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ADDITIONAL INSTRUCTIONS AND AMENDMENTS  
FOR THE POWER PAK SYNCHROMATIC DRIVE

To be used in conjunction with the Instruction Book

DECOMPRESSOR VALVE, Etc.

Wherever referred to in the book, the instructions on the Decompressor Valve, Valve Seat and Clip do not apply as these parts are not fitted.

*Starting and stopping instructions no longer apply.* New Page 4  
instructions: Rock the Motor, to mix petrol and oil. Turn on the Petrol Tap. If the Motor is cold close the Choke (V Fig. 2) and or "tickle" the Carburettor Plunger. It is up to the individual driver to find the best method for easy starting, using either the Choke or the Carburettor Plunger, or a combination of the two, bear in mind that more choking is required in colder weather.

*Note* :—Overchoking and flooding may cause oiling Plugs.

Engage the Lever (K Fig. 3) in the Driving Notch (Q Fig. 3.) Place the Control in the "Auto-Clutch" position. Pedal the bicycle until speed has been gathered, a matter of a few yards. Turn the Control to "Power." The Motor will commence running. Continue to pedal BRISKLY until you are sure that the Motor is running smoothly. When the Motor is warm this should only need one or two BRISK revolutions. When cold, however, more assistance may be necessary.

In order to operate the "Auto-Clutch" turn the Control clockwise until the click is heard. Do not attempt to turn the control any further and beware of using brute force. This action automatically brings your carburettor to a tickover position and at the same time smoothly disengages the Clutch. To re-engage the Clutch, pedal the bicycle briskly and turn the Control to "Power." This action smoothly engages the Clutch and brings the throttle into action.

*To cut out Motor.* With the bicycle stationary, place the Control in the "Auto-Clutch" position and, with the brakes applied, gently and slowly turn the Control to "Power."

*The instructions for removing the Magneto Flywheel no longer apply.* New instructions to remove the Flywheel (D):—Remove the Magneto Holding Nut (R) by turning with a spanner in an anti-clockwise direction. The Flywheel should be firmly gripped and the end of the spanner sharply tapped. Fit the Magneto Flywheel Extractor Tool (available on demand). Screw the four screws evenly  
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Final Para.

into the threaded holes in the Flywheel, hold the Flywheel firmly, and turn the Centre Bolt of the Extractor in a clockwise direction. The Flywheel should then spring off. If not, LIGHTLY tap with a hammer. When refitting, make certain that the Woodruff Key is CORRECTLY seated in the keyway of the Crankshaft, also in the keyway of the Flywheel. Inspect the Woodruff Key for signs of any shearing and renew if necessary. When replacing the Holding Nut, again hold the Flywheel firmly and finally tighten by sharply tapping the end of the spanner. Beware of brute force. See also separate sheet.

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*Greasing Instructions no longer apply.* New instructions:—

The Clutch Housing Bearing (16) and the Driving Roller Bearings (8 and 9) are packed with grease which should give sufficient lubrication for a great many miles. It may be advisable, however, after 5,000 MILES to recharge with grease. ONLY use Shell Nerita 3 or Prices H.M.P.

*Note* :—A dry bearing will “scream.”

*Instructions for greasing the Clutch House Bearing.* Remove the Clutch Housing Assembly (See instructions for removing the Magneto Flywheel and Driving Roller, etc., given hereafter). Press out the Oilseal (17) and Bearing (16) from the inside of the Clutch Housing Assembly. Repack the Bearing with grease using ONLY Shell Nerita 3 or Prices H.M.P. Refit the Bearing with the Grease Seal inwards, i.e. towards the Clutch. Replace the Inner Washer (18). Refit the Oilseal with the rubber inwards, i.e. towards the Bearing. Remove ALL surplus grease from inside the Clutch Housing. Before refitting the Clutch Housing Assembly, the Fork Carrier Spindle (21) should be removed for greasing as follows:— Remove the two split pins (22) and withdraw the spindle assembly. Lightly grease the top and bottom bearing surfaces and refit the assembly.

