaigning a 1500-cc sports/racing car was almost certain to lead to frustrations and anxieties. In those days there weren't many 1.5-liter racing cars that could be called "factory built" and even these few tended to be frightfully expensive, yet still had only the spottiest factory support for the private owner. Not only was there no assurance that a completely different model would not obsolete yours at any moment but there was also a good chance you couldn't obtain the proper replacement parts to keep it running anyway. As a result, the most successful

1500-cc cars were locally produced specials that coupled a tuned production car engine with a lightweight chassis and body.

The Porsche 550 changed all that with the introduction of a 110-bhp, dohc 1498-cc engine at the Paris Show in the autumn of 1953 which heralded the revolution. Within a year, the MG Specials were virtually out of contention and, with a few notable exceptions, the Porsche 550 and its derivatives completely dominated the under-2-liter sports/racing class right up until the arrival of the twin-cam 1600 Lotus 23-B in 1963.

In fact, the Porsche 550 became a sort of Everyman's Racing Car, the first Everyman's Racing Car in American racing. For a minimal amount of money, less than \$8000 (which Everyracingman considers cheap), it was possible to purchase a soundly engineered, thoroughly developed and responsibly supported racing car. You could buy one, race it with a good chance of success, depending on your own driving skill, be assured that a new model wasn't going to make yours old-fashioned next week, and you could get the spare parts you needed. The 550 even brought a word into popular use in American racing—Spyder. Ah yes, Spyder. What a nice foreign sound it made in the mouth, Spyder with a "y."

But things have changed since 1954. In those years, the

emphasis was all on sports/racing cars and nobody cared whether five, 50 or 500 examples had been built. Grand Touring cars, in those years, were still cars that were grand for touring. Not for racing.

Now, however, the biggest emphasis in international racing is on Grand Touring cars, as defined by the *Federation Internationale de l'Automobile*. This, coupled with the Sports Car Club of America's consistent program aimed at getting U.S. racing onto more or less the same basis as the rest of the world, has also brought an emphasis on GT racing in this country.

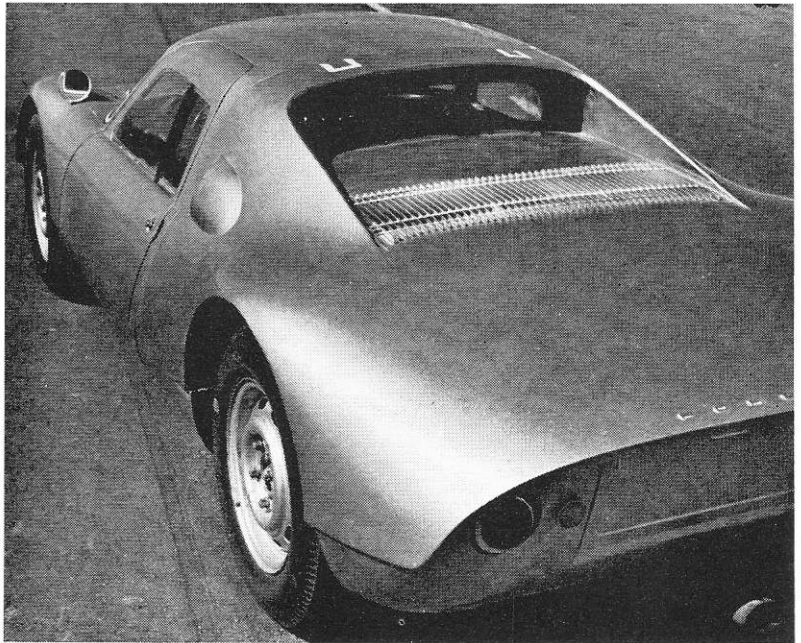
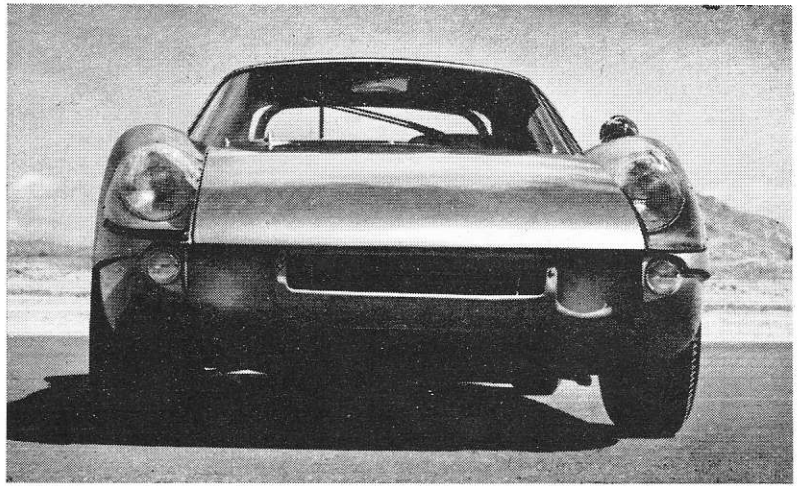
All this background has comparatively little to do with our test car, the Porsche 904, except that it is important to somewhat understand the position Porsche has held in past U.S. road racing and what may be expected in the future.

