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GRANDE ENCICLOPEDIA DELL'AUTOMOBILE

Quattroruote/Istituto Geografico De Agostini Novara



Thanks to the welcome initiative of Quattroruote and the Istituto Geografico De Agostini of Novara, i. e. the issue of a new and well-documented history of the car, we were offered the opportunity to select, under their permission, the material which is presented in this booklet, concerning Alfa Romeo.

The thorough and detailed analysis of the development of the car industry puts forward the role of Alfa Romeo, a company which has always kept a leading position in this field. To maintain this position it has been continuously and bravely present in the great competitions which are, at the same time, the most advanced field of research and the most reliable test.

Ancient, glorious pioneer cars, such as the 24 HP of 1911, the 1923 RL Targa Florio and the P 2 of 1924, showed the way chosen by Alfa Romeo for progress in car engineering. Later, the 158 of 1938 and the world-champion 159, the « 33 » (2 and 3 litres) marked the return of the Company to the most important world competitions.

This long and precious experience, worked out both in the technical and in the race field and continuously kept up-to-date, led to the generations of the 1900 cc, the Giulietta and the Giulia, the 2000, the Montreal and the Alfetta; while producing these cars Alfa Romeo gradually changed from a small work-shop to an important industrial group being able to produce, for an increasingly larger number of demanding customers all over the world, a range of cars presenting those superior qualities of performance and safety which have always distinguished this trade mark.

Success led to a further great development. Alfa Romeo created the Alfasud, a new plant which was built in a remarkably short time. Also the new models of the newborn southern plant rapidly conquered standing positions both in the Italian and foreign market.

This applies to the present history of the Company, and reveals a new deep commitment which is going to lead its policy in the coming years, from the social standpoint as well.

The history of car development is written by engineers, pilots, workers at every level; by all those who, with their intelligence, their will and sometimes with their sacrifice fostered the rapid development which is illustrated by the enclosed pictures and drawings. This new history of the car testifies their contribution and honours their memory.

ALFA ROMEO

How A.L.F.A. became Alfa Romeo ● The great designers: from Giuseppe Merosi to Vittorio Jano, Gioacchino Colombo and Orazio Satta ● From the first racing triumphs of the twenties to the « family cars that win races »

In the first years of this century, French industry, which was already making itself felt on a massive scale in other manufacturing sectors and service sectors, watched the Italian car market with great interest and tried in various ways to enter it by evading customs barriers. Unlike Lorraine De Dietrich, who had chosen the path of participation by buying half the shares of Isotta Fraschini, Darracq had established an assembly plant to assemble certain models already being manufactured in France. Among other things it was hoped to obtain a large order for hackney carriages from certain southern enterprises: a much sought after piece of business, as taxis in those days were subject to municipal regulations, which in effect tended to standardise the vehicles and sheltered the emerging industries from the individualism of private demand. The French plans were upset by the lukewarm reception the Italian public gave their cars and by the consequences of a serious financial crisis which had disturbed the market in motor shares in 1907.

In the autumn of 1909 Darracq was ready to close the Italian subsidiary, which by then was selling cars in negligible numbers. Its works, situated in the north-western outskirts of Milan,

a little beyond the parade ground, attracted the attention of a group of Lombard financiers however. With a capital of 500,000 lire, guaranteed by the Banca Agricola Milanese, they cut the ties with France and embarked on a new venture. A few months previously, perhaps by order of the new principals, Cavaliere Ugo Stella, managing director of Società Italiana Automobili Darracq, had taken a step of utmost importance for the future course of production, by asking Giuseppe Merosi to design two new cars especially for an exacting Italian clientele.

Merosi, a native of Piacenza, who was to prove one of Italy's best designers while with Alfa Romeo, had previously taken part in a series of far-reaching experiments carried out by the Orio & Marchand, Fiat and Edoardo Bianchi companies, where until September 1909 he had held the post of head of the Technical Office for motorcars. The first A.L.F.A. cars, the 4-cylinder 24 HP and 12 HP, thus began to emerge even before the company destined to build them had been registered.

On 1st January, 1910 the Portello works (named after the place in which it was built) had a new group of managers, who decided on the production of the 24 HP. The new business

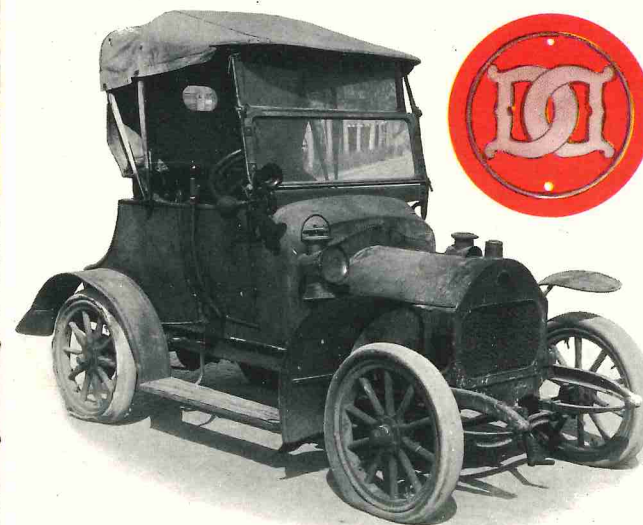


Advertisement from the twenties. The trade-mark of Alfa Romeo, which was officially introduced in 1923, derives from the initials A.L.F.A. (Anonima Lombarda Fabbrica Automobili) and the name of the engineer Nicola Romeo.

name, « Anonima Lombarda Fabbrica Automobili », from which the abbreviation A.L.F.A. derives, was not adopted before the following June.

As a trade-mark they chose and combined the heraldic insignia of Milan at the time of the Communes: the red cross on a white ground of Giovanni da Rho and the « viper », i.e. the biblical snake which decorated the banner of the Milanese crusaders organized by Arnulf II.

The 24 HP model made its début in 1911 and began to distinguish itself by its mechanical qualities, its speed and its road-holding, which were to make up the Alfa Romeo image in the decades that followed. At its sports début, in a more powerful version, it took the lead for two of the three circuits of the sixth Targa Florio until it was forced to retire owing to an accident to the driver, blinded by a splash of mud. At Bianchi's, Merosi had shared responsibility for the development of a range of models culminating in the powerful and fast 70 HP E type. So, it was natural for him to design an engine which, in spite of its conventional pattern, was capable of fast acceleration thanks to a light flywheel and of the reciprocating masses and it was well protected by force feed lubrication through a gear pump. Almost by accident, since the design was for a touring car intended for a wider public, this gave birth to a sporting machine which was to determine the outlook of the Company's clientele and the whole of its future competition effort, an effort that today looks inevitably bound up with the very nature



The Darracq of 1908. This French car was assembled in the Portello works before it was taken over by a group of Lombard financiers who then created the A.L.F.A. company.

The emblem chosen by Alfa is a combination of the two symbols which constituted the heraldic insignia of Milan at the time of the Communes: the cross and the viper. In the photographs: variations effected on the emblem from 1910 to 1972.



1910/12



1920/25



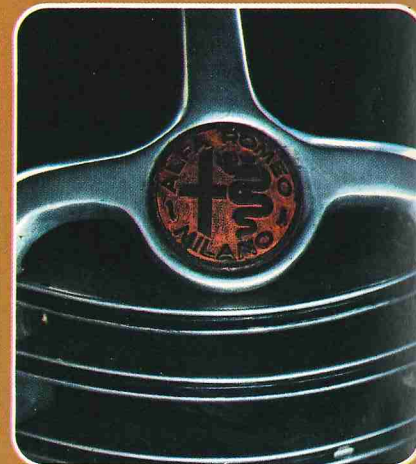
1925/30



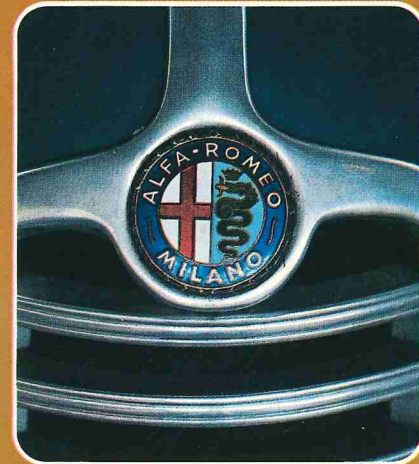
1933



1930/45



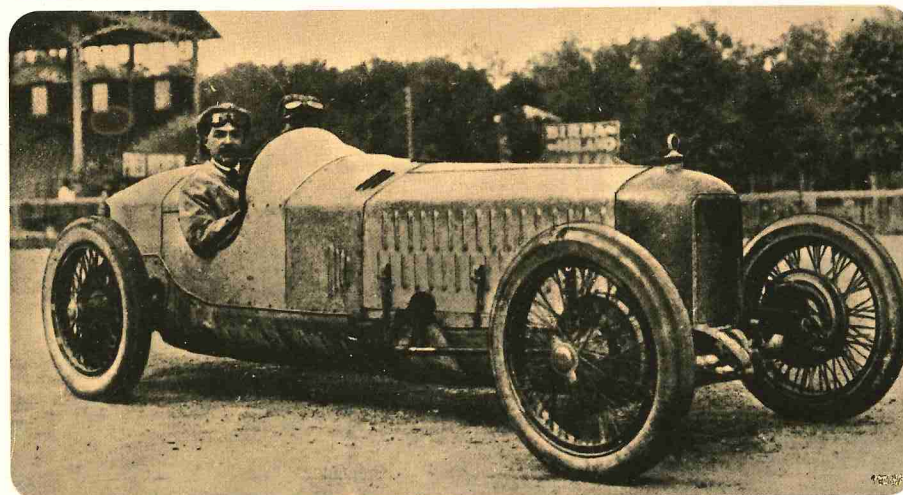
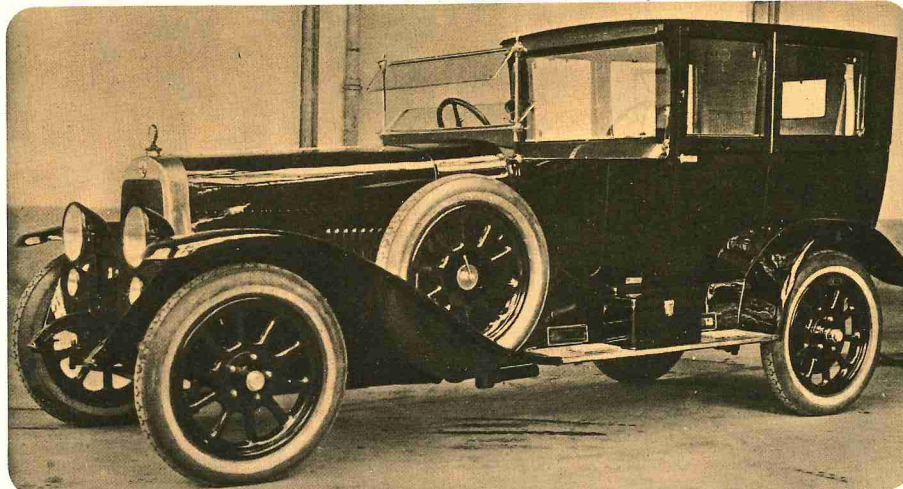
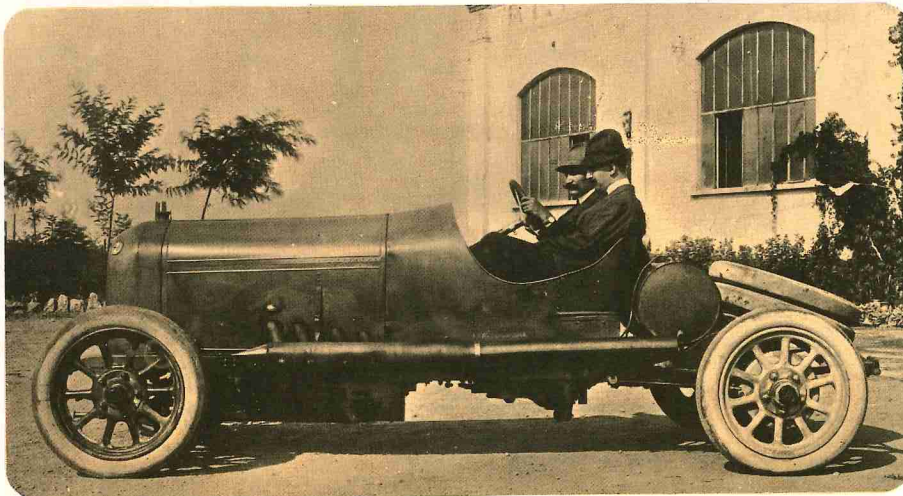
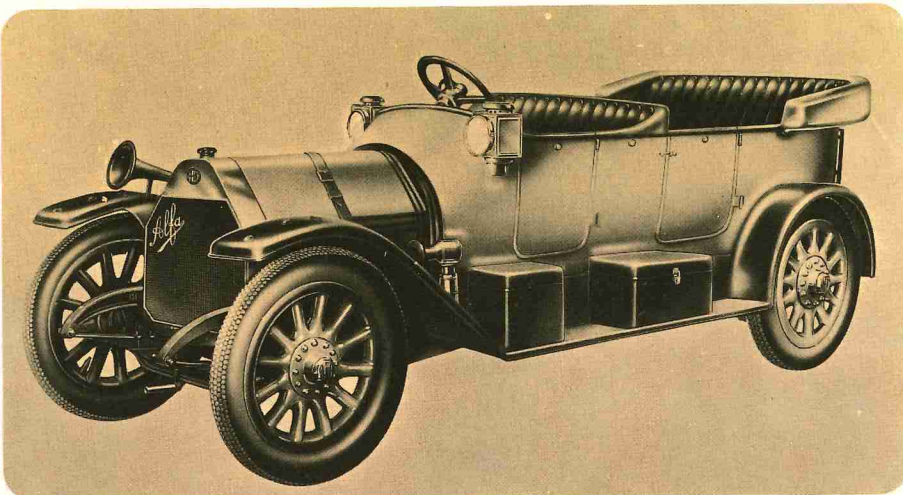
1945/50



1950/71



1972



of the Alfa Romeo image and of the choices which this image now determines but which — at least in the beginning — was the result of a least restricted choice: from its very first car Alfa showed its future character, the capacity to produce cars that are equally at their ease whether racing or running on public roads.

The production level of over 200 cars a year, reached in 1912, received a boost on the eve of the First World War, thanks to the first military orders which subsequently monopolised capacity as a whole up to 1919. Generator sets, towed and selfpropelled motor compressor, and ambulances built on the 20/30 HP chassis, employed around 300 workers and required continuous recourse to credit. In 1915 the Banca di Sconto, holders of the controlling interest in A.L.F.A., entrusted the Company's management to the Neapolitan engineer Nicola Romeo. Romeo, who had lived in Milan since 1902, had set up a limited partnership in his own name in 1906 for the manufacture of and trade in machinery for the mining industry. When Romeo took control, A.L.F.A. had practically stopped producing cars so as to cope with government orders which ranged from munitions to V-4 aero engines, produced under licence from Isotta Fraschini from a design by Giustino Cattaneo and destined for Macchi M 5 planes.

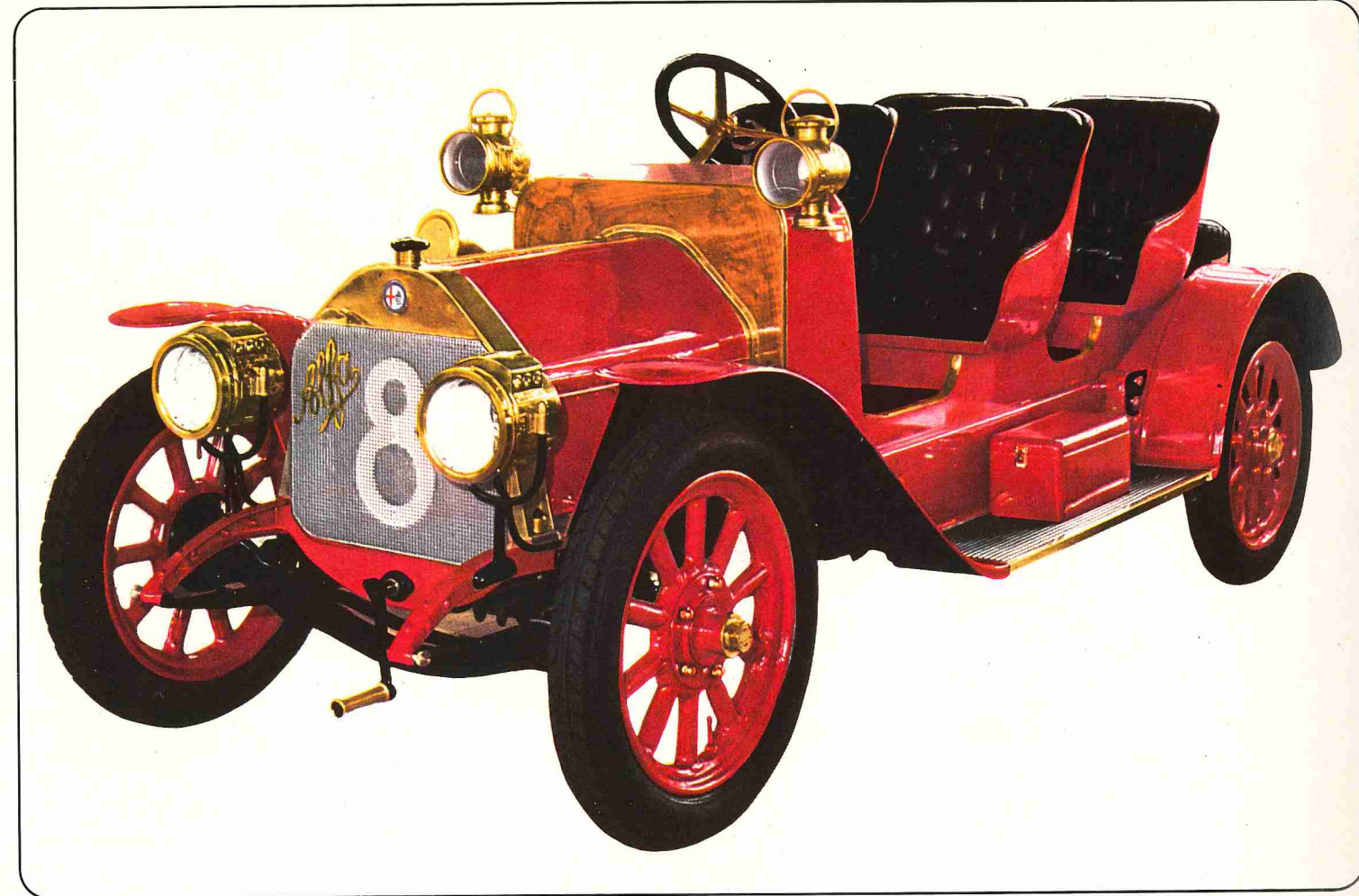
A clever entrepreneur, both industrially and financially, Nicola Romeo, who had never stopped working on rail electrification and equipment, found himself at the end of the war at the head of a large industrial enterprise with 5 plants in Milan alone, one of which was the ex A.L.F.A. plant, now incorporated in Società Anonima Ing. Nicola Romeo & Co.

