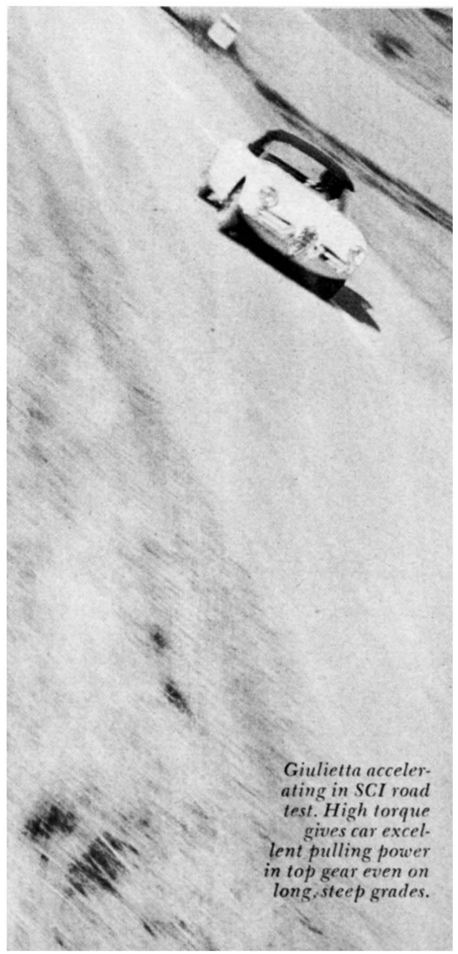
SCI tests the Alfa Romeo Giulietta



Giulietta accelerating in SCI road test. High torque gives car excellent pulling power in top gear even on long, steep grades.

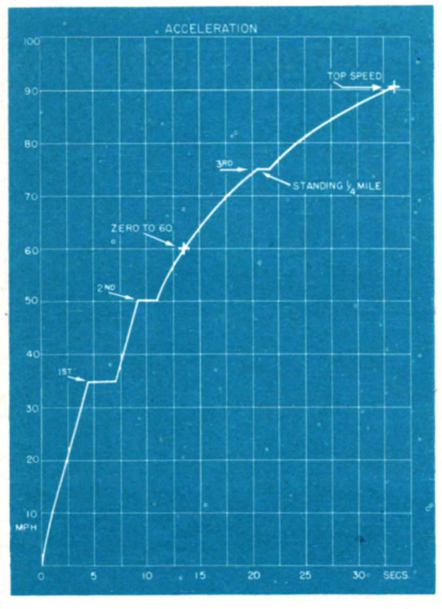
Alfa Giulietta: a champagne car at a beer price.

WHEN the men who run Alfa Romeo named their new 1.3 liter model "Giulietta" — Juliet, in English — they were thinking of character as much as of an obvious play on names. Shakespeare's Juliet was a tender child whose passionate nature belied her demure specifications. Alfa's Giulietta is much the same.

Its dimensions are toy-like. Its displacement and horsepower are minute. Its top speed will give no one gray hairs and the fierceness of its acceleration is as much a matter of chassis feel as it is of gravities or feet per second squared. But the Giulietta is *all* machine and it's one of the most exciting, eagerly responsive cars I've ever driven.

The little Alfa has a vital personality, and it mirrors your own mood. If you're feeling dreamy you can drive it as somnolently as you would a heavy Detroit lugger. But if you are in a mood to *go*, it can turn you on like a jug of adrenalin. I've never driven a safer car. Its brakes, steering and roadholding are sheer perfection. In most cars your chances of worming your way out of a real road emergency depend largely on luck; it's something like riding a loco

The Giulietta displays usual simple Alfa Romeo grille. Tires are Pirelli Cinturato type with unique tread pattern which give car fine adhesive qualities on wet or dry surfaces.



Acceleration chart shows Giulietta's high torque performance. Long horizontal lines at each shift point were due to column shift linkage being out of adjustment. With floor shift, there is no doubt that the car would have reached top speed in about 25 seconds.

PERFORMANCE
ALFA ROMEO GIULIETTA SPYDER SPRINT

TOP SPEED:
- Two-way average ..... 90.4 mph
- Fastest one-way run (one mile approach to traps) ..... 93.8 mph

ACCELERATION FROM ZERO TO:
- 20 mph ..... 2.4 secs.
- 30 mph ..... 3.7 secs.
- 40 mph ..... 7.7 secs.
- 50 mph ..... 9.2 secs.
- 60 mph ..... 13.7 secs.
- 70 mph ..... 17.5 secs.
- 80 mph ..... 24.6 secs.
- Standing ¼ mile ..... 20.7 secs.

