MATCHLESS

AND

A.J.S

MOTORCYCLES FOR 1957

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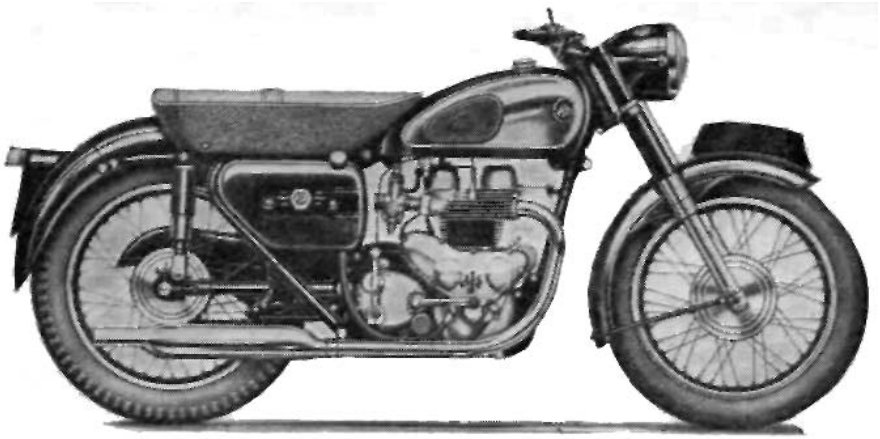
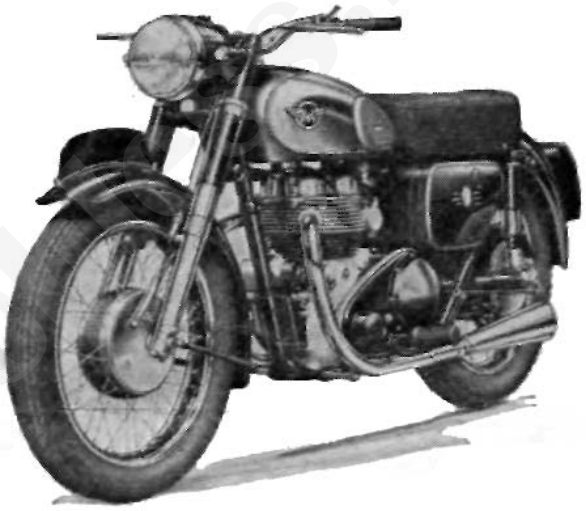


ROADSTERS, COMPETITION MOUNTS, RACERS, FOR NEXT YEAR : MEASURES TO ENSURE OIL TIGHTNESS : ENGINE PERFORMANCE INCREASED : LATEST GEAR BOX AND CLUTCH SPECIFIED : NO PRICE INCREASES

A.J.S. and Matchless Modifications



Above: The 498 c.c. A.J.S. model 20 fitted with chromium-plated tank panels

Right: Largest - capacity Matchless is the 592 c.c. model G11

TOURISTS, racing men, trials riders and scramblers can all find models to whet the appetite in the A.J.S. and Matchless ranges which are, of course, basically similar. All models have pivoted-fork rear springing and telescopic front forks. The roadsters—comprising singles of 347 and 498 c.c. and parallel twins of 498 and 592 c.c.—are renowned for their comfort, high-quality finish and mechanical quietness. A unique, three-bearing crankshaft layout is a feature of the twins which have an enviable reputation for robust construction and tireless performance.

The wide popularity with amateur sportsmen of the trials and scrambles models furnishes eloquent testimony of their suitability for competition riding off the beaten track. Although the scrambler is available both as a three-fifty and a five-hundred, the trials model is marketed only with a 347 c.c. engine; all the power units arc singles. The racing machines, too—the 348 c.c. 7R A.J.S. and the 498 c.c. G45 Matchless twin—are well to the fore in sporting circles and may be seen in appreciable numbers at most national and international road-race meetings.

