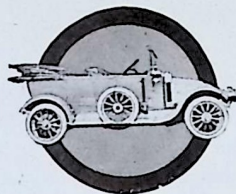




Agents :

Messrs. The Long Acre Autocar
Co., Ltd.,

127, Long Acre,
LONDON, W.C.



Arrol - Johnston

11'9, 15'9 & 23'9 h.p. Cars



Arrol-Johnston, Ltd., Paisley
(and at Dumfries)

'Phone, 501 & 502 Paisley Wire, "Mocar," Paisley

FOURTH EDITION

WM. BEARDMORE, Esq.,

Chairman of Directors.

T. C. PULLINGER, M.I.A.E.

Managing Director.

1913 INFORMATION.

T HE price of the 15·9 h.p. Arrol-Johnston is now reduced to £395, although many costly improvements are added, and the 11·9 h.p., at £285, is provided with a spare tyre. These concessions are rendered possible by the improved facilities of the new Dumfries Works, and are made despite the fact that the whole of the 1913 output is already disposed of to Agents.

T HE MARK IV. 15·9 h.p. Arrol-Johnston will carry a new and noiseless GEAR-BOX ; more powerful BRAKES ; a new and very handsome type of TORPEDO BODY ; and a new and specially-designed RADIATOR.

T HE MARK II. 11·9 h.p. Arrol-Johnston will carry improved BRAKES ; an improved GEAR BOX, a large body and a spare tyre.

I N 1912, the Arrol-Johnston orders amounted to more than three times the actual output (some 20 cars per week), and difficulty was naturally experienced with deliveries. In 1913, however, the output will be doubled by the operation of the new Arrol-Johnston Works at Dumfries and this difficulty of deliveries will be largely obviated.



1913 INFORMATION—continued.

THESE new Dumfries Works are essentially CAR-USERS' Works, in that the guiding principle throughout has been to create possibilities of giving the car-purchaser more for his money than has ever been given before. The Works, when completed, will be the largest of the kind in Great Britain, and will, without display or waste, ally British quality, finish and thoroughness to American labour-saving economy.

THE many Gold Medals, Challenge Shields and Cups won by Arrol-Johnstons in 1912 Hill-climbs were all won by CUSTOMERS' cars, driven by customers, competing against manufacturers' specially-tuned cars, driven by experts. Thus Arrol-Johnstons can afford to give points to competitors in these tests, AND YET WIN HONOURS.

THE fostering and controlling influence behind the modern Arrol-Johnston car is that of the colossal Beardmore firm, to-day building super-Dreadnoughts upon the Clyde—a little-known fact that goes far to explain Arrol-Johnston quality.

FOR two years running, the 15.9 h.p. Arrol-Johnston has furnished the only full teams running at the end of the terribly severe French International Races. These STANDARDIZED 15.9 h.p. cars are of a quality that, judging by results, is unique.

“THIRTEEN Records were recently broken by the Standard 11.9 h.p. Arrol-Johnston in one 6-hour endurance run, the astonishing average speed of 61.40 miles per hour being maintained.”



Arrol-Johnston Features

ENGINE AND GEAR BOX "EN BLOC." Ensuring perfect alignment and freedom from undue wear.



THERMO-SYPHON COOLING WITH RADIATOR BEHIND ENGINE.

The most efficient cooling system of the day.



STANDARDIZED PARTS. Obviating trouble in renewal.



FOUR-SPEED GEAR AND REVERSE. Lay Shaft driven by silent gears, and reverse idle when forward speeds are engaged, giving absolute silence.



Arrol-Johnston Features

CONTINUED—

FORCED-FEED LUBRICATION to every Engine Bearing, both Large and Small—the only method of avoiding petty breakdowns and ensuring smooth running.



820 × 120 TYRES (Dunlop) on 23·9 h.p. chassis. **815 × 105 TYRES** (Dunlop) on 15·9 h.p. chassis, and **760 × 90 COVERS** on 11·9 h.p. chassis.



EXCEPTIONALLY CLEAN ENGINE ensured by reason of enclosed valves and impossibility of dirt or insects penetrating through radiator, which is behind engine.



VALVE TAPPET GEAR EASILY ACCESSIBLE, and enclosed in dust-proof casing.



Arrol-Johnston Features

CONTINUED—

ARROL-JOHNSTON LINK MOTION. Eliminates all body-sway and jostling of passengers, when rounding corners.



FOOT CONTROL.



CHANGE SPEED LEVER. Inside Body.



PETROL TANK ON DASH. Giving a perfect gravity feed to Carburettor.



Specification of the 11.9 h.p. Arrol-Johnston Car

CHASSIS.

| | | | | | |
|-----------------|---|---|---|---|---------------------------------------|
| Wheelbase, | - | - | - | - | 9 ft. 2 in., or 2800 m/m. |
| Track, | - | - | - | - | 4 ft. 8 in., or 1420 m/m. |
| Overall Length, | - | - | - | - | 12 ft. 4 in., or 3760 m/m. |
| Overall Width, | - | - | - | - | 5 ft. 4 in., or 1630 m/m. |
| Road Wheels, | - | - | - | - | 760×90 m/m. detachable wooden wheels. |
| Tyres, | - | - | - | - | 760×90 m/m. Covers. |

ENGINE.

Four cylinders, cast in pairs and provided with large water jackets. The piston diameter is 69 m/m., with a stroke of 120 m/m. The valves and valve tappets are enclosed and the latter are provided with an adjustment. All valves are interchangeable and are mechanically operated by single chain-driven camshaft.

CRANKSHAFT.

Of special high tensile steel and supported by three long white metallised bearings.

IGNITION.

High-tension magneto with fixed firing point.



Specification of the 11.9 h.p. Arrol-Johnston Car

CONTINUED—

LUBRICATION. This is effected by a pump situated in a sump formed in the bottom half of the crankcase, which, after drawing the oil through a filter, delivers it to the three main bearings, thence through the hollow crank to the big end bearings.

The oil for replenishing the sump is poured into the crankcase through a filler on the near side of the crankcase, the highest permissible level being indicated by an oil dipper.

CARBURETTOR. Economical and of the latest design, is fitted in a readily accessible position.

RADIATOR. Is of special design and situated behind the engine, thus affording easy access to all sides of the engine.

The Thermo-syphon system of circulation is adopted, specially large waterways being used for this purpose.

PETROL TANK has a capacity of 8 gallons. It is fitted in the scuttle dash, the position ensuring a perfect gravity feed to the carburettor.



Specification of the 11·9 h.p. Arrol-Johnston Car

CONTINUED—

CLUTCH. This is of the well known Arrol-Johnston type, consisting of three substantial metal discs which are held in frictional contact with each other by spring pressure, the discs working in an oil bath.

TRANSMISSION. The coupling between the clutch and gearbox is rigid, yet detachable, this being rendered possible by our unit system, which ensures **correct alignment under all conditions.**

UNIVERSAL JOINT. Is of the well-known Arrol-Johnston ring and stud type, rotating within a stationary oil-retaining cover. All couplings and joints throughout the transmission are fitted on hexagons.

CHANGE SPEED GEAR. The gearbox provides four speeds forward and the usual reverse. It is on the gate change principle, and is operated by a single lever. The secondary or main shaft is mounted on ball bearings, whilst the layshaft is fitted with a long plain bearing. The layshaft is situated directly beneath the main shaft and well below the oil level, so that



Specification of the 11·9 h.p. Arrol-Johnston Car

CONTINUED—

it runs wholly immersed in the oil bath. Lubrication is effected through the very accessible selector lever inspection door.

BACK AXLE. Of the bevel driven type, of strong construction ; the driving shafts are of nickel steel, and the road wheels run on ball bearings which are mounted on the axle casing.

FRONT AXLE. Is made from a steel stamping of H section. The steering pivots are fitted with ball thrusts, and the road wheels run on ball bearings.

STEERING. The 11·9 steering gear differs from that of our larger models, worm and sector being employed. An ebonite steering wheel is provided.

