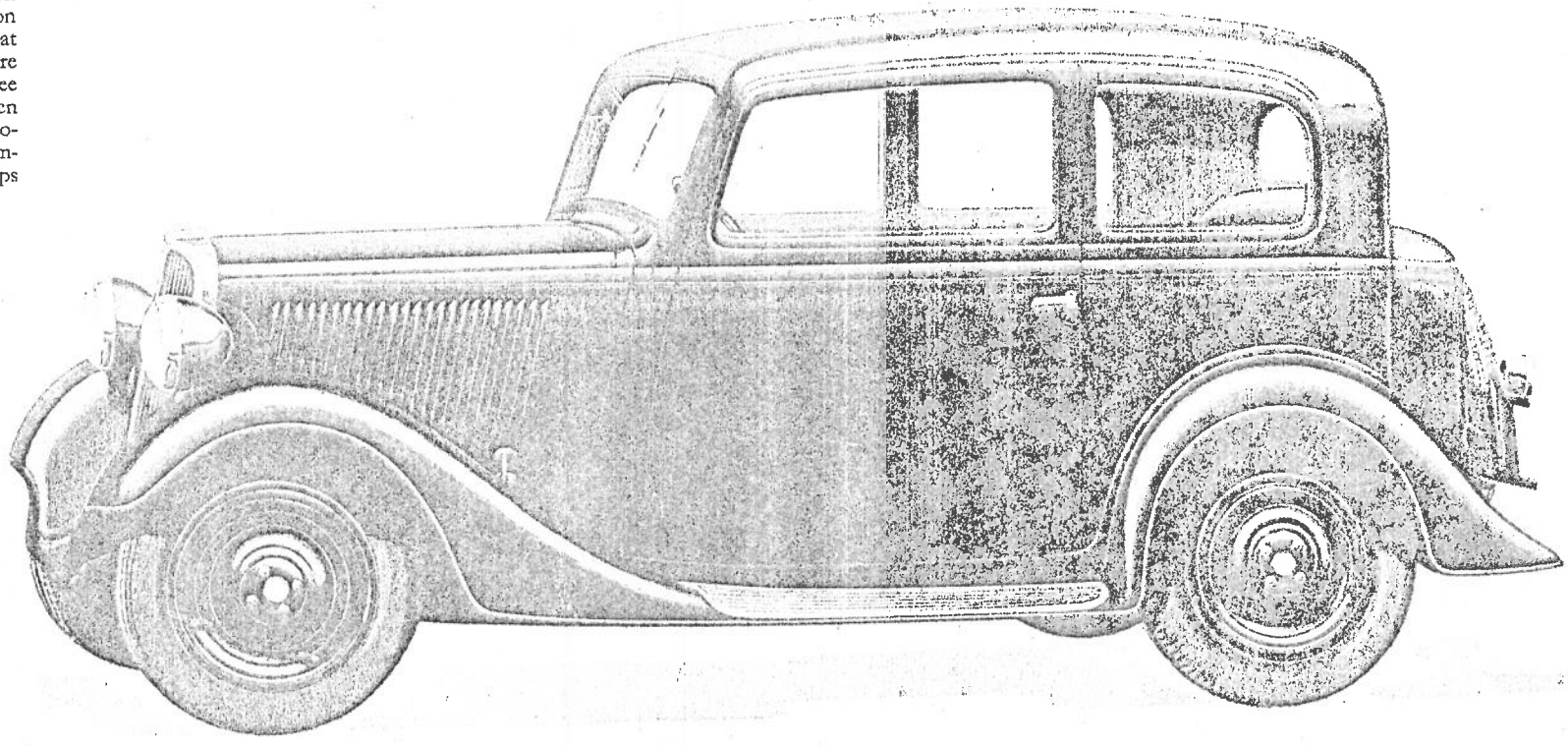
FIAT

508

At an extra charge, de luxe finish: special quality cloth, chromium plated bumpers, hub caps to the wheels, clock, chromium plated headlamps, interior adjustable sun visor. Upon request, the following extras are supplied: „metal spare wheel casings, ashtray, special tool kit, inspection lamp, parking lights on wings, second spare wheel at rear, leather upholstery, wire or stamped spoke wheels, free wheel, double arm screen wiper. For the standard model, chromium plated bumpers, headlamps, and hub caps can be supplied as extras.

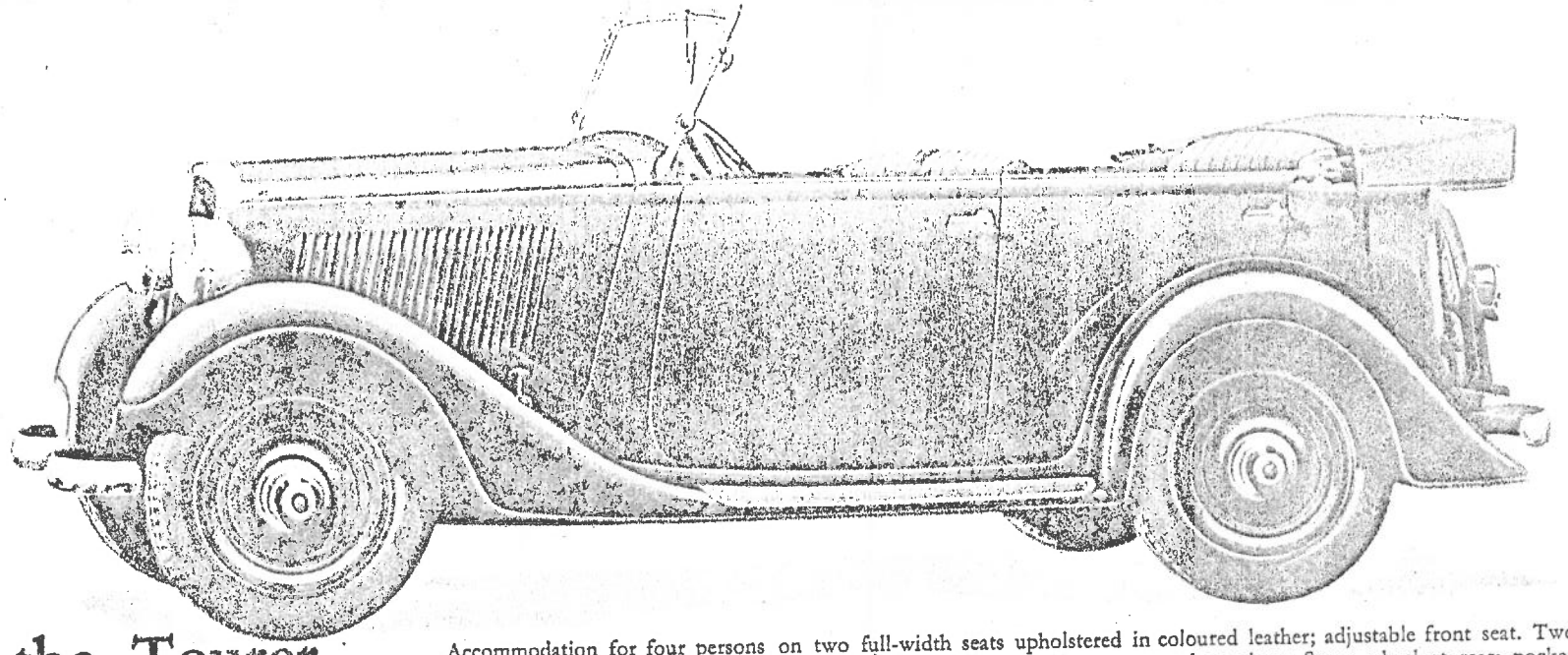


the 2-door Saloon

Accommodation for four persons, two in front on comfortable sliding bucket seats with tilting backs. Two lights each side, wide doors. Safety glass windows; those in the doors of the wind-up type; those in front opening on quadrant bars. Cloth upholstery, rubber floor mat, roller blind to rear light, electric screen wiper, driving mirror, central ceiling lamp, trunk at rear built-in to body, spare wheel at rear.

all "508„ cars have four speeds with silent

third and synchro-mesh gears - all-metal bodies

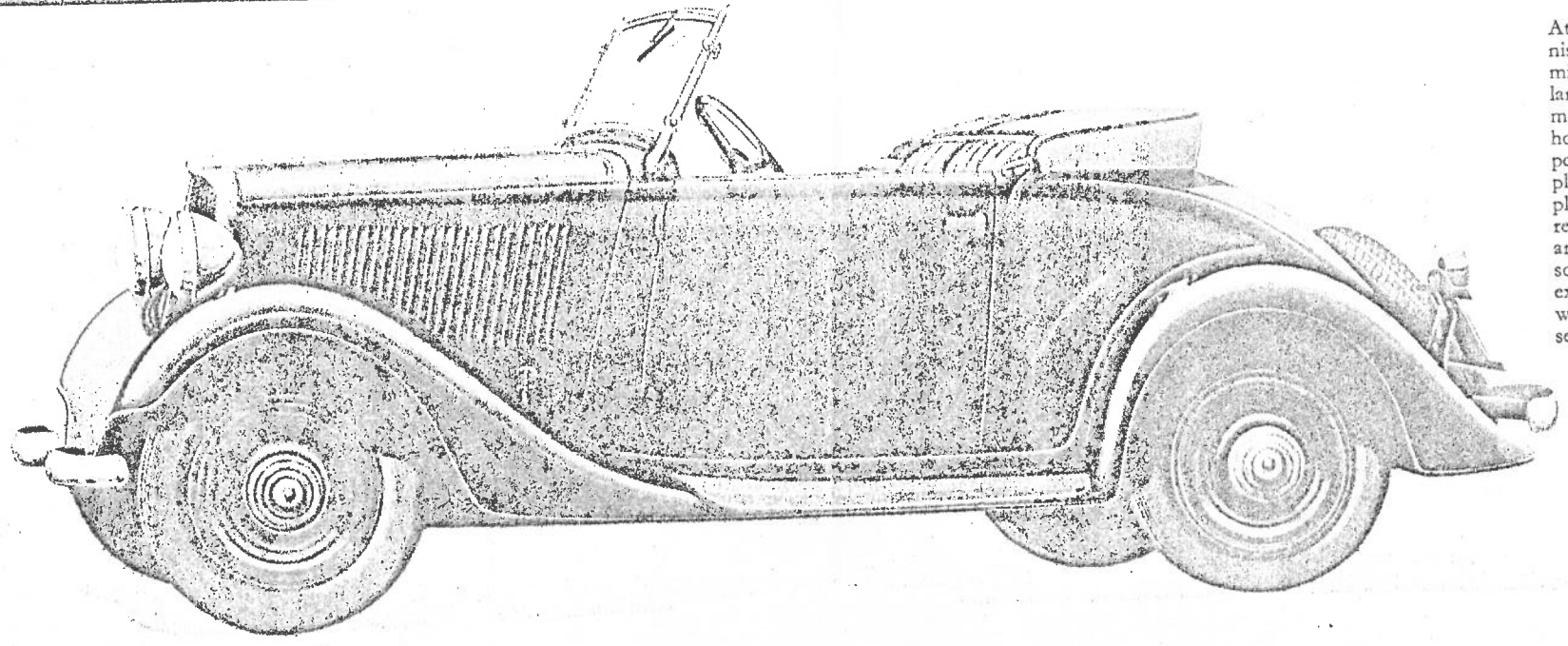


Upon request the following extras are supplied: painted wire or stamped spoke wheels, parking lights on front wings, inspection lamp, second spare wheel at rear, metal spare wheel casings; double arm screen wiper, special tool kit, free wheel.

the Tourer

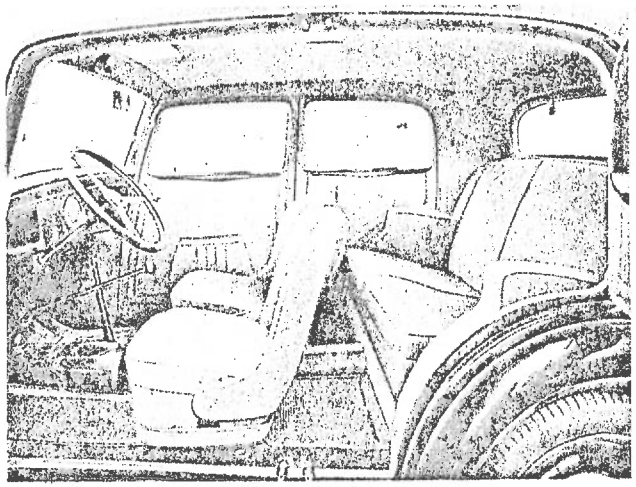
with de luxe finish

Accommodation for four persons on two full-width seats upholstered in coloured leather; adjustable front seat. Two doors each side, full opening. Fabric hood with wood and chromium plated metal hoops, side screens and envelope. Spare wheel at rear; pockets to front doors; cabinet work sheathed in leather; disc wheels with hub caps; windscreen (safety glass) with electric wiper and double jointed chromium plated pillars; driving mirror; clock, « stop » lamp; headlamps, bumpers and radiator shield chromium plated, trunk at rear built-in to body.

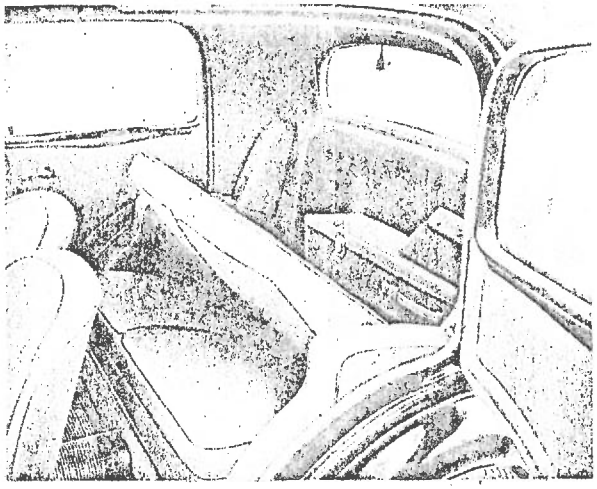


At an extra charge, de luxe finish: double-jointed chromium plated windscreen pillars; clock; wood and chromium plated metal hood hoops; chromium plated bumpers front and rear; chromium plated hub caps, chromium plated headlamps, etc. Upon request the following extras are supplied: the same accessories as listed for the Saloon, except the leather upholstery, which is standard in the Two-seater, and the ashtray.

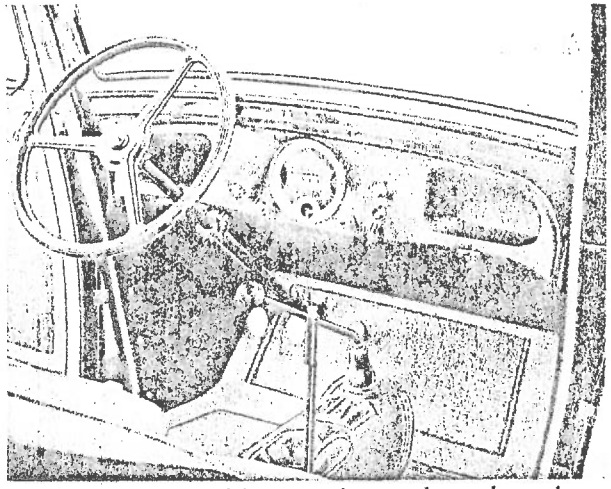
Accommodation for two on single seat, upholstered in coloured leather, rubber floor mat. Adjustable (safety glass) windscreen with electric wiper



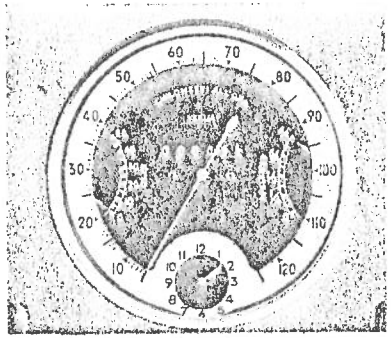
The 4-door « 508 » Saloon HAS NO CENTRAL PILLARS; on both sides the doors open fully and independently of each other; entrance and exit are easy; opening and closing are easy and positive.



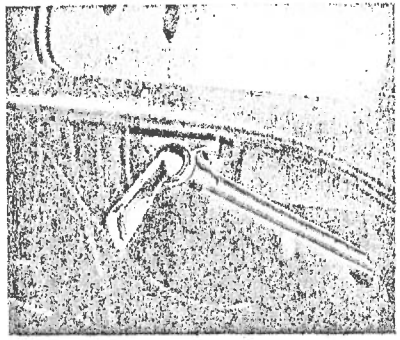
THE TRUNK IS OPENED AND IS USED FROM INSIDE THE CAR, in an easy and commodious manner, by pulling down the back squab. The trunk is lined and is perfectly water and dust tight.



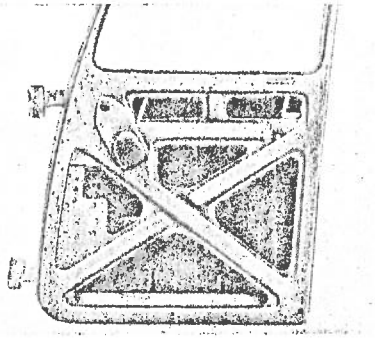
The FACIA BOARD of the « 508 » is up-to-date and complete: all the instruments and controls are easily consulted and used, even when travelling fast.



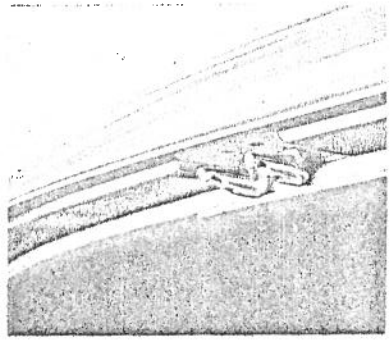
All the instruments are on a single dial which groups together the speedometer, trip recorder, petrol gauge, oil pressure gauge and, when fitted, the clock.



The petrol tap is worked from the driver's seat, with a three-way lever: open, closed, reserve.



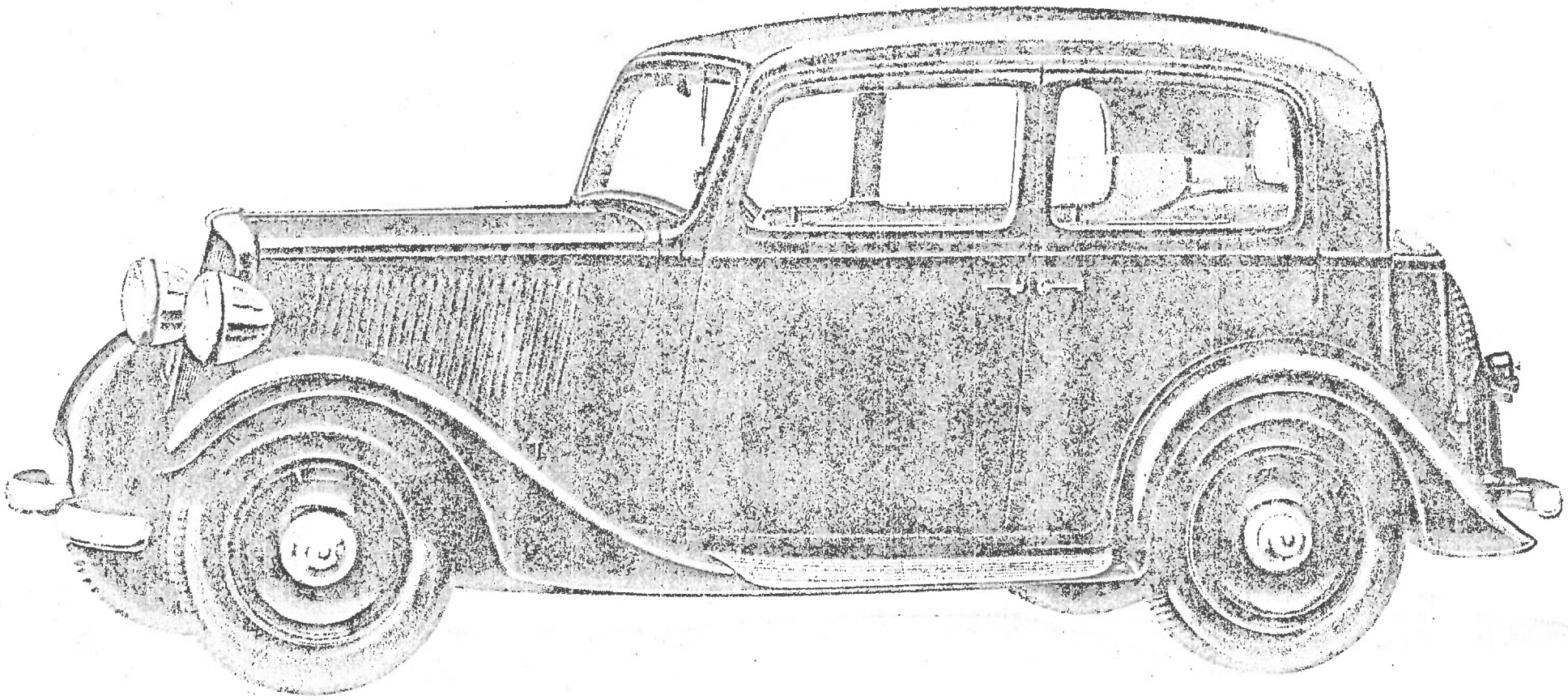
The strong all-metal door frames and the increased zone of support of the hinges guarantee constant perfect closing.



