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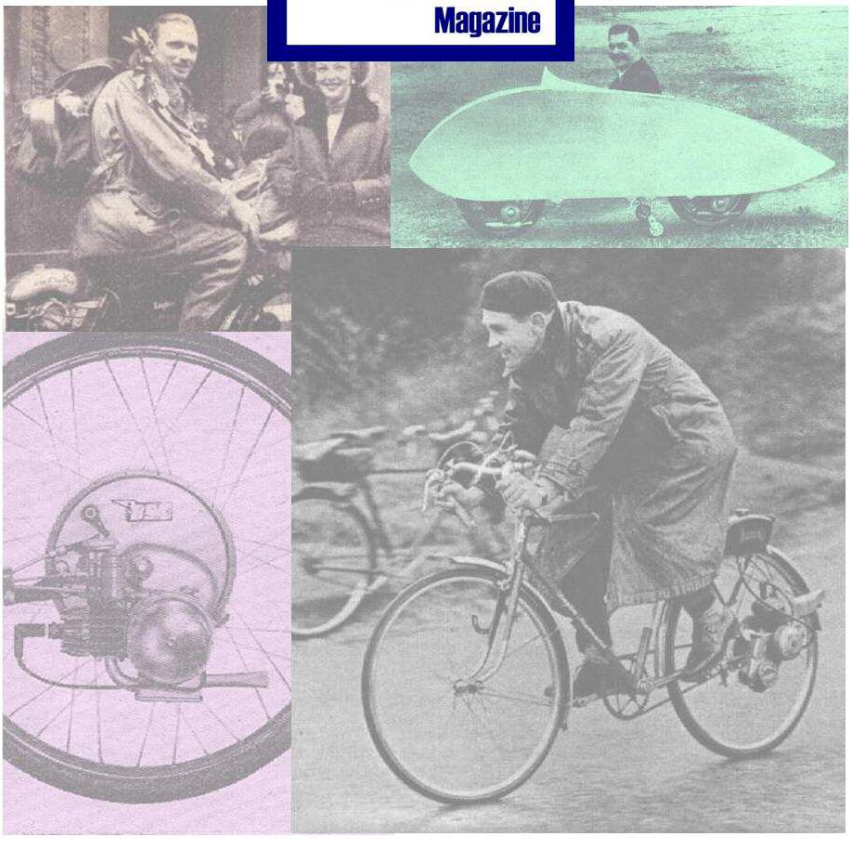

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POWER PAK

HAND BUILT 49 C.C. BICYCLE MOTORS

Fitting and Servicing the Power Pak

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Fitting and Servicing the Power Pak

Some Practical Hints Based on the Actual Experiences of a Dealer Handling this Engine Unit

AS this article is chiefly of interest to Power Pak dealers I do not propose to present a rehash of the excellent fitting and service instructions issued by the makers, Sinclair, Goddard & Co., Ltd., in the handbook given with each engine.

I propose, instead, to raise some of the aspects of fitting Power Paks to "awkward" cycles; and to deal with service as it affects the dealer.

The mountings provided with the Power Pak are very adaptable indeed. Recent machines handled in my workshop were a 19in framed lightweight with the saddle at its lowest position, a 24in roadster with 28in wheels, and a Claud Butler ultra-short-wheelbase tandem. The fitting of a Power Pak to each of these presented no serious difficulty nor were any tools used which are not to be found in the average cycle dealer's workshop.

Experience has taught me a "commercial" fitting technique which is certainly much faster than that used for our first few engines. Following are a few pointers.

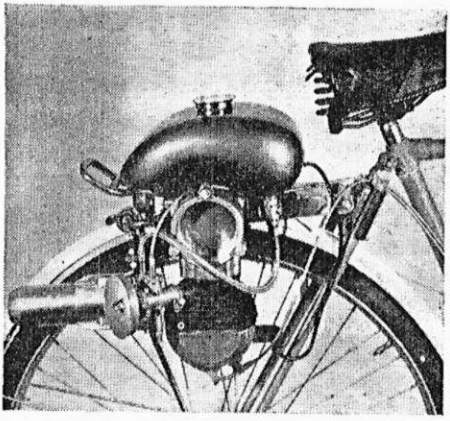
The engines arrive with silencer and carburettor packed separately. Apart from units fitted up for display, we leave them so, as it is easier to handle the bare engine and one has easier access to the motor stay rod adjustment.

