

Road Research Report: **PORSCHE 1600** and **SUPER 90**



► In the days when it was first created from VW cloth, the Porsche was irrefutably one of the most advanced automobiles in the world. By building a new lightweight, streamlined container for two atop the basic Volkswagen chassis, it had proved possible to extract more performance and better handling. Once this was done, the only limits to further improvements were the VW components — specifically engine, gearbox and brakes. Since those days the Porsche has been kept competitive by steady, careful replacement and improvement of the parts inherited from the People's Car. This painstaking, near-religious devotion of Porsche engineers to their pet product has been rewarded by an automobile that is, in every important way, supremely satisfying.

In 1960, though, the limiting factor has become the over-ten-year-old body. On September 9, 1959 Porsche announced the first *major* revision of this classic shell, dubbing it the 356B. Though this change was long overdue — and, in a sense, still insufficient — it was obviously made with great trepidation on the part of the Porsche staff. In shape and utility the 356B's body is now substantially improved, but the chassis and engine changes — especially the Super 90, the ultimate development of the original engine — continue to outpace the body's progress. Evaluation of Porsche's new clothes isn't an easy matter, because the changes are subtle, as they have been for a decade. To assess them properly, SCI put 8,000 miles on two kinds of Porsches on two continents. This Road Research Report tells the story.

EXTERNAL ALTERATIONS

Porsche admits that the increase in bumper heights (by about 4 inches in front and 6 in back) was brought about by the needs of the American market. This change plus the higher, heftier bumper guards gives sufficiently good protection to dispense with the

tubular over-riders formerly regarded as "musts", but Porsche owners still don't have ironclad protection against traffic damage. In particular the elongated front parking light lenses protrude far enough to be vulnerable. Porsche bumpers have long featured a narrow rubber strip around the periphery; inspection shows that the newer cars have a firmer synthetic insert that's less likely to crack and deteriorate. At the back, the exhaust pipes joggle through S-bends to get to the exits, which are integrated with — and which quickly discolor — the rear bumper guards.

Though, as always, an illuminated location for a rear license plate is provided (body to be drilled to suit), Porsche dealers have had to affix front plates at the outer edge of the bumper, where they quickly became dented and even more unsightly than when new. Transatlantic co-operation is likely to result, soon, in a front plate mounting arrangement similar in location to the taped-on placement on our white 1600 R.R.R. car. As the bumpers moved up, so did the headlights. They're now less susceptible to damage, and they're enough higher to improve lighting effectiveness markedly. As the Porsche publicity release said, "This has become still more important recently since many Porsche drivers travel long distances at night to avoid crowded highways during daytime". When fog lights are installed, they'll be hung below the bumper where stray upward rays will be completely shielded from the driver's eyes.

SUPERB SEATING

There are many more detail changes inside the 356B. To discuss them we have to step inside, a process which, in itself, isn't easy. Opened by pushbutton, the door easily swings wide and is held there by an ingenious rubber tongue which catches the front edge of the door as it hinges into the bodywork. Each door has a lock, integrated with the opening pushbutton.

Once a door is locked from the outside, it can't be opened by means of the pushbutton — no matter how often it's opened from the inside — unless it's unlocked with the key again. Locking from the inside is accomplished by the usual upward door handle movement.

Getting into the Porsche is made difficult by the body's basic design. The door's forward edge is more to the rear — away from the toeboard — than is usual nowadays, calling for real retraction of the legs while swinging them in. The concept of a relatively narrow "cab" atop a wide basic body, so integral with the Porsche's aerodynamic layout, produces a relatively thick door and a very wide door sill that's awkward to step over. Even long-time Porsche owners find it hard to avoid dirtying a trouser leg on the outer edge of the sill.

The Reutter seats have plenty of fore-and-aft travel in a range that leaves generous leg room back of the wide, corrugated-rubber pedals. There's also surprising room for heads and elbows inside this compact coupe, thanks in part to the way the inner panel of the door slopes away to the outside. The medical advice that has contributed to the seat's contours shows up in the fine support given to the small of the back and to the shoulders, as well as in the nice degree of firmness that fights fatigue on long trips. Equally effective against weariness is Reutter's adjustment for the seat back's angle. Clever padding of the seat and a deep scoop to the back combine to hold driver and passenger comfortably in place during moderate maneuvers, in spite of the inherent smoothness of the artificial leather upholstery.

New in the 356B is a rear seat back that's split down the middle, to allow just half to be folded down for luggage carrying while a third passenger "sits" beside it. This is actually a very workable arrangement for short trips, as we had occasion to discover during our testing. There are two apparent complications to this layout. One is that there's no latch or catch to hold the seat backs in the upright position, leaving them free to fold forward when the car decelerates. This is academic when the rear rider is an adult, but with a child back there it could be dangerous. The other is that straps are definitely needed to hold luggage in place — also to keep it from flying forward under braking. Porsche does provide suitable strap anchors and straps are an optional extra.

NEW CONTROLS

As usual, the size, height, angle and distance of the Porsche steering wheel are ideal for most drivers. Entirely new for '60, the wheel's design elicits mixed reactions. Its three spokes, stamped from flat sheet metal, are made to look like castings with perforated centers — or some such. Some staff members liked the design; others felt that the attempt to simulate some other material was very unlike Porsche — that they might better have used flat, polished spokes. There was some hope that Porsche's patented hydraulically-damped telescopic steering column would be fitted to

the 356B's, but this wasn't possible. In its stead the wheel is given a "deep-dish" shape.

Everyone agreed that the new black steering wheel rim was a complete pleasure to handle. Its thickness and diameter are just right; its black color does cut down on reflections in the windshield (as advertised), and there are even little dimples under the spoke junctions that provide a very pleasant tactile sensation. Handy at the left of the steering column is a new lever which does double-duty, controlling both the directional signals and the headlight dimming. Unlike many other such controls, it's very logical and easy to use. Flipped forward, it switches on high beam. When you're driving fast, keeping your eyes on the road, it's easier to check which beam you're using by quickly touching the lever than it is to glance down at the blue dashboard light. The European Editor suggests that a further forward push on the lever could sound the horn, for convenient signalling at night.

