The CATALOGUE of the Vauxhall Motor Carriage

CONTENTS

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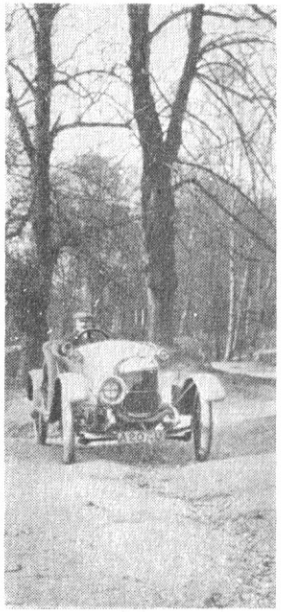
Foreword: The Vauxhall as Others see It



IT is a significant thing that again and again in the reviews published last spring of the new 25-h.p. model, this note is struck—that it is as nearly perfect as a car can be. Praise can go no higher.

Mr. H. Massac Buist, writing in "The Morning Post," after consideration of the qualities of the Vauxhall, declared that it was "The happiest solution of a combination of problems presented by the public to the maker of medium-sized motor carriages." The motoring contributor of "The Pall Mall Gazette," after critical examination, recorded his opinion that, "In every detail that makes for the perfect car, the Vauxhall fills the bill." In "The Car" there was the same testimony: "As nearly perfect as any car of the present date; it fulfilled our highest ideals." And so we might go on until the reader wearied.

The truth is, that the Vauxhall shows itself just that much ahead of the ordinarily good car that makes all the difference.

In the current programme the 25-h.p. model remains substantially the same, though in several respects improvements have been made which increase its refinement.

The efficiency of the Vauxhall engine is so well known that no technical argument is needed here on this head, but it is distinctly to the purpose to point out that the result of this efficiency is a great saving in the fuel bill. It is not mere coincidence that in the New Zealand trial, the Manchester A.C. trial, the Lancashire A.C. trial, the A.C. of Australia test, the Queensland A.C. test—all events of 1913—Vauxhall cars secured the prize for high fuel-mileage. These are public performances which must carry conviction, and we think our statement will be accepted that the experiences of Vauxhall owners generally corroborate the results which the cars achieve in public contests.

Another feature which strikingly distinguishes the Vauxhall is its comfort. The springing, to adopt the words of a well-known motoring writer, is "excellently luxurious." In addition to this, the body design, the nature of the upholstery, and the seating curves are such, that in the Vauxhall the highest degree of comfort is attained, and there is a remarkable freedom from jolting and vibration. Its comfortable riding impresses all who have tried the Vauxhall.

These great qualities in a touring vehicle, low fuel-consumption and luxury of motion, are accompanied by remarkable power in proportion to cylinder capacity. In hill-climbing the Vauxhall is so undeniably to the fore that no one questions its superiority on this point. Mr. Massac Buist summed up the hill-climbing capacities of the Vauxhall in the remark: "I do not know of a big-powered car in the land that shows to better advantage on really steep gradients on the top gear than does this middle-sized Vauxhall." If one seeks for the testimony of competitions it is sufficient to point out that in 1913 it was a Vauxhall that made the fastest time of the day successively at Waddington Fells, in the A.C. of Australia hill-climb, at Aston Hill, Craigantlet, Shelsley Walsh, Caerphilly, in the Leicestershire A.C. hill-climb, and in the Transvaal A.C. hill-climb. Coupled with this climbing power is an independence of the gear-box that one enjoys only in a car able to run on the direct drive from a walking pace up to 50 or 60 miles an hour.

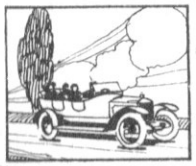
As the mechanical features of the car are treated with exceptional fulness in the body of the catalogue, little need be said here on this subject. The reputation of the Vauxhall is founded on high technical merit and sound workmanship. When recently a representative of the well-known Austrian motor journal, the "Allgemeine Automobil Zeitung," paid a visit to some of the best-known English motor manufacturers, this was his verdict on the Vauxhall works: "The Vauxhall firm is indeed the English 'Gräf und Stift' [a firm in Vienna of the highest standing, whose name is used to typify 'the best']. Here it is sought to build a car that shall be constructed upon quality only. The factory is relatively small, and each car that comes from it is in some measure considered as an 'individuality.'" This estimate of the Vauxhall, coming from the pen of a foreign journalist who wrote solely from the critic's point of view, makes interesting reading. If further evidence be desired in regard to the quality of material and workmanship put into Vauxhall cars, there is the fact that with each chassis a guarantee for three years is given.

With all these considerations before him, the intending purchaser must recognise that the Vauxhall offers a proposition worthy of attentive consideration, and that before buying a car he should at least take a trial drive in "the car superexcellent," and make full enquiry into its merits. We believe he will then find how completely justified are the opinions cited, and how strong is the assurance offered to him that, in becoming possessed of a Vauxhall, he will be entering on an experience of motoring in its most delightful form, while investing his money to the best advantage, inasmuch as the Vauxhall is a car of the first distinction, withal economical in running costs, and by no means expensively priced when its quality and durability are taken into account.

Section I.

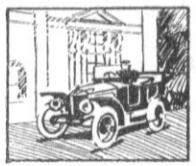
Chassis Specifications

Drawings, main points and prices of the four types



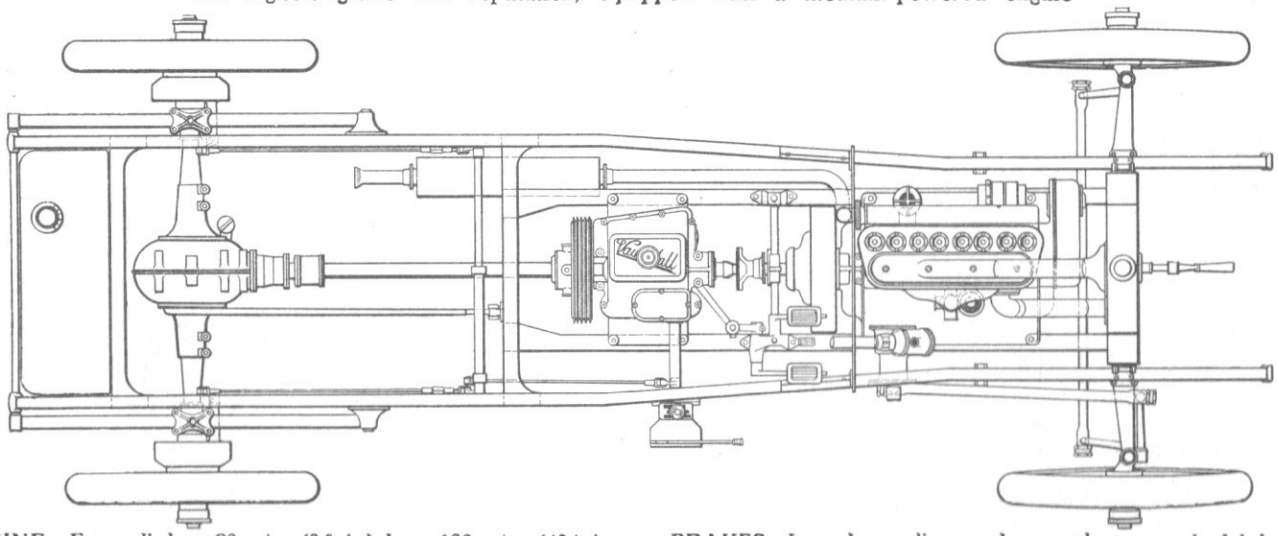
Vauxhall

THE CAR
SUPEREXCELLENT



"A" type chassis, 16-20 h.p., price £375

This type will appeal to those who desire, at a moderate price, a chassis of the highest grade and reputation, equipped with a medium-powered engine



ENGINE : Four cylinders, 90 m/m. ($3\frac{9}{16}$-in.) bore, 120 m/m. ($4\frac{3}{4}$-in.) stroke, cast *en bloc* with mechanically-operated valves, all on one side.

CARBURETTOR : Automatic in action at all speeds.

IGNITION : High-tension magneto.

LUBRICATION : By pump forcing oil through main bearings and hollow crank-shaft to connecting rod big-ends.

CLUTCH : Multi-disc type.

GEARS : Four forward speeds (direct drive on fourth) and reverse, operated by side lever in gate. The speeds given at 1,000 engine revolutions per minute are 6.5, 10.5, 16.5, and 24.5 miles per hour.

STEERING : Worm and wheel.

CONTROL : Throttle and ignition levers, working in conjunction with pedal accelerator, are fitted above the steering wheel.

BRAKES : Internal expanding, metal to metal, on rear wheel hubs and propeller-shaft, operated by side lever and pedal respectively. The three brakes are easily adjusted.

PETROL SUPPLY : Tank fitted at rear with air-pump pressure feed.

WHEELS : Vauxhall detachable artillery wheels, with rims of 815 m/m. by 105 m/m., and fifth wheel (minus tyre). Wire wheels, the use of which prolongs the life of the tyres, are strongly recommended, and are fitted for £5 extra, including fifth wheel (minus tyre).

TYRES : 815 by 105 m/m. Dunlop are fitted as standard, plain for front wheels, grooved for rear. Spencer Moulton (plain and grooved), Continental (flat tread) or Michelin (square tread) tyres of the same size may be substituted without extra charge.

FINISH : All bright parts of the chassis are finished in brass.

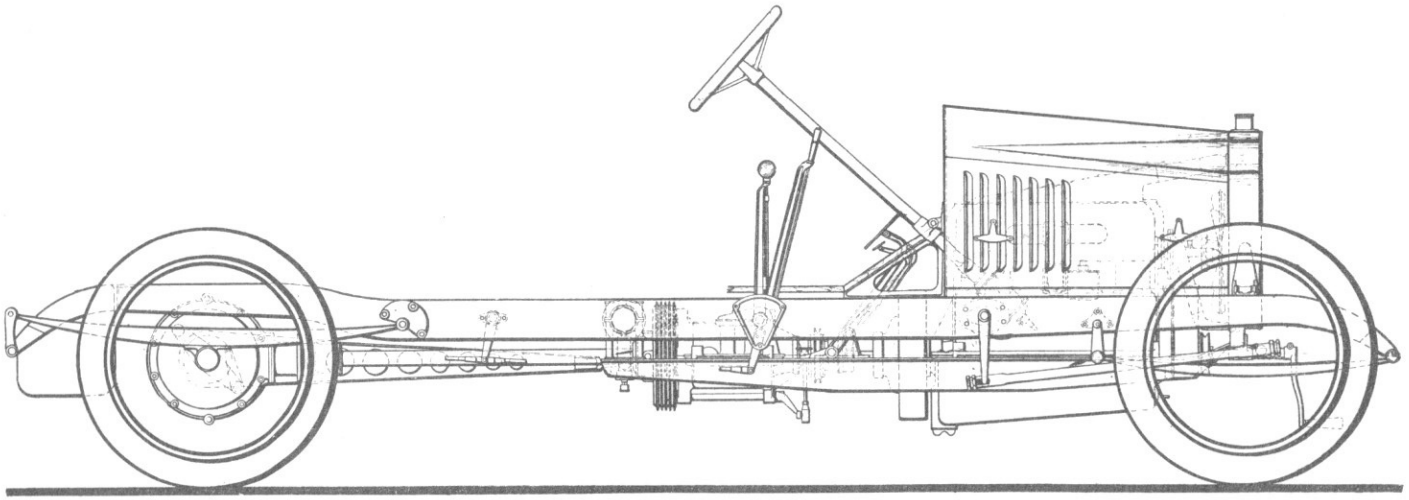
WHEEL-BASE : 9 ft. 9 in. BODY SPACE : 7 ft. 9 in.

WEIGHT : Approximately $18\frac{1}{4}$ cwts.

PRICE : £375. (For lighting set, see p. 40.) TAX : £6 : 6 : 0.

"D" type chassis, 25 h.p., price £480

The year which has elapsed since the introduction of the 25 h.p. model has established its success as a weight-carrying chassis, with remarkable powers of acceleration, and notable for hill-climbing and slow, silent running on the fourth gear



ENGINE: Four cylinders, 95 m/m. (3¾-in.) bore, 140 m/m. (5½-in.) stroke, cast *en bloc*, with mechanically-operated valves, all on one side.

CARBURETTOR: Automatic in action at all speeds.

IGNITION: High-tension magneto; Bosch starting magneto.

LUBRICATION: By pump forcing oil through main bearings and hollow crank-shaft to connecting rod big-ends.

CLUTCH: Multi-disc type.

GEARS: Four forward speeds (direct drive on fourth) and reverse, operated by side lever in gate. The speeds given at 1,000 engine revolutions per minute are 8.5, 13, 21, and 31 miles per hour. Lower gearing, for use with heavy coach-work, is fitted to order.—(See table on page 20.)

STEERING: Worm and wheel.

CONTROL: Throttle and ignition levers, working in conjunction with pedal accelerator, are fitted above the steering wheel.

BRAKES: Internal expanding, metal to metal, on rear wheel hubs and propeller-shaft, operated by side lever and pedal respectively. The three brakes are interchangeable and easily adjusted.

PETROL SUPPLY: Tank fitted at rear with air-pump pressure feed.

WHEELS: Vauxhall detachable artillery wheels, with rims of 880 m/m. by 120 m/m., and fifth wheel (minus tyre). Wire wheels, the use of which prolongs the life of the tyres, are strongly recommended, and are fitted for £5 extra, including fifth wheel (minus tyre).

TYRES: 880 by 120 m/m. Dunlop are fitted as standard, plain for front wheels, grooved for rear. Spencer Moulton (plain and grooved), Continental (flat tread), or Michelin (square tread) tyres of the same size may be substituted without extra charge.

FINISH: All bright parts of the chassis are finished in brass.

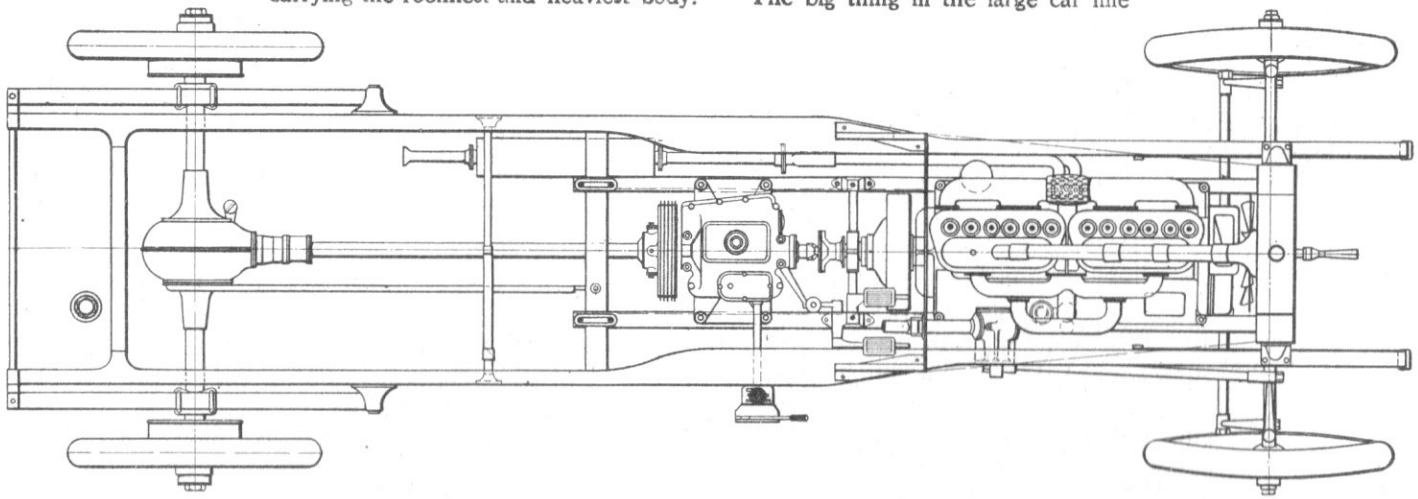
WHEEL-BASE: 10-ft. 10-in. BODY SPACE: 8-ft. 8-in.

WEIGHT: Approximately 20 cwts.

