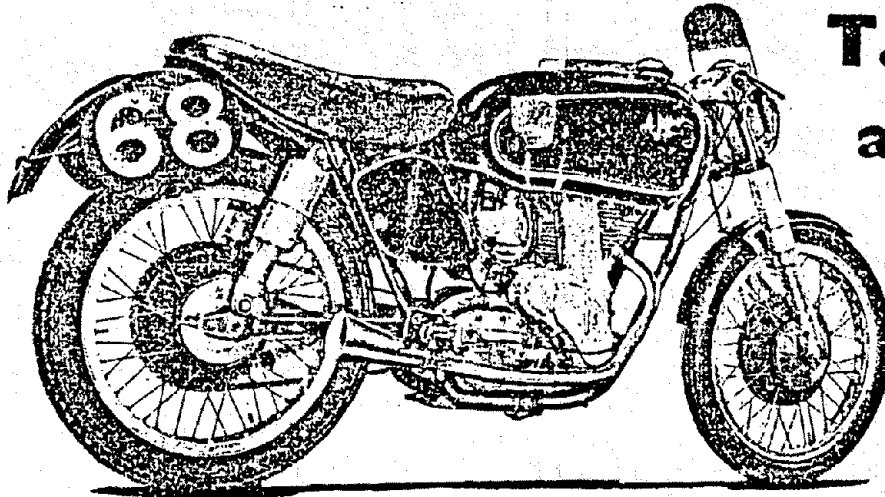


# T.T. NOTES and NEWS



A New A.J.S. 350 c.c.  
3-valve o.h.c. Power-  
unit and a much-  
modified 500 c.c. Twin  
"Porcupine"

(Left) The new 350 c.c. "triple  
knocker" power unit mounted in  
a standard "Boy Racer" frame.

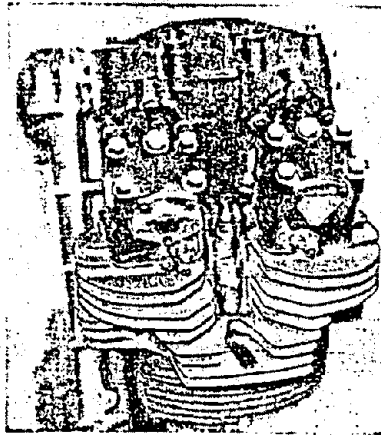
WITH the departure of Matt Wright, Bill Doran and Rod Coleman for Mettet last Thursday, two very well-kept secrets of the A.M.C., Ltd., Racing Department were released for publication. A brand-new 350 c.c. three-valve, two-port "triple-knocker" o.h.c. single-cylinder power unit for the "Boy Racer," and a very much modified 500 c.c. "Porcupine" o.h.c. twin-cylinder power plant in an entirely new duplex frame—that is the hot news from Plumstead which will excite A.J.S. fans all over the world!

The new 75.5 mm. bore and 73 mm. stroke 350 c.c. unit is the brain child of A.M.C. development engineer, H. J. Hatch, the veteran designer, whose name will conjure up for older readers memories of many famous Blackburne engines, the four-valve Excelsior "Mechanical Marvel" and the four-cylinder Brough Superior "Golden Dream" unit. At this stage we are not at liberty to describe in detail the inner workings of the novel valve gear but, as the photographs show, the transverse camshaft for the single large, inclined inlet valve is chain-driven in the traditional "350 A.J." manner and, in engagement with a layshaft, in turn drives the twin fore-and-aft camshafts operating the two small, radially disposed exhaust valves.

