

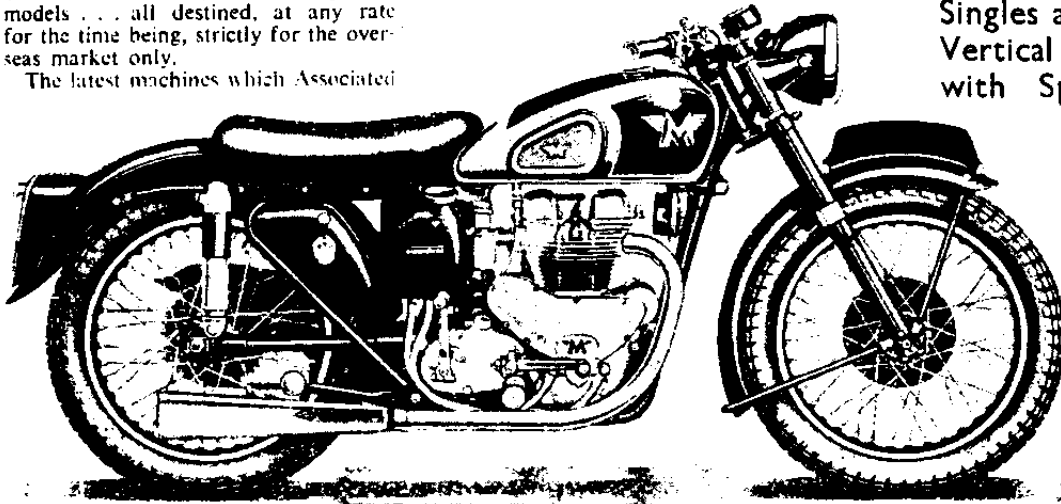
B RITISH visitors to the A.J.S. and Matchless stands at the forthcoming Show will be able to indulge the green-eyed monster, jealousy, to no small extent—and with a considerable degree of justification—for they will see, in addition to the range of machines already described in "Motor Cycling" on October 7 last, six entirely new models . . . all destined, at any rate for the time being, strictly for the overseas market only.

The latest machines which Associated

THE A.M.C. "OVERSEAS"

by the inclusion of the letter "G" after the "49" and if a figure "3" follows, then the engine is a 350, or a 500 if the figure is "80." "C" is for competition

Six New Export-Only A.J.S. and Matchless Machines Comprising Singles and Handsome Vertical Twins, all with Spring Frames



The impressive, clean-cut appearance of the new Matchless twin is enhanced by the A.M.C.-designed double-seat and new typesilencers.

Motor Cycles, Ltd., have to offer those fortunate fellows, "foreign buyers," are A.J.S. and Matchless vertical twins and o.h.v. singles, all equipped with rear springing.

The two 350 c.c. and two 500 c.c. single-cylinder "springers" can very briefly be described by saying that they are identical with the 1949 rigid jobs except that the rear ends employ exactly the same suspension system as that used on the twins. Therefore, that part of the following description of the multis which deals with rear springing can be equally well applied to the singles.

For the sake of clarity, a short explanation of the A.M.C. system of nomenclature will not be out of place here. In their type numbers all the 1949 products are prefaced by the figure "49." In the A.J.S. range the figure "16" indicates 350 c.c. o.h.v. models and "18" signifies 500 c.c. o.h.v. "C" stands for the competition version and the addition of an "S" means "spring frame." Variants are the 49-20 "Springtwin" and the 49-7R (350 o.h.c. racing machine)

Matchless models are distinguished

and "S" for spring frame. The new twin is designated the 49-G9 "Super Clubman"