BRAKES. Two independent sets of internal expanding brakes faced with a special composition are fitted, both acting on the inner surface of the brake drums of the rear road wheels. The expanding shoes are fitted side by side in the back hubs and, being of equal diameters and widths, are interchangeable. These brakes are of exceptionally large diameter thus ensuring unusual braking power, and ample lubricators are fitted to brake transversal bearings. The adjustment of rear brakes is protected from rust by sleeves over the working parts.



Specification of the 11.9 h.p. Arrol-Johnston Car

CONTINUED—

The usual method of operating is adopted, viz. one by a foot pedal and the other by a hand lever. Adjustments are made by winged nuts.

CONTROL. Is by foot accelerator ; a hand-setting device is fitted on an extension to the aluminium foot plate, which is itself built into the chassis, and the control is thus rendered rigid. The foot plate is fitted with a large inspection door, allowing of easy clutch adjustment or removal.

CLUTCH AND BRAKE PEDALS. These are at the left and right sides of the accelerator pedal respectively, the clutch pedal shaft being freed from vibration by adjustable split bearings.

DETACHABLE WHEELS. Of the wooden artillery pattern, having a simple, strong and safe detaching arrangement. To remove the wheels simply unscrew three nuts, with brace provided. The front wheel hubs are fitted with cup leather washers which exclude all moisture and dirt, and a grease pump is supplied for charging hubs. (Spare wheel, with tyre, included).

TYRES. 760×90 m/m., plain covers, are fitted as standard.



Specification of the 11.9 h.p. Arrol-Johnston Car

CONTINUED—

BODY. Two or four seated as ordered. Exceptionally large seating space is provided.

MOUNTINGS. The standard are Nickel-Plated (Brass mountings extra).

COLOUR. The standard finish is either "Arrol-Johnston" Grey, Dark Blue or Dark Green. If other than these are ordered, an extra charge will be made of £5 5s.

ACCESSORIES. (included in price of Car).

| | | |
|------------------------------------|---------------------------------|------------------------------------|
| One large adjustable spanner. | One pair of pliers. | One petrol funnel. |
| On hub cap and valve cap spanner. | One tyre inflator and adapter. | One oil can. |
| Set of four double-ended spanners. | Two tyre levers. | One oil dipper. |
| Set of three tube box spanners. | One lifting jack. | One tubular sparking plug spanner. |
| One wheel extractor. | One small hammer. | One key for clutch adjustments. |
| One file and handle. | One steel chisel. | One grease pump for hub |
| One screw-driver. | Assortment of nuts, bolts, etc. | charging. |

N.B. Sankey Steel Wheels fitted at an extra charge of £4.



Specification of the 15.9 h.p. Arrol-Johnston Car

CHASSIS.

| | | TWO-SEATER. | OPEN FIVE-SEATER. |
|-------------------|--|----------------------------|----------------------------|
| Wheelbase, - - | | 9 ft. 3 in., or 2820 m/m. | 10 ft. 3 in., or 3125 m/m. |
| Track, - - - | | 4 ft. 8 in., or 1420 m/m. | 4 ft. 8 in., or 1420 m/m. |
| Overall Length, - | | 12 ft. 3 in., or 3735 m/m. | 13 ft. 3 in., or 4040 m/m. |
| Overall Width, - | | 5 ft. 7 in., or 1700 m/m. | 5 ft. 7 in., or 1700 m/m. |
| Road Wheels, - | | Sankey steel detachable. | Sankey steel detachable. |
| Tyres, - - - | | 815×105 m/m., Dunlop. | 815×105 m/m., Dunlop. |

ENGINE. Four cylinders, cast in pairs, ensuring easy removal when necessary. The water jackets are of large dimensions, special attention having been devoted to the cooling of the valve pockets and cylinder heads. Piston diameter, 80 m/m. × 140 m/m. stroke. All valves are interchangeable and are mechanically operated by single chain-driven camshaft on the off-side of engine, which is also very suitable for electric lighting installation, a dynamo platform being fitted as standard. All valve tappets are adjustable, and the operating mechanism is completely enclosed, ensuring silence and a particularly clean engine. The plates covering the valves and push rods are instantly detachable, giving immediate access to enclosed parts.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

CRANK SHAFT. Of high tensile steel, supported by three long white metallised bearings.

IGNITION. High-tension magneto, with variable control, operated from steering wheel.

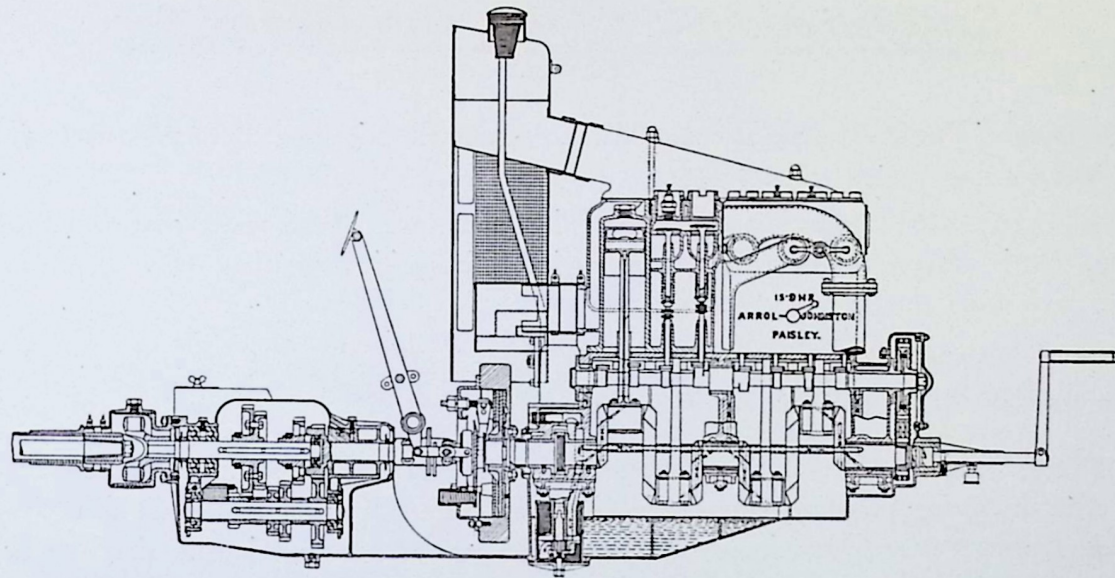
LUBRICATION. By a pump situated in a sump formed in the bottom half of the crank chamber, which is enclosed in a large filter, the whole being easily removable for inspection and cleaning purposes.

This system, as applied by us, ensures a perfect and uniform lubrication of the whole engine and a smokeless exhaust. Superfluous oil is continually drained back to the sump, thereby obviating waste.

The oil is poured into the engine through a filler in near side of crank case, the correct level being indicated by an overflow tap, and the flow by a dashboard indicator. An oil level gauge is also supplied.

CARBURETTOR. Of modern design, is fitted in a readily accessible position. The throttle valve is embodied in the carburettor and does not form a separate attachment.





15.9 h.p. POWER UNIT—Sectional Elevation.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

COOLING. Thermo-syphon on the latest approved principle, through waterways of large area.

RADIATOR. Of a special design, flush with body, with large water spaces at top and bottom. It is placed at the rear of the engine, this position affording easy access to the engine, both from the sides and front.

PETROL TANK. Is placed on the dash, has a fuel capacity of 10 gallons and is in such a position that the petrol supply to the carburettor is perfect, even on the steepest hills.

CLUTCH. This consists of three substantial metal plates, held in frictional contact with each other by spring pressure, and working in an oil bath. A clutch stop is fitted, making the gear change very easy to manipulate. The whole can be removed in the simplest manner without dismantling any part of the engine or gear box. A ball thrust is fitted behind the pressure plate, giving great smoothness in use.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

TRANSMISSION. The coupling between the clutch and gearbox is rigid, yet detachable. This coupling is rendered possible by our system of carrying the engine and gearbox upon a rigid machine-faced aluminium bed, **which ensures correct alignment under all conditions.** From the gearbox the power is transmitted to the live axle through a cardan shaft with one universal joint only at the front end.