Balance for Fitting

The bicycle which is to receive the engine is gripped in the cycle-erecting stand well to the rear of its top tube. This gives balance when the weight of the engine goes on, and leaves the other tubes clear for attaching the throttle and decompressor cables, which in the case of a solo bicycle travel down the seat tube and along the front down tube.

The motor is presented to the rear of the seat stays and the mudguard marked and parted, so allowing the drive roller to rest upon the tyre.

Consideration is then given as to whether the motor platform will be level when clipped in that position, making a little allowance for the fact that the depression of the roller into the tyre will lower the rear end considerably, too.



The Power Pak auxiliary engine unit—the subject of this servicing article.

If the bicycle has a sloping-towards-head top tube, this investigation is carried out with the cycle standing upon the floor, as we find one can be misled about true level when the machine is in the erecting stand.

The standard engine is issued with a "L" mounting bracket having a bolt hole above and one below the hinge. Where one cannot fit the front end of the platform low enough to maintain level, an alternative extended "L" bracket having both holes above the hinge is fitted to the engine.

The larger the frame for a given wheel size and the more vertical the seat stays with respect to the ground, the more likely is it that an extended "L" bracket assembly will be required. For this purpose standard brackets are exchanged, free of charge, by the makers.

Having decided on the final position of the seat stay clip, mark this, and fit the split seat stay rubber tubes. A hint here: to avoid the possibility of these moving around during fitting the engine, put a smear of Bostick on the inside of the tubes, and bind a turn or

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two of adhesive tape around the outside.

In the case of roadster frames of the "D" section bolted-up type, a flat back plate is used together with longer securing bolts. In all cases it is essential that long enough bolts be used to enable the self-locking lips of the nuts to pass on to the bolt threads.

Our guide to the proper tightening of the seat stay clip bolts is visual. We tighten them

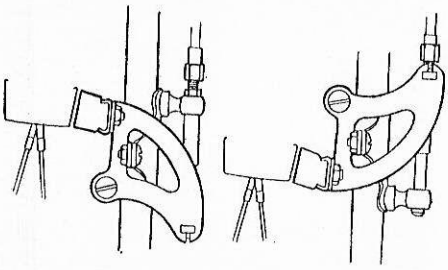

Fig. 1. Modification to a Resilion cantilever brake to provide clearance for the Power Pak.

until the rubber stay tube is compressed to about half thickness.

Before nipping these up we ascertain that, viewed from the rear, the roller describes a letter "T" with the rear cycle wheel. To assist in judging this, we rest a straight bar of wood about 3ft long across the motor platform whose top surface is parallel to the roller axis.

Although a portion of the "L" mounting bracket is cut away to clear the usual side-pull caliper brake, we find that in many instances it is simpler and more speedy to reverse the rear brake, bolting it against the front face of the seat stays. In these cases, we make and fit fork anchors of the Monitor Cam type in order to relieve the fulcrum bolt of strain.

In most cases, the Power Pak clears a Resilion Cantilever brake where fitted. On one or two occasions, however, we found that the H.T. plug cover fouled the brake arms. This is overcome by a modification to the brake as shown in the sketch (Fig. 1). The brake (at that side) is now really pushed on by the outer casing and it is therefore essential to leave freedom in the complete cable.

Where the size of the rear fork-end permits, or (as in the case of roadsters) there is a bolt which can be removed at that point, we secure the motor stay rod to the frame itself and not to the rear axle. This leaves the quick-release advantages of the rear wheel unimpaired. It is important, if one carries out this modification, to drill a new hole, giving a perfect fit on the frame bolt in the flat portion of the motor stay rod. Using the $\frac{3}{8}$in existing hole on, say, a $\frac{1}{4}$in bolt, will result in trouble on the drive as this is called upon to support the motor's weight in the "off" position, and to resist the upward pull of the inflated tyre in the "on" position —two opposite loads which would shift a $\frac{3}{8}$in hole about over a $\frac{1}{4}$in bolt.

When a Power Pak is fitted to a large-framed cycle there is a tendency for the rear end of the motor, even though it is quite level, to be well above the tyre. This results in an awkward mudguard line (see sketch, Fig. 2). We obviate this by using a piece of rubber cut from an old pedal rubber and fitting it as shown.

The Amal control handlebar clips have given trouble in fitting by some of our sub-agents. These clips are a very precise fit on a $\frac{7}{8}$in diameter tube—so much so that it is almost impossible to fit them on a curved portion of the handlebar. Our method is to fit them first on a straight part of the "bend," nip the bolt lugs gently together with a pair of pliers, fit the screw and nut loosely, wriggle the control around to the desired position, and cautiously tighten.