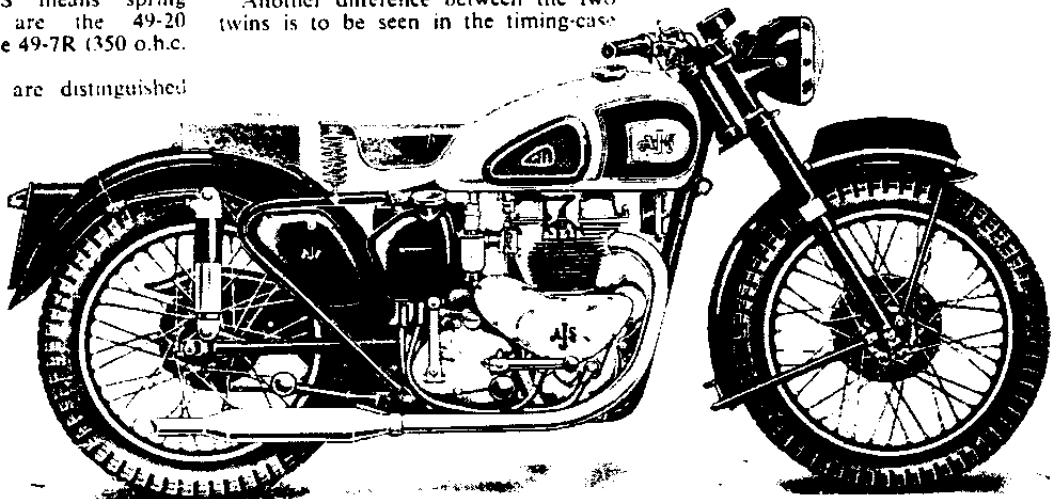
Dealing specifically with the twins, A.M.C. have followed their usual practice of producing two models which, although identical in general specification, differ in certain respects so as to make them virtually individual machines. For example, the A.J.S. has a four-gallon tank and a Lycett saddle, but the Matchless has a three-gallon tank and "seating upholstery" very reminiscent of the racing seat fitted on the now famous 7R "Ajay." A great deal of thought and experiment has gone into the production of this new departure; it is designed to suit equally well a single rider or a rider and pillion passenger. A leather covering is stitched over a Dunlopillo moulding and the whole is mounted on a steel sub-structure independent of the rear mudguard.

Another difference between the two twins is to be seen in the timing-case

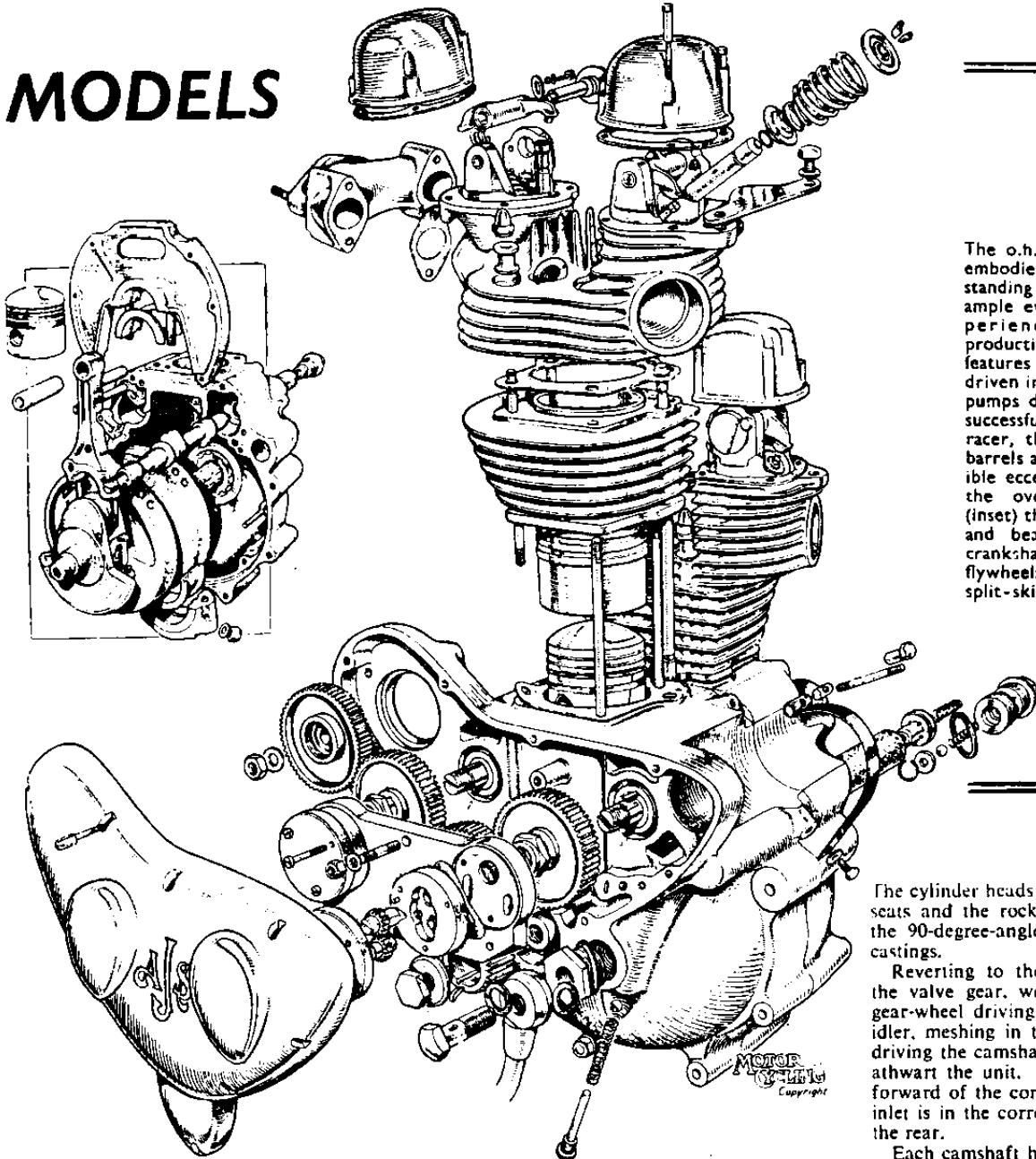
covers. The Matchless has a smooth-finished casting incorporating the "winged M" motif. The other machine has a pair of raised "blisters" corresponding with the location of the cam wheels and the familiar A.J.S. monogram is interposed between them. Tubular silencers further distinguish this marque from its brother, which has a new design of muffler, shaped somewhat like a rifle butt. A glance at the accompanying photographs will show how these alternative specifications give each machine a distinctly "different" appearance. What the pictures do not show, however, is the black and gold colour scheme for the A.J.S. and the black and silver, with red tank panels, on the Matchless. Both tanks are chromium plated.

