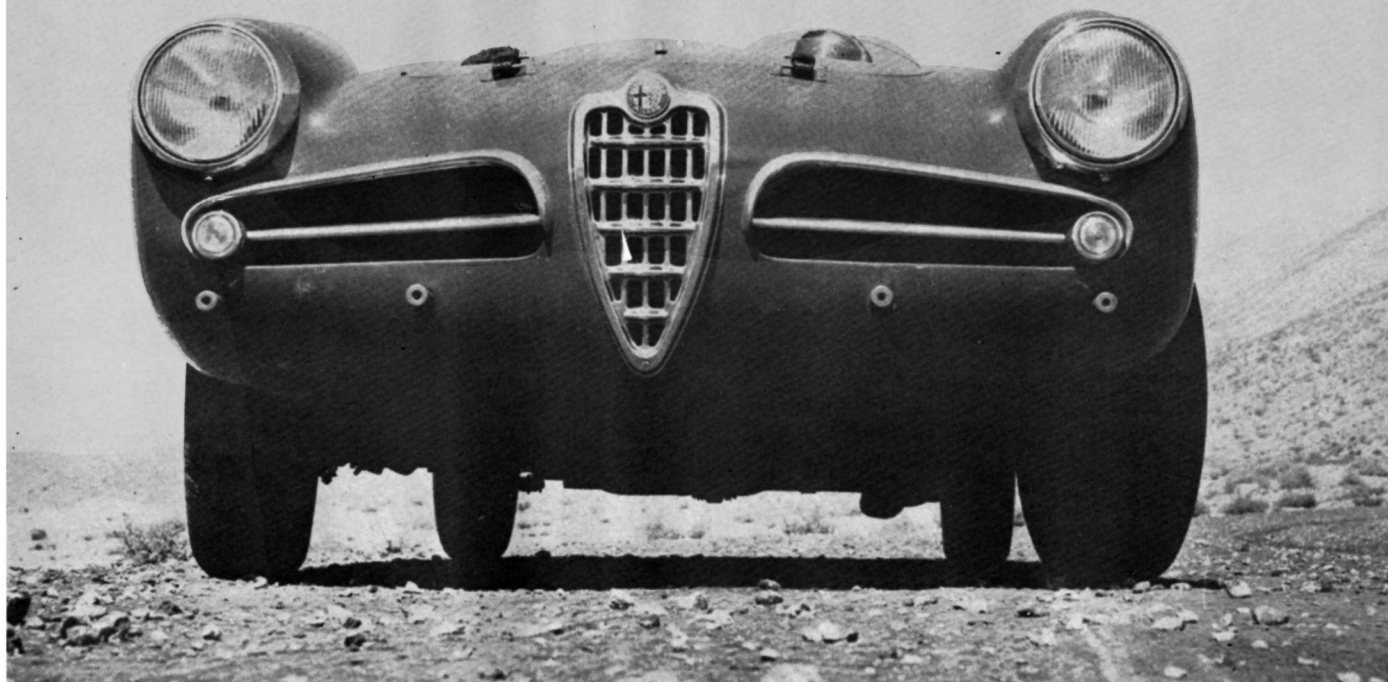


SCI

Technical Report:



Low, wide and handsome is this frontal view of the Veloce. Body and chassis of the Veloce is practically identical to the Giulietta. Bumpers have been removed to cut down turbulence for SCI test runs.

The Alfa Romeo Veloce Spyder

BY RUSS KELLY

ONE of the biggest surprises of the automotive year was the slow realization that Alfa Romeo, of Milano, Italy was making, for them, a mass invasion of the American light car market. The semi-mass production of a car aimed at a foreign sales program is really new for Alfa and is sure to prove enlightening to both the Italian manufacturer and the American consumer.

The natural decision of Alfa to publicize this new product—the 1290 cc Giulietta, on the race course has caused a couple of super hot models to put in their appearance at U. S. races. One in the gentle hands of Carroll Shelby ran away with the under 1500 cc race at Cumberland, Maryland. On the west coast Bill Pollack proved that he could deal out rations of fits to all but the most experienced Porsche Spyder drivers at Santa Maria, California.