For 1957 no sweeping changes are announced for any of the models. Nevertheless, progress has been made in several directions. All models are fitted with the new gear box and clutch described in *The Motor Cycle* for May 24 last. Meticulous attention to oil sealing is a notable characteristic of the design of the box, while the clutch is claimed to be unaffected by the presence of oil on the friction faces. It is claimed that the performance of all the roadsters has been stepped up without loss of tractability. Appearance of the twins is brightened by a new method of petrol-tank decoration. For the first time since rear springing was introduced in 1949 proprietary shock absorbers are used in place of the A.M.C.-manufactured units. In addition to the foregoing changes there are several minor modifications aimed chiefly at cleaning up appearance and eliminating oil leakage.

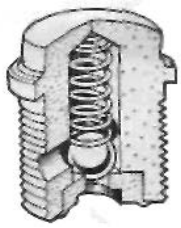
A redesigned frame for the trials model is of real significance, since it results in a 3in increase in ground clearance. Cross-country racing men will be delighted to learn that the power output of both sizes of scrambles engine has been increased. As far as the two road-racing models are concerned there is, of course, a continuance of the firm's policy of incorporating the benefits of experiments carried out on the factory racing machines during the previous season.

Liberal use of synthetic-rubber O-rings and a special mainshaft -oil seal behind the final-drive sprocket are the means adopted to ensure oil-tightness of the new four-speed gear box. Wedge-shape rubber blocks in the clutch centre serve as a transmission shock absorber. The unusual method of clutch operation employs a ball and roller between which works a suitably profiled floating lever. Adjustment is effected by a screw and lock nut in the centre of the clutch pressure plate. Access to the adjuster and those for the three clutch springs is obtained by removal of a dome from the primary chaincase.

General liveliness of A.J.S. and Matchless roadsters has never been in doubt. But it is the makers' experience that many buyers attach considerable—and, perhaps, undue—importance to speed and acceleration. Hence the quest for more engine power which has led to the adoption of a new inlet cam for the singles and modified inlet and exhaust cams on the twins. For those readers who are unfamiliar with the general layout of A.M.C. roadster engines it may be said that the singles have light-alloy cylinder heads, pushrod-operated overhead valves and wire-wound pistons. A chain-driven Lucas rotating-magnet magneto is mounted in front of the cylinder base and a separate dynamo behind the crankcase. On the twins, separate cylinder barrels and light-alloy heads are used and valve-clearance adjustment is effected by means of eccentric rocker spindles; the third crankshaft bearing is a split, white-metal-lined bush in the middle of the shaft.

The new method of petrol-tank embellishment on the twins consists of separate, chromium-plated side panels fixed to the tank by the two screws which retain the plastic motif and by two more screws which hold the kneegrip plates in

position. Plastic beading round the edge of the panel seals the gap between it and the side of the tank. Colours of beading



A modification to the twin-cylinder machines concerns the oil-filter end cap which is now of one-piece construction as shown

and tank enamel are very well blended so that the overall impact is most attractive. The 592 c.c. A.J.S. Model 30 has a royal-blue tank and light-blue beading, while the six-hundred Matchless G11 has a dark-red tank with black beading. On both five-hundred twins (A.J.S. Model 20 and Matchless G9) the tank is enamelled black; the beading on the A.J.S. is light blue and that on the Matchless is red.

Tank finish on the single-cylinder models is unaltered. In other words, the tanks are enamelled black on a Bonderized surface and subsequently lined by hand. Lining in the case of the Matchless models is in silver and for the A.J.S. machines in gold. Plastic tank badges similar to those on the twins are fitted. When output permits, tanks with panels will be offered on the singles at extra charge.

In adopting Girling shock absorbers for the rear springing, A.M.C.s are one of the last manufacturers to take advantage of the specialized products available in this field. Incorporating a three-position adjustment for load, the units are similar to those fitted to several other makes of machine, but the upper and lower attachments are specially made for the Plumstead models.

At the bottom of each shock-absorber unit is a rubber-bushed, cast light-alloy yoke. The top fixing takes the form of a single eye containing a rubber sleeve. As the A.M.C. shock absorbers embodied yokes at both ends, the plain upper-attachment ears formerly welded to the frame loops have been replaced by box-section lugs. Thus the new units are not interchangeable with the old. Another minor departure from normal Girling practice is the use of polished light alloy for the split collets which retain the upper spring shroud.

