



GIULIA

a car at the height of perfection

Cars with speeds of 100-115 mph are today running on our roads: this is a fact which has been brought about by technological progress. But it is one thing to be able to travel at speed and quite another to be able to do so in conditions of optimum safety; in other words there is a big difference between a «hotted up», supercharged, ultra-light car where everything – strength, flexibility, solidity – has been sacrificed to make way for pure speed, and a well-balanced «powerful» car, with high acceleration capacity at all speeds, with a low-revving engine, which is capable not only of very high bursts of speed but of maintaining these speeds over long distances, and in which everything—transmission, suspension, brakes and comfort – is in proportion to the power of the vehicle.

The Giulia was produced by designers who have traditionally always

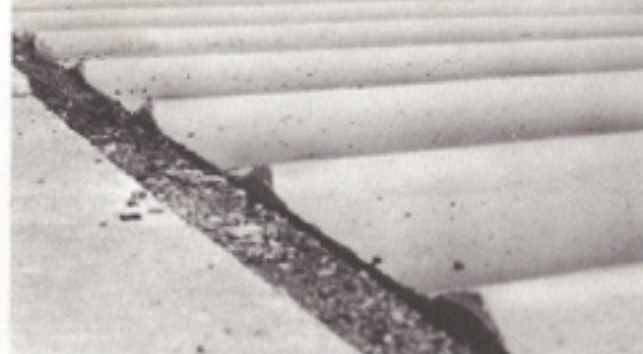
worked to much higher safety margins than those required by the top performance of the vehicle. The result is that because of its inherent strength, its long life and its behaviour on the road, the Giulia has a far higher degree of safety than the average car. This is the famous Alfa Romeo reserve acceleration capacity and safety: for even at the highest cruising speeds, the driver of a Giulia always has behind him a considerable reserve of «emergency» acceleration capacity, and even at the very top speed he can still count on the car's inherent strength and road holding capacity which are way above the normal limits.

The Giulia has never left Alfa Romeo's test plant. Every part of it is continually re-examined, improved and tested. In the laboratory, on special test beds equipped with electronic instruments; and on the road, at the Balocco test circuit.



The bodywork, too, is tested. And that of the Giulia is capable of withstanding the severest « torsion stresses ».

One of the tests consists of fixing the car to a test bed and subjecting it to heavy loads at certain points. Electronic equipment is used to measure any warping which may occur.



The Giulia « goes faster on less fuel » because « the wind designed it ». These two slogans reflect the true situation: the lines of the Giulia, based on wind tunnel experiments, give it quite exceptional aerody-

namic penetration. In fact the M.I.R.A. Research Institute, in England has classified the Giulia in the top three cars, out of 118, with the lowest wind resistance factor.



The same type of testing is carried out « for real » on the test circuit at Balocco. Here not only is the bodywork tested, but also the shock-absorbers and suspension.



The test circuit at Balocco runs for over 2.5 miles and contains a pure speed section in addition to one which faithfully reproduces the most dangerous bends on certain race circuits (Monza, Zandvoort, etc.). Here, thousands of tests are carried out under different speeds and conditions, on the famous 5-speed gearbox and the no less famous Alfa Romeo disc brakes.

The protective safety is made up of all those factors in the vehicle's structure and details which help to diminish the consequences of any accident. The most important characteristic of the Giulia, from the protective safety point of view, is the « differentiated » structure of the body. The front and rear parts of Alfa Romeo cars are designed to absorb most of the impact of a collision and cut down its effect on the central « passenger » part. At the same time, the passenger compartment is made extremely rigid, so as to increase the protection and decrease the risk of the doors jamming or flying open. This concept, which at first glance would seem easy to apply, has needed years of research by Alfa Romeo, who have broken new ground by incorporating it from the very start in all the models in the Giulia range. In general, the aim has been to make the

outside of the car as smooth as possible, and therefore free of dangerous protrusions or edges, whilst all interior protrusions have likewise been either removed or properly padded.