Called *Veloce*—the fast—this little bomb has the advantage

of being able to run in production car races. It's significant, however, that the technical committee of the Southern California Region of the SCCA was a little difficult to convince about its eligibility as a production model when Pollack raced it at Santa Maria. The fact that the only two real Veloce Spydery imported are still apparently under factory control and not really available for testing leaves a couple of interesting questions unanswered.

First, it seems they have difficulty in finishing a race with any binders left to speak of. Second is the question raised by the laconic statement of an English mechanic on their handling after witnessing the '56 Mille Miglia. Simple and to the point he said, "They 'ad 27 of 'em 'anging about in the trees between Brescia and Rome."

Conjecture aside, this model is doing an excellent selling job because of its agility, phenomenal speed and accelera-

tion. You can be sure that every small specials builder in the U. S. has got his eye on the little Giulietta two-cam mill since its potential has been so well demonstrated by the Veloce.

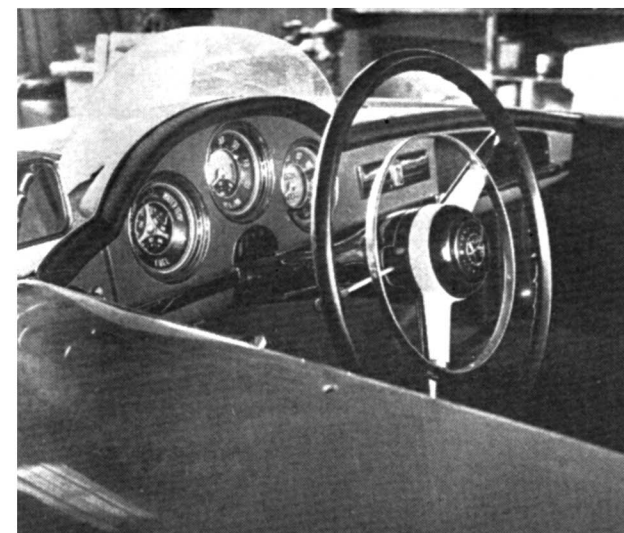
In the same category as the question "Which came first, the chicken or the egg," you can put the question that comes to mind when you review the history of Alfa. Are they the world's best at hot rodding production models and turning them into racing cars or the world's best at detuning racing cars and turning them into production models? The relationship between the Giulietta and the Veloce does nothing to answer this question. Under superficial examination—standing still—you'd have a hard time telling them apart, but you'd have a tougher time turning a Giulietta into a Veloce.

The body and chassis are practically the same, the principal difference being that the Veloce uses aluminum for hood, doors and deck lid. The chassis-body integral construction precludes the more extensive use of light alloys. The chassis is of the platform type which consists of a pressed steel floor that is reinforced along each edge. Forward of the firewall there is a system of channeled sections that carry the engine and gearbox unit and the front suspension layout. This system follows in general the shape of a sloping shallow box with an upper and lower member on each side. The lower members are tied together by a simple cross member and forward of this is a channel section diaphragm that ties all four members together. To this is welded the body shell, consisting of the front fenders, cowl, firewall bulkhead, rear turtle deck and rear fenders.

Integral construction offers a great deal of rigidity in torsion, but may suffer in beam stiffness. Remembering that a beam's resistance to bending varies as to the cube of its depth, the lack of a steel top to take compression loads and the deep cutaways for the doors has effectively reduced the depth of the beam. However, this body is well reinforced around the opening in an effort to compensate for any loss of strength. The disadvantage of this type of structure in a racing car is that even a minor collision could cause damage extremely difficult to repair.

(Continued on page 36)

This is the Giulietta piston which exerts a compression of 8:1. Pistons in the Veloce do not have fourth ring around the skirt, but otherwise are the same. Veloce slug exerts about 9:1 compression.