PRICE: £480. (For lighting set, see p. 40.) TAX: £6 : 6 : 0.

"B" type chassis, 35 h.p., price £650

A superb example of the large chassis, with an engine of ample power for carrying the roomiest and heaviest body. "The big thing in the large car line"



ENGINE : Six cylinders, 95 m/m. (3¾-in.) bore, 120 m/m. (4¾-in.) stroke, cast in two blocks of three each, with mechanically-operated valves, all on one side.

CARBURETTOR : Automatic in action at all speeds.

IGNITION : High tension magneto ; Bosch starting magneto.

LUBRICATION : By pump forcing oil through main bearings and hollow crank-shaft to connecting rod big-ends.

CLUTCH : Multi-disc type.

GEARS : Four forward speeds (direct drive on fourth) and reverse, operated by side lever in gate. The speeds given at 1,000 engine revolutions per minute are 7.5, 12.0, 19.5, and 28.5 miles per hour. (For alternative gear, see p. 20.)

STEERING : Worm and wheel.

CONTROL : Throttle and ignition levers, working in conjunction with pedal accelerator, are fitted above the steering wheel.

BRAKES : Internal expanding, metal to metal, on rear wheel hubs and propeller-shaft, operated by side lever and pedal respectively. The three brakes are interchangeable and easily adjusted.

PETROL SUPPLY : Tank fitted at rear with air-pump pressure feed.

WHEELS : Vauxhall detachable artillery wheels, with rims of 895 m/m. by 135 m/m., and fifth wheel (minus tyre). Wire wheels, the use of which prolongs the life of the tyres, are strongly recommended, and are fitted for £5 extra, including fifth wheel (minus tyre).

TYRES : 895 by 135 m/m. Dunlop are fitted as standard, plain for front wheels, grooved for rear. Spencer Moulton (plain and grooved), Continental (flat tread) or Michelin (square tread) tyres of the same size may be substituted without extra charge.

FINISH : All bright parts of the chassis are nickel-plated.

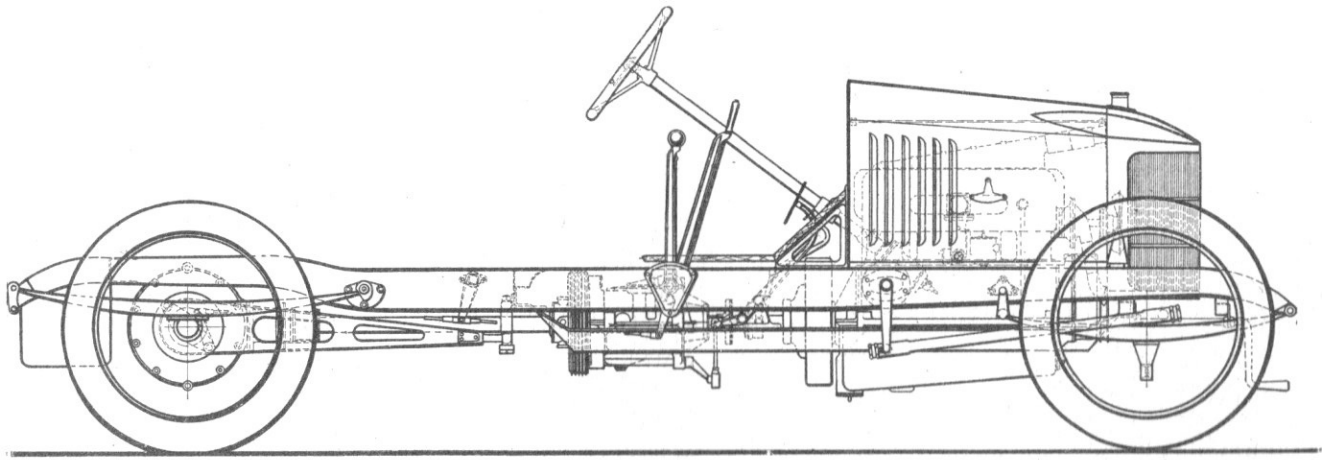
WHEEL-BASE : 11-ft. 8-in. BODY SPACE : 8-ft. 8¼-in.

WEIGHT : Approximately 24 cwts.

PRICE : £650, with C.A.V. lighting set (see p. 40). TAX : £10 : 10 : 0.

"C" type chassis (Prince Henry) 25 h.p., price £515

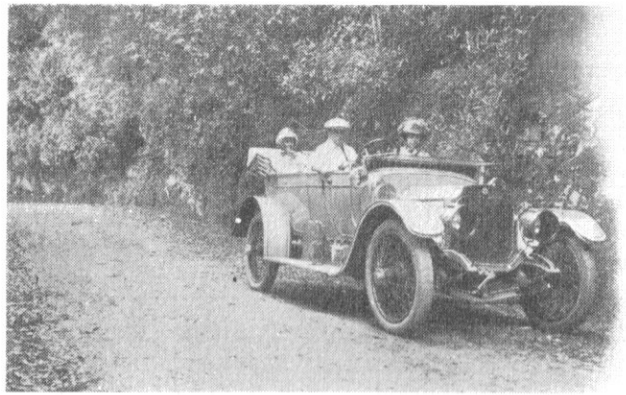
A special type of light car with a high efficiency engine, securing the maximum output of power per hundredweight. Acknowledged the finest example of its kind. Fuller particulars in "The Sporting Car," sent on application



ENGINE: Four cylinders, 95 m/m. (3⅝-in.) bore, 140 m/m. (5½-in.) stroke, cast *en bloc*, with mechanically-operated valves, all on one side. The engine embodies all the latest improvements developed on the Brooklands record-breaker.
CARBURETTOR: Automatic in action at all speeds.
IGNITION: High-tension magneto; Bosch starting magneto.
LUBRICATION: By pump forcing oil through main bearings and hollow crank-shaft to connecting rod big-ends.
CLUTCH: Multi-disc type.
GEARS: Four forward speeds (direct drive on fourth) and reverse, operated by side lever in gate. The speeds given at 1,000 engine revolutions per minute are 9, 14.5, 22.0, and 33.5 miles per hour.
STEERING: Worm and wheel.
CONTROL: Throttle and ignition levers, working in conjunction with pedal accelerator, are fitted above the steering wheel.

BRAKES: Internal expanding, metal to metal, on rear wheel hubs and propeller-shaft, operated by side lever and pedal respectively. The three brakes are easily adjusted.
PETROL SUPPLY: Tank fitted at rear with air-pump pressure feed.
WHEELS: Vauxhall detachable wire wheels, with rims of 875 m/m. by 105 m/m. are fitted as standard to this type. Fifth wheel (minus tyre) is included.
TYRES: 875 by 105 m/m. Dunlop are fitted as standard, plain for front wheels, grooved for rear. Spencer Moulton (plain and grooved), Continental (flat tread), or Michelin (square tread) tyres of the same size may be substituted without extra charge.
FINISH: All bright parts of the chassis are nickel-plated.
WHEEL-BASE: 10-ft. 0-in. BODY SPACE: 7-ft. 9-in.
WEIGHT: Approximately 18½ cwts.
PRICE: £515. (For lighting set, see p. 40.) TAX: £6:6:0.

Colonial type chassis, 16-20 h.p., 25 h.p., 35 h.p.



A Vauxhall on a steep gradient of the Bulli Pass, N.S.W.

SPECIAL FEATURES ARE EMBODIED, as undermentioned, in chassis destined for use in the Overseas Dominions; in all other respects each chassis is in agreement with the foregoing specifications. The prices are the same as for standard models.

GROUND CLEARANCE: There is a minimum clearance of 10-in. under the front axle, steering gear, engine flywheel—in fact, under all parts excepting the rear axle case. The clearance here is, owing to the proportions of the central casing, about 9-in., but it can be increased if larger wheels and tyres are fitted.

SPRINGS: The camber, and the number and thickness of leaves are increased, to give additional strength and stability.

MUD-SHIELD: An extra long mud-shield provides ample protection from stones, etc., that may be thrown up.

PETROL SUPPLY: A large tank is provided, holding about 12 gallons.

STRENGTH OF FRAME: The large measurements, 5-in. deep by 4¾-in. wide, at the part which supports the body, immediately behind the dashboard, is a feature which may be pointed out, although found also in the standard types.

ORDERING SPARE PARTS: The attention of clients in the Overseas Dominions is particularly drawn to the fact that every part is numbered; and as careful records of all designs are preserved at the Vauxhall works, each number is equivalent to a complete specification. Consequently, it is sufficient when ordering spare parts to state merely the number of the parts required.

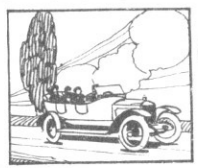
THE SUITABILITY OF VAUXHALL CARS FOR COLONIAL USE

has been so often demonstrated by the success this make has obtained in reliability and hill-climbing contests that probably no English car is better known in the Overseas Dominions than the Vauxhall. From Australia, New Zealand, South Africa, and Canada, as well as from India, we have received letters which record the admirable behaviour of the Vauxhall car under the severest road conditions. This evidence from private owners, and the public trials which the Vauxhall has undergone in the A.C.A. and the New Zealand A.A. competitions, render it unnecessary for us to dwell upon the satisfaction which the Vauxhall invariably gives to Colonial users, owing to its strength, dependability, economy, and ease of control. Reference should be made to page 50, on which some of the remarkable successes gained by the Vauxhall in Colonial competitions are recorded.

Section II.

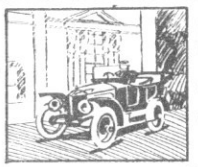
Design and Material

The chassis described and illustrated in detail



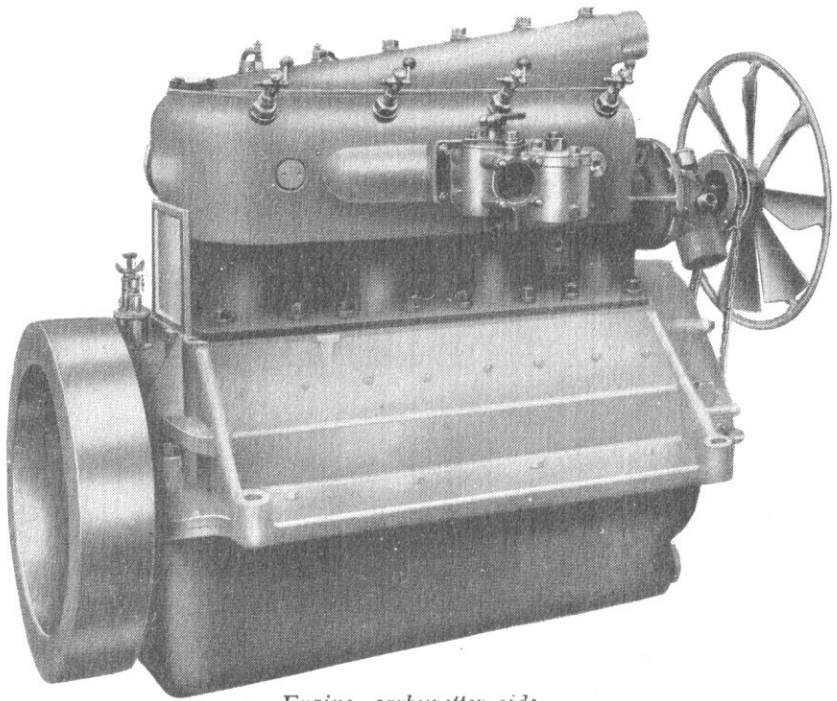
Vauxhall

THE CAR
SUPEREXCELLENT



The 1914 Vauxhall chassis

The following description applies generally to the several types, though characteristic differences are duly pointed out



Engine, carburettor side.

THE FRAME, constructed of pressed steel, is cambered or upswept at the rear-axle, to facilitate the use of conveniently low side doors, and is so inswept or narrowed forward of the dashboard as to permit of the widest possible steering-lock.

THE DASHBOARD is constructed of aluminium, the use of which gives additional strength to the frame and obviates all possibility of the cracking or warping to which wooden dashboards are liable.

THE SPRINGS are of the semi-elliptic type that our experience has proved to be the best adapted to general work. The Vauxhall is particularly distinguished for comfortable springing and that indefinable quality of *holding the road*, which is so greatly appreciated by the connoisseur.

One of the features of the Vauxhall design is that the induction pipe is contained almost wholly in the cylinder casting, and consequently is kept thoroughly warm, from which ensues a considerable gain in respect of acceleration and petrol economy. The fan belt adjustment, the extra air inlet, and the improved design of water pump are among the new points to be found in the current pattern.

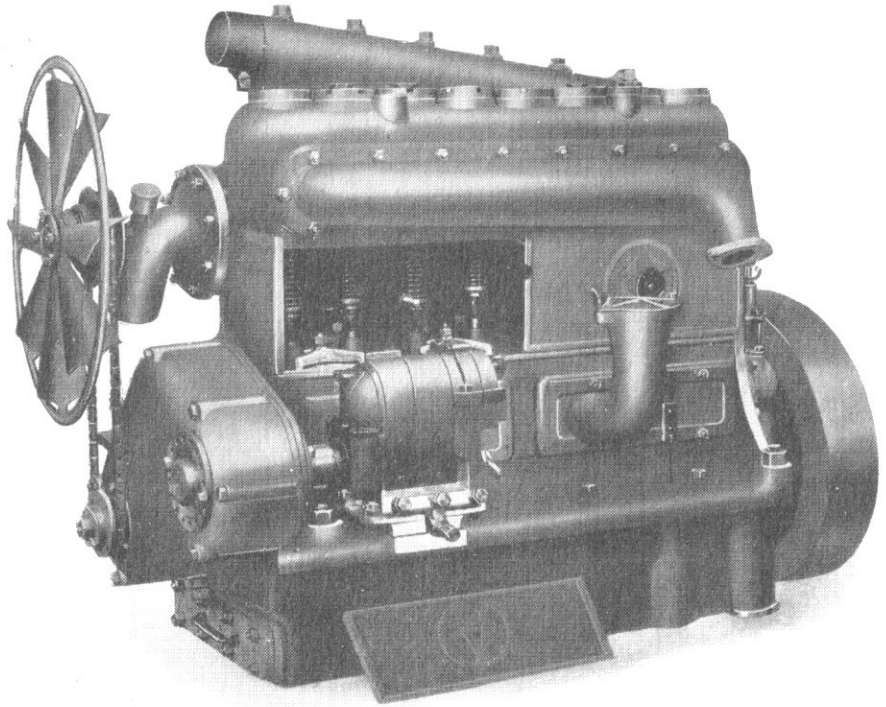
THE ENGINE.—(*a*) SIX-CYLINDER design.—The cylinders are cast in two blocks of three each. This method of construction is adopted on this type in preference to the *monobloc* system, which, in our opinion, is not easily applicable to engines with more than four cylinders. (*b*) FOUR-CYLINDER design.—The cylinders are cast *en bloc*. This method of construction secures three indisputable advantages : maximum rigidity of engine ; ideal conditions for the performance of thermo-syphon (or natural circulation) cooling ; and the accessible disposition of all fittings.

THE VALVES are all disposed on the left-hand side of the engine ; they and their tappets, springs, etc., are encased by two metal doors, which are readily detachable. The valve steel employed, manufactured by one of the largest steel-makers in this country, has a high percentage of nickel, and offers extraordinary resistance to overheating and pitting.

The front cross-member of the frame is so dropped that the cam-shaft with its bearings may be readily withdrawn for inspection.

THE CRANK-CASE is an aluminium casting. The entire weight of the crank-shaft is borne by the upper half of the crank-case, the lower portion being merely an aluminium under-cover and oil-sump.

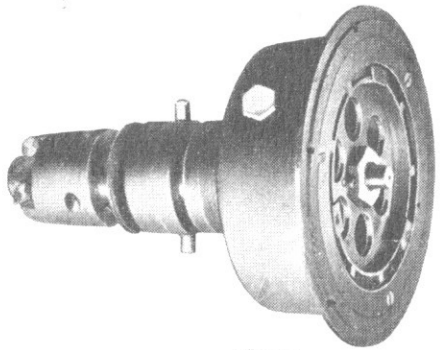
THE CRANK-SHAFT is supported by white metal bearings of liberal length—seven in the case of the SIX-CYLINDER, five in the case of the FOUR-CYLINDER ; it is made of the highest quality nickel chrome steel, oil-hardened.