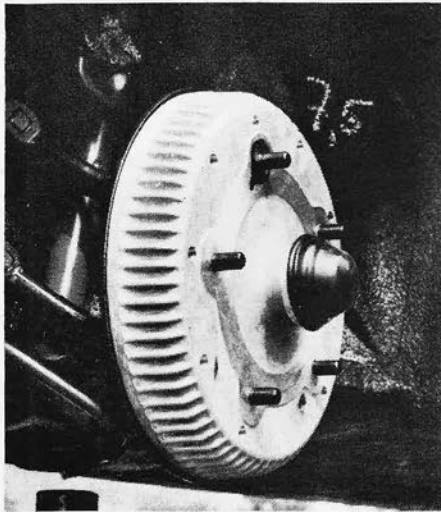
All the dashboard knobs have been made black instead of white, giving a "richer" feel to the interior. The windshield wiper switch is on the left side of the dash, where it's easily reached, but it suffers by having a small knob and a stiff action. We had occasion to drive the Porsches in spotty weather, switching the wipers on and off frequently, and were soon wishing we had a handy toggle switch. The wipers themselves are fast and efficient, and are supplemented by a washer system which is a standard Porsche fitting.

DIALS, POCKETS AND AIR FLOW

As always, the black-faced instruments are simple but adequate in graduation. They're easy to read by day — though they're too low for really quick glance-analysis — and the rheostat control selects the illumination you want at night. In addition to the tach and speedometer (naturally with different graduations for 1600 and Super 90), dials indicate fuel level and the general range of oil temperature. Also on the dash is a hand throttle, intended for a fast idle during warmup. Whether it's deliberate or not we don't know, but this control is so adjusted that it will not cause the engine to over-rev, even if you pull it all the way out with a fully-warm powerplant. It runs up to about 4800 rpm but no more! On a level road it can be used to cruise at about 50 mph in top gear.

Many things about the Porsche make it ideal for long trips, but one of its nicest features is the multitude of places to put maps, manuals and similar traveling equipment. The lockable glove compartment is roomy, though its opening fails to pass one of the SCI tests. (A Rolleiflex camera won't go in.) There are deep pockets in both doors and in the cockpit sides under the dash. One of the items that's usually stowed here, the Porsche owner's manual, is a real model for other manufacturers. Both graphically and informatively it's excellent.

Over the years VW and Porsche heaters have been developed to produce more and more heat, and on
(Text continued on page 80, technical data overleaf.)



New transverse finned brake drum will be regular equipment on the 1600, 1600 S and Super 90 Porsches. In each case the stopping power of the new drums matches the speed and power.



"A thing of beauty is a joy forever." Old-line Porsche owners may bemoan the passing of the now classic body style, but on sober reflection will realize that the increased height of the bumpers will enable the 1960 model to fend for itself when left unattended on city streets. The high-set head lights are also a functional change giving better illumination for high-speed driving.

PORSCHE Super 90 Coupe

ENGINE:

Displacement96½ cu in, 1582 cc
 DimensionsFour cyl, 3.25 x 2.91 in
 Compression Ratio9.0 to one
 Power (SAE)102 bhp @ 5500 rpm
 Torque99 lb-ft @ 4300 rpm
 Usable rpm Range1500-5800 rpm
 Piston Speed $\pm \sqrt{s/b}$
 @ rated power2840 ft/min
 Fuel RecommendedSuper-premium
 Mileage15-23 mpg
 Range205-315 miles

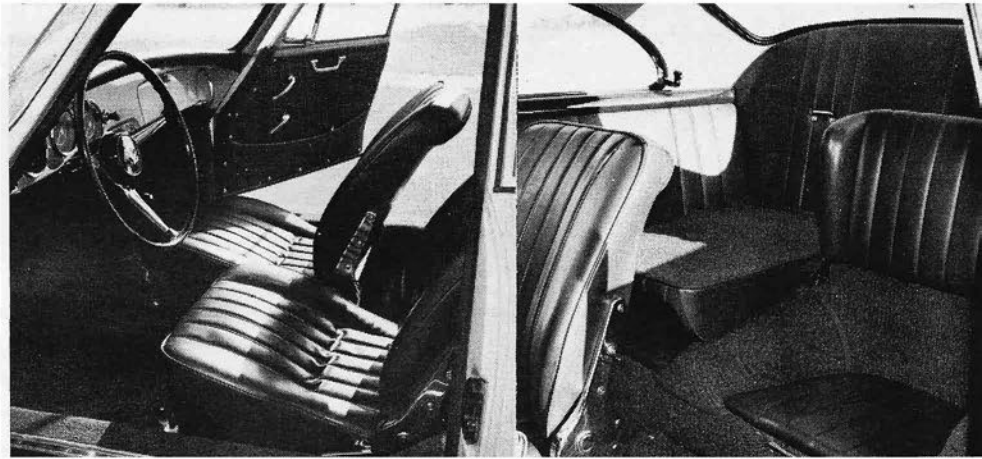
CHASSIS:

Wheelbase82.7 in
 Tread, F,R51½, 50 in
 Length158 in
 Suspension: F, ind., trailing arms, lam. torsion bars; R, ind., swing axle, torsion bar.
 Turns to Full Lock1½
 Tire Size5.90 x 15
 Swept Braking Area — drum218 sq in
 Curb Weight (full tank)2080 lbs
 Percentage on Driving Wheels57%
 Test Weight2400 lbs

