



A.J.S. Vee-4 - MODEL 36'20.

SPECIFICATION.

ENGINE. An entirely original design of four-cylinder engine based on "A.J.S." racing experience, and incorporating every feature proved desirable for the production of maximum power output coupled with absolute reliability.

There are four separate cylinders, arranged in double Vee formation with 50° angle between the cylinders. Each cylinder is provided with its own separate cylinder head and overhead camshaft, the four camshafts being driven by one centrally disposed chain with Weller tensioner. Each camshaft housing can be removed complete without disturbing the valve timing. The overhead camshafts operate Duralumin valve rockers, which in turn operate inclined overhead valves, controlled by hair-pin valve springs, short tappets being interposed between the rockers and the valves, to eliminate side thrust.

The crankshaft is of the two-throw type and is carried on five frictionless bearings, the whole assembly being designed to give the utmost stiffness. All big end bearings are of the roller type, and one con-rod on each crank is forked to give central thrust on all four con-rods.

Dry sump lubrication is provided by double gear pump, which through internal oil-ways and drilled crankshaft feeds oil under pressure to the big end bearings, cylinder walls, overhead camshaft housings and all other working parts. Each camshaft housing has its own scavenging pump.

Ignition is by two bevel driven Racing Magnetos mounted on the timing side of the crank case. Separate vertical carburettors are used for each pair of cylinders. The whole design is very clean, as will be illustrated by the fact that only four short external oil pipes are used in the engine lubrication system, all other feeds being made by internal drilling and oil-ways.

Bore 50 mm. : : Stroke 63 mm. : : Capacity 495 cc.

GEARBOX. 4-Speed heavyweight, with positive stop foot gear change.

CLUTCH. Dry plate type carried in separate compartment of chain case to ensure that the clutch is free from oil.

FRAME. T.T. type with triple rear fork members ensuring absolute rigidity at high speeds.

FORKS. Centre barrel-spring type with re-action damper springs and double located spindle mountings.

WHEELS. Taper roller bearing hubs, rear wheel specially reinforced with 14-gauge rim and 6-9 gauge butted spokes. Rear wheel quickly detachable. Chromium plated rims.

TYRES. 26 x 3.25 in. studded rear. 26 x 3 in. ribbed front.

HANDLEBARS. Adjustable with clip-on controls. Black finish with chromium fittings.

STANDS. Centre spring up stand and bolted up front stand.

PETROL TANK. Deep saddle tank, capacity 3½ gallons. Chromium plated with black and gold panels.

OIL TANK. Capacity—6 pints.

TRANSMISSION. Front chain enclosed in cast aluminium oil-bath chain case. Rear chain protected by efficient guard with back panel.

ELECTRICAL EQUIPMENT. Separate Lucas Dynamo mounted in front of engine and driven by chain enclosed in cast aluminium oil-bath chain case. Instrument panel on top of tank includes detachable inspection light, in addition to switch and ammeter and provision for clock. Extra large head lamp, rubber mounted tail lamp. Lucas Altelto electric horn.

All prices and specifications are subject to alteration without notice, and all goods described in this leaflet are sold subject to the limited guarantee printed in our 1936 Catalogue.