Engine, valve side.

The bolts holding the bearings in place pass through the top of the crank-case, the material of which is thus held in compression, instead of—as is commonly the case—in tension.

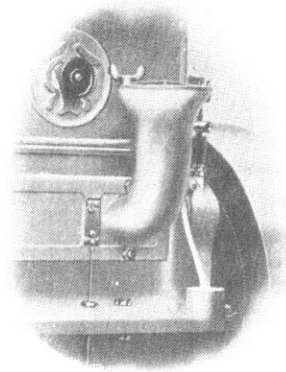
The bearings can be readily inspected by removing two aluminium doors in the side of the crank-case. THE CLUTCH, of the multi-disc type, is combined with the flywheel, the latter being bolted to a flange forged on the crank-shaft. The design of the clutch entirely frees the crank-shaft of end-thrust when the clutch is engaged. For purposes of inspection it can be completely dismantled without disturbing either the engine or the gear-box.



Clutch.

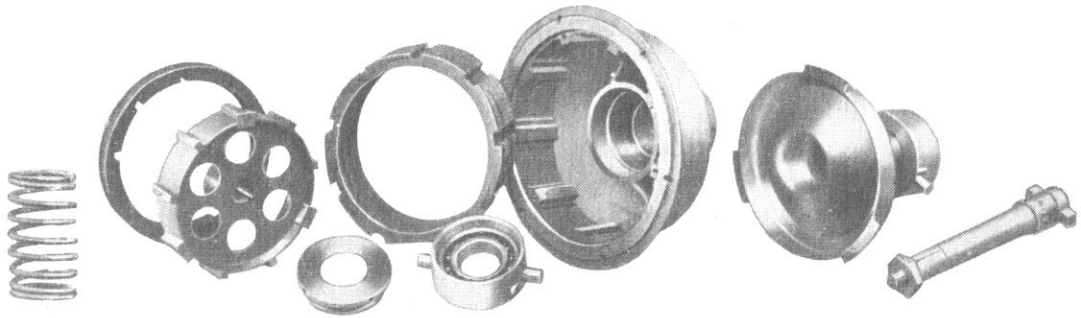
THE IGNITION is by high-tension magneto. The armature is driven by a dog-coupling mounted on a shaft extending from the timing-gear casing, the design of which permits independent dual ignition to be fitted to the FOUR-CYLINDER types when required. The firing point may be advanced or retarded by the control lever which is fitted above the steering-wheel.

THE CARBURETTOR is of the float-feed constant-level type, absolutely automatic in action, with no spring-controlled air-valves or other doubtfully efficient means of regulation. It calls for no attention whatever from the driver, and is the type of carburettor used on the Vauxhall cars which have taken part in many officially observed trials, and have always shown an excellent consumption record. The extra air inlet fitted to the carburettor is conveniently operated from a control on the steering wheel, and has proved a remarkable aid to fuel economy.



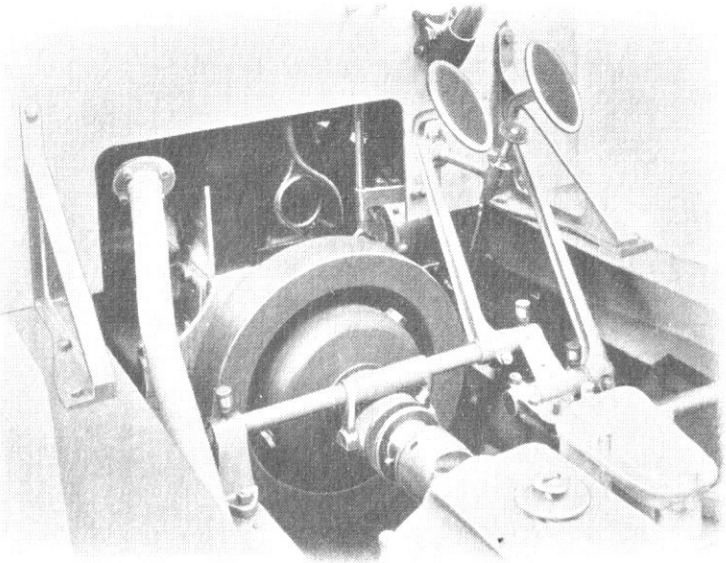
Engine oil filler.

The level of oil in sump is seen at a glance by means of the indicator conveniently placed at the side of the filler.



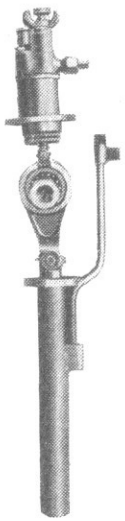
Clutch components.

THE CONTROL of the engine is effected by a throttle lever and a magneto-advance lever both fitted above the steering wheel, in combination with a pedal accelerator. The engine speeds range from 200 to 2,500 revolutions. The engine yields its nominal rating in each case at 1,000 r. p. m.



Clutch and pedals.

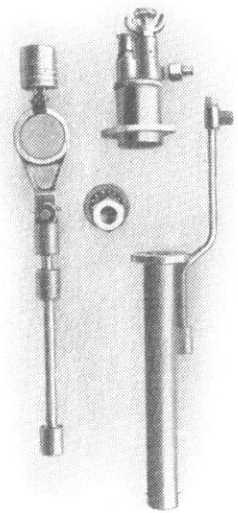
THE LUBRICATION system of Vauxhall cars has been demonstrated by officially conducted tests to be the most economical and efficient in existence. It is the system in use on the highest class of steam engines and on Diesel engines. Oil is carried in a sump in the crank-case under-cover. A plunger pump, driven by a ball-bearing eccentric on the rear end of the cam-shaft, dips into a filter chamber in the sump, and draws up oil which is forced through a main oil-pipe and five branch-pipes to the main crank-shaft bearings, and thence, through the hollow crank-shaft, to the connecting-rod big-ends. The entire pump, and its valves, can be readily detached. A gauge on the dashboard indicates the pressure existent in the lubrication circuit. The level of oil in the sump is indicated by a float fitted at the rear end of the cam-shaft.



Oil and air pumps.

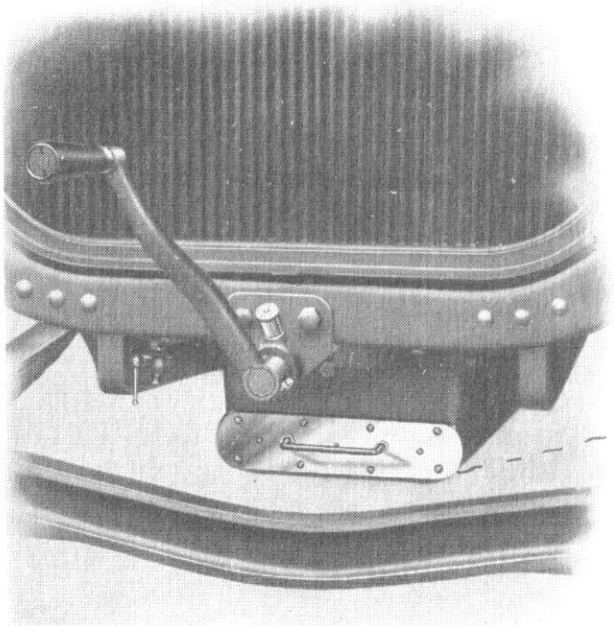
AIR PUMP

The air pump, driven from the cam-shaft, keeps up a steady pressure of about 1-pound per square inch in the petrol tank, thus forcing petrol to the carburettor. This system is an advance on the method of obtaining pressure from the exhaust; it minimises the chances of condensation by which water gets into the tank, and it is free from liability to become choked.



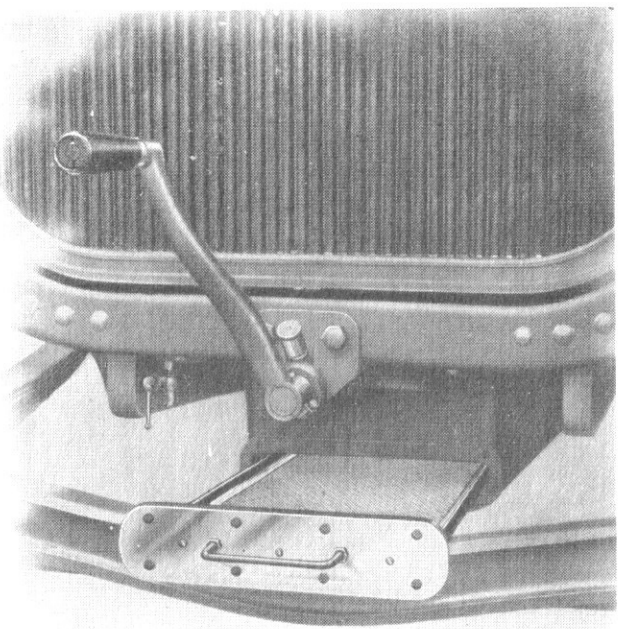
Pump components.

the crank-case, easily seen when the near-side flap of the bonnet is raised, and the sump may be replenished with oil when necessary by means of a filler on the crank-case door. After its journey round the circuit the lubricating oil returns into the sump, is filtered, and pumped round again. The filter



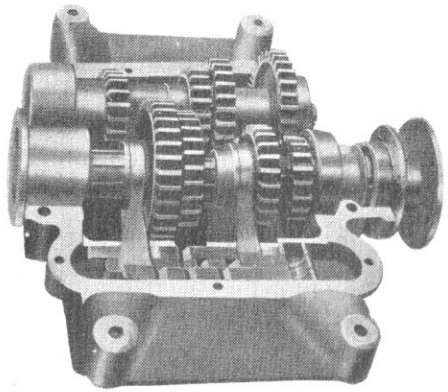
The oil filter.

is in the form of a tray with a gauze bottom. It is a convenient and practical device, which renders unnecessary the emptying of all the oil in the sump for the purpose of removing



How the oil filter is drawn out.

impurities. Being of adequate size, the filter performs effectively the function assigned to it, and it is accessible without difficulty. It is visible behind the front axle, and is provided with a handle by which it is drawn out after the nuts are unfastened. The gear-box, rear-axle, differential gearing, springs, wheels, axles and other members requiring lubrication are all provided with convenient and efficient means of oiling and greasing. THE COOLING is effected by pump circulation, except in the "A" type, which has thermo-syphon circulation. There



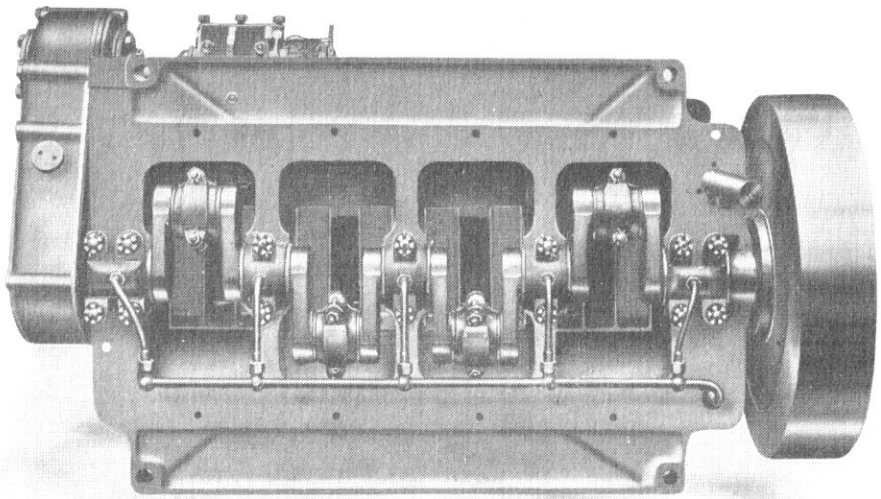
Four-speed gear-box.

is a clear passage through the pump; consequently even were it not working from any cause, thermo-syphon circulation would go on. The water-jackets are ample, and of uniform depth all round the engine. The fan belt is adjustable; the diameter of the V groove in the pulley is variable, and can easily be altered to take up slackness in the belt should this occur.

THE STEERING is of the irreversible worm and wheel type. The steering tie-bar is straight and placed behind the axle, and the steering rod above the axle. The wheel is of hardened steel, and the worm of phosphor bronze. Owing to the fact that the arc of engagement between worm and wheel is only about one-quarter of the circumference of the latter, the worm wheel is arranged so that it can be mounted in three successive positions, *i.e.*, each at an angle of 120 deg. with the previous one. The wheel can be used consequently throughout its whole circumference. The worm and wheel shafts are carried on roller bearings; the freedom of steering thus obtained cannot be adequately described, and is only to be realised by personal trial. The whole of the steering-gear is so designed that it allows of turning in the smallest circle possible with the given wheel-base and track.

THE GEAR-BOX furnishes four forward speeds, the fourth being direct-driven, and a reverse. They are so arranged that the reverse pinion is out of mesh while the forward gears are engaged.

Attention is drawn to the shortness and large diameter of the shafts, the heavy type of ball-bearings in which these shafts are carried, the castellated drive, the device for keeping the

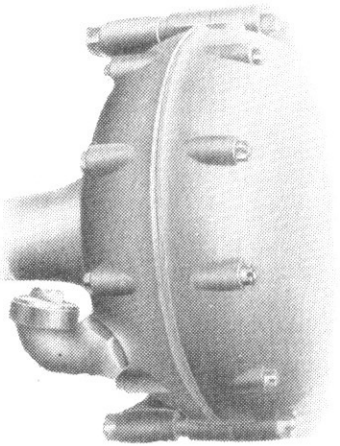


The lubrication system.

So effective and economical is the Vauxhall lubrication system that, in the R.A.C. 2,000 miles trial of 1908, the winning Vauxhall car used rather less than one gallon of oil per 1,000 miles.

gear-box oil-tight, its readily detachable lid, and the simplicity and robustness of the gear operating levers and forks.

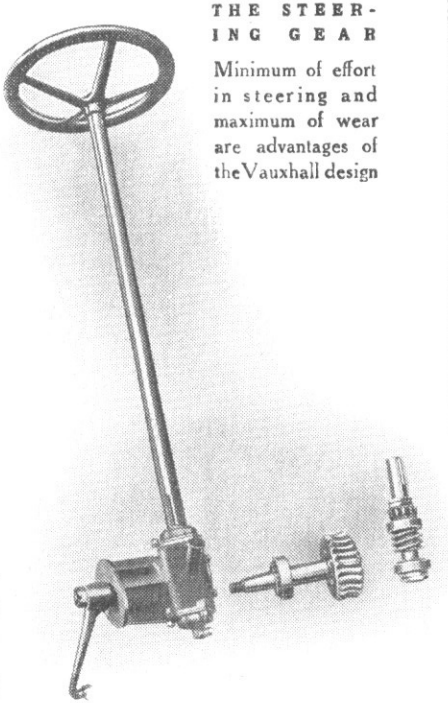
THE UNIVERSAL-JOINT is of substantial design and construction. All contact surfaces are case-hardened, and the joint is completely enclosed by a metal cover, which need not be removed for greasing, and effectively keeps out dust and grit.



REAR AXLE OIL-FILLER is arranged so that it indicates the proper quantity of oil to be poured in.

THE PROPELLER-SHAFT is tubular, and transmits the drive to the live rear axle through two universal-joints.

THE REAR AXLE is contained in a cast-steel casing, from the ends of which project tapered steel tubes that support the road-wheels. The power is transmitted to the driving-shafts through differential gearing of the straight-spur pinion type, and of more than adequate strength. The driving-shafts, of nickel steel, pass through the steel differential sleeves, which are supported on ball-bearings. Castellations formed on the ends of the driving-shafts fit into the road-wheel hubs. The rear-axle casing is supplied with oil through a filler projecting from the back of the casing. The top of the filler-mouth corresponds with the correct oil-level in the axle-case, so that it is not possible to pour in more than the proper quantity. When necessary, the bevel-pinion can be removed by swinging the propeller-shaft clear and removing four nuts on the front of the casing. The pinion is supported by three large ball-bearings, which obviate all possibility of the springing of the pinion-shaft and consequent wear of the teeth.