SHIFT POINTS:
- First ..... 35 mph
- Second ..... 50 mph
- Third ..... 75 mph

SPEEDOMETER CORRECTION:
Approximately 4 mph fast throughout speed range.

FUEL CONSUMPTION:
- Hardest possible driving, actual ..... 28 mpg

SPECIFICATIONS

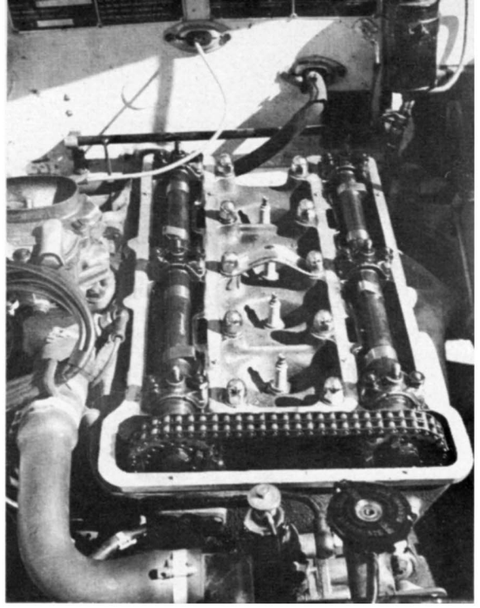
POWER UNIT:
- Type ..... 4 cyl., in line
- Max. bhp ..... 65 bhp @ 550 rpm
- Piston displacement .. 78 cu. ins. — 1290 cc
- Bore x stroke ..... 2.91 x 2.95 ins. — 74 x 75 mm
- Bore: Stroke Ratio .. 1:1.01
- Compression Ratio .. 8.0 to 1
- Valve arrangement .... Vee-inclined, dohc

DRIVE TRAIN:
- Clutch type ..... Single-plate, dry
- Transmission Ratios:
  - 1st 3.59
  - 2nd 2.10
  - 3rd 1.36
  - 4th 1.00
- Final drive ratio 4.55

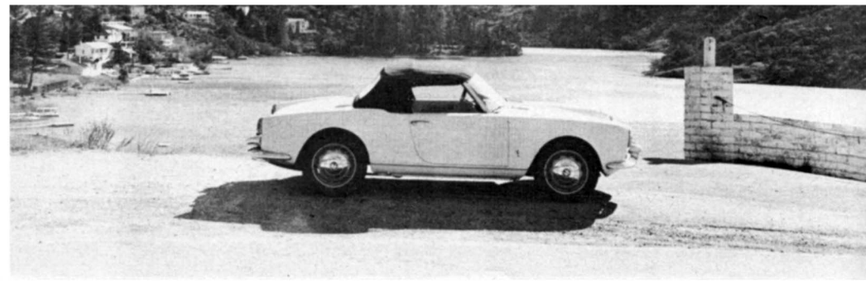
CHASSIS:
- Suspension, front ..... Inclined coil springs, unequal length wishbones.
- Suspension, rear ..... Solid axle, coil spring, radius rods.
- Shock absorbers ..... Girling tubular, F & R
- Steering type ..... ZF worm and roller
- Steering wheel turns . . . 3 from lock to lock
- Steering turning diameter ..... 30 ft.
- Brake type ..... Bimetallic drums, 10.5 in. diam. F, 10-in. diam. rear. Two leading shoes at F.
- Brake lining area ..... 264 sq. in.
- Wheel studs ..... (15/32") 12 mm, 4½-in. circle diam.
- Tire size ..... 15.5 x 15
- Rim width ..... 5.75 ins.
- Wheelbase ..... 94 ins.
- Tread ..... 50 ins., F & R

GENERAL:
- Length ..... 156 ins.
- Width ..... 60 ins.
- Height ..... 50 ins.
- Weight, ready to go.. 1910 lbs.

