

SCI

TRACK TEST:

MASERATI 200 SI



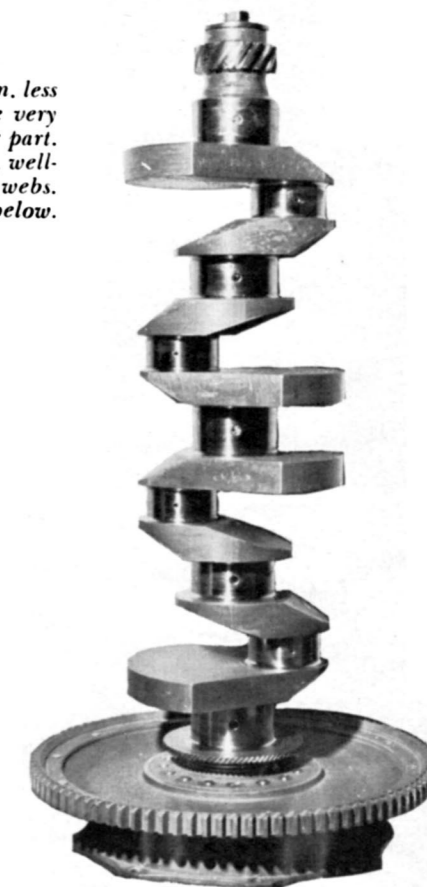
Devouring the finishing straight at Paramount Ranch, the little Maser takes SCI's test crew for their quickest ride to date. Top end is not high, but it gets up there in a desperate hurry, making it ideal for short-course campaigning.



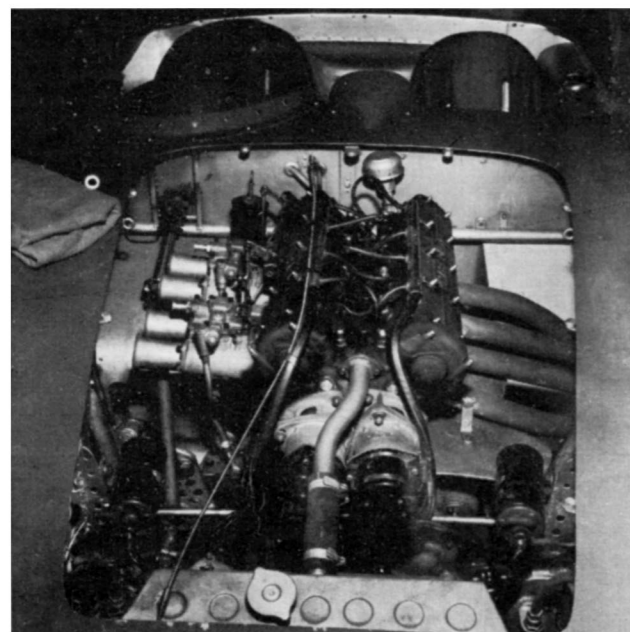
Axle case is rough cast, has breather at top. Four bearings hold pinion, and drive is through ZF differential.



Pollack puts 200 SI stability to the test, finds balance and handling in top class. Slide here was readily provoked by stab at throttle. Maser understeers, and if taken too far this can bring it back into line.



150 S crank 2 two mm. less stroke, is otherwise very similar to two liter part. Bearings are wide, well-spaced, leaving thick webs. Flywheel, clutch case below.



Engine concept was inspired by old 4CLT, by way of Platé modifications for old two-liter Formula II. Test car here has twin coils, distributors; others come with dual mags or one of each. 1½ liter four has 40 mm Webers, while 200 SI goes to 45 mm and has air correction ram tubes.

FANGIO, kissing his fingertips, has said, "The Maserati is the ideal competition car." This is clearly an honest statement; when the perennial world's champion has driven freelance he's driven the marquee of the trident of Bologna. All its traditional excellence has been carried to new heights of refinement in the new 200 SI, the four-banger that replaces the immensely successful six-cylinder 2000 S.

The two-liter four is a small car that looks, sounds and goes like a big car but does most things better. It looks exquisite. It's one of the most hairy-sounding of hot bolides, with an exhaust note that booms massively at warmup revs and turns to a screaming voice of absolute authority in its upper rev range. Its acceleration and speed suggest a much heftier-engined machine but its agility puts it above that class. The new two-liter Maserati is, as its makers don't mind saying, a genuine *opera d'arte*.