The door catches, flexibly mounted, are situated in the edge of the roof, in such a way as to avoid any dangerous projection.

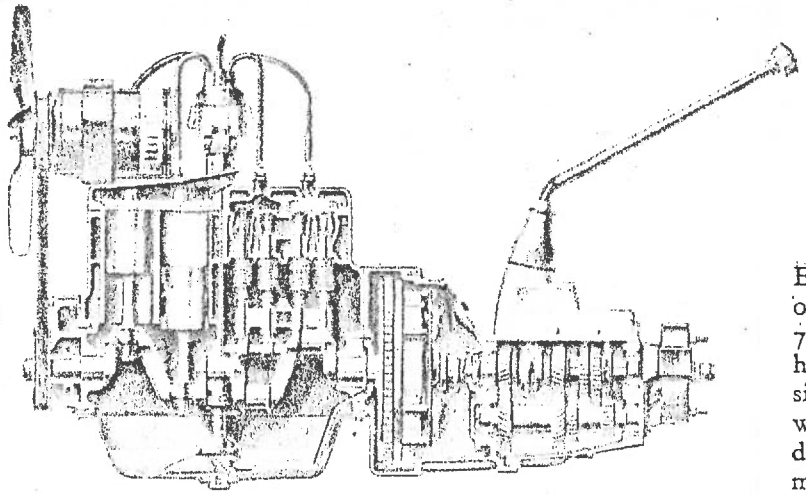
ALL 508 MODELS ARE EQUIPPED WITH « SECURIT » SAFETY GLASS

the 4 door Saloon



Four seats: the two front ones separate bucket seats with tilting backs. Two doors each side without centre pillars. Two lights each side with large wind-up safety glasses. Safety glass windscreen opening on quadrant bars, with electric wiper and driving mirror. Upholstery in fine quality cloth; curtain to rear light: adjustable inside sun visor; ceiling lamp, clock. Front and rear bumpers; hub caps to the disc wheels; door handles and headlamps chromium plated. Sheet steel trunk integral with body. Radiator with chromium plated shell and inclined painted protecting grid; number plate, tail lamp and « stop » signal.

Upon request, at a supplementary price: leather upholstery; wire or stamped spoke wheels; parking lights on the wings; inspection lamp; second spare wheel and chromium plated metal cover for each spare wheel, carried at rear; ashtray; double arm screen wiper; special tool kit; free wheel.



The chassis of the «508»

ENGINE: 4 cylinders, clutch and gearbox in one unit. Cylinder block in one piece with upper base chamber of special cast iron. Bore 65 mm., stroke 75 mm., piston displacement 995 cc. Actual B. H. P. 23. Detachable cylinder head with high turbulence combustion chambers. Inclined side valves with silent chain driven gear. Three bearing crankshaft. Coil and battery ignition with automatic spark advance. Forced lubrication with gear pump. Down draught carburetter with economiser and starter. Air and petrol filters. Thermosyphon water cooling. Gravity petrol feed from dash tank containing 31.5 liters (7 gallons), of which 4 liters (nearly 1 gallon) in reserve.

TRANSMISSION. Single plate dry clutch, mounted on flexible hub. Four speed and reverse gearbox with silent third and synchro-mesh third and fourth gears for quiet engagement. Free wheel optional at extra charge. Tubular transmission shaft with two flexible joints, on at each end. Rear axle casing of electrically welded pressed steel, silent final drive bevels and bevel differential.

FRAME stiffened by cross bracing. Semi-elliptic springs with hydraulic shock absorbers. Low pressure 4.00-17 tyres. Hydraulic brakes on all four wheels, actuated by pedal. Emergency transmission brake, actuated by hand lever. Worm and worm wheel steering gear, with worm mounted on roller bearings. Front axle with adjustable track rod. Wheel base 2.30 meters (7′ 6½″). Rear wheel track 1.20 meters (3′ 10.¾″).

ELECTRICAL EQUIPMENT, 12 Volts. Starting motor with free-wheel pinion operated by hand from the dash. Dynamo fitted with arrangement for increasing the charge when the headlamps are alight. Electric horn with button on steering wheel. Three-light headlamps and regulation tail lamp. Electric screen wiper. Instrument panel lighted from behind. The instrument panel carries the ignition switch, headlight switch, with a tell-tale lamp for the battery charging in the handle, the two knobs for the main switch and the carburetter starter, the knob for the hand control of the accelerator and the panel lighting button. Where the free-wheel is fitted, the control is also on the facia board.

The descriptions and illustrations in this publication are to be taken as merely informative and not binding: FIAT therefore reserve the right, the essential features of the models herein described and illustrated remaining unaltered, to make to their cars, at any time and without giving public notice of same, those alterations to parts, details and accessories which they may consider necessary or advisable for the improvement of the car, or for any other reason of a commercial or manufacturing nature.

GROS MONTI & Co - TORINO

FIAT publicity Dept. - April 1917 - English edition.

BESCHRIJVING EN ONDERHOUD

VAN DE

FIAT 508 Balilla

FIAT IMPORT COMPANY

De snelheidsmeter-kilometerteller en de gasknop bevinden zich links van de verlichtingsschakelaar.

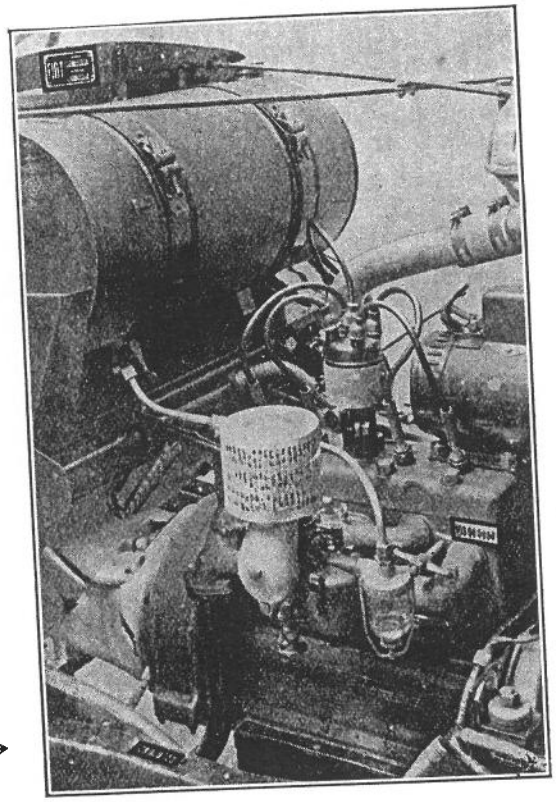


Fig. 9. Plaatsing van motor en chassisnummer.

Het chassisnummer (B) is ingeslagen op de rechter chassisbalk, het motornummer (C) in de rechterzijde van het carter, terwijl de constructie-plaat (A), welke beide bovengenoemde nummers aangeeft op de achterzijde instrumentenbord is aangebracht.

De olie-manometer en de starterknop van den carburator bevinden zich op het instrumentenbord, rechts van den schakelaar.

Is de wagen uitgerust met vrijwiel, dan bevindt zich de knop, waarmede het vrijwiel kan worden in- en uitgeschakeld, rechts van het instrumentenbord.

28. — **Contactpunten verdeelkop :** Schoonmaken en afstand der contactpunten contrôleeren. (Zie bladz. 49).

29. — **Collector van dynamo :** Contrôleeren. (Zie blz. 49).

Afstellen.

30. — **Speling tuschen klepstooters en klepstelen.** (Zie bladz. 46).

31. — **Spanning van de drijfriem van de dynamo.** (Zie bladz. 46).

32. — **Vrije slag van het ontkoppelingspedaal.** (Zie bladz. 45).

33. — **Vrije slag van het rempedaal.** (Zie bladz. 44).

34. — **Hydraulische remmen.** (Zie bladz. 41).

35. — **Handrem.** (Zie bladz. 44).

Iedere 10.000 km.

Smering.

36. — **Versnellingsbak :** Olie ververschen.

37. — **Achterbrug :** Olie ververschen.

38. — **Achterbrug :** Kogellagers aan de uiteinden van de as vullen met *Shell Joint Grease* of *Fiat vet GF.*

SMERING.

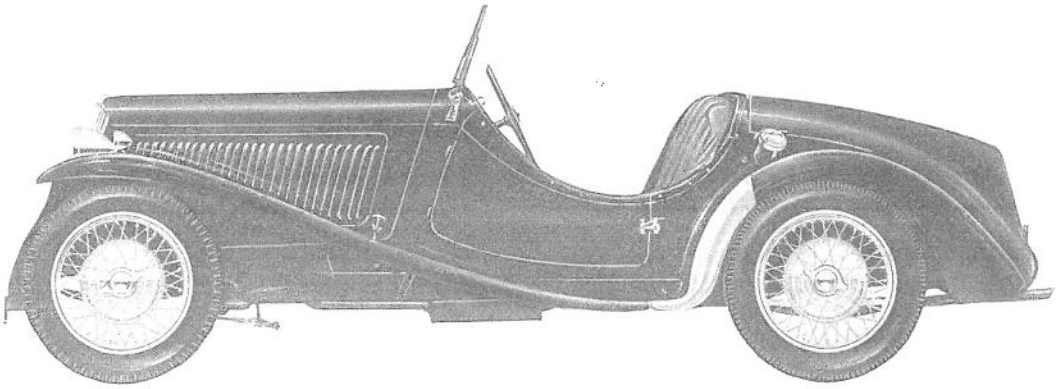
Smering van den motor.

Op den duur wordt de olie verontreinigd door uiterst kleine metaaldeeltjes en verdund door droppeltjes niet vervluchtigde benzine, welke tusschen cylinder- en zuigerwanden ontsnappen, zoodat het noodzakelijk is, van tijd tot tijd, de olie te ververschen.

Wanneer de wagen nieuw is, moet de eerste ververscching na de eerste 500 km., de tweede na circa 1000 km. en de volgende na 2000 km. geschieden.

Somtijds, bij veelvuldig aanslaan van den motor in het koude jaargetijde, kan het voorkomen, dat de hoeveelheid benzine, welke in het carter doordringt, zoo groot is, dat het olieverlies wordt opgeheven en de oliestand dus schijnbaar onveranderd blijft, zelfs na 200 à 300 km. Aangezien dit aanleiding kan geven tot abnormale slijtage van cylinders en lagers — de verdunde olie n.l. verliest zoo goed als geheel haar smerende

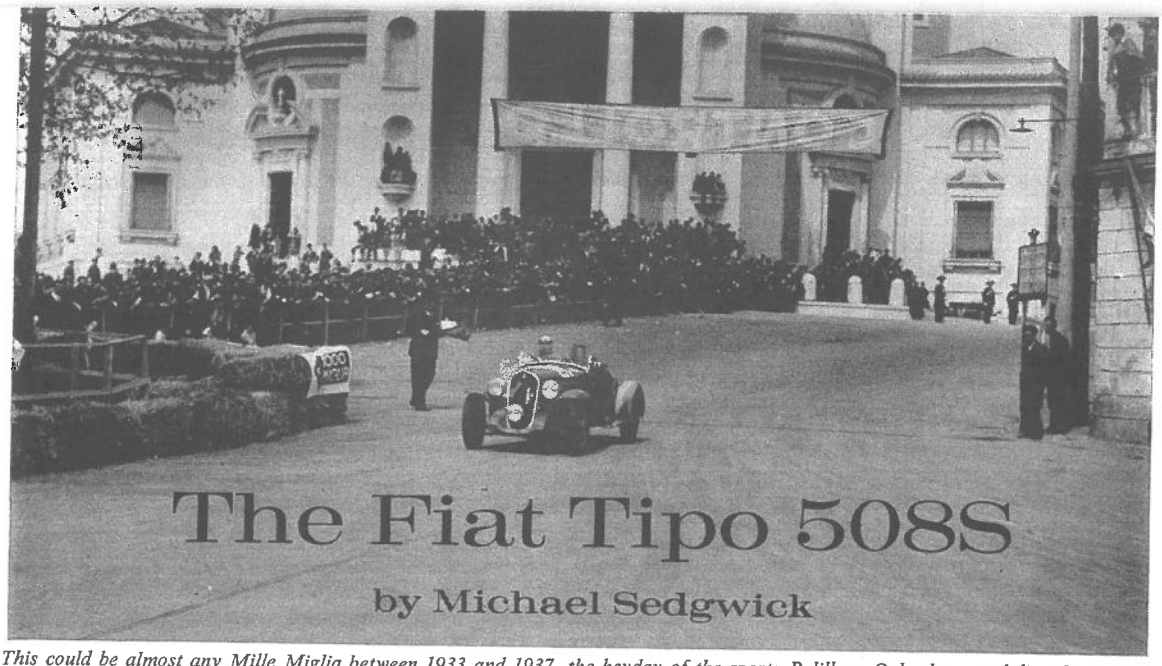
The Fiat Tipo 508S



NUMBER 23

TWO SHILLINGS

PROFILE PUBLICATIONS



The Fiat Tipo 508S

by Michael Sedgwick

This could be almost any Mille Miglia between 1933 and 1937, the heyday of the sports Balillas. Only the crowd-discipline of the Mussolini era is apparent from this shot taken in the Rome control. (Photo: Wide World Photos)

The FIAT Balilla was launched in the Spring of 1932—hardly an auspicious time for a new model. FIAT, it is true, had the dual advantages over their rivals of a firm foothold in other realms of transport, and a virtual monopoly of the Italian family-car market; but equally as makers of 90 per cent of Italy's private cars they could not afford a bad mistake. Nor was Italy the healthiest of home markets: in 1929, only 172,000 cars overall had been in use, and a high rate of production depended upon substantial exports. Their last light car, the 1·4-litre Tipo 514, had been somewhat of a lemon; uninspired in appearance and performance alike, it was too big and thirsty for the lean years, while an attempt to save the day with an 'austerity' version, Tipo 515, had been rewarded by derisory sales. The 995 c.c. Balilla was to prove a worthier successor to the 509 of similar capacity made between 1925 and 1929.

The period phrase 'Family Ten' conjures up visions of side-valve engines with two-bearing crankshafts of dubious strength, mated to wide-ratio three-speed gearboxes. In the chassis department one might expect conventional semi-elliptic springs, and cable-operated brakes that were unpredictable in a forward direction, and only too predictable in reverse. The influence of Detroit was reflected in ribbon-type radiator shells, wire wheels painted to match the body colour, and instruments arranged in the interests of symmetry rather than legibility. The fashionable chromium-plated hub caps were best removed with the aid of a blunt kitchen knife. On the credit side, it should be remembered that many of these soulless vehicles had their lives forcibly prolonged by the second World War, during which they rendered yeoman service despite a lack of spares and service alike.

THE BALILLA

On looks alone, FIAT's 1932 offering differed little from its competitors, having inherited its Chrysler styling from the Tipo 514 and the companion 2½-litre Tipo 522; but its specification was advanced by comparison with other small saloons of the period, such as the 201C Peugeot from France, the 1·2-litre Opel from Germany, and such British contributions as Hillman's Minx, Standard's Little Nine, and Austin's Ten, all new for 1932, and all fighting hard for sales in a constricted market. Side valves were almost universal in this stratum of automobile design, and FIAT were not alone in adopting a three-bearing crankshaft, also used by Hillman, Austin, and Opel. Where they differed was in their espousal of nearly 'square' engine dimensions of 65 × 75 mm., all their rivals opting for piston strokes in excess of 85 mm. As yet this configuration's value in lowering piston speeds and thus prolonging engine life was not fully understood and FIAT's advertising made much of the point. Maximum power (a modest 22 b.h.p.) was developed at 3,400 r.p.m., and the little 508 had an excellent reputation for durability. Synchromesh on small cars was virtually unknown in 1932, and three forward speeds were as yet deemed adequate, only Austin offering a four-speed gearbox. However, the Balilla's 5·2:1 top gear was respectably high by the standards of the times, and this allied with the short-stroke power unit enabled the little car to hold 50–55 m.p.h. all day. The Peugeot, by contrast, had a top gear ratio of 6·25:1, in which respect it was by no means unique! The gravity feed from dash-mounted tank to Zenith carburettor was a trifle archaic—all the competing cars save the Peugeot had their tanks at the rear, and Hillman, Austin, and Opel made use of mechanical pumps—but it had the merit of simplicity and was to be retained by FIAT on their famous 'Topolino' until the late 1940s. 6-volt electrics were deemed sufficient for all save FIAT and Peugeot, and FIAT's pedal-operated starter, which first set the pinion in mesh with a toothed ring on the flywheel, and then switched on the current, was quiet in operation. The ignition distributor was



Trasformazione Ghia, *1932, or how an Italian specialist coach-builder anticipated the front-end treatment of the four-speed cars made from 1934 onwards. A resemblance to the style of contemporary coupé Alfa Romeos can be seen.*
(Photo: Montagu Motor Museum)

mounted on top of the engine, a location which made it flood-proof.

As for the chassis, FIAT were well ahead of all their rivals. True, they did not as yet, like Peugeot, aspire to independently-sprung front wheels, but their new car was equipped with hydraulic brakes of proven efficiency. The company had been using them since the end of 1930, when they were first applied to the 3·7-litre Tipo 525. These were supplemented by the traditional FIAT transmission handbrake, a device retained until the 1960s. It was strictly a sudden-death affair, and reserved for parking. By contrast, the other cars in our group had mechanical brakes, Standard and Hillman favouring the Bendix type. With a wheelbase of 7 ft. 4½ in., the Balilla was 1½ in. shorter than any of its rivals, while the taxi-like steering lock was reflected in a turning circle of 29 ft. 6 in. In other respects the chassis was conventional, with spiral bevel final drive. The fabric couplings on the propeller shaft had a relatively short life, but were quick and inexpensive to replace. A stop light was standard equipment, and FIATs, then as now, came equipped with a hand throttle. A free wheel mounted behind the gearbox was an optional extra, control being by a knob on the dashboard.

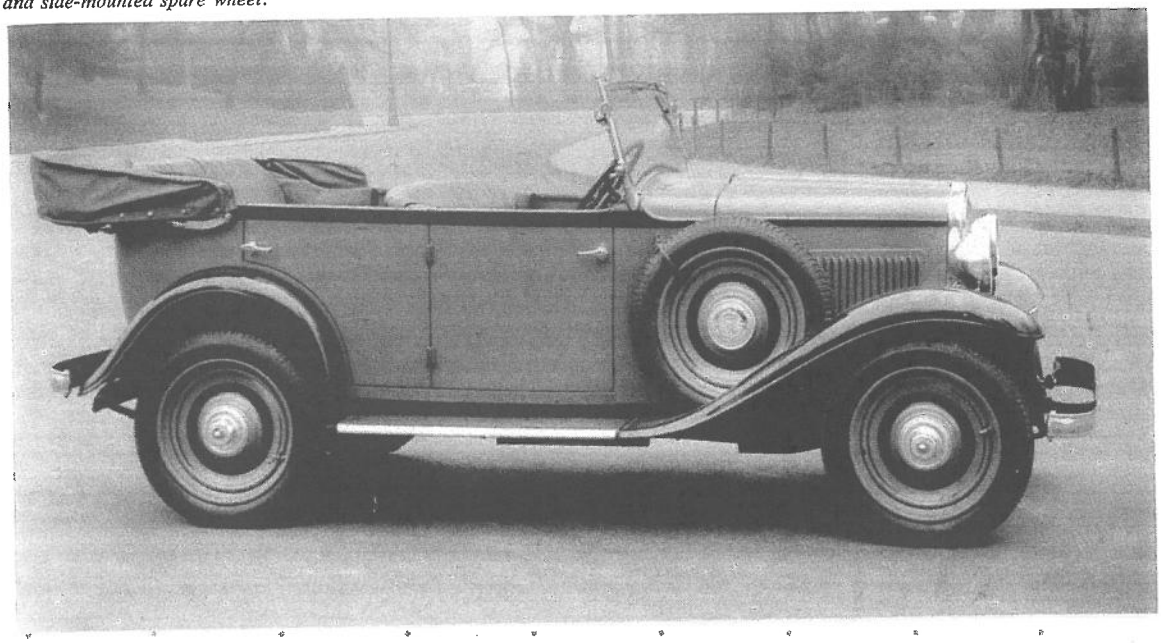
Maximum speed of early 508s as tested was 58 m.p.h., and fuel consumption at 35 m.p.g. represented a great improvement on the cumbersome 514. In less lean times it is possible that the FIAT at £198 might have furnished serious competition even in England for the Standard at £155 or the Hillman at £159. Unfortunately, the horse-power tax then in force favoured the long-stroke engine, and British buyers expected more car than Turin offered in an 'Eleven'.