THE STEERING GEAR

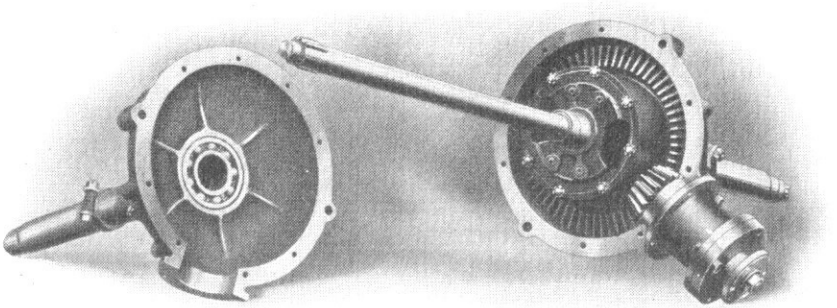
Minimum of effort in steering and maximum of wear are advantages of the Vauxhall design

Bevel-pinion, propeller-shaft, gear-shaft and crank-shaft are all in one plane, so that the Vauxhall

Front axle.

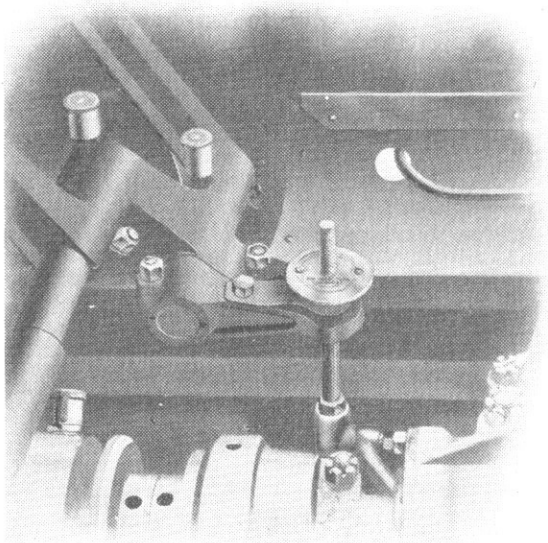
car possesses the maximum transmissive efficiency.

THE BRAKES are interchangeable, and of the internal expanding type—one in each rear road-wheel hub, and one in the drum enclosing the foremost universal-joint, placed just behind the gear-box. A characteristic and much valued feature in the Vauxhall design is that the retarding action is positive without being harsh.



Rear-axle components.

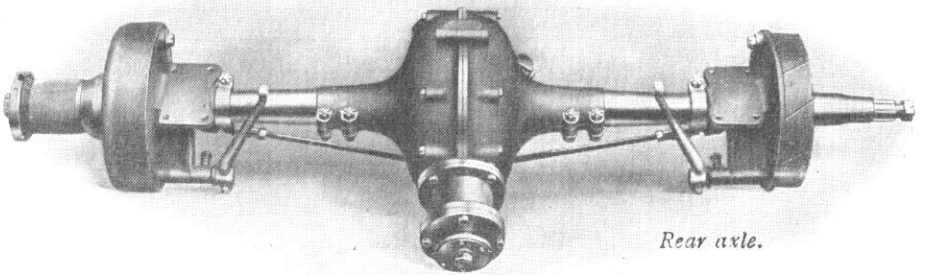
A metal UNDER-SHIELD extends from the flywheel to behind the shaft-brake drum and universal-joint casing, and the upper half of the flywheel is encased in an aluminium cover, to protect the clutch from dust and grit. The steering-joints, which are of the ball-and-socket type throughout, are all efficiently encased. BALL-BEARINGS are used wherever practicable throughout the chassis.



Foot-brake adjustment.

FOOT-BRAKE ADJUSTMENT

Adjusting the foot-brake in Vauxhall cars is a simple matter, requiring nothing more than a turn with the thumb and finger of an easily accessible milled nut.



Rear axle.

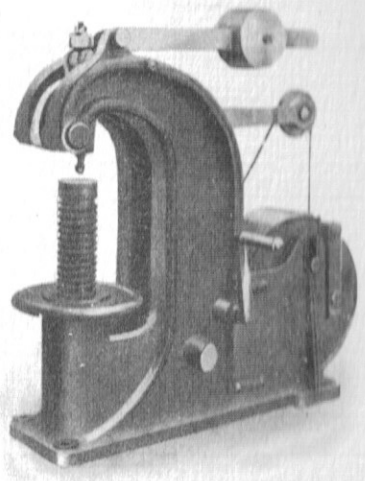
MATERIALS AND TESTING

The materials used in the construction of the Vauxhall chassis are, without exception, of the best quality, and the most suitable that engineering science can discover in respect of resistance to wear, and of immunity from breakdown. This will be seen by a glance at the following table :—

Name of Part.	Materials.	Ultimate stress. Tons per square inch.	Elastic limit. Tons per square inch.	Elongation on 2".
Crank-shaft	Nickel chrome steel	50	40	20%
Gear shafts, propeller shaft and axles	Nickel steel	40	32	30%
Gear wheels	Nickel chrome steel	108	102	15%
Front axles	Axle steel	40	25	30%
Stub axles	Axle steel	40	25	30%
Crank-shaft bearings	White metal			
Gudgeon pin bushes and bushes generally	Phosphor bronze			
Crank-case and gear-box	96% aluminium	13 tons		5%
Cylinders	Hard cast iron			
Levers	Mild steel	28	14	25%

All materials are carefully tested. In the case of important parts, such as steering-gear details and axles, a *test is applied to a piece taken from every one made.* The risk of failure is thereby reduced to the minimum.

The particulars given on the next page of the methods by which several of the tests are made will be found interesting, as throwing some light on the pains which are taken in the construction of a car of the first grade. In this branch of the motor industry quality must necessarily be the predominant consideration, a policy which governs the manufacture of all Vauxhall cars.



The ball-testing machine.

TWO INTERESTING MACHINES USED IN TESTING VAUXHALL MATERIAL

FRÉMONT IMPACT TESTING MACHINE.

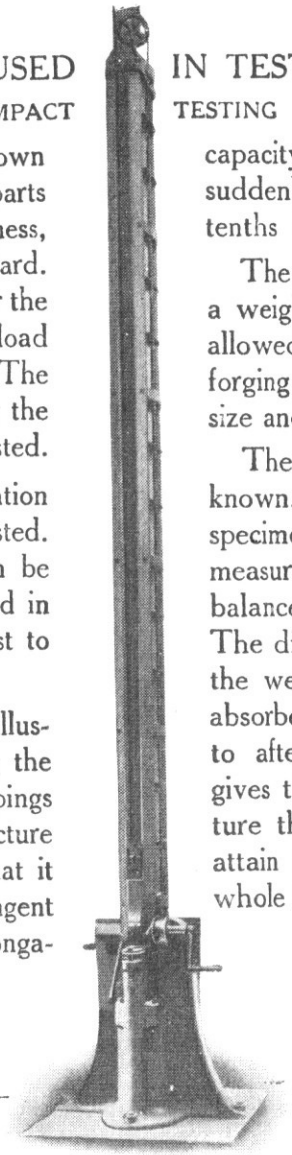
The purpose of the ball-testing machine shown on the previous page is to determine whether parts which should have a specified degree of hardness, such as gear-wheels, attain the required standard.

Gear-testing

Each part to be tested is placed under the ball shown in the illustration, and a load equivalent to three tons is applied. The diameter of the indentation made by the ball indicates the hardness of the piece tested.

This machine also affords valuable information as to the tensile strength of the specimen tested. An important point is that these tests can be carried out on the actual parts which are used in the construction of the car, and are not a test to destruction.

The Frémont impact testing machine illustrated on this page is used for ascertaining the capacity of the various forgings and stampings on which reliance is placed to resist fracture by shock. It is well known to engineers that it is possible to obtain materials satisfying stringent specifications as to tensile strength and elongation, but that these figures do not offer any adequate indication as regards capacity to resist loads that are applied suddenly — a consideration affecting nine-tenths of the parts composing a motor-car.



The principle of the Frémont machine is that a weight is lifted to the top of a column and allowed to fall on a test piece cut from the actual forging under trial. This specimen is of standard size and shape, so that all results are comparable.

The energy stored up in the falling weight is known. As the weight falls and breaks the specimen, the energy left in the former is measured by an apparatus similar to a spring balance, which receives the blow of the weight. The difference between the energy stored up in the weight at the top of the column, and that absorbed by the apparatus referred to after the specimen is broken, gives the energy required to fracture the test piece. This must attain a required standard, and if it does not the whole forging is rejected.

Steering arms and front axles

The method of testing described above is applied to steering arms, front axles, and all similar forgings subject to shock.

Leading Dimensions, Gearings and Details

Horse-power.	Type	No. of cylinders.	Bore and stroke.		Transmission.	Speeds (in miles per hour), at 1,000 r.p.m.								Gear Ratio on Direct Drive.		Wheel-base.	Distance from dash to Front of back wheel.	Length from dash.	Length overall.	Track.	Width of frame.	Width overall.	Size of standard tyres.	Weight of chassis.	Price of chassis.	Tax.
						Standard gear.				Alternative gear																
			mm.	mm.		1st	2nd	3rd	4th	1st	2nd	3rd	4th	Std.	Alt've											
16-20	A	4	90	120	Four sp'ds live axle.	6.5	10.5	16.5	Direct 24.5	—	—	—	—	3.9:1	—	ft. in. 9-9	ft. in. 5-7	ft. in. 7-9	ft. in. 13-3	ft. in. 4-6	in. 34	ft. in 5-6	815 × 105	cwt. 18½	£375	£6 6
25	D	4	95	140	Do.	8.5	13	21	Direct 31	7.5	12	19	28	3.3:1	3.6:1	10-10	6-5	8-8	14-4	4-8	36	5-6	880 × 120	20	£480	£6 6
35	B	6	95	120	Do.	7.5	12	19.5	Direct 28.5	8.5	13	21	31	3.6:1	3.3:1	11-8	6-4	8-8	15-2	4-8	36	5-6	895 × 135	24	£650	£10 10
25	C Prince Henry	4	95	140	Do.	9	14.5	22	Direct 33.5	—	—	—	—	3:1	—	10-0	5-6	7-9	13-4	4-6	34	5-6	875 × 105	18½	£515	£6 6

The tyres fitted as standard to all types are Dunlop, but when desired Continental, Spencer Moulton or Michelin tyres are substituted, without extra charge.

Vauxhall detachable artillery wheels,* with fifth wheel (minus tyre), are included in the price of types A, D, and B; Vauxhall detachable wire wheels, with fifth wheel (minus tyre), in the case of type C.

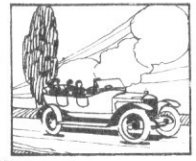
In each case the price includes pressure petrol feed by air pump and tank placed between rear members of frame. Bosch starting magneto is included in the price of types D, B, and C.

***Wire wheels, the use of which prolongs the life of the tyres, are strongly recommended, and can be substituted for £5 extra.**

Section III.

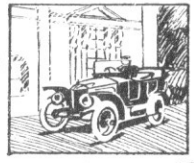
Examples of Coachwork

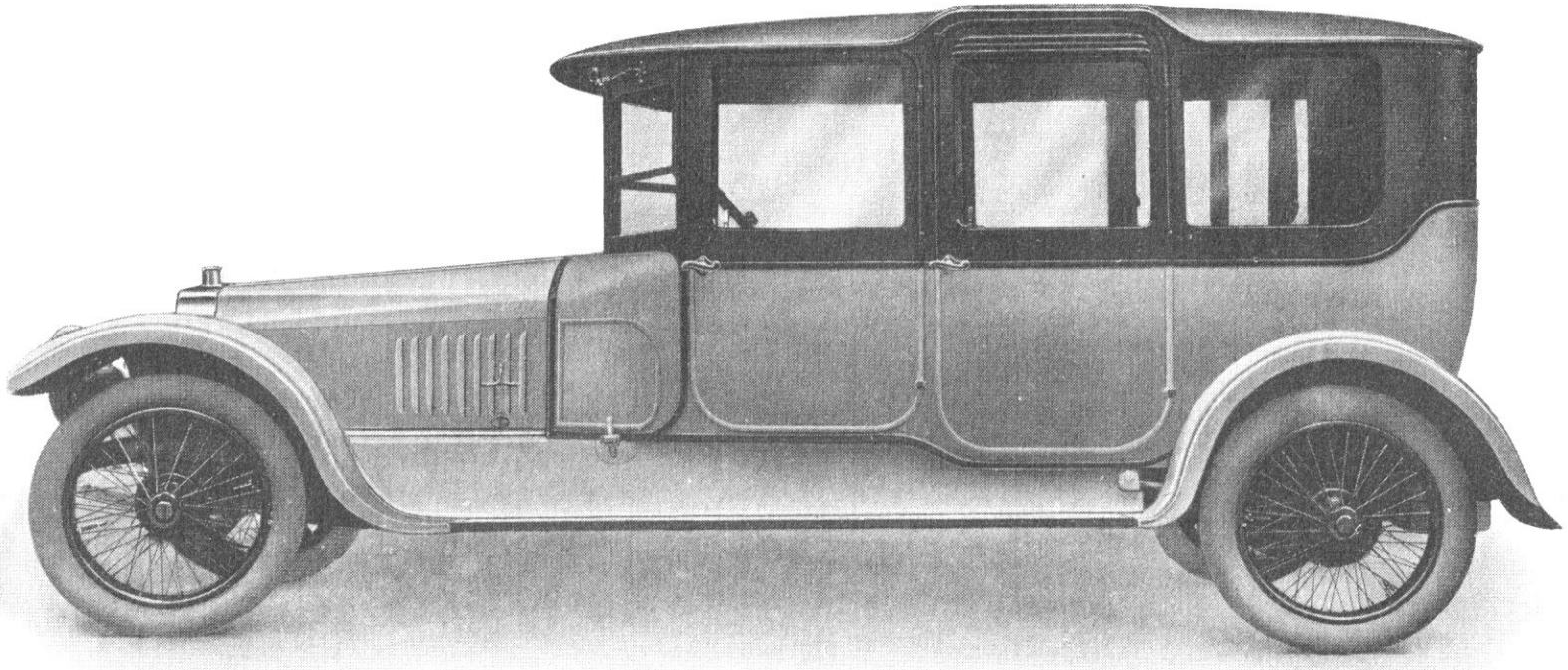
Closed and open types, from two-seater to limousine