Our test car is the Porsche Carrera GTS Type 904, to give it its properly cumbersome German title. It is, technically, a Grand Touring car meeting all the FIA's requirements right down to the 110-liter fuel tank, baggage space to accommodate a box 65 x 40 x 20 cm and outfitted right down to the last ridiculous letter of the silly regulations. So what's a "Grand Touring" car? It isn't easy to define. By the FIA's definition, it is a vehicle that fulfills the myriad requirements of Appendix J, Group 3, of the International Sporting Code, and is described as vehicles "built in small series for customers who are looking for better performance and/or a maximum comfort and are not particularly concerned about economy." It is also important to remember that there is nothing in the rules that says anything about a GT car having to be primarily intended for normal use, for business or pleasure, or "*utilisation normale pour la promenade et les affaires*," as it says in the Sporting Code. There is a host of requirements and among them one requiring that at least 100 identical examples must have been built . . . except . . . well, not quite . . . but let's not get into *that*.

Finally, when you come right down to it, the definition of a Grand Touring car, speaking in the FIA's meaning, is that the car is either a production sports type car or a racing car that meets the dimensional requirements and can be sold in sufficient quantities to meet the production requirement. The Porsche 904 meets the second of these conditions—a racing car to be built in sufficient numbers to qualify as a GT car.

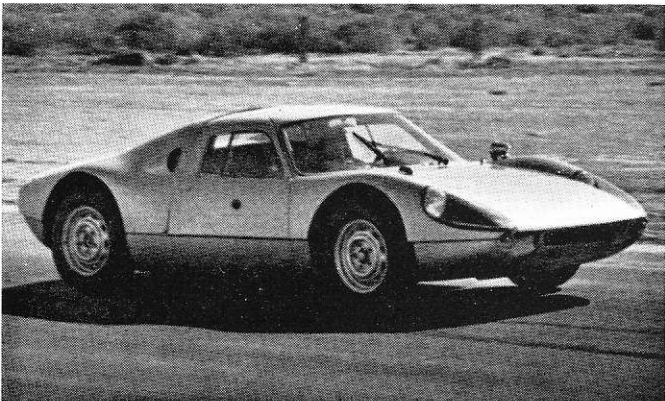
So the position the car has in international racing is that of the leading contender in the 2-liter category of the FIA's Constructors Championships. In this country, the 904 will be eligible for the Manufacturers Division in the SCCA's U.S. Road Racing Championships. In SCCA club racing, the 904 will run as a modified sports car inasmuch as it has not been approved for production category racing.

In appearance the Porsche 904 is purposeful. It is low (41.5 in.), built on a short wheelbase (90.55 in.) and has a long nose that gives it more front overhang than most full-size American sedans. This long snout is functional on the 904, sloping gently upward for good air penetration and al-



lowing room underneath for essentials such as a 29-gal. fuel tank, oil radiator, battery and spare tire. The rear of the car is chopped off sharply in the utilitarian modern manner.

The passenger compartment of the 904 is completely furnished, as required by the FIA regulations. There is a full set of instruments as befits a machine of this performance,



## PORSCHE 904

### AT A GLANCE...

Price, FOB Stuttgart . . . . .	\$7425
Engine . . . . .	Flat 4, dohc, 1988 cc, 198 hp
Curb weight, lb (no fuel) . . . . .	1350
Top speed, mph . . . . .	150
Acceleration, 0-60 mph, sec. . . . .	6.4
Passing test, 50-70 mph, sec. . . . .	2.5
Overall fuel consumption, mpg . . . . .	n.a.