Except for piston displacement the 190-bhp 200 SI is identical to the 140-bhp, 1500 cc Type 150 S. The smaller-engined machine made its debut at Nürburgring in August 1955, setting a new class lap record and remaining unchallenged throughout the entire 500-km race. The 200 SI did not begin to compete until last Fall but since then has clobbered all comers and has been good competition for the Testa Rossa Ferraris. Its first place in the GP of Rome (Behra) and first and second in the GP of Caracas (Behra, Schell) late last year made it clear that the 200 SI will be one of the hottest contenders in the '57 season.

SCI was privileged to test the first complete new two-liter

low Springs where consistent times of 1'44" were turned; that's one second over the lap record for sports cars.

Maserati's new two-liter seems to be quite capable of *overall* wins on circuits up to about 2.2 miles in length, where straightaway speeds do not exceed 120 mph. Five standard gear ratios (ours was the 4.75) provide versatility as follows:

Final Drive	Maximum Speed at 7500 rpm - 600 x 16 Tires				mph/1000 rpm in IV
	I-1.895	II-1.525	III-1.235	IV-1.000	
4.22	79	98	132	152	20.2
4.44	76	94	128	146	19.5
4.75	70	88	119	132	17.6
5.00	67	76	113	126	16.8
5.25	63	73	108	121	15.8

These machines, of course, are not fitted with speedometers. In order to obtain a velocity curve we calculated the rpm equivalents of speeds from 30 to 100 mph, in the appropriate gears. We began the acceleration tests cautiously, wishing to take no chances on overrevving the engine. We took the tach up to 7000 rpm, dropped the clutch, and clocked elapsed times up to 60 mph in First gear. Wheelspin was severe but balanced and there was no fishtailing—just straight, parallel streaks of rubber. Slowness in getting off the line is indicated by the 2.3 seconds needed to get from zero to 30 mph (3180 rpm), while only six-tenths of a second elapsed between that and the 40-mph (4250 rpm) time. It's at about this point that the engine's torque begins to come in strongly. However, its thrust at lower revs is thoroughly unlike most high-output two-liters and it feels more like a 2.5 or a three.

Furthermore, it does not feel like a highly-stressed engine. It rushes up to its 7500-rpm maximum feeling clean,

solid and at home all the way. It feels so smooth at 7500 that you feel it should wind to 8500 without effort. None of us was in that much of a hurry but it was obvious that there was no reason not to twist it pretty tight in the indirect gears when the need arose. So, while our first zero to 70 mph elapsed time included a shift to Second (6000 rpm at 70), we decided to run up to 70 in First (7500 rpm). This made for a gain of 1.1 seconds ET—6.4 over 7.5. The engine still felt so content that we decided to stay in Second up to 90 mph, which equals 7700 rpm. This gave us a zero to 90 of 10 seconds flat and let us know that at that rotational speed there was not the hint of a suggestion that the rev peak was in sight. We did the standing quarter-mile in an effortless 13.9 and let it go at that, even though this same car had been clocked at the San Fernando drag strip at 13.0. Acceleration times are a function of how hard you want to press the machine, among other things, and we were all so filled with respect for this Maserati that we had no desire to press it. You don't flog a racehorse until the chips are really down.

Even though I sometimes have fantasies about building a Lotus-Chrysler (reinforced), I am well aware that acceleration in itself is just one of many automotive virtues. Admittedly, the achievement of outstanding acceleration within a small-displacement limit is a complicated problem. But there are many other problems of automotive design that are equally subtle, and it's in the solution of some of these that Maserati has always shone brilliantly.

Here is a car that epitomizes the modern trend to put

MASERATI TEST DATA

TEST CAR:

Type 200 SI competition two-seater. Supplied by Maserati Southwest Distributors, 5101 Lankershim Blvd., North Hollywood, Calif. Price, \$11,480.