Incidentally, to provide added frame stiffness for sidecar duty on the twins and 498 c.c. singles, the bolt which clamps the rear-frame loops to the top of the seat tube is increased in diameter to 5/8in. Also the attachment point has been moved forward slightly so that the lug on the main frame member is formed integrally with the rear tank-support lug, whereas previously two separate lugs were used.

A mid-season alteration to front-fork damping is continued for 1957. On both shock and recoil movements the hydraulic check is more progressive in action, with the result that front-end pitching is said to be eliminated.

To prevent the possibility of chatter occurring after an extensive mileage has been covered, and to provide an added degree of resilience in the transmission, a considerable alteration has been made to the five-pin drive of the quickly detachable rear wheel on all the roadster models. Previously the driving (and braking) torque was transmitted to the solid pins bolted in the full-width, light-alloy hub by their engaging with five holes drilled in the malleable-iron casting which serves the dual purposes of chain sprocket and brake drum. The radius at which the pins are disposed from the hub axis has been doubled, while the pins themselves are hollow and of much larger diameter than before; each pin is rubber sleeved externally. In the brake-drum casting the holes with which the pins engage take the form of tubular bosses, about fin long, which are connected by an annular rib.

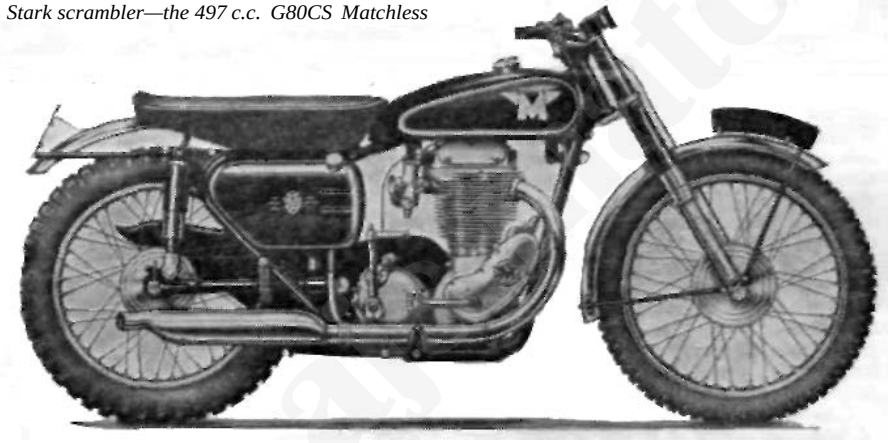
A year ago the tool kit, battery and voltage regulator were grouped in a large box which fits snugly in the left-hand rear frame loop and matches the oil tank on the other side of the machine. Hinged along its bottom edge, the lid of the box could not be opened fully if the model was fitted with a sidecar because of the proximity of the upper rear sidecar connection. To overcome the difficulty the lid is no longer hinged to the box. Instead, two ears are formed at the lower edge of the lid which engage with slots in the box. Hence the lid can be completely detached from the box irrespective of the nearness of a sidecar connection.

In place of the endless red rubber band which held the battery in place in the front of the box there is now a black moulded-rubber strap; the lower end of the strap carries a transverse steel peg which hooks into slots in the battery platform. Disengagement of the peg from the slots releases the battery for maintenance purposes.