Driver can watch his instruments through wheel rings without difficulty. Left-hand gauge cluster includes water temp., fuel and oil temp.; center gauge is tach calibrated to 8000 rpm and incorporates oil pressure gauge; dial at right is speedometer marked in mph.



Veloce takes hard turn at better than 70 mph. Although car feels flat through curve, it does lean.

ALFA ROMEO SPRINT VELOCE

SPECIFICATIONS

POWER UNIT:

TypeIn-line four.
 Valve arrangementDouble overhead camshaft.
 Bore & Stroke (Engl. & Met.)74 by 75 mm
 Displacement (Engl. & Met.)78.6 cu. ins.; 1290 cc.
 Compression Ratio8.5 to 1.
 Carburetion byTwo Weber double choke side draught-Tipo 40DCO3.
 Max. bhp @ rpm90 at 6500; factory figures (might be conservative).
 Idle Speed2000 rpm (car never runs under this speed).

DRIVE TRAIN:

Transmission ratios I3.59
 II2.10
 III1.36
 IV1.00
 Final drive ratio (test car)4.1
 Other available final drive ratio. 4.9 4.5 5.1

CHASSIS:

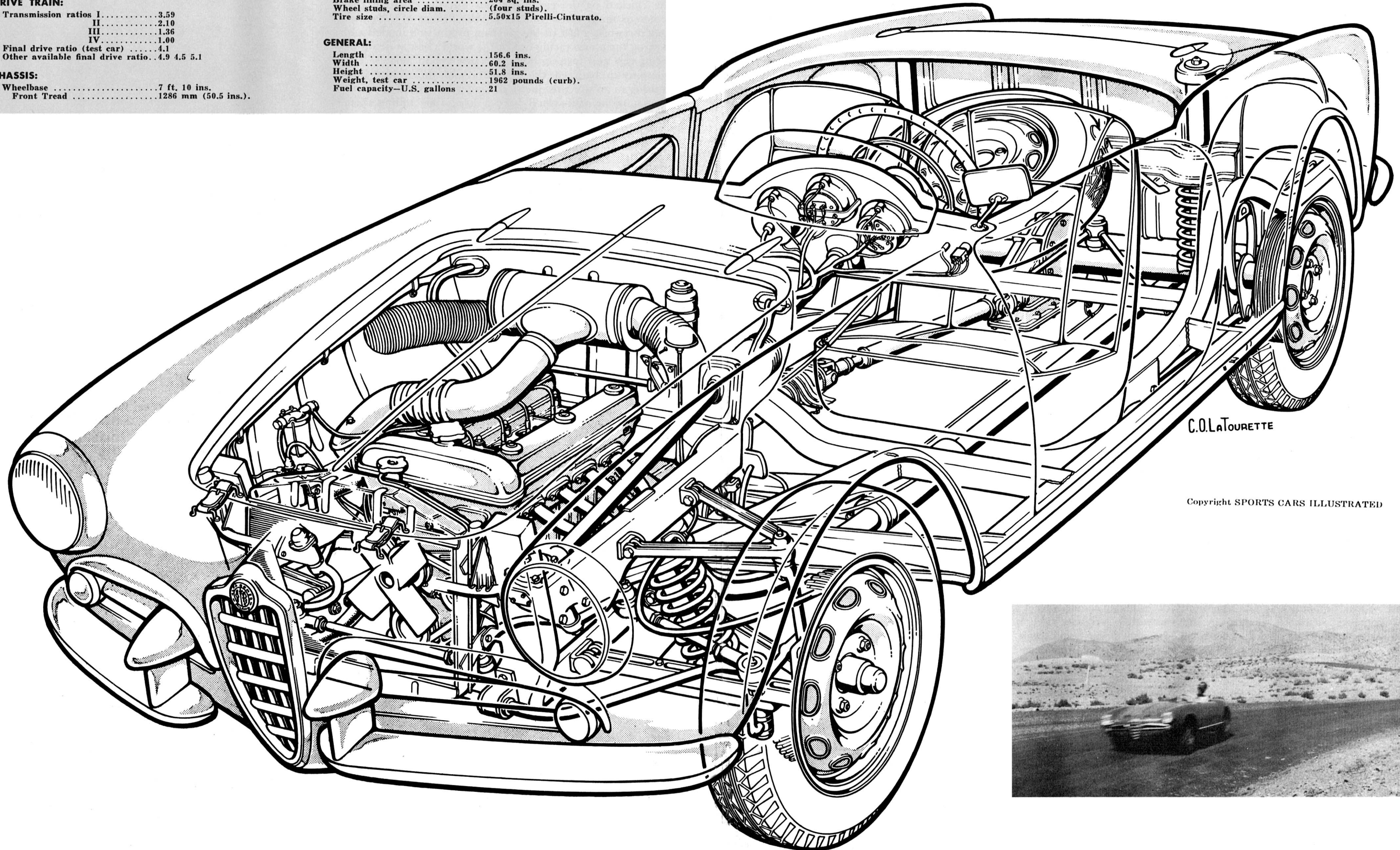
Wheelbase7 ft. 10 ins.
 Front Tread1286 mm (50.5 ins.).