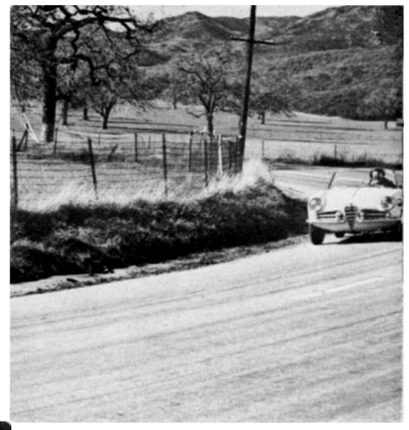
RATING FACTORS:
- Bhp per cu. in. ..... .834
- Bhp per sq. in. piston area 2.45
- Piston speed in ft. per. min @ 60 mph.... 1950 fpm
- Piston speed in ft. per min. @ max. bhp.. 2708 fpm
- Brake lining area per ton ..... 293 sq. ins.

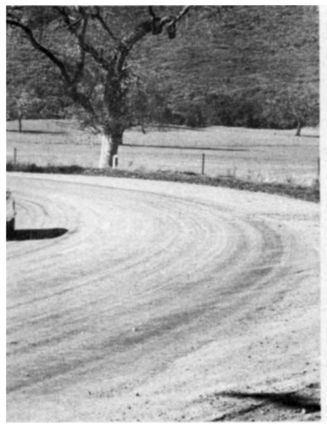


Uncovered engine shows dohc set-up and chain drive. Head and block are light alloy. Cylinder liners are wet. Carburetor is two-throat Solex. Acorn nuts holding cover are chrome finished.



Profile of new Giulietta. Convertible top folds completely out of sight behind seat backs. Stowing top is no problem for average person because of spring loaded framework.





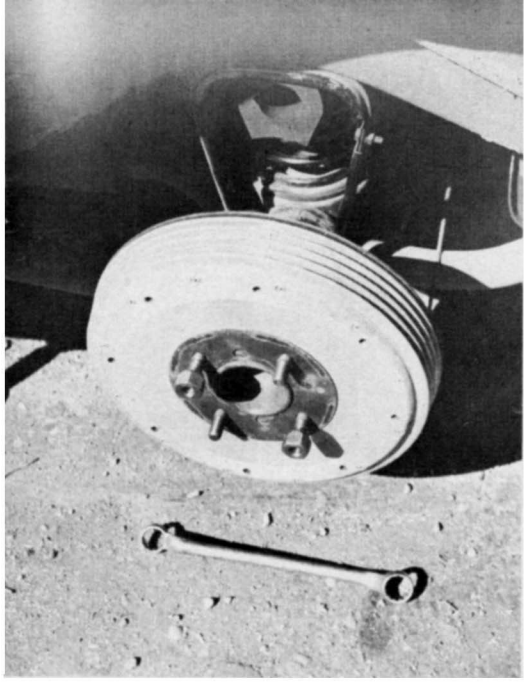
Rounding a sharp bend at 40 mph, the small Alfa tenaciously grips road without trace of slide or dip. Author felt Giulietta could take curve at 50 mph nicely. There is no excessive dip at either end of the car. Steering is almost perfectly neutral.

Three quarter front view shows the little Alfa's aerodynamic-type body. High beam is ultra-high, used in lieu of horn in Italy. This may be good for Quiet Week but illegal in U.S.

elephant in a jungle stampede — you can't control him but maybe his beef will get you through. But the Giulietta is like an extension of your nervous system. It responds as quickly as your own reflexes. Although it pretends to be no more than a sports-touring car it gives you that feeling of oneness with the machine that is a quality of the racing thoroughbreds.

This character makes the Giulietta a perfect expression of Alfa Romeo's unique traditions. From the date of its first touring car production, 1910, Alfa has built racing cars. Furthermore, Alfa has always staked its reputation on its racing record — a precarious practice avoided by nearly all car manufacturers. Down through the years, Alfas sold to the public often have been no more than detuned racing cars and nearly every Alfa chassis has been patterned after great and successful racing machinery. The company was one of the most vigorous pioneers of the fine, small-displacement, high-revving engine at a time when nearly all car manufacturers associated quality with lumbering road locomotives. In the Twenties the company faced up to the inherent superiority of the dual overhead camshaft layout and has stuck with it ever since, in spite of its higher cost. And of all high-performance cars, none has a better name for reliability than Alfa.

This is part of the inheritance that is expertly invested in the Giulietta. Cars of comparable quality — the 1750 cc Alfa of the early Thirties, for example — sold for around $5000 when dollars were tough to come by. But now, for the first time in its history, the company has converted to real mass production and you don't have to be one of the wealthy few to own a pure bred Alfa. The Giulietta comes in three forms. Cheapest is the four-door Berlina at about $2700, followed by the Spyder Sprint convertible two-seater at $3200 and the Coupe Sprint at $4200. All three forms have the same running gear and, except for minor modifications, the same engine.