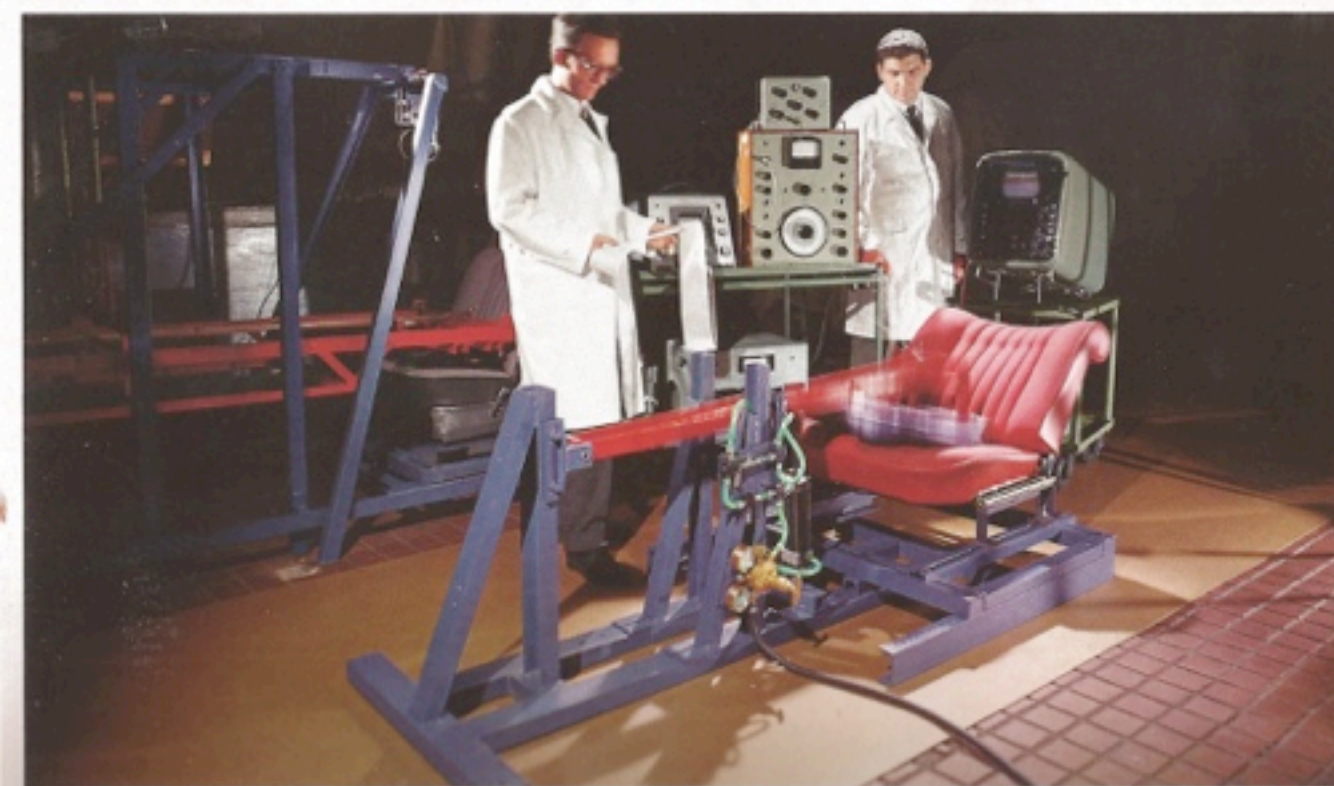
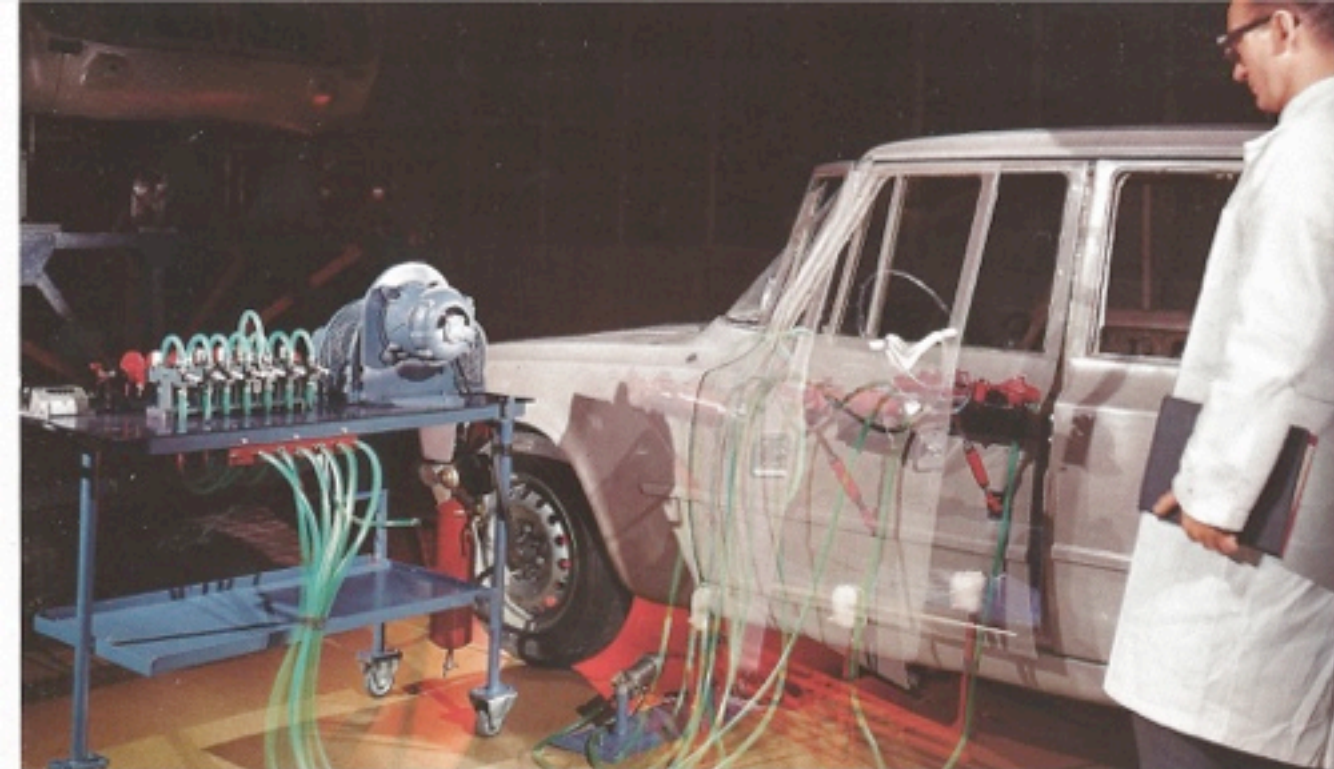
In particular we can mention the padded dashboard, which is free of any sharp or protruding parts, the laminated windscreen and the short steering column. Seat belt attachment points are also provided. For all these reasons, an Alfa Romeo can truly be said to have all-round structural safety.