Rear Tread1270 mm (49.9 ins.).
 Suspension, frontIndependent by wishbones and coil springs.
 Suspension, rearSolid axle; coil springs located by "A" frame offset to left.
 Shock absorbersTelescopic.
 Steering typeWorm and finger ZF box.
 Steering wheel turns L to L2½
 Turning diameter215.6 ins.
 Brake typeFour wheel hydraulic—front drums heavily ribbed—front: two leading shoes.
 Brake lining area264 sq. ins.
 Wheel studs, circle diam.(four studs).
 Tire size5.50x15 Pirelli-Cinturato.

GENERAL:

Length156.6 ins.
 Width60.2 ins.
 Height51.8 ins.
 Weight, test car1962 pounds (curb).
 Fuel capacity—U.S. gallons21

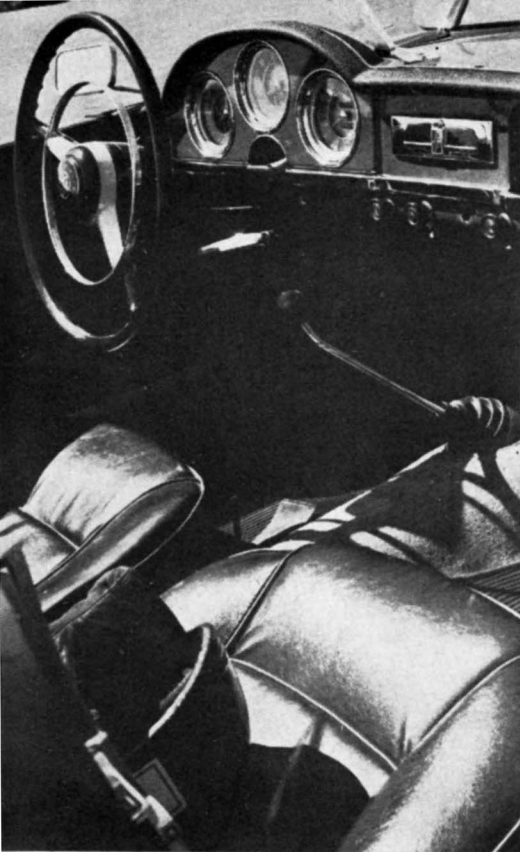
ALFA ROMEO SPRINT VELOCE



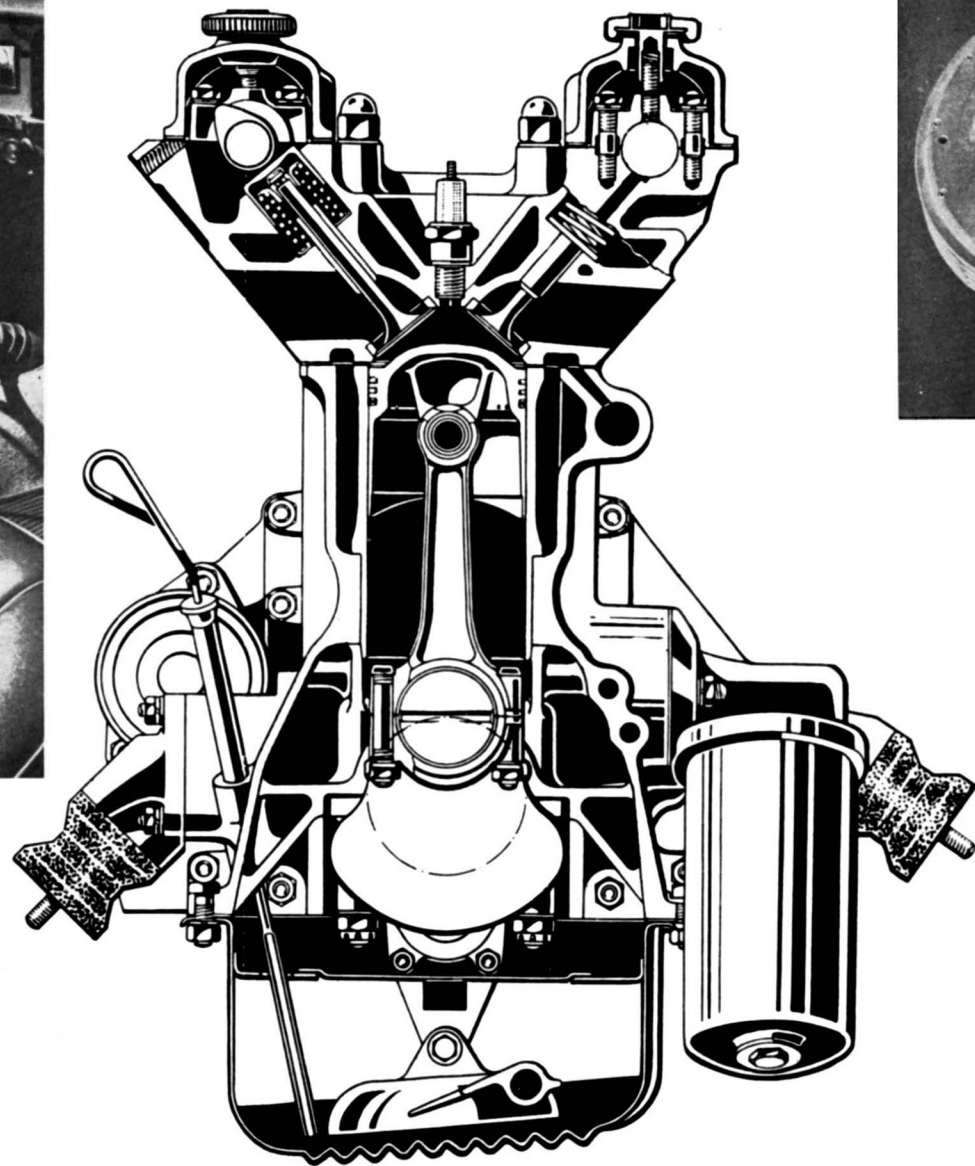
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Cockpit is luxuriously appointed in leather. Note deep seats, and husky and graceful shaped gear lever for easy shifting.