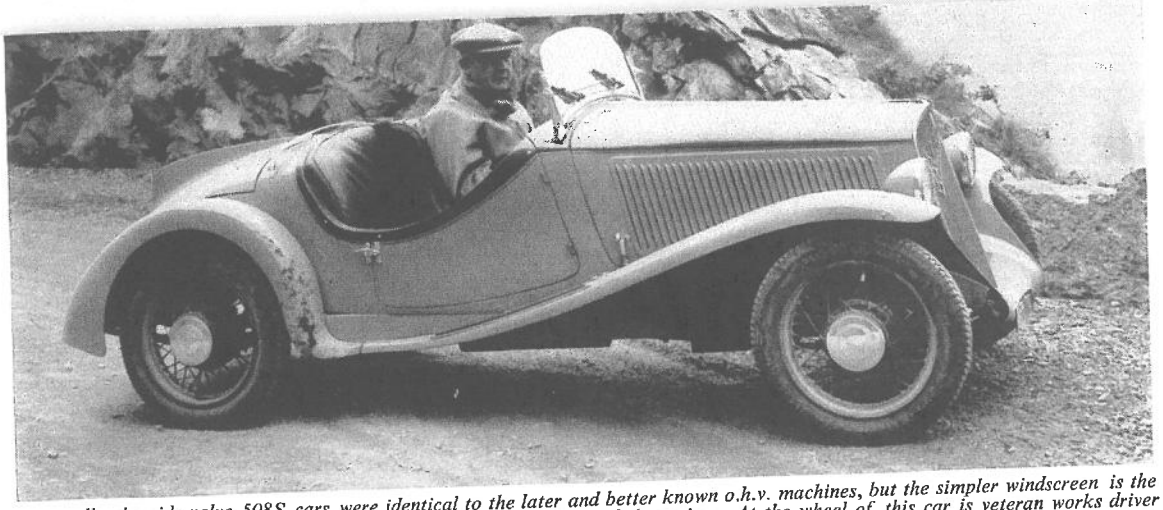
The name 'Balilla', incidentally, is best translated as 'plucky little one', and was derived from a Fascist youth movement corresponding roughly to the Boy Scouts. The correct designation of the 995 c.c. engine was 'Tipo 108', this being in accordance with FIAT's inter-War practice of assigning prefixes in the '500' series to chassis, and in the '100' series to power units.

THE 508S 'SPYDER SPORT'

Production did not get under way until July, 1932, but immediate success is reflected in the sale of 12,424 units in the first half-year. Four body styles were standardised—the basic two-door saloon, a roadster with dickey seat, a four-door open tourer, and a light delivery van. In January, 1933, the higher of the two available compression ratios (6·3:1) was standardised, while at the same time the range was augmented by the introduction of a 'Spyder Sport' model designated Tipo 508S. Chassis changes were relatively few: output was boosted to 30 b.h.p., the axle ratio was raised substantially to 4·3:1 in the interests of fast cruising, and fuel was fed by mechanical pump from a twelve-gallon tank at the rear. Friction-type shock absorbers replaced the 508's hydraulics. The bodywork, however, represented a complete breakaway from the American idiom, and owed a good deal to the Zagato-bodied Alfa Romeos of the period. Rakish lines were accentuated by long flared wings, and the circular dials on the fascia were

American influences are clearly visible in this 1933 three-speed 508 torpedo with its slightly-raked windscreen, belt moulding, and side-mounted spare wheel.
(Photo: FIAT (England) Ltd.)



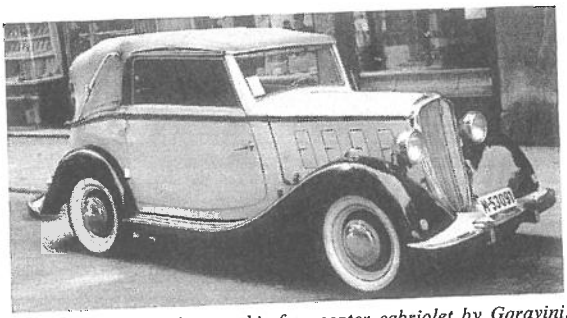


Externally the side-valve 508S cars were identical to the later and better known o.h.v. machines, but the simpler windscreen is the most obvious difference between the stock Italian body and the English versions. At the wheel of this car is veteran works driver Carlo Salamano. (Photo: FIAT (England) Ltd.)

laid out in a line, Alfa-fashion. A handsome raked radiator grille was doubtless inspired by some of the *trasformazioni* effected on this chassis by Italian specialist coachbuilders (see page 2). The high gearing gave these side-valve sporting versions a top speed in the region of 70 m.p.h.

A standard Balilla took eighth place in general classification in the 1933 Monte Carlo Rally, and that year's Mille Miglia was to see the *début* of two of the outstanding sports cars of the 1930s. One of these was, of course, M.G.'s K3 Magnette. Its principal opposition in the 1,100 c.c. class came from Maserati, but also in the lists were four sports Balillas. Not that these were exactly representative of the Spyder Sport as sold by the factory: Count 'Johnny' Lurani, who was driving for M.G. on this occasion, has described them as 'very non-standard indeed'. They had o.h.v. heads by SIATA, which firm also furnished the four-speed gearboxes. Even with this 'tweaking', however, output was still a modest 35–40 b.h.p. to the M.G.'s 100 plus, and they were running unblown. M.G. won their class deservedly, Eyston and Lurani on the leading car putting up an average of 56·89 m.p.h. By contrast, the fastest FIAT, driven by Ambrosini and Menchetti, turned in 54·67 m.p.h. over the thousand miles. The difference in speed would doubtless have been greater had the cars from Abingdon not been dogged by plug trouble, but the lesson was there to see. The catalogue price of a K3 was over £600, while the cost of a Balilla complete with all modifications could not have exceeded £350; photographs suggest that standard Spyder Sport bodies were used. In the touring category, FIAT's record was even more impressive, for these entries really were standard—apart from raised compressions and higher gearing—yet the class-winner averaged nearly 54 m.p.h. and was followed home by twelve similar machines 'at intervals of four minutes'.

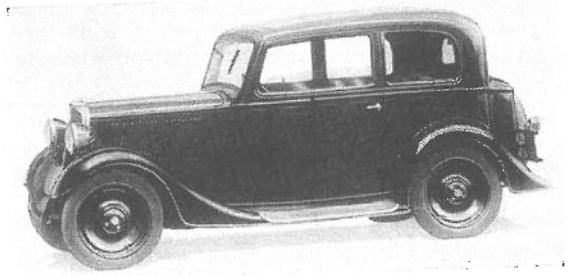
Otherwise the 508's competition record in 1933

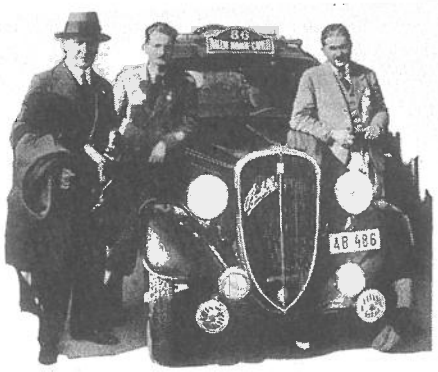


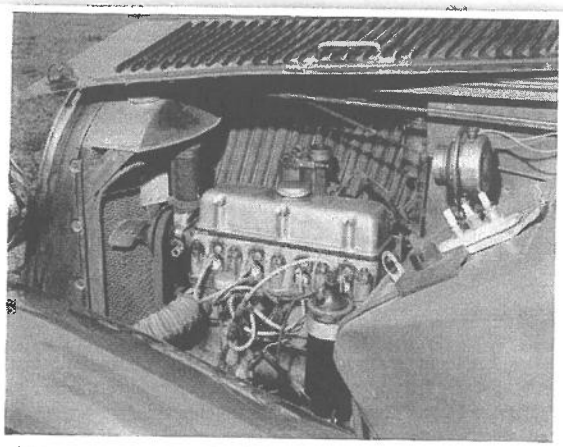
A semi-custom style was this four-seater cabriolet by Garavini, which cost £258 on the four-speed chassis in England in 1935. This one has acquired a later style of front bumper. (Photo: G. N. Georgano)

E. Kozma and I. Martinek with their Balilla which won the light-car class of the Monte Carlo Rally in 1936. The extra horns and lamps furnish a clue to their success in the Concours de Confort *with what was, after all, a fairly austere family saloon.* (Photo: *Autocar*)

Most of the four-speed saloons sold in England had four doors, but a two-door style using the same pressings was also made. A factory picture of the 1935 version. (Photo: FIAT (England) Ltd.)







There was plenty of room for the 995 c.c. o.h.v. engine under the bonnet of the 1935 508S, and everything is accessible, even if the mounting of the distributor was not quite flood-proof.
(Photo: Montagu Motor Museum)

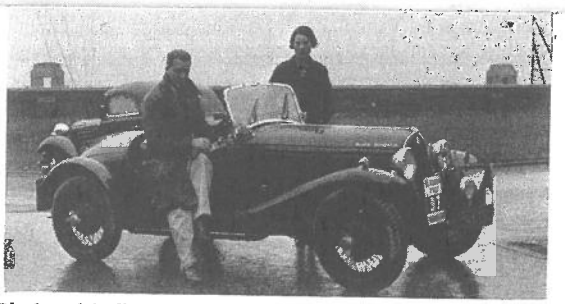


L.C.C. Relay Race, Brooklands, 1936. Best of the three FIAT teams entered this year was Miss D. Chaff's all-feminine équipe. *One of the cars is here seen at the pits.*
(Photo: William Boddy Collection)



Despite their high gearing, the Balillas did quite well in trials in England. Here Major C. J. S. Montague-Johnstone is seen on Darracott in an M.C.C. event. The registration number—London, mid-1935—indicates one of the first o.h.v. cars with r.h.d. to come to England. (Photo: W. J. Brunell)

was unspectacular. Prince Narischkine fielded a team of three cars in the International Alpine Trial, but these were trounced by the M.G. and Singer opposition, while in the 1,100 c.c. class of the Coppa Acerbo Cecchini on the fastest of the Balillas had to trail behind Whitney Straight's K3 Magnette and three Maseratis. The 508's day was yet to come.



Blackpool Rally, June, 1936. Stanley Tett with the o.h.v. 508S on which he won the event outright. (Photo: W. J. Brunell)

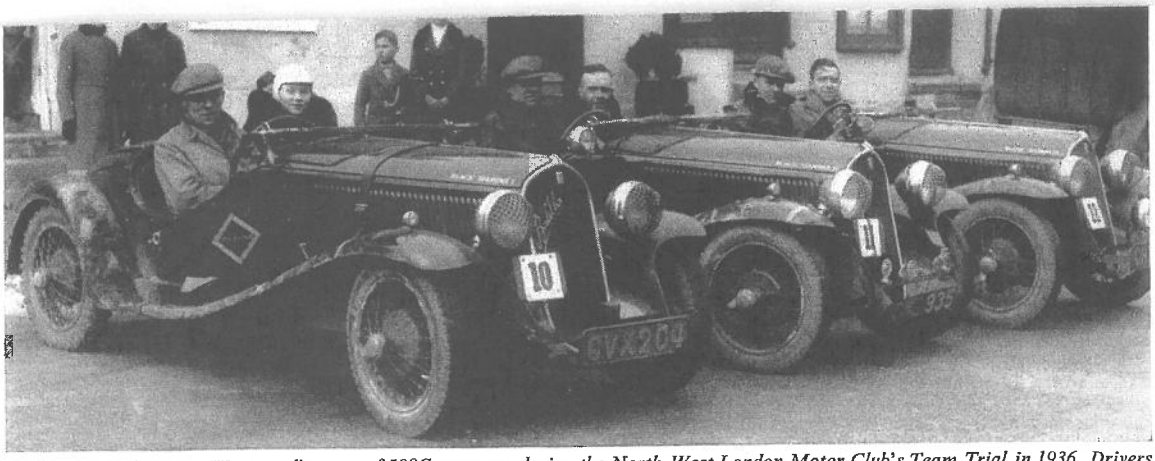
THE 1933–34 MODELS

At the 1933 London Show, the company exhibited a four-door pillarless saloon on the standard side-valve chassis. This type of body, used by FIAT until 1952, offered easy access to all four seats. The short-stroke principle was also extended to a brace of big fours (Tipo 518) powered by 1·7-litre (78×92 mm.) and 2-litre (82×92 mm.) engines. As yet the three-speed gearbox was still fitted to the Balilla, but by the time deliveries of the new saloon model were under way, the side-valve design had been finalised into a form that would prevail until the end of production in 1937.

At the Milan Show in 1934, a four-door saloon with four forward speeds had been displayed, and by June production was concentrated on the new type. This featured a sloping grille similar to the 518's, while a four-speed box, with synchromesh on the top two ratios, was now standardised. Top and third were fairly close, at 5·1 and 7·5 to 1, but there was the usual long gap between third and second. The wheelbase was lengthened by two inches, and the tourers as well as the saloons had integral luggage boots. Weight of the saloon went up to 15 cwt., but with a 6·6:1 compression ratio 24 b.h.p. was now available, and road test figures show no appreciable difference in performance. Wire wheels remained an option, and a single central dial was now used for the instruments. English prices were drastically reduced, the saloon costing £210 in 1935 as against £270 in 1934, but the high horsepower tax and prevailing antipathy to all things Italian conspired to keep the Balilla a rarity on this side of the Channel.

Elsewhere, however, sales were booming. The peak year was 1934, with 27,774 cars delivered, but this figure was nearly equalled in 1935 despite Italian preoccupation with the war in Abyssinia, and overall sales of all types between 1932 and 1937 exceeded 113,000. Cars were also built under licence in Germany by N.S.U. and in France by Simca. Apart from minor differences of styling, these French and German FIATs were identical to the Torinese article. Body styles listed in the last three seasons of manufacture were two- and four-door saloons, both with integral trunks, a tourer, a roadster, and a delivery van, though some pretty four-seater cabriolets were turned out on a semi-series basis by Garavini.

After the advent of the o.h.v. 508S in 1934, the basic Balilla took a back seat in competition, but in 1935 C. E. Stothert won his class in the Welsh Rally, and a far more important success was Kozma's eleventh place in the 1936 Monte Carlo Rally. He also won the light-car class and took second place in the appropriate section of the *Concours de Confort*.

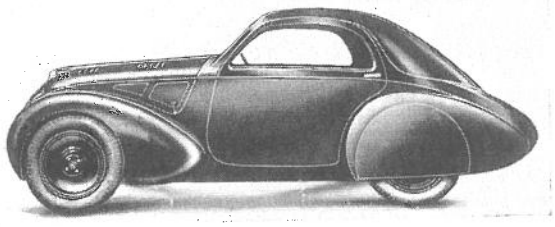


Black Diamonds. A. C. Westwood's team of 508S cars seen during the North-West London Motor Club's Team Trial in 1936. Drivers are (l. to r.) Westwood, R. M. Sanford and S. G. E. Tett, and the FIATs still wear the standard flared wings.
(Photo: A. C. Westwood)

(One wonders what he did to the FIAT's usually rather austere interior appointments!)

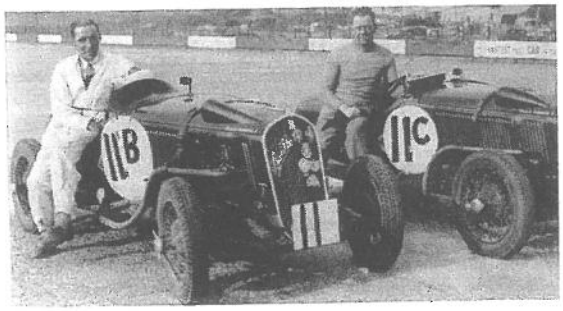
THE O.H.V. 508S

Meanwhile yet another 508 variant had shared the honours of the 1934 Milan Show with the four-speed Balilla saloon—the wholly delightful o.h.v. 508S. This was one of these limited-production cars that FIAT brings out from time to time. The 'full' sports Balilla followed logically on the efforts of the amateur tuners and of firms like SIATA. By the end of 1933 Ambrosini had achieved considerable success in sprints and hill-climbs with a single-seater based on the Spyder Sport, but with o.h.v. head, a chain-driven Roots-type blower, and Cozette carburettor. On a 4:1 axle ratio this had clocked 96 m.p.h.—not surprising when one considers that the little unit was now delivering 48 b.h.p. at 4,000 r.p.m., and the whole outfit weighed 10 cwt. as against 13½ cwt. for the contemporary two-door saloon, and 12½ cwt. for the sports model in road trim.



A 1935 shot of the berlinetta aerodinamica. *The disc wheels are unusual on an o.h.v. sports model, while the streamlined nose of what is probably a* trasformazione *by SIATA anticipates later FIAT touring-car styling by a good twelvemonth.*
(Photo: *Autocar*)

Stripped for action, Westwood's and Sanford's Balillas are seen as they appeared in the Light Car Club's 1936 Relay Race at Brooklands. (Photo: A. C. Westwood)



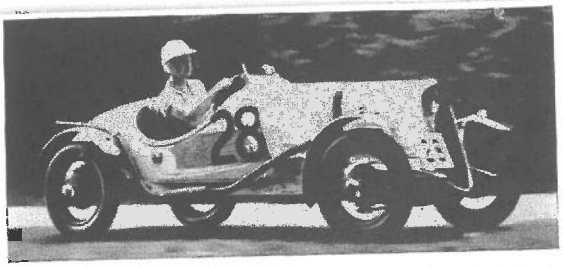
FIAT's own sports version was externally identical to the 1933 Spyder Sport, and there were no chassis changes. Nor, for all their pioneering work in Grand Prix racing, did they have recourse to a supercharger. The 1934 synchromesh box was used, with respectably close ratios, and the higher overall gearing of its s.v. predecessors. This 4·3:1 ratio made for higher cruising speeds than were comfortably attained with the FIAT's English counterparts—the Le Mans Singer and the PB-type M.G.—which had top gears of 5·57 and 5·75 to 1 respectively, and developed their maximum power at over 5,000 r.p.m., a state of affairs which was hard on the Singer's two-bearing crankshaft. *The Autocar* commented with pleased surprise on the fact that on the 508S 60 m.p.h. in third was the equivalent of a mere 4,500 r.p.m.—neither M.G. nor Singer could attain this speed on this ratio. A manual ignition control was provided on the sports FIATs.

Cylinder capacity was unchanged at 995 c.c. which suggests that the car was regarded as a development model rather than a serious contender in the 1,100 c.c. category, but an entirely new cast-iron head with pushrod operated o.h.v. was provided, boosting output to 36 b.h.p. on a 7·1:1 compression ratio, sufficient to propel the 508S at over 70 m.p.h. This, incidentally, was the first use of pushrods on a touring FIAT engine since the demise of the big 4¾-litre Tipo 519 in 1928, though the company had been racing cars with full overhead valves as early as 1905. The 108S engine was destined to point the way to a gradual switch from the L-head principle, completed in 1948 with the introduction of the 500B version of the 'Topolino'.