The incorporation took place in June 1918, bringing together, under the single style of S.A. Italiana Ing. Romeo & Co, Stabilimenti di Costruzioni Meccaniche of Saronno, Officine Meccaniche Tabanelli of Rome and Officine Meccaniche Meridionali of Naples. The conversion to civilian production was long and difficult, complicated by social unrest and by the rise to power of Fascism. The Portello works resumed production of cars and farm tractors, the Saronno plant concentrated on the manufacture of railway locomotives, and the Naples establishment (Pomigliano d'Arco) concentrated production on aircraft.

A dispute with Merosi had proved unavoidable, who was forced to bring an action against the A.L.F.A. receiver to get his own salary rights recognized and was now re-engaged with all honours and with a tempting contract which gave him a production bonus one every one of the « new 6 and 4-cylinder cars »: yet again the design of the cars had preceded the legal con-

From top to bottom: the 24 HP sports car of 1910, the first vehicle produced by A.L.F.A.; the Grand Prix of 1914; the 20/30 HP limousine of 1921 and the P1 type Grand Prix of 1923.

The 12 HP Alfa Romeo of 1911. This car was given more power in 1912 and renamed 15 HP. In 1914, further modified, it was called the 15/20 HP.



stitution of the company which was to produce them.

In 1923, after a whole year in which not a single car had been sold and only six experimental vehicles had been produced, the new 6-cylinder RL model was put into series production; Merosi's most outstanding creation bore the Alfa Romeo new trade-mark in the italics still used to this day.

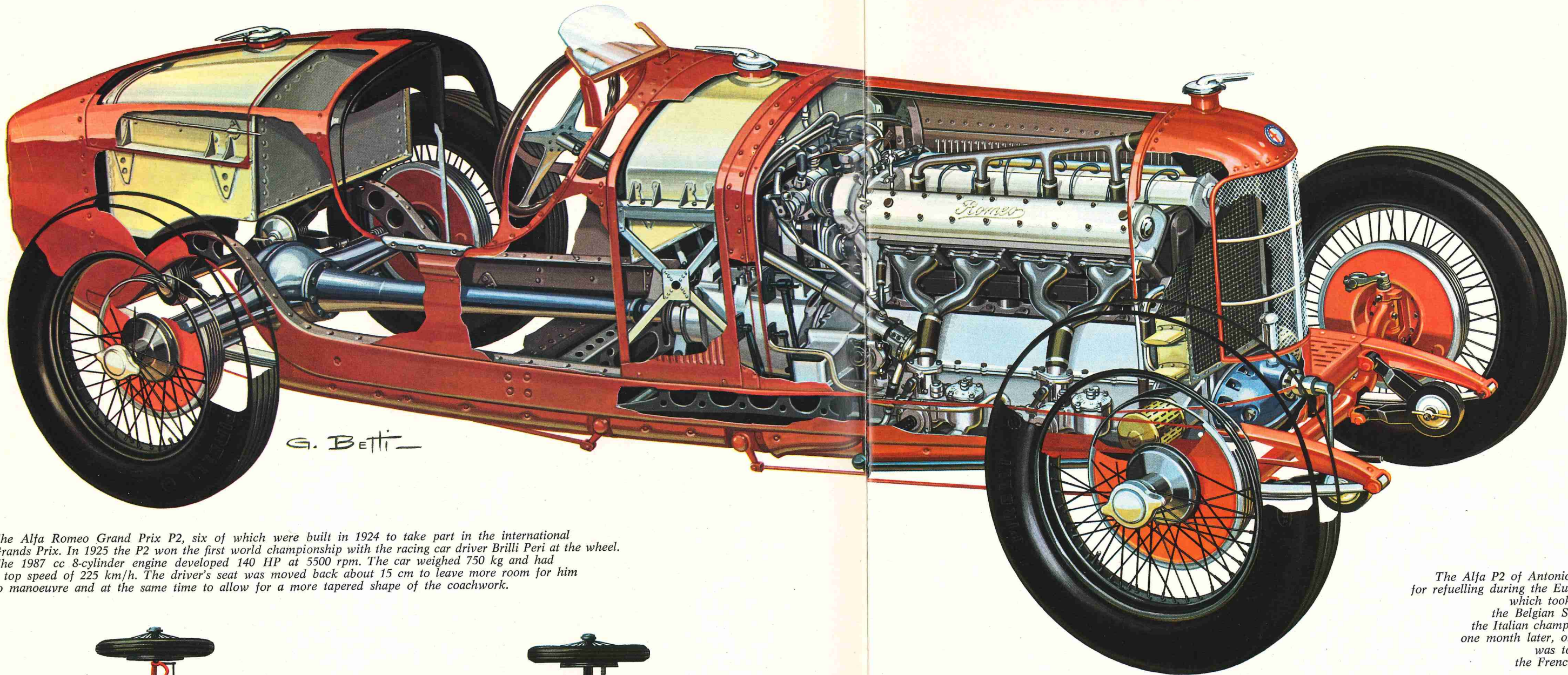
One almost unknown master-work by Merosi dates from the same year: this was the G.P.R. (i.e. Gran Premio Romeo), a two-seater racing car with a 6-cylinder engine and two overhead camshafts. The direct control of the valves, which was to become the keystone of Alfa Romeo engines for the next forty years, appeared for the second time after the episode of the 1914 Grand Prix which international events had reduced to appearing experimentally in certain road races.

The RL and the RM (the more modest 4-cylinder version), designed for a wide market, had valves controlled by rods and rocker arms however.

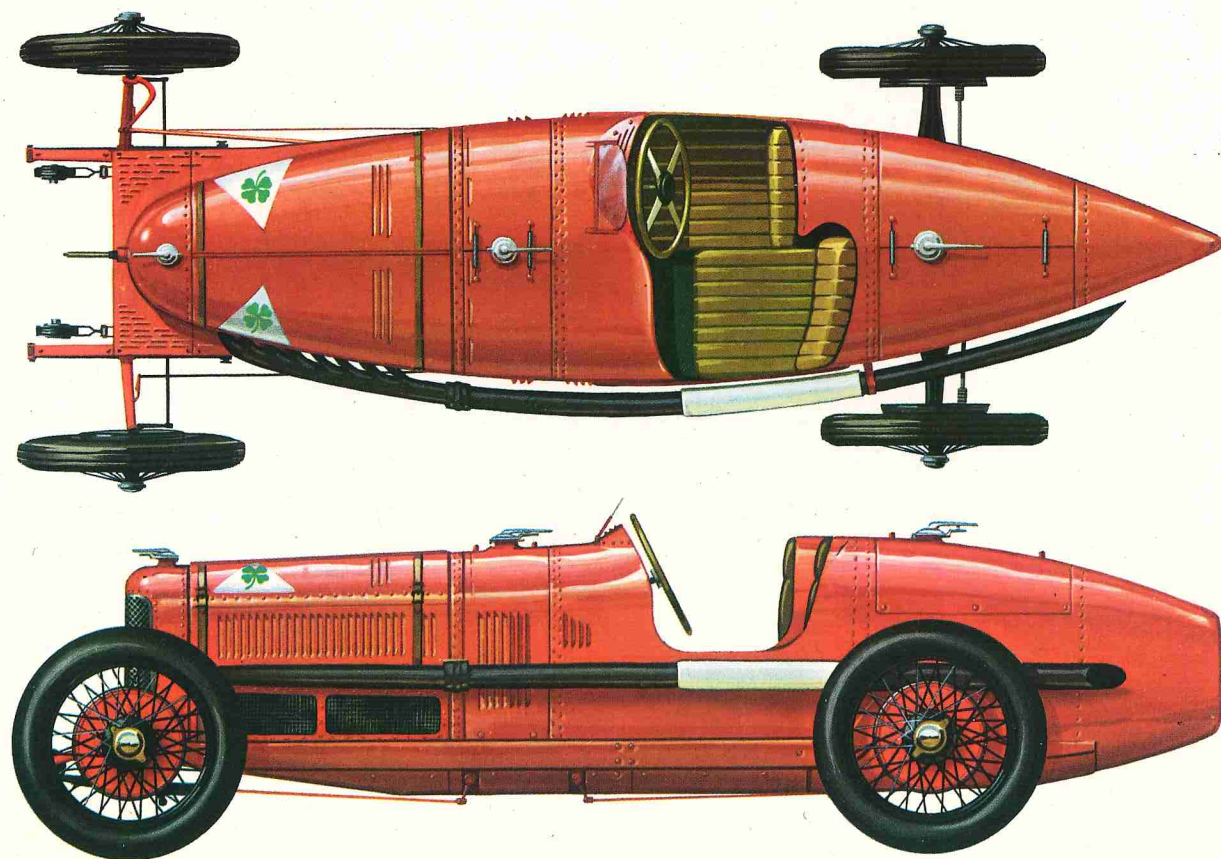
One of the legacies of the classic cars was the dry sump lubrication system in the Gran Turismo version called RL Super Sport. Planned with an eye to the three-litre formula, the RL was overtaken by the reduction in engine capacity of the international formulas, and it made its racing career particularly in long-distance trials. Following the appearance of three experimental RL's at the 1922 Targa Florio, Alfa

Romeo prepared for the next race with a version that was even lighter and more powerful. Considering the modifications as a whole — the weight reduced from the 1750 kg of the normal car to only 980 kg, and power increased from 71 HP to 95 HP — it could almost be described as a new car, but the basic elements of chassis and engine remained unchanged from the production point of view, and the costs of the operation were relatively modest therefore in relation to the sporting successes and to the promotional advantages Alfa Romeo derived from the car. Coming first, second and fourth at the 1923 Targa Florio, the RL Corsa also won the Cremona event, the Coppa della Consuma and the Savio event in the same year with Antonio Ascari and Enzo Ferrari as drivers. It would not be going too far to claim that it was these successes which persuaded Romeo of the need to take part regularly in the great international trials, following a commercial strategy which, fifty years later, was to be called « sales promotion ».

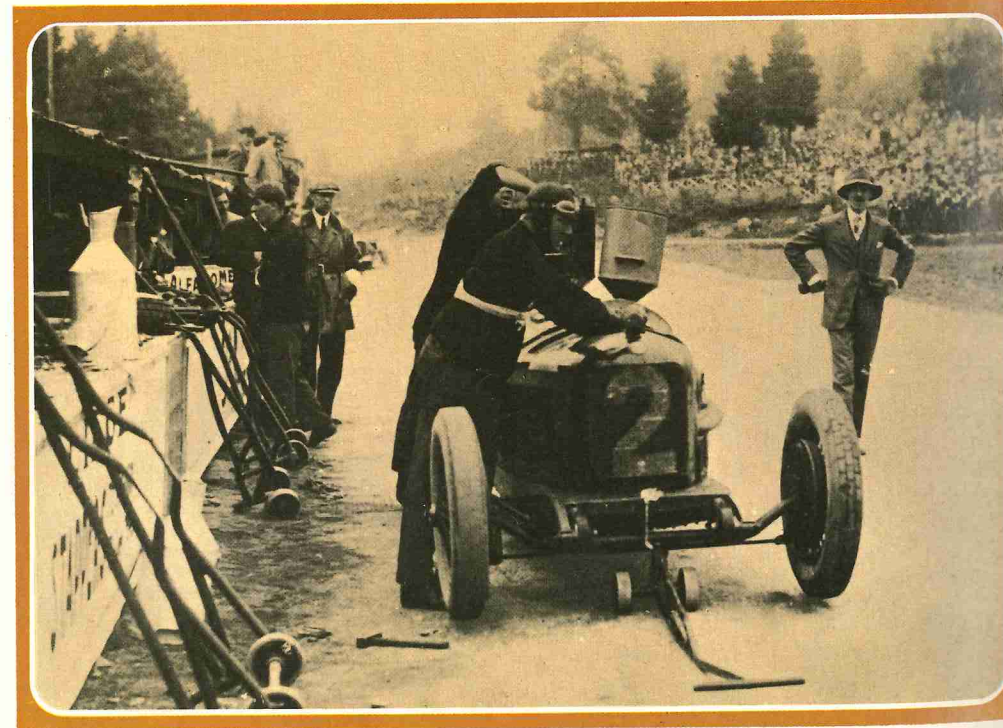
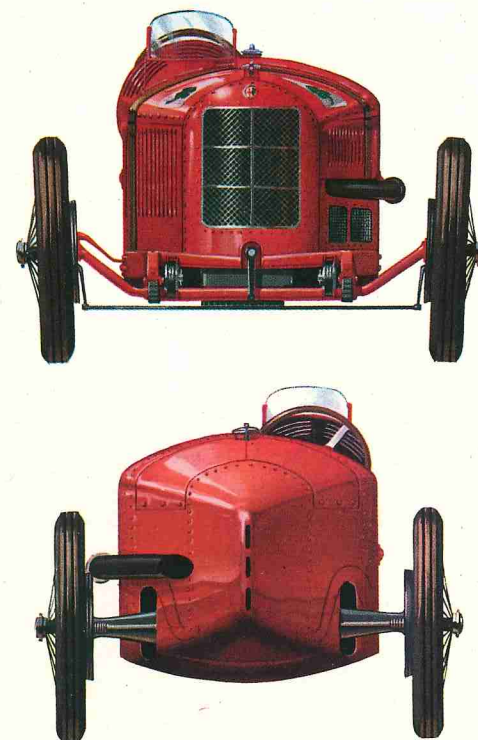
On the strength of the sporting success of its racing versions, the RL also established itself in those closed and distant markets such as India which for political and traditional reasons were the prerogative of British industry. The 929 RLSS cars built in five years, together with the 1702 standard versions, represent a production volume which was notable particularly in relation to the usual rather small volume of Alfa Romeo cars produced up to the thirties.



The Alfa Romeo Grand Prix P2, six of which were built in 1924 to take part in the international Grands Prix. In 1925 the P2 won the first world championship with the racing car driver Brilli Peri at the wheel. The 1987 cc 8-cylinder engine developed 140 HP at 5500 rpm. The car weighed 750 kg and had a top speed of 225 km/h. The driver's seat was moved back about 15 cm to leave more room for him to manoeuvre and at the same time to allow for a more tapered shape of the coachwork.

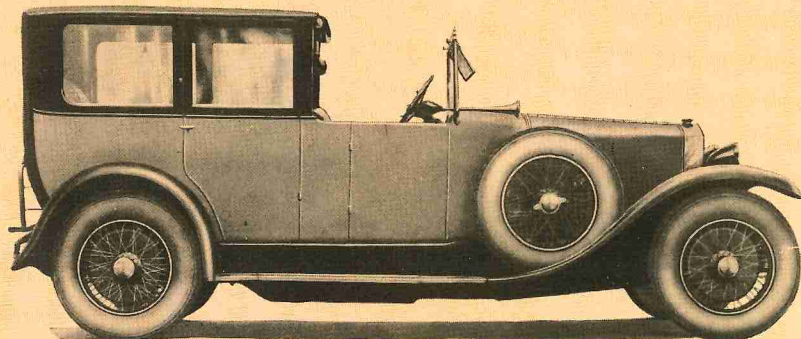


The Alfa P2 of Antonio Ascari standing at the pits for refuelling during the European Grand Prix of 1925, which took place for the first time on the Belgian Spa circuit and was won by the Italian champion. This was on June 28th; one month later, on July 26th, Antonio Ascari was to take part in his last race: the French Grand Prix at Montlhéry.



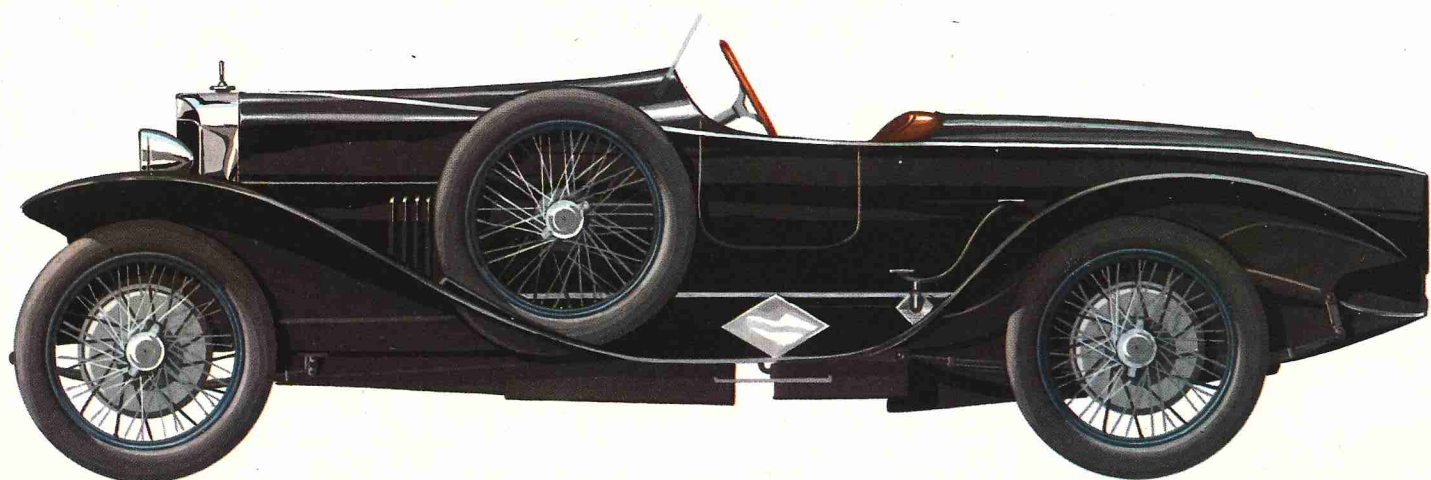


The RL Sport sports car (2994 cc, 6 cylinders), coachwork by Castagna (Zanotelli collection).



The 1923 RM in the four-seater saloon version. The chassis alone cost around 30,000 lire.

The Grand Prix two-seater sports car on the RLSS chassis (1925-27). With a 2994 cc engine it produced 83 HP at 3600 rpm and reached 130 km/h.

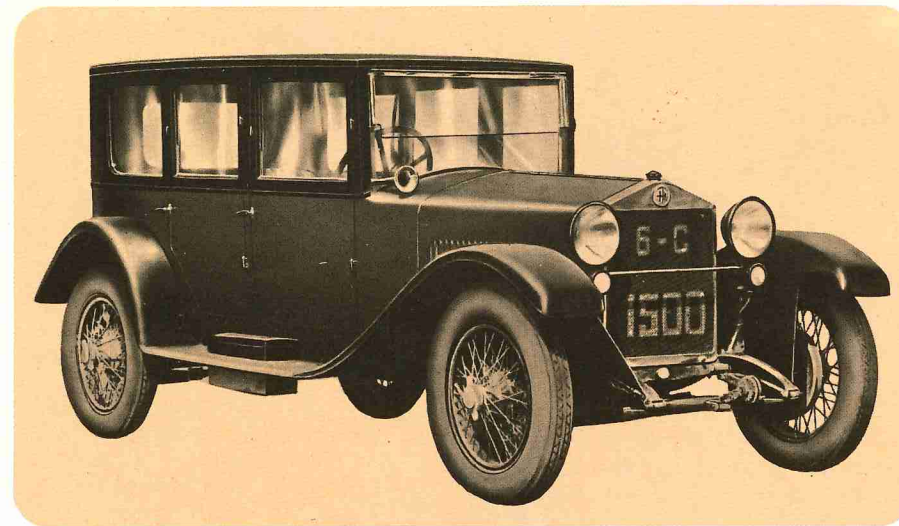


At this point a separate division was set up for the design and maintenance of Grand Prix cars: while Merosi continued to be in charge of series production, Vittorio Jano joined the Company to help run what was to become a true racing department under independent management.