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molded seats with foam padding and the steering wheel is adjustable. The car is not easy to get into or out of, special ingress-egress techniques being required, and once inside, the space is minimal for anyone taller than average. Applying our "Driver Comfort Rating" standards, the results are 80-60-45, which indicates that the 904 would be reasonably comfortable for the average or smaller driver, just barely possible for the 6-footer and almost hopeless for a driver who was 6-3 or taller. The passenger is even more cramped than the driver as he has even less leg room and must also make way for the driver's operation of the shift lever.

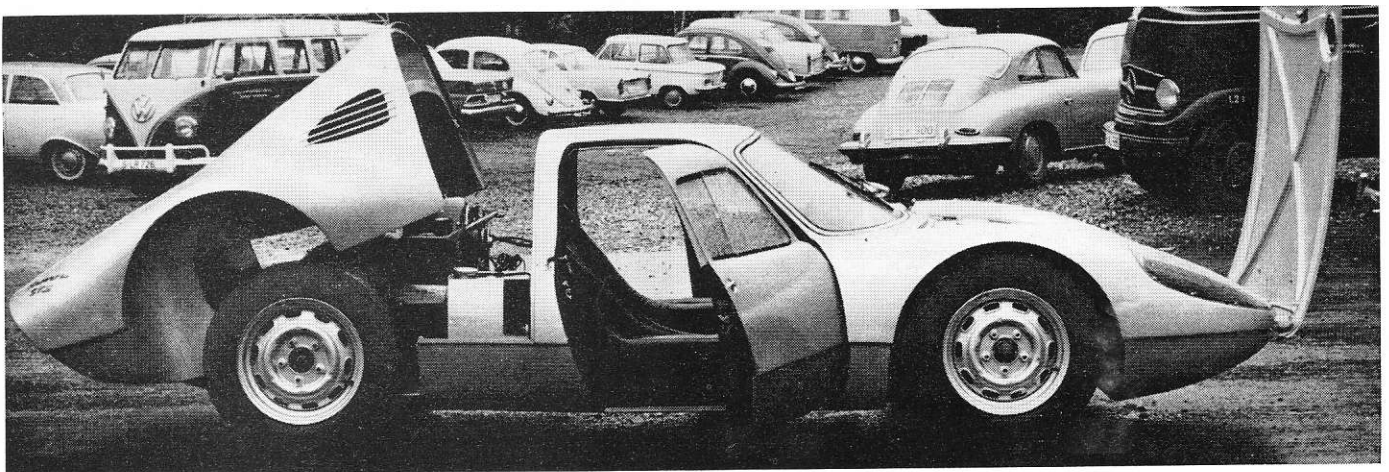
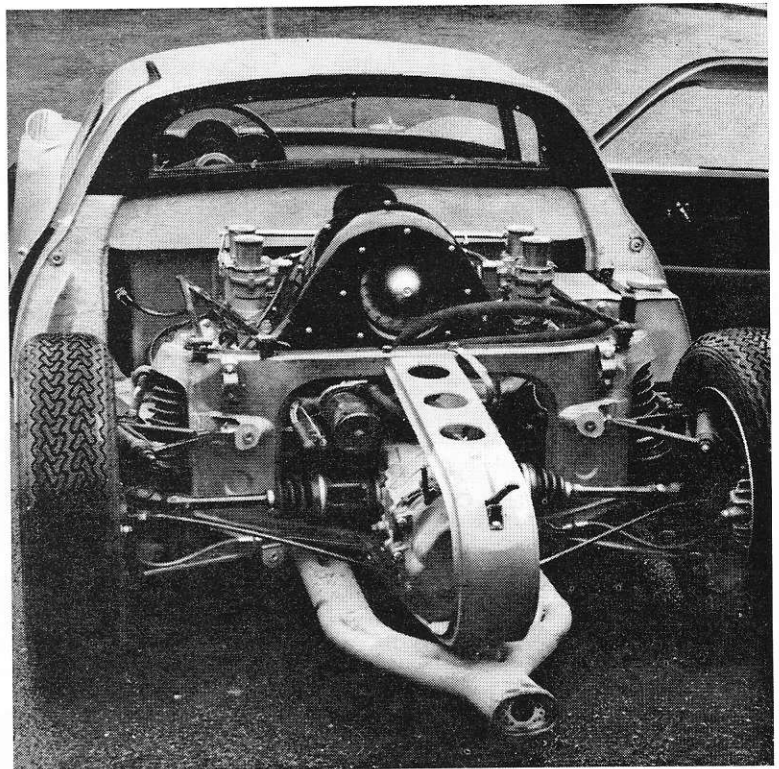
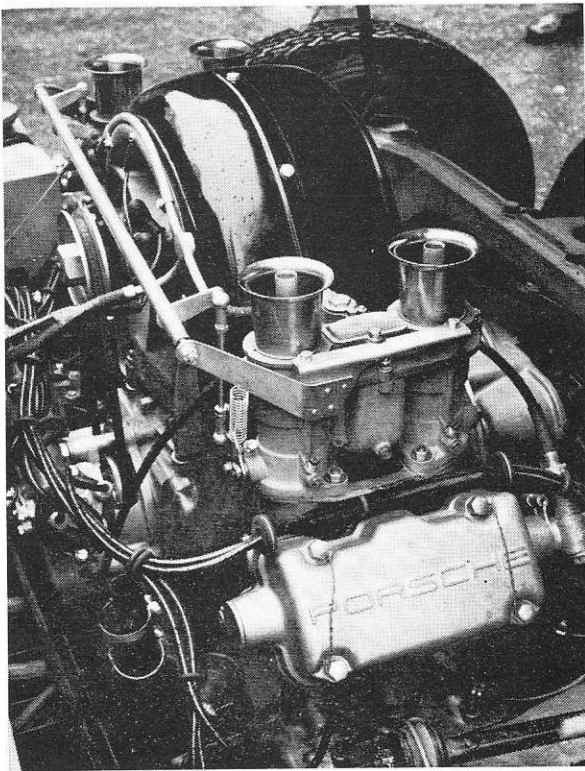
The rear of the car houses the engine and gearbox. This rear hood moves on eccentric joints that swing it back and up to permit temporary access to the engine. For more serious engine work, the rear bodywork comes off as a unit. In the top of the rear of the tail is the required luggage space