*Instructions for greasing the Driving Roller Bearings.* Remove the Driving Roller (see instructions for removing the Magneto Flywheel, the Driving Roller, etc., given hereafter). Remove the Circlip (11). Place the Driving Roller on the bench with the splines uppermost and press out the Bearings and the Oilseal (10). Repack the Bearings with grease. (ONLY use Shell Nerita 3 or Prices H.M.P.). Refit the Bearings, the Oilseal and the Circlip.

*Note* :—It will be seen that the Inner Bearing (8) is fitted with a Grease Seal. This Bearing MUST be fitted first, with the Grease Seal underneath. (See A on Diagram) also, the Oilseal must be fitted the correct way about (see Diagram). Remove ALL surplus grease.



*The instructions for removal of the Driving Roller and Crankshaft no longer apply.* Page 8  
New instructions for removing the Driving Roller and Clutch Assembly:—Disconnect the Clutch Cable In Wire. Remove the Magneto Flywheel (D). (See instructions above). Remove the Magneto Stator Plate (P). Remove the Woodruff Key, the Timing Cam (M), Locating Key and Spring. Remove the Crankshaft Locking Nut Washer (43) and the Crankshaft Locking Nut (42) by turning in a clockwise direction. *Note*:—This nut has a left-hand thread. Remove the four Clutch Housing Securing Screws (15), and slide this assembly off the Crankshaft (41). Slide off the Clutch Assembly and remove the Locating Key (28) Remove the Clutch Dust Cover (35) and Gasket (36). Slide off the Driving Roller (7) complete with the Small Distance Collar (13). *Note*:—If necessary, ease off with a screwdriver. The Centre Plate of the Clutch Assembly (29) is floating. Therefore, if the Clutch Assembly is interfered with or knocked after it has been removed, the Centre Plate will move. In this case, when refitting the Clutch, the bosses which locate the splines of the Driving Roller Nose will be off centre. **PRESSURE SHOULD NOT BE APPLIED.** It will be necessary to line up the Centre Plate as follows:—Enter the Driving Roller Splines into the Locating Bosses of the Centre Plate. Hold the two assemblies together and with the Clutch Assembly uppermost push on to the Crankshaft using gradual pressure. Before refitting the Driving Roller, the Driving Roller Bearings (8 and 9) should be recharged with grease. When refitting, none of the removed parts or the Crankshaft should be oiled or greased. Before refitting the Clutch Housing Assembly, inspect the Bearing (16) and re-charge with grease if necessary (see instructions above). When refitting the Magneto the remarks on “advancing or retarding” under the heading of “Carburettor Adjustment” should be noted. The complete Clutch Assembly has been designed so that a service replacement scheme can operate.

The Thrust Bearing (38) is charged with grease which is sufficient for a great mileage. In the case of recharging (or clutch wear) a service assembly will be supplied at a small cost. If the Clutch Housing (14) is removed whilst the Motor is fitted to the cycle, make sure that the Motor is in the disengaged position until the job has been completed.

The total weight of the Motor is 25 lbs. and the correct Throttle Slide is No. 5 “Slow Running.” *Note*:—The Throttle Slide Spring is NOT the same as usual in the Standard Carburettor. Data Sheet

*The instructions on fitting the Control Lever, Control Cables and Carburettor no longer apply.* Pages 11-12  
The following new instructions are essential. Fit the Twist Grip Control to the offside handlebar as follows:—

Evenly slacken off the two clamping Screws until the Control slides over the handlebar. This handlebar must be perfectly clean. Remove all rust, etc., with emery paper and apply a small film of grease or vaseline. The Control, with the Instruction Plate facing upwards should be slid on to the handlebar as far as possible but care must be taken that the tube of the control does not bind against the handlebar itself, and is perfectly free to rotate. Tighten the two Clamping Screws evenly and finally tighten the Grub Screw which is located at the top of the Control. In the lower half of the Control there is a spring loaded Adjusting Screw protruding from the Control. The object of this part is to hold the Control in the "Auto Clutch" position, also to hold the Control in any set throttle position. The correct adjustment is obtained by first slackening this Adjusting Screw. When completely slack the Control will not hold the Clutch open. Tighten the Adjusting Screw gradually until sufficient pressure is applied to hold the Clutch open. Do not apply more pressure than is necessary otherwise the Control will become stiff to operate. *Note* :—A "click" is heard when the Motor is in the "Auto Clutch" position and the Control should not be forced beyond the "click" and is for light handling only. A little care **MUST** be taken when fitting the Control as it is essential that the Control works smoothly and easily.