Jano, the son of the director of the Turin arsenal, had already had a long apprenticeship

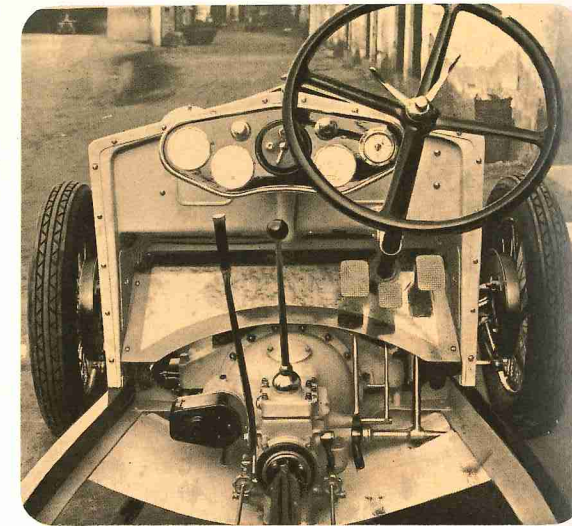
reality he had already been production director, at least de facto, for some time.

On 23rd January, 1926 Giuseppe Merosi wrote a short letter of resignation to Ing. Nicola Romeo. Complex reasons led him to give up his own duties without having secured yet suitable alternative professional employment. It is understandable that, just at the end of 1925, a year in which he had helped the industry to



The Alfa Romeo 6 C 1500 saloon, built from 1927 to 1929. The abbreviation 6 C, like the subsequent 8 C, indicates the number of cylinders.

On the right: close-up of the driver's seat with chassis stripped down. The 6 C, with an engine capacity of 1487 cc (44 HP, 110 km/h), can be considered the first great Italian tourer, i.e. a fast family car based on design principles and commercial policies which Alfa Romeo was to develop more fully with the Giulietta thirty years later.



in cars, joining Rapid in 1909 and then going on, in 1911, to the Fiat's car design office. There he had had the good fortune to become part of the designing team of Cappa and Zerbi, sharing in the creation of those Grand Prix cars which were to lead in Europe for a decade. Jano came to Alfa Romeo, bringing with him a vast number of key solutions (some observer actually maintained that it was a case of high level industrial espionage), concerning not so much, and not only, engine design, but the car chassis and in particular the problem of balanced mechanical front wheel braking.

A champion of supercharging and of small engine capacities, Jano had his first memorable success with the series of victories won by the P2, the Grand Prix car for the two-litre formula with which Alfa Romeo, after a succession of victories in 1924, was to secure the first world championship in 1925. Extraordinarily long-lived and very robust, the car had to be re-designed in 1930, the year in which it became the weapon against the Bugatti alliance in the Targa Florio.

A sort of dualism gradually developed between the two designing teams. Although it is true that Jano was asked to design a light touring car as early as the end of 1924, it took a long time before he was formally put in charge of this sector; in fact it was only in the summer of 1926 that he took control of Car and Aircraft Design and absorbed the Design Office for series production cars, which, until a few months before, had been run by Merosi. In

reach the unprecedented goal of 1110 cars built (with the exception of 214 4-cylinder RM's, they were all prestigious RL's and RLSS's), he found it difficult to resign himself to a change in production policy based on the supposition that the RL, his masterpiece, which had now reached maturity, had run its course.

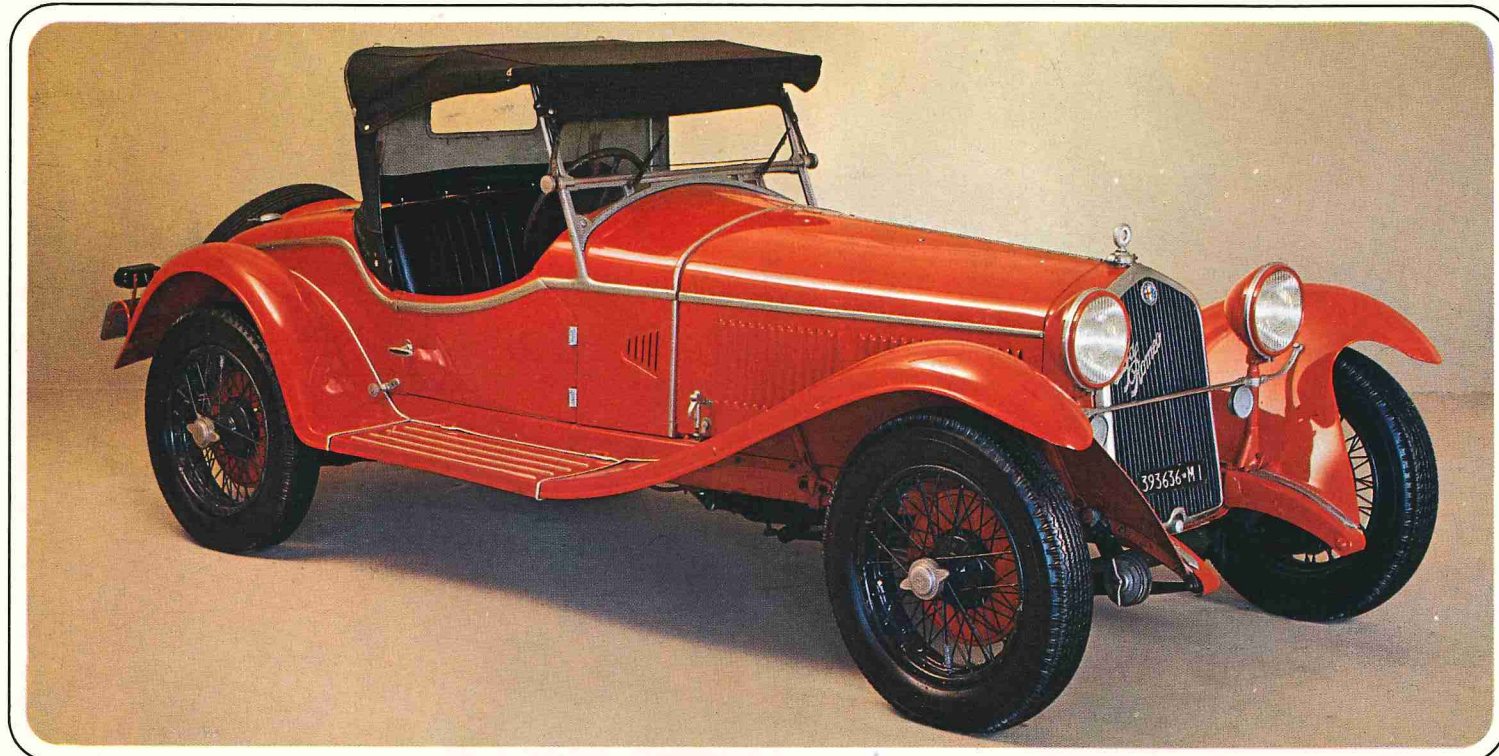
Medium-sized engines win the day

Certainly, if the production facilities had not been used otherwise, the market would have been able to absorb many more than the 138 RL's produced in 1926. Foreign markets were far from being saturated. Whoever determined this policy, however, was very far-sighted (it is not quite certain if the change was desired by Romeo, by then close to retirement).

By persisting with large engines, Alfa Romeo might well have failed during the world crisis of the thirties. By diversifying production and deciding on medium-sized engines (although at that time they were small), which, though not yet economical, offered very high performance and precision-built standards, Alfa Romeo made sure of something absolutely exclusive: it invented a type of motorcar which the world was obviously waiting for.

It should be said right at the start that this was a decision on production policy and by all accounts much less tied to an immediate increase in specific power output.

The essential greatness of model 6 C lies in the versatility of the formula and in its theoretic-



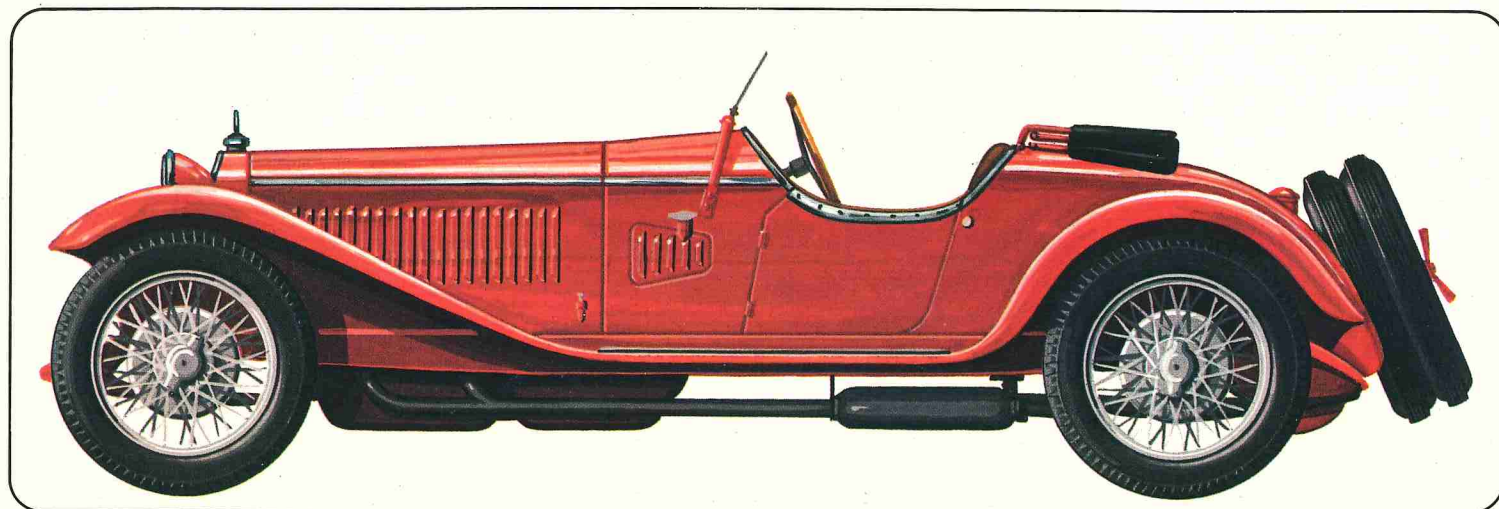
tical correctness, which makes it applicable to a vast range of engine capacities, as it was to demonstrate over the next forty years, thanks to advances almost solely of a metallurgical nature and progress in lubrication techniques rather than in car design. Nevertheless, a direct comparison shows that the 86 HP obtained in 1929, using a supercharger and twin overhead camshafts on a 1752 cc engine, fell short of the 90 HP obtained until 1923 with the RLS, which had no supercharger. Even the fuel consumption did not vary very much given the same speed. So, it is easy to understand the perplexity of a designer alone to the problems of series production, who had carried the formula of a particularly fast luxury car (with an engine capacity that was anything but big for that time) to a pinnacle of success, when it was suggested that he should drop it in favour of a light and fragile-looking car. Moreover, in the beginning, model 6 C NR produced only 44 HP, quite enough for a 1500 cc, but not much for a high-class car.

In the Italy of 1925, crowded with high-performance cars, at a time when even the modest Fiat 501, thanks to the Silvani modification, was to demonstrate that it could reach 125 km/h, the prototype of the little 6-cylinder Alfa Romeo certainly did not seem a sensational achievement. The most demanding sports car enthusiasts had the Ansaldo with overhead valves or, even better, the extraordinary Chiribiri Monza S model which could reach 150 km/h thanks to a light twin camshaft engine able to exceed 5000 rpm.

When it first appeared in a single camshaft version, the first 6 C 1500 (called the NRN, i.e. NR normal) was intended as a light family car rather than a sports car, and this was expressly provided for by a long six-seater chassis. Fast family motoring had come, Italian-style grand touring, even though nothing in the specifications of this model — unless perhaps its noble pedigree — would have justified such a forecast. Following the 1925 prototype, only five experimental models were built in 1926, plus one

The 6 C 1750 two-seater sports car of 1930, Gran Sport coachwork by «La Sportiva» of Milan. It weighed 840 kg and had a top speed of 145 km/h. The engine produced 84 HP at 4500 rpm.

Another version (1929-1930) of the 6 C 1750 Gran Sport. The more classic coachwork of the 1750 was built by Zagato.



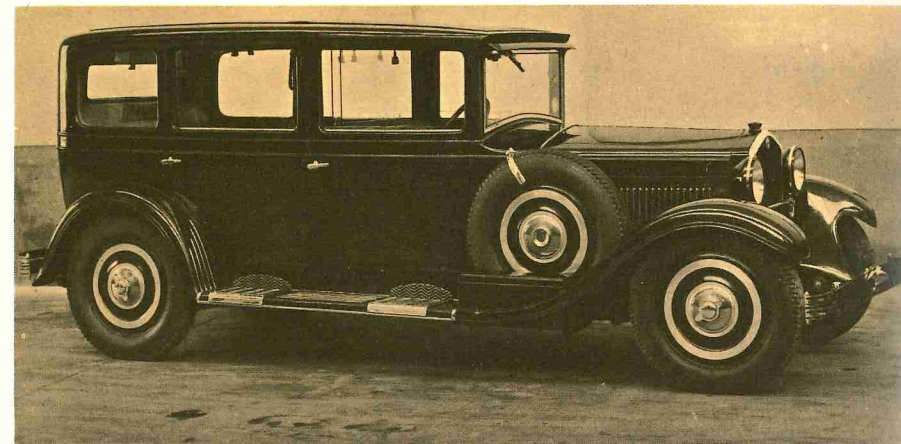
with short chassis for a four-seater body. Deliveries began in 1927 with the sale of 350 long car chassis. Only 50 of the short-chassis model were sold in the following year. In 1928 the 6 C, which in the meantime had officially assumed this designation, was reaching its first stage of maturity: during the second half of the year 170 ordinary vehicles were delivered, and 157 of the sports version. The latter finally introduced twin overhead camshafts into Alfa Romeo's commercial production, controlled by a vertical bevel gear transmission. The specific horse power now began to acquire significance, and the formula of the 6 C to reveal its full flexibility. The Grands Prix were going through a period of eclipse, exports were down and there were already the first signs of the impending economic crisis which, starting from the New York stock exchange, was to involve the whole western world; but in Italy the Mille Miglia had come into being a year before, and had proved an extraordinarily effective means of publicity.

The importance of brakes

The victory of the O.M.'s and the extraordinary averages of the tiny Fiat 509 Sport, not only put paid to the latest racing ambitions of the RLSS, but also proved that on the rough Italian roads at least the future was with light vehicles.

Winning the second Mille Miglia, perhaps undervalued on the first occasion, became an imperative for Alfa Romeo which, between 1928 and 1929, built twenty-five Super Sport models, ten of them with a Roots supercharger. The victory of Campari, who took part in the 1928 Mille Miglia with the only car fitted with a supercharger, dispelled any doubt of the potential durability of a solution reserved until then for the Grand Prix race-tracks.

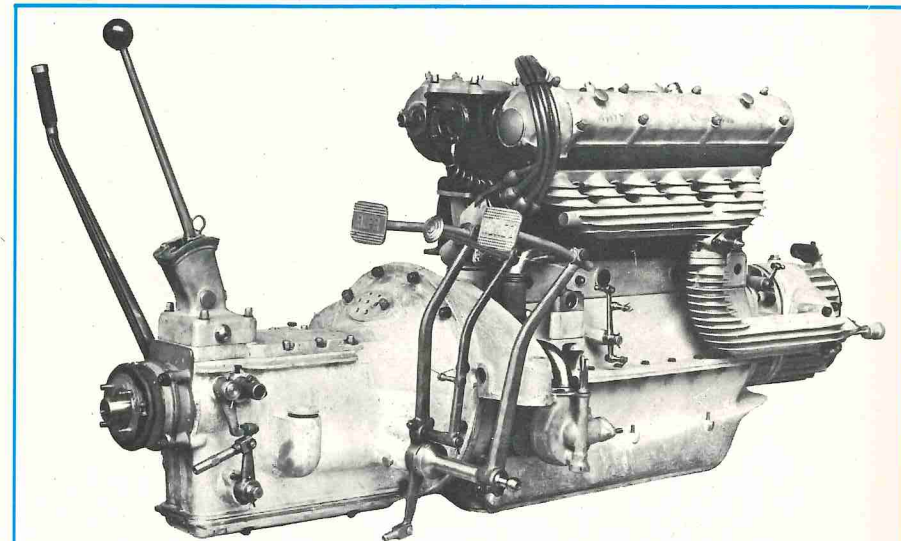
The leading car of the thirties had thus arrived on the scene: not only powerful and fast, as the Bugatti and other famous cars had been, but balanced in every part of the chassis and, in particular, having good brakes. Born of the need for rapid deceleration in racing the brakes of the Alfa Romeo put it years ahead in meeting a need which only traffic congestion, inconceivable at that time, was to bring out fully. The mechanical brakes of the Alfa Romeo, with large diameter drums, were controlled by a system of mechanical gears which had practically eliminated all the weak spots revealed by other less perfected and less costly systems (perhaps precisely because of these excellent results Alfa Romeo was very late in deciding to adopt the hydraulic system). The system chosen was an improvement on that already used on the Grand Prix Fiat cars, with the front brake push rods housed in the kingpin; this arrangement eliminated the typical defect of mechanical braking



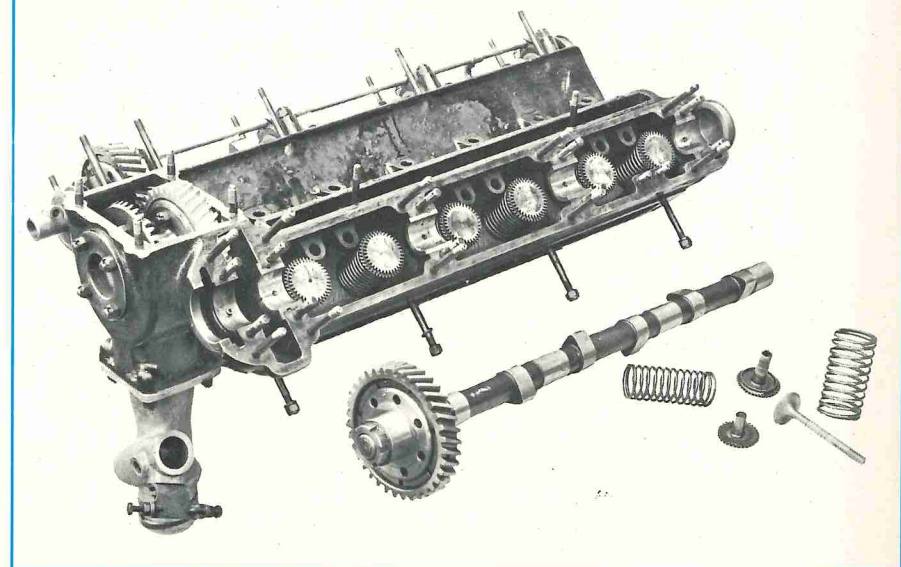
One of the few 6 C 1750 Gran Turismo of 1930, in the limousine version. Coachwork by Garavini of Turin.

systems, i.e. a possible locking of the front wheels or at least erratic braking with violently swerving wheels. The system was then balanced between the two axles by means of equalizers. All these improvements were applied to the touring cars without any modifications designed to reduce costs.

