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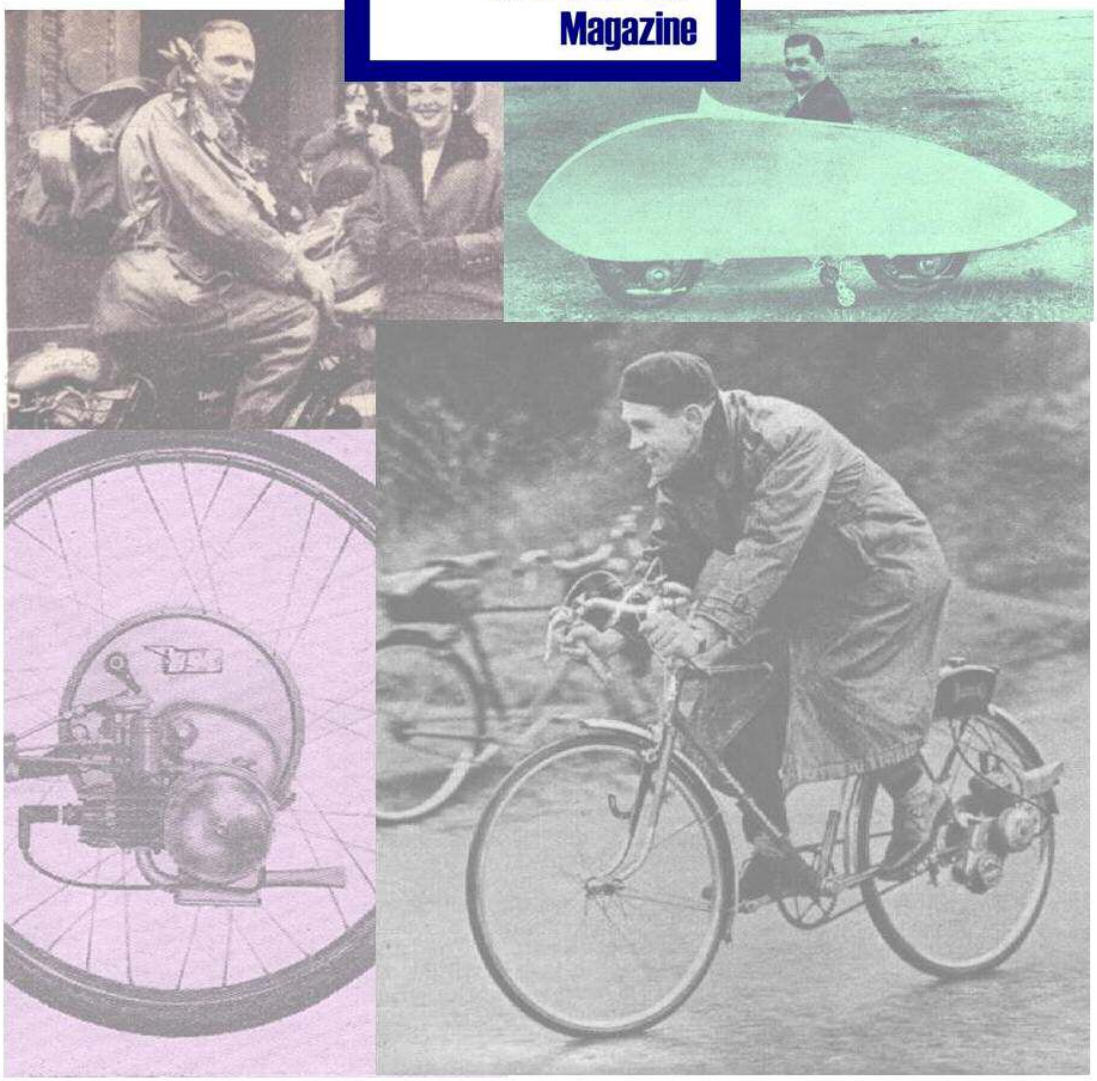

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ROAD TEST REPORT

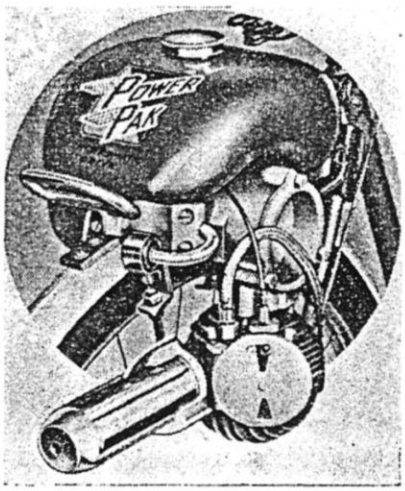
A Very Popular Machine

The "SYNCHROMATIC" POWER PAK

THE persistent demands from our readers for test report and service contributions, the number of the units seen on the roads and the enthusiasm of many dealers of our aquaintance had already convinced us that the "Synchromatic" *Power Pak* was a cycle-motor with a rather special appeal even before we had tested one. Now that we have had that opportunity we understand why the riders are so pleased with themselves and their mounts, for "The Pak", as they call it, is a very attractive proposition.

