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A CYCLE-MOTOR WITH A CLUTCH

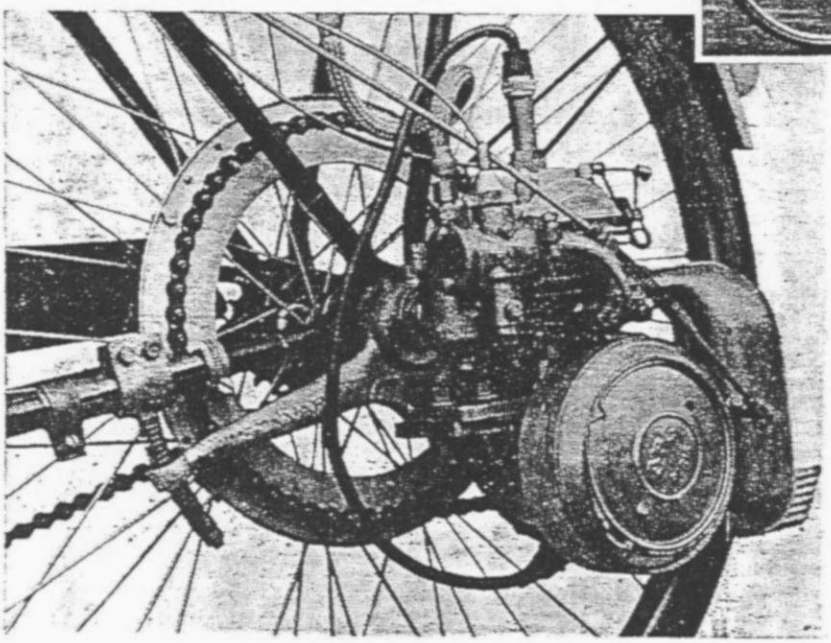
The French V.A.P. 48c.c. Unit Now Available in Britain

A POPULAR Continental cycle-motor which is now obtainable in this country is the 48 c.c. V.A.P. unit. It is a product of the Société A.B.G., of Paris, and is an interesting attachment which has been well tried in its native France, where it is in daily use in large numbers.

The attachment, which can be mounted on the near side of the rear wheel of any cycle, consists of a two-stroke engine-clutch unit driving the rear wheel through helical reduction gears and a short chain. A large-diameter sprocket is fitted to a rim bolted to the spokes of the rear wheel on the near side. The engine is conventional in construction, with three ports, a deflector piston and dimensions of 40 mm. bore and 38 mm. stroke. The light-alloy cylinder barrel and head are located by four long studs. A built-up crankshaft is supported on both sides by ball journal bearings. On the shaft a helical pinion mates with a larger helical gear which also forms the body of the cone clutch. The clutch-operating mechanism consists of a rack and pinion. The rack bears on a shoulder-pawl which, by compressing the large central spring, enables the cone to move on the splined shaft, thereby freeing the clutch. The final drive is taken by chain from the countershaft to the large wheel sprocket. Ignition is supplied by the flywheel magneto.

The power and reduction gear unit is pivoted on a dummy nut screwed on to the wheel spindle and is located by a radius arm supported on upper and lower coil springs which form an engine shock absorber. An eccentric adjustment is provided for the driving chain, the tension of which is not, of course, affected by movement of the unit. A single-lever Zenith carburetter is fitted and the petroil tank capacity is half a gallon. Maximum power output is attained at 5,500 r.p.m., and the weight, exclusive of tank is 17½ lb.

On the right, a Royal Enfield light sports model bicycle under way powered by the 48 c.c. V.A.P. auxiliary unit seen attached to the nearside chain stay.