View shows width of rear brake drum which, in part, accounts for superb braking. Note rubber cushion to damp axle under extreme compression; strap halts rebound.

ENGINE

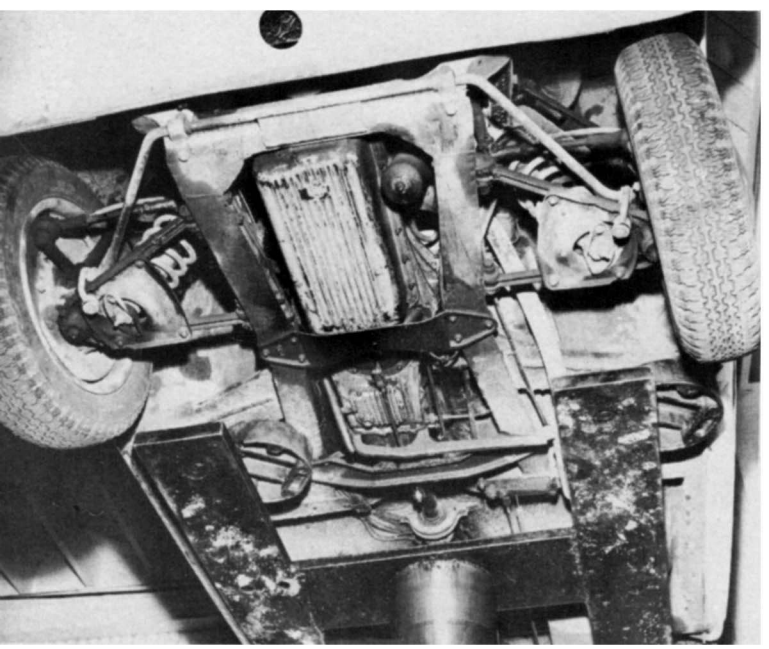
The heart of the Giuletta is a four-cylinder in-line power unit with chain driven overhead cams, nearly equal bore and stroke, and a displacement of 1.3 liters or 79 cubic inches. It cannot compete with its prewar forebears in terms of raising gooseflesh on lovers of straight-cut gears; the chain drive is quiet and so are the tappets. Nevertheless, the 1.3 does have the buzz-saw whine you would expect from an engine made to wind well beyond 6000 revs.

Alfa Romeo was one of the world's great pioneers in light alloy metallurgy. The 1.3 reflects this experience and only those parts that must be made of steel are. Block, head, sump, cam cover, intake manifold and fan are among the light alloy parts and the cylinder barrels are wet liners; steel sleeves in contact with the water jacketing. These are ideally cooled and so are the valves, spark plugs and combustion chambers.

The porting and manifolding of the 1.3 have the straight-through cross section that is one of the goals of the d.o. layout. The valves are operated by cup or piston-type cam followers which fit over double nested valve springs. There's a sign of economizing here. The classic Alfa tappet adjustment by means of serrated discs on the cups has been replaced by the now almost-universal but less convenient "button" adjustment. To change tappet clearances by this method it is necessary to remove the camshafts, remove the cups, and install a coin-shaped steel "button" of the desired thickness between the end of the valve stem and the cup.

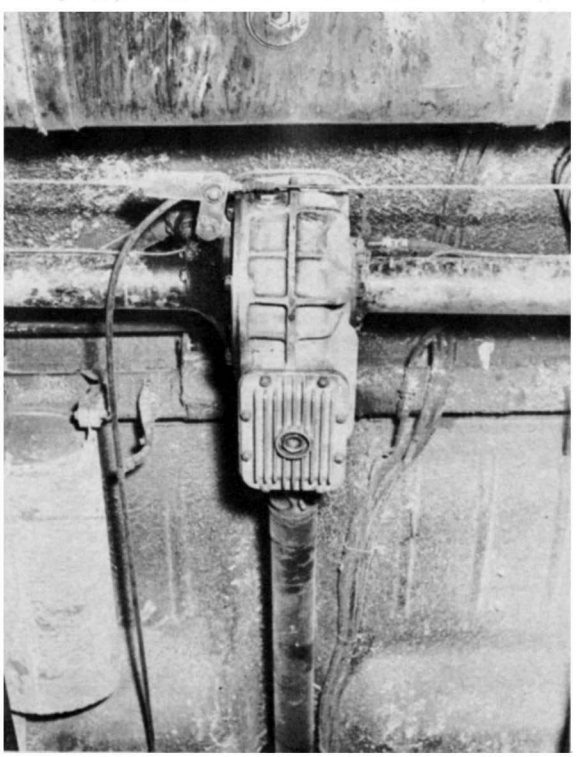
The 1.3 has five main bearings – the most you can put in a four cylinder engine – massively supported in an unusually deep and stiff crankcase. The bearings and bearing caps for crankshaft and camshafts are clearly numbered and there are many other signs of the designer's consideration for the mechanic, including excellent overall accessibility.