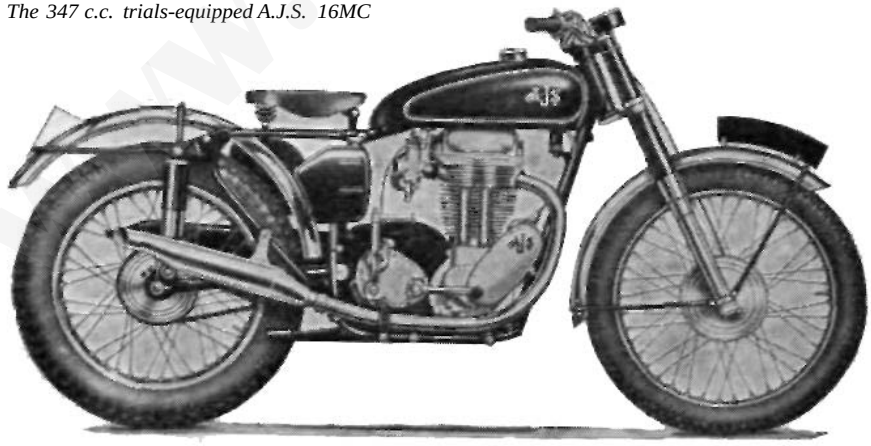
On the twins a separate cover is attached to the side of the oil tank to match the tool-box lid. Both cover and lid have three horizontal ribs embossed on them to minimize the possible effects of chafing by a pillionist's leg-wear and to enhance the appearance of the models. The singles do not have oil-tank covers and in their case the ribs are embossed on the tank.

Prevention of oil leakage is the aim behind a number of changes which have been made to the rear portion of the pressed-steel primary chaincase. First, the edge of the hole through which the engine shaft protrudes is turned outward and a composite cork washer is interposed between crankcase and chaincase at that point. Secondly, a sliding oil thrower, consisting of two dished plates riveted together one on each side of the slotted hole in the case, locates on the gear-box mainshaft and moves backward or forward with the gear box during primary-chain adjustment. Finally, in the case of the singles, an oil deflector

Stark scrambler—the 497 c.c. G80CS Matchless



The 347 c.c. trials-equipped A.J.S. 16MC



is welded into the rear portion of the chaincase where the dynamo shaft passes through. Additionally the rear face of the dynamo sprocket is profiled to fling oil away from the hole.

Incidentally, because it is considered that the rubber vanes in the clutch centre and the rubber sleeves on the rear-hub pegs make adequate provision for smoothing out transmission shocks, the face-cam type of shock absorber previously fitted to the engine shaft has been dropped. In consequence the dome at the forward end of the chaincase outer half is much shallower than before.

Shielding of the rear chain has been increased by extending the Chainguard farther downward behind the rear-wheel sprocket and by fixing a curved guard to the back of the primary chaincase to cover the rear chain where it runs on to the gear-box sprocket.

The desire to eliminate another possible source of oil leakage is responsible for a slight modification to the end cap of the pressure oil filter situated in the crankcase left-hand half on the twins: the cap is now made in one piece instead of two, thus eliminating a joint which was subject to oil pressure. Though the spring retaining the filter element is different from that for the by-pass ball-valve, it was possible with the old end-cap layout to interchange them with disastrous results. The end-cap modification has rendered the interchange impossible.

Several random and minor changes contribute towards a general cleaning up in appearance. The adoption of Neoprene push-on oil pipes dispenses with the need for threaded unions. A more streamlined form has been given to the yoke at the rear end of the brake rod. The depth of the rear-mudguard valances has been increased slightly at the rear end. Plastic handlebar grips are standardized. On the twins there is a restyled end cover for the Lucas dynamo.

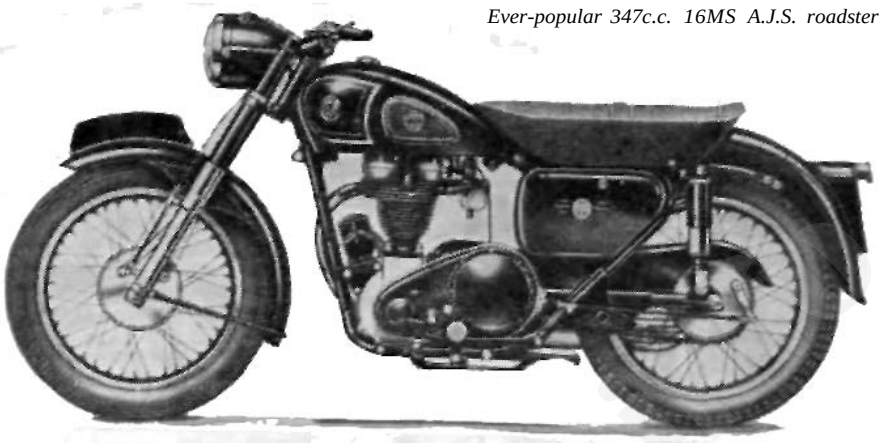
Known as the A.J.S. 16MC or the Matchless G3LC, the trials model is the only machine in the range to utilize a welded frame. For 1957 the integral tubular structure comprising duplex engine cradle and rear frame loops is raised considerably with the result that ground clearance (with the machine unladen) is increased from 7in to 10in. The altered sweep of the tubes has permitted the exhaust pipe to be tucked in more closely with the result that it is no longer necessary to use an exaggerated outward crank for the kick-starter pedal. No alteration has been made to the engine; with moderate valve timing and a low compression ratio it delivers smooth, lusty, controllable power down to ultra-low engine speeds and is thus particularly well suited to its purpose.