Experiments carried out on the cars of this range have clearly vindicated the solutions adopted.

The illustration shows, in fact, what happens to an Alfa Romeo if it is involved in a head-on collision or in a multiple pile-up. The front and rear of the vehicle cave in but leave the passenger compartment unharmed. The vehicle shown in the photograph has suffered no damage to the doors or to their opening and closing devices. Following the collision, opening the doors gave no difficulty.





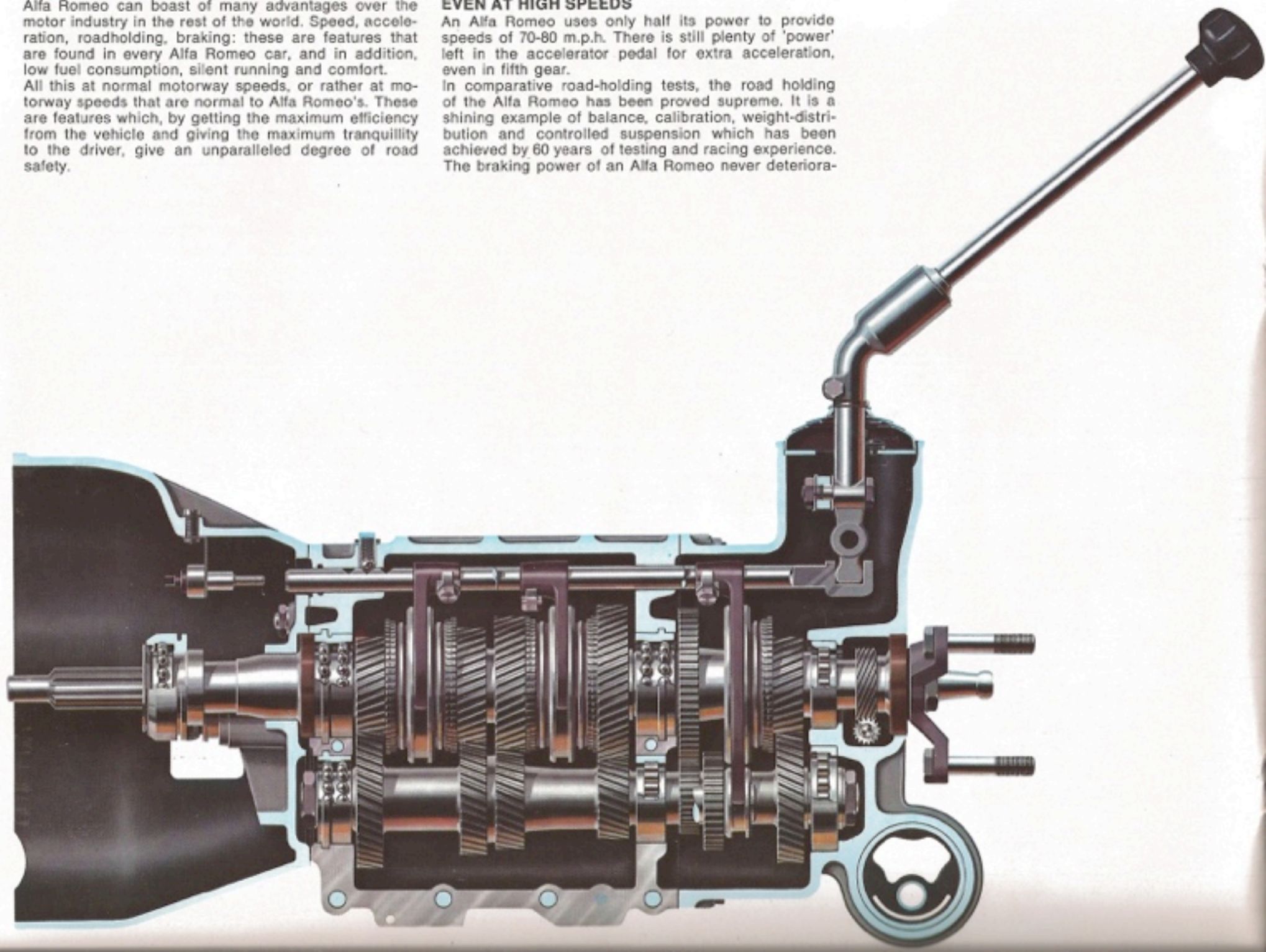
Seats: The most comfortable armchair in the world, if fitted in a car, would break all the driver's bones after only a few miles. For the roads, a seat must possess dynamic comfort: the ability to absorb impacts and eliminate vibrations; they must be anatomically shaped to the form of the body, so as to support the small of the back and «hold» the occupant on bends. They must never go out of shape. The seats of today's Giulia are made of integral blocks of expanded polythene supported in metal frames. In conjunction with the seat backs, they guarantee the highest degree of dynamic comfort: they cannot be judged by touching them, with the car at a standstill, but by the freshness of the passengers after several hours of travel. (In the photograph, a machine is inflicting millions of blows to test the strength of one of the Giulia seats).