Testers were unanimous over the car's handling and stopping powers, though the headlamps were deemed inadequate for the sports model's performance and the hood was unsatisfactory. *The Light Car* slated the exhaust note as 'nice, but decidedly naughty'. It was more than a match for either M.G. or Singer, the British cars excelling only in standing-start acceleration as a consequence of their lower gearing. The FIAT's steering was delightfully responsive, but this model is not recommended to drivers with large feet, thanks to the location of the brake pedal in uncomfortable proximity to the steering-column.



Mille Miglia, 1937. Of the two 508S cars visible, the one in the foreground carries lightweight two-seater bodywork, while behind the elderly Maserati can be seen a stock berlinetta aerodinamica. *Just visible in the right background is a 500 Topolino—the shape of things to come.* (Photo: *Autocar*)



By 1937 the T.T. had moved from the Ards Circuit to Donington, and the 995 c.c. Balillas were fading out of the limelight. Mrs. Dobson's English entry was unplaced, though still running at the end. (Photo: Louis Klemantaski)

Strained relations with Mussolini's Italy might restrict sales of touring FIATs in Britain, but there was no mistaking the enthusiasm with which the Sports Balilla was greeted when it went on show at Olympia in October, 1934. FIAT made a determined attempt to recover their once-strong position in the British market by subjecting the l.h.d. demonstrator (BHX 91) to a tough test at Brooklands. Driven by J. Wren and Dudley Froy, it covered a thousand miles over the Mountain Circuit in two days running, encountering, as its makers proudly asserted, 1,700 corners in the process. In spite of poor weather conditions, the mean average speed was 55·11 m.p.h., petrol consumption worked out at 21 m.p.g., and oil was consumed at the rate of a pint every 200 miles. The English price of £299 was a trifle high at a time when an M.G. Midget could be bought for £222; but this was later reduced to a competitive £238.

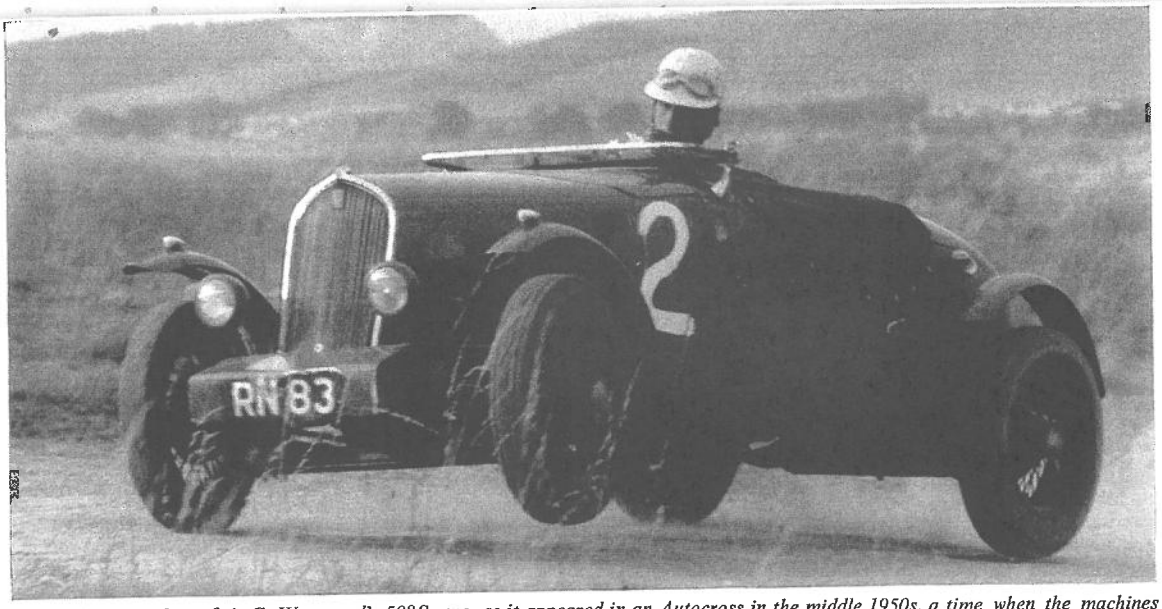
Cars sold in England were bodied over here, and are recognisable by the more pronounced tail fin. The two-seater was the only version of the o.h.v. model regularly available, though the last six chassis imported were fitted with four-seater bodywork, and one of these was shown at Olympia in 1936. The Italian buyer had, however, a wider choice. In addition to the *spyder normale*, there was the *spyder corsa*, or Coppa d'Oro variant. Contrary to the generally expressed view, this had an identical mechanical specification, the extra m.p.h. being gained by the use of a lighter and starker body shell and cycle-type wings. This was joined in April, 1935, by the Mille Miglia type, or *berlinetta aerodinamica*, a fastback coupé with recessed rear number plate and attractive flowing wings. Fuel tank capacity was increased from ten to fourteen gallons, which made it into a delightful little G.T. with 30–35 m.p.g. on tap. Finally there was an engaging Q-car in the shape of a standard 'Balilla saloon powered by a 34 b.h.p. version of the o.h.v. Tipo 108S engine'. About 1,000 of these were produced. It is difficult to trace the number of overhead-valve cars made in all, as chassis serials ran concurrent with the touring versions, but I doubt if more than 2,000 left the works. Some were also made by Simca and N.S.U., Amédée Gordini winning his spurs on the former, while Brendel achieved quite a few successes on the Heilbronn-built sports cars.

RACING, 1935–37

1935 and 1936 were the peak years of the Balilla's competition career, Singer being their strongest opponents. M.G. were out of racing by mid-1935; Adler and Riley concerned themselves mainly with bigger cars, and B.M.W.'s 'works' participation really began with the advent of the Type 328 2-litre in 1936. Surviving Salmsons and Amilcars, though still capable of giving a good account of themselves,

Doughtiest of the British-owned 508S cars was V. H. Tuson's DPH 968, here seen on the Campbell Circuit at Brooklands in its last season with its original owner in 1937. The tail fin is clearly apparent. (Photo: William Boddy Collection)





Balilla Airborne. One of A. C. Westwood's 508S cars as it appeared in an Autocross in the middle 1950s, a time when the machines were not as yet collectors' pieces. (Photo: A. C. Westwood & Richmond Pike)

were pretty long in the tooth. On occasions, however, they could still turn the tables on the cars from Turin, as happened in the 1935 Alpilles Hill Climb.

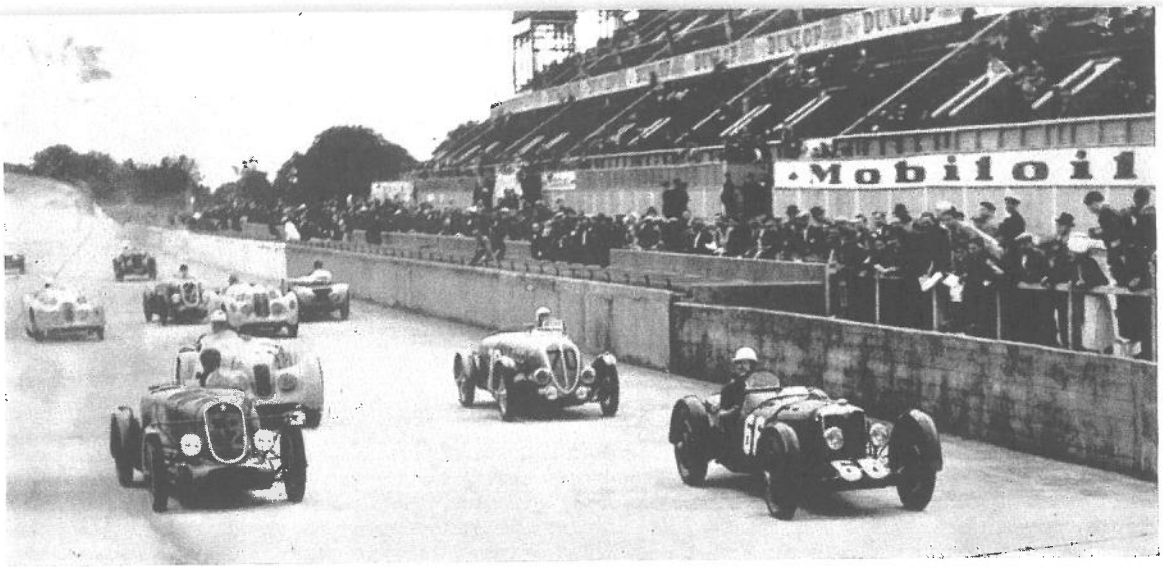
The FIAT factory, of course, dropped out of International competition in 1927, never to return, and the great protagonist of the Balilla was a young and still unknown Italian domiciled in France, Amédée Gordini. He had started his career on the pedestrian Tipo 514, and during 1935 he was making himself felt with a car that looked like a standard 508S, but was in fact largely *Le Sorcier's* own work. With an alloy block of his own conception, he was extracting 48 b.h.p. from an unblown unit, sufficient to propel a road-equipped car at 90 m.p.h. His score in 1935 was impressive: an outright win in the Bol d'Or 24-Hour Race, and class victories in the Circuit of Orleans, the Grand Prix de Lorraine, and the Grand Prix de la Marne.

FIAT also recorded class wins in the Eifelrennen, the Czechoslovak 1,000-Mile Stock Car Race, the Circuit des Vosges (a sort of miniature Alpine Trial) and in numerous hill-climbs, including the Grossglockner, the Stelvio, the Feldberg, and a couple of forgotten Hungarian contests at Rakosfalva and Mount Gugger. Alas! they shone neither at Le Mans nor in the T.T. In the former, the 1,100 c.c. class went to Jacques Savoye's Singer, while in the latter three FIATs found themselves ranged against three Adlers and four Singers. The German cars were nowhere, but a terrific battle ensued between ffrench-Davis's Balilla and the Singers of Langley, Norman Black, and S. C. H. Davis, with the FIAT generally in the lead. On the eleventh lap 'Sammy' Davis at last built up a good lead for Singer, but the three works cars from Coventry were eliminated spectacularly by steering-arm failure, while ffrench-Davis retired with mechanical trouble towards the end of the race. Sole survivor of the whole class was Dobson's FIAT, dismissed as 'still running at the end'.

The four dozen cars sold in England were also making an impression, notably the 'hot' versions conducted by Tuson (DPH 968) and Metcalfe (CMG 99). Tuson's car proved astonishingly reliable, running through three seasons with only minimal replacements. He found that the car's weight distribution was unsatisfactory for trials, but it never failed to win its class in any speed event for which it was entered, while it would turn in 92 m.p.h. on the Outer Circuit at Brooklands. It ran on a compression ratio of 9:1. Metcalfe's car, with 8·2:1 compression, copperised and polished cylinder head, enlarged ports, 36 mm. Stromberg carburettor, Tuson manifold, and a ten-pint sump replacing the standard five-pint type, was good for 42 b.h.p., giving 105 m.p.h. stripped, and 88 m.p.h. in road trim. When fifteen years old, it could still lap the Goodwood circuit at 68·7 m.p.h.

Gordini's Balillas ran as Simcas in 1936, and appeared with narrow bodies and raked radiators reminiscent of the 1933 G. P. Maserati. Gordini himself won his class at Miramas in the Coupe de Provence, despite a mistral, and the cars followed this victory up with a hat-trick in the sports-car class of the Bol d'Or, *Le Sorcier* leading Zanardi and Martin home. He also collected a class win in the Belgian 24-Hour Race at Spa. This year there was no Le Mans, though the French ran their Grand Prix as a sports-car event. This policy prevented a German victory, but it also excluded the Simcas from the awards list, since the smallest class embraced everything up to 2 litres. Brendel, Soergel, and Zinn took the first three places in the 1,100 c.c. category at the Eifelrennen. The T.T., last of the series to be staged on the Ards Circuit, was again an inauspicious occasion—though Sullivan won his class, he was placed thirteenth out of fifteen finishers.

In Britain, the Balillas were at their zenith. In its report of the Dancer's End Hill Climb that Autumn *Motor Sport* referred to the 1,100 c.c. sports class as 'the domain of the FIATs', and in the minor events they were ubiquitous. The Light Car Club's Relay Race at Brooklands saw no fewer than three teams of sports Balillas in circulation—Tuson's, an all-feminine team captained by Miss Chaff, and A. C. Westwood's 'Black Diamonds', regular competitors



Coupe de la Commission Sportive, Montlhéry, 1937, showing Gordini's and Camerano's Simca-FIATs challenging Arthur Dobson in 1½-litre Riley No. 66 at the start. The British car's extra half-litre told in the end. (Photo: *Autocar*)

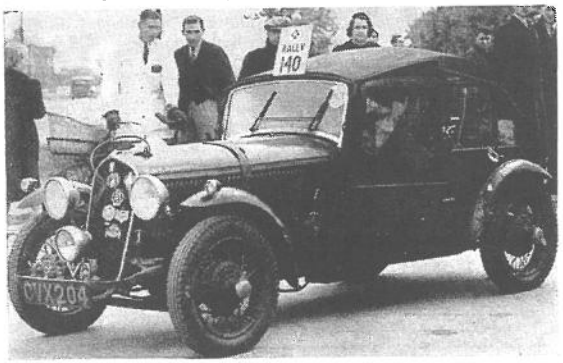
in rallies. The ladies finished in fourth place at an average speed of 75·12 m.p.h. Stanley Tett won the Blackpool Rally outright in June, and Stothert's Balilla won a first-class award in the M.C.C. Torquay Rally in July.

By 1937, however, the cars were past their heyday, even if Vernet and Largeot at last annexed the 1,100 c.c. class at Le Mans. N.S.U.-FIATs were beaten by an M.G. in the Eifelrennen. The T.T., now transferred to Donington Park, was a triumph for Singer, Barnes's and Black's Nines, in fourth and sixth places, being the highest-placed British cars. Gordini was tenth and last after running out of petrol, and Mrs. Dobson's English-entered Balilla was flagged off at the finish.

SWAN SONG

Further, the new look was moving in on Turin. The last of the long-stroke models, the 72 × 103 mm. six-cylinder 527, had been discontinued at the end of the 1936 season, and already the 518 had been replaced in July, 1935, by the six-cylinder 1500, with coil-spring independent suspension, backbone frame, and aerodynamic pillarless saloon bodywork. It shared the Balilla's cylinder dimensions of 65 × 75 mm.,

How to Get Into The Saloon-Car Class, A. C. Westwood's CVX 204 with home-made hardtop, as it competed in the 1938 R.A.C. Rally. (Photo: Keystone Press Agency Ltd.)



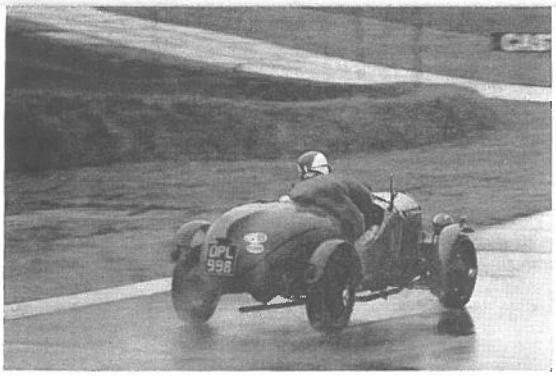
and the valves were overhead. Hot on its heels in 1936 came the immortal 'Topolino' or 500, with 570 c.c. side-valve engine, which sold for £120 in England, and represented an entirely new concept of baby car. The Balilla looked very old-fashioned in this company, and sales slumped to just over 8,000 in 1937. A replacement was clearly indicated.

It came that Autumn in the shape of the original Millecento (Tipo 508C). This was a 508 in name only, for it looked like a scaled-down 1500 or scaled-up 500. The front wheels were independently sprung, and the o.h.v. engine had its bore enlarged to 68 mm. to bring it close up to the 1,100 c.c. limit. The cylinder head was now of aluminium alloy, and it was a remarkable little performer, being very nearly as fast as the 508S two-seaters on only 32 b.h.p. Though the 508C and its derivatives are often erroneously called Balillas, they are a breed in their own right.

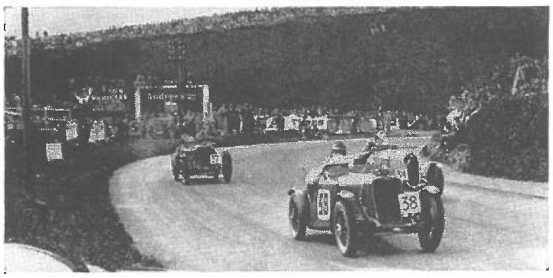
Mrs. Wisdom's 1936 T.T. 508S (DPL 998) was tried by FIAT (England) Ltd. in 1937 with a prototype '1100" engine. This car featured in an interesting experiment conducted by the FIAT Register at Goodwood in September, 1964, when George Liston Young and Ian Smith sought to repeat the exploit of Wren and Froy in 1934. The engine was sleeved back to the standard capacity of 995 c.c., to counterbalance the increased power conferred by the alloy head and twin S.U. carburettors, the car ran with wings and lamps in position, whereas BHX 91 had run stripped. In the absence of Brooklands, Goodwood was selected, as 421 laps of this circuit would produce the right number of corners. Despite pouring rain and forty-knot gusts of wind, the objective was attained, and the thirty-year-old FIAT covered its thousand miles at 55·52 m.p.h. Though both drivers were nearly afloat in the very open cockpit, a fastest lap was made at 65·5 m.p.h. Petrol consumption was much the same as in 1934, and only four pints of oil were used, as against five at Brooklands.

CONCLUSION

FIAT's Balilla remains a highly significant product of its era. The original design started the breakaway



The ex-Elsie Wisdom 508S DPL 998, Ian Smith astride, fights its way round Goodwood in wind and rain, September, 1964. Its thousand miles at over 55 m.p.h. was a vindication of a thirty-year-old design, if any vindication was needed!
(Photo: Montagu Motor Museum)



The rivals, Ulster T.T., 1935. ffrench-Davis's FIAT fights it out with the Singers of S. C. H. Davis and Barnes.
(Photo: *Autocar*)

from the tyranny of the long-stroke engine. It was some time before the lead was generally followed. While Adler, Opel and Peugeot were making short-stroke power units in the later 1930s, British manufacturers were still hemmed in by an archaic taxation formula, and even Renault's small saloon which appeared at the 1937 Shows had the conservative dimensions of 58×95 mm. The Balilla's hydraulic brakes were no novelty, even in the small-car class, for Triumph had offered them on their Super Seven in 1928; but this was hardly an international best-seller, and was little known outside the British Commonwealth. The historical significance of the 508 is not so much what it did, as what it foreshadowed. In it we can see the genesis of two of the outstanding light cars of the immediate pre-War period, the 500 and the 1100. These, along with the B.M.W., Lancia's Aprilia, and the front-wheel-drive Citroens, set a new standard of handling in their class.

Much of the company's know-how on short-stroke engines was learnt with the sporting 508S, though its reputation now hangs mainly on its 'vintage' driving characteristics. It would be untrue to say that it was unique in 1935. Cars of moderate cylinder capacity, faultless handling, and gear ratios suitable for objectives other than assaults on the perpendicular could be bought, but the FIAT's great virtue lay in its modest price. The 1½-litre Aston Martin cost £600, the Frazer Nash perhaps £75 less, and £335 was being asked for a sporting version of the 1½-litre Riley. For all its Vintage ways, the 508S, more than the M.G. Midget, was the true ancestor of the small sports car as we know it today.