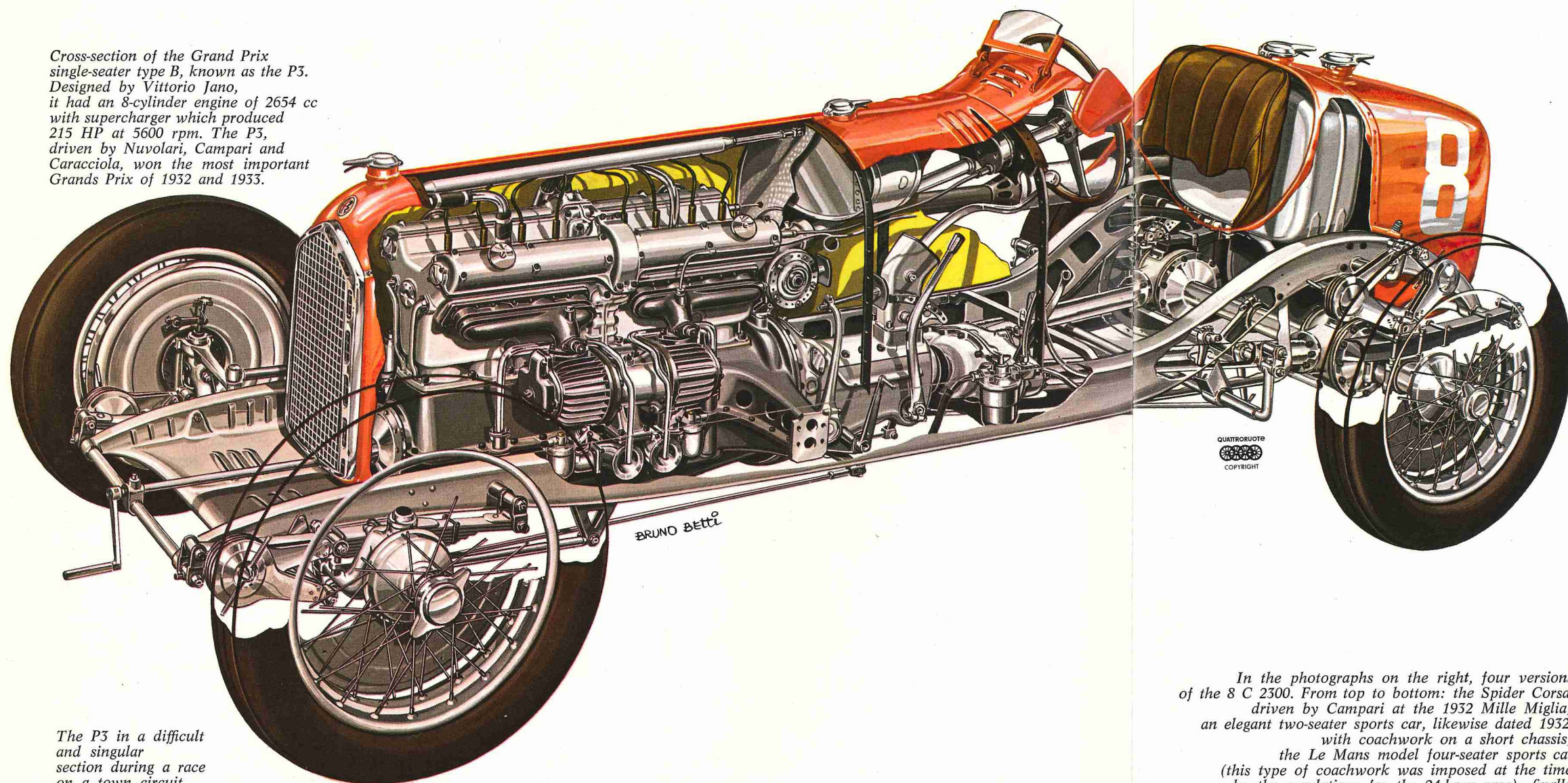
The borderline between competition cars reserved for the Company's official team and cars put up for sale, though not completely non-existent,



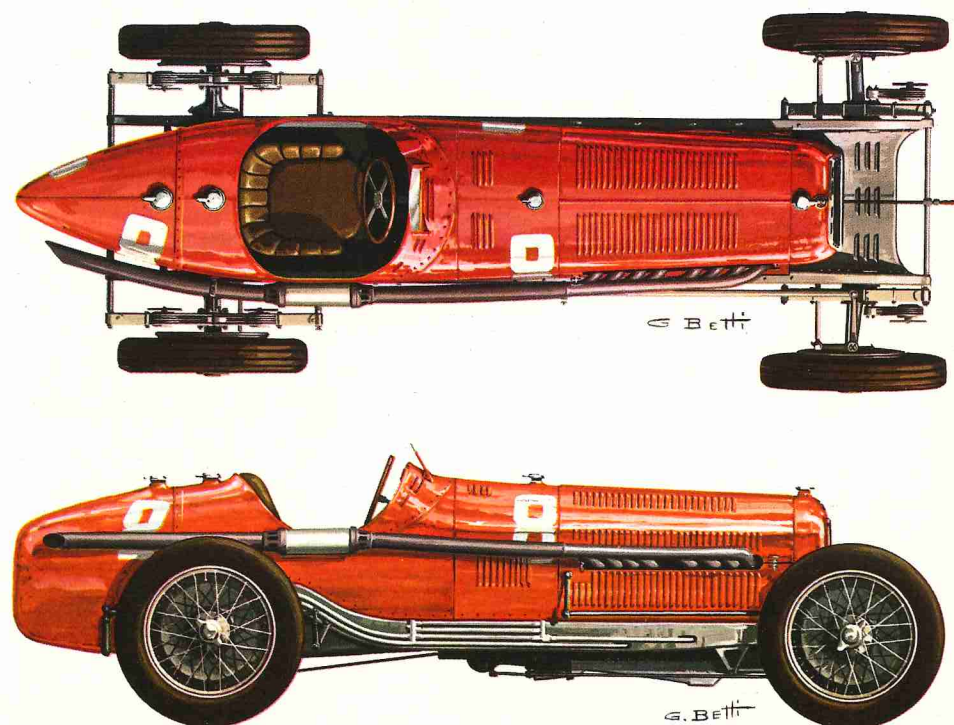
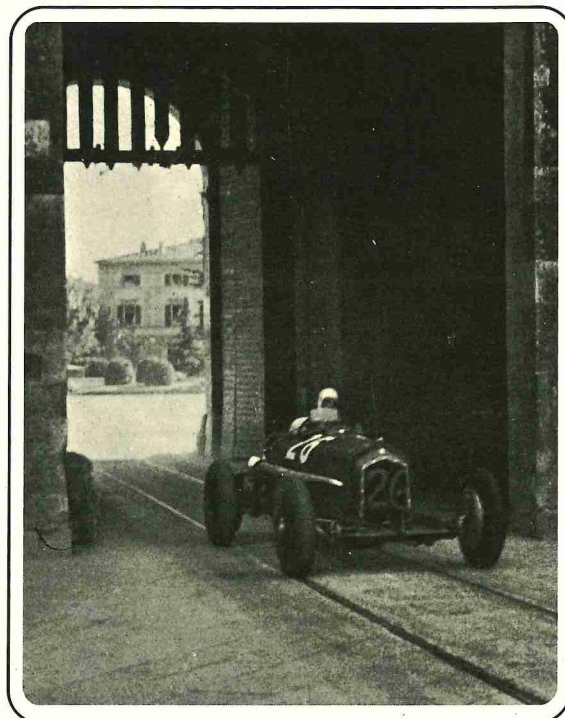
The engine and gearbox section of the 6 C 1750 Gran Sport with supercharger (on the right). Below: exploded view of the cylinder head. One of the two camshafts can be seen with the original adjustment of the tappets by means of serrated cotters. Timing was controlled by a vertical shaft and by a set of gears.



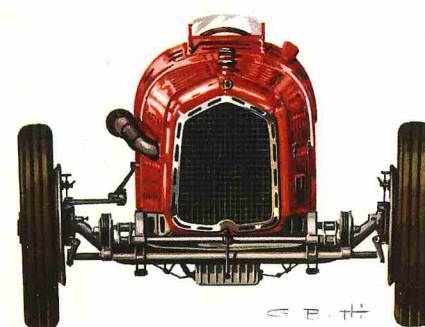
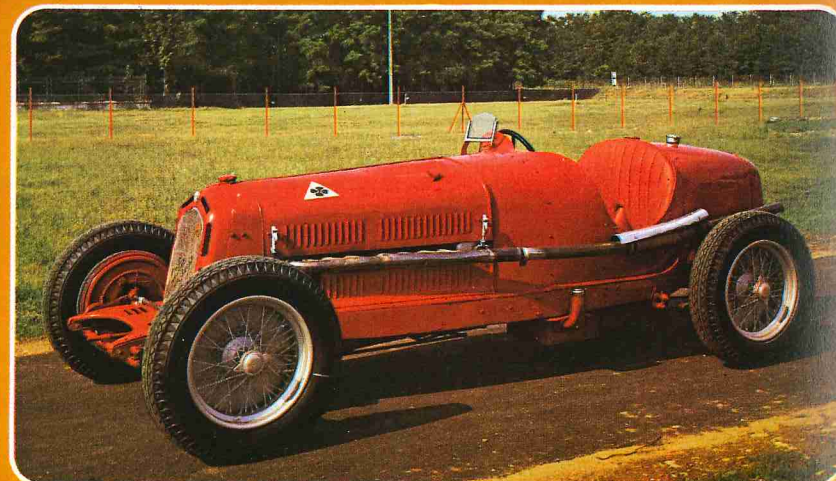
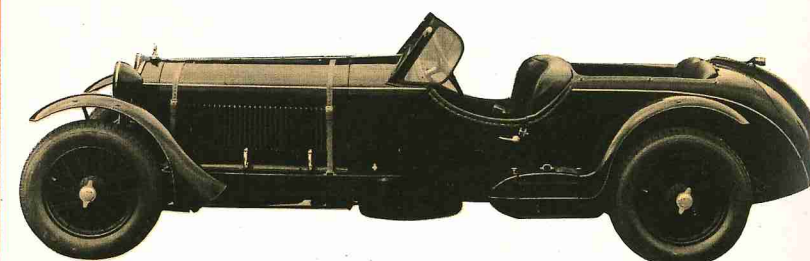
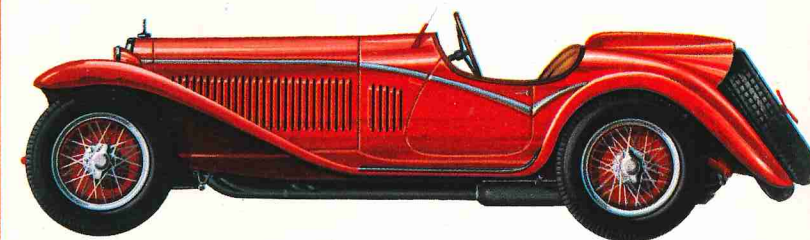
Cross-section of the Grand Prix single-seater type B, known as the P3. Designed by Vittorio Jano, it had an 8-cylinder engine of 2654 cc with supercharger which produced 215 HP at 5600 rpm. The P3, driven by Nuvolari, Campari and Caracciola, won the most important Grands Prix of 1932 and 1933.



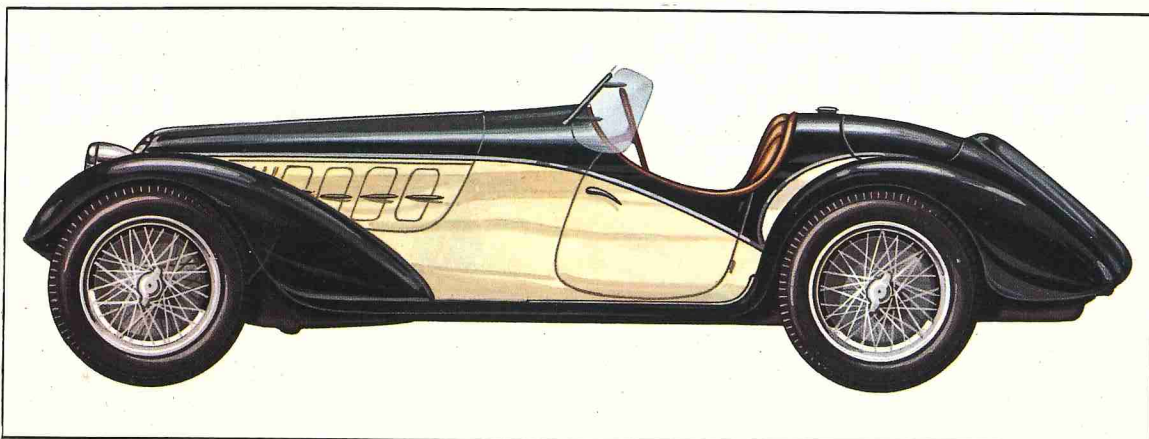
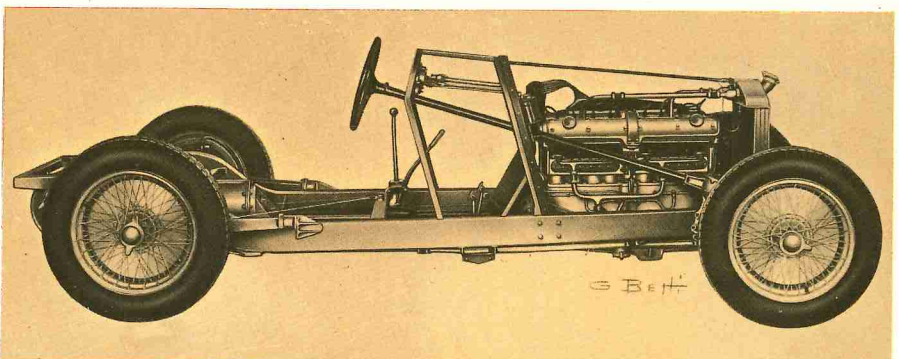
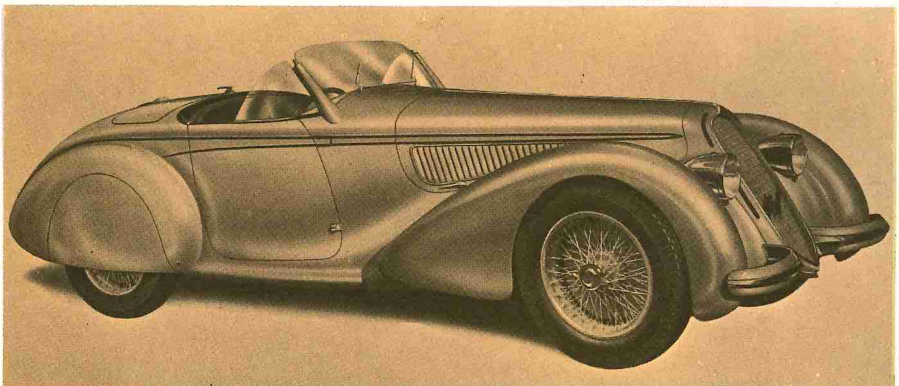
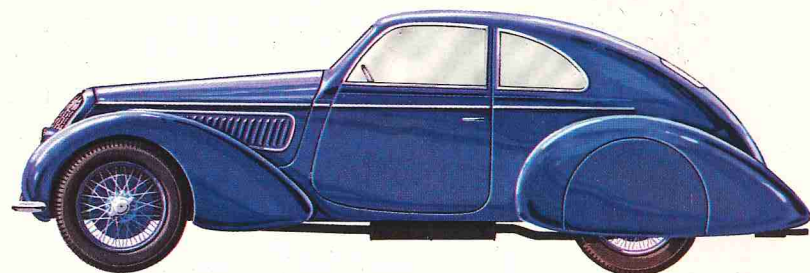
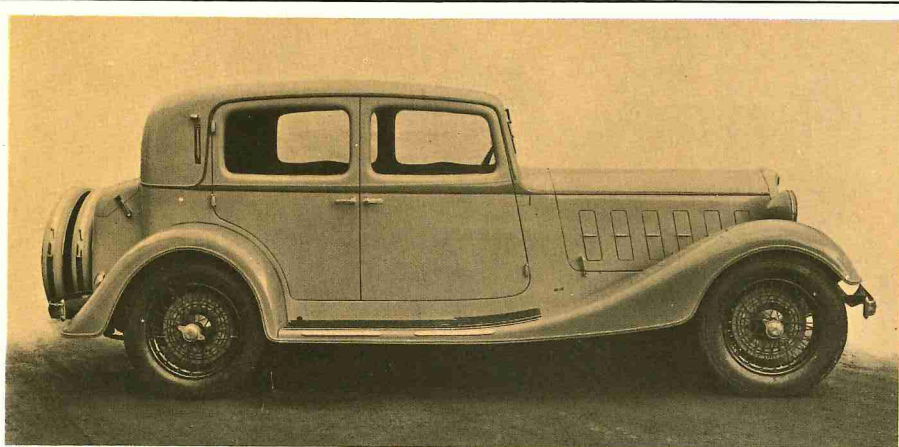
The P3 in a difficult and singular section during a race on a town circuit.



In the photographs on the right, four versions of the 8 C 2300. From top to bottom: the Spider Corsa, driven by Campari at the 1932 Mille Miglia; an elegant two-seater sports car, likewise dated 1932, with coachwork on a short chassis; the Le Mans model four-seater sports car (this type of coachwork was imposed at the time by the regulations for the 24-hour race); finally the 8 C Monza in the Grand Prix version (1931-1933).



Front, side and plan view of the P3. This single-seater had friction type shock absorbers on the rear suspension adjustable from the driving seat. The differential was placed at the end of the gears and transmission was effected with two V-shaped shafts. This allowed for a lower positioning of the seat.



Photographs above, from top to bottom: the 6 C 2300 Gran Turismo saloon of 1934; the 1938 6 C 2300 B Mille Miglia Superleggera compact saloon version with Touring coachwork; the short type chassis of the 8 C 2900 B: this car (1937-39) had an engine boosted by two superchargers and extremely refined mechanics. In the drawing on the right: the 8 C 2900 of 1936, coachwork by Touring.

as in the case of the Bugattis, has always been very blurred with Alfa Romeo, too. Nevertheless the high-performance cars put on the market — the supercharged versions and the super sport without supercharger — were never more than a minority numerically speaking among the thirty-five or so variations derived from the first modest NRN model.