Where wide-section mudguards are fitted, the top end of the rear portion tends to rattle

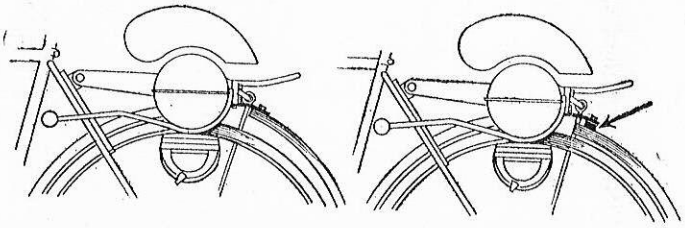

Fig. 2. Piece of rubber, cut from an old pedal rubber will prevent an "awkward" mudguard line on a cycle with a tall frame.

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against the Metalastik bush clip on top of the motor stay rod. This can be avoided without having to squeeze the mudguard out of shape, by sticking (with Bostick) a piece cut from an old inner tube over the edge of the mudguard at that point.

The question of "how much free service" is always an important one with dealers, and rightly so, for it is time which, costing money, is reducing the original profit margin.

We give a month's free service in writing on top of the 12 months' guarantee issued by the makers. This works much better than giving an indefinite promise of service.

Before the introduction of this we found that a certain type of customer just would not bother to read his instruction book (which contains an excellent "Guide to Faults"), but would "use" our services at the slightest excuse, and for "all time."

Customers now feel that they must get to know all about their engine before the free service period has expired and consequently are very keen pupils. We let them see everything we do to get them going again in the event of a stoppage, and it has been most interesting to see how rapidly they absorb the information.

Month's Free Service

At the end of the month we say, "Now then, your free service period has expired, we have done our best to arm you with information about your engine and we are confident you can settle the average day-to-day faults which can occur with any piece of machine. Should anything, however, arise about which you are puzzled, do please come and see us—we want you to continue having good service from your Power Pak."

So, in effect, our service on these units is much longer than a month—but after the first month we can control it and if the need arises make a charge where we think the trouble is due to sheer negligence.

The service on these engines appears to be (and I speak with two years' selling experience) confined largely to:—

(1) Petrol stoppages due to dirty petrol. The orifice in the carburettor inlet is deliberately made small to prevent "flooding" on rough roads and this is where one invariably finds the guilty speck.

(2) Dirty spark plugs—laymen expect these to go on indefinitely without ever cleaning.

(3) Saturated engine, i.e., an engine "wet" with petroil mixture causing wetting of the plug with resultant misfiring or failure to start. The most common cause of this is a history of the motor failing to start due to, perhaps, a "tracking" plug whereupon the owner pedals vigorously for half-a-mile with the air supply cut off. This thoroughly "wets" the engine inside and makes starting more improbable than ever. Our cure is to remove the plug and pedal the engine over smartly with petrol shut off. We then thoroughly clean the plug, checking the gap .022in, fit, and ride the cycle away to a start with full air supply available (choke open). When the engine does start, voluminous clouds of smoke confirm the diagnosis that the engine was a "saturated" one.

(4) Weak spark, which, by not firing the initial charge, causes saturated engine symptoms should the owner persist in trying to start it. This can be due to, in order of likeliness:—

(a) Incorrectly adjusted contact breaker points .015in;
(b) Dirty or pitted contact breaker points;
(c) Broken or externally damaged H.T. lead;
(d) Faulty H.T. coil;
(e) Faulty condenser or connection.

(5) Blocked main jet. The symptoms: motor will only run with choke closed.

(6) Falling-off of performance. This is almost invariably due to carbon deposits and can occur even within the first 500 miles if the rider is of the over-timid type. A good short burst of speed does the Power Pak good now and again once the first 200 miles have been ridden. The necessity for a "decoke" can be very quickly checked. One bolt removes the silencer complete. Peep into the exhaust port using a torch. The hole "way inside" near the piston should be equal in diameter to the outside end. If it is seriously less, nothing but decarbonization will ever restore the "zip" to that particular engine.

Dealers will find it desirable to carry supplies of the following spares:—

Spark plugs (most owners buy a spare); silencer body; air cleaner; carburettor body; petrol tank; assorted nuts and bolts; one set of piston rings; gaskets (supplied for use when decarbonizing; one set of contact breaker points.

B. L.

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