The New

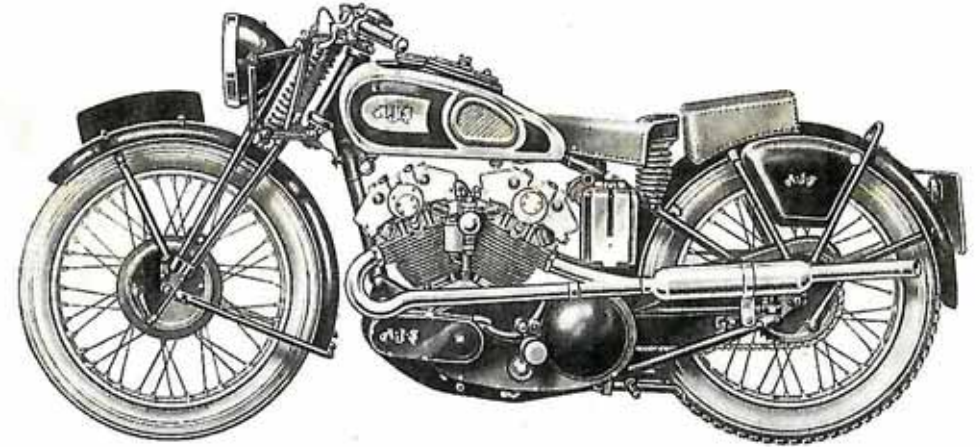
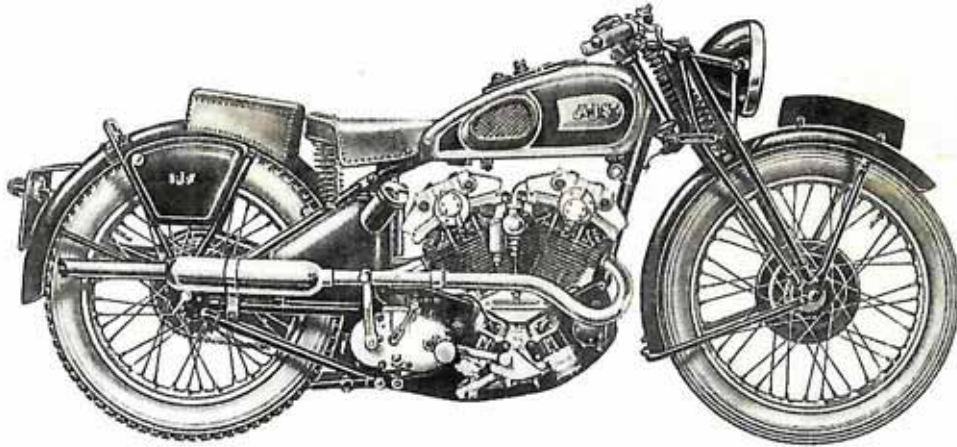


"Vee 4"

The First Real High Efficiency
Multi-Cylinder Motor Cycle
Ever Produced

A·J·S

A·J·S



The New Four-Cylinder A. J. S . . . the ultimate in high efficiency design . . . race-bred in every detail

Designed to combine the highest possible power output obtainable from a 500 c.c. engine with smoothness and silence in operation, the Vee-4 engine in this new model appeals at once to the enthusiast by reason of the obvious sturdiness and efficiency of its design.

There are four separate cylinders, four separate cylinder heads, four separate overhead camshafts in four separate housings—there is no possibility in this design of power loss through unequal cooling and consequent distortion.

The cylinders are arranged in two Vees, there are two magnetos and two carburettors, and the four separate exhaust pipes merge into two silencers, all to give maximum efficiency.

There is one sturdy crankshaft designed to give the utmost stiffness and so avoid power-loss through whip or end thrust. The complete engine is neat, compact, and yet accessible. Capable of tremendous power output, yet turbine-like in the silkiness of its running.

Mounted in a tested T.T. type of frame and forks, giving superb steering and road-holding, with immensely powerful brakes, the result is the finest high-speed motor cycle ever produced.

For full specification, see back page.

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Phone: WOOLWICH 1010.
Grams: "ICANHOPIT."

85 Gns.

WITH ELECTRIC
LIGHTING
and ELECTRIC HORN

The New A.J.S. Vee-Four

A.J.S. Motor Cycles
Plumstead Road
London, S.E.18

Telephone - - Woolwich 1010

Novel 500 c.c. Overhead-Camshaft Vee-Four : High-Efficiency Machine Designed for Fast Road Work and Racing : Separate Camshaft for Each Cylinder, Two Magnetos and Two Carbureters

A MATTER of little more than hours before the Olympia Show opens comes the news that on the A.J.S. stand will be a machine fitted with a vee four-cylinder engine of outstanding design.