TEST CONDITIONS:

Number aboard1
 Top positionNo top
 Temperature68° F

PERFORMANCE

TOP SPEED:

Calculated from tach132 mph

ACCELERATION:

From zero to	Seconds
30 mph	2.3
40 mph	2.9
50 mph	3.4
60 mph	4.4
70 mph	6.4
80 mph	9.1
90 mph	10.0
100 mph	11.8
Standing ¼ mile	13.9

ACCELEROMETER DATA (Tapley Meter):

Pulling Power in:	Lbs/Ton	Grade %
I	Off Scale	-
II	575	-
III	420	-
IV	350	-
Drag at 10 mph	Not measurable	-
60	50	-

SPEED RANGES IN GEARS:

Gear	MPH
I	70
II	90
III	119
IV	132

BRAKING EFFICIENCY:

Summation—zero fade

SPECIFICATIONS

POWER UNIT:

TypeIn-line four
 Valve Arrangementd.o.h.c., gear-driven
 Bore & Stroke (Engl. & Met.)3.62 x 2.95 ins./92 x 75 mm
 Stroke/Bore Ratio0.81/1
 Displacement (Engl. & Met.)121.6 cu. ins.; 1993 cc.
 Compression Ratio9/1
 Carburetion byTwo dual-throat Webers
 Max. bhp @ rpm190 @ 7500.
 Max. Torque @ rpm148 @ 5600

DRIVE TRAIN:

For Transmission Data see table in text of report.
 Final drive ratio (test car)4.75 to one; 8/38.
 Axle torque taken by radius rods and frame-mounted final drive housing (de Dion).

CHASSIS:

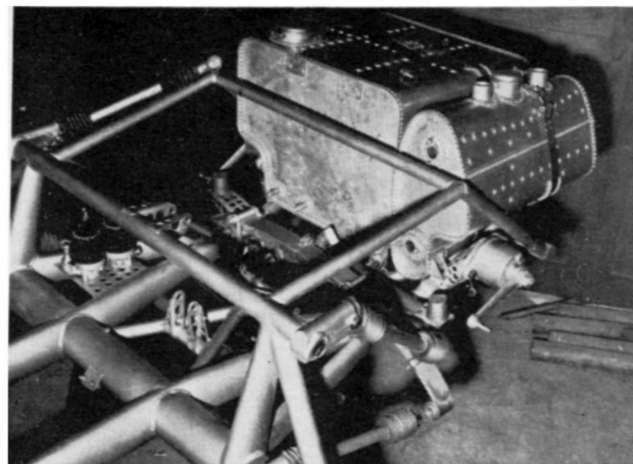
Wheelbase86.6 ins.
 Front Tread49.2 ins.
 Rear Tread47.3 ins.
 Suspension, frontCoil & wishbone IFS, anti-roll bar.
 Suspension, rearde Dion axle, transverse leaf spring.
 Shock absorbersHoudaille hydraulic
 Steering wheel turns L to L2
 Brake typeTwo leading-shoe hydraulic, F&R;
 two master cylinders; centrifugal ventilation
 Brake lining area128.6 sq. ins.
 Tire size600 x 16

GENERAL:

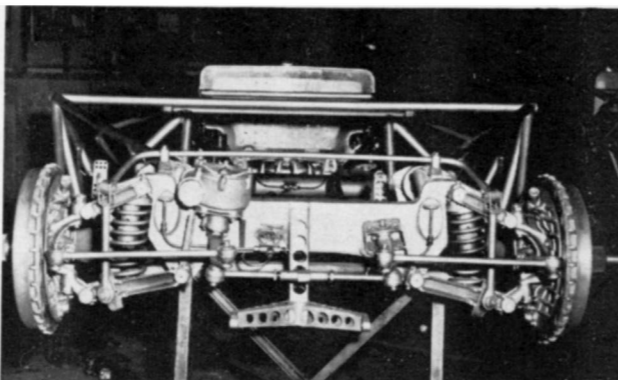
Weight, test car1510 lbs.
 Weight distribution, F/R48/52
 Fuel capacity, U. S. gallonsStd. 30.6; optional 42 & 49.

RATING FACTORS:

Bhp per cu. in.1.56
 Bhp per sq. in. piston area4.62
 Torque (lb-ft) per cu. in.1.22
 Lbs. per bhp, test car7.95
 Piston speed @ 60 mph, top gear.1677 ft per min.
 Piston speed @ max bhp3690 ft per min.
 Brake lining area per ton (test car)171 sq. ins.