Vauxhall

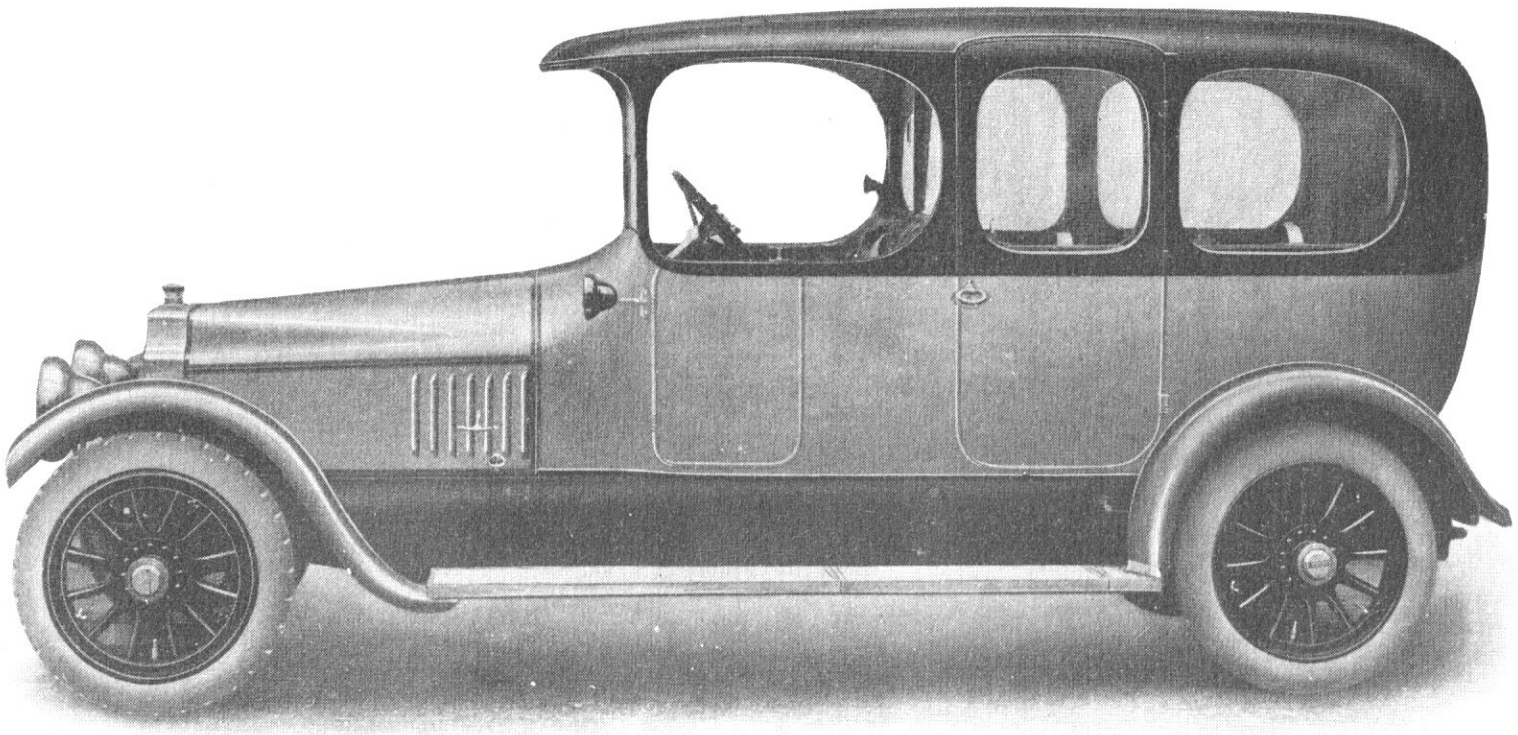
THE CAR
SUPEREXCELLENT



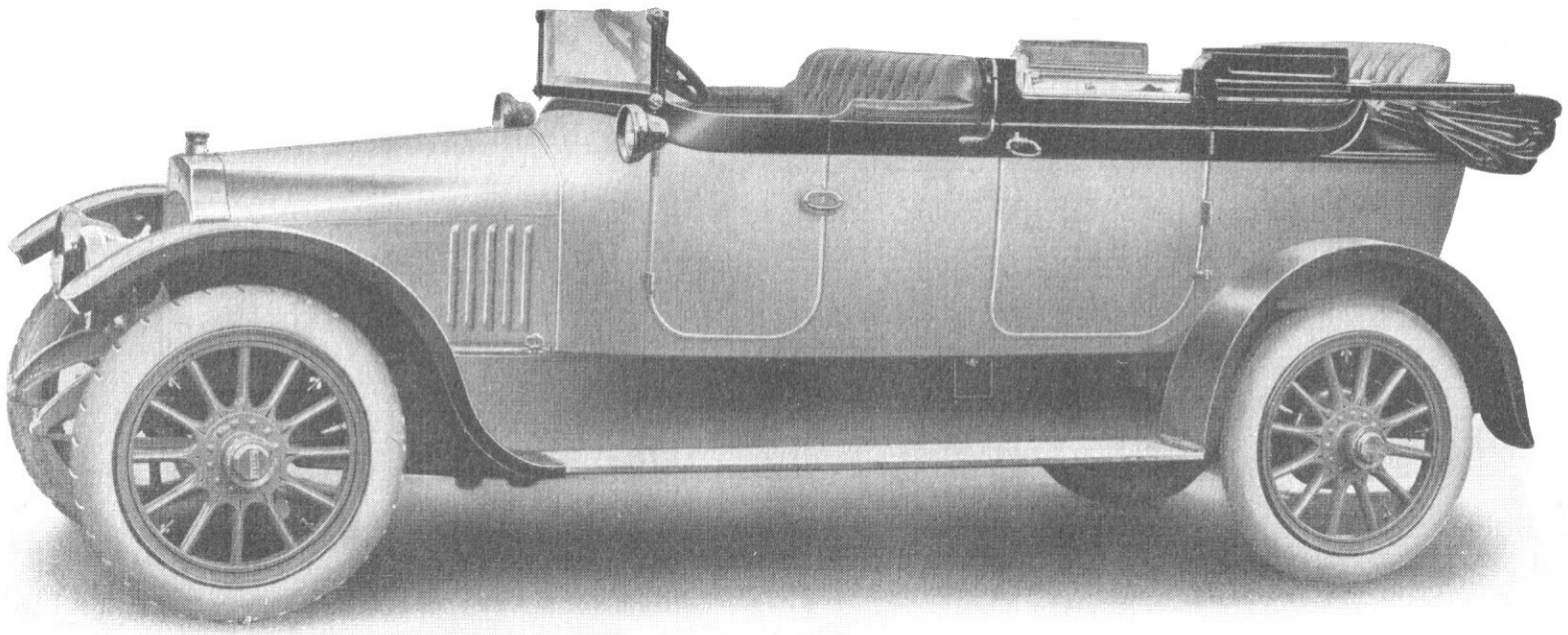


THE Windsor "V"-fronted saloon-limousine, the highest type of carriage luxury and elegance. Richly panelled interior. Division behind driver's seat. Price of body £420, including complete interior lighting equipment, well and brackets for spare wheel, folding extra seats, and footboard seat, which folds away into the scuttle dash This body can be supplied without division behind the driver's seat, and with one door on each side. Price £395

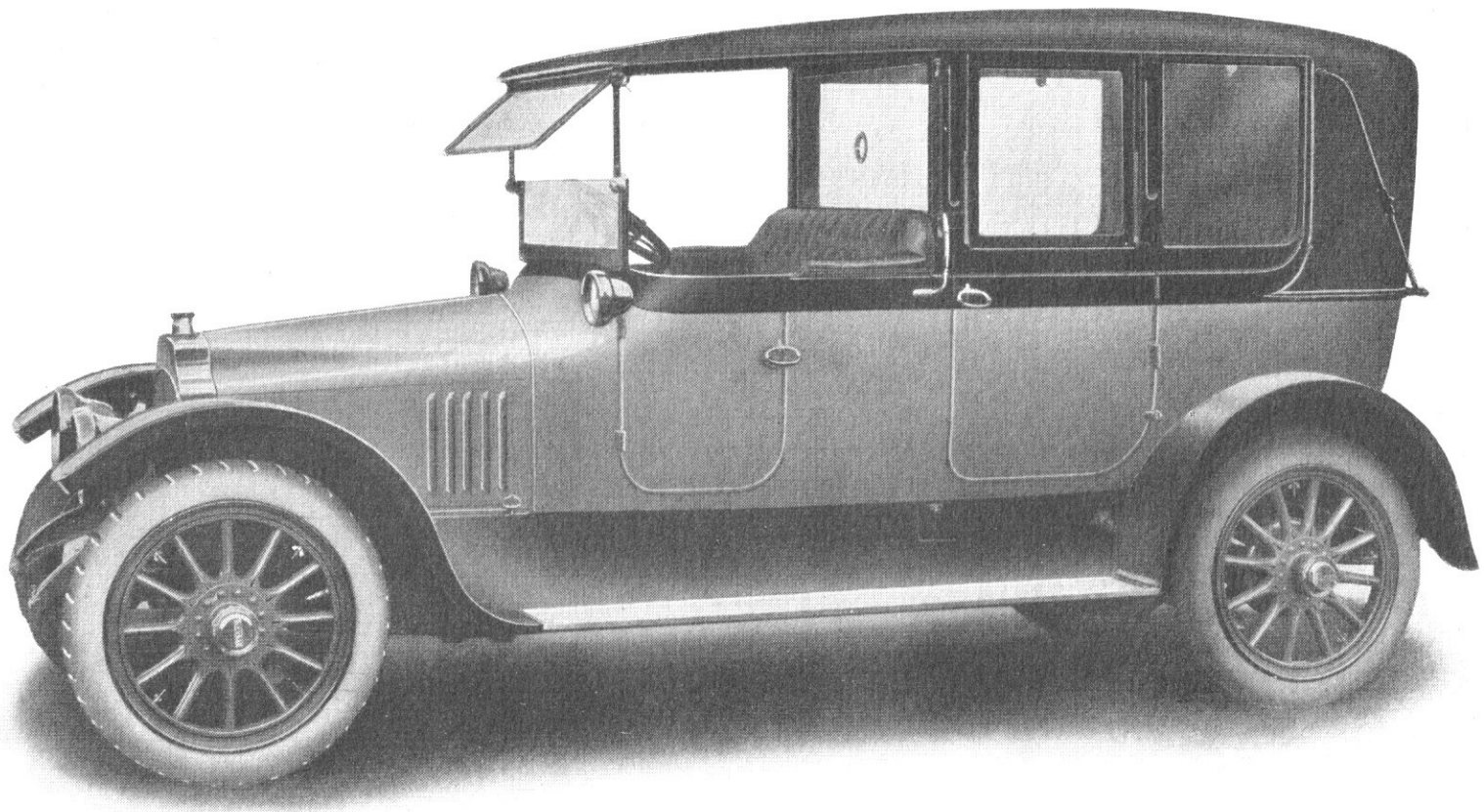
The Vauxhall Motor Carriage



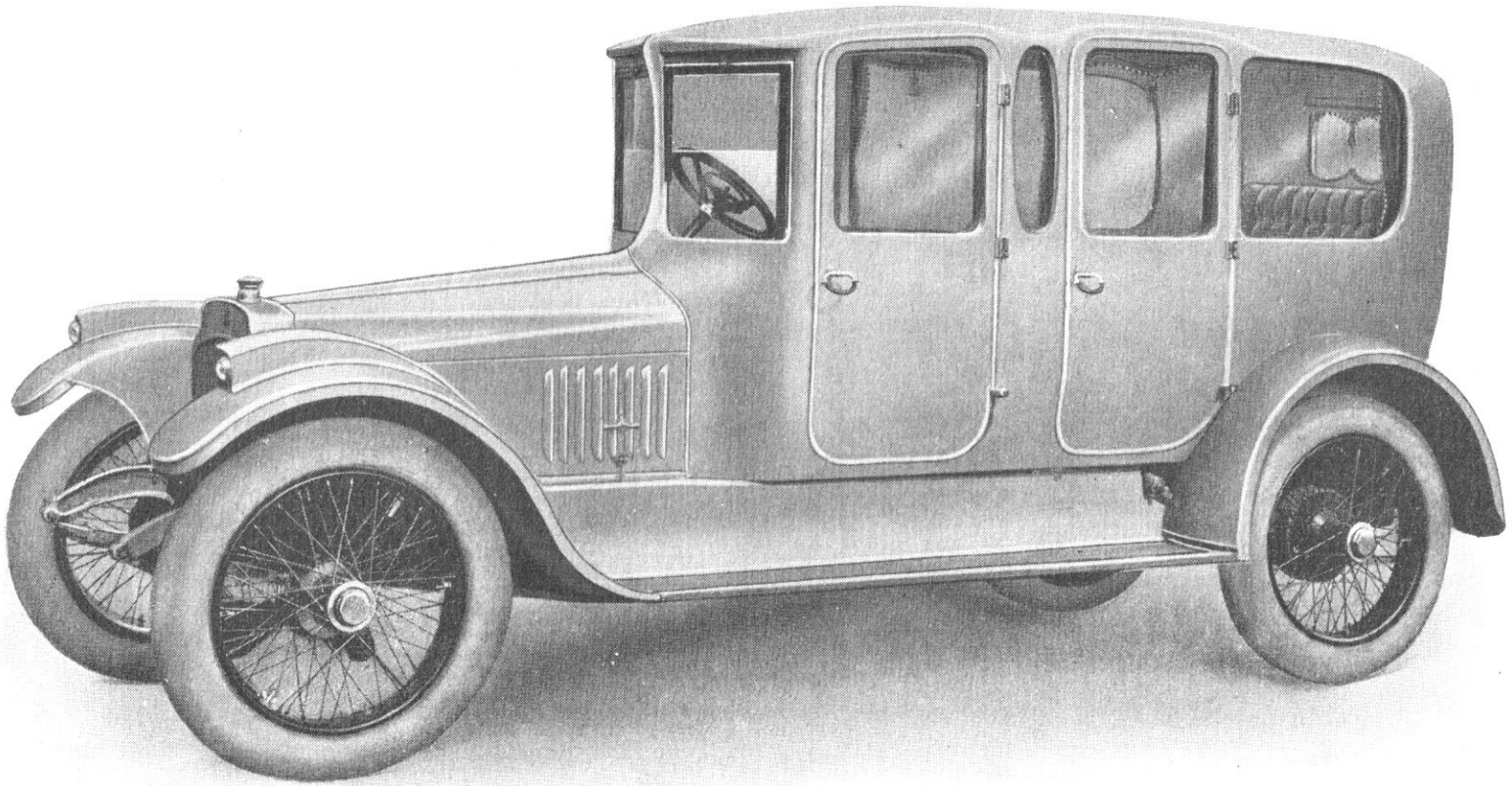
THE Kingsborne saloon-limousine, a superb example of the carriage luxurious. Novel fin-back design. Price of body £415, including complete interior lighting equipment, well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for the B type chassis



THE Sutherland three-quarter cabriolet. Price of body £275, including well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for either the D or B type chassis

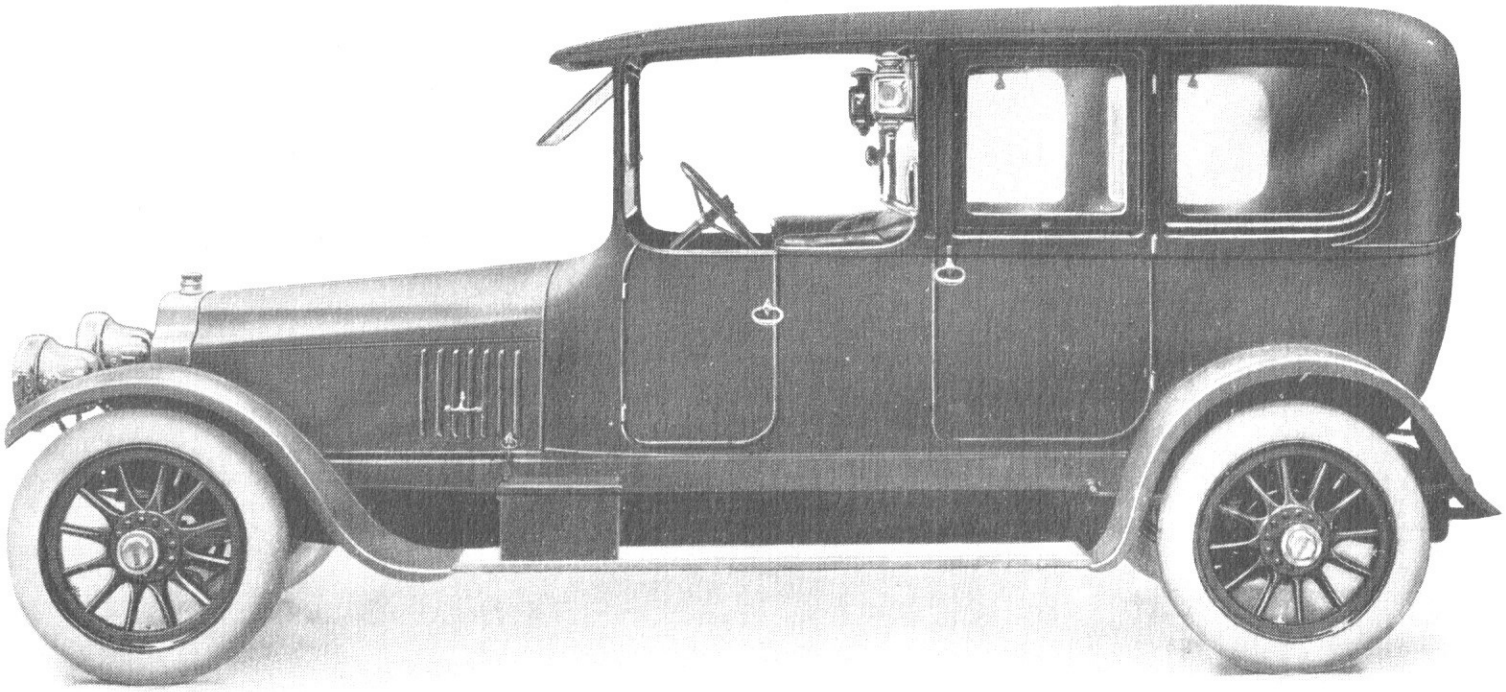


SAME model, with hood up. The hood of this improved form of cabriolet can be raised or lowered from the *outside* in a few seconds by one man, and is light and rattle-proof. Descriptive leaflet on application