The only visible difference between the Berlina and Sprint engines is in their carburetors. In place of the standard model's single-throat carb the Sprint has a dual-throat Solex in which the throttle plate in the secondary throat begins to open after the primary throttle is about half open. Fuel economy and performance with this linkage both are amazingly good. But the car can be made drastically hotter by altering the linkage so that both throttles open simultaneously. I experimented briefly with the Spyder Sprint test car and obtained these results:



Underview of front end of car. Sump and transmission housing are ribbed aluminum. Frame and body are unit construction. Note steeply inclined springs around large shock absorbers.

Housing of final drive assembly is of light alloy – axle tubes are of steel. Exhaust system has two small, straight-through mufflers. Top of springs are anchored by tubular pillars extending through to top of rear deck.



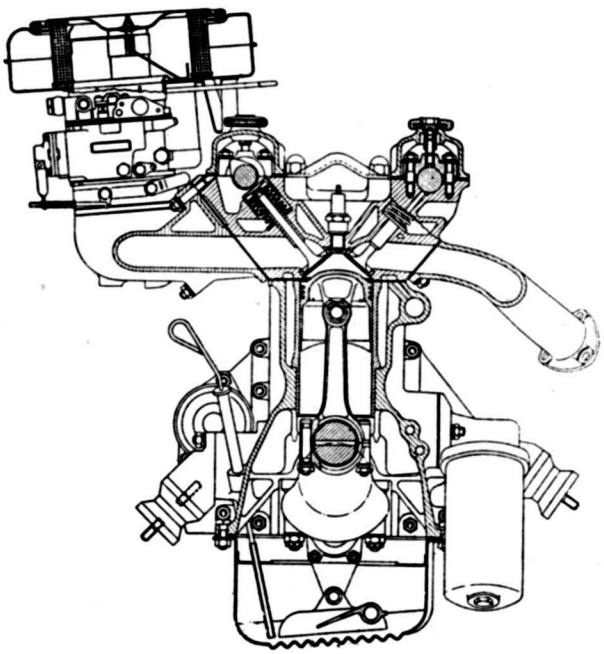


Diagram of engine cutaway shows typical Alfa dohc set-up. High torque characteristics allow engine to deliver 85% of its bhp to the rear wheels.

Measuring rim width. Outside width is 5.75 inches. Between each pair of holes, in wheel disc, is welded a small stud on which balance weights can be mounted.

Aceleration from	Stock Linkage	Modified Linkage
0 to 30 mph	3.7 secs.	3.7 secs.
0 to 40 mph	7.7 secs.	6.6 secs.
0 to 50 mph	9.2 secs.	8.2 secs.

As for internal differences between the 50 bhp standard engine and the 65 bhp Sprint, there is a large lack of this sort of information in the U. S., to which the Giulietta is brand new. But it's obvious that the Sprint engine has very different camshafts and its compression ratio may be higher than the nominal eight to one.

The performance of this tiny power unit is uncanny. When I first took the test car over and headed for open country I was astonished by its unexpected torque. The car would accelerate smoothly in top gear from about 17 mph and long grades had scarcely any slowing effect on the car's top-gear pulling power. Later I put the Giulietta on a chassis dynamoter and witnessed the road horsepower readings. Between no load and full load the muscular little engine dropped only 500 rpm. A popular 3½ liter d.o. engine, for example, can be counted on to drop about 1500 revs under the same conditions. And according to the dyno, 55 of the 1.3's 65 horses were reaching the rear wheels!