UNIVERSAL JOINT. Is of the well-known Arrol-Johnston ring and stud type. It is completely enclosed in a dust-tight cover. All couplings and joints throughout are fitted on hexagons.

CHANGE SPEED GEAR. The gearbox provides four speeds forward and the usual reverse. It is on the gate change principle, and is operated by a single lever. **All** shafts are mounted on ball bearings. The layshaft is situated directly beneath the main shaft and well below the oil level, so that it runs wholly immersed in the oil bath. Lubrication is effected through the very accessible selector lever inspection door.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

The gear ratios give the following speeds :

| | | | | |
|------|-------|-------------------|------|-------------------------|
| 1st. | 6.36 | miles per hour at | 1000 | revolutions per minute. |
| 2nd. | 10.46 | " " | 1000 | " " |
| 3rd. | 15.45 | " " | 1000 | " " |
| 4th. | 23.85 | " " | 1000 | " " |

BACK AXLE. The arrangement is such that the weight is carried by the outer casing, thereby relieving the internal shafts of any load. The road wheels run on ball races mounted on tubular extensions. All the shafts are mounted on **ball bearings**.

FRONT AXLE. This is formed from a single steel H section stamping of great strength, and provided with ample surfaces at the ends for supporting the stub axles carrying the wheels. The steering pivots have ball thrusts, and the road wheels are carried on ball bearings, thus making the steering exceptionally light.

STEERING. The screw and block type has been adopted, and so designed that all joints and backlash in the steering box are adjusted simultaneously by a single bolt.

SPRINGS—FRONT—are semi-elliptic, ensuring easy riding; all ends are mounted on hardened steel shackle pins, each of which is fitted with a screw feed grease lubricator.



Specification of the 15.9 h.p. Arrol-Johnston Car

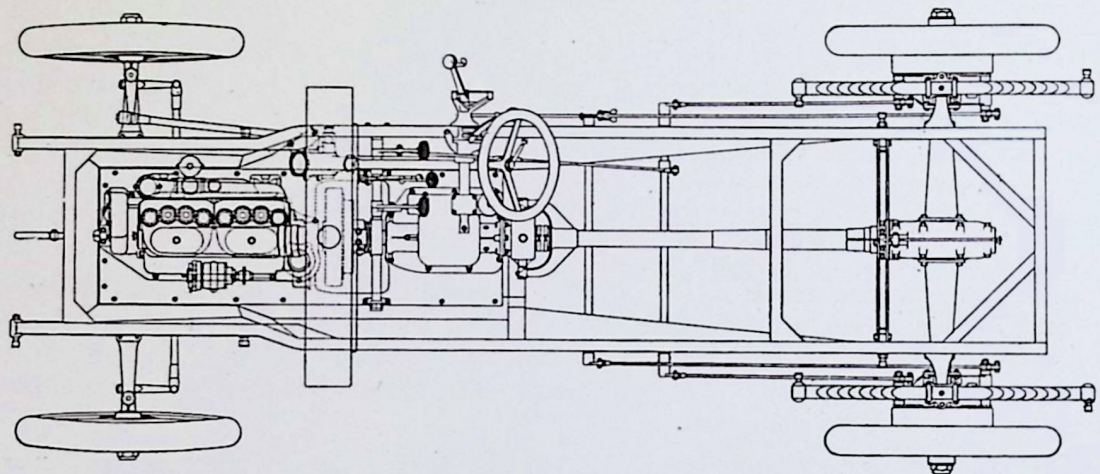
CONTINUED—

SPRINGS—REAR. These are full elliptic, secured to the axle and frame by a special swivel attachment, ensuring great comfort to rear passengers. The suspension is arranged in conjunction with the Arrol-Johnston patent linking device, which entirely obviates any disagreeable swinging sensation and prevents the binding and hardening of the spring leaves, when rounding corners.

BRAKES. Two independent sets of internal expanding brakes faced with a special composition are fitted. They are placed side by side and act upon the rear road wheels. The shoes are interchangeable. One brake is operated by foot lever, the other by hand lever and all adjustments are made by accessible winged nuts. These brakes are of exceptionally large diameter ensuring unusual braking power, and ample lubricators are fitted to brake transversal bearings. The adjustment of the rear brakes is protected from rust by sleeves over the working parts.

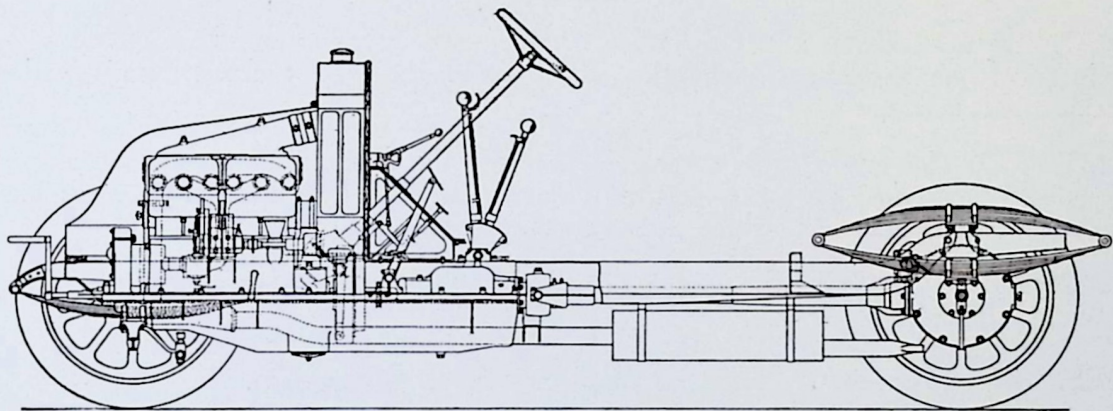
CONTROL. Is by foot accelerator. A hand-setting device is fitted on an extension to the aluminium foot-plate, which is itself built into the chassis rendering the control rigid. The foot-plate is fitted with a large inspection door allowing of easy clutch adjustment or removal.





PLAN OF 15.9 CHASSIS.





SIDE ELEVATION OF 15.9 CHASSIS.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

CLUTCH AND BRAKE PEDALS. These are placed on the left and right respectively of the accelerator pedal, the clutch pedal shaft being freed from vibration by adjustable split bearings.

FRAME. Of high-grade pressed steel, inswept at the front to afford wide steering lock, and rendered very rigid by the sweeping of the under flanges of the side channels inwards to carry the aluminium bed which supports the engine and gearbox.

DETACHABLE WHEELS. Sankey steel wheels are fitted. (Spare wheel, complete with tyre, included.)

TYRES. 815 × 105 m/m. Plain Dunlops are fitted as standard.

BODY. Seats five persons, with individual room and comfort. As shown by the illustration, it is of the latest 1913 design and certainly embodies more detail points of luxurious finish and a more attractive grace of line than even that shown by the previous high standard of Arrol-Johnston coachwork.



Specification of the 15.9 h.p. Arrol-Johnston Car

CONTINUED—

MOUNTINGS. The Standard are Nickel-plated (Brass mountings extra).

COLOURS. "Arrol-Johnston" Red, Blue, Green or Grey, to choice. Closed bodies are painted Dark Green unless otherwise ordered.