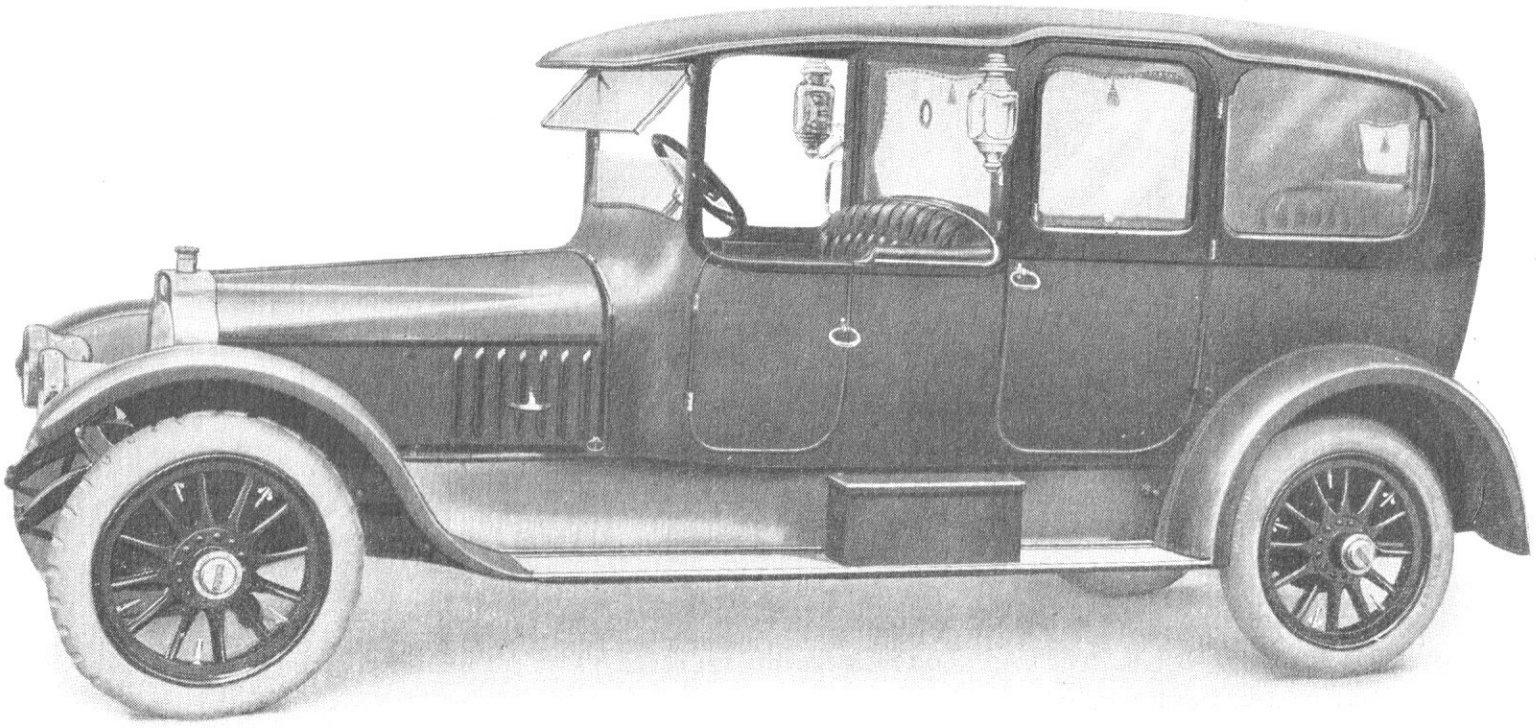


THE Stanton domed-roof limousine. A striking fin-back design of extreme elegance, in a Continental style. Price of body £460, including complete interior lighting equipment, well and brackets for spare wheel, folding seats and speaking tube for communicating with the driver. Suitable for either the D or B type chassis

The Vauxhall Motor Carriage

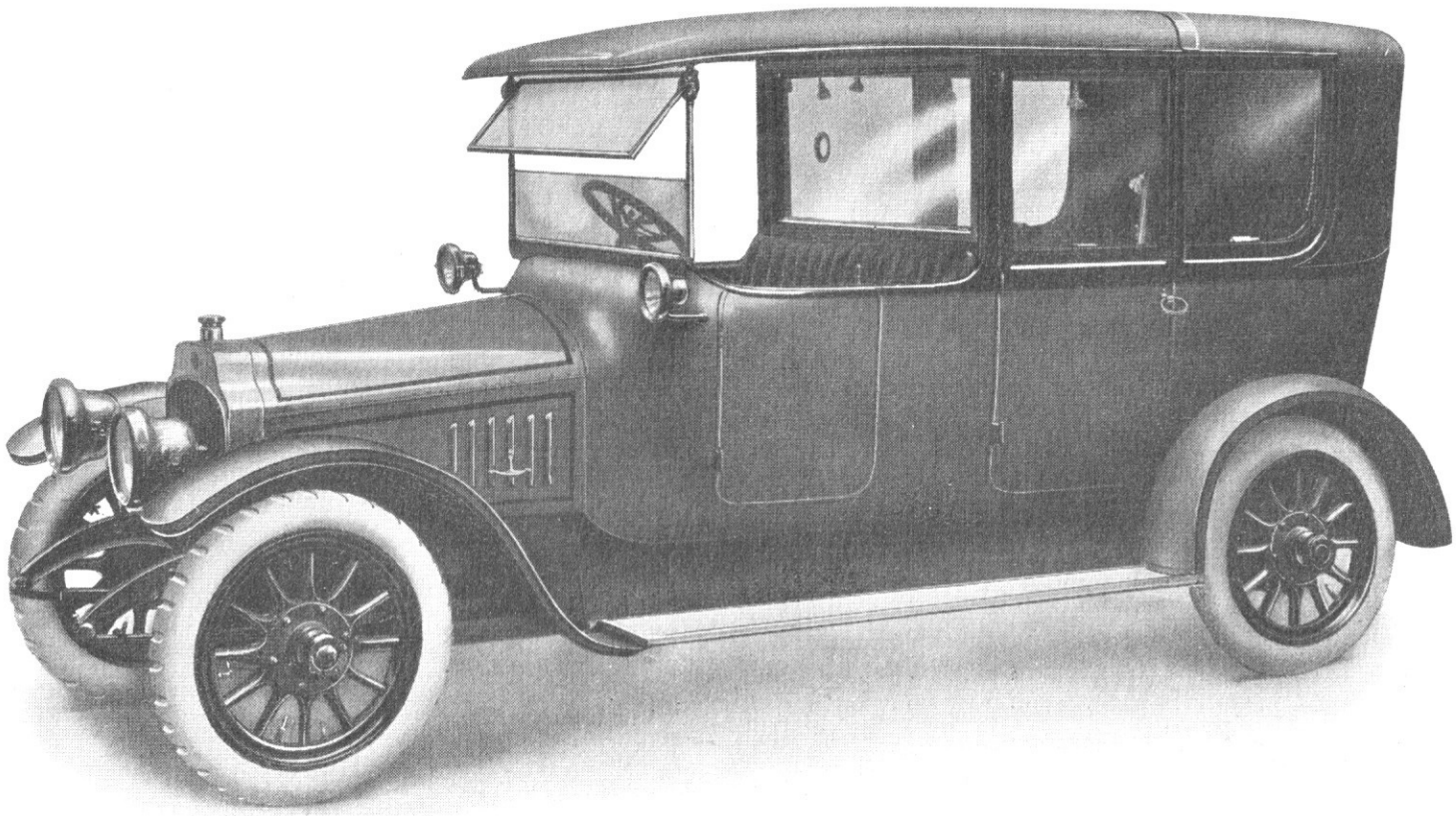


THE Radnor limousine. A fine example of a style that appeals to many by its tasteful simplicity. Price of body £350, including complete interior lighting equipment, well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for either the D or B type chassis

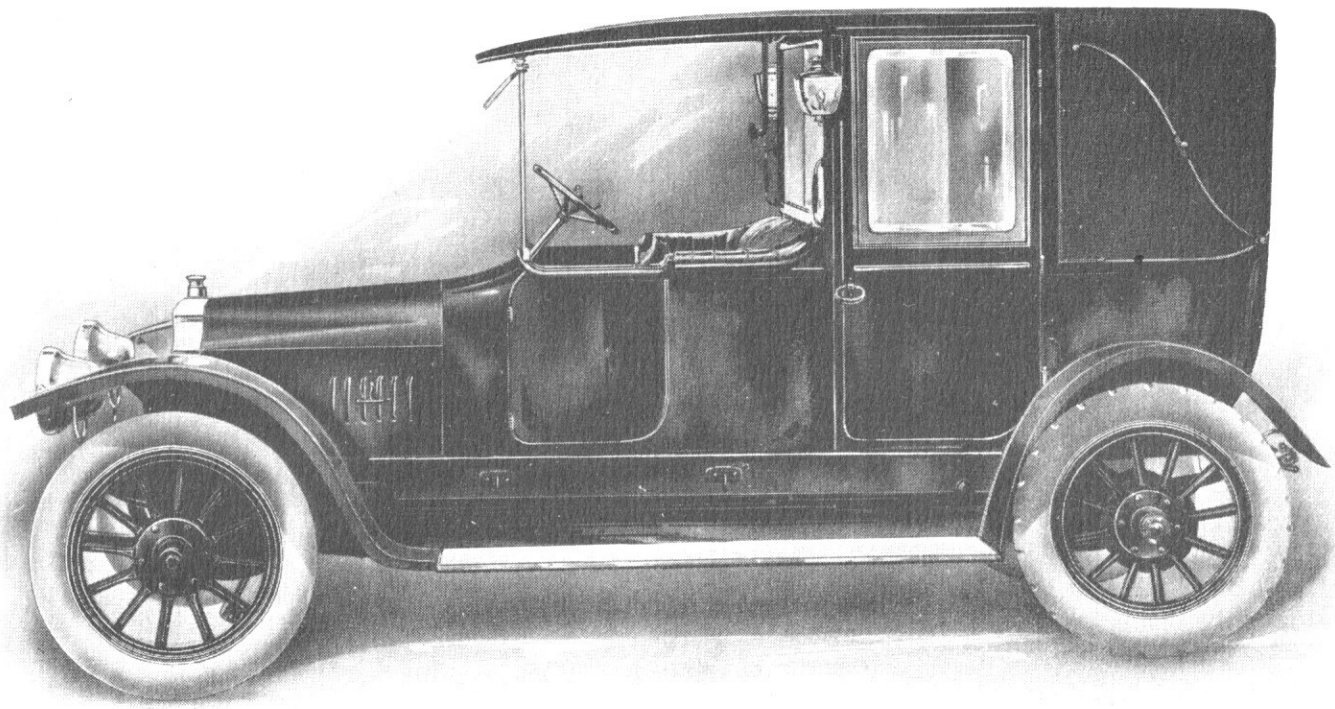


THE Westminster domed-roof limousine. This graceful and symmetrical model depends for its pleasing effect on harmonious curves. Price of body £335, including complete interior lighting equipment, well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for either the D or B type chassis

The Vauxhall Motor Carriage

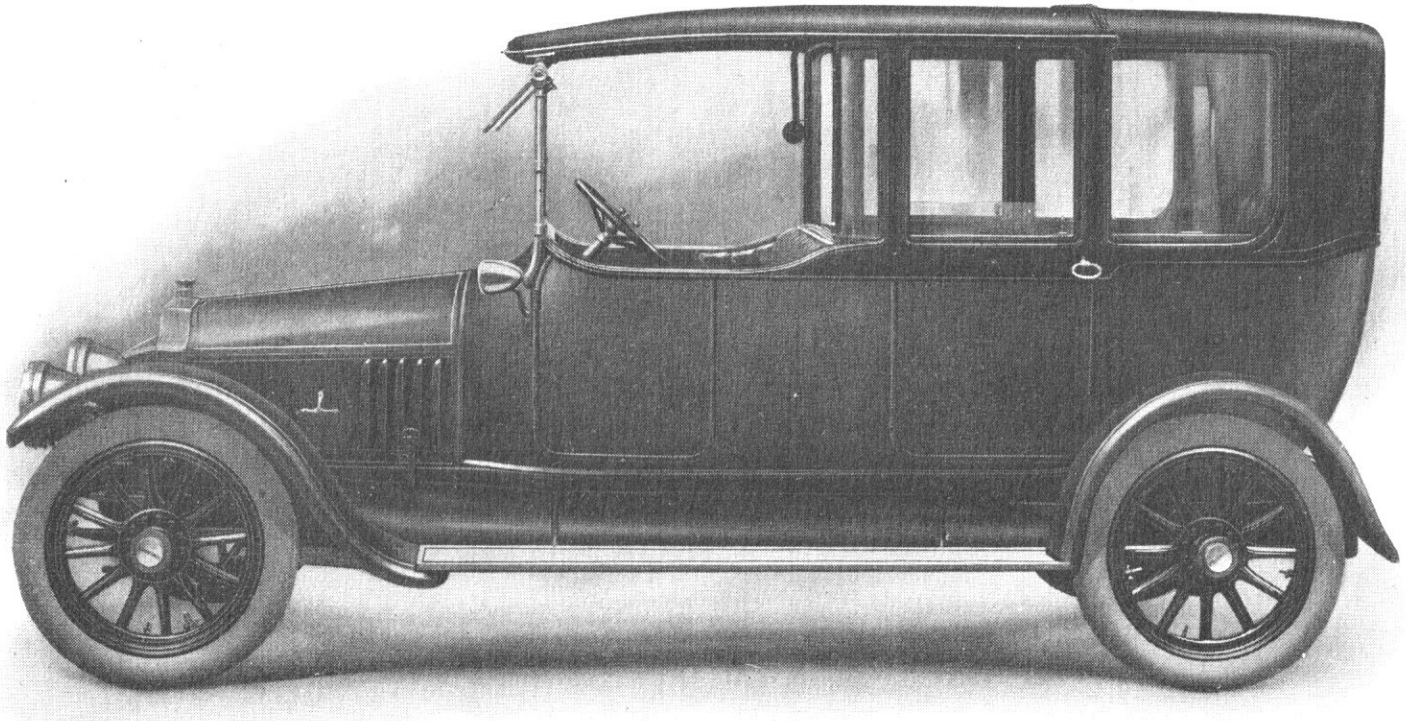


THE Ashbourne limousine-landaulette, with concealed joints. Price of body £260, including complete interior lighting equipment, well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for either the D or B type chassis