and access to this is gained through a hinged drop door on the outside.

The chassis of the 904 has fabricated metal boxes along each side that form deep side rails that are tied together with boxed cross members. The side rails are bowed outward to give a wedge fit to the occupants' hip bones. The body is fiberglass, a departure for Porsche, and is permanently bonded to the chassis.

The gearbox is a 5-speed all-synchro Porsche product and, in common with most competition gearboxes, is not exactly the sort of thing you'd want to fight down to the supermarket and back. First gear, over to the far left and back, is the off-the-line gear and the remaining four, set in a conventional 4-speed pattern, are the ones that get the job done. First gear is difficult to engage, or was in our test car, but the other four seemed readily located and engaged.

The engine of the 904, which is located ahead of the rear axle, is the full 2-liter (1966 cc) version of the dohc Carrera and gives a robust 198 horsepower (SAE) at 7000 rpm. The previous version of the Carrera gave just over 180 hp at 6400



and the power increase comes from changes in valve timing with a different camshaft grind, from an improved exhaust system and from better cooling resulting from deeper finning around the engine. The torque of the engine comes on sharply at about 3500 rpm and stays on strong until 6500, a useful range. A 175-hp engine is also offered but it seems unlikely that many takers will be found for this de-tuned version.

The suspension of the 904 is also a departure for Porsche sports cars as it has conventional double A-arms at the front and reversed A-arms at the rear with trailing links. It looks almost un-Porsche, what with no trailing links at the front and no swing-axle at the rear, but it is an adaptation of the suspension on the 8-cyl Porsche F-I car and works very well.