ACCESSORIES (included in the price of the Car):

| | | |
|---|-------------------------------------|---|
| One large adjustable spanner. | Two expanding caps for back axle | Assortment of nuts, bolts, washers, and cotters. |
| One hub cap and valve cap spanner combined. | One screw-driver. | One petrol funnel. |
| Four double-ended spanners. | One pair pliers. | One oil can. |
| Three tube box spanners. | One tyre inflator and adapter. | One oil dipper. |
| One star-piece and wheel with- drawing tool. | Three tyre levers. | One steering gear adjustment spanner. |
| One small tommybar for same. | One lifting jack. | One small hexagon tube for axle shaft nuts. |
| One detachable wheel spanner. | One small hand vice. | One toolbag. |
| One valve spring lifter. | One small hammer. | One key for clutch adjustment. |
| One file. | One steel chisel. | |



Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CHASSIS.

| | |
|---------------------------|----------------------------|
| Wheelbase, - - - - - | 11 ft. 1 in., or 3380 m/m. |
| Track, - - - - - | 4 ft. 8 in., or 1420 m/m. |
| Overall Length, - - - - - | 14 ft. 3 in., or 4343 m/m. |
| Overall Width, - - - - - | 5 ft. 7 in., or 1700 m/m. |
| Road Wheels, - - - - - | Sankey steel detachable. |
| Tyres, - - - - - | Dunlop, 820×120 m/m. |

FRAME. Is of high-grade pressed steel inswept in front to afford wide steering lock, and upswept at the back to enable a low body to be fitted, and rendered very rigid by the sweeping of the under flanges and the side channels inwards to carry the bedplate of the power unit.

This method of construction encloses all the mechanism from below, and obviates the necessity of fitting separate metal dust shields, which often work loose and rattle.

Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

SPRINGS—FRONT—are semi-elliptic, ensuring easy riding; all ends are mounted on hardened steel shackle pins, each of which is fitted with a screw feed grease lubricator.

SPRINGS—REAR. These are full elliptic, secured to the axle and frame by a special swivel attachment, ensuring great comfort to rear passengers. The suspension is arranged in conjunction with the Arrol-Johnston patent linking device, which entirely obviates any disagreeable swinging sensation when rounding corners.

ENGINE.—Six cylinders of close-grained crucible cast iron, cast in pairs and mounted on an aluminium crank case, which also supports the main bearings of the crankshaft. The water jackets are of ample proportions, special attention having been devoted to the efficient cooling of the valve pockets and cylinder heads.

Piston diameter, 80 × 120 m/m stroke. All valves are interchangeable and are mechanically operated by a single chain-driven camshaft on the off-side of the engine. The valve tappets are adjustable and are fitted with fibre contact pads, thus ensuring the minimum of noise ;



Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

the operating mechanism is completely enclosed, thus giving a particularly clean engine. The plates covering the valve stems and tappets are instantly detachable, giving immediate access to the enclosed parts.

CRANKSHAFT. Is made of high tensile steel amply supported in long white metal bearings.

IGNITION. High-tension magneto with variable control, operated by lever on steering wheel.

LUBRICATION. Like the 15·9 engine the six-cylinder model is lubricated under pressure by means of a self-contained and entirely enclosed oil pump, the oil supply being directly in proportion to the work done by the engine. The pump is situated in a sump formed in the bottom half of the crank chamber, and the oil intake operates through a large filter which is easily removable for inspection and cleaning purposes by the unscrewing of one nut. The pump gears can also be inspected and withdrawn through the same



Specification of the 23.9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

aperture. The oil is delivered through ducts formed in the upper half of the crank case to each crankshaft bearing, and thence through the hollow crankshaft to the big end bearings of the connecting rods. Ducts also convey oil under pressure to each of the two pairs of silent skew gear wheels which drive the magneto.

A release valve is fitted which enables a constant oil pressure to be maintained, and the whole installation is carried through without a pipe union.

This system, as applied by us, ensures a perfect and uniform lubrication of the whole engine and a smokeless exhaust. Any superfluous oil is drained back to the sump, and waste is thereby obviated. The oil is poured into the engine through a filler on near side of crank case, and the highest permissible level is indicated by an oil gauge, and by an overflow tap, whilst a dashboard indicator is also fitted.

CARBURETTOR. This is of modern design and fitted in a most accessible position, and is readily detached, together with the induction pipe, by the unscrewing of four nuts.



Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

This carburettor ensures the greatest possible economy in petrol consumption, as correct mixture is supplied to the engine at all speeds. The throttle valve is embodied in the carburettor and does not form a separate attachment.

COOLING. Thermo-syphon cooling on the latest approved principle through waterways of large area.

RADIATOR. This is a special design of the vertical gilled tube variety with large water spaces at top and bottom of each nest of tubes. It is placed at the rear of the engine, thus giving absolutely free access to the engine, both from the sides and front.

BONNET. This can be easily detached by withdrawing a single pin.

PETROL TANK. This is placed on the dash, has a fuel capacity of 10 gallons, and is in such a position that the petrol supply to the carburettor is perfect even on the steepest hills.



Specification of the 23.9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

CLUTCH. The well-known Arrol-Johnston single-plate type, which gives constant satisfaction even under the most trying conditions. It runs in oil, is easily adjusted, and all wearing parts are renewable. It can be removed in the simplest manner without dismantling any part of the engine or gear box. Ball thrusts are fitted behind the driving plate.

TRANSMISSION. The connection between the clutch and the gear box is made by a rigid coupling which eliminates the backlash so often found at this point. From the gear-box the power is transmitted to the live axle through a cased-in propeller shaft with a universal joint at the forward end only.

CHANGE SPEED GEAR. The gearbox is provided with four forward speeds and the usual reverse. The lay shaft is driven from the primary shaft by helical gears and the reverse wheels are out of mesh when the forward gears are engaged, making the running **very silent on all gears.** The shafts, which are exceptionally short and rigid, are mounted on **ball bearings**: and, where necessary, ball thrusts are fitted ensuring



Specification of the 23.9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

the highest possible efficiency. The gear wheels run in an oil bath, oil being poured into the gearbox through an opening in the top. The change speed quadrant, which is of the gate type, is entirely enclosed, and the **whole mechanism is brought inside the body of the car.**

The gear ratios give the following speeds :

| | | | | | |
|------|-------|----------------|----|------|-------------------------|
| 1st. | 6.4 | miles per hour | at | 1000 | revolutions per minute. |
| 2nd. | 10.52 | " | " | 1000 | " " |
| 3rd. | 15.52 | " | " | 1000 | " " |
| 4th. | 23.98 | " | " | 1000 | " " |

UNIVERSAL JOINT. Is of the well-known Arrol-Johnston ring and stud type, constructed so as to allow for any movement in the cardan shaft. It is entirely enclosed, runs in oil, and all wearing parts are easily renewable.

TORQUE AND RADIUS TUBE. The tubular casing enclosing the propeller shaft performs the dual functions of the torque and radius rods. It allows for the vertical



Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

BRAKES. Two independent sets of internal expanding brakes faced with a special composition are fitted. They are placed side by side, and act upon the rear road wheels. The shoes are interchangeable. A foot lever operates one set and a hand lever the other set.

All brakes are easy of access and adjusted for wear by means of winged nuts.

CONTROL. The engine speed is controlled by means of a foot accelerator placed in such a position that no fatigue results even after a long journey, and a hand lever is placed on the dash.

CLUTCH AND BRAKE PEDALS. These are in comfortable positions and are readily adjusted to suit drivers of different heights.

DETACHABLE WHEELS. Sankey steel wheels are fitted. (Spare wheel, complete with tyre, included.)

Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

TYRES. 820 × 120 m/m. Plain Dunlops are fitted as standard.

BODY. Seats five persons, and is a particularly smart design, with high flush sides and doors. Both in quality and in refinement of detail, this body carries the impress of the highest modern elegance.

MOUNTINGS. The Standard are Nickel-plated (Brass mountings extra).

COLOURS. Arrol-Johnston Red, Blue, Green or Grey, to choice. Covered bodies are painted Dark Green unless otherwise ordered.