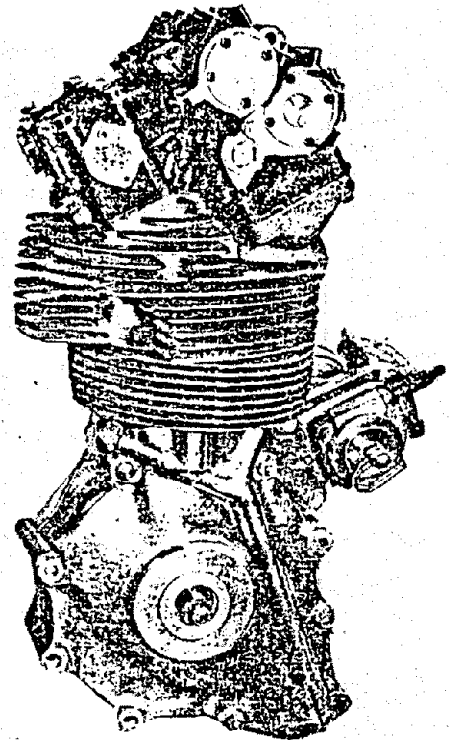
Another unusual feature is the disposition of the sparking plug somewhat forward of the combustion chamber centre, between the exhaust valves and with a slight rearward inclination so that its business end faces the incoming mixture. The "basement" follows normal A.J.S. practice, but the crankcase is no longer of magnesium alloy. For the time being the unit is housed in a "Boy Racer" frame but is destined for a new frame in the not-too-distant future. The two-port head employs short, small diameter exhaust pipes with tiny megaphones, and the rev. counter drive is taken from the off-side exhaust camshaft.

The gearbox mounting has been modified, the unit now pivoting on a central overhead bolt passing through the upper curved rear engine plates, the bottom plates being slotted to allow for chain adjustment. Both chains are lubricated by oil carried in the tank rail. The remote float chamber is mounted on the vertical tubular member which supports the oil tank. Whilst no

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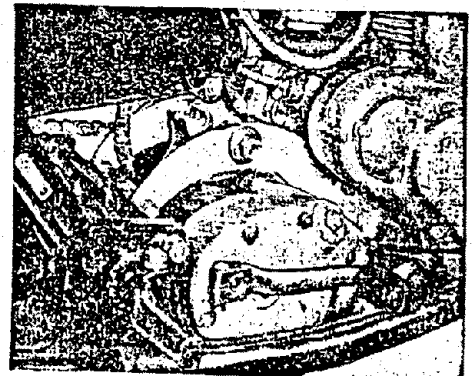


(Above) Forward plan view of the 350 c.c. 3-valve cylinder head showing unusual sparking plug position. (Right) This drive-side view of the 350 c.c. "Woolwich Wonder" power unit shows to advantage the layout of the novel valve-operating gear. (Right, below) The new gearbox mounting on the 350 c.c. model.



performance figures were quoted during our visit to the works, the new power unit was stated to be "several horse-power up" on last year's unit.

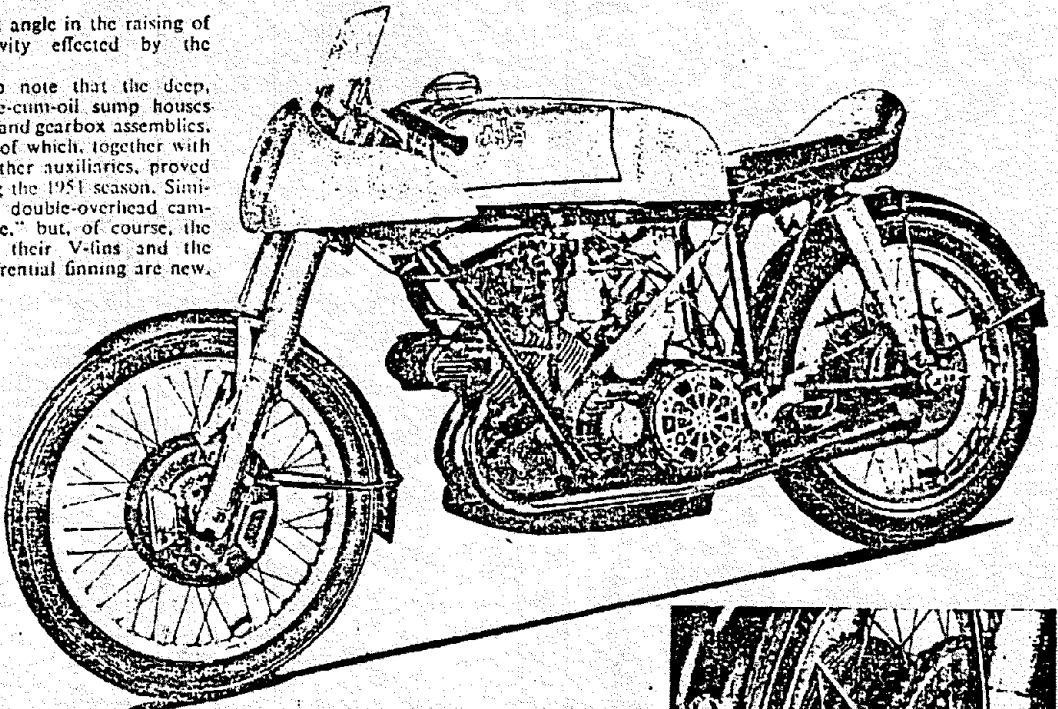
The "new-look" 68 mm. bore by 68.5 mm. stroke "Porcupine" is in some respects even more sensational than the "triple knocker," and Chief Designer P. A. Walker has displayed much ingenuity in combining the new with the old in the original design. By swinging the cylinders up from their hitherto near-horizontal position to an inclination of 45 degrees, he has improved the cooling facilities and the line of the inlet tracts (the carburetors are inclined at 25 degrees relative to the cylinders), decreased the frontal area of the unit at its lower extremity and reduced the overall length, thus enabling a shorter wheelbase to be employed. There is an additional advantage