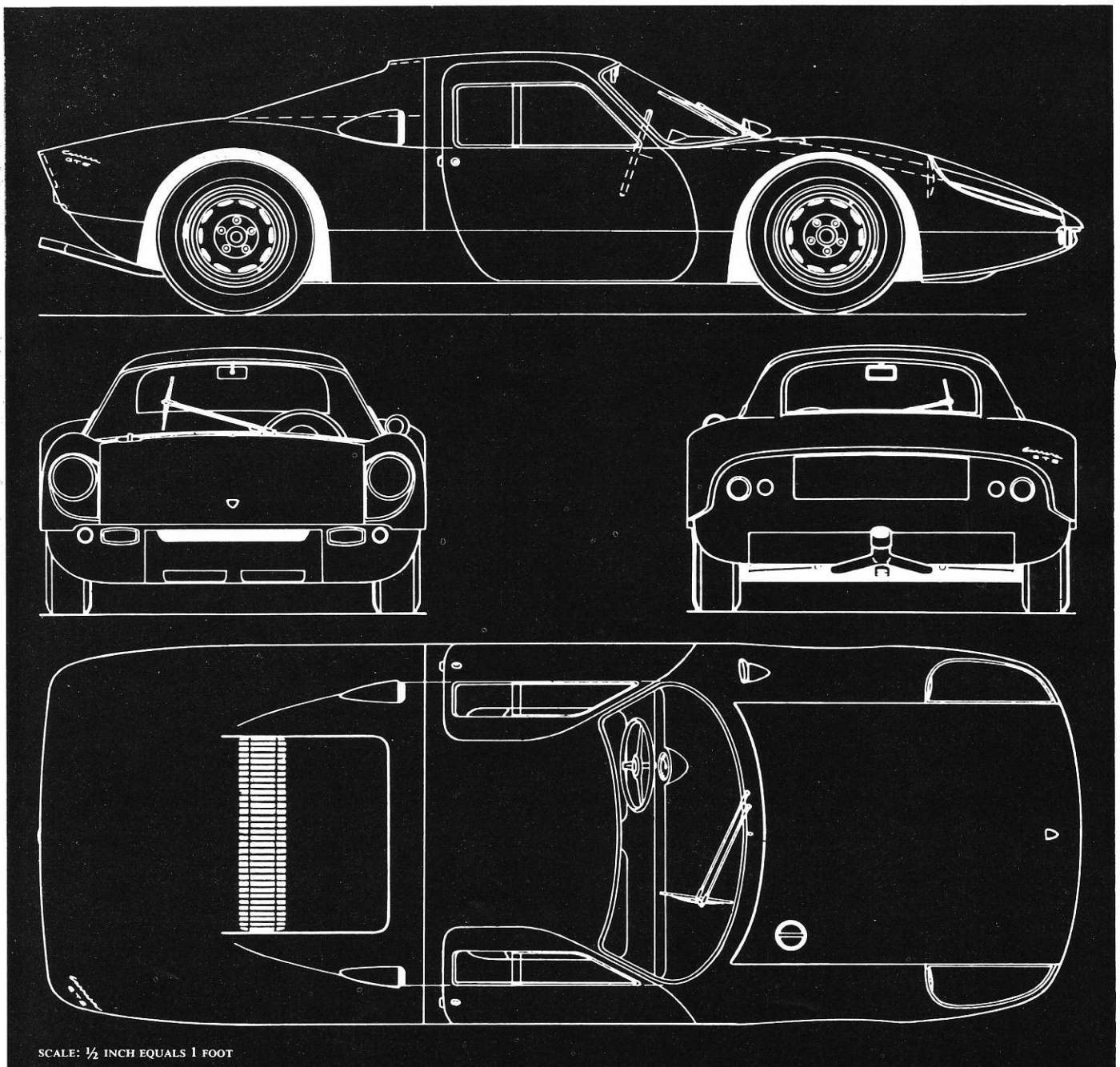
The brakes are Porsche-ATE discs at both front and rear, the same as on the 356-C, with a small internal drum inside the rear hub to act as a parking brake.

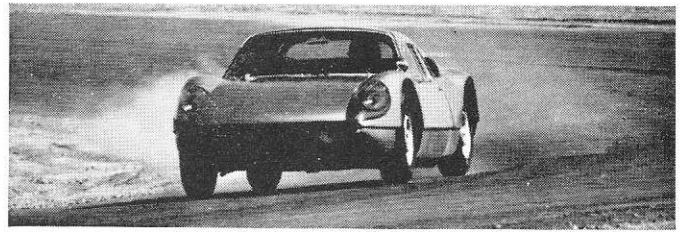
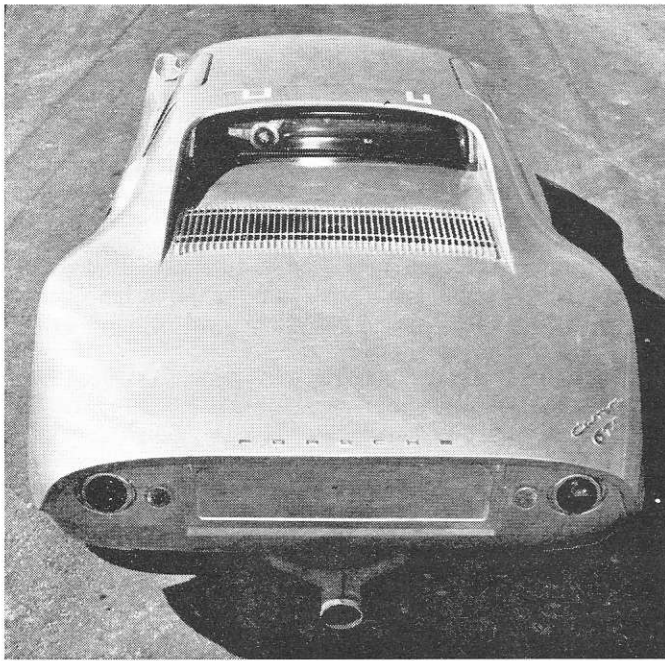
Our test car was one of the two Porsche 904s owned by Otto Zipper, a Porsche-VW-Ferrari dealer in Beverly Hills, Calif. This particular car was the one driven by Richie