On the paper the engine is quite a normal single cylinder two-stroke, bore 39 mm., stroke 41 mm., capacity 49 c.c. It has a deflector head piston, the usual alloy head and iron cylinder barrel, *Wico-Pacy* flywheel magneto with lighting coils and a steel driving roller. The unit is mounted over the rear wheel with the cylinder inverted and is engaged or disengaged by means of a hand lever operating in a positive "gate" on the near side seat stay of the cycle.

Closer examination immediately demands notice for the very high finish of all parts and this characteristic is notable throughout the assembly. The whole unit is a beautifully finished engineering job and the designer has given attention to quality in the smallest details. Bearings are of generous size for their various jobs and the provision of roller bearings for the big end and ball-races for the mains, driving roller (2), clutch thrust and



It looks good too—The synchromatic "Power Pak"

clutch housing bearings indicate that this engine was not designed and built to a price but to a desired specification.

The unit is attached to the machine by a bracket and two bolts on the seat stays. Just aft of this is a large pivot bearing on which the whole outfit hinges to engage or disengage the roller drive from the tyre. At the rear end a strong steel stay attaches to the wheel spindle on the offside, its upper end providing the anchorage for the engaging lever through a flexible rubber bush and the adjustment for the roller setting to micrometer accuracy by means of a screw thread and two nuts. The forward end of the engaging lever emerges, on the nearside of the unit as mentioned, to a "gate" with two notches so that either engaged or disengaged the positioning is positive and firmly locked and there can be no bouncing of the roller on the tyre when driving or scraping when freed.

A major issue has been made of the damping of vibration and the claim of the makers that the steel roller driving on a pneumatic tyre is the finest shock-absorbing drive available is backed up by the provision of rubber vibration damping mountings for both the main securing clamp and the engaging lever gate in addition to the bush already referred to on the rear locating stay. This means that the entire assembly is rubber mounted at all points of contact with the cycle and the benefits of this system can definitely be appreciated in the riding comfort of the machine.

So far this description goes equally well for the "Standard" model of the *Power Pak* which is still marketed and has a good following. But the machine tested was the model introduced last year at Earl's Court incorporating the "Synchromatic" clutch.

The clutch itself is a perfectly simple and straight-forward single-plate friction disc design mounted on the extension of the crankshaft between the driving roller and the flywheel magneto. It engages smoothly and disengages cleanly, drag being negligible and unfelt when standing at a tickover. The interesting part of the idea lies in the method of operation

which is by twist grip, the same twist grip that operates the throttle control. When the grip is in the "closed" position the clutch is withdrawn and the engine is free to tick over with the machine at a standstill. On getting away the grip is opened as soon as the pedals get the cycle moving, the clutch engages and the twist grip then operates the throttle in the normal manner. A soft click is felt when the grip is closed down to the point of clutch disengagement and this provides enough guide for the engine to remain "in" with the throttle almost shut if required.

No decompressor is fitted to the "Synchromatic" model, the space in the head being filled by a plug. This reduces the driving controls to one.

The machine tested was a very light, short wheel-based model, an excellent cycle for its designed purpose but its designed purpose was not motor-assisted cycling. The frame was too short and too high, the wheels too light and narrow, the bars too straight and too low, the chain unguarded and the bicycle lighting and audible warning device completely illegal as well as unsuitable. Yet, despite these handicaps, we record it as a tribute to the unit that we throughly enjoyed riding the machine and in particular used it in preference to available alternatives for longish trips across town and out into the country.

On the Road

Maximum speed on the flat appeared to be just under 28 m.p.h. but the slightest favourable grade or tail wind could put this up to somewhere around 35 m.p.h. and the interesting thing was that this over-revving caused no distress to the engine nor any excessive noise or vibration to create alarm and despondency in the mind of the rider. On the level the engine took over the job of propelling the machine at about 6 m.p.h. and accelerated smoothly up from that with a particularly lively response to the throttle between 15 and 25 m.p.h. This was more than handy as it enabled the rider to manoeuvre with confidence in traffic well out in the centre of the road.