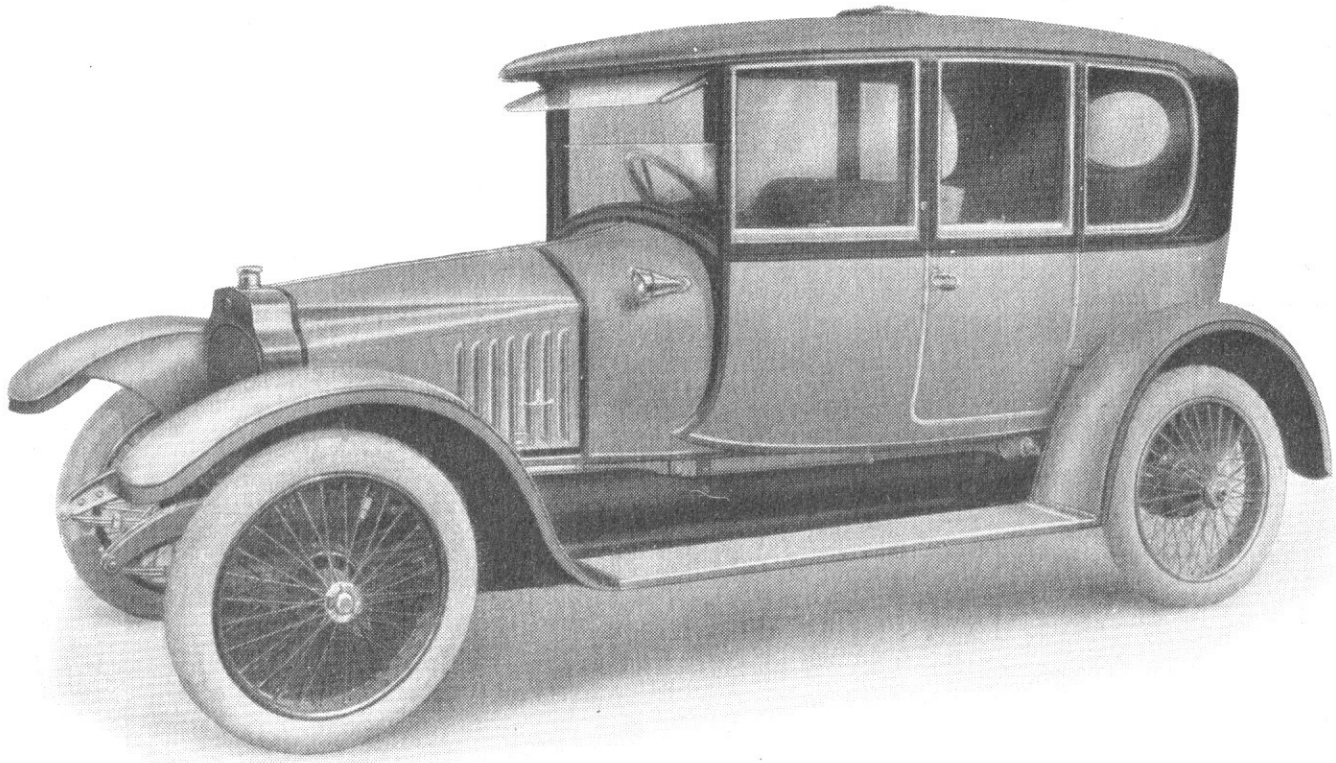


THE Dunstan single landaulette. Price of body £200, including complete interior lighting equipment well and brackets for spare wheel, folding seats, and window flap for communicating with the driver. Suitable for either the A or D type chassis

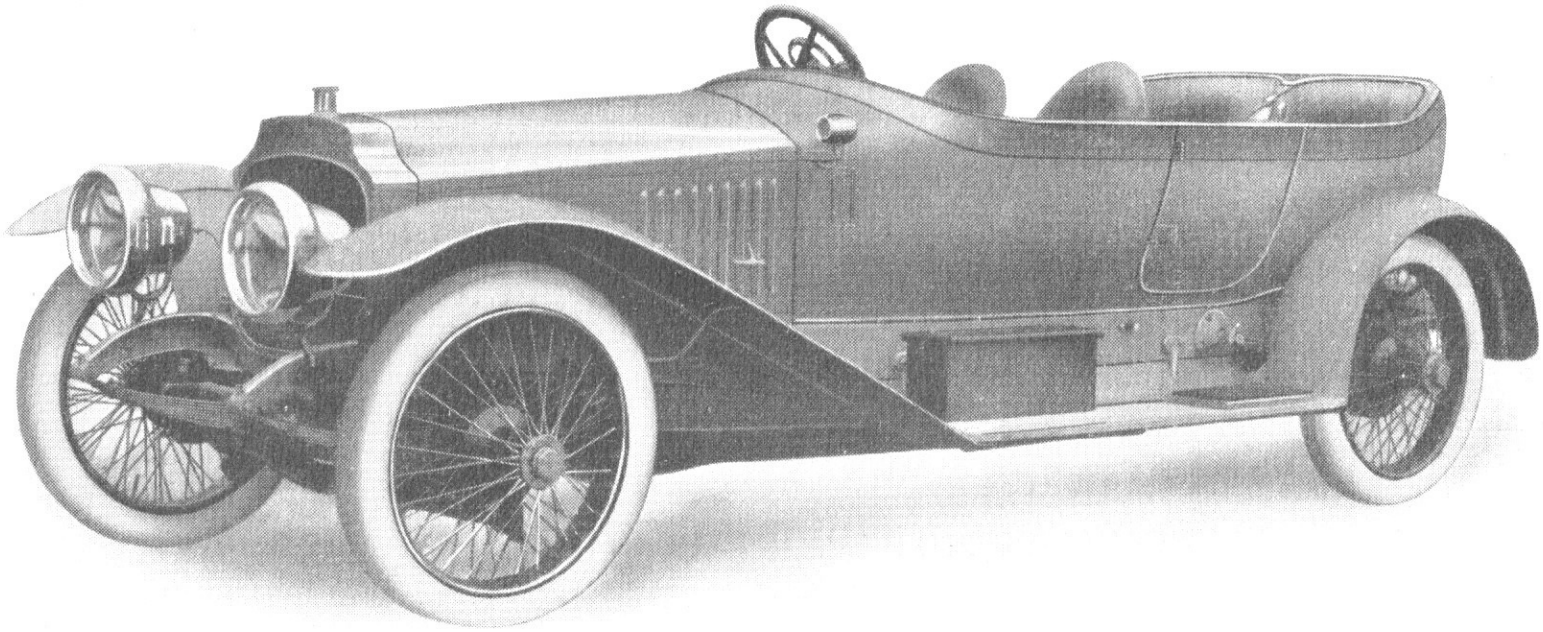
The Vauxhall Motor Carriage-



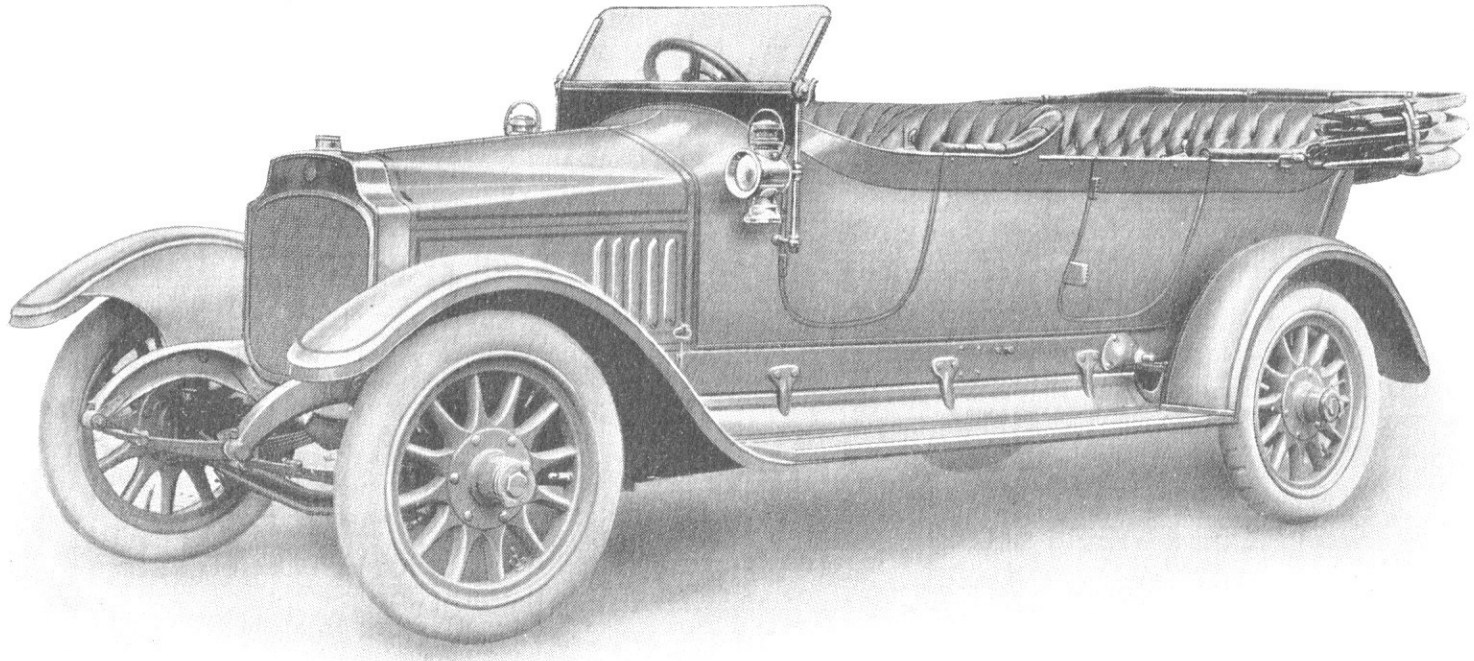
THE Warwick three-quarter landaulette. Price of body £250 (or without D front glasses £235), including complete interior lighting equipment, well and brackets for spare wheel, folding seats, and speaking tube for communicating with the driver. Suitable for either the D or B type chassis



THE Harborough limousine or sporting saloon, built on the short chassis (A type). A smart and cosy carriage for the owner-driver, in town or country. Price of body £300, including complete interior lighting equipment, well and brackets for spare wheel, folding seats

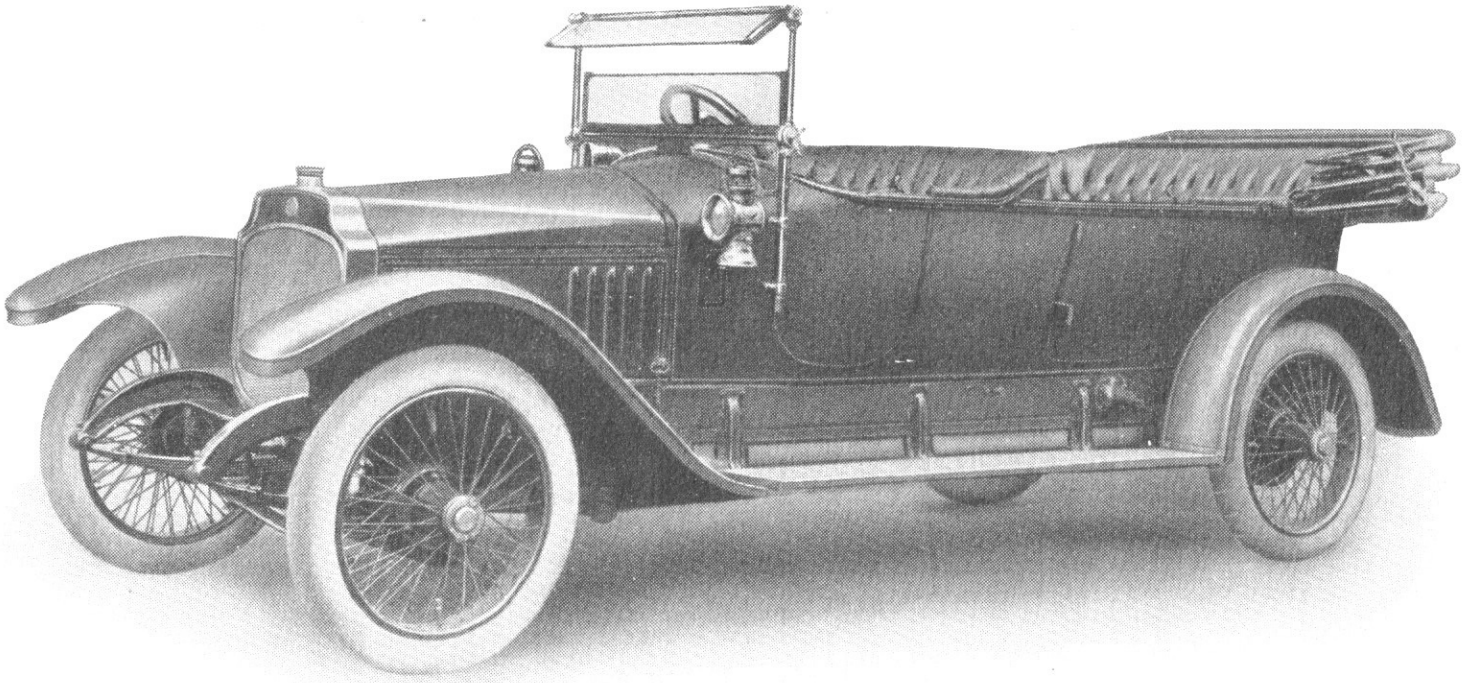


THE Goodwood torpedo de luxe. A striking mahogany-panelled design on the six-cylindered chassis, with a single door. The near-side forward seat moves on a curved rail and thus permits of easy entrance to the front of the car. Price of body £180, including three lamps and horn, and well and brackets for spare wheel

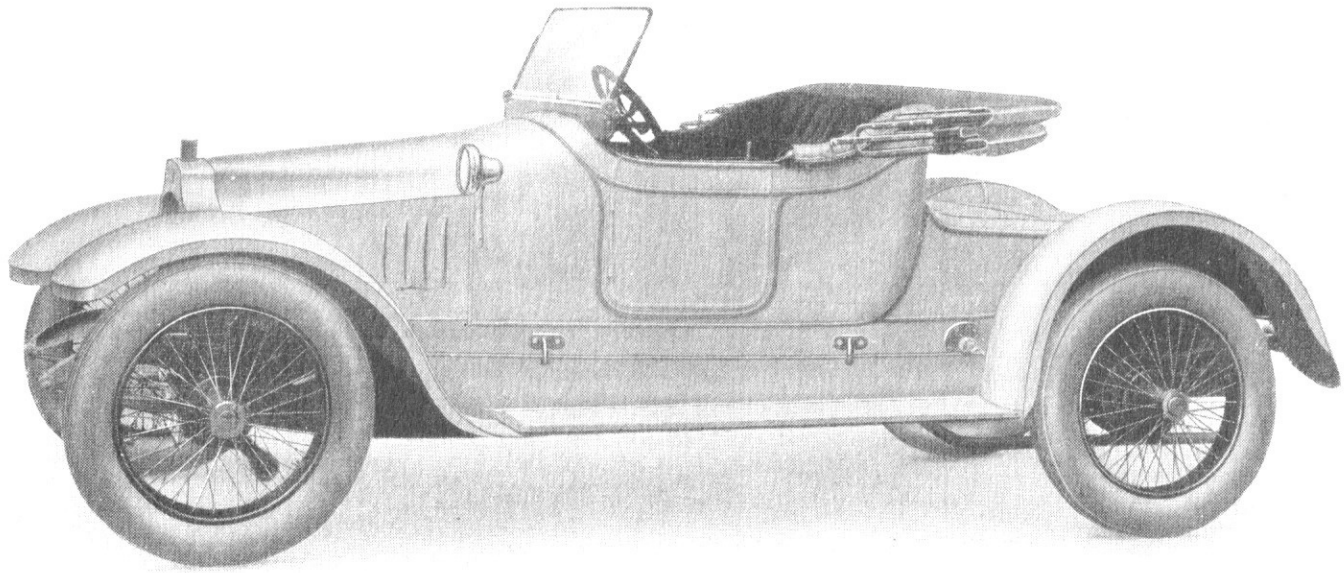


THE Newmarket torpedo de luxe. Price of body £120, including three lamps and horn, and well and brackets for spare wheel. Suitable for either the D or B type chassis