CLUTCH AND TRANSMISSION

The early Giuliettas had a pronounced fierceness of the clutch which vintage fanatics clucked over contentedly. But

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Attractively finished engine is exceptionally accessible in roomy compartment. Camshaft cover is done in black crackle-paint. Fuel line fittings are black enamel, and acorn nuts are chrome. Note air-ducts à la American machines.

rubber. The variable suspension, together with two anti-roll bars in front and back, gives the Gregoire Sport excellent lateral stability without sacrifice of comfort.

It would certainly be interesting to match a Gregoire Sport against a Thunderbird or a Corvette on a winding mountain road. The chances are that its superior cornering would more than offset the disadvantage in acceleration, if there was any. For a match against semi-competition models some modifications to the Gregoire power plant would be necessary before a fair comparison could be made.

If the Gregoire Sport was described as a French answer to the Porsche, the Dyna Panhard – also a Gregoire design – is clearly the opposite number of the Volkswagen. Manufactured in smaller quantities, it is more costly, but designwise it is strictly the equivalent of the other creation of Dr. Ferdinand Porsche. The Dyna Panhard is a direct descendant of the Gregoire light car design of 1946 – the car that was flown to Oakland, California, at the request of Henry J. Kaiser.

It is a full five seater sedan, yet it weighs only 1562 lbs. Low weight is the key to the remarkable efficiency of the Dyna, which attains a top speed of nearly 80 mph with an engine of only 850 cubic centimeters (51.8 cubic inches!) displacement.

The miniature Dyna engine delivers a respectable 42 bhp at 5000 rpm. This is somewhat more than the Volkswagen engine which has a larger displacement. In fact the power per cubic inch ratio of the little two cylinder air-cooled Dyna is about the same as that of the 1956 Cadillac, despite a moderate 7.25 compression ratio.

To the French, Dyna's principal attraction is the extraordinary thriftiness of that five-seater, roomy by European standards. The Dyna has been officially tested at Monthlery with the following results: fuel consumption at 50 mph – 39 mpg. The same car, with the same carburetor setting, clocked 80 mph.

Some argue that the Dyna is superior to the Volkswagen in efficiency and performance. Unfortunately the French factory makes only a small number of the Dynas, while the German one has already turned out over a million VWs. The result is that the Dyna sells in France for the equivalent of $1900 – while the VW is much cheaper. This certainly proves that the Germans knew better how to organize their production, but from the standpoint of overall excellence of design the Gregoire product is in no way second to the Porsche masterpiece.

In both cases the advoidance of the superfluous was the guiding principle. The pay-off is reduced weight, with the resulting low gas consumption and comparatively good performance. These ideas might appear obvious, yet innumerable cars drag around thousands of pounds of unnecessary weight, using for that purpose hundreds of superfluous horses eating up gallons of wasted fuel. Neither the VW nor the Dyna Panhard are weighed down with such burdens which is why they are both among the most efficient vehicles ever built.

If such a car had been put on the market in 1948 by Kaiser, it might have caught on. After all, Volkswagens are selling in the U.S. at a rate of 60,000 a year and hoping to reach 100,000 or more – and the Kaiser-Gregoire would have been a much larger and more powerful car at about the same price.

The Gregoire Sport, of course, is not likely ever to be mass produced; the immediate plans of Gregoire call for the making of about a dozen of them in his small plant. They will not be cheap. If taken over by a manufacturer with larger facilities, the Gregoire Sport could probably be made to sell for the price of a Jaguar or a Mercedes 190 SL.

And there is always the chance that Gregoire may spring some new ideas on us, as he has done before. Comparable to Porsche in creative engineering ability, he has one important advantage over the German automotive genius – he is alive and a youthful 55. #

Alfa—Giulietta

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in its current form the Giulietta's clutch is soft enough to be quite comparable with clutches that survive in American practice. You can let it out slowly while bringing the engine revs up gently, or you can let it out fast and use higher revs. Smooth first-gear starts can be made with engine speeds as low as about 1800 rpm.

The choice of transmission ratios is excellent, first being useful up to about 35 mph, second to 50 and third to 75. Torque is so ample that fourth is a perfectly acceptable gear for traffic but if you want to be aggressive, third will really get the job done. The gears emit a faint, pleasant whine.

But all is not perfection in the cog box. It is described as having "four forward synchromesh speeds" but there is no synchro on bottom gear. This is the first discovery and it's quickly followed by others. My test car was well broken in but the column-shift linkage remained stiff, much too stiff. Getting into second from first was often noisy. The long zig-zag shift from second to third sometimes failed – third was simply a closed door, so back to neutral and then back for another try to get in. On these repeat shifts the synchro would be inoperative, a fact announced by the noise of grinding gears. This also occurred during downshifts but could be avoided by double-clutching and speeding up the engine.