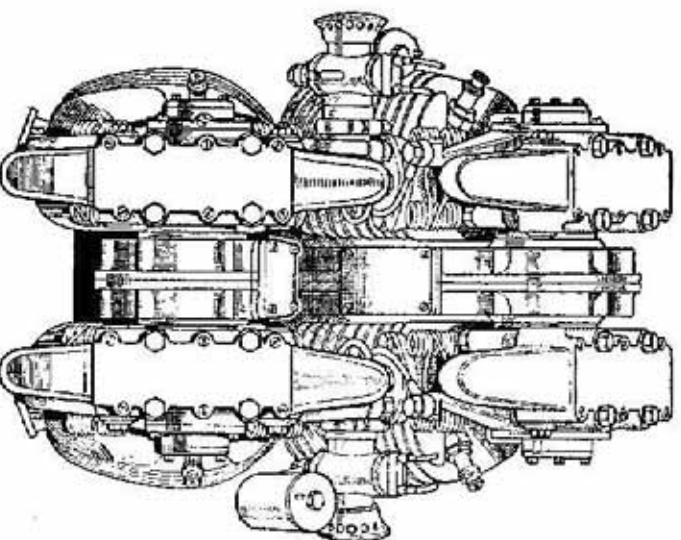
In many respects the new engine follows the most up-to-date trend of racing design. The object of the makers has been to evolve a four-cylinder machine giving the maximum possible efficiency from each cylinder.

An inspection of the new engine reveals that it consists, virtually, of four separate singles mounted on a common crank case.

There are four separate cylinders, arranged in double-vee formation, the two banks making an angle of fifty degrees. Each cylinder has its own detachable head and overhead camshaft gear—the latter being removable without disturbing the timing.

The capacity of the engine is 495 c.c. (bore 50 mm. X stroke 65 mm.). Each cylinder is heavily finned and is held in place by four long studs, which pass through the cylinder head. Both barrels and heads are of cast-iron.

Wide-angle valves, fitted with hairpin valve springs, enable a hemispherical type of combustion chamber to be used—the engine is designed to run on a compres-



This plan view of the new unit shows the four separate cam boxes. The camshafts are driven by a continuous chain, which is contained in a vee-shaped casing between each pair of cylinders

sion ratio of 7.9 to 1. There is one 14 mm. sparking plug to each cylinder.

Possibly the greatest interest centres round the extremely novel valve gear. Each cam box is mounted on the cylinder head and secured by four bolts. The camshafts operate duralumin rockers, which in turn bear on short tappets. Tappet adjustment is simplicity itself, the rockers pivoting on eccentrically mounted bearings with a micrometer control readily accessible on the outside of each case.

Following normal A.J.S. practice with the camshaft type of engine, there is an exhausting oil pump mounted on each box, which draws off oil from the bottom of the box. Although only two pipes are visible, there are four which lead up from an oil "gallery" running across the top of the crank case. This "gallery" is fed from the main oil pump and supplies oil to the cam boxes via the four oil pipes already mentioned. It also feeds the annular rings round each cylinder base. The scavenging pumps on the cam gear return the oil via the cam chain case.