The spring of 1929 began under good auspices, with an absolute victory in the third Mille Miglia: the car used was a new model in which both bore and stroke had been increased to achieve an engine capacity of 1752 cc. This redesign was not an isolated instance, a one-off increase carried out with a view to one particular race, but formed part of a development plan affecting production as a whole.

When the 6 C 1500 was joined by the new 1750 (the intention was as always for the one to replace the other, even though the Company did not say so at the outset), Alfa Romeo turned to an increase in engine capacity (as Lancia had already done for its standard model, the Lambda), i.e. to the simplest system to improve performance without designing a new model. The reason for the modification was nevertheless unusual. Motoring was gradually losing its original heroic character and Alfa Romeo, though anxious on the one hand to win races, was taking care on the other hand to make sure of those customers who were interested in comfortable cars.

The increase in engine capacity was not therefore used entirely to raise speeds, but rather to ensure smoother running, to reduce top engine speed by 200 revolutions and also to some extent the compression ratio. The increase in power was minimal, by only 2 HP in the touring version: but this sacrifice helped to tone down the lively performance which had been one of Alfa Romeo's exciting features but which was also fatiguing for passengers.

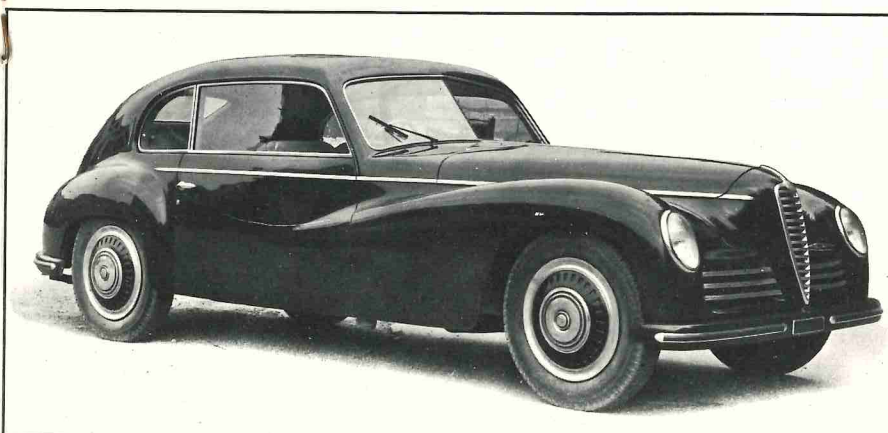
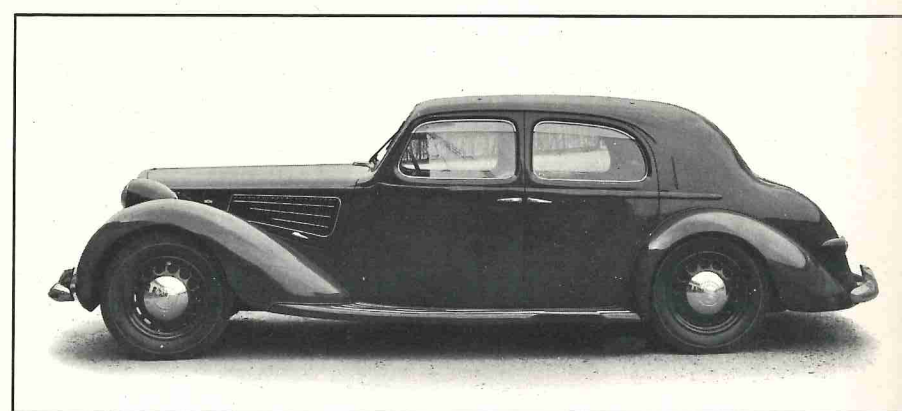
Meanwhile the position of Alfa Romeo cars on the market had become quite clear. In view of their sophisticated design and the resulting high costs, they could not hope to become family cars. From that point of view the increase in engine capacity and tax or in consumption was

therefore of secondary importance. If anything it meant upgrading the car to the luxury class, a sector of the market which is at least as demanding in regard to comfort as it is in regard to peak performance. Production policy was henceforth directed towards a comfortable speed appropriate for touring in the modern sense of the word: cars were used less and less for short trips and made real journeys possible now, even for purely practical purposes, in competition with the train, without being affected by weather conditions or the caprices of some mechanical device. It was here that the true type of clientele for Alfa Romeo finally emerged, that of the tourist exacting in his demands for speed and comfort, but who still wants his vehicle to be functional to some extent, as well as robust and moderate in consumption. The sixth series of the successful 6 C was to complete this development with another increase in engine capacity to 1917 cc; thus offering a performance comparable to that of earlier supercharged versions (the little known Gran Turismo long wheelbase supercharger) but avoiding their noisiness and high consumption. At the same time there was a decided trend in the market towards hard top cars and Alfa Romeo, which had recently set up its own coachwork department, produced all its series production cars in this form as from 1933.

After the interlude of the 6 C 1900, the development of the Alfa Romeo Gran Turismo

continued with another, though not definitive, increase in engine capacity to 2300 cc. This was so important, and coincided with changes in engine design (such as controlling the camshafts by chains instead of the vertical shaft) that this unit may well be considered to have started a new family rather than to be the last descendant of the previous one. Very similar to previous ones, and therefore rather outdated by then, it being 1934, was the chassis with semi-elliptical leaf springs. As the Company, for its own peculiar reasons, still resisted the introduction of hydraulic control, the brakes were still powered by mechanical gears, at a time when the whole of Italian production, including family cars, had already been using the Lockheed system for two years. Between 1935 and 1937, a second series, the 2300 B, was built in the midst of economic sanctions and the Ethiopian conflict. The suffix B did not indicate the differences between the two cars which belonged practically to two different eras in motoring. The chassis of the first, already outdated by racing experience, had leaf springs situated along the side members, but the chassis of the second was downright futuristic, with a suspension which, in front, imitated the independent wheels of the Grand Prix cars of the time and adopted a longitudinal torsion bar system at the rear which, assisted by telescopic shock absorbers of Alfa Romeo design, damped the oscillations of a Porsche-type swing axle.

From left to right: the 1939 6 C 2500 Sport Touring Superleggera four-seater convertible (Anselmi collection); the 6 C 2500 Turismo current model saloon. There were two versions of this car, which was manufactured from 1939 to 1943: the five-seater and the seven-seater, both with coachwork by Alfa Romeo. Below left: the 1947 6 C 2500 Sport Freccia d'Oro, the first post-war Alfa Romeo and one of the first Italian cars with steering column gear-change; on the right: the 1952 6 C 2500 Super Sport Touring Superleggera coupé, called Villa d'Este.



This marked the end of the Jano era at Alfa Romeo, who had first been joined, and then replaced, by Gioacchino Colombo, Bruno Trevisan and Wilfredo Ricart, all of them sharing in the design of a great many sports and racing cars which simply cannot be described here individually. The 8 C and the Grand Prix P 3 at least deserve particular mention, however.

In the 1931 Mille Miglia Alfa Romeo entered a car which, at first sight, could be taken for the 1750, having the latter's chassis with few modifications. The somewhat longer bonnet, however, concealed a new and formidable power unit: an 8-cylinder engine, made up of two lines of four in-line cylinders and linked by a central set of gears to control the camshafts. Beside the crankcase, the head and the cylinder block were in a light alloy, with steel liners heat-shrunk in place with a technique that was to open the way for the interchangeable liners on present-day Alfa Romeo cars. The new-type

tyres did not stand up to the high speed the car was capable of and its first appearance was not a successful one. Victories came later, in the Targa Florio and the European Grand Prix. It has been said that in 1931 Grand Prix rules imposed ten hours' racing, thus making cars participating more like those suitable for a Mille Miglia than highly specialised fast cars suitable for short races on race-tracks. Capable, in top gear, of speeds up to 225 km/h, the 8 C won races until 1932, when the B model took over, at least on the race-tracks. Some cars, passed on to the Ferrari stable, were radically modified, with an increase in engine capacity to 2600 cc and the use of a cylindrical light alloy radiator positioned along the chassis to cool the oil.

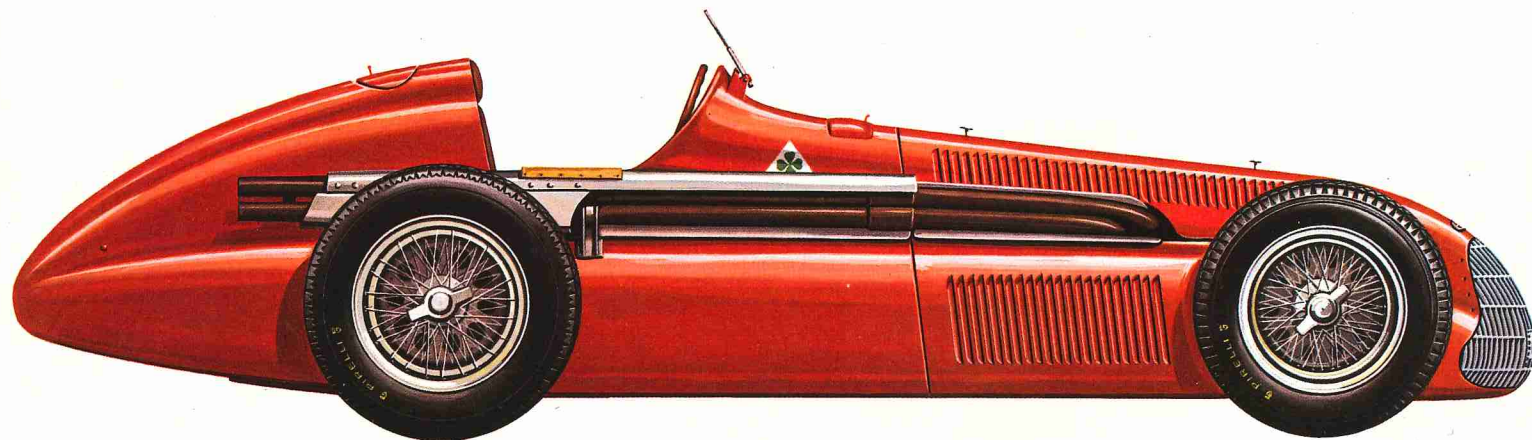
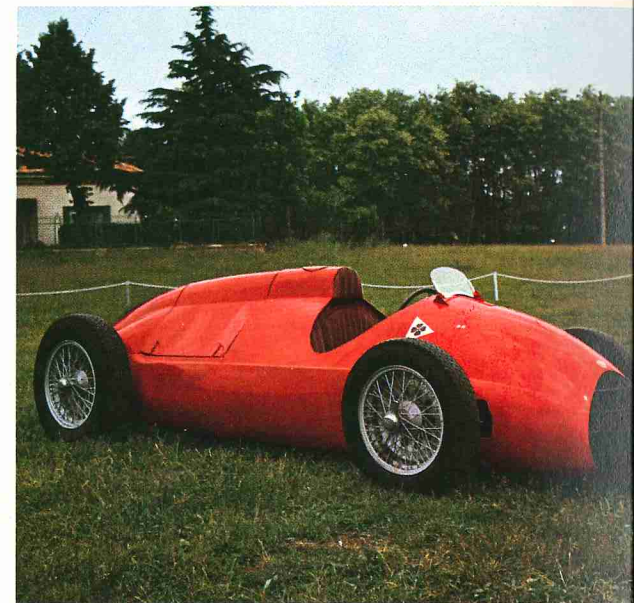
In 1932, following the advent of the Libera formula, Alfa Romeo presented a new racing car with unusual features at the 10th Italian Grand Prix. It had an 8-cylinder engine with a

timing system controlled by the central set of gears, somewhat similar to the 1931 8 C, but fed by two coaxial superchargers of the Roots type. For the first time Grand Prix cars could be single-seaters, and this induced Jano to devise a rather complex transmission with two shafts emerging in a V from the gearbox at the point where the differential was positioned. This made it possible to lower the driver's seat and the vehicle's centre of gravity. Capable of 232 km/h with an engine of 2654 cc producing some 215 HP at 5600 rpm, the B model won many victories and was unofficially named the P 3, to establish as it were a relationship with the glorious P 2.

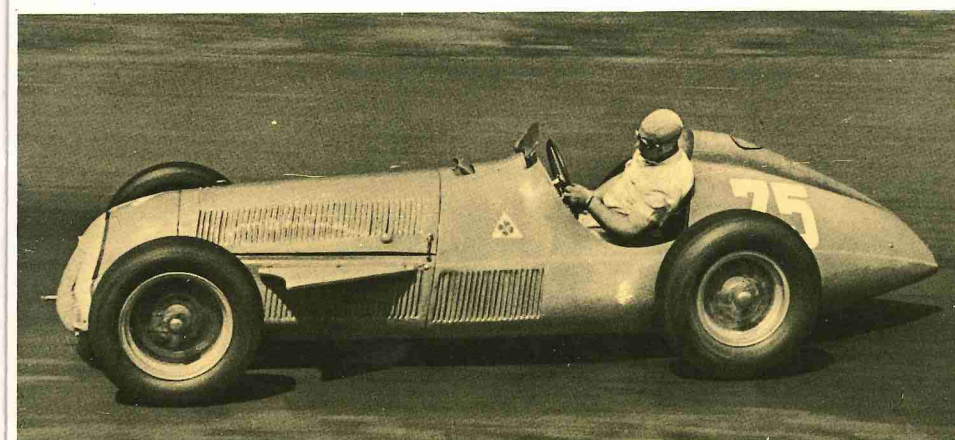
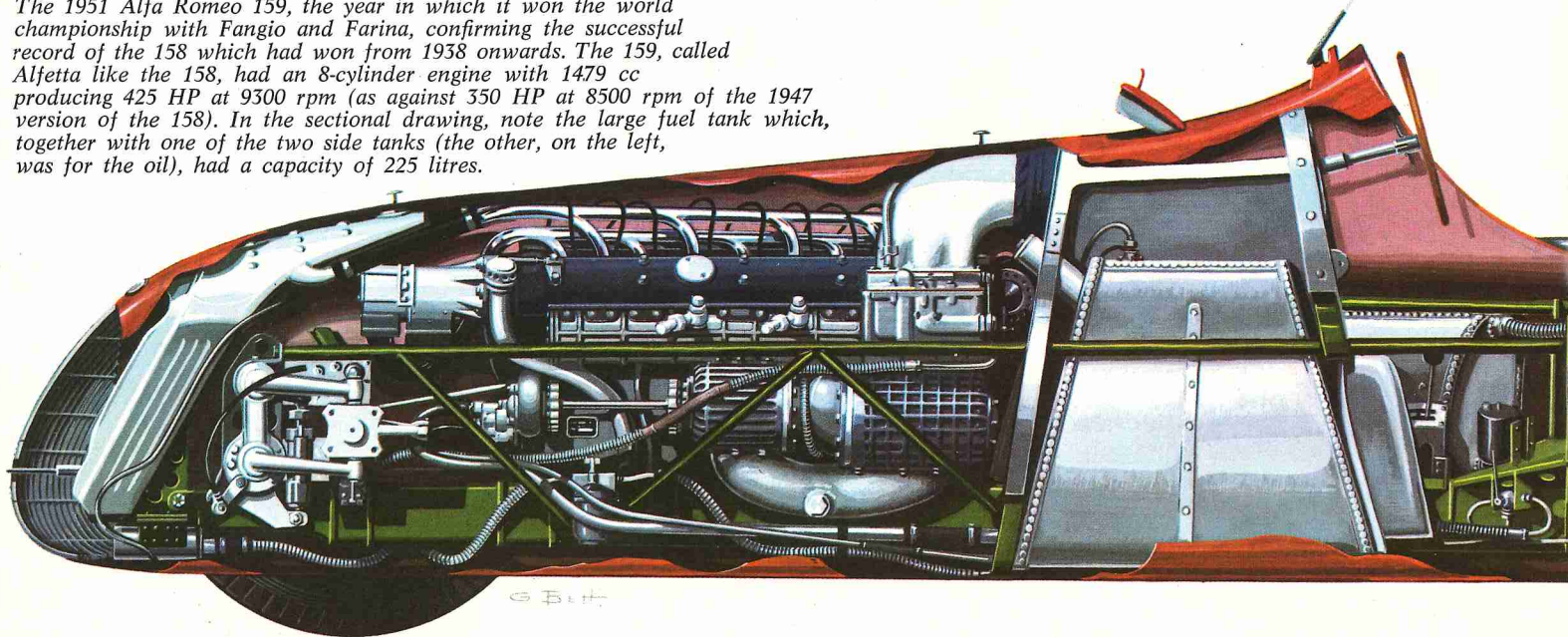
The search for perfection

Some 8 Cs built from 1931 to 1934 were put on sale as high prestige cars and were also fitted with saloon coachwork by Castagna and

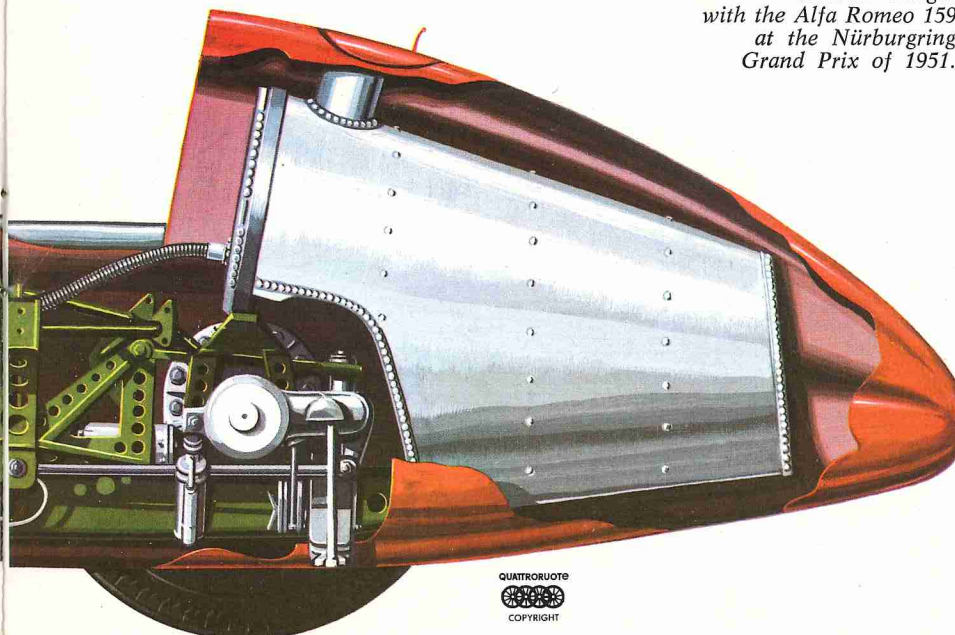
The 512 type single-seater with a 1500 cc rear engine of 12 opposed cylinders. This was an interesting prototype, designed by Wilfredo Ricart between 1939 and 1941 which, because of the war, was never tried in races. Ricart at that time also built a sixteen cylinder model, the 316, utilizing two engines from the 158.