Ginther and Ronnie Bucknum at Sebring where they led the 2-liter class until the front suspension collapsed about half way through the race. It was painted in Porsche racing silver with the upholstery and interior trim in a restful blue. On the day we obtained our performance figures the engines in both cars were being broken in for a race the following weekend, tire sizes and pressures were being experimented with and the car was still equipped with the gear ratios selected for Sebring—which were hardly ideal for the short 2.6-mi Riverside circuit where we were testing. With the Sebring gears, which gave an overall final drive ratio of 3.936, at Sebring the car was pulling 6800 rpm, which owner Zipper calculated to be 152 mph.

As in all respectable racing cars, the gear ratio selection is almost infinite and the four standard sets of ratios for the 904 offer a final drive as low as 3.362, or as high as 4.605. The acceleration figures we obtained (see data panel) were done with two people plus test equipment and about 18 gal. of fuel in the car, and the 904 took us through the standing quarter in 14.5-sec. This is respectable enough, goodness

MODEL PLANS BY JONATHAN THOMPSON, COURTESY OF MODEL CAR AND TRACK





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knows, but it is really not pertinent to discuss standing quarters for such a car as the 904 or any other road racing car. It isn't wottle-she-do in the quarter, it's wottle-she-do after she gets there and it's time to turn, stop, or maneuver.

In discussing the performance of the 904, we must consider that it is strictly a competition car, though not an all-out racing car. If it were a true dual-purpose sports car, the performance would be little short of sensational. As a car qualified for FIA Grand Touring car racing, its performance is excellent and certainly adequate to successfully defend the 2-liter section of the international constructors championship for GT cars Porsche has held since it was originated. Compared to an all-out sports/racing car, which it admittedly is not, the 904 is well off the pace.


Demonstrating these statements most graphically is the performance of the 904 at a recent U.S. Road Racing Championship meet at Riverside, Calif. In practice before the races, all the competitors, both sports cars and GTs, were timed in practice laps to determine their grid positions. The fastest lap by a Porsche 904 was 1:40.4 for the 2.6-mi circuit. Compared with the other cars entered in the 2-liter GT class, the 904 was 4 sec faster than the fastest 1600 Porsche Carrera, 7 sec quicker than the speediest pushrod Porsche 1600-S, and almost 9 sec faster than the strongest MG-B on the West Coast.

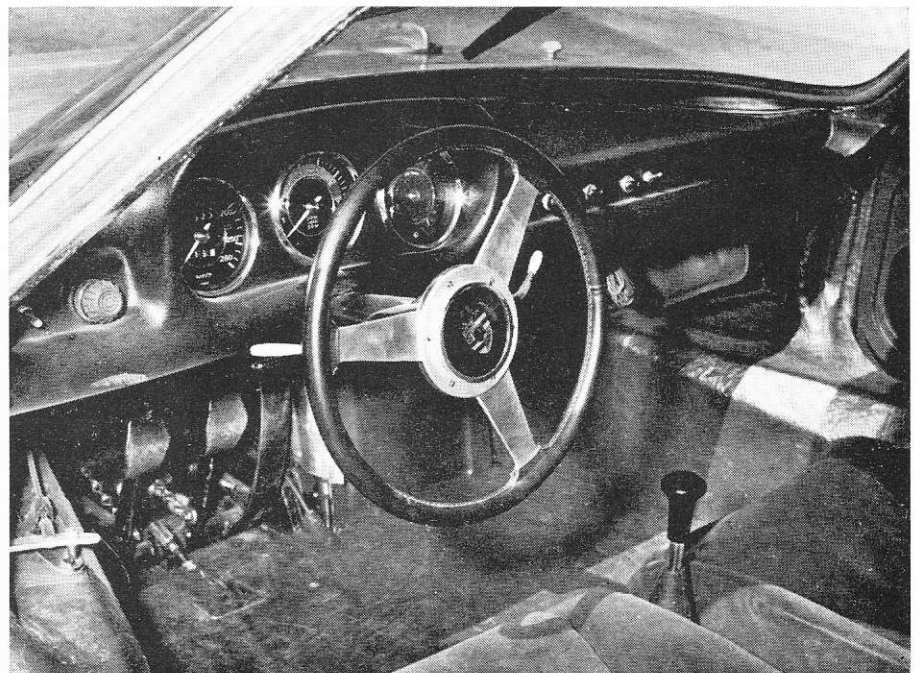
Thrown in with the 2-liter modified sports cars, however, the tiger's stripes are changed. Compared with the 904's fast time of 1:40.4, a Lotus 23 with a 2-liter Climax engine turned a 1:36.8, Lotus 23-Bs with 1600 twin-cam Ford