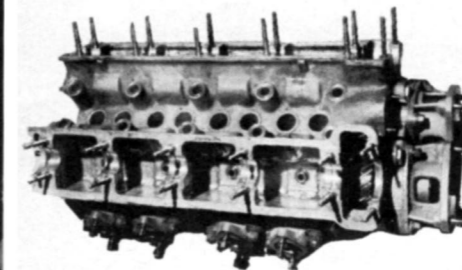
Seen before mounting of differential and de Dion tube, rear end shows cross spring, parallel trailing arms, Houdaille shocks and fuel pumps. Test car tanks differ.



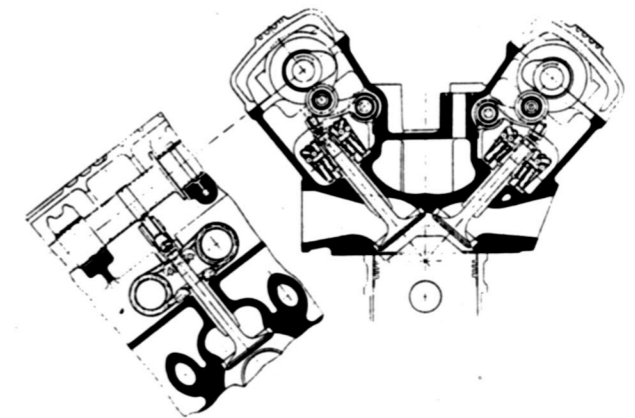
Forged suspension arms have latest I-section, mount to boxed front crossmember. Steering is by three-piece track rod. Wide tube frame can be seen at rear.



Crankcase and sump separate at crank centerline, lateral strength being provided by four-bolt caps, wide webbing.



Each cam has five Thinwall bearings, is driven by helical gear train. Ten studs go right through to main bearing caps.



Cutaway shows adjustable roller fingers and hairpin valve springs. Cams rotate toward each other, accounting for opposed placing of fingers. Piston cutaways are deep.



Latest Maserati bodies are clean, Lotus-inspired, have longer nose for better penetration and lower duct diffusion angle.

“big” engines in small, light chassis (see Lotus, Cooper and Vanwall). But if you’ve driven some of these muscular lightweights you know that there is a point at which their fragility becomes a matter of sober concern. Body panels begin to flex, rattle and hammer. Frames start working, you feel the car snaking all around you, and you begin to wonder if you ought to be driving so fast.

Pollack, who has a flair for the well-turned phrase, puts it this way. “The most important thing the architects of this car have done is to give the driver a sense of security at all times. You can’t get this in the locker room from Knute Rockne. Neubauer can tell you the car is perfectly safe at 190 mph. But if it doesn’t feel safe there are few drivers who will ever take it close to its potential top speed. They won’t want to get their necks out that far.”

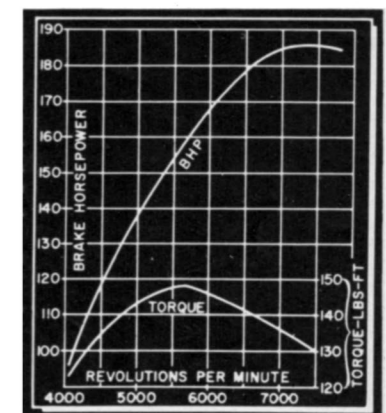
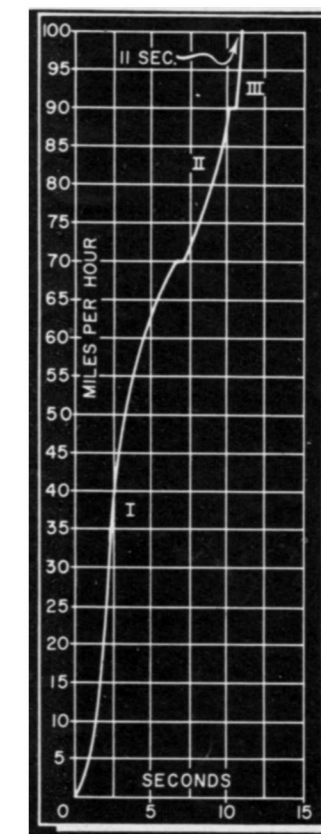
This new Maserati, like most members of its breed, feels good at any speed. Even when all four wheels are sliding gloriously you still know you’re in control of the car. The word “balance” keeps occurring as the best word to describe this machine’s deportment. Every element is perfectly mated to every other: engine to transmission to final drive; weight to power to gearing; weight distribution to wheel-