As far as our test car was concerned, some of these malfunctions must have occurred because the column-shift linkage was out of adjustment. Which, all by itself, is a sufficiently lethal indictment against the column shift. No manufacturer has ever built finer floor-shift transmissions than Alfa Romeo – Theirs are legendary. It's good to hear that the very latest Giulietta Sprint models *are* arriving in the U. S. equipped with floor shift.

STEERING

Giuliettas are fitted with ZF worm-and-roller steering. There are more expensive ways of building a steering mechanism but I've handled nothing, including worm-and-wheel, that is more perfectly precise. There is no lost motion in it and it's as quick and direct as a bicycle's steering. How this is accomplished with three turns of the wheel from lock to lock I'm not prepared to explain.

This steering has all the feel you could ask for or need, yet it's light. Little effort is required in parking and at 10, 40, or 80 mph you can hold the rim of the wheel between the tips of thumb and one finger and steer the car through a maze.

SUSPENSION

The Giulietta was first exhibited at the Turin Show of '54 and at that time its rear suspension was based on traditional quarter-elliptic springs. There may or may not be a connection between that fact and some early reports

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from Italy criticizing these cars for body roll. At any rate, the rear suspension of the mass-produced Giuliettas is a very different matter. It consists of a solid axle with a vertical coil spring at each end. The coils enclose tubular shock absorbers and are mounted on vertical pillars that extend to the top of the unit-frame structure, just under the rear deck. No torque tube is used, but axle torque is controlled by a leading radius rod at each extremity of the axle. Large rubber pads are provided to keep the axle from striking the frame during extreme compression of the springs and straps are used to limit downward axle travel during rebound.

Lateral movement of the rear axle is controlled by a triangle of steel tubing, two corners of which are anchored to the frame-body structure while the third is attached to the final-drive housing by means of a ball joint. This housing, incidentally, is a jewel-like little structure of deeply-ribbed light alloy and it would do honor to a fine midget race car.

The front suspension is more orthodox and consists of long, unequal length wishbones and steeply inclined coil springs that enclose tubular shock absorbers. A safety cable, attached to each lower wishbone and to the frame, limits rebound travel of the front suspension.

The Giulietta's ride and roadholding qualities are additional Alfa achievements that can be described only in superlatives. In the corners it is absolutely glued, has the feel of a Ferrari or a Kurtis. I am not an exponent of the controlled slide and cannot evaluate the little Alfa in those terms, but in terms of a straightforward race car adhesion, this car has it. Also like a good race car, the body and frame do not oscillate softly above the suspension while cornering, as nearly all touring cars do. With the Giulietta, body, frame, and running gear all behave as one well-knit unit.

On the straightaway the car tracks dead-straight and true. On good pavement slight surface irregularities are felt distinctly. But on really foul, chuck-holed pavement or dirt, the worst bumps feel scarcely different. Many times I charged into deep ruts deliberately and was sure I had missed them because the reaction was so deceptively slight.

BRAKES

The Giulietta's brakes are just like those on the bigger, faster, costlier Alfa 1900 and are closely related to those developed on the Type 159 "Alfetta" Grand Prix cars. Here again,

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Fury

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out of a bin and stuffed into the engine but pulled out and carefully matched in all respects. Springs are matched for open and closed pressure, pushrods are matched for weight and straightness and valves are matched both for size and weight. Not that all engines are not fairly closely matched but in selective assembly differential tolerances are at a minimum or non-existent insofar as it is possible to come that close.

The chassis, too, has gotten a face-lifting. Although the frame is similar to the standard unit, suspension units and brakes are vastly different. Brake area is 173.5 square inches with 11.5 by 2 inch shoes both front and rear. Spring rates are much higher, accounting for the firmer ride and good cornering characteristics. The shock absorbers are Chrysler production Oriflows but are heavier than the standard units and with different valving to produce the remarkable stiffening effect mentioned earlier.

Insofar as styling goes, the Fury is outwardly quite similar to the more ultra models of the standard production series cars except for the use of gold trim in place of the more usual stainless steel and chrome. The interior is a bit more restrained with a generous use of tan leather, spiked with gold embossed fabric. All seats are foam rubber based, an extra-cost option on other models. As far as that goes, the only extra-cost items on the car are Powerflite transmission, radio and power brakes so the "stripped" version is hardly stark. Even the 6000 rpm tachometer is standard equipment as are wing mirrors, turn signals and variable speed windshield wipers.