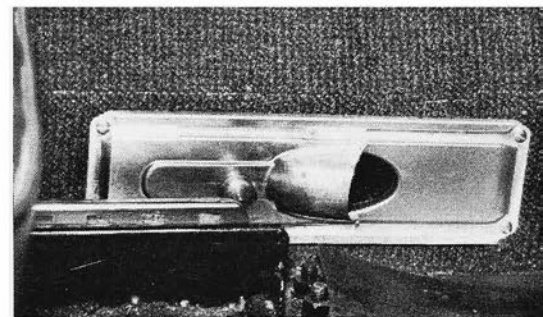
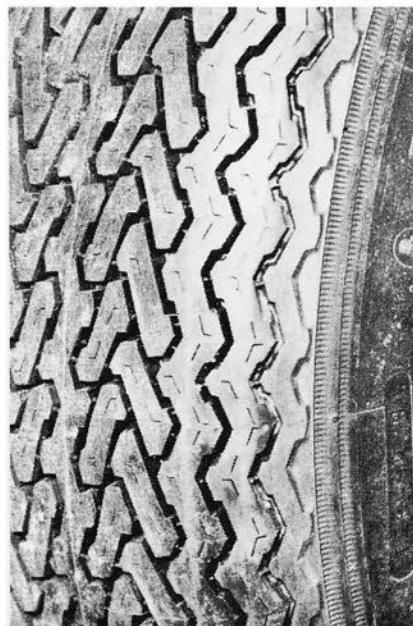
DRIVE TRAIN:

Gear	Synchro?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	3.56		15.79	4.7
1st	Yes	3.09		13.70	5.4
2nd	Yes	1.77	75%	7.82	9.4
3rd	Yes	1.13	56%	5.01	14.7
4th	Yes	0.85	33%	3.77	19.5

Final Drive Ratio: 4.43 to one.



1960 Porsche boasts a dished steering wheel as well as a new gear shift lever. The rear split-seats—another '60 change—allow carrying one passenger and some baggage on the folded seat back.



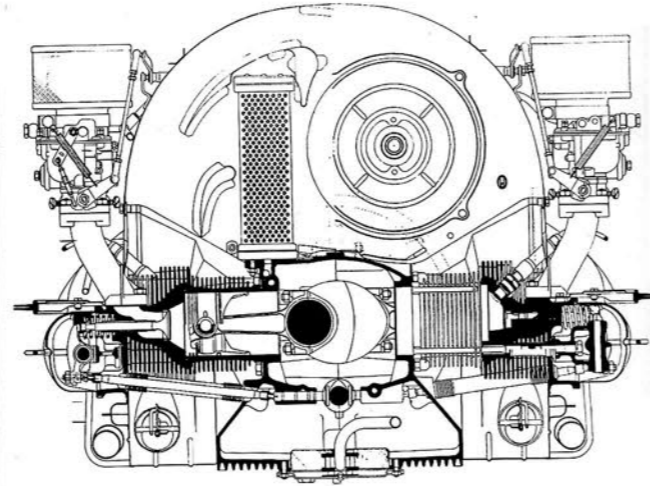
Heater outlet on the 1960 Porsche. It provides warmth, but gets too hot to touch while doing it.

New German Dunlop sports tire was developed in cooperation with the Porsche factory. Like the Michelin X tire, it has metal threads in the carcass. It is designed to run low pressures.

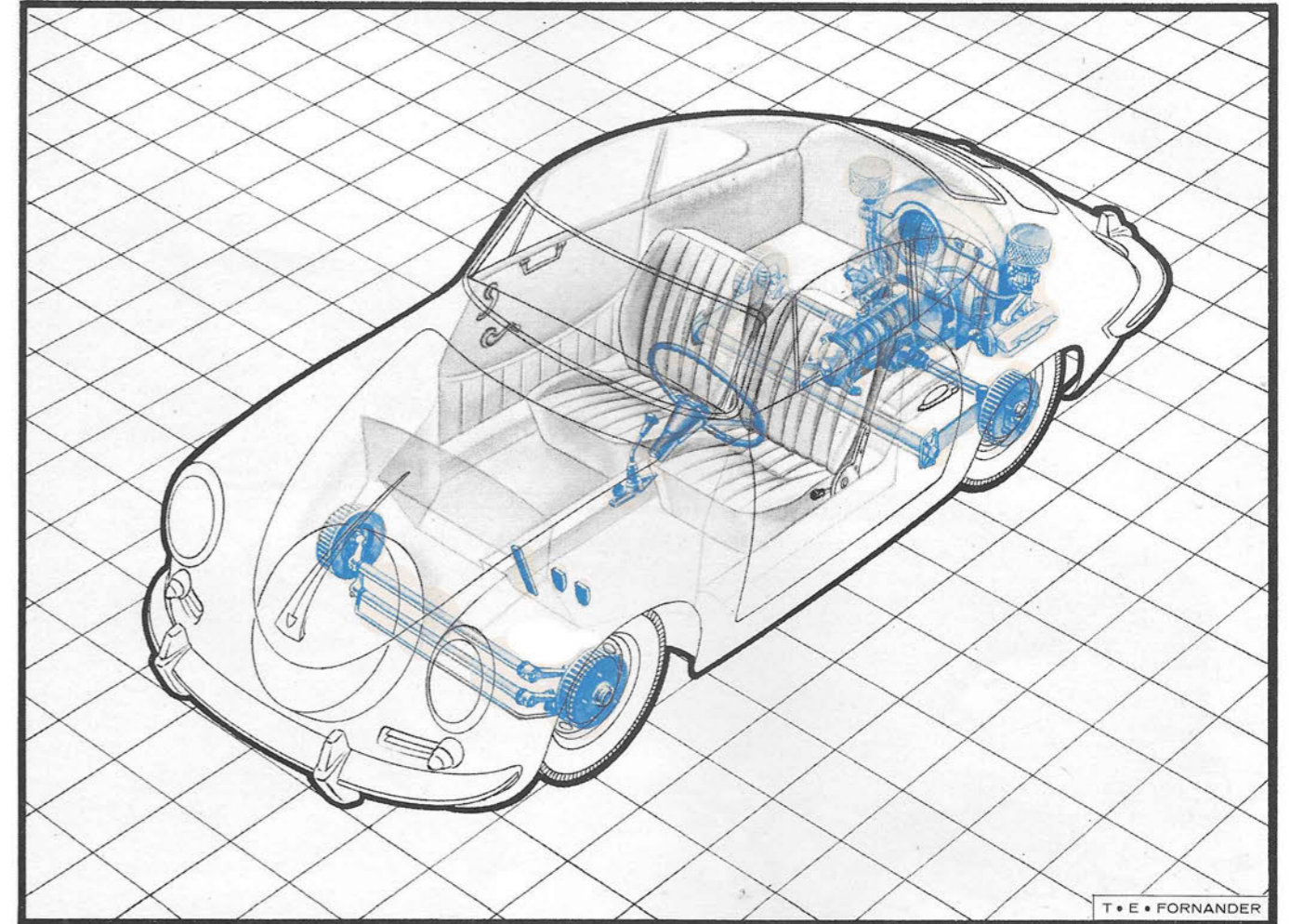
Road Research Report: PORSCHÉ 1600 and SUPER 90

Factory Office Porsche of America, Inc. 527 Madison Ave. New York 22, N. Y.