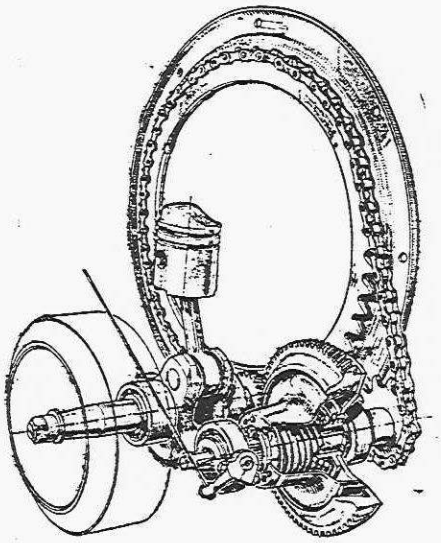


(Left) The V.A.P. unit pivots on an extension of the rear hub-spindle nut transmission chain tension being maintained by the balanced spring loaded shock absorber shown.

Within the first few moments of the short road test carried out by "Motor Cycling's" man, it became evident that the cycle to which the V.A.P. unit is fitted would handle perfectly. Despite the unbalanced appearance presented by the offset engine, not the slightest tendency to roll manifested itself and the rear wheel clung to the ground even on the worst surfaces. As with all auxiliary engined bicycles, however, bumpy stretches demanded care for, with rigid forks meeting obstructions at a higher speed than the designer ever intended, it would be unreasonable to expect the steering not to suffer. Taken at the equivalent pedal-cycle speed, however, these patches held no terrors.

Driving Tactics.

Once the unit had warmed up it proved to have remarkably good acceleration, right up to top speed, which lay in the 27 m.p.h. region. The operation of the controls was easy. For starting, the clutch proved useful, and, indeed was worth its weight in gold when manœuvring through traffic. Generally, however, a combination of throttle and decompressor proved to be the best tactics, especially when a fairly quick slowdown became necessary. At most other times the throttle range proved adequate, but judicious clutch slip was necessary if it was desired to drop to almost walking pace, or for moving off from a standing start without rendering assistance through the pedals. The exhaust note, while healthy, was not obtrusive, and the unit as a whole was gratifyingly free from rattles and mechanical noises—an indication that no rapid mechancial wear was likely to occur. While it was not possible to obtain personal evidence of the fuel consumption figures, we are assured by the V.A.P.'s sponsors in this country that one gallon of petrol will suffice for 240 miles under average running conditions.



The working parts of the engine and countershaft clutch showing how the drive is taken by a short chain to the sprocket fitted to the rear wheel.

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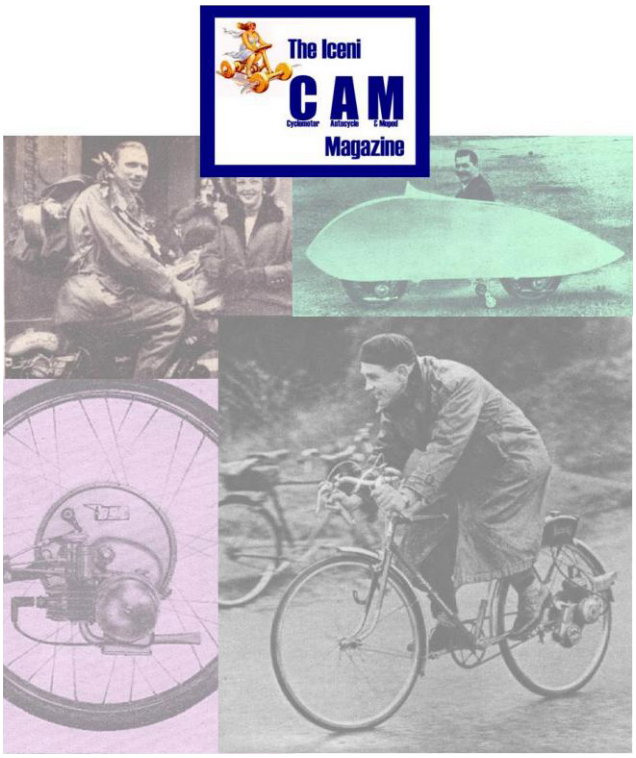

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