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SPECIFICATIONS

Fiat Tipo 508 and 508S (Side Valve)

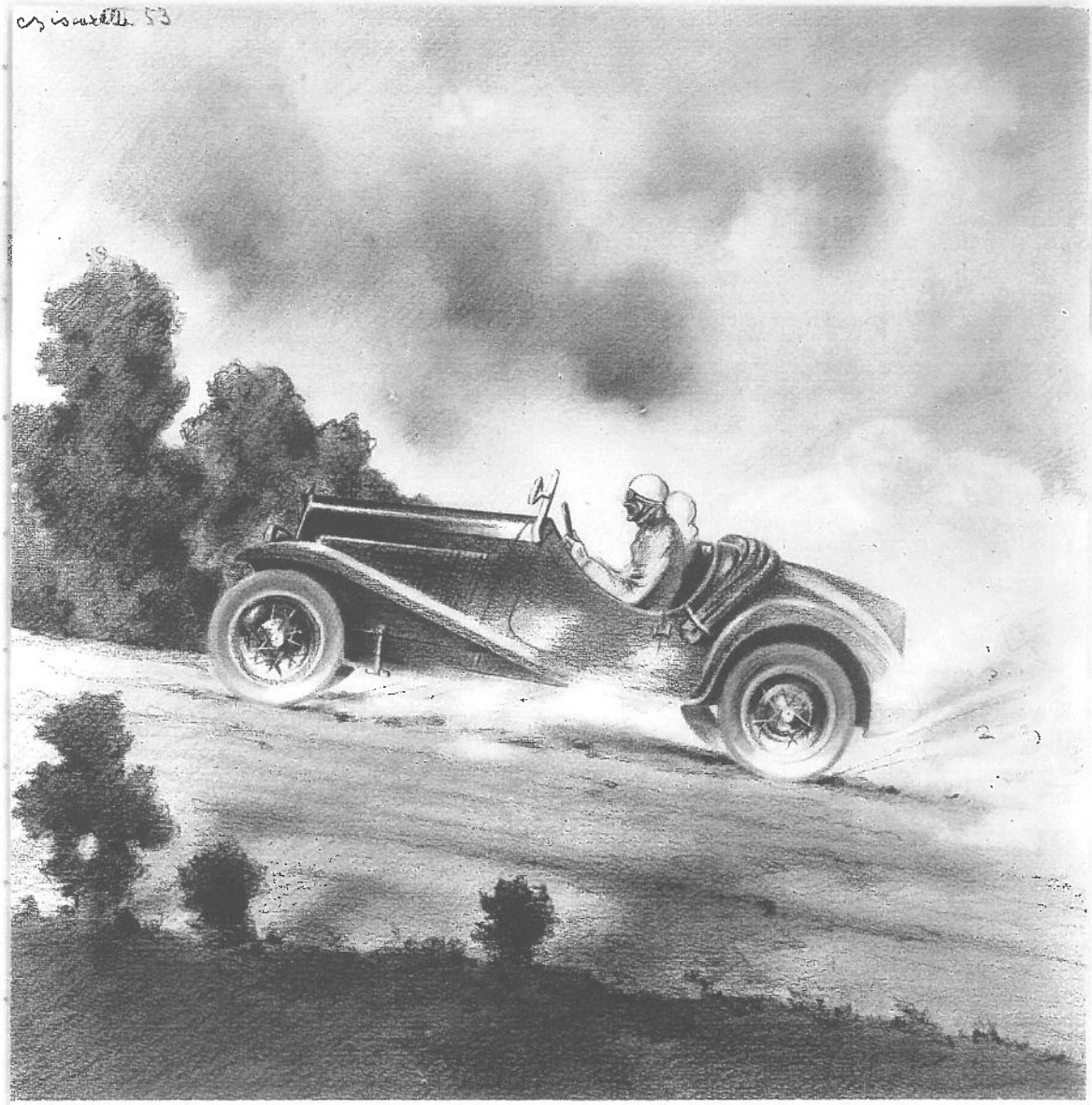
Engine: 4 cylinders, monobloc, side valves, detachable cast iron head, 4-point suspension, 3-bearing crankshaft. Bore 65 mm. Stroke 75 mm. Capacity 995 c.c. Nelson Bohnalite alloy pistons. Full pressure lubrication by submerged gear type pump. Thermo-syphon cooling with fan assistance.
Fuel feed: 3-speed 508, Gravity feed by 6-gallon dash tank to Solex 26FH or Zenith 26VF downdraught carburettor. 7-gallon tank on 4-speed 508 models. 508S has mechanical pump feed from 12-gallon rear tank to Zenith 30VEIZ downdraught carburettor.
Compression ratios: Optional 5·8 or 6·3:1 in 1932. 6·3:1 standard on later 3-speed 508, January 1933-1934. 6·6:1 on 4-speed cars. 7:1 on 508S.
Output: (3-speed 508) 22 b.h.p. at 3,400 r.p.m. (4-speed 24 b.h.p. at 3,600 r.p.m.: 508S, 30 b.h.p. at 4,000 r.p.m.
Gearbox: (3-speed 508) 3 speeds and reverse, central change. Ratios (saloons) 5·2, 9·5, and 14·9 to 1. Top gear ratio 4·89:1 on roadsters, 5·375:1 on light delivery vans. 508S has 4·3:1 top gear.
(4-speed gearbox) 4 speeds and reverse, central change, synchromesh on top and 3rd gears. Ratios (saloon and tourer), 5·1, 7·5, 11·4 and 18·9 to 1. Top gear ratio 4·875:1 on roadsters. 5·375:1 on light delivery vans. Free wheel optional extra on all versions except 508S.
Clutch: Single dry plate.
Transmission: Open propeller shaft, universally-jointed at each end. Spiral bevel final drive.
Ignition, Lighting and Starting: Marelli 12-volt coil and distributor, with belt-driven dynamo. 12-volt lighting and starting, five-lamp lighting set (3-lamp on standard 3-speed models of Tipo 508).
Chassis: Cruciform-braced with deep channel section side members.
Brakes: Foot, hydraulic internal-expanding on four wheels. Handbrake, transmission type on drum behind gearbox.
Steering: Worm and wheel.
Suspension: Semi-elliptic front and rear. Hydraulic shock absorbers on 508, friction type on 508S.
Wheels: FIAT bolt-on disc or wire detachable (wire only on 508S).
Tyres: Pirelli, 4·00×17.
Dimensions: Wheelbase (3-speed 508 and 508S) 7 ft. 4½ in. (4-speed 508) 7 ft. 6½ in. Track 3 ft. 10¾ in.
Weights: Standard two-seater, 3-speed, 13 cwt. Standard 2-door saloon, 3-speed 13¼ cwt. Standard 4-door saloon, 4-speed, 15½ cwt.
Performance: (3-speed Tipo 508) maximum speeds, on top gear 58 m.p.h.; on second gear 28 m.p.h.; on 1st gear 14 m.p.h. (4-speed Tipo 508) maximum speeds, on top gear 58 m.p.h.; on 3rd gear, 50 m.p.h.; on 2nd gear, 34 m.p.h.; on 1st gear, 18 m.p.h. (3-speed Tipo 508S) maximum speeds, on top gear 68 m.p.h.; on 2nd gear, 43 m.p.h.; on 1st gear 23 m.p.h.
Fuel consumption, all types, 35 m.p.g.

FIAT TIPO 508S (O.H.V.) 1934 to 1937

Engine: 4 cylinders, monobloc, pushrod-operated overhead valves. Detachable cast iron head, 3-bearing crankshaft. Bore 65 mm. Stroke 75 mm. Capacity 995 c.c.
Nelson Bohnalite alloy pistons. Full pressure lubrication by submerged gear type pump. Thermo-syphon cooling with fan assistance. Mechanical pump feed from 10-gallon rear tank (14 galls. on *berlinetta aerodinamica*, 1935 on) to Zenith 30VEIZ or 30VIM downdraught carburettor.
Compression ratio 7·1:1. Output 36 b.h.p. at 4,400 r.p.m.
Gearbox: 4 speeds and reverse, central change. Synchromesh on 3rd and top gears. Ratios, 4·3, 5·7, 8·6 and 14·4 to 1.
Clutch: Single dry plate.
Transmission: Open propeller shaft, universally jointed front and rear. Spiral bevel final drive.
Ignition, Lighting and Starting: Marelli 12-volt coil, with belt-driven dynamo. 12-volt lighting and starting, 5 lamp lighting set.
Brakes: Foot, hydraulic internal expanding on four wheels. Handbrake working on drum behind gearbox.
Steering gear: Worm and wheel.
Wheels: FIAT bolt-on wire detachable.
Tyres: Pirelli, 4·00×17.
Dimensions: Wheelbase 7 ft. 6½ in. Track 3 ft. 10 in.
Weight: (Two-seater) 11½ cwt.
Performance: Speeds on gears: Top, 70 m.p.h., 3rd 60 m.p.h., 2nd 42 m.p.h., 1st 24 m.p.h.
Acceleration through gears, 0–50 m.p.h., 18·6 secs.; 0–60 m.p.h., 30·4 secs.
Fuel consumption approx. 30–35 m.p.g.

Note: This o.h.v. engine was also installed in a limited-production version of the Tipo 508 4-speed 4-door saloon.

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(21) 1934 modello Belilla Sport

A celebration of the 40th anniversary of a famous Fiat's birth

Balilla

Birthday party

ITALIANS love children. They also love a party and they know how to celebrate. At almost any excuse out come the banners and the bottles, the pasta and the antipasta, the succulent cold meats and the native cheeses.

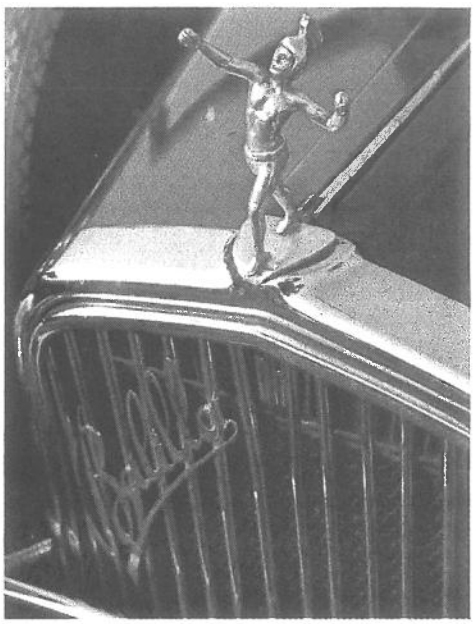
Say "Balilla" to an Italian and what does he think of? The eighteenth-century boy-hero who slung a rock at an Austrian oppressor and so started a popular uprising to kick out the invader? Mussolini's militaristic boys' brigade named after the Genoese David? (ah, but the Fascist party is not the one they celebrate now). Maybe, but more likely it is Mother Fiat's first truly mass-produced small car he will think of, the car she held up for all to see in April 1932, five years before her even smaller half litre Topolino.

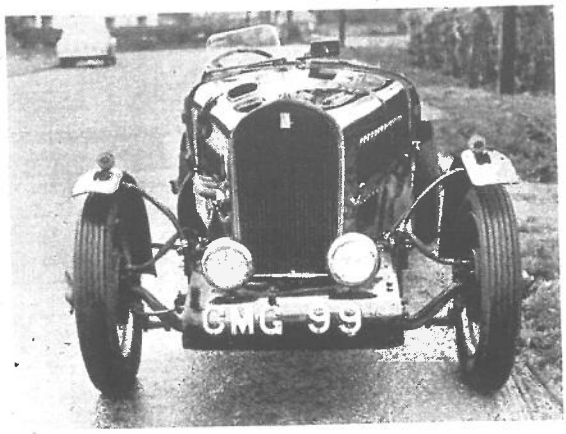
Direct ancestor of today's 127 and 128, the Tipo 508 Balilla was no utilitarian job with bare bones thinly covered, but a real car faithfully scaled down with a water cooled 995 c.c. side-valve, four-cylinder engine, a three-speed gearbox, hydraulic brakes, larger than an Austin Seven, and right from the start was made as a saloon, open four-seater or two-seater with dickey (for the compact mother-in-law).

And through the successive stages of development it was also very neatly styled with more than a suspicion of American influence. Not so the sporting beetle-tailed 508S introduced soon after, which showed 100 per cent Italian flair, fashioned like a miniature 2.3 Alfa by Zagato. One of the classics of the mid-thirties, it did very well in long distance competitions like the Mille Miglia and Circuit of Italy.

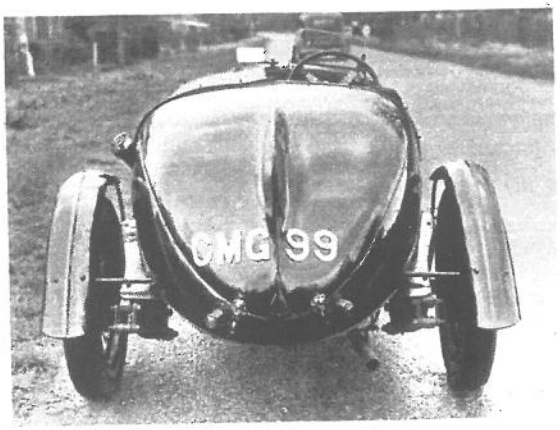
In 1934 came a four-speed syncromesh gearbox, and for the sports two-seater and Mille Miglia Berlinetta there was an overhead-valve engine producing 36 bhp to give a 70 mph plus maximum speed. A slightly de-tuned version of this engine also became optional for the touring models.

Over 113,000 Balillas were produced during 1932–37 after which the model was superseded by the aerodynamically profiled 1100.





TALKING OF SPORTS CARS—No. 349



In these front and rear views of the car it can be seen that, apart from the forward facing air intake on the bonnet top and the low mounted Bosch spot lamps, little has been done to alter the external appearance.

BALILLA WITH A DOSSIER

AFTER SEVENTEEN YEARS IT IS STILL A FREQUENT CUP-WINNER

COMMERCIALLY, the 995 c.c. sports Balilla Fiat never seriously challenged the British competition in the under-a-litre class back in the thirties, a fact which in retrospect inclines one to the belief that a lot of people didn't know what they were missing. True, this Turin sauceboat cost about thirty pounds more than the comparable M.G. and Singer lines of the day, speaking from memory, but in a number of respects, notably economy, simplicity, steering accuracy and effortless cruising above the dreaded mile a minute, the Balilla was a hard 'un to beat. When *The Autocar* Road Tested it in the summer of 1935, it cost £258 with English-built body, went from zero to sixty in a mite over a half-minute, did its best one-way timed quarter-mile at 73.77 m.p.h. and managed exactly sixty against the clock in third.

Only a few hundred sports Balillas were imported all told, but the few that were shipped in served their owners proud. And, notwithstanding the type's light construction (weight dry, 12cwt 104lb), it didn't fall to bits and wore like a pig's nose. This sterling longevity is typically exemplified by the sample now in the sights, CMG 99, which its present owner, C. le S. Metcalfe, bought in 1935 with the pile still on the carpets and, today, can't bring himself to part with. Although it isn't the Metcalfe family's sole means of horseless transport (its stablemates are two Austins, an A.90 and a Seven), the Fiat does its share of workaday to-ing and fro-ing, and in addition has notched twenty-two racing firsts. Its post-war bag of places (firsts, seconds and thirds), mainly in club events at Silverstone, Goodwood and Boreham, but also in sprints, exceeds twenty to date.

The special reasons why this is so creditable are that it gives away 100 c.c. in eleven-hundred classes; that, although light, it isn't so gossamer by a long chalk as some of the one-off items it has to reckon with; and that the owner-driver goes 14st 7lb in his crash hat.

Thirty-six at Four-four

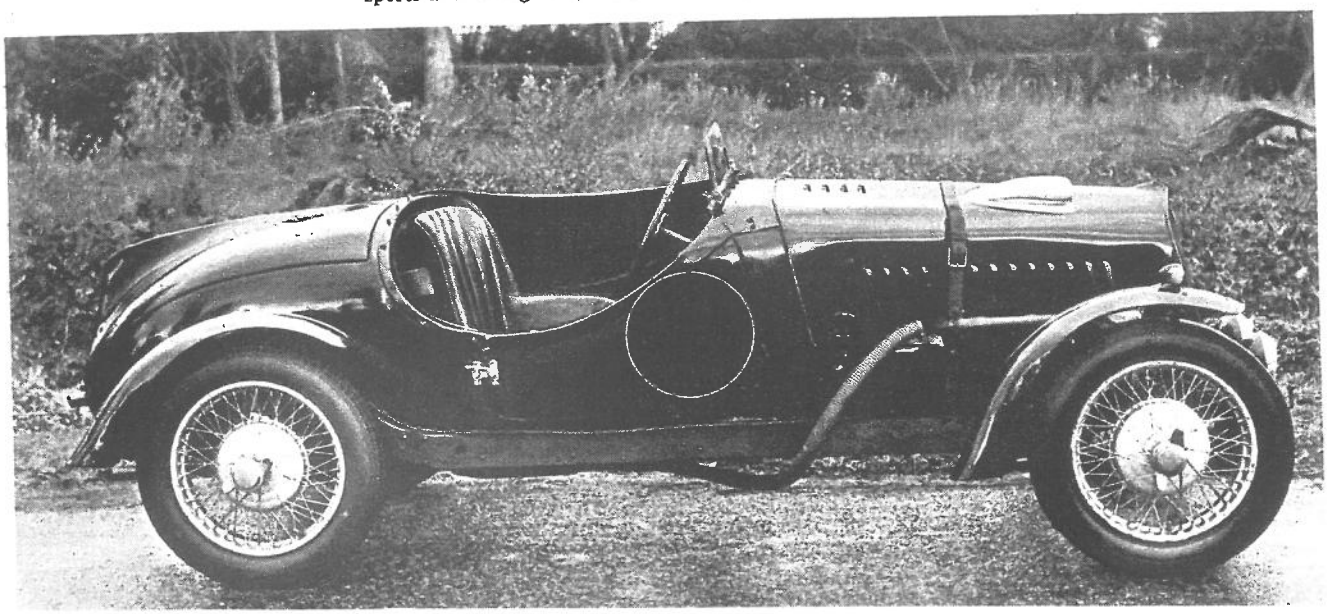
As supplied, the sports Balilla engine gave 36 b.h.p. at 4,400 r.p.m., but more horses, quite a lot more, were there for the conjuring. The man who did the conjuring for Metcalfe was V. H. Tuson, who bestowed on CMG 99 a very similar range of modifications to the lot he had already built into his own sports Balilla, the conspicuously successful DPH 968.

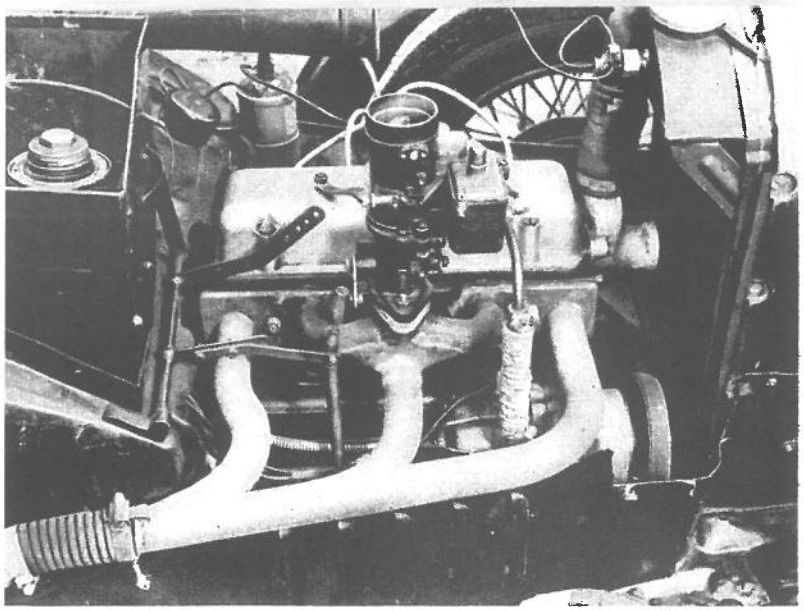
These consisted of installing Martlett pistons giving an 8.2 to 1 ratio, copperizing and polishing the iron cylinder head, slightly enlarging the ports, lopping ¼in off the inlet guides, fitting phosphor-bronze exhaust guides, substituting a 36mm choke Stromberg carburettor for the standard article, increasing the sump capacity to 10½ pints, and, most important of all, discarding the highly restrictive Fiat manifold (exhaust and inlet combined) in favour of a Tuson-designed one, built up from steel tubes on the foundation of a 5/16in backplate. The manifold alone was worth a cool 6 m.p.h. increase in maximum. The exhaust department of this manifold sheered away from the head in a bolder sweep than the Turin plumbing, necessitating the use of an outside pipe, which is visible in one of the photographs published here.

Tuson's car, incidentally, had 9 to 1 pistons and also had somewat lightened connecting rods, unlike CMG 99, and finished up with a top speed of 105 m.p.h. in stripped trim and 88 to 90 with the furniture in place. The Metcalfe Balilla, probably because the owner didn't want to take chances with day-to-day reliability, has never been called upon to turn at high revolution rates, except in short bursts in the gears, and its flat-out maximum today on the Lavant Straight at Goodwood is 82 m.p.h. at 4,400 in top, little if any faster than it was pre-war. The fact that the Tuson job used to stay in one piece at over six thousand a minute, however, speaks well for the production rods and crank.