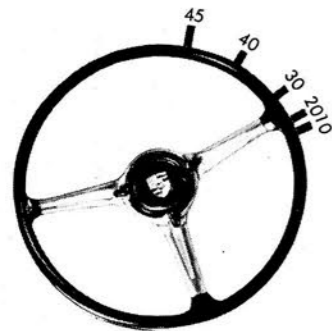
Price as tested	1000	\$3700 4220	7000
Displacement	20	96½ cu in	300
Power (SAE)	20	70 102 bhp	300
Curb Weight	1000	1970 2080 lbs	4000
Swept Braking Area	100	218 sq in	400
Weight on Driving Wheels	35	56 57%	65
Wheelbase	70	82.7 in	130
Piston Speed, "corrected"	1000	2320 2840 fpm	4000
Speed @ 1000 rpm in Top Gear	10	19.5 19.8 mph	25
Mileage	10	21 25 mpg	40



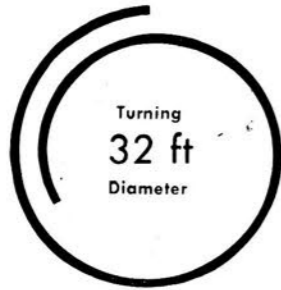
Normally the engines are shown at 1/8 scale but due to space limitations, this cross-section of the Porsche 1600 engine is 1/10 scale.



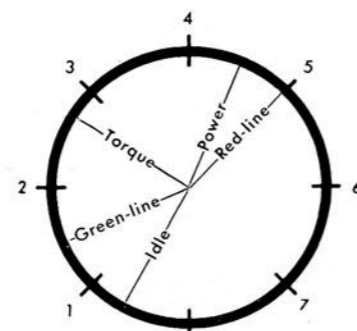
T • E • FORNANDER



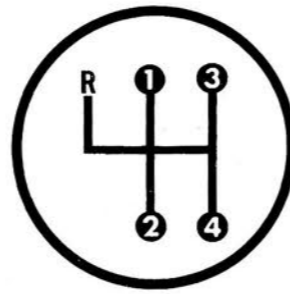
1600 Steering Behavior



Turns to Full Lock



Engine Flexibility



Shift Pattern

ENGINE:

Displacement96½ cu in, 1582 cc
 DimensionsFour cyl, 3.25 x 2.91 in
 Compression Ratio7.5 to one
 Power (SAE)70 bhp @ 4500 rpm
 Torque81 lb-ft @ 2800 rpm
 Usable rpm Range1400-5000 rpm
 Piston Speed \div V s/b
 @ rated power2320 ft/min
 Fuel RecommendedRegular
 Mileage21-29 mpg
 Range290-400 miles

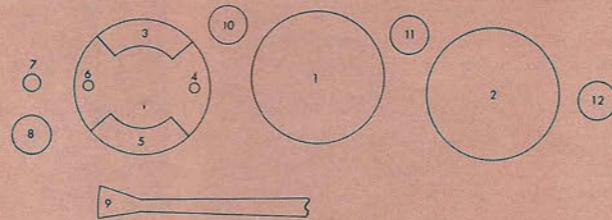
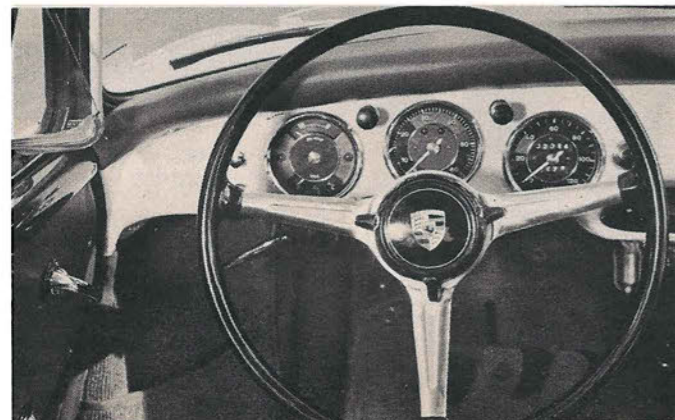
CHASSIS:

Wheelbase82.7 in
 Tread, F,R51½, 50 in
 Length158 in
 Suspension: F, ind., trailing arms, lam. torsion bars. R, ind., swing axle, torsion bar.
 Turns to Full Lock1½
 Tire Size5.60 x 15
 Swept Braking Area—drum218 sq in
 Curb Weight (full tank)1970 lbs
 Percentage on Driving Wheels57%
 Test Weight2270 lbs