From all outward appearances, Plymouth has come up with a car that should do well in the power race and in stock car competition as well, even on such tracks as the tortuous Willow Springs, California, road course. In the process they have come up with a family bomb that performs more like a sports car than many so-called sports type coupes loudly touted as being "sports cars." With an FOB, Detroit, price of $2800, here is a fairly sporting machine that will draw no static from the most conservative wife. Except for the previously mentioned slow steering and standard styling it should even please the purist. #

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and here above all, mere superlatives are not enough. Look at it this way. The Mercedes-Benz 300 SL has magnificent brakes. It has 257 sq. ins. of friction area for its 2240 lbs. of dry weight. The Giulietta is claimed to have 264 sq. ins. for its 1800 lbs. of dry weight. In terms of brake lining area per ton, this gives the little Alfa 293 sq. ins. against the 300 SL's 230! You can be sure that the performance of these brakes is not easily forgotten.

The front brake drums are huge light alloy castings containing ferrous liners and having deeply machined diagonal ribs which serve as air-pumping vanes and increase the heat-dissipating surface. The rear drums have conventional circumferential ribs and are of similar bimetallic construction.

I have never experienced brakes of such superb quality. The Giulietta's stopping distances are fractions of those of Detroit cars and of many sports cars. In spite of this immense deceleration the car's occupants are not flung forward nor does the car nose down. You can perform braking feats with ease in the little Alfa that would be desperately reckless in another car. It stops in a straight line. You do not have to churn wildly at the steering wheel in an effort to keep the car on the pavement during emergency type stops. Finally, the brakes are inexhaustibly fade proof. And beyond that, the transmission ratios are so chosen that you can always find just the right gear for steep mountain descents and hardly need to touch the brakes at all.

BODYWORK

The low-priced Berlina has a mass-production body with lines that are pleasing but not breathtaking. Seats are of the bench type and provide comfortable accommodation for four passengers. Interior appointments, including instruments, are confined to the austere necessities.

The medium-priced Spyder (a name once used for wiry, light-weight carriages) has a beautifully contoured body by Pinin Farina. The appointments are *de luxe* throughout for it and the Coupe. Instruments include a large rev counter immediately over the steering column, a metric speedometer, gauges for water and oil temperature, oil pressure, fuel capacity, and a bevy of warning lights. Bucket seats with folding backs give excellent lateral support and there is ample head and leg room for occupants six feet tall.

The convertible top has the advantage of folding completely out of sight behind the seat backs. But unlike the rest of the coachwork, this top deserves a good deal of criticism. Its metal framework is heavily spring-loaded and stowing the top can be an annoying job for two persons. There is no positive locking device to hold the stowed top in place against its eager springs and it occasionally tries to unfurl itself, which results in grinding the top fabric against the seat backs. The top has no headliner, rattles like a snare drum in a strong wind and is insecurely fastened to the rear deck.

Actually, these are minor defects that can be corrected by the lucky owner for a very few dollars and it's to be expected that a firm with Alfa's high standards will be quick to check them at their source.

The Coupe I had hopes of testing was sold after I had fondled it for less than 15 minutes. I had seen photos of the car many times before but not until I was in its physical presence was I able to appreciate it fully. The body is by Bertone and it's my own feeling that of all the thousands of unusual and beautiful postwar Italian bodies, hardly any can equal its simple, sculptured beauty.

The Coupe's visibility is splendid. Its interior appointments are comparable with the Spyder's, and it is relatively spacious. The area behind the front bucket seats can be used for great stacks of luggage, for seating children on long trips or for adults on an "occasional" basis. But *the* virtue of the Coupe is its exquisite style.

A car that's a treasured collector's item today is the 1.5 liter, four-barrel Brescia Bugatti. It sold new in the early Twenties for about $2500. Another hand-built treasure was the 1.5 liter Alfa of the late Twenties which sold for around $5000. Times have changed and small-scale volume production has penetrated to the pure-bred field. The Giulietta is today's improved equivalent of the baby Bugs and Alfas and it's to be had for a range of prices from $2700 to $4200. It's a legitimate jewel, bargain-priced for those who recognize its worth. #