For the rest, one description will cover both mounts and perhaps the best way to begin is to "assemble" a machine, starting with the heart of the

A 4-gal. fuel tank distinguishes the A.J.S. twin which like the Matchless, incorporates a neat rear springing system based on racing practice.



MODELS



498 c.c. (66 mm. bore by 72.8 mm. stroke) engine, the crankshaft. This component is remarkable at once for two unusual features. It is a one-piece, high-duty iron casting and it embodies a centre bearing. The outer webs are bob-weighted in the usual manner, but in place of inner webs, or the more usual bolted-up single flywheel, there are two, relatively narrow-width, wheels with a centre journal between them of approximately the same width as the crank pins. The big-ends and centre main-bearing all have Vandervell thin-wall shells with steel backings.

The centre steady bearing is housed in a circular cast-alloy plate which has a wide sector cut out of it to accommodate the shaft, the bearing and its cap. When the engine is assembled round the crankshaft, which is carried on a roller bearing at each end, the central plate is, as it were, sandwiched between the two crankcase halves. In actuality, it fits into a recess in the drive-side half

and is held in place by six bolts. When assembled, the lower part of the crankcase assumes a virtually hemispherical shape and the whole exterior is noteworthy for its freedom from excrescences.

The split big-end connecting rods are highly polished alloy forgings and the plain, unbushed little-ends carry fully floating, circlip retained, gudgeon pins supporting domed pistons of the wire wound type, each having one scraper and two compression rings.

Separate Cylinders

Each cylinder is a separate casting, with approximately half the barrel spigoted into the corresponding crankcase mouth, and the separate alloy heads, together with the barrels, are held down by long studs, four to each cylinder, passing up from the crankcase through holes in the finning. Domed cap-nuts are used, as indeed they are for many other fittings on the machine.