engines lapped at 1:37.7, an Elva-Porsche went 1:38.6, a Merlyn-Porsche 1:38.8 and a garden variety 1700-cc Porsche RS-60 1:40.0 flat.

The performance of the 904s in the race itself confirmed the stories told by the practice times. In the GT car event, two 904s ran 3-4 overall behind two AC Cobras and finished over a lap ahead of the first non-904, a well-driven Porsche 1600-S. One of the same 904s also ran in the sports car race and ran eighth in class until sheer reliability began to tell and it finished fourth in class behind two Lotus 23s and a Porsche RSK.

Scooter Patrick, a highly respected young driver who drove our test car (and finished third overall in the GT race in the same machine), likes the handling of the 904 very much. Compared with other competition Porsches he has driven he finds it comfortable, enjoyable to drive and a comparatively easy car in which to go quickly.

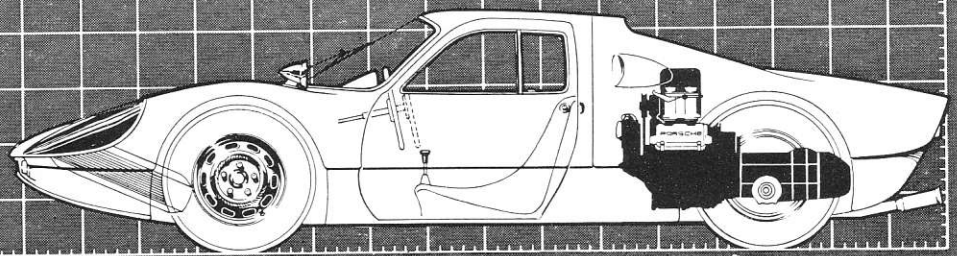
Considering all sides of the problems faced by the American owner of such a car as the Porsche 904, it is not easy to assess its ultimate place in the scheme of things. The price is certainly right, \$7245 at the factory, as this means the private owner in the U.S. can obtain a first class racing car and basic spares for something under \$9000, dirt cheap for a first-class competition car. On the other hand, the 904 buyer should not expect to win the 2-liter class in events that permit the entry of 2-liter sports/racing cars. But for racing in the U.S. RRC series, or any other 2-liter race under the FIA's Appendix J for GT cars, the buyer can be assured of some of the same virtues as the original purchasers of the Porsche 550 and its derivatives—a first-class car that is soundly engineered, properly developed and responsibly supported. And more than this the buyer of a competition car cannot reasonably expect. 





# ROAD TEST

# PORSCHE 904



SCALE: 10" DIVISIONS

### PRICE

List, FOB Stuttgart.....\$7425

### ENGINE

Engine, no. cyl, type: Air-cooled flat 4 dohc  
 Bore x stroke, in. .... 3.62 x 2.91  
 Displacement, cc. .... 1966  
 Equivalent cu in. .... 120  
 Compression ratio .... 9.8:1  
 Bhp @ rpm .... 198 @ 7200  
 Equivalent mph .... 150  
 Torque @ rpm, lb-ft. 144.5 @ 5000  
 Equivalent mph .... 97  
 Carburetor, no. make. . . 2 Webers  
 No. barrels, dia. .... 2-46 mm  
 Type fuel required. .... Premium

### DRIVE TRAIN

Clutch diameter & type: . . . 7.9 in.,  
 Single plate dry.  
 Gear ratios, 5th (0.889) . . . 3.936  
 4th (1.040) . . . 4.605  
 3rd (1.217) . . . 5.389  
 2nd (1.550) . . . 6.863  
 1st (2.643) . . . 11.703  
 Synchronesh . . . on all 5  
 Differential, type & ratio: Spiral  
 bevel, 4.428:1

Optional gearbox ratios: Ratios shown are those used at Sebring. Four other "standard" sets available to give final drive ratios of 4.605, 4.260, 3.636 and 3.362:1.