The 1951 Alfa Romeo 159, the year in which it won the world championship with Fangio and Farina, confirming the successful record of the 158 which had won from 1938 onwards. The 159, called Alfetta like the 158, had an 8-cylinder engine with 1479 cc producing 425 HP at 9300 rpm (as against 350 HP at 8500 rpm of the 1947 version of the 158). In the sectional drawing, note the large fuel tank which, together with one of the two side tanks (the other, on the left, was for the oil), had a capacity of 225 litres.



Manuel Fangio with the Alfa Romeo 159 at the Nürburgring Grand Prix of 1951.



Touring, but the 6 C remained the backbone of commercial production. We have followed its growth up to the 2300 B. A 4-cylinder prototype, intended as a car for the mass market and fitted with a 1490 cc engine, was finally dropped.

As a result of the war effort, which had involved Alfa Romeo mainly in the production of aero-engines, the 2300 B first and second series were produced in relatively small numbers. The real commercial exploitation of the 6-cylinder range was to come only after 1939, with a further increase in engine capacity up to the classic size of two and a half litres. At that stage Alfa Romeo series production cars reached their highest grade of perfection and technical refinement and again took their place among Italian cars with large engine capacities, at a time when competitive makes were going in for rather lighter models. The chassis with four independent wheels, with torsion bar rear suspensions and helical front springs, fitted with multiple damping systems, were the ultimate in an efficiency which they were seeking without regard for production costs. The engines, although unusually flexible, were very lively and cars with light coachwork reached a speed of between 150 and 165 km/h. These qualities enabled the Company to resume production, after the long pause brought about by the second world war, with the famous Freccia d'Oro: in a defeated Italy, the 2500 was too expensive a car, however, to allow production in any significant numbers.

As early as 1933, after financial ups and downs, Alfa Romeo's shares had passed from Banca Nazionale di Sconto to the Institute for Industrial Reconstruction (I.R.I.) which still holds them, through the Finmeccanica holding company. The only way out for the Company, if it was to remain industrially viable and ensure a certain level of employment for its labour force,



was therefore the project of a car which, though outstanding in its class, could be produced competitively as far as costs were concerned.

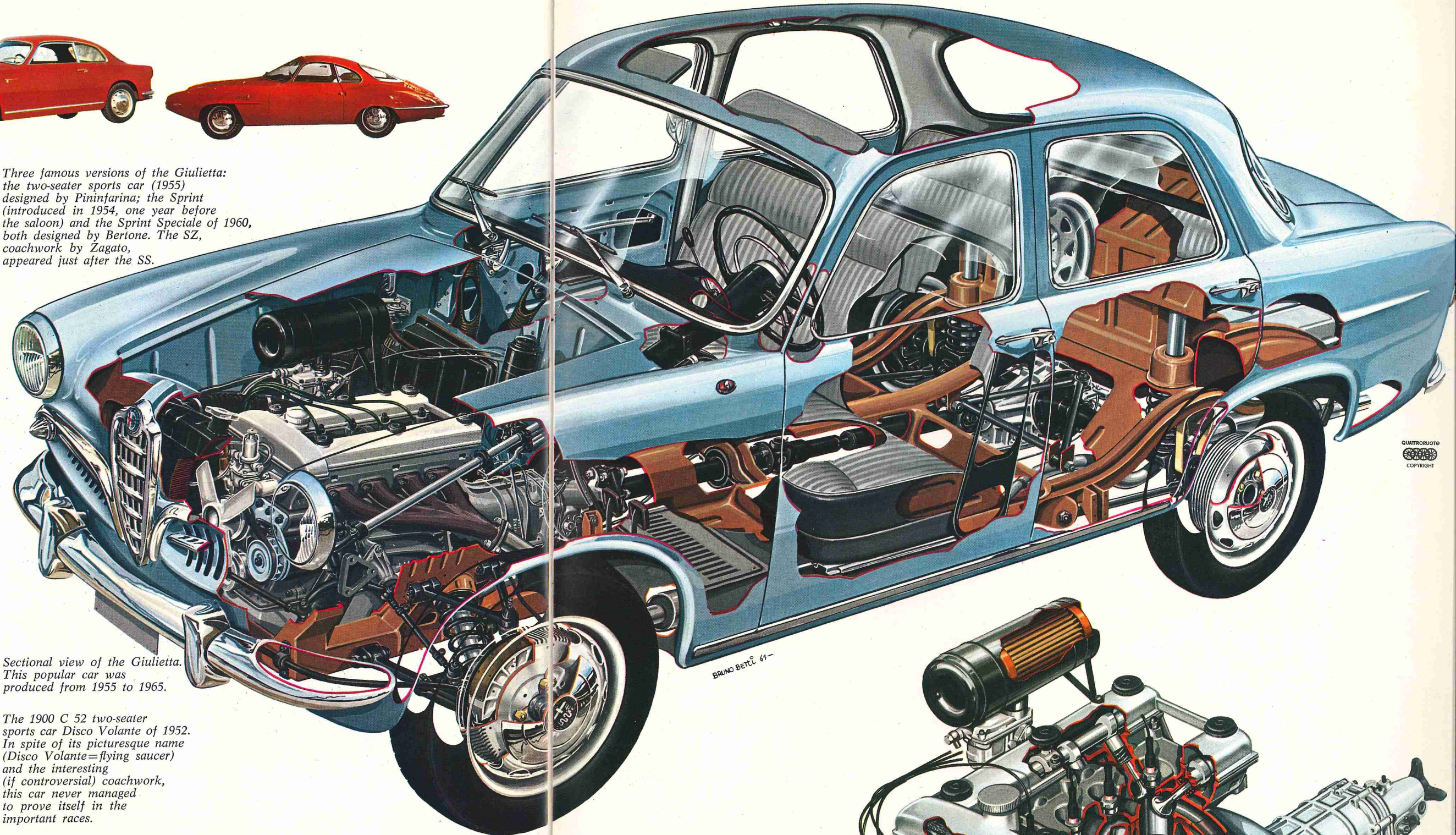
It proved necessary to sacrifice two cylinders on the altar of Italian tax regulations, to adopt a rigid rear axle and to give way on the policy of a standard model with a unitized body, after so many years of diversified tradition: years in which whoever was not satisfied with a costly 1750 could switch his choice to the even more outstanding 8 C 2300.

The 1900 managed to save the Alfa Romeo tradition, thanks more to its own unmistakable achievements than to the standard of finish, but by its very nature made it necessary to put up a completely new plant. Coming out of the difficult war years with machinery almost completely set up for aircraft production, and in any case half destroyed by bombing, Alfa Romeo needed both new machinery and new methods.

After an interesting period of special research under the consultancy of Wilfredo Ricart, at a time when the design of cars for series production had been under the direction of Bruno Trevisan (like Jano a one-time Fiat apprentice), all the design departments were reunited under Orazio Satta Puliga, an engineer who managed to divide his contribution equally between production and plans for racing cars.

Satta, who had joined Alfa Romeo in 1938, personified the scientific approach to production and design technology, but he was also a great expert in high performance engines and thus played a leading part in the recovery of the 158 Grand Prix model (the famous Alfetta), rescued by resourceful action from requisitioning and reprisals by the Nazis and renovated to become the most powerful 1500 single-seater ever, which assured Alfa Romeo of victory in twenty-eight Grands Prix and in the world championships of 1950 and 1951. With these successes and with those of the 1900 five-speed

Three famous versions of the Giulietta: the two-seater sports car (1955) designed by Pininfarina; the Sprint (introduced in 1954, one year before the saloon) and the Sprint Speciale of 1960, both designed by Bertone. The SZ, coachwork by Zagato, appeared just after the SS.

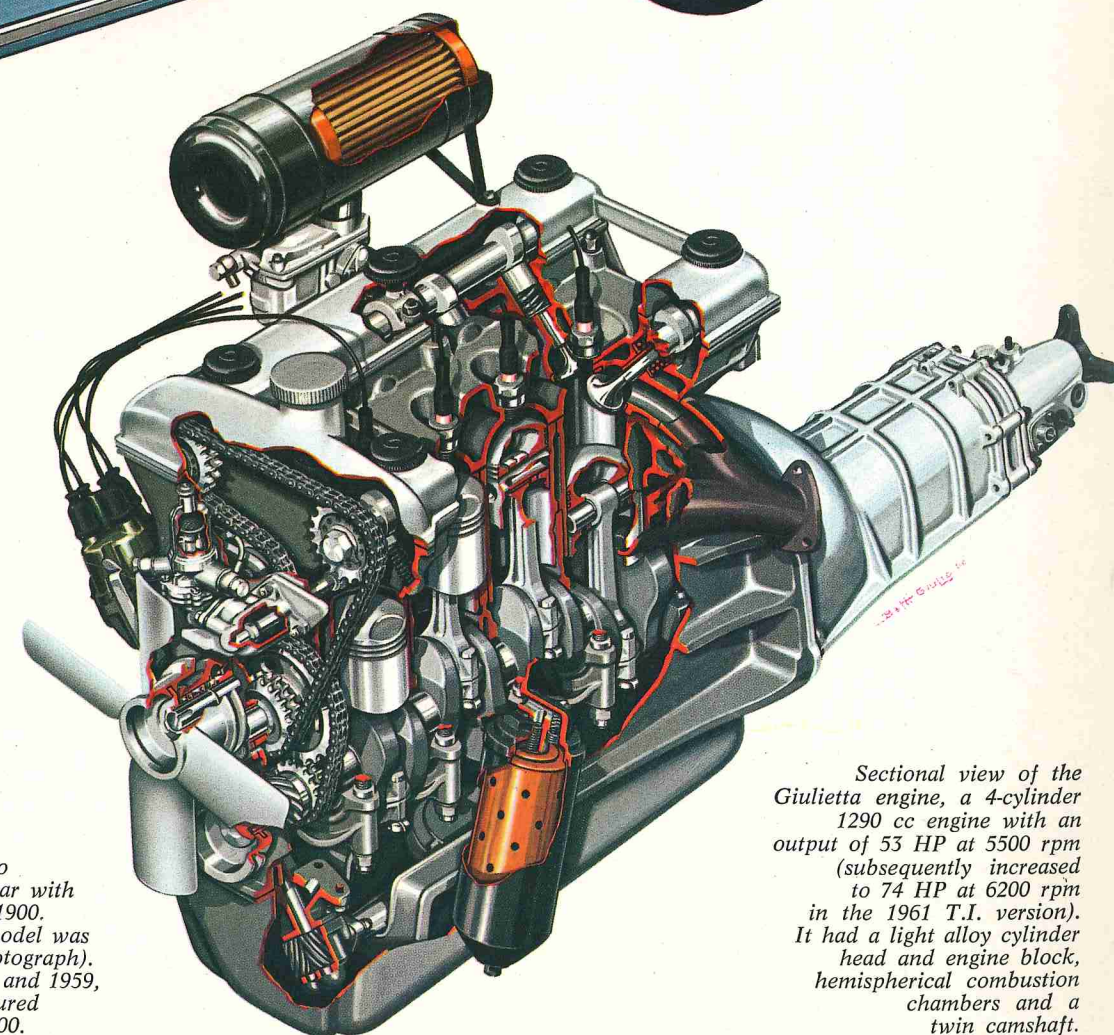


Sectional view of the Giulietta. This popular car was produced from 1955 to 1965.

The 1900 C 52 two-seater sports car Disco Volante of 1952. In spite of its picturesque name (Disco Volante=flying saucer) and the interesting (if controversial) coachwork, this car never managed to prove itself in the important races.

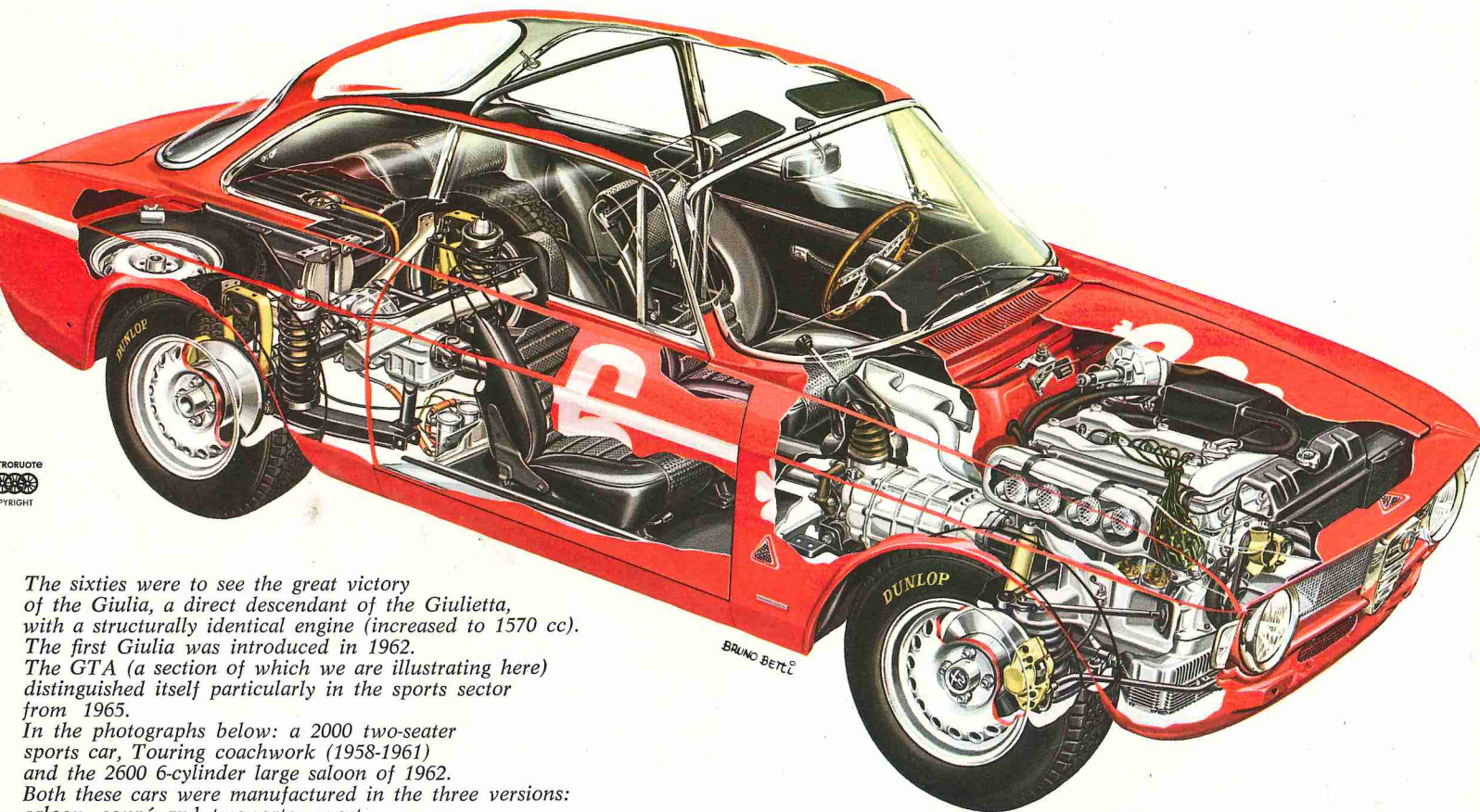


In 1950 Alfa Romeo introduced its first car with unitized body; the 1900. In 1954 the Super model was launched (in the photograph). In all, between 1950 and 1959, the 1900's manufactured numbered over 21,000.



Sectional view of the Giulietta engine, a 4-cylinder 1290 cc engine with an output of 53 HP at 5500 rpm (subsequently increased to 74 HP at 6200 rpm in the 1961 T.I. version). It had a light alloy cylinder head and engine block, hemispherical combustion chambers and a twin camshaft.

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The sixties were to see the great victory of the Giulia, a direct descendant of the Giulietta, with a structurally identical engine (increased to 1570 cc). The first Giulia was introduced in 1962. The GTA (a section of which we are illustrating here) distinguished itself particularly in the sports sector from 1965.

In the photographs below: a 2000 two-seater sports car, Touring coachwork (1958-1961) and the 2600 6-cylinder large saloon of 1962. Both these cars were manufactured in the three versions: saloon, coupé and two-seater sports, but they were not successful.

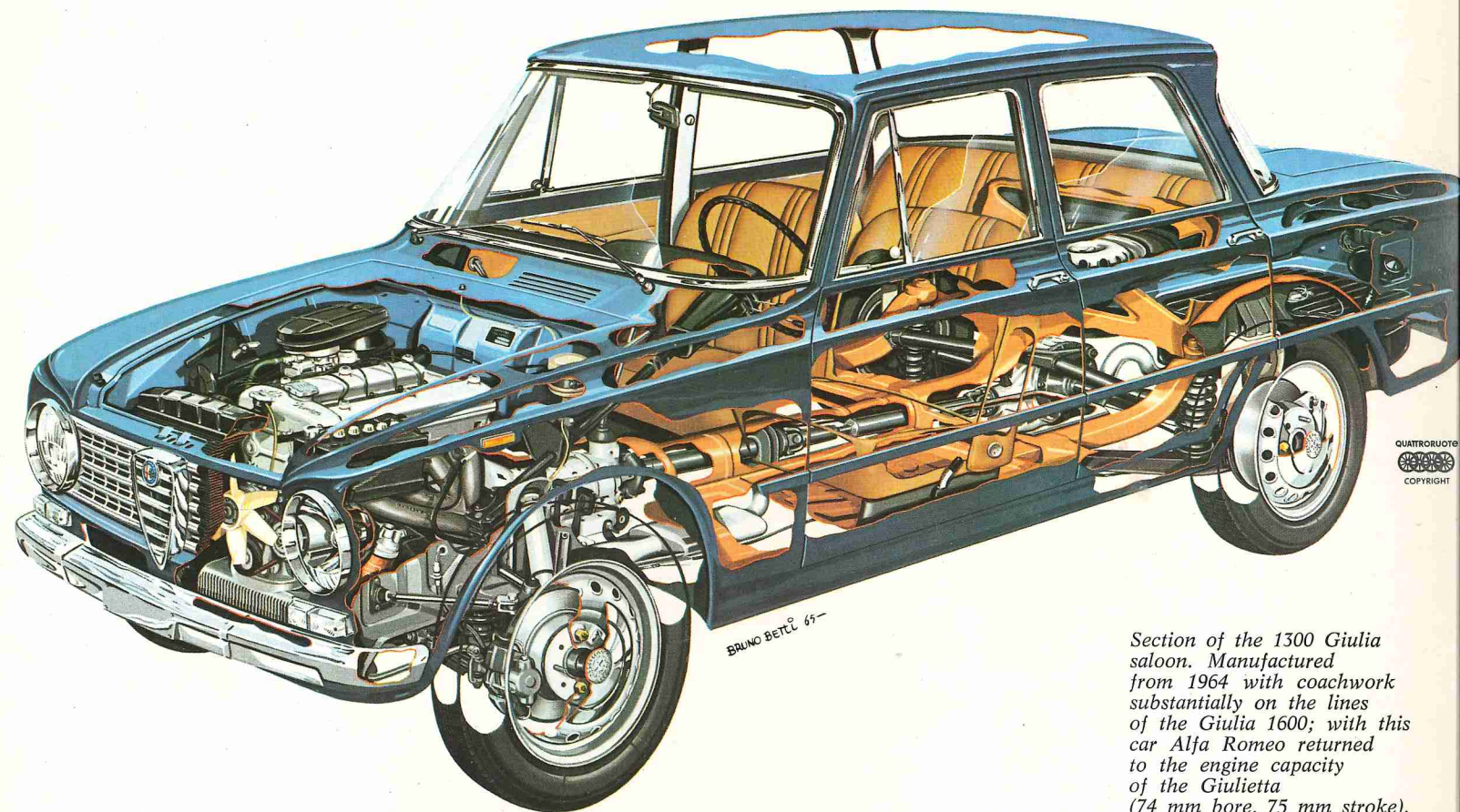


sprint, the image was reconstructed in post-war years of a make invincible on the race-track but now capable of building in seven years almost twenty thousand 1900's, a car built under the guidance of Ing. D'Alessio, who had recently joined the technical side of Alfa Romeo.