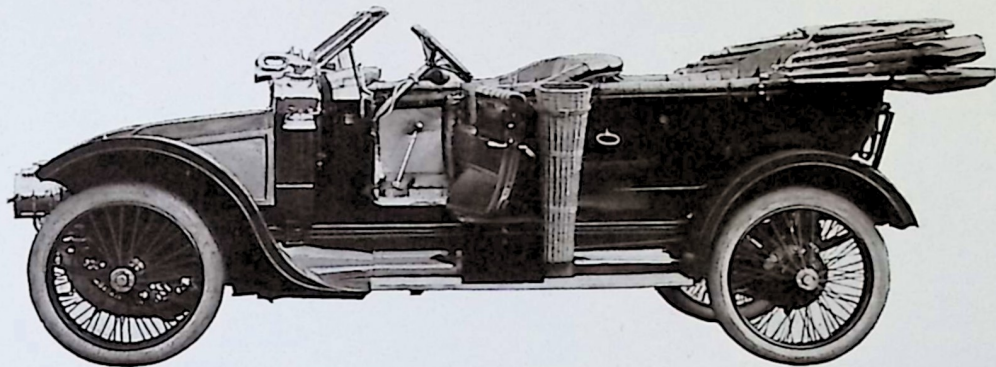
Specification of the 23·9 h.p. Six-Cylinder Arrol-Johnston Car

CONTINUED—

ACCESSORIES (included in the price of the Car) :

- | | | |
|---|-----------------------------------|--|
| One large adjustable spanner. | One file. | One tool-bag. |
| One hub cap and valve cap spanner combined. | Two expanding caps for back axle. | Assortment of nuts, bolts, washers, and cotters. |
| Four double-ended spanners. | One screw-driver. | One petrol funnel. |
| Three tube box spanners. | One pair pliers and file. | One oil dipper. |
| One star-piece and wheel with-drawing tool. | One tyre inflator and adapter. | One oil can. |
| One small tommybar for same. | Three tyre levers. | One steering gear adjustment spanner. |
| One detachable wheel spanner. | One lifting jack. | One small hexagon tube for axle shaft nuts. |
| One valve spring and lifter. | One small hand vice. | One clutch adjusting spanner. |
| | One small hammer. | |
| | One steel chisel. | |

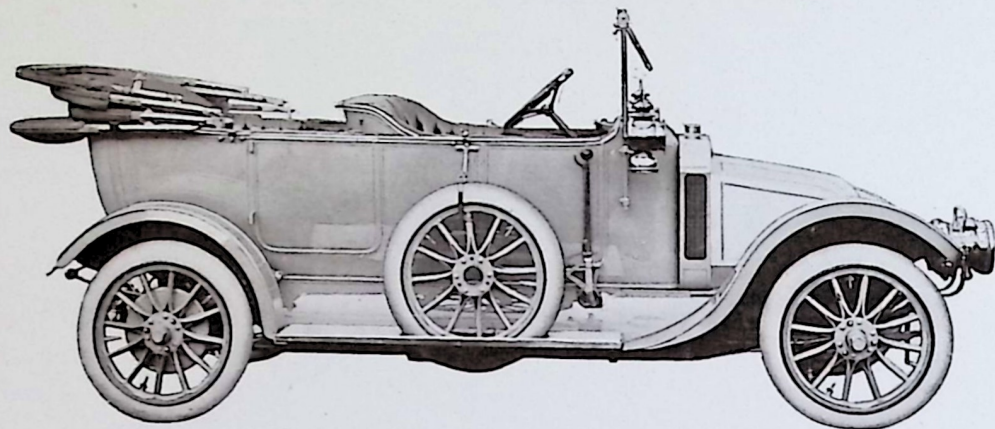




THE 15.9 h.p. ARROL-JOHNSTON CAR.

As supplied to H.M. War Office.

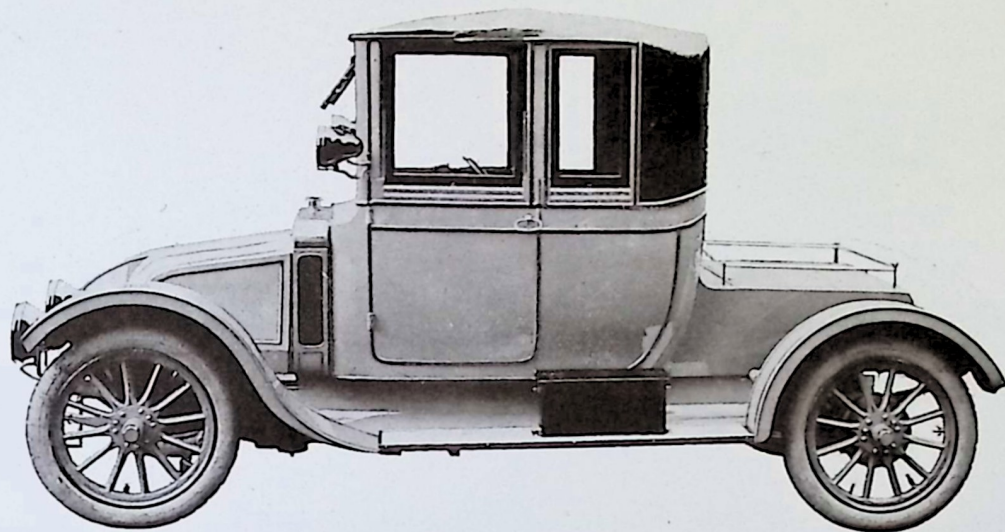




THE 11'9 h.p. ARROL-JOHNSTON 4-SEATED CAR.

Price, £285, with 760×90 m/m Plain Covers and Spare Wheel with Tyre (Hood, Screen and Lamps extra).





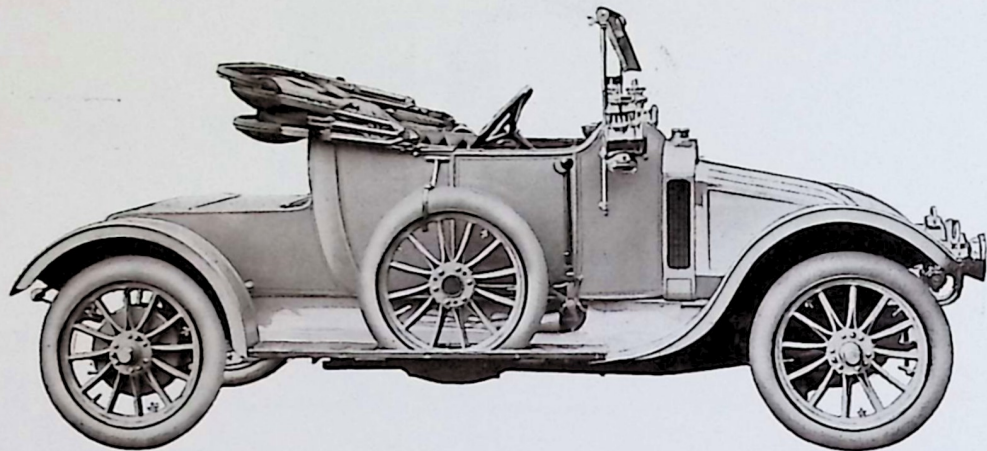
ARROL-JOHNSTON DOCTOR'S COUPÉ.

11'9 h.p., with 765×105 m/m Plain Covers and Spare Wheel with Tyre - - £390

15'9 h.p., with 815×105 m/m Dunlop Tyres " " " " - £470

(Lamps extra).

