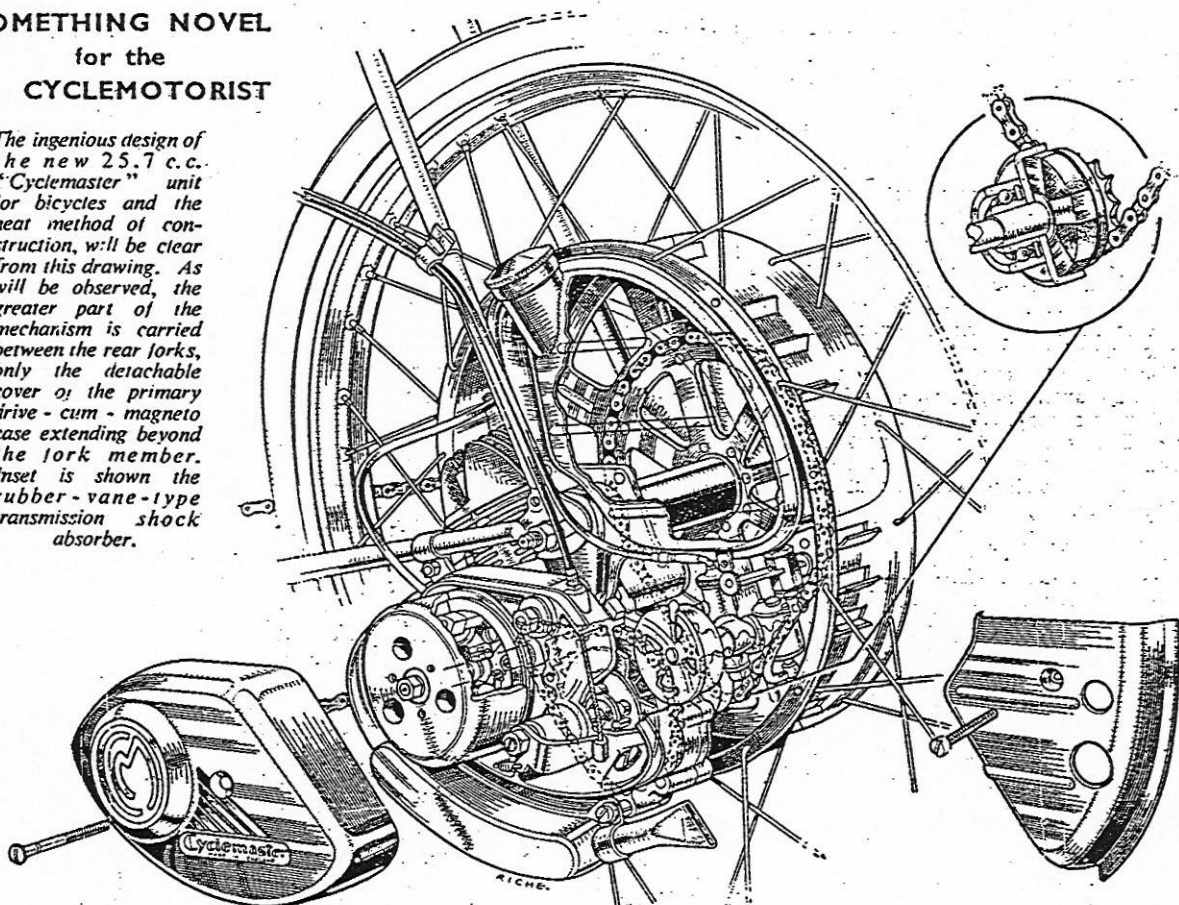


SOMETHING NOVEL for the CYCLEMOTORIST

The ingenious design of the new 25.7 c.c. "Cyclemaster" unit for bicycles and the neat method of construction, will be clear from this drawing. As will be observed, the greater part of the mechanism is carried between the rear forks, only the detachable cover of the primary drive - cum - magneto case extending beyond the fork member. Inset is shown the rubber-vane-type transmission shock absorber.



SINCE the popular introduction of the "Cyclemotor," we have become accustomed to seeing these miniature units in various forms. Some have been mounted on the rear of the machine, some at the front; some drive by means of rollers pressing on the tyres, others by belt or chain. There are one or two Continental makes in which the motor is carried in the vicinity of the bottom bracket of the bicycle. But there is now on the market a further design, in which the 25.7 c.c. two-stroke engine, clutch, countershaft, chain drive and fuel tank are incorporated within the rear wheel of the cycle itself. It is so constructed that fitting is merely a matter of taking out the bicycle's rear wheel and substituting the new one, complete with its engine.

Low C. of G.

As the illustration shows, this motor wheel, which is called the "Cyclemaster," is very neatly constructed, whilst its position ensures that the centre of gravity is maintained at such a point that it does not interfere with the stability of the machine.

The manufacturers of the "Cyclemaster" are the world-famous E.M.I. concern of Hayes, Middlesex, whose trade mark, "His Master's Voice," has long been recognized as a criterion of good design and sound production in a number of industrial spheres.