CMG 99's meeting-to-meeting maintenance and preparation for the fray have regularly been carried out by Brooklands Engineering of Cobham, Surrey, a fact to which Metcalfe attributes much of the Balilla's lasting zest for life; by dealing with this long-established house, Metcalfe not only gets the services of Fred Cann, a famed Brooklands artificer of pre-war

Despite its age the Balilla's lines are functional and good looking. The straight-armed driving position, so popular in present-day sports and racing cars, was a standard provision on this car.





Modifications to the 1,000 c.c. engine include substituting a 36 mm choke Stromberg carburettor for the standard article and replacing the manifold with a Tuson-designed external exhaust system.

BALILLA WITH A DOSSIER . . . continued

days, but also derives a sentimental satisfaction from maintaining a link with the track's great past.

CMG 99 differs little, either inwardly or outwardly, from its pre-war self, but one visible feature—the forward-facing air scoop on the bonnet top—dates from comparatively recent times. This was a present from ex-Brooklands Cyril Watkinson, who shifted his sphere of activity to the aircraft world some years ago, and comes off a Gypsy Six. Metcalfe doesn't delude himself that any measurable ram effect is created at a mere 82 m.p.h., but before the scoop was added the carburettor intake mouth was a whit close to the inner bonnet face, probably resulting in rather fuggy breathing.

Such few and minor breakages as do occasionally occur in the life of CMG 99 are confined to the engine, the running gear in general being astonishingly resistant to failure in any form. The tappets and their housings, both made of cast iron, are not unknown to disintegrate, and cracking of the white metal in the main bearings is another minor vice. The latter fault, however, is not as serious as it might appear because the bits don't fall out. The journal diameter is, as a matter of fact, on the small side.

Goodwood Gallop

The Balilla has lapped the modern Goodwood, i.e., with *chicane* included, at 68.7 m.p.h., which, considered in relation to its 82 m.p.h. maximum, is really quite a feat, as will be apparent to owners of small sports cars who know this circuit at wheel hand. It says, in fact, about all that needs saying on the subject of the Fiat's cornering power and Metcalfe's intrepidity in cornering it. The only comment he permits himself on this aspect is that experience has taught him not to let it slow down too much for swerves because it takes such a prohibitive time to get back to a gallop again.

(Talking of Goodwood, he complains of difficulty in convincing bested rivals, in friendly reconstructions of Goodwood dices after the event, that he wasn't doing 90 at the moment of overtaking. Knowing the penchant of otherwise incredulous mortals for believing anything they see in print, he would like it reiterated here that the Balilla will do 82 m.p.h. and no more. Surprising, isn't it, that even clubmen, and racing ones at that, apparently go through life without doubting their own instruments?)

CMG 99 has the normal Balilla gear ratios, namely, 14.4, 8.6, 5.7 and 4.3 to 1, and even assuming that the Tusonizing and Canning measures have upped the standard output to 42 b.h.p. (my guess, not Metcalfe's), it will be evident that 4.3 to 1 on top, in conjunction with 4.00 by 17in tyres, certainly doesn't err on the low side. This largely explains why the car tittups along so effortlessly in the high sixties on the road, so long as opposition isn't met from wind or gradient; but it also emphasizes the need for *keeping moving*, once 4,000 r.p.m. is approached or attained in top.

By doing just that—keeping moving—Metcalfe manages to cover the 54 miles between Silverstone and his home in Berkshire, near Reading, in sixty-five minutes. And, for their part, the Silverstone club meeting handicappers acknowledge his reluctance to slow down by detaining him on the starting line for as much as half a minute while post-war machinery of up to 50 per cent greater capacity proceeds merrily on the first of the five requisite laps.

As this sort of compliment implies, bearing in mind the Fiat's by no means prodigious engine performance, the Balilla as a type possesses really outstanding handling qualities. The last time I drove one was back in the middle 'thirties, long before esoteric terms like under- and oversteer had been glossaried, but I recall to this day its phenomenal evenness of keel under felonious cornering stresses, and the ease with which slides, once developed, could be ruled by a twist of the wrists. Older readers may recollect a rather striking demonstration put up at Brooklands about eighteen years ago, when a stripped sports Balilla, driven in turns by Dudley Froy and J. Wren, covered 1,000 miles on the mountain circuit at an average of 55 m.p.h.; the first of the two days devoted to this caper were wet.

Tyres are something of a problem for Balilla owners who race. The standard size of cover, 4.00 by 17in, is, of course, an Austin Seven calibre, and this naturally ensures the continuance of supplies; but the trouble is that no racing or heavy-duty casings are available in 4.00 by 17—and CMG 99 for one undeniably puts its boots to heavy duties. In other circumstances the answer would be to go oversize, but anything which had the effect of increasing the wheel diameter is not to be thought of when top gear is already 4.3 to 1.

But there are rewards as well as penalities for this relatively high gearing. Even with racing jets, for instance, CMG 99 gives an honest 30 m.p.g. It is, as a matter of fact, just as well that the consumption isn't too high, otherwise the standard six-gallon fuel tank wouldn't be any too capacious for events like the sports car 100-miler at Boreham.

There are, I believe, a few instances on record of sports Balillas being converted to two carburettors, but Metcalfe asserts that, as a result of the siamesing of the inlet ports, this engine is unresponsive to such duplication, except perhaps in the sense of an increased thirst.

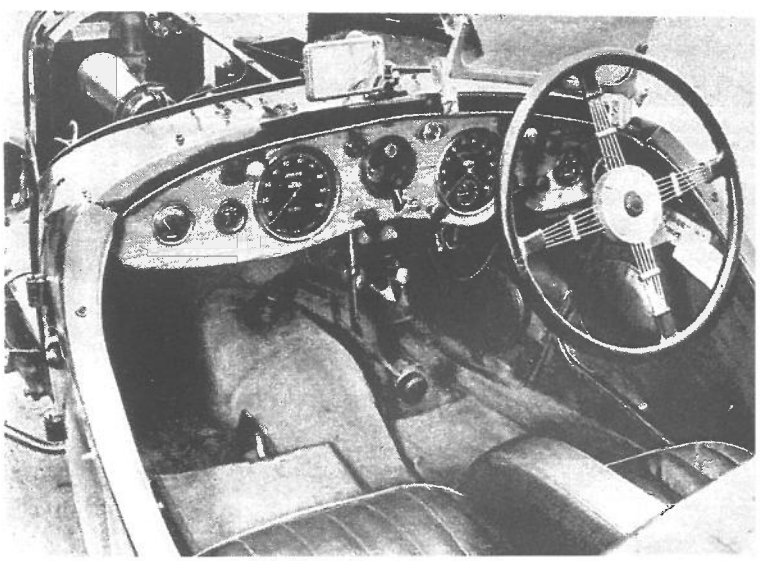
Both in competitions and on the road, CMG 99 is fed either Pool and benzole, in suitable proportions, or straight 80 octane.

Hydraulics

The Lockheed brakes (Fiat standardized hydraulics in an era when rods and cables were still the norm) have stood up well to a hard life; and the simplicity of the suspension arrangements (beam axle in front, of course) is paying a long-term dividend expressed in extended tyre life and absence of insidiously wearing pivot points. The standard spring dampers, of the friction variety, did, however, prove rather light for their work: CMG 99 now has heavier Hartfords at the back and Armstrong hydraulics in front, with strikingly beneficial results.

When the last war broke, the Balilla had just had a routine going-over in preparation for the coming Brooklands meeting. Racing being cancelled in favour of fighting, Metcalfe hoisted his Fiat clear of the ground, completed the prescribed laying-up procedures and shut the garage door on it. When the war finished he kicked the bricks out from under and celebrated peace with a fast jaunt to Rome and back, during which nothing gave a moment's anxiety and the car performed minor prodigies of Van Winkleism. Age hadn't withered nor custom staled, and that's the kind of friend the Balilla is.

DENNIS MAY.



There is ample room in the cockpit for the somewhat large owner-driver. The original small Italian speedometer and rev counter have been replaced by larger British instruments.

The Autocar Road Tests



The sports Fiat climbing fast on second gear a trials type of hill on the Kent-Surrey border.

No. 956 (Post-War Series)

10.48 h.p. BALILLA FIAT SPORTS TWO-SEATER

Small Sports Car Which is of Considerable Merit Because of a Lively Engine, High Gear Ratios and Low Weight, Together With Fine Road Holding

BEFORE it was introduced in this country towards the end of last year a certain amount was known here of the sports model Balilla Fiat, as, for one thing, modified examples have competed successfully in the sports car classes of the Italian Mille Miglia race, and news of its reputation filtered through.

The sports model differs from the very efficient ordinary Balilla in having a push-rod-operated overhead-valve engine instead of a side-valve unit, but the engine size is the same and the general design is similar except where change is necessary to the performance—for instance, the use of a different type of shock absorber and different gear ratios. Also, as indicating the atmosphere of the car to those who are not familiar with it, one of these sports Balillas gave a convincing demonstration last autumn of reliability in severe conditions by covering a thousand miles over the Brooklands "mountain" circuit at a sustained average of 55.11 m.p.h., and in the meantime the model has appeared in many of our trials.

Thus, and bearing in mind the ability of the Italian manufacturer to provide a car which shall possess a really useful performance when that is his intention, a trial is undertaken in the firm expectation of this Balilla being interesting to drive. Such certainly proves to be the case.

The engine gives good power, is exceptionally lively in response to the throttle pedal—in neutral the revs go up instantly without trace of hesitation, which augurs well for actual road work—and the complete car has been kept unusually light in weight, which helps enormously, of course, in giving fine acceleration in spite of the comparatively small engine. This is far more than superficially important, for as a result, high gear ratios can be used and the engine does not have to attain wildly high revs to give a really satisfactory performance.

As a matter of interest, 1,000 r.p.m. on top gear corresponds approximately to 18 m.p.h., whilst, as will be seen from the table, a full 60 is obtainable on third gear. This is a most useful figure, especially as it does not involve exceeding 4,500 r.p.m., the safe limit laid down by the makers. That r.p.m. figure can, however, be passed without sign of bother or really appearing to overstress the engine.

The outstanding items of the car's behaviour as a small sports machine are its readiness to get off the mark rapidly, coupled with a gear change that enables lightning movements to be made between gear and gear, freedom from fuss and stress when travelling at speed, and steadiness and fine road holding in conjunction with accurate yet light steering.

The engine is particularly smooth and at its best over a range extending between about 35 and 65 m.p.h., whilst it is not noisy mechanically, but a pronounced and hard exhaust note has been permitted. At times this is pleasing to the enthusiast—it certainly indicates efficiency—but the car would be less conspicuous if the note were quietened, as probably would be possible to some extent by fitting an exhaust tail pipe extension, perhaps with a fishtail as well.

As regards slower running, the engine will pull well down to speeds appreciably below 20 m.p.h. on top gear and can hold its own against gradients most usefully, and there is nothing about its running which makes it an unsuitable car for much traffic use. But, naturally, it is through the gears its real liveliness and snap of performance are obtained. Extremely fast hill-climbing of the lesser type of gradient on third, and of the steeper kinds of hills up to 1 in 6 or so on second is provided, again without making the engine rev in such a way as to suggest its being over-stressed. Indeed, it was an engine remarkably free from signs of fuss during hard use over some 350 miles,

DATA FOR THE DRIVER

10.48 H.P. BALILLA FIAT SPORTS TWO-SEATER

PRICE, with sports two-seater body, £258. Tax, £8 5s.
RATING: 10.48 h.p., four cylinders, o.h.v., 65 × 75 mm., 995 c.c.
WEIGHT, without passengers, 12 cwt. 3 qr. 20 lb.
TYRE SIZE: 4.00 × 17in. on knock-off wire wheels.
LIGHTING SET: 12-volt; automatic voltage control.
TANK CAPACITY: 10 gallons; fuel consumption, 30-32 m.p.g.
TURNING CIRCLE: 29ft. GROUND CLEARANCE: 7¼in.

ACCELERATION.

Overall gear ratios	From steady m.p.h. of 10 to 30	20 to 40	30 to 50
4.3 to 1	17⅜ sec.	19⅜ sec.	25 sec.
5.7 to 1	11⅜ sec.	11⅛ sec.	14⅜ sec.
8.6 to 1	7 sec.	7⅛ sec.	—
14.4 to 1	—	—	—

From rest to 50 m.p.h. through gears, 18⅜ sec.
From rest to 60 m.p.h. through gears, 30⅜ sec.
25 yards of 1 in 5 gradient from rest, 6⅜ sec.

SPEED.

	m.p.h.
Mean maximum timed speed over ¼ mile	70.31
Best timed speed over ¼ mile ...	73.77
Speeds attainable on indirect gears—	
1st	24
2nd	42
3rd	60
Speed from rest up 1 in 5 Test Hill (on 1st gear)	18.47

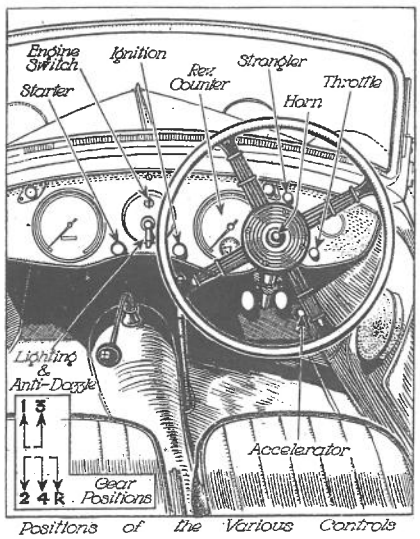
Performance figures of acceleration and maximum speed are the means of several runs in opposite directions.

(Described in "The Autocar" of October 5th, 1934).

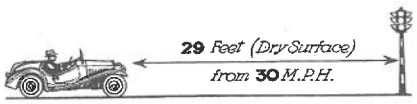
"The Autocar" Road Tests

including the track tests involving all-out running for several miles.

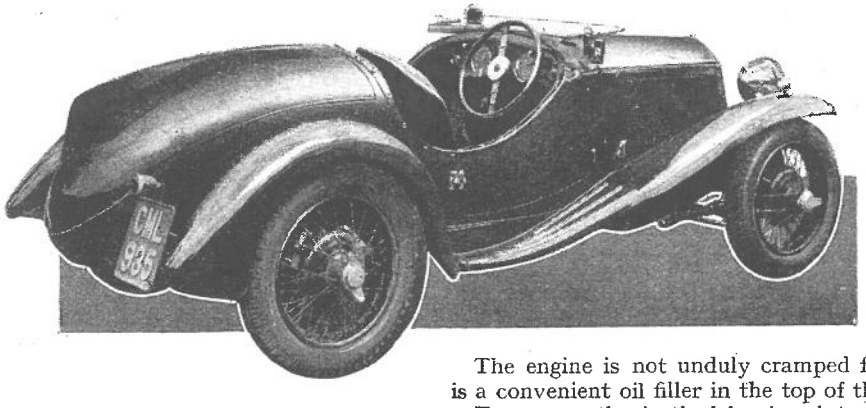
The figures for maximum speed given in the table apply to timed runs taken with the windscreen lowered. With the quite deep screen raised, a best speed of 69.76 m.p.h. was recorded in the favourable direction over a quarter-mile, and the usual mean of several such runs with the screen up was 64.86 m.p.h. on a day of considerable wind. The speedometer did not exceed a reading of 78 during any of the fastest runs, and two people were carried during all the tests of performance. At 30 the speedometer was less than 1 m.p.h. fast, at 50 it was 2.2 m.p.h. fast, and at 60 not quite 3 m.p.h. fast.



Positions of the Various Controls



Without harsh suspension being used an excellent stability has been achieved. This cannot but be considered together with the steering, which is so accurate as to make it possible to run "over a matchbox" with either front wheel. This small Fiat can be put into a corner fast with a feeling of complete certainty, for it will go round firmly close into the near side, and is good both on open curves of the fast main road type and on more appreciable turns.



Confidence is given by the brakes, too. They are hydraulically operated and the driver finds himself slowing the car exactly as needed with hardly any realisation of applying pressure to the pedal, and they operate smoothly and without pulling on the steering, giving, when necessary, a quick stop. The hand lever takes effect on the transmission and is intended only for emergency use and to hold the car stationary, for which purposes it is powerful, and the lever is conveniently within reach.

The whole control of the car is light; this applies also to the clutch action and to the engagement of the gears, which go through in an unusually easy manner. There is an excellent form of synchromesh which allows straight-through single-clutch movements upwards or downwards between top and third and from second to third. Third is so quiet as not to be distinguishable from top gear.

For more rapid methods a drop from top to second is performed with rather more than average ease, and it is a quick change even between first and second. There are occasions when first gear might be a rather high ratio for restarting on a severe hill. At extra charge a remote-control gear change with vertical lever can be fitted.

In spite of its low weight there is a generally solid feel about this car when travelling either slowly or at speed, which inspires confidence and has a big share in causing it to be highly appreciated by anyone capable of liking an efficient small sports car. Its size is such that with its acceleration and braking it is at an advantage on busy roads, quite apart from the real possibilities by reason of sustained higher speeds on longer journeys.

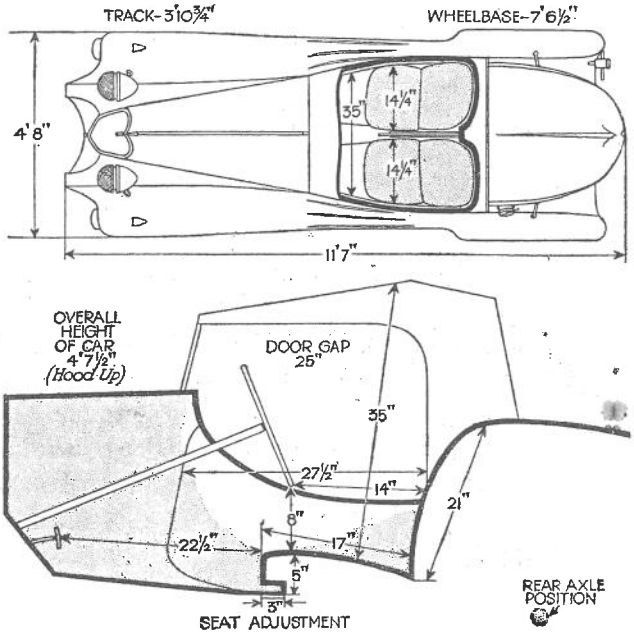
The body now fitted is a replica in appearance of the original Italian two-seater, but is built in England. It has two separate seats, slightly staggered if the driver utilises the adjustment to bring him closer to the spring-spoked steering wheel, the passenger seat being fixed.

Driving vision is excellent, the whole bonnet and both wings being visible, but some slight alterations to the seat details would put a driver of normal height in a better position for control over the pedals without the use of an extra cushion to bring him closer, and, similarly, some improvement could be made to the passenger seat. Both comments indicate that there is an unusual amount of leg room which would, of course, be acceptable to tall occupants. The body sides are cut away, leaving shallow doors which, in addition to inside handles, have external safety catches. The upholstery itself is comfortable, and leather is used. A sound feature is the fitting of soft round pads in positions where it is natural for the driver to brace his right knee and leg against the side when cornering fast.

The windscreen has a double-blade electric wiper, and on the instrument board are a large-dial speedometer and rev counter to match. There are zip-fastened pockets in the doors. The whole upper part of the finned tail is hinged, and lifts, disclosing the spare wheel, and this compartment also houses the detachable hood and the side screens, leaving a certain amount of space for small luggage. The hood is erected on a demountable frame, a not too lengthy process, and in doubtful weather it can be rolled back in "de ville" fashion.