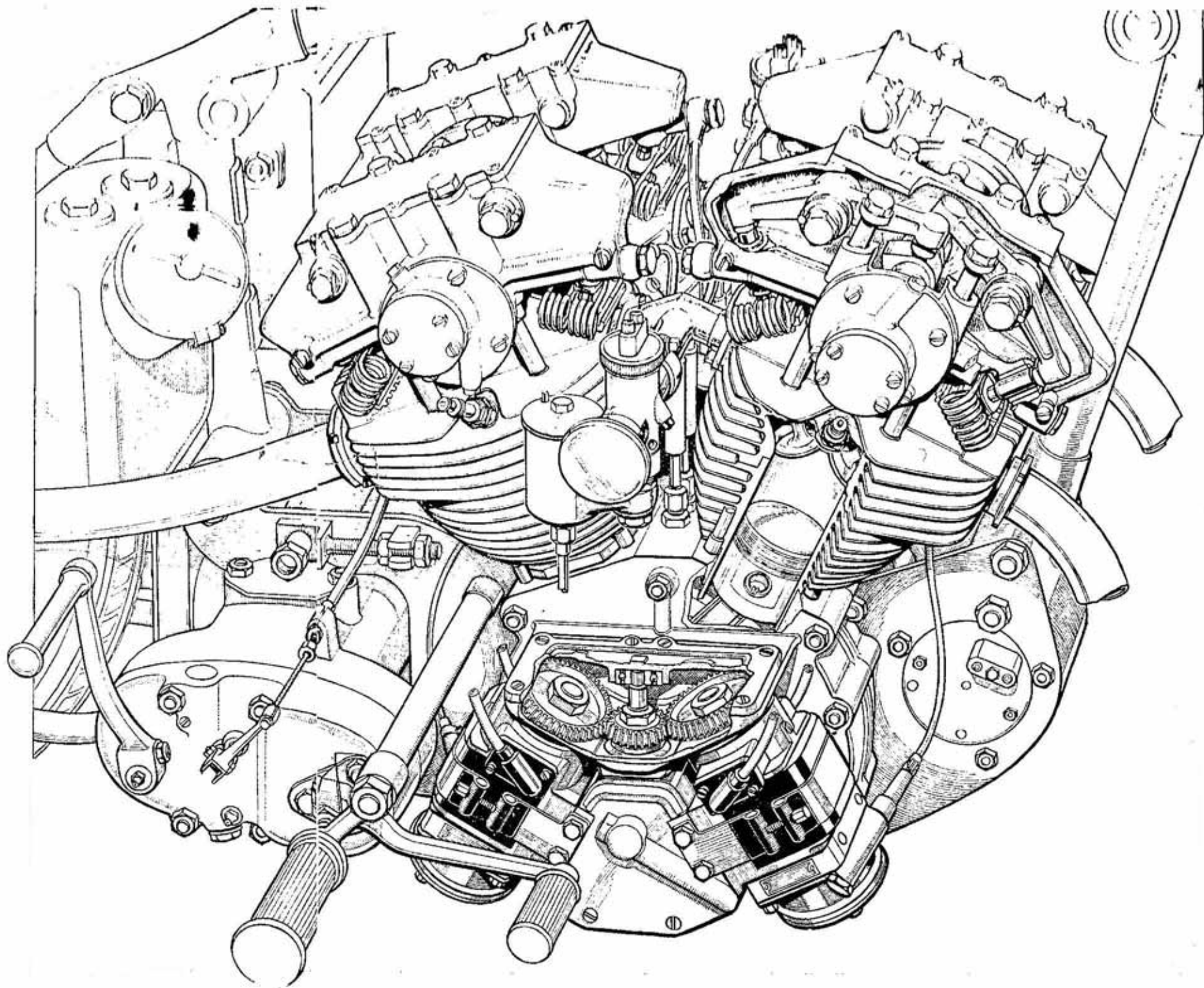
Chain Driven

The camshafts are driven by one continuous single-roller Weller-tensioned chain. The chain runs in a vee-shaped casing. At the tops of the V are two sprockets, each mounted on two bearings carried in the casing. The shafts on which these sprockets run have sliding jaw couplings into which the camshafts fit. The chain receives its drive off a half-time gear pinion and runs up the lower arm of the V to the front cam sprocket; then down on the inside of the V to an idler sprocket, which has a micrometer device for major adjustments of the chain.