The o.h.v. vertical twin unit embodies many points of outstanding technical interest and ample evidence of racing experience adapted to a production design. Notable features are the camshaft-driven individual gear-type oil pumps developed in the very successful 347 c.c. A.J.S. o.h.c. racer, the separate cylinder barrels and heads, the accessible eccentric adjustment on the overhead rockers and (inset) the sturdy centre web and bearing supporting the crankshaft between the twin flywheels and the wire-wound, split-skirt, close-clearance-type pistons.

The cylinder heads have shrunk-in valve seats and the rocker support posts for the 90-degree-angle valves are integral castings.

Reverting to the crankcase to trace the valve gear, we find the mainshaft gear-wheel driving a centrally disposed idler, meshing in turn with the pinions driving the camshafts which are located athwart the unit. The exhaust shaft is forward of the connecting rods and the inlet is in the corresponding position at the rear.

Each camshaft has three plain bronze bearings, there being one bearing on the near-side extremity and a double supporting arrangement in the timing case. Lying parallel with the camshafts and just above them are the spindles on which pivot convex-faced cam followers operating the steel-ended dural push-rods, each of which is enclosed in its own tunnel cast integral with the cylinder. Cups on the upper ends of the rods locate with the ball-ends of the rocker arms and valve clearance adjustment is carried out in a manner similar to that used on the 7R overhead camshaft machine. The rocker spindles are eccentrically mounted in their support posts so that, when a lock-nut is slackened off, the spindle can be turned to give quick and almost vernier-like accuracy of setting.

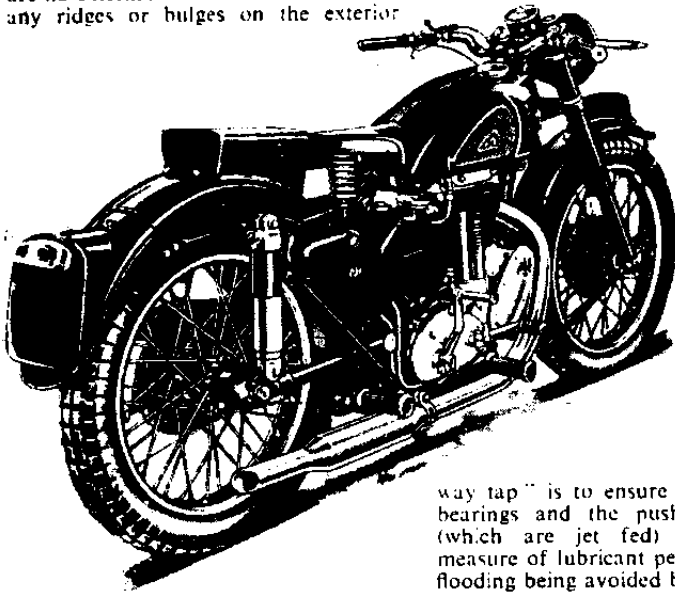
The valves have double, shot-blasted, coil springs, with retainers held by split collets, and each of the four rocker mechanisms is enclosed by a separate polished aluminium cover, held

firmly in position by four bolts. Diagonal fins lie across the cylinder heads between the rocker boxes and the sparking plugs enter the hemispherical combustion-chambers at an angle of approximately 45 degrees from the vertical.

The inlet ports are joined by a cast aluminium manifold to which is flange-bolted a normal Amal carburetter. Plain stub fitting is employed for the exhaust pipes.

Mounted across the front of the engine is the Lucas dynamo, gear driven from the exhaust camwheel, while behind the barrels lies the manually controlled magneto, also of Lucas make, and driven from the inlet camwheel.

The dry-sump lubrication system is noteworthy for its thoroughness and for the fact that, except for the feed and return pipes connecting with the half-gallon tank below the saddle, there are no external oil leads. Nor are there any ridges or bulges on the exterior



surface of the engine to reveal the position of the internal drill-ways.

Two gear-type pumps are used, and they are driven through Oldham couplings, from the timing-ends of the camshafts. The pump bodies are housed in a cast-alloy plate which bolts up against the side of the crankcase and which also contains the various drillings distributing the oil to and from the pumps, and along the paths it has to pursue.