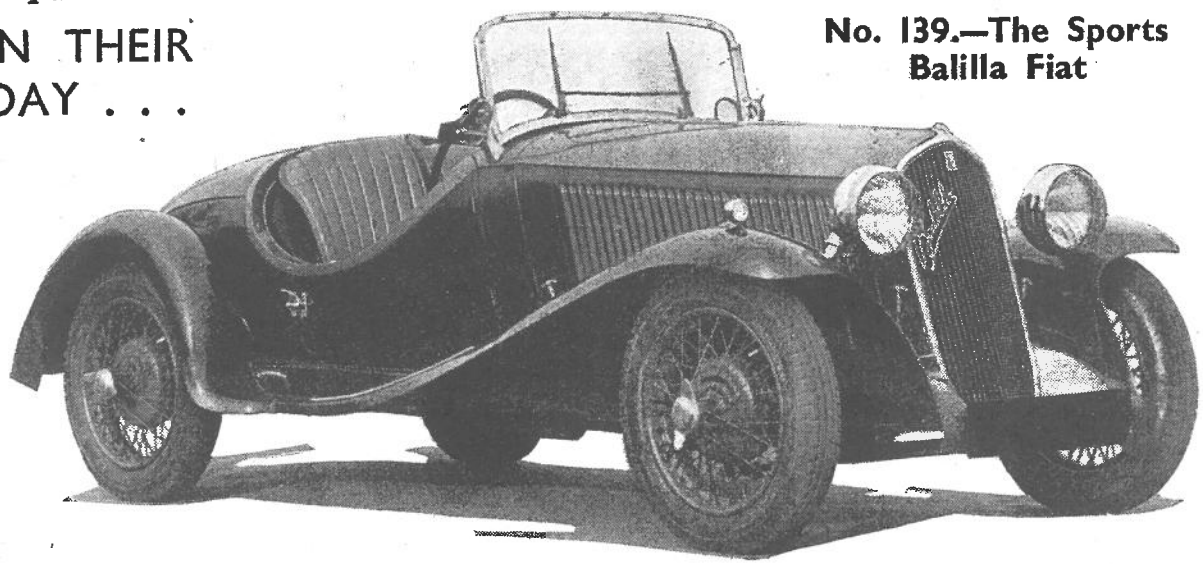
The engine is not unduly cramped for space, and there is a convenient oil filler in the top of the valve gear cover.

From an enthusiastic driver's point of view, a thoroughly likeable small sports machine. It feels a "real car."



IN THEIR DAY . . .

No. 139.—The Sports Balilla Fiat



THE Sports Balilla, forerunner of the current 1,100 touring car which has gone so fast and reliably when tuned and adapted by Gordini and others, was nearly unique in its period; a small sports car that gave the impression of having been designed as a unit and not just "developed." It was one of those rare machines of which the experienced driver says that the "chassis is faster than the engine"; a quality particularly uncommon in 1934 when the Balilla came out, for that was a time, in this country at any rate, when engine output had far outstripped road-holding amongst the cheaper cars.

As the picture shows, the lines of the Balilla suggested not the T.T. or Le Mans convention, but a car of grand prix background evolved for the Mille Miglia, and looking strikingly like the 12-cylinder G.P. 1,500 Fiat which Lane drew for the issue of November 28.

1,000 Miles at 55 m.p.h.

Steering and cornering were to match; the amateur's dream of monoposto handling come true, and the gear ratios were chosen not for scrambling up freak gradients in the mud, but for fast main-road motoring; the engine gave its maximum output of 36 b.h.p. at a mere 4,000 revs., with plenty of power low down. Balilla performance was first shown publicly in the Mille Miglia of 1933—the year the new K3 M.G. Magnettes won the 1,100 c.c. class at 56.8 m.p.h.—for Monchetti and Ambrosini averaged 54.7 m.p.h. in their 995 c.c. o.h.v. converted 508 Fiat, without benefit of blower. Fifteen Balillas finished the 1,000-mile course, and British enthusiasts who heard the praise given the new Fiat by our own competitors in the Mille Miglia eagerly awaited a glimpse of the car at the 1934 Olympia. They were also a little startled when the actual Show exhibit was taken down to Brooklands by Wren and Dudley Froy, who, in rainy weather, averaged 55.11 m.p.h. for 1,000 miles on the Mountain course. Examples later did well in racing, trials, and rallies.

After all this emphasis on competitions, it must be admitted that the sports Balilla, although behaving as though it had been designed with racing in view, was in fact a development of the standard side-valve 508 which for several years had been the Fiat bread-and-butter line. A small saloon of short wheelbase, and good handling and springing characteristics, this 508 in its day was also the Italian army equivalent of the K.d.F. in Ethiopia. The only change to the power unit was the fitting of a new cylinder head giving a conversion to push-rod o.h.v., which increased the revs. from 3,400 to 4,000, and provided 36 instead of a mere 22 b.h.p. At the same time the sporting car was given a back-axle ratio of 4.3 to 1 instead of 5.1, and a close-ratio four-speed gearbox providing 20, 35, 60 and 70 m.p.h. at peak revolutions, which represented only 2,000 ft. per minute piston speed. It followed naturally that the car had no particular cruising gait, but could be driven as fast as its maximum and the roads allowed, with no respect for corners and wet roads. The brakes, Lockheed hydraulic, were magnificent, and the springing, by half-elliptics all round, gave road holding which, in the opinion of many, has never been rivalled by "independent" chassis.

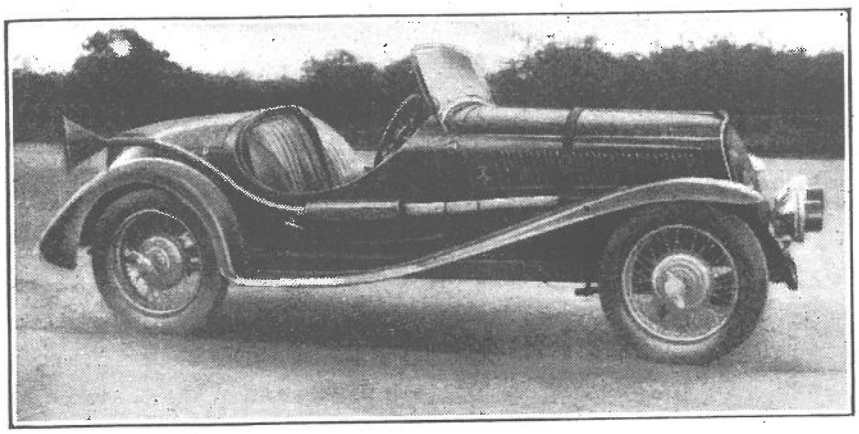
Balilla performance came from clean design and good weight distribution, coupled with a slim silhouette and low all-up weight; even the saloon scaled only 13¼ cwt. There was consequently no need to run the engine overfast, and the Italian motorist of the day did not share the British taste for mock Le Mans ironmongery and chromium plate; but it must be admitted that the sports 508, to use the official model number, was a very cold little car for an English winter, as the driver sat rather far from the screen, and low cutaway doors left both pilot and passenger rather exposed.

In specification the car was quite conventional, and can be summarized by a collection of dimensions and figures. Bore and stroke, 65 and 75 mm.; capacity, 995 c.c.; wheelbase and track, 7 ft. 6 ins. and 3 ft. 11 ins. respectively. Tyres were 4.00/17, on Rudge knock-on wheels, on all models except the very first. Turning circle was less than 30 ft., and the tank held 10 gallons of fuel. It was a car for serious, long-distance motoring.

Fast Chassis, Slow Engine

People will never agree upon what constitutes the ideal sports car. There is probably no such thing. The Balilla certainly was nearer to the Continental idea of sports car than to our own, although excellent value at £238. Perhaps it was a sort of scale effect which prevented it catching on more than it did, for despite the difference in size and price, the Fiat was in the same tradition of light, sporting, high-performance touring cars as the 30/98 Vauxhall. Fast but not fussy. A type of car more often found in the bigger horse-powers, but most certainly a thing to be encouraged.

There is no doubt at all that a fairly slow machine that steers, corners and stops like a racing car, whilst avoiding any hot-plug nuisance, is fundamentally a better vehicle than a fast, temperamental outfit which has more speed than the chassis can handle. So much is known nowadays about road holding and chassis layouts that no touring or sports car should feel unmanageable when flat out. The Fiat illustrated this 12 years ago. The moral is not hard to discover.



The Balilla Fiat Mille Miglia model described. The owner modified the exhaust system to the arrangement seen.

reliable, the only trouble from the engine being a broken big-end bolt (not Fiat) and a broken gudgeon pin circlip, both with disastrous effects. Piston rings needed replacing fairly regularly, as the engine was rather oily. The transmission was very reliable apart from the fabric couplings, which wanted watching, and on my car the ball race between the main and primary shafts in the gear box broke up, causing it to seize in top gear.

"The car performed much the same as an 850 with 9.3 to 1 compression ratio as it did as a 1-litre with 8.1 to 1 compression ratio. It pinked very badly, as one would imagine, even on Discol before the war, but an 18 deg automatic advance with over-riding hand control helped a lot. Petrol consumption was excellent, being 35-40 m.p.g. as an 850 c.c., and 30-35 as a 1,000 c.c. car. The engine itself used to run very hot, the oil being far warmer than the water in the header tank. This caused pre-ignition and was the result, in my opinion, of both the water inlet and outlet pipes being in the front of the engine, the water tending to circulate round No. 1 cylinder and remain static at the rear of the block. This could have been cured by having a special gasket made with the passages between the block and the head except at the rear. However, I never managed to get this done and one I made myself from 0.020in copper sheeting was unsatisfactory.

"Maintenance is very easy. The engine can be removed and completely dismantled in two hours, it being easier to replace if the gear box is taken out as well. Valve timing: Inlet opens 10 deg before t.d.c.; exhaust closes 10 deg after.

"Ignition timing should not be more than 20 deg before t.d.c. I used to time mine to fire at t.d.c. with the 18 deg automatic advance. Nothing was gained by advancing beyond this figure. The absolute minimum tappet clearance with my car was 0.006in for the inlets and 0.010in for the exhausts. With anything less than these figures there is no clearance at all when the engine is hot, causing the usual misfiring from lack of compression, and risking burning the valves into the bargain.

"Tyre pressures should be 20 lb front and rear. The front tyres last about 20,000 miles and the rear about 4,000 (synthetic). Shock absorbers should be fairly slack. I used to have the rear ones just tight enough to prevent the rear coupling hitting the floor on bad bumps. Incidentally, all the springs were flattened and reset, and even then five people could be carried without bottoming, three inside and two on the tail.

"The main snag with this car was the extreme cold in bad weather caused by the screen being about one foot too far forward. A hood did not improve things much, but side screens might have done so if there had been room to drive with them in position! Altogether it was one of the nicest little cars I have ever driven, and probably one of the fastest, but definitely the coldest!"

Petrol Review in March?

Minister Promises Earlier Reconsideration of Position

MOST hopeful result of a week of further protest at the basic petrol ration ban was the announcement by the Minister of Fuel and Power, Mr. Gaitskell, that he appreciated the need for an earlier statement on the subject than had previously been promised (for June, 1948) and that he would try to review the position before the end of March.

Circumstances clearly call for a further review. No one accepts the figures quoted recently by the Minister and Sir Stafford Cripps, for the very simple reason that their accuracy in living up to the forecasts within such a short space of time makes them suspect; moreover, as was pointed out in these columns, they take into account only the items in the petrol ledger which the Government wishes them to. A relaxation of the ban by, say, June, would enable the Government to save face, with, probably, Marshall aid intervening in the interim to provide an excuse in the economic sphere. Mr. Attlee and his colleagues will then be suitably shielded and nearly everybody will be happy, only those who have followed the ban and its implications down to the minutest detail remaining soured by the doctrinaire way in which motorists have been held to a ransom that existed only on paper; among that number this journal is proud to forecast itself.

The general feeling in the country was ably expressed by M.P.s of all parties who tabled the motion which was debated in the House of Commons this week. The motion expressed concern about the effect on those whose livelihood depends on tourist trade in this country.

More and more anomalies are appearing in the issue of what petrol is available to this country. It was announced that pleasure motor cruisers would get an allowance only slightly smaller than last year's; for last Saturday's cup-ties coach fleets were out in full force again, although some restriction had been put on their distance by area licensing authorities who, no doubt fully appreciative of the injustice of the position, refused to license certain coaches the starting points of which were at a distance that entailed many miles of empty running.

In the meantime the vicar of North Mimms complains in his parish magazine that motorists who applied for petrol in order to visit church are not using it, at least not for visiting the church in the neighbourhood. This may be regrettable, but it emphasizes an old adage that a law is bad which does not have the full support of the public.

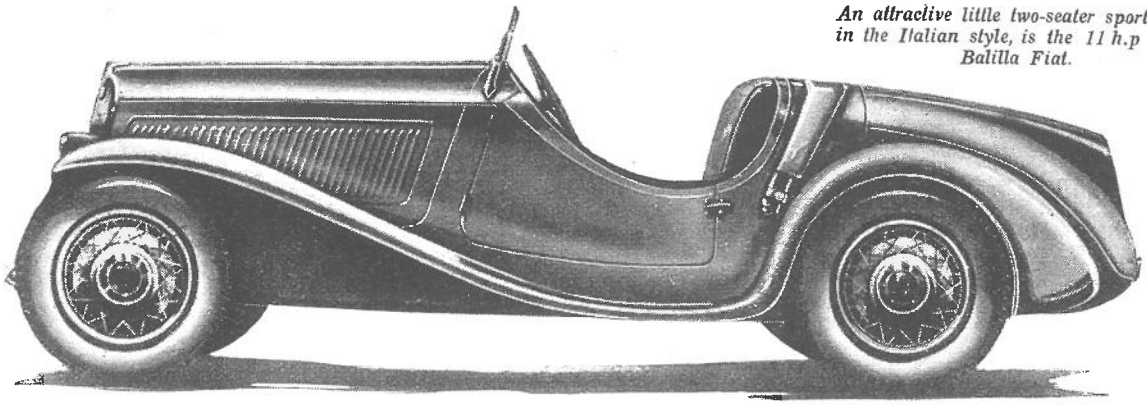
In Parliament, Mr. Gaitskell had to answer the usual barrage of questions. He revealed that the cost of additional staff and overtime in administering the basic cut was now running at £10,500 a month—a tidy bill that was not considered by Sir Stafford Cripps in his presentation of the petrol "budget."

The Minister stated categorically that he could not consider an issue of petrol to enable motorists to take their cars to ports for the purpose of going abroad. He pointed out that he could not exercise any control over motorists who had their cars taken to ports by train.

Mr. Gaitskell said that he proposed to make an Order limiting the radius of hire cars and taxis to 20 miles from the place at which they were normally kept, "except when required for urgent and necessary domestic purposes or in connection with the hirer's profession or business." The Minister was discreetly silent on the subject of who was to judge what journeys fitted this category.

A final answer by Mr. Gaitskell effectively damned the precise figures that were given at the recent conference by himself and Sir Stafford Cripps. The Minister was explaining that the reduction in direct imports of petrol from dollar sources was not a true guide as to the saving effected, which is, of course, perfectly comprehensible. He said that, for example, more petrol could be sold to the sterling area, which indirectly saved dollars; moreover, imports did not vary directly with consumption, because stocks might be being depleted or built up. And in answer to another question, Sir Stafford Cripps said that sales to dollar areas had not increased at all since the abolition of the ration. How, therefore, these two Ministers could have arrived at precise savings figures passes the understanding.

B32



An attractive little two-seater sports car, in the Italian style, is the 11 h.p o.h.v. Balilla Fiat.

FIAT NEW MODELS

Improved Longer Wheelbase Version of the Balilla; New Six-cylinder 20 h.p. Car : Synchromesh Gears : Price Reductions : Sports Model Balilla to be Available Here

AS far as the English market is concerned the famous Turin firm of Fiat are putting forward the most interesting programme they have had for some years past.

The chief point is that as a determined effort to maintain themselves here they are offering the cars for 1935 at prices which do not put them outside the categories to which they belong by size. Particularly last year they had a good range of cars, notable for an excellent performance, with lively acceleration, but the prices were too high. Further, the cars themselves are improved, and have features, such as synchromesh gear changes, which we in this country have come to expect.

As to the small car known here as the 508 and in Italy as the Balilla, this has been practically redesigned, and as a pillarless four-door saloon is being offered at £210, whereas last year a similar model cost £250. It is not without interest that Fiat's have made 70,000 cars of this type; it is a very popular car on the Continent.

The chassis has been lengthened by two inches, thus allowing more room in the body, which itself has been redesigned. It is a successful example of pillarless construction applied to a small car, in which size of vehicle this arrangement is of the utmost value from the point of view of convenience.

Particular attention is drawn to the strong construction of the pressed-steel pillarless bodywork of the four-door saloon, with which Fiat's have now had two years' experience. Though it does not have as standard a sliding roof, this can be provided at extra cost.

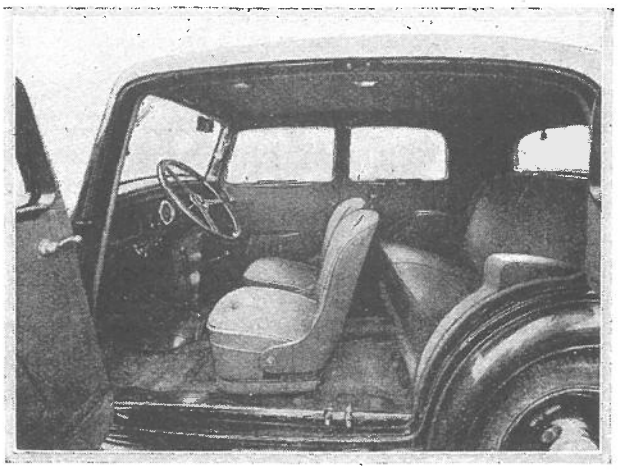
The four-cylinder 995 c.c. engine, taxed now at £11 and next year at £8 5s., is of simple side-valve type, flexibly mounted in the frame, and remains practically the same as last year. A three-bearing crankshaft is used, a down-draught carburetter with air filter is fitted, and it is stated that 23 b.h.p. is given.

There is a new shape of radiator for it, slightly inclined rearwards in the modern fashion; the luggage locker is part of the tail of the body, and is reached by hinging up the back seat squab. A new instrument panel is fitted, consisting of one large dial which includes the speedometer, oil pressure, and petrol gauges, as well as, in the four-door saloon, a clock. There is also now a very convenient control on the instrument board, allowing the reserve petrol supply to be brought into use without getting out of the car, or the supply to be shut off altogether.

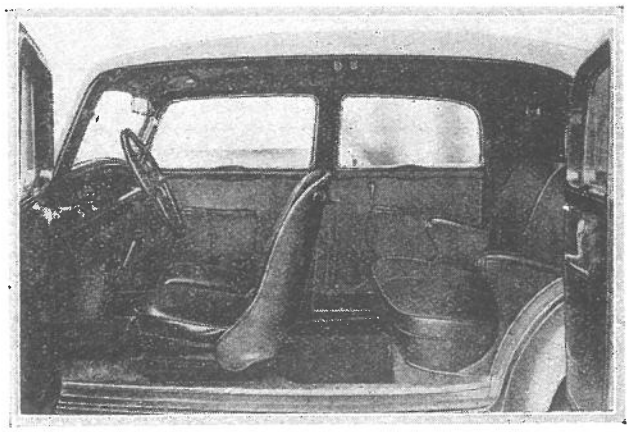
A new and important feature is the addition of a synchromesh mechanism to the gear box, whilst four speeds instead of three are now used, the synchromesh being between top and third. A free wheel can be fitted as an optional extra. Hydraulic brakes are used.

This efficient small car has a cruciform-braced frame, half-elliptic springs, and the wheelbase now is 7ft. 6½in.

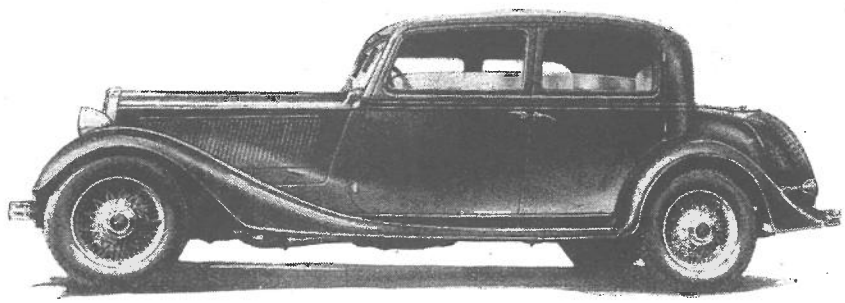
De luxe equipment, at extra cost, includes leather upholstery in place of cloth, wire wheels instead of steel disc wheels, an inspection lamp, a twin-blade



(Right) Easy entry is provided by the pillarless construction of the 508 Model saloon.



(Left) Showing the roomy interior of the six-cylinder Ardita sports saloon.



The four-door pillarless sports saloon on the 20 h.p. six-cylinder Ardita chassis.

electric screenwiper, a second spare wheel, and a metal cover for each spare wheel.