ALFA ROMEO ENGINEERING MEANS SAFETY

Alfa Romeo can boast of many advantages over the motor industry in the rest of the world. Speed, acceleration, roadholding, braking: these are features that are found in every Alfa Romeo car, and in addition, low fuel consumption, silent running and comfort. All this at normal motorway speeds, or rather at motorway speeds that are normal to Alfa Romeo's. These are features which, by getting the maximum efficiency from the vehicle and giving the maximum tranquillity to the driver, give an unparalleled degree of road safety.

AN ALFA ROMEO IS SAFER, EVEN AT HIGH SPEEDS

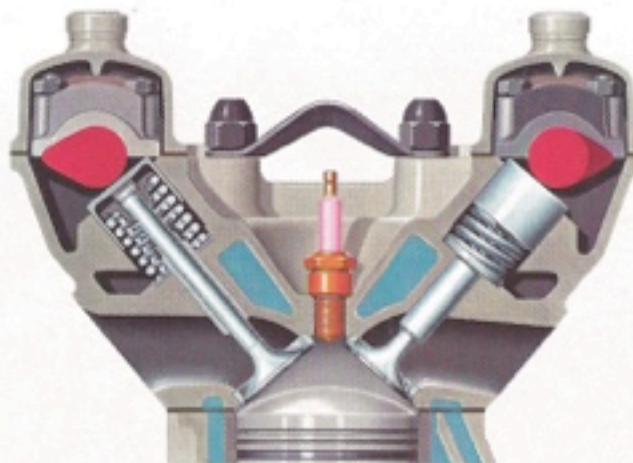
An Alfa Romeo uses only half its power to provide speeds of 70-80 m.p.h. There is still plenty of 'power' left in the accelerator pedal for extra acceleration, even in fifth gear. In comparative road-holding tests, the road holding of the Alfa Romeo has been proved supreme. It is a shining example of balance, calibration, weight-distribution and controlled suspension which has been achieved by 60 years of testing and racing experience. The braking power of an Alfa Romeo never deteriora-



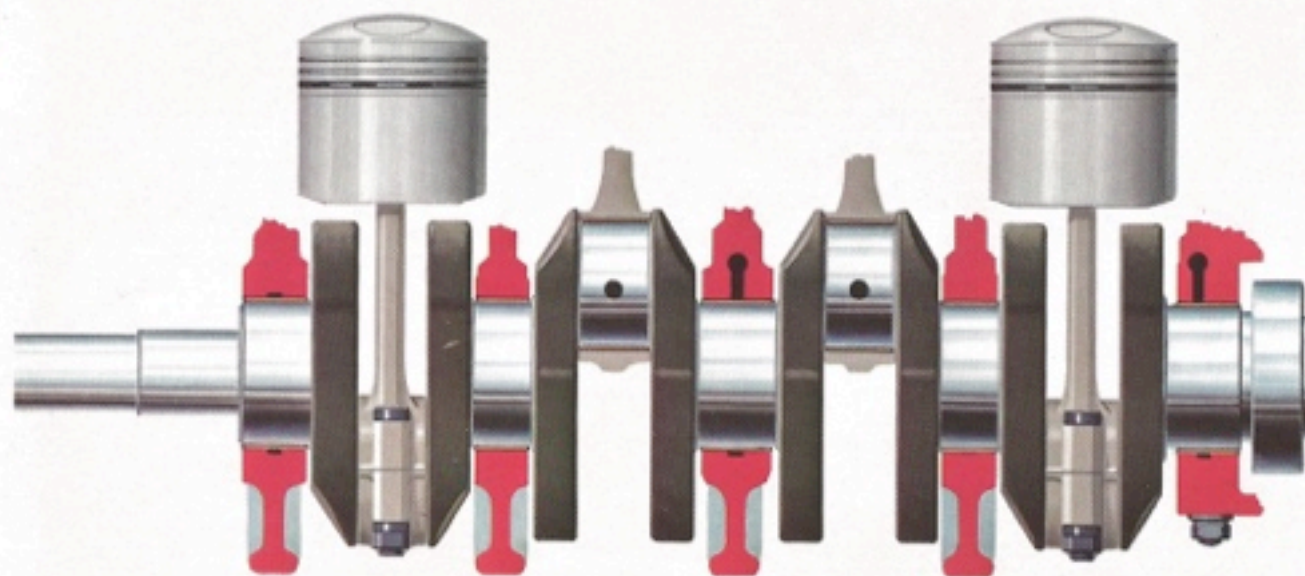
tes, no matter how violently, long or repeatedly the brakes are applied. This is due to the actual structure of the disc brake system, which has designed robustness to protect them against deformity due to their main enemy: heat. In addition to this they are larger than usual and have a braking power regulator for the rear wheels.