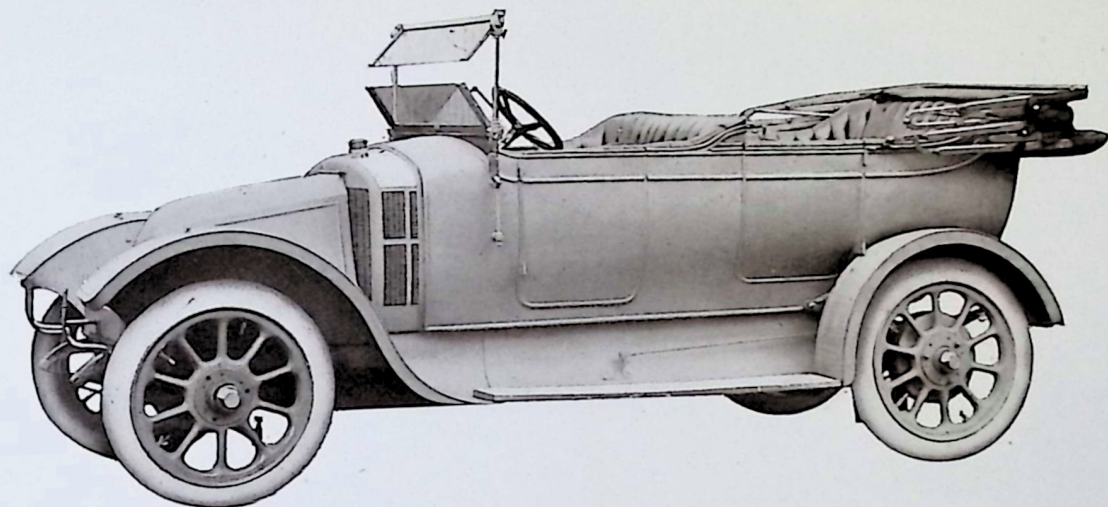




THE ARROL-JOHNSTON 2-SEATED CAR.

| | | | | |
|---|---|---|-------|------|
| 11'9 h.p., without Hood, Screen and Lamps | - | - | Price | £285 |
| 15'9 h.p. " " " " | - | - | " | £370 |
| 23'9 h.p. " " " " | - | - | " | £525 |

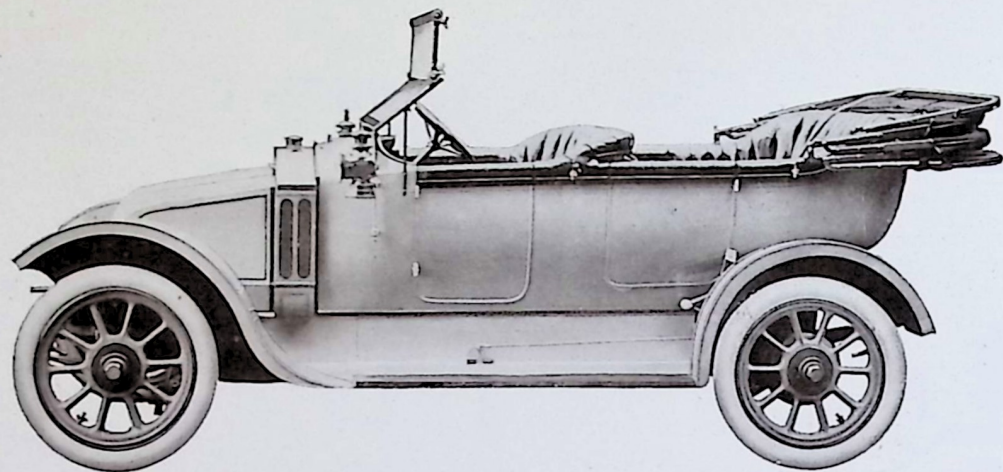




FIVE-SEATER ARROL-JOHNSTON CAR.

15.9 h.p. with 815×105 m/m. Plain Dunlop Tyres and Spare Wheel with Tyre, £395.
23.9 h.p. „ 820×120 m/m. „ „ „ „ „ „ „ £560.
(Hood, Screen and Lamps extra).

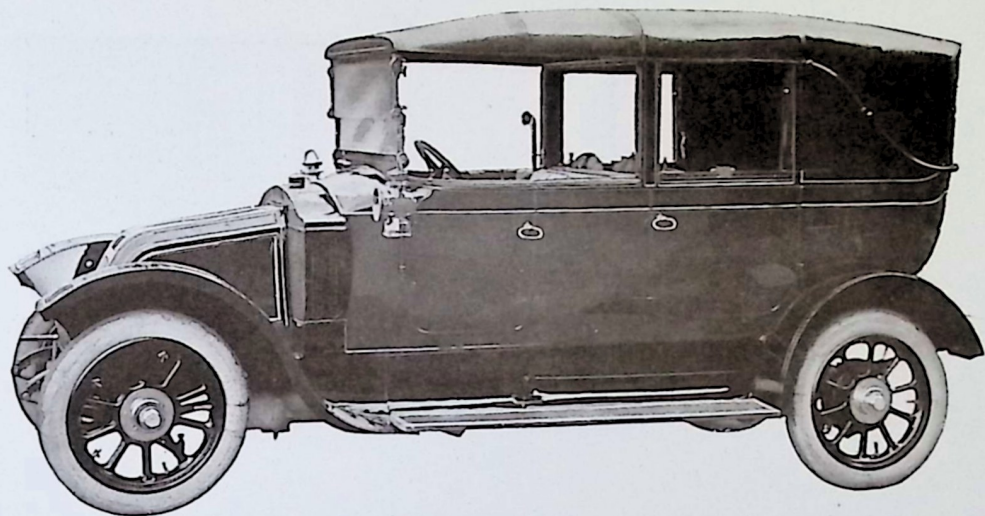




THE 15.9 h.p. ARROL-JOHNSTON COLONIAL CAR.

Fitted with Overhead Worm Drive, 9 ft. 6 in. Wheelbase and 10-inch Ground Clearance.
Price, with 815×105 m/m. Dunlop Tyres and Spare Wheel with Tyre, £395.
(Hood, Lamps and Screen extra).

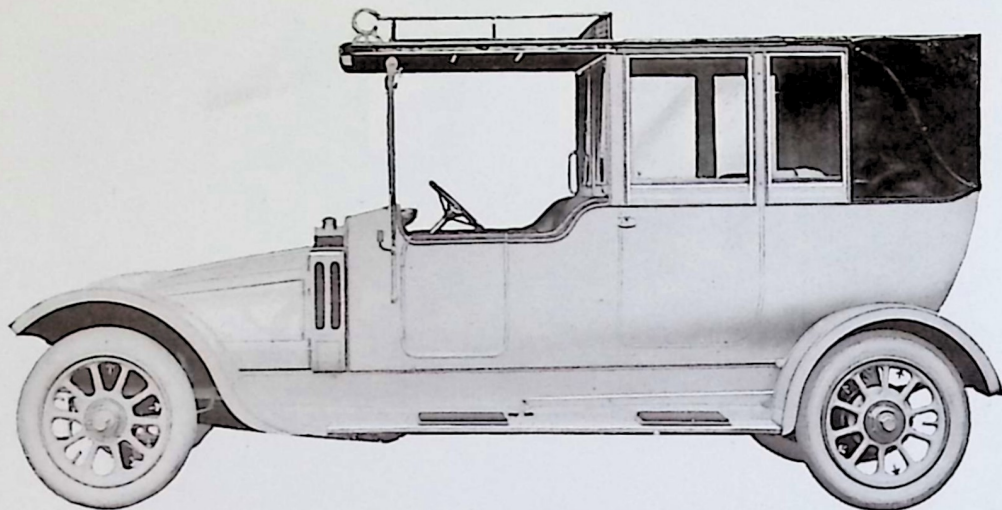




THE ARROL-JOHNSTON TORPEDO-CABRIOLET.

| | | | | |
|---|---|---|---|------|
| 15.9 h.p. as illustrated (without Lamps) | - | - | - | £555 |
| 23.9 h.p. " " " | - | - | - | £690 |