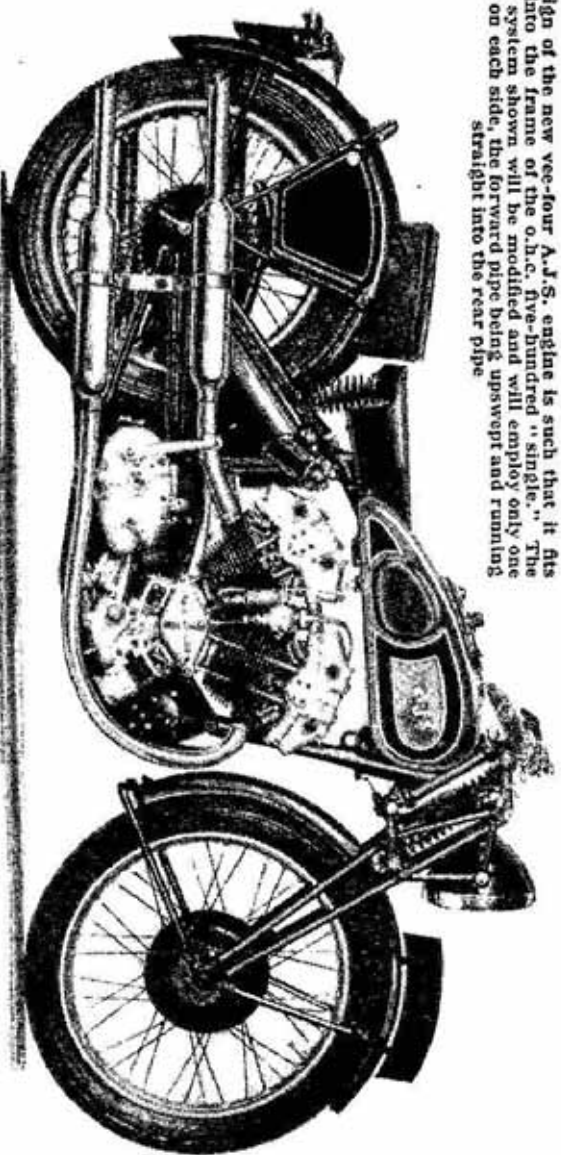
From the idler sprocket the chain passes up the inside arm of the V to the cam drive sprocket for the rear cylinders, and from there down to the driving sprocket again. The Weller tensioner is mounted on the under-side of the front case, and under all normal conditions maintains the chain at the correct tension.

Two Amal carbureters are fitted, one on each side of the engine. The inlet pipes are short and T-shaped, and link the front and rear cylinders as in a vee-twin. At the moment the machine is fitted with four separate exhaust systems, but this arrangement will be modified on the model exhibited at Olympia.

The crankshaft assembly is extremely



The design of the new vee-four A.J.S. engine is such that it fits snugly into the frame of the o.h.c. five-hundred "single." The exhaust system shown will be modified and will employ only one silencer on each side, the forward pipe being upswept and running straight into the rear pipe



sturdy. The hollow two-throw crankshaft runs in five ball and roller bearings. One connecting rod on each throw is forked to give a central thrust. The drive to the primary chain follows normal practice, but on the other side of the crankshaft—commonly known as the timing side—is a bevel gear which drives a vertical shaft at engine speed. This shaft is very short, and drives both the main oil pumps (inlet and scavenging) as well as the twin B.T.H. racing magnetos.

The magnetos are skilfully "built-in"

to the crank case, and receive their drive from the top bevel of the vertical shaft.

The neatness of the new engine will be realised when it is mentioned that, but for one slight alteration to the seat tube, it fits into the same frame as the well-known single-cylinder o.h.c. engines. In fact, the chain line is the same, although the engine is only slightly offset, while the weight distribution is practically identical. Of course, the engine plates are different—the front pair house a dynamo. However, the dynamo will be

replaced, for those who desire it, by a supercharger.

The new model is intended primarily as a high-efficiency road machine with an alternative racing specification.

The price, including electric lighting, but unsupercharged, is £39 5s. The specification includes a 25 x 3.25in. rear tyre and a 25 x 3in. ribbed front tyre, two large flush-fitting tool boxes, dynamo lighting, a 3½-gallon petrol tank, with lighting panel, and an oil tank holding three-quarters of a gallon.