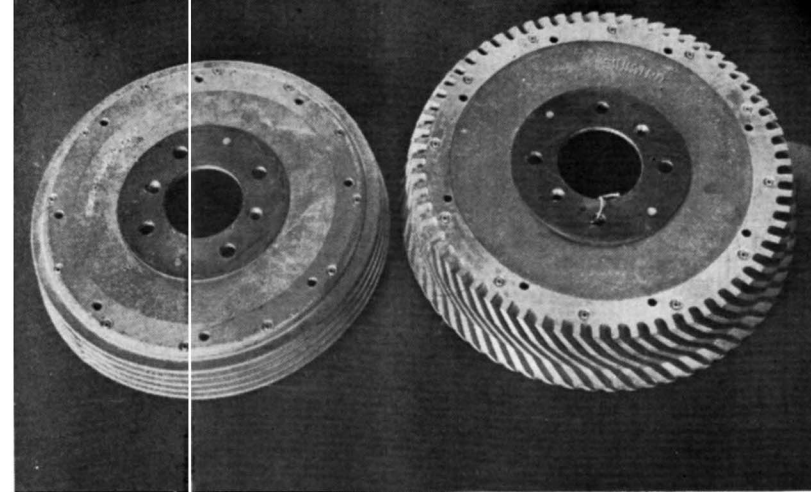
Front cutaway of engine shows double overhead cam arrangement. Both camshafts are carried in plain bearings-operate valves through steel cups fitted over the valve springs.

Front suspension is independent by unequal-length wish-bones and coil springs. The coil springs are steeply inclined and surround telescopic type shocks. A steel cable controls rebound and rubber bumpers establish the limits of full bump. This front end layout is unusual in that instead of a kingpin carrier tying the upper and lower "A" frames together with a stub axle attached to this, Alfa practice is to incorporate this in one unit that is bushed and turns at the points where it is attached to the "A" frames.

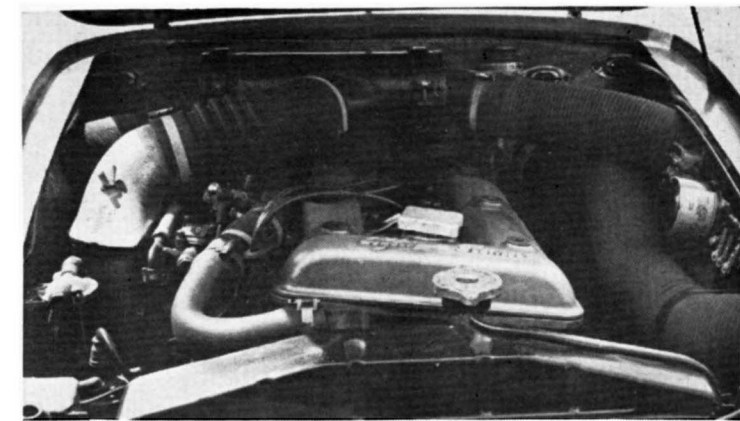
The steering box is of the familiar ZF worm and roller type. However, the steering linkage is quite different from the usual type. Attached at right angles to the vertical output shaft of the steering box is what amounts to a double-ended pitman arm. To the rear of this arm is attached the short track rod for the left, or driver's side, front wheel. Attached to the front end of this arm is a drag link that crosses the chassis slightly above and to the front of the axle center line.

The drag link actuates an exact duplicate of the steering box pitman arm and track rod for the right side wheel. This places all the steering linkage ahead of the front axle center line. A heavy stabilizer bar links the two lower "A" frames. The front end layout impresses you immediately as being clean and well executed. It isn't hard to see that Alfa has been turning out quality merchandise for a long time.