The most striking feature of the "Cyclemaster" is the large 13-in. diameter drum which, at first sight, appears to be an "overgrown" hub. To it are attached the short spokes and within it is enclosed most of the mechanism. The hub proper, however, is of normal diameter and revolves upon a pair of journal ball races on a normal spindle. There are air vents in the periphery of the drum and in the

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The "CYCLEMASTER" MOTOR WHEEL

An Interesting 25.7 c.c. Unit for Cycles Built
and Backed by a Famous Industrial Concern

face to assist in the cooling of the engine.

The latter has a bore and stroke respectively of 32 mm. by 32 mm. The cast-iron and well-finned barrel is fitted with an aluminium-silicon-copper alloy head, and both are held to the crankcase by three long studs. The sparking plug, of 14 mm. type, occupies a large portion of the domed head.

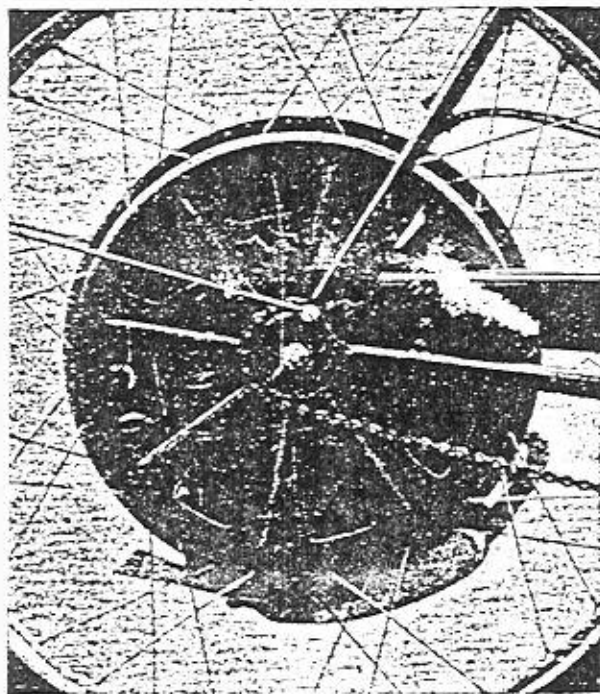
A Rotary Inlet Valve

The crankcase is split vertically and pinches the long spigot of the cylinder, the halves being secured by five screws and two positioning dowels. Into the off-side portion of the crankcase is cast a horizontal neck forming part of the induction system. Access to this from the interior of the crank chamber is by means of a long curved slot in the crankcase wall. The other half of the crankcase is integral with the die-cast clutch housing which also forms an oilbath for the primary chain.

Built up of two forgings, and pinned together by a forced fit crankpin, the 45-ton tensile, carbon steel crankshaft is supported by two 32 mm. roller bearings, one on each side. On the drive side, the shaft is expanded and provided with key-

ways on which are fitted the primary drive sprocket and the Wico-Pacy "Bantamag" flywheel magneto. Behind the latter is fitted a ball journal. Oil sealing is achieved by means of an expanded metal disc covering the opposite-to-drive-side crankshaft bearing and on the drive side it is by means of a rubber-shrouded metal sleeve which fits closely on to the revolving shaft. An ingenious rotary valve is incorporated in the crankshaft assembly. This takes the form of a ported spring steel disc, concentric with the shaft which, when in position, can be pressed against the crankcase wall by means of compression springs recessed into the bobweight. The port in the disc registers with the long slot in the crankcase wall, previously mentioned, for the requisite number of degrees of crankshaft rotation and thus, acting as a timed valve for the induction stroke, obviates the necessity for a piston-operated port.

The connecting rod, of nickel chrome molybdenum steel, has a 17 mm. diameter unbushed roller-bearing big-end. At the small end the bronze bushed eye carries the hollow 9 mm. diameter circlip-retained gudgeon pin. The slightly domed, non-deflector type light alloy piston carries two compression rings and weighs 1½ oz.



All that can be seen of the "Cyclemaster" power-unit from the off-side—a large, ventilated drum which encloses most of the mechanism including the transmission. A normal cycle free wheel is screwed to the hub extension.

few thrusts at the pedals was all that was necessary to bring the little engine into life, and although we had no opportunity of testing the maker's claim on this point, we are assured that 300 m.p.g. can be expected in the way of fuel consumption. The overall gear ratio is 18 to 1 and at 3,700 r.p.m. a brake-horse-power of 0.6 is given. The torque reaches its maximum of 9 ft./lb. at a slightly lower engine speed, i.e., 3,000 r.p.m. The "Cyclemaster" wheel and unit adds only 19 lb. to the weight of a bicycle and the retail price is given as £25, free of purchase tax and inclusive of fitting.



A member of "Motor Cycling's" staff had a short test run on a machine fitted with a "Cyclemaster" unit and found it delightfully simple to operate and capable of maintaining a speed of 18-20 m.p.h.