In addition to the four-door pillarless saloon there are an open two-seater Balilla at £185, and an open four-seater tourer at £205. The latter, as in the case of the saloon, has a built-in rear trunk.

Special Sports Model

Then, also, the special sports model Balilla is being introduced in this country. This is a model of which a good deal has been heard here by reason of its successful performance in various important competitions on the Continent, including the famous Italian Thousand Miles race, the Mille Miglia.

It differs from the ordinary Balilla in having an overhead valve engine, the valves operated by push rods, a special crankshaft, and a high compression ratio of 7 to 1. The engine gives a b.h.p. figure of 36 at 4,000 r.p.m.

In contrast to the ordinary model, this sports type has friction shock absorbers, a hand control for the ignition as well as the automatic advance and retard mechanism, a ten-gallon rear tank, instead of a tank under the bonnet, and it carries a very pleasing open sports two-seater body. This has bucket seats, one staggered in relation to the other. Leather upholstery is used, the lengthened bonnet extends back to the windscreen, the hood folds down very neatly behind the front seats, being partially sunk into the body, and wire wheels, folding windscreen, and two spare wheels concealed in the tail and held by a quick-action clamp are provided.

With its expected performance, at the price of £299 10s. this is a car which should find some favour in this country, for its very appearance has the Italian touch about it.

The four-cylinder Ardita model is being continued, and can be obtained with an engine of either 15 h.p. taxed at present at £15, or with one of 17 h.p., also a four-cylinder, at £7 10s. extra. This is a car which at ordinary speeds almost defies one to tell that it is a four and not a six, besides which its acceleration is lively, and the car handles well. The price of the four-door pillarless saloon, with 15 h.p. engine, is £350, against £375 last year.

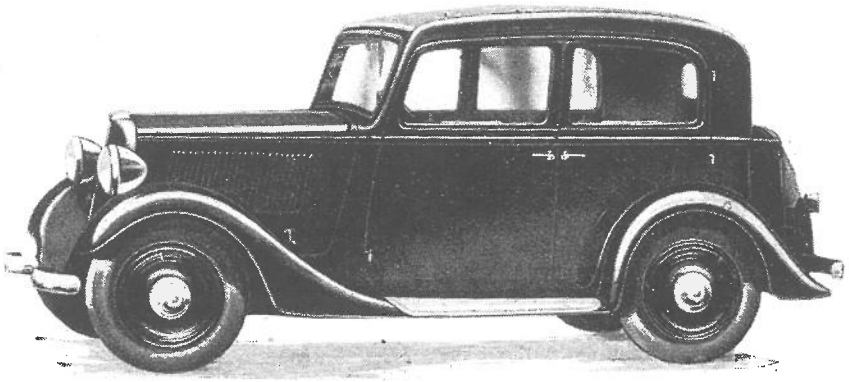
Then there is a new model six-cylinder Ardita, with a side-valve engine of 72 by 103 mm., 2,516 c.c., known as the Ardita 2500. This is being sold as a standard saloon of four-door pillarless type at £455, and as a sports saloon at £585. The tax on it at present is £20, which next year will be £15.

It is stated that the standard engine gives 55 b.h.p. and that the sports type, which has an aluminium cylinder head, gives over 60 h.p. A silent-third gear box is used, with synchromesh change for third and top, and the hydraulic brakes are on the special Fiat layout of separate operating cylinders for front and rear brakes, so that their operation is independent of the possible failure of one or other of the sets.

Two Spare Wheels

The sports saloon is particularly attractive in appearance, being of four-light type with a big built-in luggage trunk. Both this and the standard six-light saloon have the still unusual feature, as a standard fitment, of two spare wheels, carried at the rear on the lid of the luggage locker in the case of the sports saloon.

Equipment on both models includes bumpers of special design, the sports saloon has wire wheels, a twin-blade screenwiper, and disappearing ash trays; both have interior sun visors, and at extra cost a free wheel can be fitted if required. Flush-fitting direction indicators are a standardised fitting.



The latest Fiat 508 four-door pillarless saloon.

THE FUTURE OF ELECTRIC CARS

Electric Vehicle Committee Reorganised in Order to Encourage Use of Such Designs

A NEW campaign to support the electrically driven vehicle is forecast by *The Electrical Review*, which, in discussing the recent reorganisation of the Electric Vehicle Committee, states: "We hope that we shall soon see the British electric vehicle industry filling a much larger place in the great motor car world, and adding considerably to the consumption of electricity."

The Electric Vehicle Committee has been in existence for twenty-one years, and though at times it has hardly been active, its present reorganisation and registration certainly point to renewed activity. The Committee was first formed in 1913 under the auspices of the Incorporated Municipal Electrical Association, and at the end of 1925 it became affiliated with the British Electrical Development Association. Now it has been registered as a company, limited by guarantee, having no share capital and not operating for profit. Among the associations which are appointing representatives as members of the Committee are the Commercial Motor Users Association, the Society of Motor Manufacturers and Traders, as well as many electrical associations.

Probably the main difficulty which the electrical vehicle industry has to face is the arranging of a standard set of charges throughout the country for servicing jobs, such as charging. A committee appointed last February to investigate this problem received, is is stated, evidence of an increasing demand for the lighter electric vehicle to take the place of commercial petrol-driven vehicles, horse vans, and hand carts, used in the daily delivery of food. Evidence was also submitted that the electric vehicle provides a reduction in operating costs as compared with petrol-driven vehicles of similar capacity, owing to the longer life and low cost of repairs. Manufacturers estimated that, provided suitable tariffs and facilities for charging could be arranged, 5,000 light electric delivery vans should be on the road within the next two years; 30,000 within five years; and 100,000 within ten years. Although for the moment concentration is on commercial vehicles, it may be that the electric passenger car will also receive increased attention.

TALKING OF SPORTS CARS (No. 301)

Mille Miglia Balilla Fiat

A Potent Small Italian Sports Car

A SOMEWHAT rare pre-war machine is described this week, a Balilla Fiat Mille Miglia two-seater. Although the 1,000 c.c. Balilla Fiat in saloon form became fairly well known in this country before the war, and even with its side-valve engine was a decidedly lively small car, this o.h.v. sports version did not come over in any appreciable numbers. It was a highly efficient type, as I recall from a Road Test of one carried out in 1935. Over a quarter-mile at Brooklands it did a timed speed of 73.77 m.p.h., with the windscreen folded down, and it provided quite high speeds on the indirect gears—60, 42 and 24 m.p.h. on third, second and first. The engine was an exceptionally free-revving type, yet the gear ratios were high and the 60 m.p.h. available on third gear was obtained without exceeding 4,500 r.p.m., the safe limit laid down by the makers. The weight of the car tested was 12 cwt 3 qr 20 lb, and, incidentally, in 1935 this car was priced at £258.

The owner in question, Sqn. Ldr. A. H. Piper, had his car's engine size reduced to 850 c.c. by means of liners, it will be noted, and then later the bore was increased beyond standard. With the very high non-standard compressions that he used with both engine sizes, his performance was much above that of the car as sold, for with the screen raised normally the maximum of the car tested was a bare 70, against the owner's easy 80 reading. Again, on the car which was tested, the speedometer read not more than 4-5 m.p.h. fast at maximum speed.

Never since that time have I had further practical experience of this model; indeed, in all those years I doubt if I have seen more than two or three examples. This model first came to the notice of enthusiasts in this country by being raced, in modified form, in the Mille Miglia. It may also be remembered that its capabilities were convincingly demonstrated here in the autumn of 1934 in covering a thousand miles over the Brooklands "Mountain" circuit at an average of 55.11 m.p.h., besides which it appeared in many trials.

On referring back I see that the published Road Test fully supports Sqn. Ldr. Piper's praise of the Fiat's brakes, of which it was remarked in 1935 that "the driver finds himself slowing the car exactly as needed with hardly any realization of applying pressure to the pedal." It was indicated that the seat placed the driver too far from the controls, an average height person needing an extra cushion to bring him closer; but as it was summer-time I naturally did not experience the chilliness which the owner recalls as this car's worst feature. VIZOR.

"I OBTAINED my Balilla Fiat Mille Miglia sports two-seater in February, 1939," (writes Sqn. Ldr. A. H. Piper). "A brief outline of the main specification is:—Engine, four-cylinder push-rod o.h.v., 65 × 75 mm, 995 c.c.; gear ratios, 4.3, 5.6, 8.4 and 14.2 to 1; weight, 12 cwt; tyres, 4.00 × 17in. The engine develops 36 b.h.p. at 4,400 r.p.m., so the power-weight ratio is excellent.

"My particular engine was linered down to 60 mm, reducing the capacity to 850 c.c., and the compression ratio raised to 9.3 to 1; later it was bored out to 66 mm and the compression ratio reduced to 8.1 to 1. The connecting-rods and pistons were balanced and the former lightened at the little-ends. The flywheel had as much surplus metal removed as possible, and it and the clutch assembly were balanced. The ports were polished and the valves and guides cleaned up. It was also fitted with an outswept exhaust manifold designed and made by Mr. V. H. Tuson, who raced one of these models with outstanding success and helped me with mine on numerous occasions. Instead of the standard Zenith carburettor I used a downdraught S.U. from a 14 h.p. Rover and an extra air device. I also replaced the Marelli ignition system with Lucas (ex-Humber Twelve), and the engine-driven petrol pump by an S.U. electric. A Fram filter was used with excellent results.

"The transmission was standard except for the remote control gear change, which was from a Brooklands Riley, the Fiat version being very poor. The instruments were all British and housed in a home-made oak facia containing a Jaeger speedometer and rev counter, oil and water thermometers, petrol and oil gauges and ammeter. The only other major alteration was to replace the Italian lamps by Lucas Biflex with Vauxhall Fourteen mountings, which was a great improvement.

"From the above remarks one would gather at first sight that this car had been unnecessarily modified at great expense and for no apparent reason. In actual fact, apart from the engine modification, they were carried out over a period of years, using secondhand components, the car being improved enormously at very little expense.

"I think that the Fiat's most outstanding features were its steering and roadholding. It was a real delight to drive; and the brakes (Lockheed) were among the best I have ever had. In this connection, the only thing to watch is the track of the front wheels, as the track rod is easily bent by striking the kerb while parking. The steering is not affected very much if this happens, but the tyre wear is naturally very greatly increased.

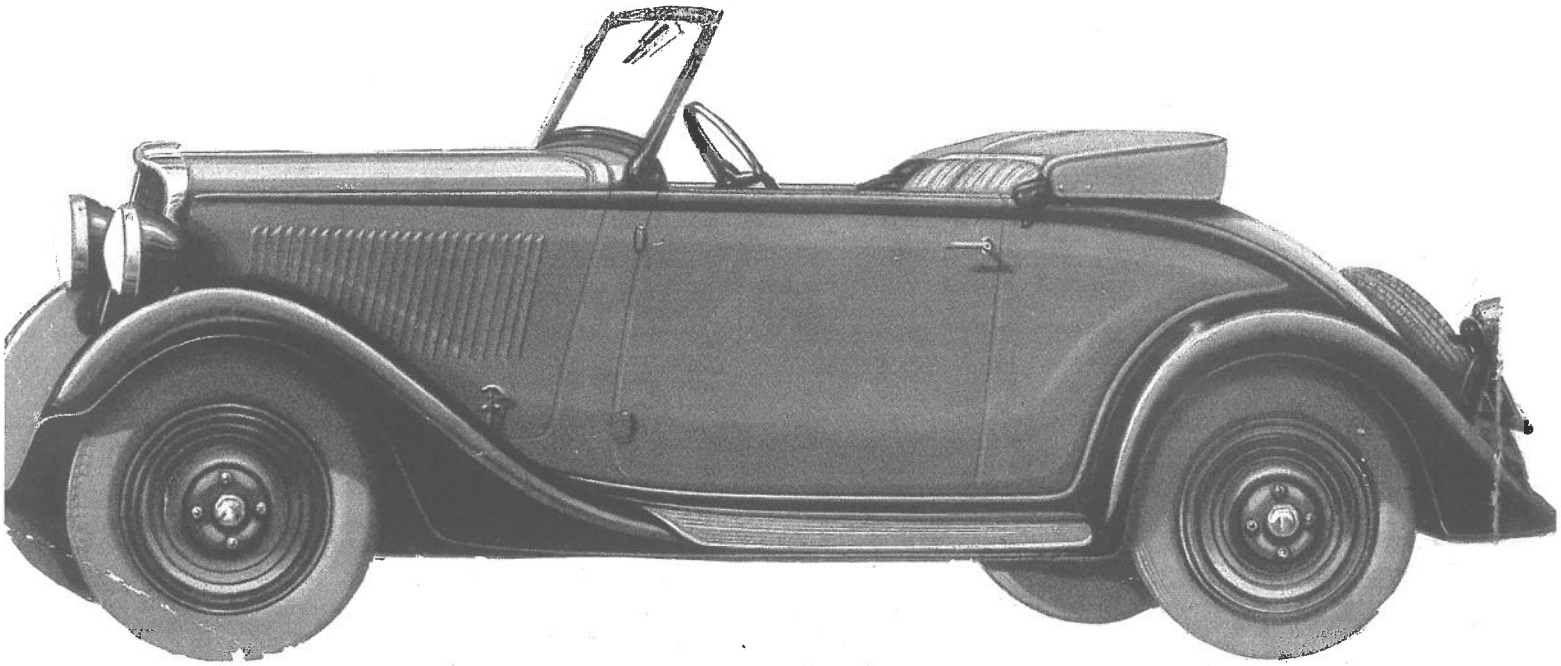
"The acceleration was outstanding; maximum revs were rather over 6,000 r.p.m. and 70 m.p.h. could be reached on third gear. On top 80 could be exceeded on any normal main road and the car would cruise at 65-70 all day, maintaining this speed up all normal main road inclines. I hasten to add that all the above were speedometer readings, but the instrument was believed to be fairly accurate and agreed with the rev counter, giving 600 r.p.m. for 10 m.p.h. on top gear.

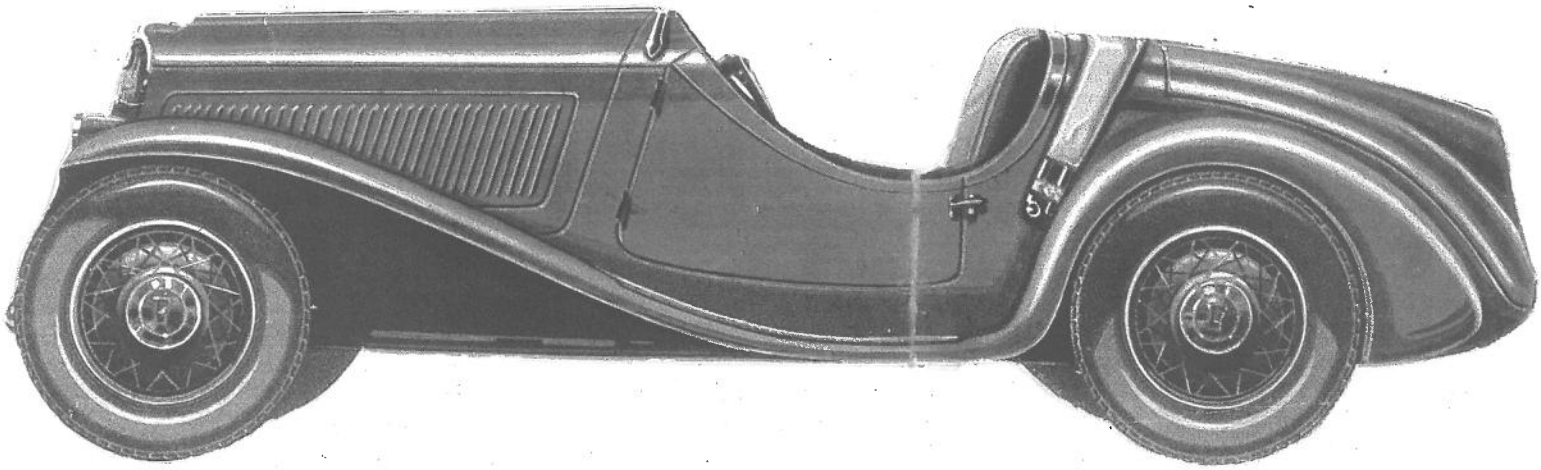
"The only part liable to break if 6,000 r.p.m. was exceeded was a tappet block. Apart from this the car was dead



As "genuine" a sports car as has been offered in the up to 1,100 c.c. class—the Mille Miglia Fiat. The head lamp masks fitted when this photograph was taken provide a reminder of motoring conditions even worse than those of the present time!

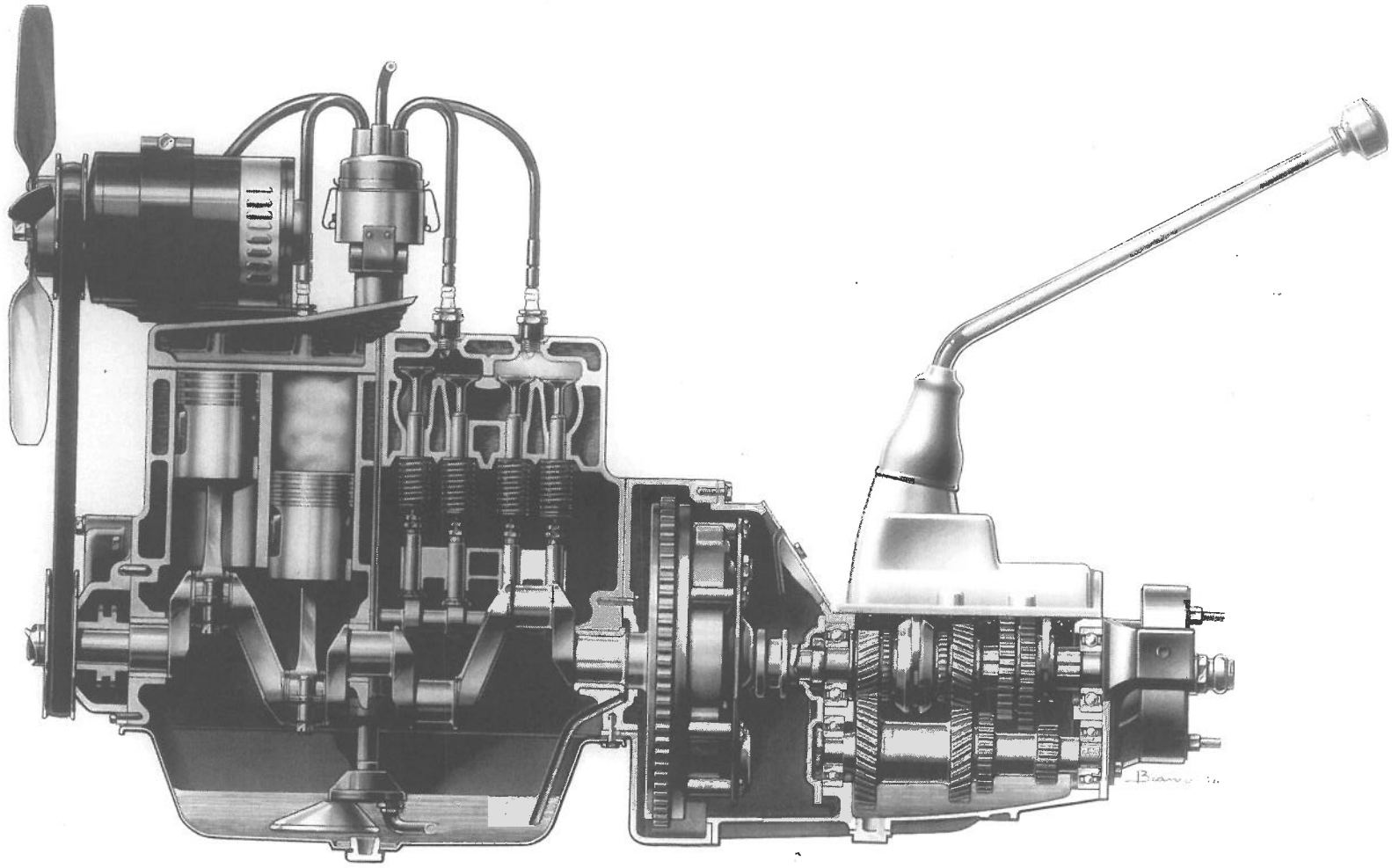
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FIAT

UFF. PUBBLICAZIONI TECNICHE




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