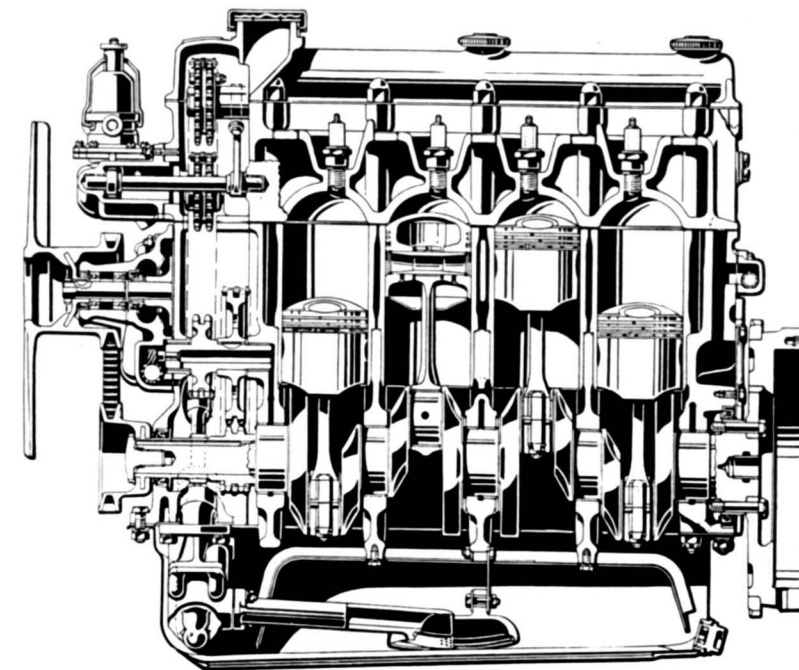
The live rear axle is suspended by coil springs that enclose telescopic shocks. The spring disposition is vertical and they are mounted in heavy steel cups welded to the rear section of the body shell. Radius rods on each side locate the final drive unit under acceleration and braking loads. These radius rods are attached to brackets that extend downward from the rear axle housing, forming in effect a half Watt's link. From the housing they pass forward on a horizontal plane to brackets attached to the chassis platform.



Front, rear brake drums. Rear is 10 inches inside, has ribbed exterior. Front drum, right, is finned.



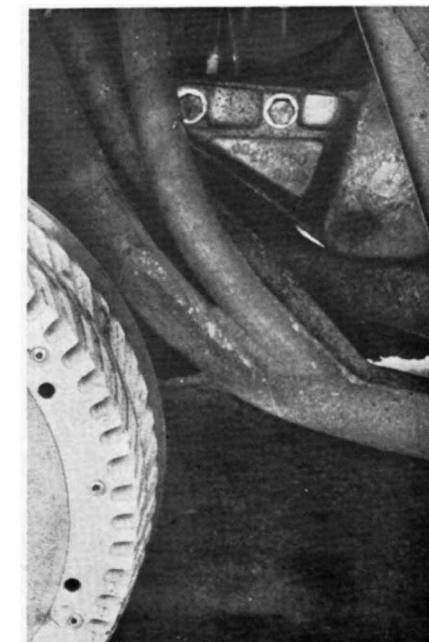
Large diameter flexible hoses carry air to cockpit for ventilation and to air-filter before it's carried to balance box



Side cutaway view shows internal works. The cast aluminum block is fitted with iron wet liners. Note crankcase and sump line is well below the center line of the five-main-bearing crankshaft.

The reaction to braking and acceleration loads inherent in this sort of layout is absorbed by a triangular tube frame attached by a ball joint at its apex to the driver's side of the differential housing and extending forward. Its effective length is about half that of the radius rods. This must be a busy little unit since it serves as torque reactor, stabilizer bar and panhard rod. The heavily ribbed differential housing is of cast aluminum and incorporates a small sump. The steel axle housings are bolted to this casting. Full bump and rebound is limited by straps and rubber bumpers.

The brakes that boast an impressive amount of lining area (264 square inches) are hydraulically operated. In the front, two leading shoes expand in a 10.5 inch drum that is of bimetal construction. The aluminum muff that is shrunk around the ferrous lining is liberally vaned to dissipate heat. The rear drums are .5 inches smaller in diameter than in the front. Also of bimetallic construction, they are ribbed



Split headers join 2 common collector boxes and terminate in one pipe at rear.

peripherally. The usual practice for sports car brakes is followed by using one leading and one trailing shoe in the rear. The hand brake operates only on the rear wheels by a system of cables and levers.

The engine gearbox unit has three mounting points. It is not mounted vertically in the chassis but lays over slightly to the right. In addition to other modifications, this engine has been carefully assembled of selected components and is noticeably smoother than the production Giulietta. Extensive use of alloys makes this four cylinder twin camshaft engine extremely light.