from the navigational angle in the raising of the centre of gravity effected by the re-design.

It is important to note that the deep, taper-nosed crankcase-cum-oil sump houses unaltered crankshaft and gearbox assemblies, the component parts of which, together with the oil pumps and other auxiliaries, proved utterly reliable during the 1951 season. Similarly, the gear-driven double-overhead camshafts are "as before," but, of course, the cylinder heads with their V-fins and the barrels with circumferential finning are new.

The famous 500 c.c. o.h.c. "Porcupine" twin in its 1952 form. Note the taper-nose megaphone and the faired front number plate. The air-duct below the carburetter intakes was not assembled when this photograph was taken.

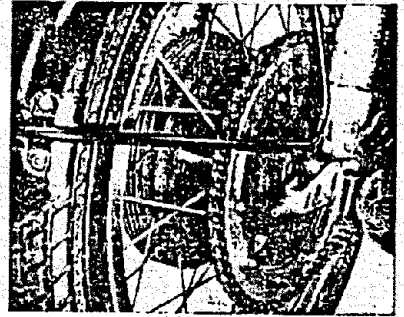


Another new feature is seen in the magneto drive, a cross-shaft from the timing gear train terminating in a short chain on the near side.

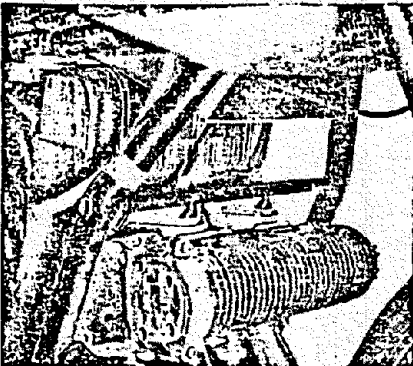
Despite its "open" non-loop construction, the new 54½-in. wheelbase frame is immensely strong. The horizontal tank rails run to the bottom of the steering head, and the duplex front down tubes to the top of the head, the crossing point of the "X" thus formed being braced by a large diameter cross-tube brazed into position. The sturdy vertical seat stays are braced by a diagonal strut. The engine-gear unit is carried at the front by four bolts—two on each side—and at the rear by four similar bolts, two above and two below the massive cross-member housing the pivot for the swinging fork of

the rear suspension system. Additional support is provided by two adjustable tubular engine steadies running from the top rear crankcase bolt to lugs provided in the angle formed by the tank rails and rear stays.

Below the tank rails, a sheet-metal air duct with a "pillar-box" slot at the front sweeps down over the cam boxes and the carburetter mixing chambers, then up again to the angle formed by tank rails and seat stays. The carburetter bell-mouths protrude into the protected space thus formed and are ensured a constant supply of cold air, with



(Above) The new hub, rear brake and sprocket assembly on the 500 c.c. model.



(Above) The mouth of the air scoop below the tank. The V-fins on the cylinder heads can just be seen. (Right) Showing engine-gear unit attachment points, transverse gear pedal, partially assembled air-duct, flexible carburetter mounting and circumferential cylinder finning on the 500 c.c. twin.