Conversely, on the scrambles models of both capacities it is the engines only which are the subject of slight alteration. Introduced during the past season the models have met with considerable success and the power increase now achieved should enhance their popularity still further. Both engines have modified inlet ports and larger inlet valves. Choke size of the Amal Monobloc carburettor on the 348 c.c. unit has been increased by 1/16in to l 1/8in. On the 497 c.c. engine the carburettor bore remains at 1 3/16in.

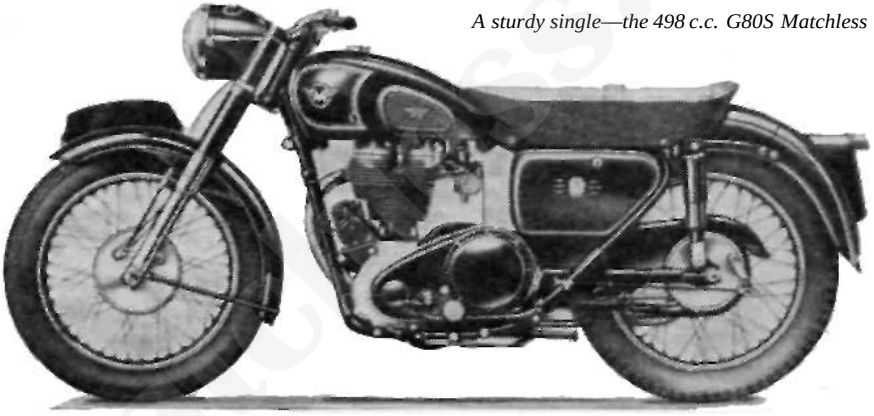
With the exception of the new gear box, no details are yet available of the modifications to be incorporated in the racing models as a result of development work carried out on the factory machines this year.

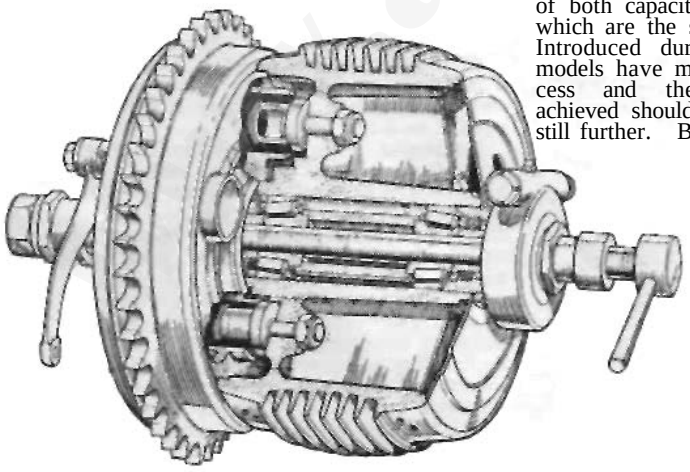
The makers of A.J.S. and Matchless machines are Associated Motor Cycles, Ltd., Plumstead Road, London, S.E.18.

Ever-popular 347c.c. 16MS A.J.S. roadster



A sturdy single—the 498 c.c. G80S Matchless





In the latest quickly detachable rear wheel the improved driving pins are disposed at a larger radius, are rubber bushed and locate in long bosses in the brake-drum casting

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