## CONTROL CABLES

The standard length of Control Cables are supplied for fitting to a gent's type cycle. Cables for ladies' cycles and double-gent's tandems are available on demand, also Cables for lady-back tandems. Fit the cables to a gent's cycle as follows:—

Allow a slight sweep at the Control end and securely clip the Cables along the offside of the crossbar allowing a gentle sweep at both ends. Always avoid S bends. In the case of a lady's cycle, the Cables should be fitted to the bottom down-tube of the bicycle and in the case of double-gent's tandems, along the crossbar. It is essential that all bends should be made in easy sweeps.

*Instructions for changing the Control Cables.* Remove the two Clamping Screws, support the lower section of the Control and remove the top section. Slide the Cable Ball Nipples outwards and withdraw the Inner Cables by pulling the Outer Cables. Disconnect the Motor ends. *Note* :—The Clutch Adjustor is part of the Clutch Cable Assembly and must be removed.

Fit the new Cables and if the lower section of the Control has become detached from the Control Tube, it will be found necessary to remove the Ball from the Spring Loaded Adjusting Screw before refitting.



Remove the Tube from the handlebar and fit the Tube Quadrant in the lower section of the Control with the two Cable Ball Nipples above the Tube Quadrant. Replace the Spring Loaded Adjusting Screw and Ball. Hold the assembly upright and place the steel curved Distance Piece on the Tube. Fit the top section making sure that the Ball Nipples fit into the provided grooves. *Note* :— All working parts should be greased. The Carburettor and Clutch Adjustments must be re-checked, also the Spring Loaded Adjusting Screw on the Control. When fitting a new Rubber Grip use water—not grease.

### CLUTCH ADJUSTMENT.

The Clutch should be adjusted as follows:—

Place the Control in the "Power" position. Observe the Clutch Inner Cable (S) at the Clutch Operating Lever end (23). This Inner Cable should not be taut in this position. There should be a slight amount of slack which can be felt if taken between the thumb and forefinger. If this Inner Cable is either too slack or too taut, it may be adjusted by using the Adjustor situated on the offside of the Rear Lifting Handle (Z. Fig. 3). Always re-tighten the Locking Nut after the correct adjustment has been made. If this Inner Wire is left too slack the Clutch Plates will not free, causing clutch "drag" and, subsequent difficulty in pedalling and tickover. If the Inner Wire is too taut clutch "slip" will occur and the Motor will rev without propelling the cycle at the correct speed.

### CARBURETTOR ADJUSTMENT.

The most important factor of this adjustment is to obtain a good tickover. It must be realised that the tickover should be set when the Motor is at its working temperature. Therefore, the Motor should be ridden for approx. 1 mile in the Winter and  $\frac{1}{2}$  mile in the Summer, before attempting to finally set the tickover, which is done as follows:—

Start the Motor and set the Control in the "Auto Clutch" position. Loosen the Carburettor Adjustor Locking Nut and turn the Adjustor until a satisfactory tickover has been obtained. Re-tighten the locking nut. *Note* :—This adjustment should be made with the bicycle in an upright position and not leaning, also the handlebars should be straight. If the bicycle is leant towards the near side, the Carburettor mixture becomes weak. If leant towards the offside the Carburettor mixture becomes too rich. If the handlebars are turned excessively in either direction, the Control Cables alter their positions and the tickover is affected. It should be remembered that the Motor will achieve a very even and slow tickover after the running-in period. Also after this period, an improvement may be achieved by slightly retarding the ignition timing.

