1960 646 cc AJS Model 31

One-make loyalties die hard! The trade-mark and manufacturing rights of AJS had been acquired from the defunct A.J. Stevens company as long ago as 1932, and in post-Second World War years Associated Motor Cycles, who now made both AJS and Matchless in their Plumstead factory were indulging in 'badge engineering' to such an extent that (apart from differences in finish) AJS and Matchless were nearly identical. Nonetheless, there were still many enthusiasts who would buy and cherish something with an AJS name on the tank, while sneering at the equivalent Matchless, and vice versa, of course.

But be that as it may, Plumstead had joined the swing to vertical twins as soon as was practical after the return of peace, with a 500 cc design from the drawing board of Phil Walker. Unlike every other British twin, this one used the old Silver Hawk idea of incorporating a centre main bearing in an attempt to rid the design of inherent vibration by making the crankshaft stiff. It was never wholly successful.

As time went by and AJS and Matchless machines hit the USA, so there came the inevitable cry for more power, which meant a bigger engine. So AMC obliged by boring the cylinders out to 592 cc. They could not go any bigger, because they were limited by the distances between the centre lines of the cylinders. Yet the Americans still weren't satisfied; they demanded even bigger twins.

There was only one remaining path to be taken. Since the bores could not be enlarged, extra capacity had to be gained by lengthening the stroke, making it 79.3 mm, instead of the 72.8 mm of the original 498 and 592 cc twins.

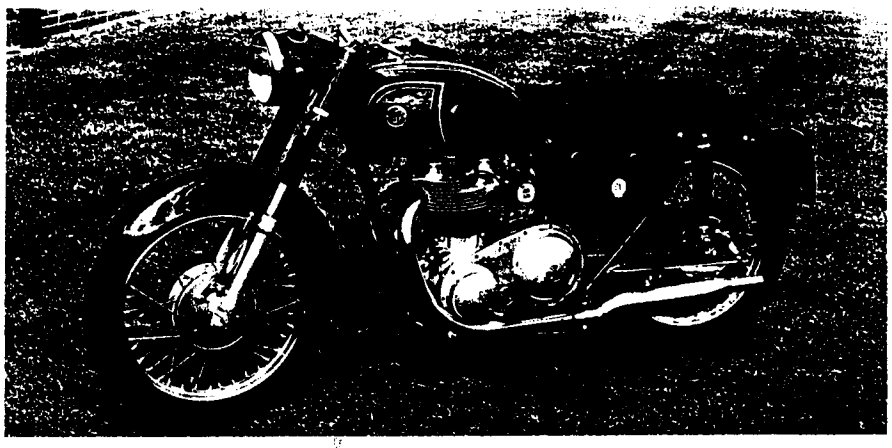
That in turn meant having to make a new crankshaft, and so the opportunity was taken of extending the drive side of the shaft so that it would accommodate a Lucas alternator (and that meant a new and very sturdy cast-light-alloy primary chaincase). The general dimensions of the crankcase were altered only slightly, and a distributor was fitted behind the cylinder block, in the position previously occupied by the magneto.

At first, the new 646 cc twins (Matchless G12, or AJS Model 31) were reserved for export only, production beginning in September 1958 for the 1959 season. This was but an interim measure, and for 1960 — and it is an example from this production year that we see here — there was a considerable amount of redesign, the major feature of which was an entirely new full-cradle duplex tubular frame. For the engine there was a new cylinder head which afforded the same compression ratios as before, with reduced valve angles. To assist the flow of cooling air across the head, an additional horizontal fin incorporated three small diagonal fins on its underside. Two-rate valve springs were specified.

As has been mentioned, AMC's famous centre main bearing never did succeed in taming engine vibration, so a different approach to the problem was made, by making the crankshafts from a higher grade of nodular iron. However, the Plumstead factory was running into difficulties, and by the end of 1961 the range of models was being slashed, the remaining mounts being 'jazzed up' by replacing the small and distinctive little tank badges by huge chromium-plated die-castings that would have been more at home on café juke-boxes. As the 'sixties ran on, so Plumstead production disintegrated into a pick-and-mix of Norton and AMC frames and engines until the end came in 1969. But by then the AJS Model 31 had long disappeared.

Specification

Make AJS. **Model** Model 31. **Engine** 646 cc (73 × 89 mm bore and stroke) overhead-valve vertical twin. **Tyres** 3.25 × 19 in front, 3.50 × 19 in rear, wired-on. **Frame** Brazed-lug duplex tubular cradle incorporating swinging-arm rear springing with hydraulic damper units. **Front forks** AMC hydraulically-damped telescopic. **Brakes** 7 in diameter front and rear. **Weight** 396 lb. **Wheelbase** 55½ in. **Manufacturer** Associated Motor Cycles Ltd, 44/45 Plumstead Road, Plumstead, London SE 18.



Above Phil Walker was the man responsible for the discreetly attractive AJS vertical twin. It departed from normal practice in having a three-bearing crankshaft assembly.
Right Redesign to incorporate a crankshaft-mounted alternator brought the benefit of a sturdy cast-alloy primary case.
Far right Two bulges, covering the camshaft ends, distinguish the AJS timing chest. Inside the cover, however, the timing gear was identical to that of the Matchless G12.
Below 1960 marked the end of AJS's conservative look.