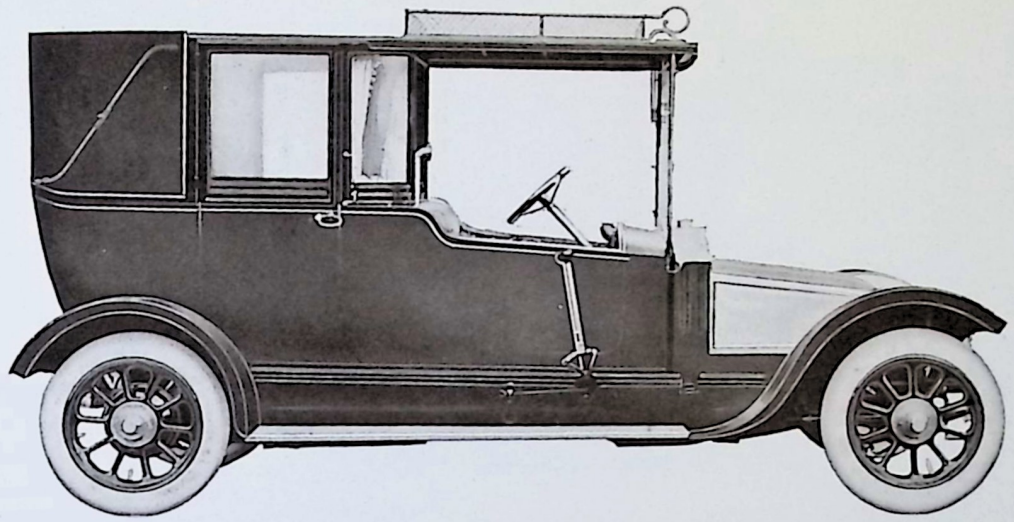




THE ARROL-JOHNSTON LANDAULETTE, WITH SQUARE FRONT.

| | | | | | | |
|--------------------------|---|---|---|---|-------|------|
| 15.9 h.p. as illustrated | - | - | - | - | Price | £525 |
| 23.9 h.p. .. | - | - | - | - | .. | £675 |

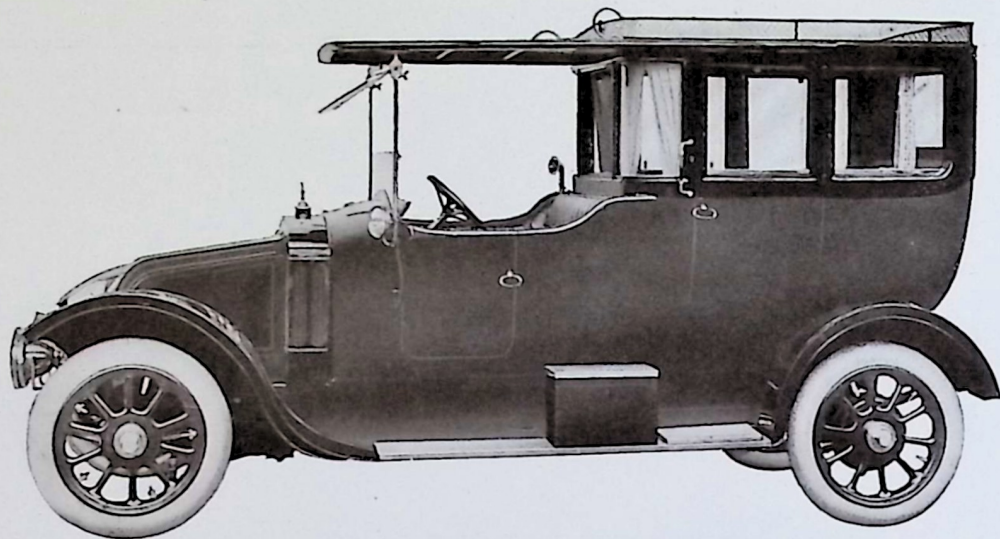




THE ARROL-JOHNSTON LANDAULETTE, WITH "D" FRONT

| | |
|--|------------|
| 15.9 h.p. as illustrated - - - - | Price £545 |
| 23.9 h.p. " - - - - | " £690 |

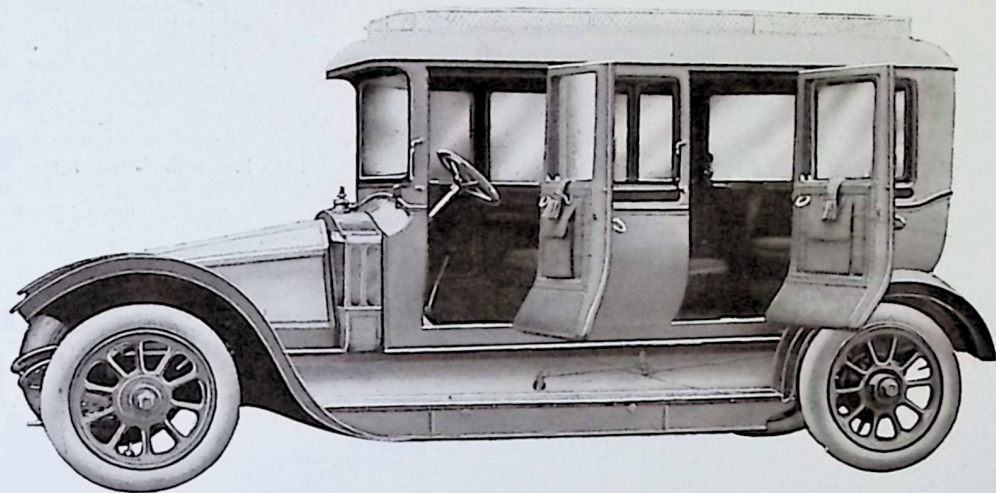




THE ARROL-JOHNSTON D-FRONTED LIMOUSINE.

| | | | | |
|--|---|---|-------|------|
| 15.9 h.p. as illustrated (without Lamps) | - | - | Price | £545 |
| 23.9 h.p. | " | " | " | £690 |

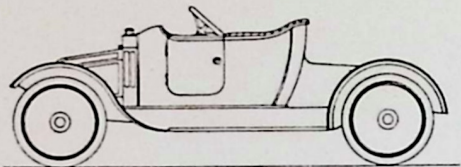




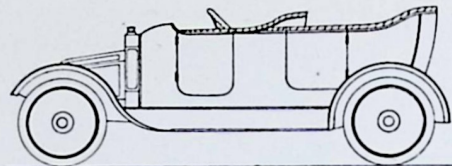
THE ARROL-JOHNSTON DOUBLE SALOON.

| | | | | | | |
|--------------------------------|---|---|---|---|-------|------|
| 15·9 h.p. as illustrated | - | - | - | - | Price | £645 |
| 23·9 h.p. " | - | - | - | - | " | £750 |

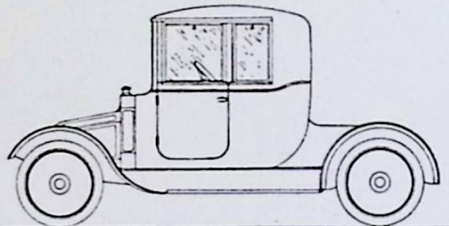




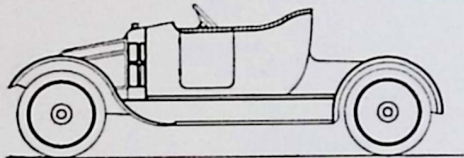
11.9 h.p. with 2-Seated Body, £285



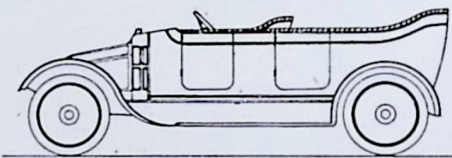
11.9 h.p. with 4-Seated Body, £285



11.9 h.p. with Doctor's Coupé Body, £390
15.9 h.p. " " " £470

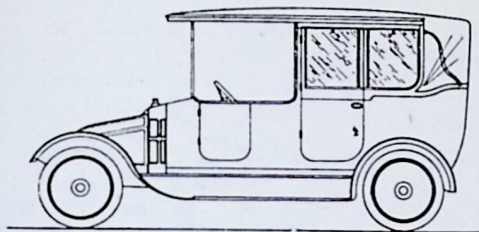


15.9 h.p. with 2-Seated Body, £370
23.9 h.p. " " £525



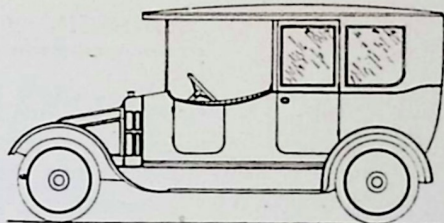
15.9 h.p. with 4-Seated Body, £395
23.9 h.p. " " £560