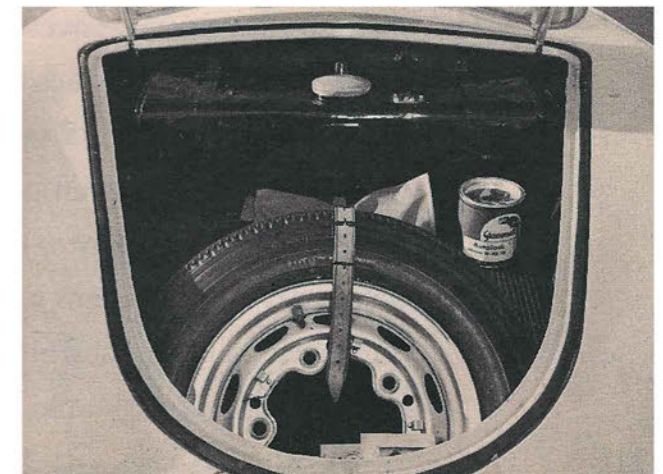
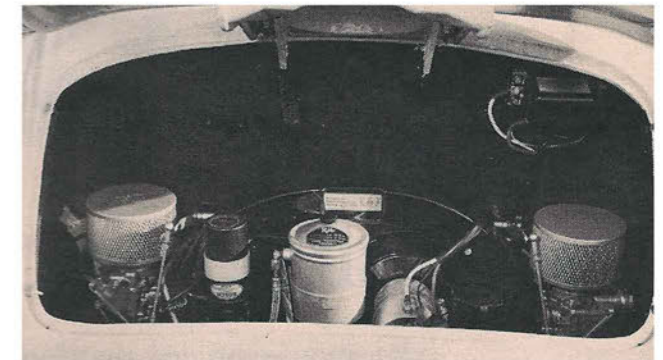
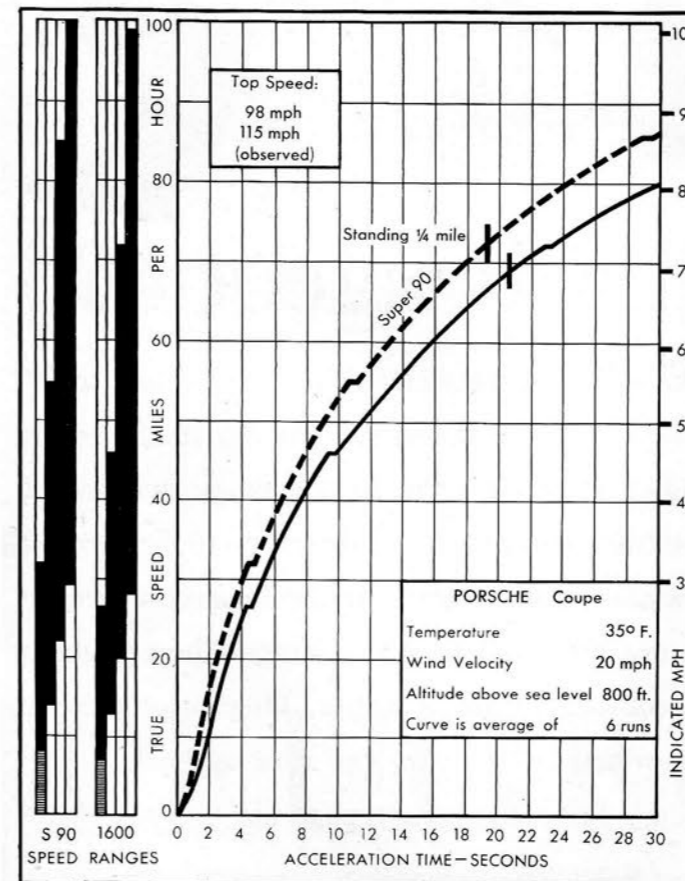
DRIVE TRAIN:

Gear	Synchro?	Ratio	Step	Overall	Mph per 1000 rpm
Rev	No	3.56	—	15.79	4.6
1st	Yes	3.09	75%	13.70	5.2
2nd	Yes	1.77	56%	7.82	9.2
3rd	Yes	1.13	39%	5.01	14.4
4th	Yes	0.82		3.62	19.8

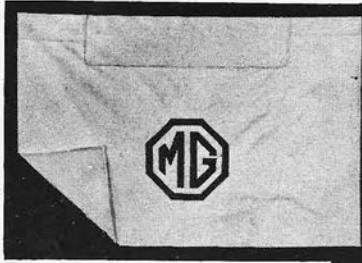
Final Drive Ratio: 4.43 to one.



- 1 Tachometer
- 2 Speedometer
- 3 Oil Temperature
- 4 Oil Pressure Light
- 5 Fuel Gauge
- 6 Generator Light
- 7 Windshield Wiper
- 8 Ignition/Starter
- 9 Turn Signal/Dip Switch
- 10 Hand Throttle
- 11 Light Switch
- 12 Cigarette Lighter



A 40" x 26" FENDER COVER . . .



**WILL NOT
ABSORB
AND IS
UNAFFECTED
BY
OIL
GREASE
GASOLINE**

with three transparent tool pockets that hang inside fender for convenience

Plus — A permanently imprinted sports or Foreign Car Insignia of your choice

Fender Cover in White
Insignia in Black

Washes Clean with a Hose

A Fender Cover consisting of a . . .

TOUGH TOP SURFACE MADE OF TUFFLEX. WEARS LIKE IRON — LAMINATED TO DURABLE NYLON CORE FOR FLEXIBLE STRENGTH — BOTTOM SURFACE OF TUFFLOAM THAT HUGS FENDER AND PREVENTS SCRATCHING

Price:

Imprinted Fender Cover **\$7.95 ppd.**

SPECIAL QUOTATIONS GIVEN FOR CLUB EMBLEMS

Send Check or Money Order to:

MANREP, INC., Dept. A-13 • Box 1489 Grand Central Station • New York 17, N. Y.



Road Research Report

Porsche 1600 and Super 90

from page 48

that score they're now pretty good. But it remains very awkward to control the amount and direction of the heat. Amount is adjusted by a knob at the base of the gear shift lever, very close to the floor where it's hard to reach. Quantity of warm air pumped into the car is varied by twisting this knob, which has a ridiculously large number of turns from On to Off. The air normally enters through two vents at the door sills, and is deflected forward to the feet, where it's needed. For defrosting, you close little sliding covers over these vents and force the air to flow up through further passages to the windshield.

Vent panes on the front windows of the coupes are now standard, which makes it a lot easier to get a flow of fresh air through the car. Both for this and for best heater operation it's advisable to crack open the rear windows, with their convenient over-center latches. While we're looking toward the rear, we can take note of another feature of the Porsche body that has dated drastically during the Fifties. Those smooth lines at the rear that appear so efficient — since proven to have little effect on drag — severely limit vision to the rear. To be sure this is a built-in feature of the coupe only, which is regarded as the "classic" Porsche by most fans of the make. But it indicates how useful a new body shape could be.