The drive from the 12-tooth primary sprocket to the 38-tooth clutch sprocket is via a 1-in. by 1-in. by .155-in. endless and pre-stretched chain. The clutch itself consists of a single disc of 41-in. diameter fitted with no fewer than 18 cork inserts sandwiched between a steel back plate and a normal pressure plate, the latter retained by four cupped springs. The drive from the clutch centre is via two 7 mm. diameter steel pins. Supported by two 32 mm. ball races, one of which incorporates an oil-seal, the clutch shaft carries on its outer end a vane-type rubber shock absorber completely enclosed in a metal pressing.

Design Details

Clutch operation is by means of a two-start helix, the control being by a flexible cable to a normal handlebar lever, the latter fitted with a trigger to hold the clutch in the disengaged position. The cast-aluminium cover forms the outer portion of the primary drive oil bath and also contains a separate chamber in which runs the flywheel magneto. A pressed, enamelled "lid" encloses the latter. An Amal single-lever carburettor, type 308/11, is clipped to an induction pipe, which in turn is flange-fitted to the crankcase neck. A particularly neat point about the carburettor is the curved guide which carries the control cable from the top of the mixing chamber and ensures that it is not trapped. The air intake of the carburettor is provided with an air cleaner incorporating a lever-operated strainer. From the exhaust port of the cylinder the exhaust pipe comes out to meet a curved, welded-steel silencer of box section, fitted beneath the crankcase, and to the exit is fitted a tail pipe to carry the gases clear of the wheel.

As will be clear from the accompanying illustrations, the whole of the unit lies within the rear forks of the bicycle. Two steel-sleeved and rubber-bushed bosses cast into the crankcase assembly at the top, secure it to a bracket which is supported at the rear by the wheel spindle and at the front by a substantial clip attached to the near-side rear-fork member. An upward extension of the bracket serves as a support for the two-and-a-half-pint fuel tank. It

will be seen that, with the engine enclosed within the drum and the whole mounted in the forks, it merely remains for some form of drive to be devised between the two. This is achieved in a very ingenious and simple manner—by riveting a sprocket to the inner surface of the drum, the latter, in turn, being riveted to the off-side hub flange and driven from the clutch shaft by a chain of the same dimensions as the primary chain. Outside the drum the hub is screwed for a standard cycle-type free wheel. The relative positions of the final-drive sprocket centres can be varied to adjust the tension of the chain by rotating the spindle which carries the eccentric mounting for the engine bracket.

Easy to Operate

The extremely unobtrusive manner in which the mechanism is assembled into the machine is a definite attraction and makes for easy cleaning, whilst the two controls, i.e., that for the clutch and that for the throttle, ensure that the "Cyclemaster" can be operated by almost anyone who can ride a bicycle. A short run on one of these machines was most impressive. A speed of 18 to 20 m.p.h. was readily reached and easily maintained, whilst the handling of the bicycle was in no way affected by the presence of the engine. To start, a

PUBLISHERS' ANNOUNCEMENT

READERS will notice that this week's issue is carrying a reduced number of pages, both editorial and advertisement, while reports of week-end events have been curtailed.

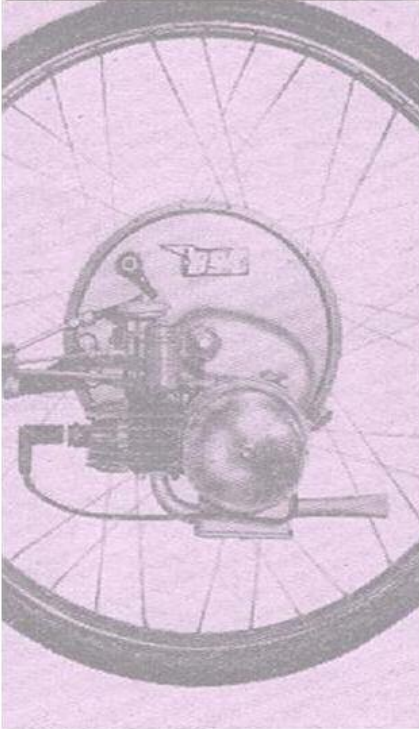
As has been pointed out in previous issues, these enforced reductions are due to a withdrawal of overtime which has been imposed by a section of the Printing Industry in London.

So long as this dispute continues the number of pages must be reduced and delays in publishing may be unavoidable.

A.C.U. BENEVOLENT FUND

FOR the administration of the A.C.U. Benevolent Fund, trustees have been appointed. Professor A. M. Low, Major H. R. Watling, Mr. K. S. Topping and Mr. J. D. Ferguson, C.A., are the trustees whilst the administrative committee includes four members nominated by the management committee of the A.C.U., these at present being Mr. Allan Jefferies, Mr. G. Humphrey, Mr. Graham Walker (Editor, "Motor Cycling") and Mr. A. B. Bourne (Editor, "The Motor Cycle"). The object of the fund is to benefit participants and their dependents in deserving cases.

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