The need for a high-class car produced a descendant of the 1900 in the shape of the new 2000 saloon (1957-1960), joined by a Touring two-seater sports car and an interesting coupé by Bertone which anticipated the stylistic elements of the future Giulia coupés. Later, in 1962, appeared the 2600, which revived the glorious 6-cylinder system and was an extremely fast car with two negative features: a certain inadequacy in lubrication and the legacy of the heavy bodywork of the 2000 saloon, scarcely modified by superficial cosmetic operations. Shelved even by government departments, which preferred the highly elegant Lancia Flaminia, and hit by road tax, the car could have had some success abroad had it not been for the fact that Alfa Romeo's commercial organisation was at that time in the process of being reorganised.

The Arese works

The Giulietta, however, proved an enormous success. It was first introduced in the form of a two-seater coupé, with one of Bertone's most successful body designs (1954) which was reproduced practically unaltered for ten years without losing stylistic validity. The saloon version followed in April 1955, designed by Alfa Romeo's own Styling Department. This was the



Section of the 1300 Giulia saloon. Manufactured from 1964 with coachwork substantially on the lines of the Giulia 1600; with this car Alfa Romeo returned to the engine capacity of the Giulietta (74 mm bore, 75 mm stroke).

model which finally set the Milanese company on the road to becoming a major industrial undertaking, and which helped it to gain second place in Italy for volume of production.

The Giulietta was the ancestor of a line of 4-cylinder engines, all linked by close similarities in design but each one more powerful and yet smoother in running than the last: an appropriate answer by the most sophisticated technology to a system of taxation based on the division of engine capacity. First the Giulia in its various versions, and then the 1750 were such a success as to require a complete overhaul of plant and machinery.

Alfa Romeo accordingly decided on a gradual transfer to the new works at Arese, on the road to Saronno, and at the same time equipped at Balocco, in Piedmont, a genuine private race-track of its own for testing prototypes and competition cars.

Meanwhile an agreement had been concluded with Régie Renault for the assembly and sale in Italy of the Dauphine family car, renewed subsequently for the sale of medium-sized commercial vehicles.

The series of cars linked to the Giulia design had its most important addition in 1971, its most outstanding variation, the Alfa Romeo 2000 with a 1962 cc engine and coachwork derived from the 1750. The spring of 1972 saw the introduction of the car which revived the scheduled name Alfetta and came up once again with the De Dion rear axle, with gearbox and differential combined in one unit at the rear. This was a most important return by Alfa

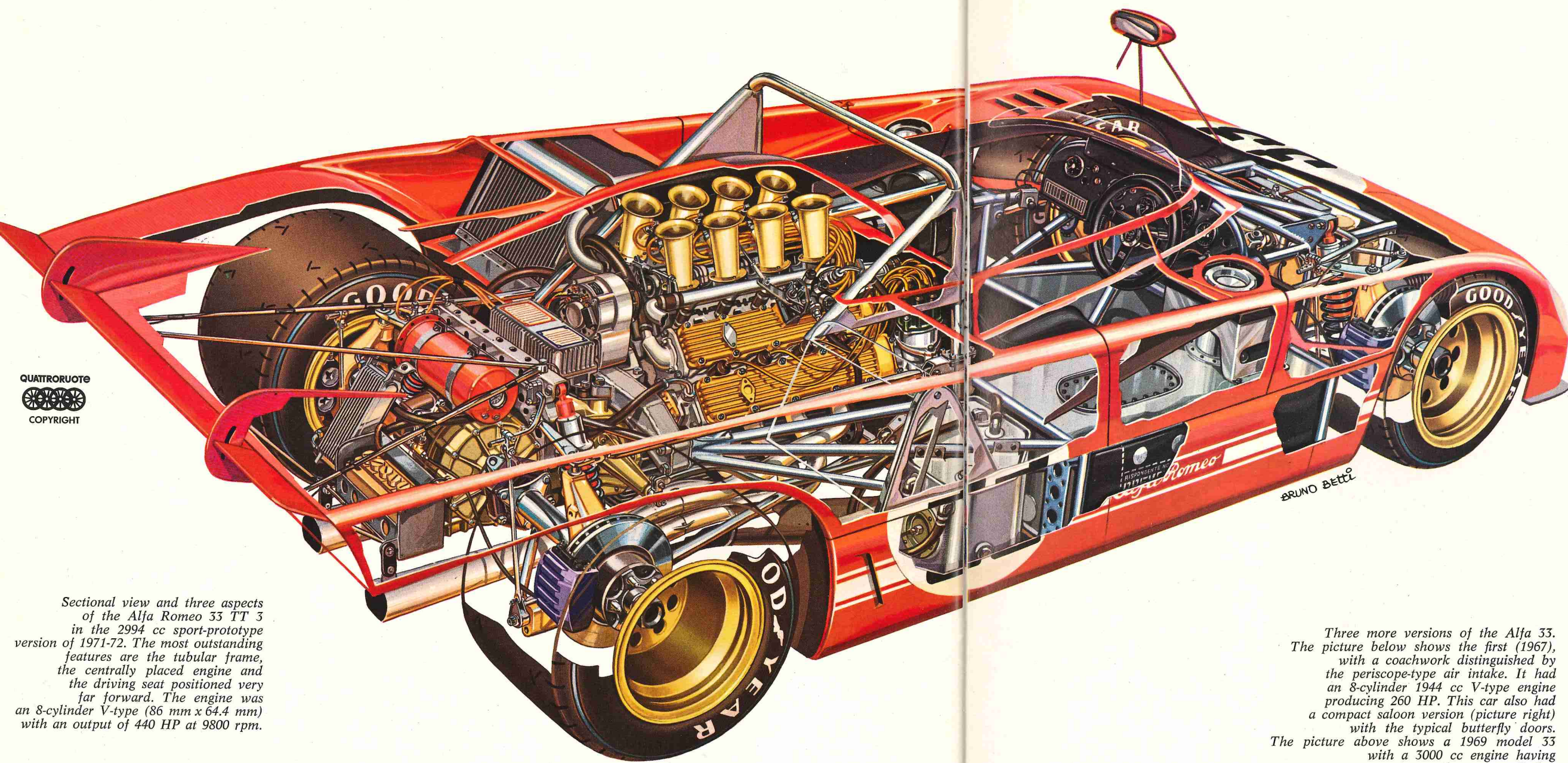
Romeo in chassis design for cars for the mass market.

The famous racing department, which in 1938 had had administrative autonomy and was even given official status through having a building of its own at Portello, was closed in 1951 on the cancellation of the agreement which had assigned the administration of Alfa Romeo competition material to the Ferrari stable. For several years Alfa Romeo had to confine itself to giving assistance to customers active in motor sports. Then, in view of the obvious promotional benefits which it seemed possible to derive from the successes of Alfa Romeo cars, it was decided to return semi-officially to competitions of the Sports Prototype and Grand Touring categories, by setting up the Autodelta associate company

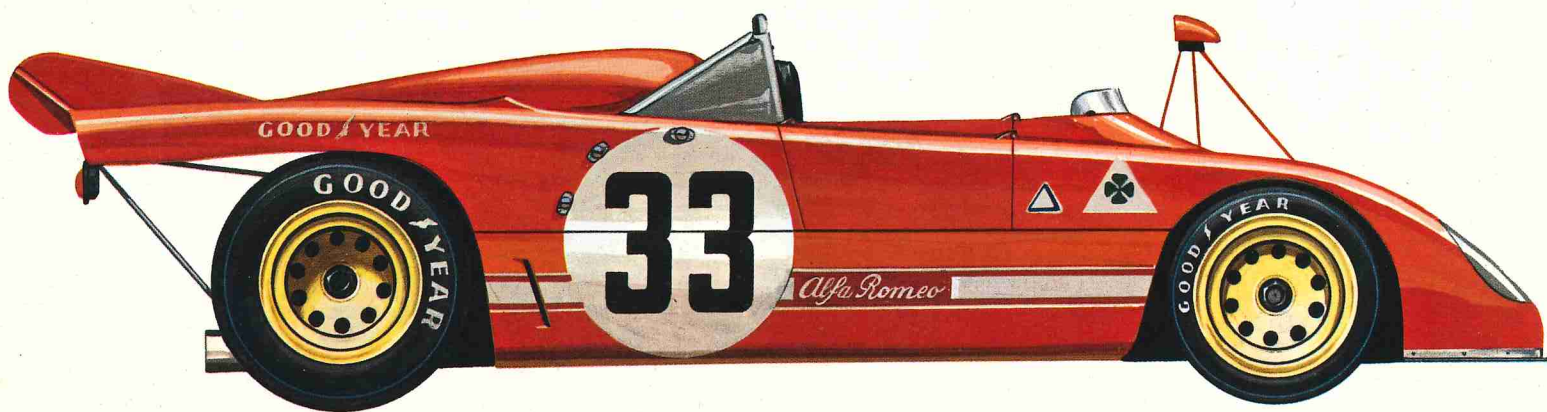
The 1300 Junior two-seater sports car. Coachwork by Pininfarina, the first Giulia two-seaters had a romantic name, Duetto, which later Alfa Romeo decided to abandon.



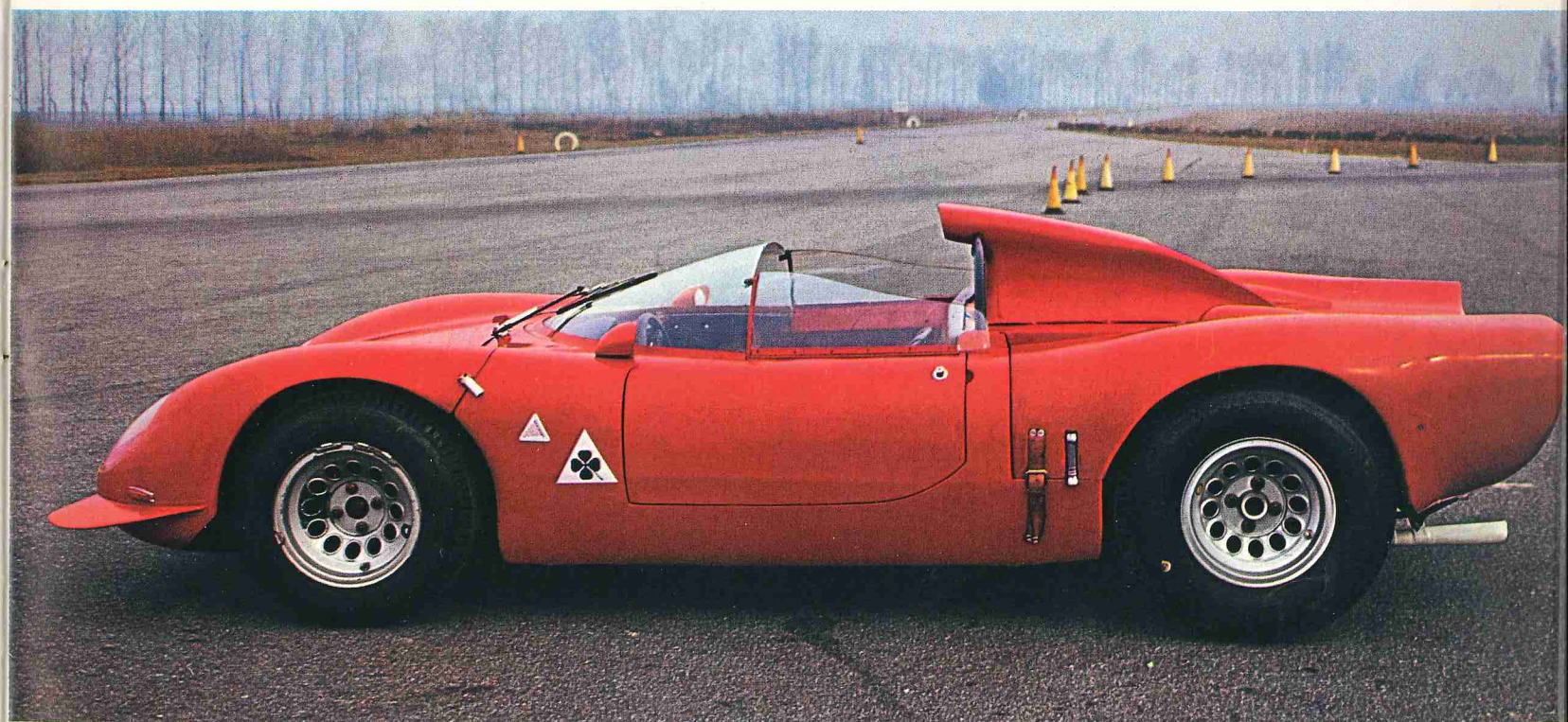
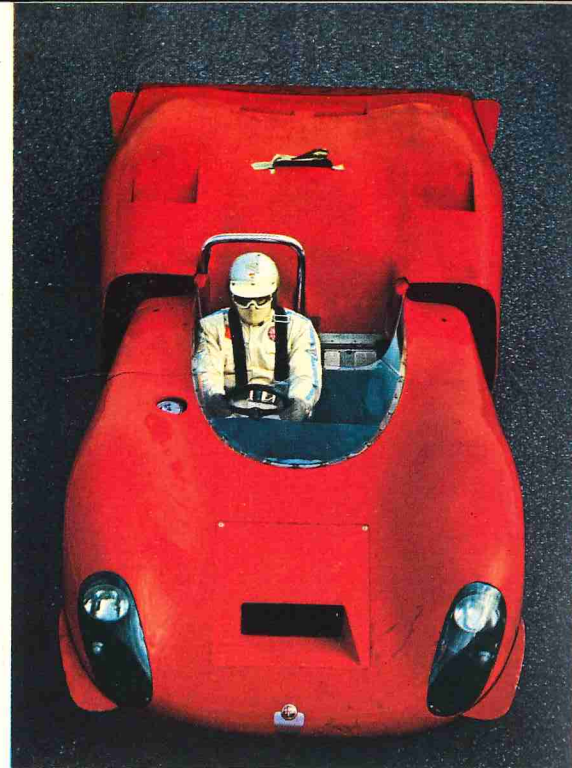
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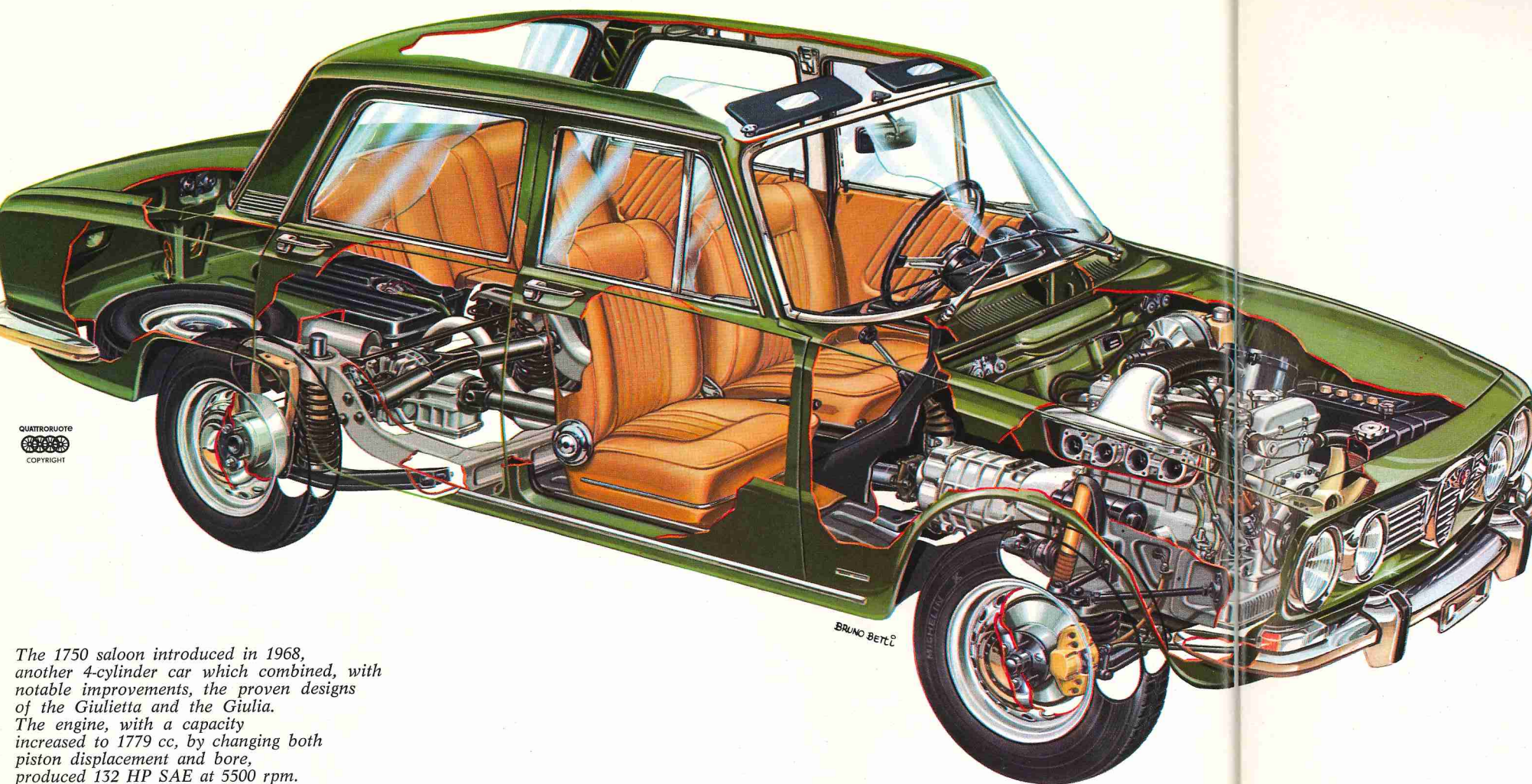


Sectional view and three aspects of the Alfa Romeo 33 TT 3 in the 2994 cc sport-prototype version of 1971-72. The most outstanding features are the tubular frame, the centrally placed engine and the driving seat positioned very far forward. The engine was an 8-cylinder V-type (86 mm x 64.4 mm) with an output of 440 HP at 9800 rpm.