the turns for the weight or size of the car. Our experts doubt that there is any two-liter that can go through a turn more quickly than the 200 SI. It moves through even slow turns with great speed and maneuverability. You can change your line at will in this machine, while in others you’re forced to hew to the line you’ve committed yourself to.

The brakes are wonderful and have no tendency to pull in any direction. They pull evenly and firmly and needless to say are truly fade-proof. Some cars have very sensitive brake pedals and this is rough in competition or in city traffic. You should be able to hit the pedal hard when you have to and not have the wheels lock. Pollack put the Maserati’s brakes to this test at very high speeds but could find no tendency to lock. The brakes just took hold and did a superlative job of stopping the car.

This is an obvious subtlety. The Maserati has many that are more sophisticated. Its throttle pedal travel, for example, is very long. A short throw makes feathering the throttle a touchy thing coming out of a turn. With a long throw you can achieve a fine adjustment of power.

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MAY '57

Maserati

(Continued from page 15)

Another of the little things that count is the rigid footrest for the left or clutch foot, a hallmark of the Italian competition car. What it does is let you maintain balance while steering through turns. During hard cornering a seat belt is not enough to anchor you and you have to use the steering wheel for an anchor as well as for directing the car. The Italian "dead pedal" puts the left leg to work when it's idle, stiff-legging you into the seat and leaving your arms free to concentrate upon steering alone. Some cars have a natural footrest like this. Those that don't would do well to adopt the dead pedal.

The 200 SI's steering is precise, of course, and it's perfectly mated to the car's wheelbase and power. The transmission (Porsche patent) is full synchro and one of the world's very best. It has a ball-and-socket in place of the traditional Italian gate, but the advantage of the latter's positiveness is matched by the reckless way you can sling the Porsche-type lever anywhere. It pops silently into any cog and you can yank it into First without qualms.

The 200 SI is in between the small and the big car. It has been laid out for drivers of "average size"—no taller than about five feet eleven. Anyone much taller would have some trouble getting into it. It's designed for straight-arm steering, which is very comfortable. There's lots of room between the pedals and the shift lever is perfectly at hand. The firewall is well sealed and air from the engine space is vented from the body sides in such a way that we observed no heating of the cockpit area.

The Maserati's bodywork is beautiful. Our test car had been pushed a great deal in and out of showrooms and on and off trailers. Its aluminum panelling was flawless, without a ripple. This degree of quality is unusual for Italian racing machinery, but frugality was evident elsewhere in the 200 SI. Where the body supports are welded to the frame, for ex-

ample, the welds are rough and hastily done. But the frame welds themselves (where strength really counts) are done smoothly and with great care.

Front suspension is by coil springs and wishbones and includes an anti-roll bar. Rear suspension utilizes a de Dion layout with transverse spring and a light-alloy center section.

The engine is a dohc four with two valves per cylinder in hemispherical combustion chambers. The cams, blunt as broom handles, are driven by a gear train and act against roller tappets or cam followers. These are easily adjustable, and each roller runs on 24 needle bearings. The automatically-rotated valves are inclined in the light alloy head at an included angle of 80 degrees, and each valve is closed by a pair of hairpin springs giving a closed pressure of 33 pounds, and 193 when open. Both the intake and exhaust ports are choked down to form rather tight venturis just outside the valve guides. The valve timing, with 80 degrees of overlap, is:

Intake opens 45° BTC
closes 75° ABC
Exhaust opens 75° BBC
closes 35° ATC

The phenomenal output of modern racing engines is not often obtained without recourse to elaborate scientific techniques as well as trial-and-error experiment.