AN ALFA ROMEO GIVES MORE POWER FROM THE SAME CYLINDER CAPACITY

The Alfa Romeo engine has a 9 : 1 compression ratio. This is not exceptionally high, so the engine will last longer, in fact this ratio is no higher than most modern engines, but in conjunction with this, the engine gives a much higher power output. The reason are the following.



This complete and waste-free combustion is, also, the reason for the wellknown fuel economy of all Alfa Romeos. The power of an Alfa Romeo engine is not, however, concentrated above 4,500 r.p.m. It is evenly balanced and distributed over the whole range of engine speeds, and it is backed up by a 5-speed gearbox with carefully spaced ratios. Therefore, not only is an Alfa Romeo capable of reaching very high speeds, but it is capable of reaching them extremely quickly. It can accelerate away first at traffic lights and overtake easily and without risk. The 5th gear is another special Alfa Romeo feature, because it is not an 'added' gear like an overdrive. Naturally it can save fuel on motorway cruising; but it is above all a proper gear with real acceleration powers, designed for modern motoring requirements where acceleration is needed even at high motorway speeds.



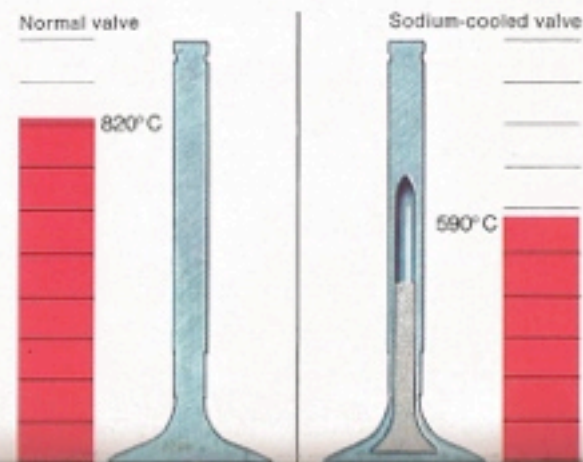
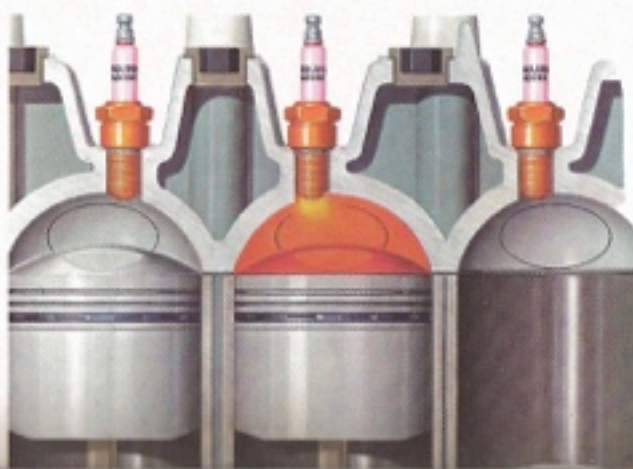
AN ALFA ROMEO LASTS LONGER, DESPITE ITS HIGHER PERFORMANCE