OUTSIDE OPENINGS

An inside knob unlatches the trunk lid, which has a finger-operated safety catch like a conventional alligator-type hood. Both this safety catch and the concealed hold-open mechanism tend to baffle service station attendants who, while searching for the right position, sometimes apply metal-bending force to the hinges. Why would they be opening it anyway? To get at the fuel filler, a big cap that's easy to put on and remove, and through which the gasoline level is readily visible. There's a small cavity for soft luggage between the tank and the spare tire, which is leather-strapped in place. The battery is down below and behind the tire, and is held down by the spring clips that retain its fiber-board cover. Also to be found in the trunk of a new Porsche is a can of the proper paint and a tool kit that is as complete as you'll find these days.

Another knob, behind the driver's seat, pops open the engine lid. It may or may not be intentional, but the small size of this vented trap door expresses the official Porsche factory service philosophy: If something goes wrong, stop. Get out of the car, and walk or ride to your nearest VW or Porsche dealer. Do not fool with it yourself. There are very full instructions for

(Continued on page 82)

ISKENDERIAN RACING CAMS
PUT SPORT IN SPORTSCAR RACING

RAY PICKERING DOMINATES WEST COAST SPORTSCAR RACES
Another example of combining American ingenuity with European engineering wizardry. Pickering's MGA and Sprite became the fastest and most consistent winner on the circuit. This terrific job of engine rejuvenation was accomplished by an Isky Cam installation.

NOTE: Iskenderian is the only cam grinder engaged in full time development of racing grinds for foreign cars. Write direct to our Technical Assistance Dept.

WRITE FOR NEW CATALOG
Complete listing on all types of grinds and kits available. A must for all engine builders. only 25c (postage prepaid)

ISKENDERIAN
607 N. Inglewood Ave., Dept. SCI-3, Inglewood, Calif.



RECEIVE RALLY TIME SIGNALS AND OTHER SHORTWAVE STATIONS ON ANY 12 VOLT AUTO RADIO

Tiny ultra-sensitive converter plugs into radio antenna receptacle, connects to radio battery lead. No other connections. Covers entire band by tuning auto radio.

MODEL T . . . Time given in voice every minute also hams

MODEL M . . . Maritime band, ship-shore, ship-ship

MODEL S . . . European & African broadcast stations

SPECIFY WHETHER FOR NEGATIVE OR POSITIVE GROUNDED BATTERY SYSTEMS.

ALL MODELS \$15.95 no C.O.D. postpaid
DEALER INQUIRIES INVITED
DUBOVY ASSOCIATES
1006 CONSTANT AVE., PEEKSKILL, N. Y.

first his tonneau cover



of Vinyl® sport topping fabric
Dacron stitched for utmost durability...
fully guaranteed for 1 year
Smart, smooth fit because it is made from the original pattern

TONNEAU: MG-A: \$19.95 TR-3: \$44.95
TOPS: MG-A and TR-3: \$59.95

Complete line of Tops and Tonneau for other sportscars.

request your illustrated catalog from
THE HOUSE OF SPORTSCAR EQUIPMENT

Accessory ENGINEERING, INC.
DEALERS: Grow with us, request your copy of "The Profit Plan" today on your letterhead.

the 4 ways luggage rack
Available in All chrome plated bars or Well varnished hardwood slats. Permanent or "On-off" models too. Guaranteed stain-proof suction cups. Stainless steel straps. Model (2) illustrated.
Any model... \$19.95

See your dealer, or order direct from this ad:
PRICES SHOWN INCLUDE POSTAGE IN U.S.
SEND CHECK OR MONEY ORDER. NAME CAR
(In California add 4% tax. No C.O.D. please.)

1054 DUNCAN PL.
MANHATTAN BEACH 3, CALIFORNIA

BORGWARD

COMPACT & TERRIFIC



OVERSEAS DELIVERY ARRANGED

Write for Brochure and Name of Dealer in Your Area.

FERGUS IMPORTED CARS, INC.

1717 Broadway (54th St.), N. Y. C. 19, N. Y.

Personalize Your Car With Foreign plates

Imported English plates: Jaguar, XK 140, XK 150, Triumph, Austin, MG-A, Mercedes Benz, etc.; any combination of 6 letters or numbers. Raised Silver Aluminum letters, black background. 8.98 ppd.



BS Oval identification plates custom made with your initials; raised 3 dimensional anodized rust-proof aluminum letters; 7x5 black background; 2 letters \$4.95-3 letters 5.95 ppd.

Car plaques

From all the World



Dress up your car! Brilliant true color reproductions in hard fired jewelers enamel and bronze. Over 100 different models of foreign cities and countries: USA, England, France, Germany, Italy, Sweden, London, Paris, Switzerland, New York, California, etc. Easily mounted on Bonnet, Grill, boot, wings, badge bars; 2 5/8" x 3 1/4" 5.95 ppd.

Imported Key Fobs

Genuine luxurious top grain leathers mounted with beautiful jewelers enamel car insignia crests: MG • Austin Healey • Sprite • Jaguar • Volkswagen • Corvette • Thunderbird • Fiat • Hillman • Morris • Renault • English Ford • Mercedes • Porsche • TR 3 • Alfa Romeo • Austin • Saab • Rambler • Volvo • Simca • Citroen • Lark • Peugeot • All sports & foreign cars.....1.50 ppd.

Send for listings—name your car. Dealers invited.
Race & Rally Accessories
285 Jay St., Brooklyn 1, N. Y. MAin 5-3346

(Continued from page 80)

basic mechanical work in the owner's manual, but this is only to guide those servicemen who may never have seen a Porsche before. The concealed spark plugs, the limited engine room access, the valve rocker covers down under the car—all design features conspire to make the Porsche a car that actively discourages owner maintenance. This heightens an existing impression that this is not so much a "car" as it is a compact, sealed-for-life "machine for traveling" that needs such attention seldom, and then only from the hands of skilled technicians. One excellent attribute of the Porsche's engine room: It's so well sealed off that water and dust seldom intrude to foul the engine's workings.