The 200 SI's block is of light alloy with wet liners, there are five main bearings, and the short con rods are of a broad I-section. There are two spark plugs per cylinder fed by two distributors driven by the cam-drive gear tower. Carburetion is by a pair of dual-throat 45DC03 Webbers, giving a one-carb-per-cylinder effect. All the main organs are force-lubed by means of a three-element pump which has two scavenging components and one for feed. The dry-sump system draws from a two-gallon reservoir at the rear of the car and includes an oil radiator at the front. In the tradition of the marque, this Maserati has an abundance of external oil lines. Structurally, the 200 SI is a lot like the 300S six with two cylinders lopped off.

Warren Olson, who now services our test car in Beverly Hills, describes it as a completely straightforward machine. There's nothing strikingly radical about it, nothing tricky—except for the absence of timing marks on the flywheel. To time

it you must use a degree wheel; identical timing for each cylinder is achieved by the well-known technique of juggling tappet clearance. Small nuts and bolts can be frustrating too, often lacking lead threads and differing in size.

Our test car is slated to run at Sebring with Reventlow and Pollack co-driving, as part of the factory team which will also include Fangio, Behra, Shelby and perhaps Moss. After Sebring the car will go back to Modena for servicing, and then Lance will drive it in whatever competition the European gasoline shortage permits; he has just been invited to drive in the Mille Miglia. In the eastern U.S., Bill Wonder will be running a twin to the Nürburgring car, with the latest 200 SI engine. With his excellent preparation, it should show well in SCCA events.

The availability picture for Maserati cars in the U. S. has undergone profound change in the last few months as a result of the Orsi brothers' (they own the firm and are financially famous) plan to greatly expand their production and their market. Their two-liter *gran turismo* cars now are reaching this country in substantial quantity. Competition machines, once made in such limited numbers that they were doled out only to top drivers, now are much easier to come by in one-five, two, and three-liter form. Tremendous touring machine developments are under way. A 3.5-liter Frua-bodied convertible is about to be introduced. AND a 1.5 Maserati spyder, a mass-produced car very much a match for the Giulietta, already has been shown in prototype form. They'll be made mainly for the U. S. market in lots of 1000 and promise to be one of the year's major sports car developments.

Maserati sales and service facilities are at least 1000 per cent better than they've ever been in the U. S. On the east coast there's the Maserati Corporation of America, headed by Serge Toumaniantz at Westbury, Long Island. On the other coast there's Charles Rezzaghi's excellently-equipped Mille Miglia Motors in San Francisco. And in North Hollywood there's Phil Rauch's dynamic Maserati Southwest Distributors. Heading this last operation is Harold F. Coole, who master-minded another great marque's penetration of the western U.S. It appears that men, machines and service now are available to make Maserati cars a familiar sight on American streets and road courses.

Griff Borgeson

BMW 507

(Continued from page 21)

tudinal torsion bars, one on each side of the car. The rear end is straightforward, with a rigid axle which is located at three points: the torsion bars on either side and to the frame in the middle. Though the rear end is not a quick-change type, the ratios can be altered within an hour's time. Four adjustable telescopic shock absorbers are fitted as standard. These are the new Dutch "Koni" shocks, and BMW

seems to be completely satisfied with them.

The accompanying test data is taken from actual factory-conducted tests on the Model 507 in convertible trim. Acceleration data, top speed and braking efficiency have been made available to SCI by Mr. Von Falkenhausen, chief of research and of racing with BMW. Actually these reports tell their own tale, but the reader's attention is drawn to two acceleration times (0-60 mph in 7.2 seconds, 0-100 in 23.0 seconds), and to the maximum speed of the car. There is a difference of almost 10 mph in maximum speed when the car is equipped with a 3.42 rear axle ratio; this version

with a hard top reached 136 mph on the autobahn. This is quite good, with the weight of the car exceeding 3100 pounds fully loaded.

There is no reason at all to doubt these figures, for German automakers are famous for their accuracy and modesty in evaluating their products. SCI hopes to get a test car of the Type 507 shortly, so that a complete assessment of the car's handling qualities and overall performance can be drawn up. Until that time scrutinize the factory data closely; it's a fantastic example of thoroughness and impartiality.

Jesse Alexander