This is carried out as follows:—Loosen the two Stator Plate Securing Screws (44) through the inspection holes of the Magneto Flywheel (D). Turn the Stator Plate (P) in a clockwise direction. A slight movement only should be necessary but the full adjustment may be tried. It must be pointed out, however, that some top speed will be lost when the timing is retarded and it is up to the individual to choose his own setting. *Note* :—The normal setting is in the full advanced position (fully anti-clockwise).

### LIGHTING COIL DATA SHEET.

This Power Pak Bicycle Motor is fitted with a new type of Magneto incorporating a lighting coil which will supply you with ample power for both head and tail lamps.

### RECOMMENDED BULBS.

Head Lamp 6 volt 6 watt 1.0 amp.  
(Bayonet or Screw type fitting).

Tail Lamp 6 volt 3 watt 0.5 amp.  
(Screw type fitting only).

*Note* :—The correct head and tail bulb **MUST** be fitted. If the rate of **EITHER** is incorrect **BOTH** bulbs will be affected.

If you are unable to obtain these bulbs please communicate with us.

*Note* :—In order to prolong the life of the bulb, the Rear Lamp should **NOT** be fitted to any part of the motor (e.g. Lifting Handle) and should be fitted to the bicycle frame or the rear mudguard. The Rear Number Plate also should not be fitted directly to the Motor if it has a built in Rear Lamp. The rear mudguard should be used as described in the Instruction Book.

### FITTING.

Protruding from the back of the Magneto you will find a short lead (C) with a rubber sleeve (B), at the end of which is a small metal grommet. This grommet should be removed and fitted to the cycle lamp lead and then pressed well home in to the rubber sleeve, thus forming a perfect connection. If an earth lead is provided with the cycle lamp set, this should be attached to any part of the Motor (i.e. the Back Plate Securing Nut (A. Fig. 1.)). If an earth wire is not provided it should not be necessary to use one. However, if the lights are dull or intermittent, an earth wire may be connected from the Engine (i.e. the Back Plate Securing Nut) to the bicycle frame (i.e. the seat pillar bolt).



## SERVICE.

General service is carried out as per the Instruction Book with slight modifications, which we give you hereunder

## CHECKING THE POINTS GAP.

Turn the Flywheel (D) until the words "Set Contact .018" are at 10 o'clock. The Contact Breaker Points will now be visible at the lower end of this inspection slot and are now in their fully open position and ready for checking. *Note* :—The Gap should be set at .015" and not .018" as indicated.

## TO SET THE POINTS.

Loosen the large Locking Screw situated immediately above the Contact Breaker Points. Turn the Adjusting Screw (immediately above the Locking Screw) in a clockwise direction to increase the points gap and anti-clockwise to reduce the Points gap. Check with your Gauge Set. When the correct setting (.015") has been obtained, re-tighten the Locking Screw and again re-check the points gap.

## REPLACEMENTS.

The Contact Points are mounted as an assembly and the Plate Assembly must be changed when renewing. To remove the Condenser, slacken the Screw securing the small plate at the end of the Condenser Lead and slide the plate out. Remove the Condenser Clip Securing Screw which is holding the Condenser in position. The Condenser may now be withdrawn and the new one may be replaced. Should it be necessary to replace either the Lighting Coil Winding or the Ignition Coil Winding, this may be carried out as follows:—

Disconnect the appropriate wire connections. Bend the brass tag (K) upwards and slide the Coil off the Core (L). Replace the new Coil and re-connect the wire connections, making certain that the Coil is well home on the Core and the end of the Core is protruding beyond the face of the Coil so that the Coil does NOT foul the Flywheel. Bend the brass tag (K) back into position.

If the Timing Cam (M) is removed, make sure that the Spring is replaced on the Crankshaft before refitting the Timing Cam and that the arrow on the extreme edge IS FACING YOU, and pointing in a clockwise direction. Also ascertain that the Key is seated correctly in the Keyway. If these instructions are not followed the timing will be affected and the Motor will not function correctly. When replacing the Timing Cam make sure that the Fibre Heel which it operates is seated well down on the Timing Cam and not on its extreme edge. When correctly located, this Cam should bear against the inner face of the Flywheel central boss (N).

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