Three more versions of the Alfa 33. The picture below shows the first (1967), with a coachwork distinguished by the periscope-type air intake. It had an 8-cylinder 1944 cc V-type engine producing 260 HP. This car also had a compact saloon version (picture right) with the typical butterfly doors. The picture above shows a 1969 model 33 with a 3000 cc engine having four valves per cylinder.





The 1750 saloon introduced in 1968, another 4-cylinder car which combined, with notable improvements, the proven designs of the Giulietta and the Giulia. The engine, with a capacity increased to 1779 cc, by changing both piston displacement and bore, produced 132 HP SAE at 5500 rpm.

which has its own headquarters, carries out special work on behalf of the most exacting racing clients and also runs its own racing team.

Sports activities were undertaken with the Giulia GTA 1600 and 1300 fitted with special double ignition heads, and with the Giulia GTAm from which the series 2000 petrol injection cars were derived. A power unit of completely original design was devised for the Sports Prototype competitions, in which Autodelta took part with varying success — the most brilliant being an all out victory in the 1971 Targa Florio — with the 33 model. This power unit in a standard version suited to series production was then fitted to the Montreal with coachwork by Bertone as a « dream car », specially for the Montreal Universal Exhibition.

A new development, connected with the industrialisation policy for Southern Italy, was decided on in 1967 with the establishment of Alfasud, an undertaking with its own company name and its own works at Pomigliano d'Arco, near Naples.

Alfa Romeo also has its own aircraft works at Pomigliano d'Arco where it builds under licence and services jet engines. This continues the Company's traditional role in the aircraft industry which reached its heights with the production of the Jupiter engines in 1925, under licence from the Bristol company, and in the series of Alfa Romeo inverted V 12 engines.

Alfa Romeo has associate companies for the sale of its products in various countries, and has interests in companies manufacturing and assembling its cars in Brazil, Ireland, Australia, Spain and South Africa.

ALFA ROMEO SERIES PRODUCTION CARS FROM 1910						
YEAR	MODEL	CYLINDERS	CUBIC CAPACITY	MAX POTENTIAL HP	MAX SPEED km/h	CARS PRODUCED
1910-11	24 HP	4	4084	42	100	100
1910-11	12 HP	4	2413	22	90	50
1912-13	15 HP	4	2413	45	105	200
1913-15	40-60 HP	4	6082	from 25 to 70	from 95 to 120	125
1914-20	20-30 HP	4	4084	49	115	380
1914-20	15-20 HP	4	2413	28	100	180
1921-22	20-30 ES	4	4250	67	130	124
1921-22	G 1	4	6330	70	120	52
1922-27	RL normale	6	2916	56	110	1702
1922-27	RL Sport and S. Sport	6	2994	from 61 to 83	from 115 to 130	919
1924-25	RM normale	4	1944	40	95	131
1924-26	RM Sport and Unificato	4	1996	from 44 to 48	100	407
1927-30	6C 1500	6	1487	from 44 to 76	from 105 to 140	1058
1929-33	6C 1750	6	1752	from 46 to 85	from 110 to 145	2579
1931-34	8C 2300	8	2336	138 ÷ 144	from 165 to 170	188
1933	6C 1900	6	1917	68	130	197
1934-39	6C 2300	6	2309	from 68 to 95	from 120 to 145	1606
1937-39	8C 2900	8	2905	180	from 175 to 185	30
1939	6C 2500	6	2443	from 87 to 110	from 135 to 170	2717
1950-55	1900	4	1884	90	150	21 089
1956-59	1900 Super	4	1975	115	180	
1954-65	Giulietta	4	1290	from 53 to 90	from 140 to 180	178 000
1958-62	2000	4	1975	from 105 to 115	from 155 to 175	7000
1962	2600	6	2584	from 130 to 145	from 175 to 210	11 500
1962-73	Giulia	4	1570	from 92 to 112	from 165 to 190	282 331
1964-73	Giulia 1300	4	1290	from 78 to 89	from 155 to 175	353 911
1967-72	1750	4	1779	115	from 180 to 190	154 865



From top to bottom: the Montreal, an 8-cylinder V-type, described in 1968 at the Montreal Universal Exhibition, as « the car which best represents the aspirations of man on the theme of the car »; the 1750 saloon, which was relaunched in 1971 as the 2000 saloon with an engine capacity increased to 1962 cc; the 2000 GTV, a coupé version of the 2000, with an engine producing 150 HP (SAE) at 5500 rpm.



The new Alfetta car

The above reported historical outline reminds us of the nickname « Alfetta » which was spontaneously adopted by the sportsmen discussing the victories of the « 158 » and « 159 », the two ancient Alfa Romeo world-champion cars. This name was also given to the last-born of Alfa Romeo. It presents technical features basically shared by its famous ancestors too, such as the balanced load distribution and the De Dion rear axle, belonging to a technical tradition which has never been surpassed.

In fact, the Alfetta is characterized by a rational load distribution that achieves the best conditions of roadholding and comfort, with any weight on board. The gearbox and the clutch have been moved from the front of the car to the rear part, in order to increase the adherence of the driving wheels which transmit to the ground the high power of the engine, producing 140 HP (SAE) at 5500 rpm. This feature also permits to decrease the load on frontwheels, thus ensuring a smoother drive. The De Dion rear axle was adopted according to the principle, always respected by Alfa Romeo, that the best geometry of the rear wheels is the one which maintains them perpendicular to the ground both on a straight road and in a curve.

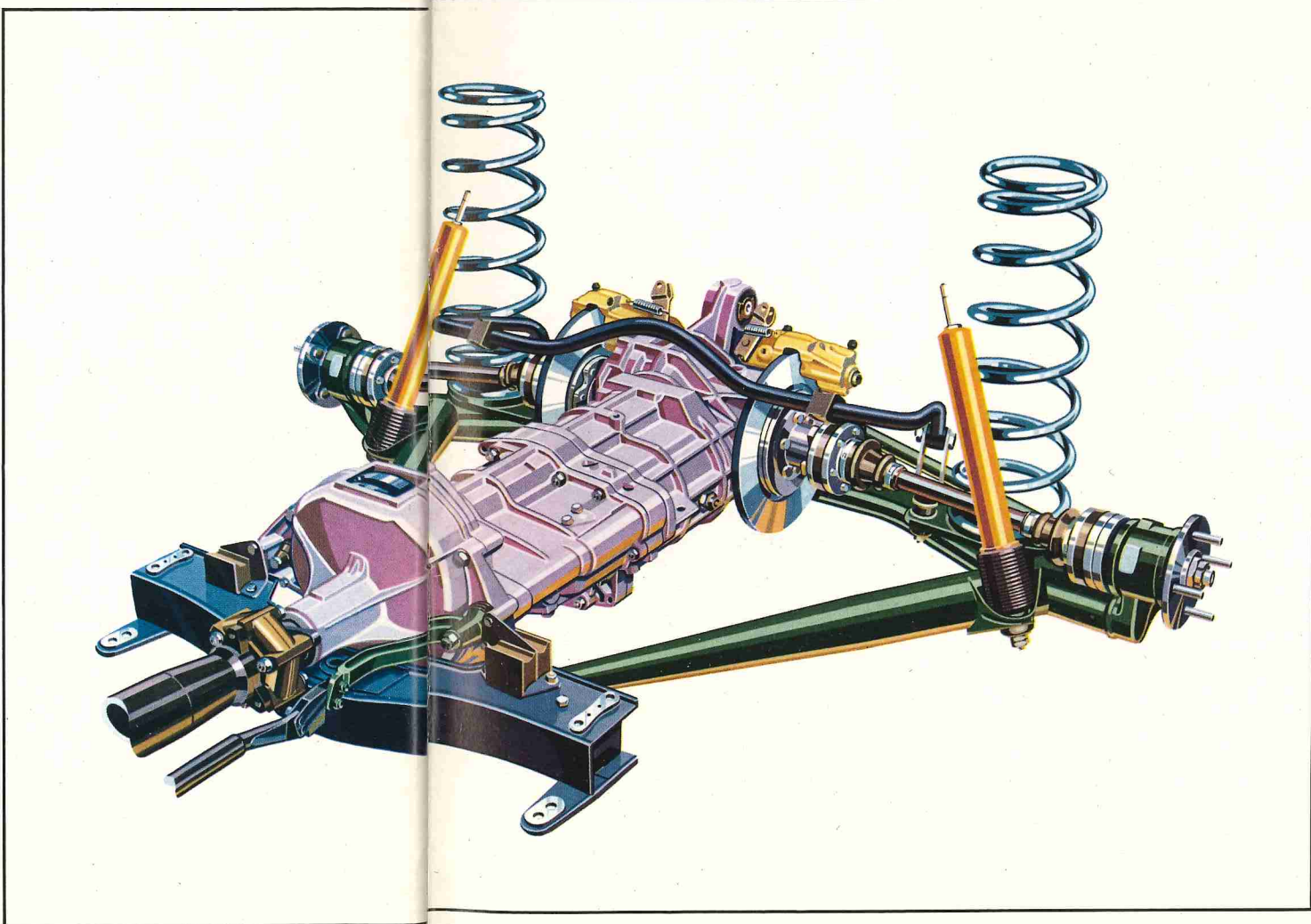
The improvement of technology first permitted to extend to industrial production a conception of the car which would be adopted in the past only on a small scale, with very high costs. In fact, such disposition of the mechanical parts has been introduced only in a few cars of prestige.



Top: the name and the most original features of the new Alfetta derive from the famous 159 model; left: a test of the Alfetta, car on the Balocco track, which reproduces all possible road conditions.



The De Dion axle: the clutch-gear-differential group, and even brakes, hang from the frame, therefore reducing the load on wheels.



Alfasud

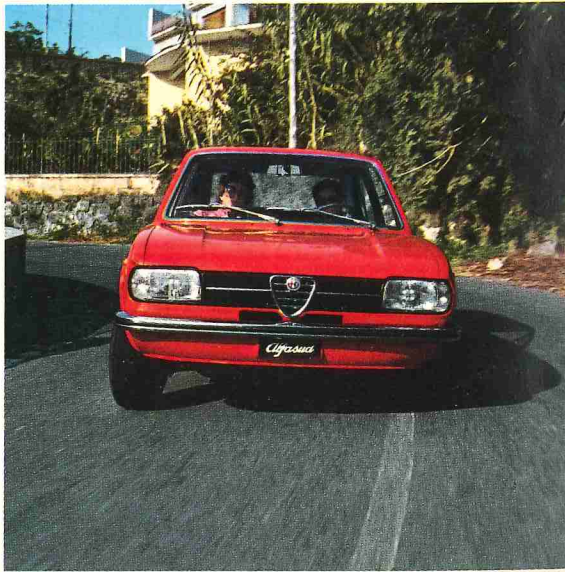
A name covering both the Alfa Romeo plant in Southern Italy and the first car built there.

With the establishment of Alfasud, an undertaking with its own company name and its own works, Alfa Romeo initiated in 1967 a new development for the industrialisation of the Italian South. In taking this initiative, Alfa Romeo enjoyed particular advantages, not only on the strength of its tradition but also through the availability of land at Pomigliano d'Arco, near Naples, where there was an airfield which had fallen into disuse, and which formed part of the complex of aircraft works building under licence and maintaining jet engines.

The Alfasud works extends over an area of 2,500,000 square metres (400,000 covered) and consists of a central group of workshops with adjoining ancillary buildings and an administrative centre. Building began in August 1969. There are five main production shops: pressing and body assembly, painting, machining, car assembly, trimming. The plant also has an oval-shaped test track over a total of 7 km, including stretches with different types of paving. The complex is designed for a daily output of 1,000 vehicles. On that basis Alfasud will over a period offer employment to 15,000 people, around 12,000 of them manual workers. In October 1972 the company had a work force of around 10,200, over 80% of them from Southern Italy, and this percentage is to be increased further.

Starting up of the Pomigliano d'Arco works has not only created new jobs in the South; it

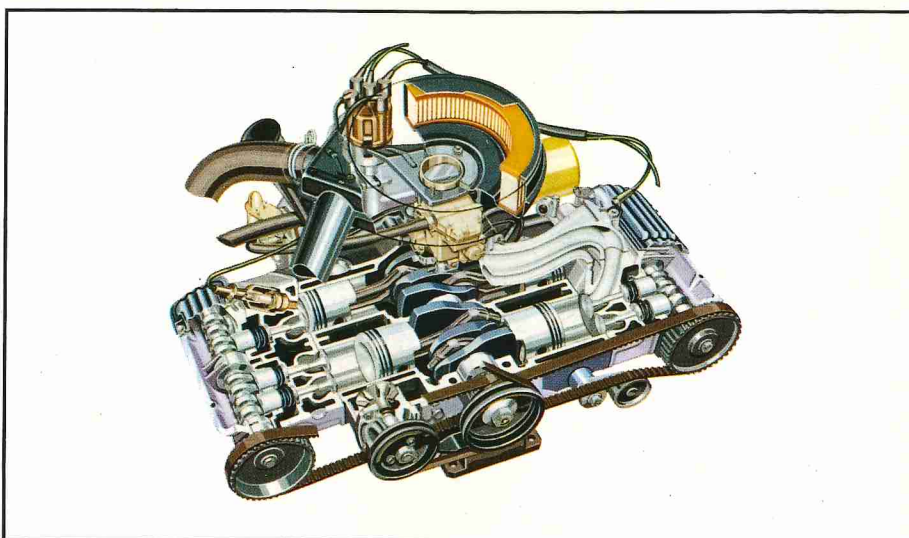
Front part of the Alfasud car: sporting characteristics and elegance melt into its harmonious line.



has also stopped the Alfa Romeo plant at Arese from turning into an unwieldy giant and has put a limit on its growth.

While the works in Southern Italy was being got ready, a team of designers completely independent of the Alfa Romeo design department was at work in Milan on behalf of Alfasud. This team was headed by the engineer Hruska, who subsequently became managing director of Alfasud. The result of these studies was the Alfasud car, introduced at the Turin Salon in 1971; deliveries began in the spring of 1972. The Alfasud is a compact front wheel-drive car with a 4-cylinder boxer engine of 1186 cc positioned rather far forward, and lengthwise along the axis of the vehicle. This has made for a good load distribution and excellent road-holding, and has made it easy to use any type of gearbox; the engine produces 63 HP and maximum speed exceeds 150 km/h. The bodyshape is a fast-back, i.e. a saloon with truncated rear section of highly aerodynamic lines, a product of the stylist Giorgio Giugiaro of Ital-Design.

Other interesting features of the Alfasud include inboard front wheel disc brakes to lighten the unsprung weight at the front of the car, a dual line braking system for the front wheels and self-adjusting tappets: the camshaft is overhead and has two cams for each valve. The valves are controlled by caps which can be adjusted, inserting a hexagonal spanner into special holes in the camshaft itself.

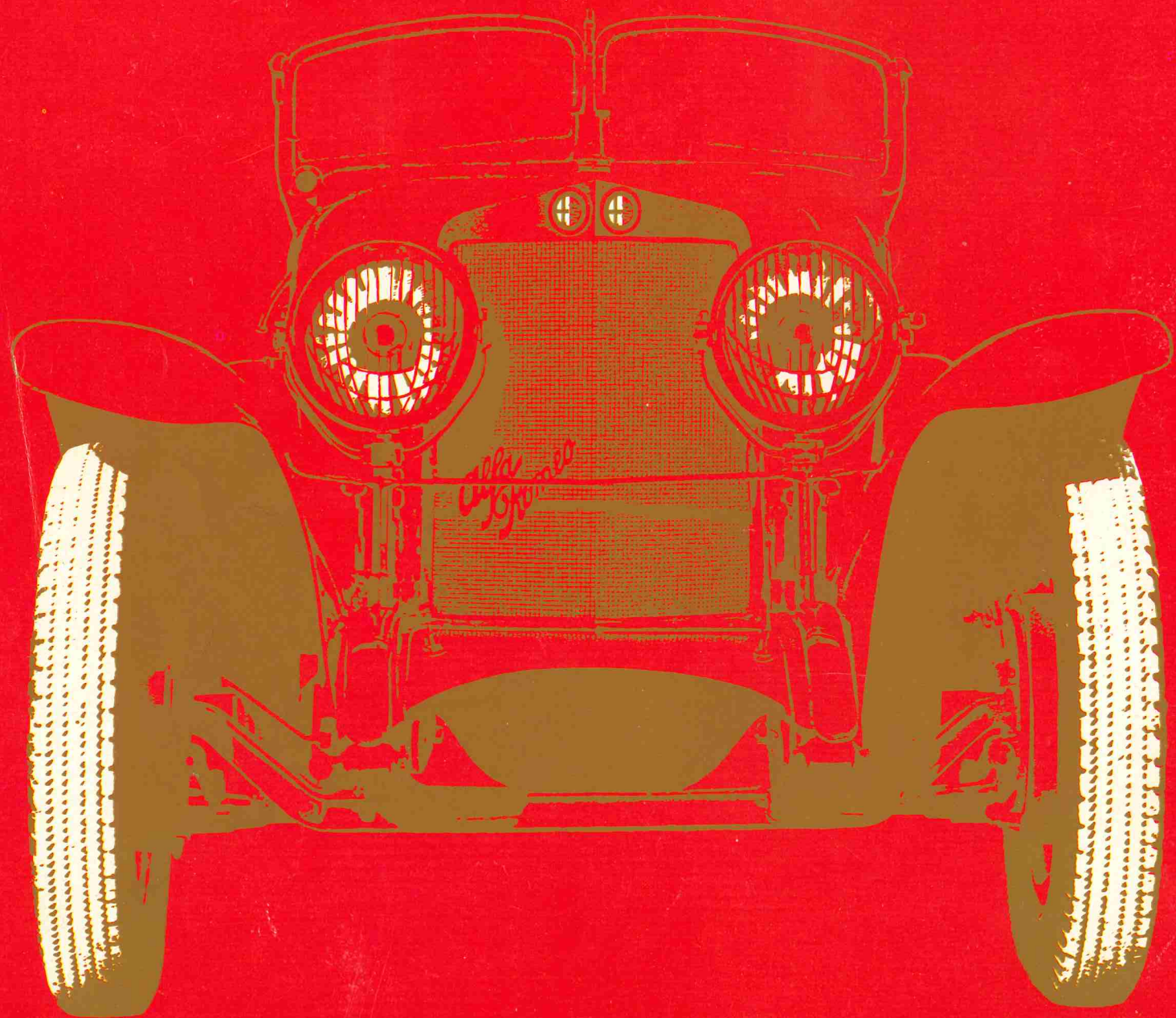


*Top: Alfasud, the first car produced in the Pomigliano d'Arco plant.
Above: a section of the Alfasud 4-cylinder boxer engine.*

Bottom: two views of the new Alfasud ti, where the sporting characteristics of the saloon model have been emphasized. 2 doors, 79 HP (SAE) at 6000 rpm, 5 gears.



MUSEO STORICO ALFA ROMEO



MORRIE'S IMPORTS
/ 12520 WAYZATA BLVD.
MINNETONKA, MINN. 55345
(612) 544-0376