The cast aluminum block is fitted with iron wet liners and is extremely deep. The joining line of crankcase and sump is well below the center line of the five main bearing crankshaft. The cam chain cover carries the cross shaft that drives the distributor and the gear type oil pump. Two stages of chain are used in the cam drive, thereby reducing

(Continued on page 62)

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Veloce

(Continued from page 37)

the speed by 50% for the longer upper chain. The upper chain is easily adjustable by means of an idler sprocket. The aluminum head has ferrous valve seat inserts with the valves themselves disposed at an included angle of 80°. The 14 mm spark plug is located in the center of the hemispherical combustion chamber equi-distant between the two valves. Porting is typically Alfa in that it is as "straight through" as you can get it.

The separate camshafts are carried on plain bearings and operate the valves through the now almost universal process of hardened-steel cups that fit over the valve springs. Adjustments for tappet clearances are made by use of small steel buttons between cup and valve end. Double-nested helical springs are used with conventional retainers and Chevrolet type keepers.

The alloy Mondial pistons are domed supplying a ratio of nine to one. Reliefs are cut in the dome for the valves and two compression rings and one scraper, or oil control ring, is used. The short connecting rod carries a wrist-pin with a tapered I.D. that is retained by circlips. The big end of the rod splits at right angles to the cylinder bore with two bolts retaining the cap.

The electrical system is 12 volt Morelli throughout with the generator driven by pulley and belt from the front of the crankshaft. The distributor has a centrifugal advance mechanism that accounts for 30 of the 40 degrees advance. The usual vacuum brake on the advance mechanism has been omitted.

INTAKE-EXHAUST

Carburetion layouts on Italian racing machinery have a way of making you wonder where the money comes from. This one is no exception. Two dual-throat Weber sidedrafts almost dwarf the engine. Called Tipo 205, the throat diameter is 40 mm (1.6 inches). These bolt directly to the head fulfilling the one cylinder—one carburetor theory. Ram tubes are dispensed with by the use of a massive cast alloy balance box that is fed cool air through a large diameter flexible tube after passing through an air cleaner. Apparently there is a choice of either picking the air up under pressure through the ventilator aperture in the left front fender,

or by re-routing the tubing, from the interior of the cockpit.

The exhaust system features split headers with two common collector chambers and terminates in a single pipe in the rear. Pipes one and four join gracefully about 20 inches from the port and enter the first collector chamber just under the cockpit. Pipes two and three follow the same pattern. The second collector chamber is near the rear of the chassis with the single tail pipe ending at the body line. In case anyone is interested, the Alfanesse for collector chamber is "lung."

The clutch is a conventional single dry plate. The gearbox has four forward speeds—all syncromesh. The gearbox housing is cast alloy. The method of transmitting the drive from gearbox to rear axle is of special interest in that the driveshaft is in two separate sections. The first section attaches to the back of the gearbox by means of a rubber universal and is carried at its other end by a ball bearing mounted to the chassis. The second section carries universal joints on both ends to allow for movement of the rear axle.

The cockpit appointments are luxurious for an Italian racing sports car. Bucket seats are softly upholstered, leather covered and adjustable. The floor gearshift lever is on an impressive size and convenient to handle. Clutch, throttle and brake levers are conventionally located. The addition of a raised rest for the left foot just clear of the clutch pedal is a nice thought.

Cockpit ventilation is provided by a flexible tube that picks up air from a vent located in the right front fender. The wind screen is of the small pre-1956 Le Mans type and is formed of plastic.

Instruments include a large tachometer and speedometer in addition to the usual temperature, oil pressure and electrical gauges. The tachometer is not red-lined, but it would seem reasonable that 6500 rpm would be maximum revs as claimed. However, one owner casually mentioned seeing 7600 in top at an indicated 130 mph—something the mechanics in Milano, who carefully assembled this engine, would be glad to hear.

The longer you consider it the more obvious it becomes that this car, for all its tininess is a true Alfa and will make its mark on the automotive world as surely as did the 2.9.

It's inevitable that production 1290 cc chassis and engines will fall into the hands of the U. S. specials builders and with or without the lead supplied by the factory in the Veloce, Alfa Specials are going to be tough contenders for the silverware.

— Russ Kelly