The Vauxhall Motor Carriage-

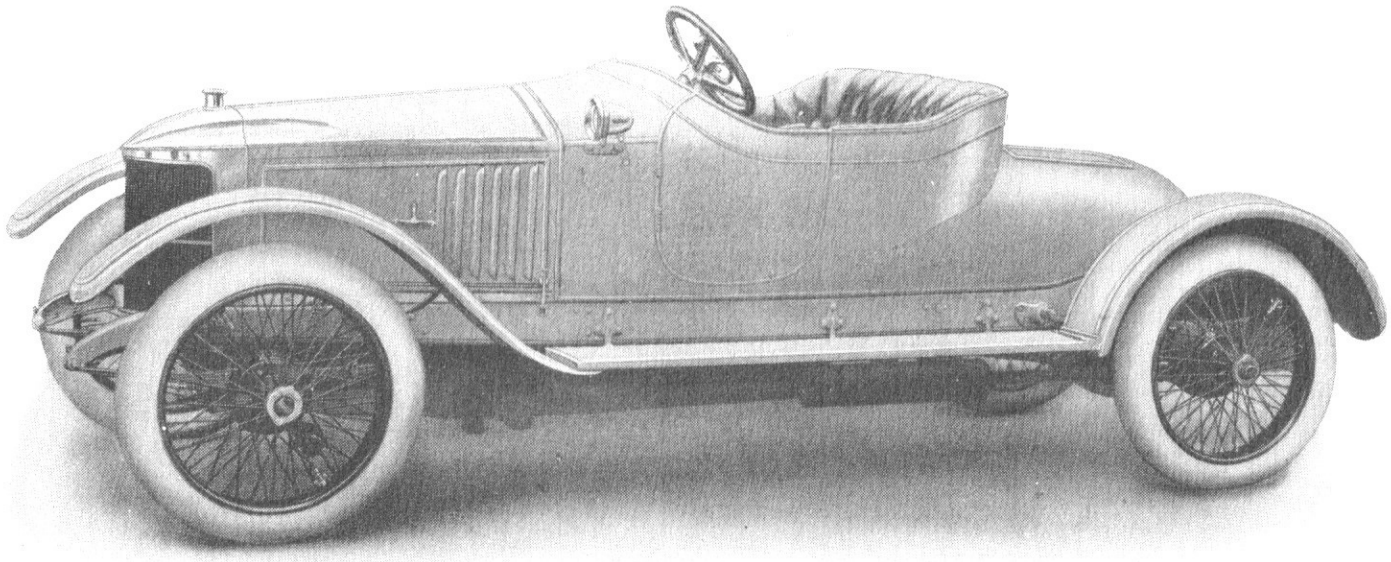


THE Norfolk torpedo. Price of body £95, including three lamps and horn, and well and brackets for spare wheel. Made in sizes suitable for either the A, D or B type chassis

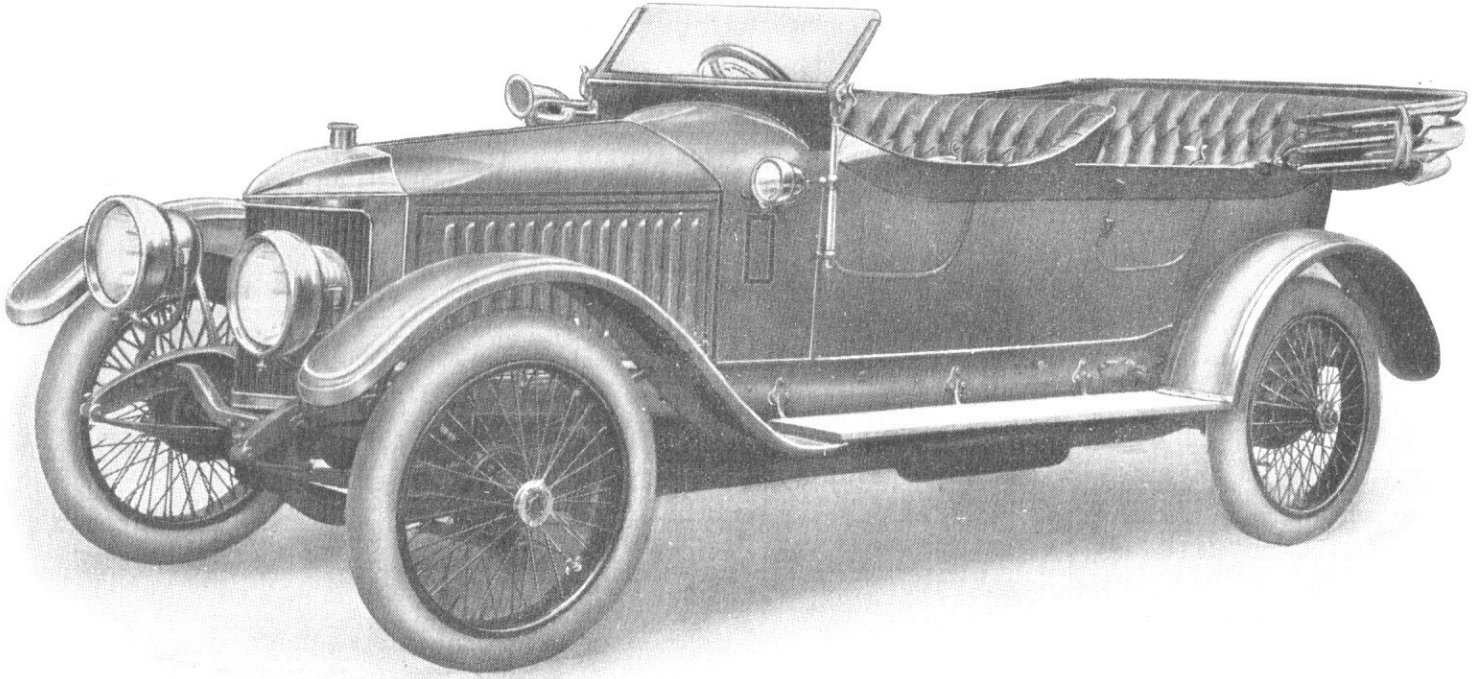


THE Ascot torpedo. The smartest and most luxurious of two-seaters. Price of body £75, including three lamps and horn, and well and brackets for spare wheel. In sizes suitable for A, D, or B type chassis

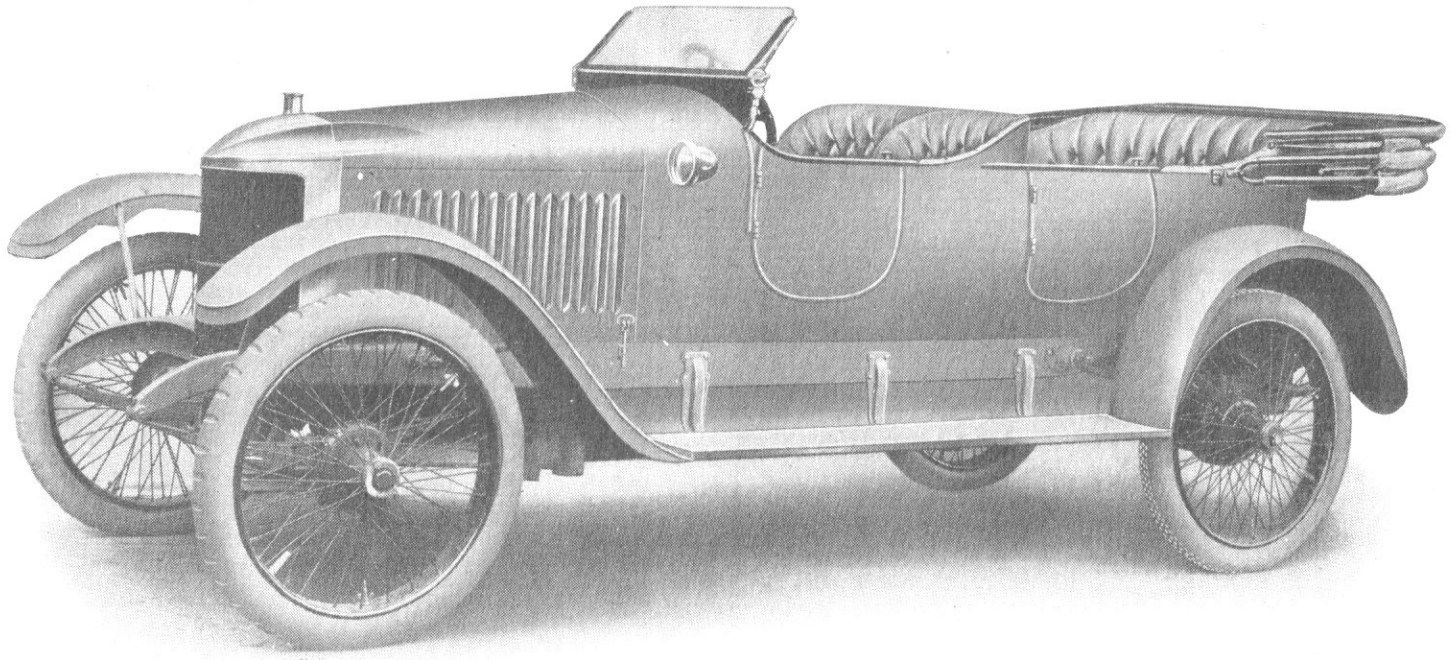
The Vauxhall Motor Carriage-



THE Prince Henry fast touring car; Brooklands two-seater, the sportiest of cars for motoring *à deux*. Price of body £80, including three lamps, horn, and well and brackets for spare wheel



THE Prince Henry fast touring car, with Leicester body. The four-seated sporting car in its lightest form. Price of body £120, including three lamps and horn, and well and brackets for spare wheel



THE Prince Henry fast touring car, with Denbigh body. The sporting car in its most luxurious form. Price of body £125, including three lamps and horn, and well and brackets for spare wheel

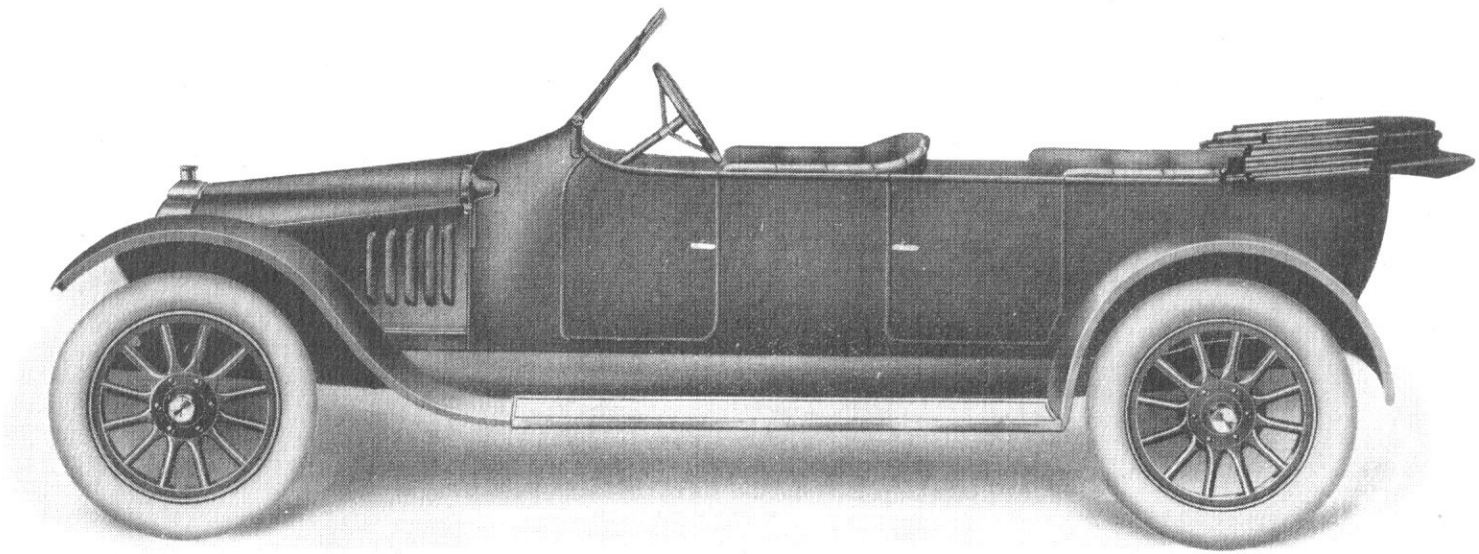
TOOLS AND SPARES INCLUDED IN CHASSIS PRICE

Lifting jack. Tyre inflator.
Tyre repairing outfit. Petrol funnel.
Petrol tank spanner.
Oil can (Kaye's force feed).
2 adjustable spanners (large and small).
Pair cutting pliers. Pair 8-in. cone pliers.
2 screw drivers (large and small).
Hammer. ½-in. chisel. Wheel spanner.
4 double-ended spanners.
Hub and valve cap spanners.
Spanner and adj. blade for magneto.
Flat, half-round, and square files.
2 sparking plugs. Spanner and bar.
Lengths of H.T. and L.T. wire.
6 each plug and valve cap washers.
Boot key. ¼-lb. 18-gauge copper wire.
Valve lifter. Wheel drawer.
Single clutch spanner.
Compression rings. Roll insulating tape.
Compression plug spanner and bar.
Assortment of castle and plain nuts, bright and black bolts and nuts, round head screws, split pins, split taper pins, and locking washers.
Handbook of instructions.
Lubrication chart, booklets on magneto and carburettor.

EXTRAS, ACCESSORIES, FITMENTS AND SUPPLIES

	£	s.	d.
Superior cape-cart hood, for touring car	20	0	0
Ditto, with central screen fitted behind driving seat	23	0	0
Single cape-cart hood, for two-seated car	14	0	0
Wind screens—Any type of wind screen specified fitted at maker's list prices			
Bosch starting magneto fitted to 16-20 h.p. model ..	6	10	0
Nickel-plated finish to all bright work, instead of brass finish, in case of 16-20, and 25 h.p. models or brass in place of nickel in case of 35 h.p. and Prince Henry models	8	10	0
The Autovox mechanical pneumatic horn, *including fitting*, brass finish	6	16	0
Nickel, black enamel, or black nickel	7	7	0
Painted number-plates, including fitting	0	10	0
Cast aluminium number-plates, fitted per pair ..	1	0	0
Head-light brackets, fitted, per pair	2	2	0
Detachable and folding luggage carrier at rear, painted, from	3	3	0
Waterproof covers for upholstery, per set	8	0	0
Holland ,, ,, ,, ,, ...	5	0	0
Warland dual rims, including fifth (spare) rim, mounted on Vauxhall detachable wheels, 815×105	14	10	0
820×120, 875×105, and 880×120	15	10	0
895×135	16	0	0
C.A.V. 12 volt 6 amp. dynamo lighting set, comprising T33 battery, "B" type headlamps, side and tail lamps, also combined hand and dash lamp with 12-ft. flex (supplied in place of the standard oil lamps), for 16-20 h.p. chassis only, brass finish ..	15	0	0
Nickel finish, extra £1; Black nickel finish, extra	1	15	0
C.A.V. 12 volt 8 amp. dynamo lighting set, comprising T44 battery, "F" type headlamps, side and tail lamps, also combined hand and dash lamp, with 12-ft. flex (supplied in place of the standard oil lamps), brass finish	20	0	0
Nickel finish, extra £1; Black nickel finish, extra	1	15	0
For chassis fitted with enclosed coachwork, it is advisable to have the larger "G" type dynamo (12 volt 10 amp.), with T55 battery and large size headlamps. Extra charge (brass)	5	0	0
Nickel, extra £6; Black nickel, extra	7	0	0
Spare set of bulbs (6) for C.A.V. set	0	18	6
(Colonial clients are advised to be provided with at least two spare sets of bulbs.)			
Valves, inlet or exhaust, complete	0	8	6
Sparking plug, Bosch	0	3	6
Vauxhall engine oil, in five gallon drums, per gallon (Deposit on drum 2/6.)	0	4	0
Ditto, gear oil, per gallon tin	0	3	0
Waterproof tonneau cover	2	10	0
Detachable wire wheels, standard size, including fifth wheel (minus tyre), strongly recommended	5	0	0
Step irons, steps and mudguards supplied with chassis, per set, fitted	8	10	0
Packing and delivery, f.o.b., London	12	0	0

C.A.V. 12 volt 8 amp. dynamo lighting set, comprising headlamps, side and tail lamps, also combined hand and dash lamp, with 12-ft. flex, included free with the 35-h.p. six-cylinder chassis.
Self-starter (electric) can be fitted. Prices on application.



THE Strafford 16–20 h.p. 4-seated torpedo (chassis guaranteed for three years), detachable artillery wheels, spare wheel, well and brackets, 815 x 105 Dunlop, Michelin, Spencer-Moulton or Continental tyres, spare tyre, hood, screen, speedometer, tools and spares, C.A.V. 12-volt dynamo lighting set ("B" type headlamps, side and tail lamps, combined dash and inspection lamp, 12-ft. flex, brass finish). The complete car for £485