### CHASSIS & SUSPENSION

Frame type: Box section ladder frame.  
 Brake type. . . . . Disc  
 Total pad area, sq in. . . . 28.68  
 Tire size, f/r. . . . . 550-15/600-15  
 Wheel revs/mi. . . . . 785  
 Steering type. . . . . Rack & pinion  
 Overall ratio. . . . . 15:1  
 Turns, lock to lock. . . . . 2.07  
 Turning circle, ft. . . . . 42  
 Front suspension: Independent with double A-arms, coil springs, tube shocks, anti-roll bar.  
 Rear suspension: Independent with reversed A-arms, trailing links, coil springs, tube shocks, anti-roll bar.

### ACCOMMODATION

Normal capacity, persons. . . . . 2  
 Hip room in. . . . . 2x18.5  
 Head room. . . . . 38  
 Seat back adjustment, deg. . . . . 0

Entrance height, in. . . . . 41.5  
 Step-over height. . . . . 15.0  
 Floor height. . . . . 5.5  
 Door width. . . . . 30.0  
 Driver comfort rating:  
 for driver 69-in. tall. . . . . 80  
 for driver 72-in. tall. . . . . 60  
 for driver 75-in. tall. . . . . 45

### GENERAL

Curb weight, lb (no fuel). . . . 1350  
 Test weight. . . . . 1825  
 Weight distribution without driver, percent. . . . . 41/59  
 Wheelbase, in. . . . . 90.55  
 Track, front/rear. . . . . 51.73/51.65  
 Overall length. . . . . 161.02  
 Width. . . . . 60.62  
 Height. . . . . 41.93  
 Frontal area, sq ft. . . . . 14.00  
 Ground clearance, in. . . . . 4.72  
 Overhang, front. . . . . 39.37  
 Rear. . . . . 31.10  
 Departure angle, no load, deg. . 14  
 Usable trunk space, cu ft. . . . . 7.5  
 Fuel tank capacity, gal. . . . . 29

### INSTRUMENTATION

Instruments: 280-kph speedometer, 8000-rpm tach, oil pressure, oil temperature, fuel.

Warning lamps: Turn indicators, generator, high beam, parking light, oil pressure, fuel level.

### MISCELLANEOUS

Body styles available: Coupe as tested.

### CALCULATED DATA

Lb/hp (test wt). . . . . 9.2  
 Cu ft/ton mi (test wt). . . . . 119  
 Mph/1000 rpm (4th). . . . . 19.4  
 Engine revs/mi. . . . . 3090  
 Piston travel, ft/mi. . . . . 1499  
 Rpm @ 2500 ft/min. . . . . 5154  
 Equivalent mph. . . . . 100  
 R&T wear index. . . . . 46.4

### MAINTENANCE

Crankcase capacity, qt. . . . . 10.6  
 Change interval, mi. . . . . 3000  
 Oil filter type. . . . . Full-flow  
 Clean interval, mi. . . . . 3000  
 Lube interval, mi. . . . . 3000  
 Tire pressures, front/rear, psi. . . . . 32/35

## ROAD TEST RESULTS

### ACCELERATION

0-30 mph, sec. . . . . 3.2  
 0-40 mph. . . . . 4.0  
 0-50 mph. . . . . 5.2  
 0-60 mph. . . . . 6.4  
 0-70 mph. . . . . 7.8  
 0-80 mph. . . . . 9.6  
 0-100 mph. . . . . 13.7  
 0-120 mph. . . . . 20.0  
 Passing test, 50-70 mph. . . . 2.5  
 Standing 1/4 mi, sec. . . . . 14.5  
 Speed at end, mph. . . . . 103

### TOP SPEEDS

5th (7200), mph. . . . . est 150  
 4th (7200) . . . . . 120  
 3rd (7200) . . . . . 101  
 2nd (7200) . . . . . 80  
 1st (7200) . . . . . 47

### FUEL CONSUMPTION

Normal range, mpg. . . . . na  
 Cruising range, mi. . . . . na

### SPEEDOMETER ERROR

Speedometer calibrated in kph

Data not taken

### GRADE CLIMBING

(Tapley Data)

Data not taken

### ACCELERATION & COASTING