The maximum speed of an Alfa Romeo engine is between 5,500 and 6,000 r.p.m. and the engine is under no strain even at these speeds. It allows the car to be run at top speed over great distances. It must also be borne in mind, that an Alfa Romeo can reach very high cruising speeds at only 4,000/4,500 r.p.m. For smooth, vibration free high speed running the crankshaft is supported on 5 bearings instead of the usual 3.

Finally, the only way to get the maximum power out of an engine, at all times, is to keep it 'cool'. Therefore:

- Alfa Romeo engines rapidly dissipate heat because the block, cylinder head and sump are made not of cast-iron but of light alloy;
- The cylinder liners are in direct contact with water in the cooling system;
- The cylinder valves are sodium cooled to keep them at relatively low temperatures.

The inlet manifold is designed to give a smooth gas flow. So, the mixture is drawn into the cylinder instantaneously, completely filling the area. The valves are worked directly off two camshafts without intervening mechanical components such as push-rods and rocker-arms, etc., which detract from the precision and continuity of the operation. Similarly ignition is instantaneous and the combustion total, because of the hemispherical combustion chambers with centrally positioned spark plugs. Careful attention has also been paid to the exhaust system and to the design of the exhaust manifold. Complete and instantaneous filling of the cylinder area, total combustion and rapid exhaust relief: these are the reasons why an Alfa Romeo engine has more power per c.c.





There are dozens of cars constantly running round the Balocco test circuit: these are either prototypes or are testing new components or new methods of construction. Or again, they may simply be production vehicles selected at random, to enable a whole series to be thoroughly tested.

Not even this is enough, however. Racing experience is needed, to keep pace with progress. For races are the most advanced form of research at the disposal of the test laboratories. Only in intense competition, with the cars driven to their very limits, can certain types of experiments be carried out (a race of the Le Mans 24-Hours type is equivalent to many months of ordinary driving, as far as the wear and fatigue on materials is concerned). Alfa Romeo takes part — and always has done — in hundreds of races every year, and every race confirms the quality of the company's vehicles (last year, over 500 outright or class victories were achieved).

Both the Giulia, in its 1300 and 1600 versions, and the GT/Am, whose structure and style is identical to the Giulia GTA, have competed highly successfully, over the last few years, in many road and race circuit contests. Here is a list of their victories, restricted simply to national and international championships.

1966

EUROPEAN ROAD CHALLENGE CUP (A. De Adamich)
TRANS-AMERICAN ROAD CHAMPIONSHIP
FRENCH ROAD CHAMPIONSHIP (J. Rolland)
GERMAN ROAD CHAMPIONSHIP (H. Schultze)
DUTCH ROAD CHAMPIONSHIP (W. Loos)
DUTCH RALLY CHAMPIONSHIP
(H. Van Der Heijen - B. De Jong)
AUSTRIAN 1300 cc G.T. CHAMPIONSHIP (M. Erb)
AUSTRIAN 1600 cc ROAD CHAMPIONSHIP
(B. Martellanz)
GREEK ROAD CHAMPIONSHIP (J. Meimaridis)
PORTUGUESE SPEED CHAMPIONSHIP (Jr. Gaspar)
U.S.A. SEDAN CARS UP TO 2000 cc CHAMPIONSHIP
(H. Kwech)
BRAZILIAN OUTRIGHT CHAMPIONSHIP (P. Gancia)
ITALIAN 1600 cc RACING SALOON CHAMPIONSHIP
(E. Pinto)
ITALIAN 1600 cc RACING SPORTS CHAMPIONSHIP
(« Shangrila »)