That manoeuvreability and acceleration as well as high cruising speed were of a high order was demonstrated one Sunday morning when a 32 mile run was accomplished non-stop at an average speed of 24 m.p.h. *including* the complete crossing of London. The bicycle bucked and bounced uncomfortably but the engine was perfectly happy all the time. The most comfortable cruising speed was always that determined by the road surface and traffic conditions, the *Power Pak* apparently being quite happy and fuss-free at any speed within its range.

The exhaust noise was a bit more than we think desirable, especially at night, but better than most of contemporary machines. The note, moreover was so "clean" as to be really pleasant to an ear tuned to and interested in things mechanical. It is, however, unfortunately true that even in the middle of the twentieth century most people are not so appreciative as ourselves to the sound. We have heard some folks say that steel rollers "whirr" on the driving tyres and it was true that when running down hills at speed with the clutch disengaged and the engine stopped we could hear the roller whistling away to itself merrily on the smooth-treaded *Motorette* tyre, but we thought the modest noise quite pleasant and in any case it could not be heard while the engine was running.

There was no mechanical noise from the unit at all and we give full marks for this very desirable achievement. We have never met a unit better in this respect in our whole testing experience. Another endearing feature was that the engine hardly ever four-stroked. Even on a mere whiff of gas it purred like a cream-filled pussy cat.

The makers' claim that their specially designed and well finished roller never slips was justified for all practicable purposes although in fact we did manage to make it slip in wet weather by ham-handling the throttle at low road speeds and also when starting with a dead

engine. The amount was trifling however, and we would not have noticed it if we had not been looking for it.

The *Power Pak* seems to have earned a reputation for running rather hot, to the extent that the makers themselves have taken the rather unusual step of recommending the use of low octane fuels in addition to the heavier than usual oil content prescribed. Our test machine was obviously well run in, but we have to record that we were unable to get it too hot, even when we tried, either on the mixture in the tank when taken over (whatever that was) or on our usual test mixture of premium-spirit/TSL at 24 to 1.

On the subject of decarbonisation, the *Power Pak* is very accessible throughout and in particular the silencer is unusually getatable so that it and the all important exhaust port can be kept clear with the minimum of effort. If this is done, decarbonizing proper need only be undertaken at very infrequent intervals.

No cyclemotor is perfect and there are some criticisms to be recorded. It is a stupid nuisance that the choke control is out of safe reach from the saddle, necessitating a stop to open it after a cold start. This should be dealt with at once.

The standard complaint against over-the-rear-wheel roller drives that they throw mud and grit at the freewheel is unhappily borne out on this unit and the makers have produced a neat little freewheel guard for 5/- to reduce this trouble. This, however, is starting at the wrong end and we see no reason why the roller should not be effectively screened where the mud-slinging starts.

It is not a light unit at 25 lbs. dry and cyclemotors are not run dry as rule so that with a full tank and the neat chromium plated carrier which the makers (wrongly in our opinion) fit, it is near enough 30 lbs. and this is too far back on the machine so that the weight is felt when manhandling and when riding with the engine disengaged. There is no apparent reason why the whole unit should not come several inches forward to bring the weight within the wheelbase. The pivot could be in front of the seat stays if necessary to effect this. If this was done and some weight saved in the construction, the engine would be unfelt on the road and one of the major objections to "back-enders" eliminated.

The common trouble with British motors that they lack guts at low speeds is less true of the *Power Pak* than any other tested but we feel that it could be improved a little in this respect with advantage.

These minor criticisms apart, the *Power Pak* is a first class motor, one of the very best, and approaches the ideal for comfortable, fussless riding, ease of handling and maintenance and long, reliable service. We look forward to seeing "The Pak" on the roads for many years to come.

POWER PAK, Synchromatic clutch model 39 mm. bore x 41 mm. stroke, capacity 49 c.c. Deflector head piston with 2 rings. Iron Barrel, alloy head, "Amal" carburettor, "Wipac" flywheel magneto with lighting coils. Needle roller big end bearing, ball main, driving roll-bearer, clutch thrust and end ings. Machined steel roller drive to rear tyre lever engagement with positive location. Rubber insulated mountings all round. Tank capacity ½-gallon fuel consumption 174.2 at 20 m.p.h. average. Price 26 gns.