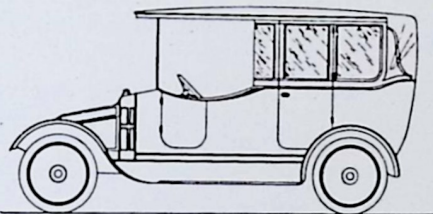
15.9 h.p. with Square Fronted
Landaulette Body, £525

23.9 h.p. with Square Fronted
Landaulette Body, £675



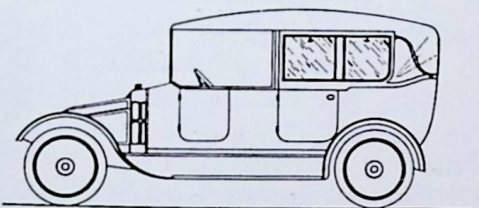
15.9 h.p. with Limousine Body, £525

23.9 h.p. " " £675



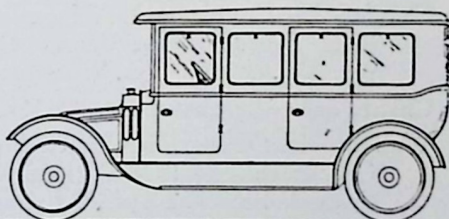
15.9 h.p. with "D" Fronted
Landaulette Body, £545

23.9 h.p. with "D" Fronted
Landaulette Body, £690



15.9 h.p. with Cabriolet Body, £555

23.9 h.p. " " £690



15.9 h.p. with Double Saloon Body, £645

23.9 h.p. " " £750

Summary of 1913 Arrol-Johnston Prices.

11'9 h.p. FOUR-CYLINDER.

| | |
|---|----------|
| Chassis only—Complete with Wings, Bonnet, Platforms, painted Lead Colour, 760×90 m/m. Plain Covers, Detachable Wood Wheels, Spare Wheel with Tyre, 9 ft. 2 in. Wheelbase | £265 0 0 |
| With Two-or Four-Seated Body, painted Arrol-Johnston Green, Grey or Blue, 760 m/m.×90 m/m. Plain Covers, Detachable Wood Wheels, Spare Wheel with Tyre, 9 ft. 2 in. Wheelbase | 285 0 0 |
| With Two-Seated Doctor's Coupé Body, painted and Upholstered to choice, Head of best quality Black Leather, Electric Roof Lamp, 765×105 m/m. Plain Covers, otherwise as above | 390 0 0 |

15'9 h.p. FOUR-CYLINDER.

| | |
|--|---------|
| Chassis only—Complete with Wings, Bonnet, Platforms, painted Lead Colour, 815×105 m/m. Plain Dunlop Tyres, Sankey Detachable Steel Wheels, Spare Wheel with Tyre, 9 ft. 3 in. or 10 ft. 3 in. Wheelbase | 335 0 0 |
| Chassis only—As above, but 820×120 m/m. Tyres | 345 0 0 |
| With Special Design, Two-Seated Body, painted Arrol-Johnston Carmine, Blue, Green or Grey to choice, 815×105 m/m. Plain Dunlop Tyres, Sankey Detachable Steel Wheels, Spare Wheel with Tyre, 9 ft. 3 in. Wheelbase | 370 0 0 |



Arrol-Johnston Car Prices.

15·9 h.p. FOUR-CYLINDER—*continued.*

| | |
|--|------------|
| With New Design, Flush-Sided Open Touring Body, to seat five persons. Painted Arrol-Johnston Carmine, Blue, Green or Grey to choice, 815×105 m/m. Plain Dunlop Tyres, Sankey Detachable Steel Wheels, Spare Wheel with Tyre, 10 ft. 3 in. Wheelbase | - £395 0 0 |
| With Two-Seated Doctor's Coupé Body. Painted and Upholstered to choice, Head of best quality Black Leather, Electric Roof Light, 9 ft. 3 in. Wheelbase, otherwise as above | 470 0 0 |
| With Landaulette Body, to seat four persons, including driver, made to entirely open, Canopy, Front Glass Wind Screen. Painted any dark colour to choice, Upholstered Corded Box Cloth or Morocco Leather, Electric Light, Speaking Tube, 820×120 m/m. Plain Dunlop Tyres, Sankey Detachable Steel Wheels, Spare Wheel with Tyre, 10 ft. 3 in. Wheelbase | 510 0 0 |
| With Landaulette Body, to seat six persons, including driver, Square Fixed Front, otherwise as above | 525 0 0 |
| With Landaulette Body, to seat six persons, including driver, Square Front made to entirely open, otherwise as above | 545 0 0 |
| With Landaulette Body, to seat six persons, including driver, "D" Fronted, otherwise as above | 545 0 0 |
| With Cabriolet Body, to seat six persons, including driver. Painted and Upholstered to choice, no Speaking Tube, otherwise as above | 555 0 0 |



Arrol-Johnston Car Prices.

15'9 h.p. FOUR-CYLINDER—*continued.*

| | |
|--|------------|
| With New Design Single Saloon Body, to seat four persons, no Speaking Tube, otherwise as above | - £590 0 0 |
| With New Design Double Saloon Body, to seat six persons, otherwise as above | - 645 0 10 |

23'9 h.p. SIX-CYLINDER.

| | |
|--|-----------|
| Chassis only—Complete with Wings, Bonnet, Platforms, painted Lead Colour, 820×120 m/m. Plain Dunlop Tyres, Sankey Detachable Steel Wheels, Spare Wheel with Tyre, 11 ft. 1 in. Wheelbase | - 470 0 0 |
| With New Design Flush-Sided Open Touring Body, to seat five persons, painted Arrol-Johnston Carmine, Blue, Green or Grey to choice, otherwise as above | - 560 0 0 |
| With Landalette Body, to seat four persons, including driver, made to entirely open, Canopy, and Front Glass Wind Screen, painted any dark colour to choice, Upholstered Corded Box Cloth or Morocco Leather, Electric Roof Light, Speaking Tube, 820×120 m/m. Plain Dunlop Tyres, Sankey Detachable Wheels, Spare Wheel with Tyre, 11 ft. 1 in. Wheelbase | - 650 0 0 |



Arrol-Johnston Car Prices.

23'9" h.p. SIX-CYLINDER—*continued.*

| | |
|---|----------|
| With Landaulette Body, to seat six persons, including driver, Square Fixed Front, otherwise as above | £675 0 0 |
| With Landaulette Body, to seat six persons, including driver, Square Front, made to entirely open, otherwise as above | 690 0 0 |
| With Landaulette Body, to seat six persons, including driver, "D" Front, otherwise as above | 690 0 0 |
| With Cabriolet Body, to seat six persons, including driver, Painted and Upholstered to choice, no Speaking Tube, otherwise as above | 690 0 0 |
| With New Design Single Saloon Body, to seat four persons, no Speaking Tube, otherwise as above | 710 0 0 |
| With New Design Double Saloon Body, to seat six persons, no Speaking Tube, otherwise as above | 750 0 0 |

N.B.—The Price of Limousine Bodies is the same as Landaulette.



Arrol-Johnston Terms of Business.

Prices quoted are for delivery at our Works, and strictly *Net*, on the following terms :—

20% of purchase money to accompany order, balance to be paid on advice that the Car is ready for delivery.

Packing for shipment is not included in the Price List, and if required will be charged extra.

Any time of delivery named in any of our correspondence is made contingent upon strikes, lock-outs, trade-disputes, accidents, fire, delay or failure of sub-contractors to complete their contracts, or other unforeseen circumstance, and should delivery be delayed in consequence thereof, the Company cannot undertake any liability for such delay.

THE TERM "AGENT."

The term Agent is used in a complimentary sense only and those whom we style Agents are not authorised to advertise, incur any debts or transact any business on our behalf: they sell as principals and not as Agents the goods purchased by them from us. Nor are they authorised to give any warranty or make any representation on our behalf other than that contained in the guarantee herein.





VIEW OF PAISLEY WORKS.