DILIGENT PERFORMER

No important change has been made in the 1600's engine since that model was tested and described in SCI for May, 1958. To start it you twist the key, and if it's cold you pump the accelerator a few times to inject some gasoline; no choke is fitted. Throughout its operating range the "normal" engine has a deep, rumbling, bigger-than-life feel that bespeaks torque in all the right places. Its 850 rpm idle is rough in sound rather than feel, and its response to the throttle is generally quick. For a modern engine, though—especially in a sports car—the 1600 has a remarkably narrow range of usable rpm. Porsche asks that you keep it under 4500 for extended running and take it to 5000 only for brief periods. These are speeds that are considered slow for production American engines these days.

Our Road Research 1600 turned in slightly poorer performance data than the May, 1958 car did, for two reasons. The 356B seems to have picked up some poundage—almost 100—over the 356A, and the earlier car was fully broken in. Top speed is almost identical, and that same heartening ability to hold high cruising speeds is evident. The 1600 will rumble along at any speed up to 80 or 85 with enough power in reserve to tackle turn-pike-type grades. Its speed on steeper hills is held back by the ratio gap between second and third gear; you're either revving high in second or just hanging on the torque peak in third. Except for such hilly conditions, the ratio selection does a good all-around job.

NEW SHIFTING SYSTEM

Recently the famous Porsche synchronizer was redesigned, toward two ends. One was reduction of the physical force needed to engage the synchro mechanism, which had previously been higher than desirable; this was reduced to 1/4 the original value. The other was the introduction of a more powerful self-wrapping action which would prevent the gears from being engaged until their speeds were absolutely and completely synchronized. This was also accomplished, at least for small transmissions like that in the 356B.

With these things done, Porsche could have achieved a lighter shifting action if it had kept the old long-throw control linkage, but instead it decided to tighten up the shift pattern and end up with about the same necessary forces at the knob.

Most drivers will be pleased by the firmer, more direct feel of the new linkage, but the increased blocking of the revised synchro has some less happy side effects. On shifts from third to second, for instance, if you don't double-clutch that "slicing through butter" feel just isn't there any more. Though the new system may prove to be more durable, we regret that it takes slightly longer to shift a 356B than a 356A. When the box is warm, swift shifts from top to third and *vice versa* can be extremely quick, but those really important ones from third to second and then down into first just aren't as beautifully smooth as they used to be. All the changes will be justified, however, if the new gearbox is less delicate and offers the owner fewer maintenance headaches. Before leaving the transmission, though, note that the Porsche Spyder continues to use the earlier type of synchronizer.

The 356B's redesigned clutch is incredibly smooth and takes up the drive beautifully. The 1600 doesn't affect it too much, but making racing starts in the Super 90 brought forth a most pungent odor.

SUPER 90: MANY CHANGES

Porsche's newest model, the Super 90, was designed to give Carrera-like performance at considerably less cost to the owner than the complex four-cam "GS" engine. Newly designated the "619/7", the Super 90 engine incorporates many changes over the design of the 1600S, and some chassis alterations too. A listing follows.

1. The air-cooling system has been drastically altered by fitting an entirely new air box below the engine. As much as ten percent more air is drawn in through a larger unscreened orifice at the top front, and is exhausted from the bottom rather than the rear, as it is on the 1600 and 1600S.
2. Cornering the 1600S hard, especially on airport courses, would cause the oil to surge back and forth across the crankcase. Foam would enter the oilways whenever the pump sucked a little air instead of oil. On the Super 90, a valve has been fitted above the magnetic filter in the oil pan; when cornering fast this valve closes and keeps the oil in two separated pockets.
3. Twin Solex 40 PII-4 carburetors are fitted—the same type used on the Carrera Deluxe.
4. A 200 watt generator is standard on the Super 90; 1600 and 1600S Porsches use 160-watt units.
5. Three of the four main bearings have been increased in diameter 5mm. New-type thin-shell bearings are used throughout.
6. Bearing surfaces of both cam and crank on the Super 90 have been specially hardened by nitriding.
7. Super 90's flywheel is five pounds lighter than that on the 1600S.
8. Aluminum pushrods have replaced steel ones.
9. An aluminum rocker arm assembly is used on the Super 90 and 1600S, while the 1600 continues to use a steel assembly.
10. New aluminum four-ring pistons, with high domes and deep valve reliefs, are standard.
11. Walls of the aluminum cylinders have been "Ferral" treated. This is a sprayed steel coating applied over molybdenum which speeds break-in and reduces

(Continued on page 84)

MALCOLM KONNER CHEVROLET



New Jersey's
Headquarters For 1960

CORVETTES



230-245-270-275-315 H.P.

AND SUPER CHARGED MODIFICATION

Any special equipment. All color combinations. Also many fine used Corvettes and Foreign cars in stock.

CUSTOM-DESIGNED
TONNEAU COVERS \$59.50
plus postage

Approved Corvette Roll Bars in stock
Shipped anywhere in the Country

Call or see

BOB WASSERMAN

America's Leading Corvette Specialist

FUEL INJECTION SPECIALISTS

Try our special sports car service

MALCOLM KONNER CHEVROLET

473 BLOOMFIELD AVE. • CALDWELL, N. J.

Phone Capital 6-6666

INTERNATIONAL SPORTS CAR AND RACING ASSOCIATION

Invites membership in a world wide assn., organized for the promotion and recognition of enthusiasts and affiliated club's voices in the future of sports cars and racing throughout the world. JOIN NOW — mail application for approval with \$5.00 membership fee for gold membership card, beautiful Iscara dash plaque, insignia decal, and International membership.

Name.....

Please print

Address.....

Indicate interest: Car.....Year.....

Rallye Concourse Race Enthusiast

Mail to ISCARA, Box 4127, Riverside, Calif., USA

NEW CARBURETOR TOOL (Pat. pend.)
For ALL Single, Twin and Triple S.U. Carburetor systems to check & adjust:

FUEL LEVEL
MIXTURE STENOCH
SYNCHRONIZATION
Without removing the airfilter

Order No. WVSU3 ppd. \$3.80
PS WS TEST EQUIPMENT
P.O. Box 94-C
Pasadena, California

RACING SAFETY EQUIP — GO CART HDQTS.