From the tank, lubricant is taken via the external feed pipe to a banjo union below the timing case. Adjacent to this is the pressure-relief valve. Drillings connect with the forward pump which passes the oil through a felt, cartridge-type filter contained in a horizontal cavity formed in the crankcase below the dynamo. The bulk of the filtered oil now passes to the central crankshaft bearing and thence through drillings in the flywheels and crankpins to the big-ends. The mainshaft roller bearings, the little-ends and the piston skirts receive the surplus from this source in the form of splash and oil mist, while cylinder wall lubrication is further assisted by direct pressure feed to the thrust faces of the bores.

DOUG BELL MOTORS

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Oilways also lead to the camshaft bearings, and there is an ingenious arrangement on the near-side end of the exhaust camshaft which acts as an oil distributor. As the shaft revolves, oil is alternately directed to the o.h.v. rockers and to reservoirs in the camshaft tunnels into which the cams dip as they rotate. The object of this "rotary two-

phosphor-bronze bushes lubricated from an oil reservoir contained within the alloy bridge piece.

Rear-wheel springing is looked after by a pair of Teledraulic units which are exactly similar to, and interchangeable with, the "legs" used on the A.J.S. racing twins and 7R models. The upper anchorages of these units are attached to looped frame members which, in turn, are bolted to the main frame below the saddle and below the gearbox.

Final drive is by 2-in. by 3-in. chain, the chain guard moving with the rear fork which has cam-type spindle adjusters. The clutch is of the multi-plate, five-stud pattern and the positive-stop, foot-change gearbox provides solo ratios of 5, 6.4, 8.8, and 13.4 to 1.

Seven-and-a-half-inch diameter brakes are fitted and the front anchorage consists of a steel torque reaction arm linked to the near-side leg of the 1949 pattern Teledraulic forks. The cast-aluminium brake shoes have provision for independent adjustment by means of shims, and the cast chromidium drums are equipped with rain excluders. Fabricated steel hubs embody caged taper roller bearings and the wheel rims are shod with a 3.25-in. by 19-in. tyre on the front and 3.50-in. by 19-in. on the rear.

Items of interest in the general specification include a valanced rear guard, a forged steel spring-up central stand in addition to a foot-operated prop-stand, dual tool-boxes and a fully adjustable semi-sports handlebar with all the controls mounted on the straight portion. The tanks have quick-action filler caps, and the Lucas electrical equipment includes voltage control, a centrally mounted battery, horn, 7½-in. diameter domed glass head lamp and a specially designed chromium-plated rear lamp. The dry weights of the new models are as follows: 350 c.c. machines 380 lb., 500 c.c. single cylinder 390 lb., twins 400 lb.

The general finish of these machines is excellent, lustrous enamel and high-quality plating enhancing the clean, efficient lines which are, obviously, the natural outcome of fundamentally sound design. A prodigious amount of road-work and testing has also gone into their construction; the twin engine has been under development for several years, while the spring-frame system has been subjected to the rigours of racing as well as to day-after-day hammering over rough-stuff.

The makers' address is Associated Motor Cycles, Ltd., Plumstead Road, London, S.E.18.

This view of the single-cylinder 498 c.c. Model 49/185 A.J.S. shows to advantage the robust rear suspension system.

way tap" is to ensure that the rocker bearings and the push-rod end cups (which are jet fed) receive a full measure of lubricant periodically, overflowing being avoided by intermittently cutting off the supply.

The push-rod tunnels return the rocker-gear lubricant to the camshaft reservoirs, the surplus from which falls into the sump, which is kept "dry" by the scavenge pump in the usual manner. Crankcase aspiration is regulated by a rotary valve driven from the near-side end of the inlet camshaft and the breather has a short exhaust pipe taking oil mist to the rear chain.

A cam-type engine-shaft shock-absorber is used and the ½-in. by 1½-in. primary chain is enclosed in an oil-bath case.

The power unit is carried in a substantial main frame consisting of a large-diameter top tube, front down tube and saddle pillar. At the base of the latter there is a robust alloy casting which surrounds the back of the separate Burman gearbox and links up with the cradle frame members running alongside the sump. This alloy casting not only forms an anchorage for the gearbox, but also acts as the pivot point for the articulated rear wheel fork which is built up of tubes and lugs and is in the form of a letter H, with the "cross-bar" arranged close to the pivotal end to provide additional rigidity. The pivot bearings are porous