1967

EUROPEAN ROAD CHALLENGE CUP (De Adamich)
EUROPEAN MOUNTAIN ROAD CHAMPIONSHIP (Giunti)
AUSTRALIAN NEW SOUTH WALES RALLY CHAMPIONSHIP
(Chivas-Adcock)
BRAZILIAN MOUNTAIN ROAD CHAMPIONSHIP
(E. Zambello)
BELGIAN RACING SALOON CHAMPIONSHIP (S. Trosch)
FRENCH RALLY AND HILL-CLIMBING TROPHY
GERMAN RACING SALOON CHAMPIONSHIP (H. Schultze)
GREEK RACING SALOON CHAMPIONSHIP (« Mavros »)
ITALIAN 1600 cc SALOON TROPHY (« Riccardone »)
SOUTH AFRICAN STANDARD PRODUCTION
VEHICLE CHAMPIONSHIP (Van Rooyen)
U.S.A. SEDAN CARS UP TO 2000 cc CHAMPIONSHIP
(Provenzano)

1968

C.S.A.I. 1600 cc G.T. CUP (L. Cecchini)
ITALIAN MOUNTAIN SPORT TROPHY (Bardelli)
GERMAN ROAD CHAMPIONSHIP (H. Schultze)

AUSTRALIAN CHAMPIONSHIP (K. Bartlett)
BELGIAN ROAD CHAMPIONSHIP (J. Desmoulin)
BELGIAN LADIES' CHAMPIONSHIP (Christine)
AUSTRIAN ROAD CHAMPIONSHIP (K. Reisch)
BRAZILIAN ROAD CHAMPIONSHIP (F. Lameirão)
DUTCH 1300/1600 cc ROAD CHAMPIONSHIP (N. Chiotakis)

1969

EUROPEAN ROAD CHALLENGE CUP DIVISION II
1600 cc Class (S. Dini)
1300 cc Class (E. Pinto)
REPUBLIC OF CZECHOSLOVAKIA CHAMPIONSHIP
(D. Wellmsky)
SOUTH PACIFIC DIVISIONAL UNITED
STATES CHAMPIONSHIP (J. Kline)
S.C.C.A. UNITED STATE DRIVERS' CHAMPIONSHIP
— Production line Class G (P. Spruell)
— Sedan car class C (H. Theodoropoulos)
BRAZILIAN CHAMPIONSHIP
(M. Fernandes and F. Terra Schmit)
RUMANIAN CHAMPIONSHIP (F. Hainarosie)
ITALIAN 1300 cc SALOON TROPHY (« Ghigo »)
ITALIAN 1600 cc SALOON TROPHY (L. Cecchini)

1970

EUROPEAN ROAD CHAMPIONSHIP (T. Hezemans)
DUTCH ROAD CHAMPIONSHIP (Akersloot)
TRANS-AMERICAN CHAMPIONSHIP for cars under 2 litres
(Kwech - Midgley - Everett)
S.C.C.A. AMERICAN DRIVERS' CHAMPIONSHIP
SEDAN CLASS B (V. Provenzano)
BELGIAN RALLY CHAMPIONSHIP (P.Y. Bertinchamps)
BELGIAN LADIES' CHAMPIONSHIP (« Christine » Beckers)
ITALIAN NATIONAL SPECIAL SALOON TROPHY
— 1300 cc Class (L. Colzani)
— 2000 cc Class (P. De Leonibus)
ITALIAN NATIONAL SPECIAL G.T. TROPHY (L. Cabella)
URUGUAYAN RALLY CHAMPIONSHIP
(F. West - G. Assadourian)
CZECHOSLOVAKIAN NATIONAL CHAMPIONSHIP
(Jiri Rosicky)

It should be underlined that the winning cars are not prototypes, but are all production line models. The experience gained from these trials can thus be immediately put to use in normal production.