(Eastern Distributor for Bell "500" TX Helmet)

- Bell "500" TX \$37; Toptex \$33.25; Compton \$38.50
- Bell Bubble \$4.95; Flip-Up \$7.95; Toptex Shield \$7.95
- Racing Belt, 3" wide, Quick Release, New Nylon \$9.95
- Split Lens Goggles \$6.95; Q-R, Shoulder Harness \$8.95
- Lion, "Track Star," Sport All, Pirelli coverall \$20.
- Flameproof Chemical \$2.95; Capeskin Gloves \$6.95
- Extinguisher, Powder, 2 1/2 lb. \$17 • Roll-Bars, To SCA Stds. VW, Sprite \$55; TR, MG, AH, Alfa \$75; Porsche, Corvette, Jaguar \$30. Dealers Solicited.

BOB JANSSEN, 84-64 252 St., Bellrose 26, N.Y.

(Continued from page 82)

oil consumption. The famous chromed walls are continued on the 1600S; the 1600 still has cast-iron cylinders.

12. Valve springs are stiffer.

13. Intake and exhaust ports are bigger.

14. A heavy-duty fan/generator drive belt is used.

15. A new soft iron gasket has been fitted between the end of the crankshaft and the belt pulley.

16. Connecting rods throughout the Porsche line have been redesigned as a result of the Super 90's requirements.

17. Super 90's and Carreras are fitted as standard with a single-leaf compensating rear spring, which is available for other Porsche models on special order.

BREAK-IN AND BRAKES

SCI's European Editor has purchased one of the first Super 90's, and has this to say about break-in: "I was told at the factory to use 5000 rpm from the very beginning — with the aside that 'our engines ask to be beaten; break them in fast and they'll be fast later on'. Taking this advice, 5000 rpm was never exceeded in the first 2500 miles, though the owner's manual suggests a limit of 4000 revs. Now, after 5000 miles, my Super 90 is running smooth and sweet and is commencing to have that 'loose' feel that indicates it'll be a fast car."

One of the most impressive of the Super 90's several outstanding qualities is its smoothness. The engine is smooth at 600 rpm idle — smooth all the way up to its safe maximum of 5800 rpm. How safe is this maximum? One Super 90 engine has been run at 5800 for over 200 hours continuously, at the factory. Cruising speed on the road is an effortless 100 mph, and even 110 can be maintained indefinitely whenever conditions allow. Acceleration feel — and the actual statistics — is like that of the Carrera, and even the noise at top revs takes on that Carrera-like growling throb.

All 356B Porsches have been fitted with new brakes, of which the most novel features are stronger drums with lateral finning, new labyrinth seals between drum and back plate, and a robust and extremely efficient new braking lining — Energit 999. On our test Super 90, these brakes were superb. From 100 mph to rest one feels that a giant hand is pulling the car to a stop. In 5000 miles we experienced no brake troubles whatsoever, and encountered no fade under Alpine conditions. The 1600's brakes were good — more than up to the car's performance — but when used very hard they tended to vibrate annoyingly, a symptom that's not unique to our particular test 1600.

FINE ROADHOLDING

The 1600 carries on a Porsche tradition of extraordinarily good roadholding. Most all sports cars will show some ability to cling to corners on a reasonably smooth road surface; under these conditions the Porsche shows no impressive superiority. In fact until you're used to the car it can have a "squirrelly" feel that's deceptive. If the recommended standard tire pressures are used, the 1600 is very, very sensitive to side winds on open highways, and it's only somewhat better with the higher fast-touring pressures (21 psi front, 26 psi rear)

that we used through our testing.

But it's on the bumpy back roads that this car really performs wonders. You find yourself searching for serpentine, climbing, diving and winding byways just to exploit the astonishing agility of this car. The surface doesn't matter; the bumpier it is, the more the Porsche likes it. If severe ripples break the tires loose, the wide tread and supple suspension usually succeed in clamping them to the road again before the car has moved sideways more than a few feet. So solid and so secure does this car feel over the most atrocious roads, in fact, that many owners may tend to overstress the automobile without knowing it. In a sense, then, the Porsche reputation for chassis fragility may be attributable to severe driving that results from its solid feel!

Our Steering Behavior evaluation revealed the remarkable design job that's been done by Porsche in the last decade. The 356B very gently but very definitely understeers up to the breakaway point, at which it's the back that wants to leave the scene first. Unfortunately we weren't able to test the Super 90, with the compensating spring, on our 400-foot circle, but expectation would be that it would understeer still more. We'll publish a Steering Behavior chart for comparison as soon as a test can be arranged.

SUPER 90 HANDLING

Generally, the Super 90 does seem to have a slight cornering edge over those Porsches not fitted with the compensating spring. The difference was clearly demonstrated a year ago at the Nürburgring when a factory coupe was raced with the Super 90 engine and special springing. Changing from a non-compensated car to the Super 90, factory driver Edgar Barth was able to cut several seconds from his previous times. "It just corners faster," says Barth, "and you feel that you can throw it about in complete safety." Adjustable Koni shocks are also standard on the Super 90.

Our discussion of the Super 90 wouldn't be complete without a word about the German Dunlop sports tire that's being fitted to all Super 90's and Carreras now. Developed in collaboration with Porsche, it's of the Michelin X breed with metal threads in the carcass and very flexible sidewalls that carry a portion of the tread pattern. For high-speed driving the recommended pressures are 20 psi front and 24 psi rear. The tires are virtually silent and only begin to protest audibly when the car is cornering at the extreme limit.

WHAT MORE COULD YOU ASK?

Throughout this Road Research Report we've discussed the way all the component parts of the Porsche operate. What may not be evident here — and what is surely evident when you step inside the car — is the loving way all these parts are put together. Though production of Porsche cars has increased greatly since the tentative days in the early Fifties, they've still been able to maintain a quality level that's exemplary. If you want a superb machine for traveling fast in comfort, one on which you can rely completely, the Porsche has few peers in its price class. In every way that really counts, both automobiles examined this month are excellent sports car buys.

—SCJ