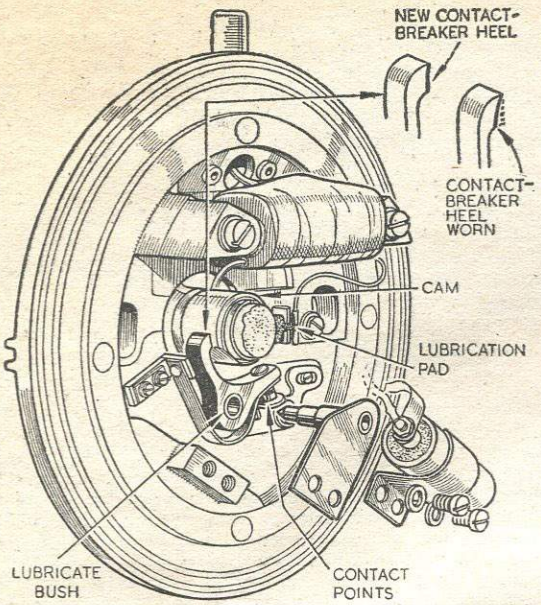
Wico-Pacy

Notes on Servicing a Popular Range of Ignition-

By KEVIN

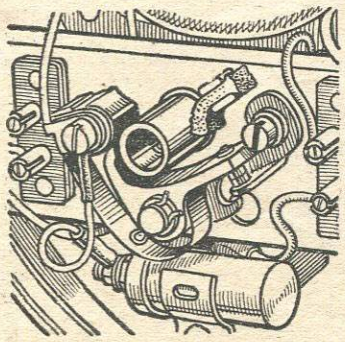


Stator plate assembly of the Bantamag as fitted to the original Mini-Motors

GENERAL maintenance of Wico-Pacy electrical equipment, as fitted to many makes of cyclemotors and to a number of makes of lightweight motor cycles, is of a fairly simple nature. This is as it should be, because it encourages the regular attention necessary for long and trouble-free service.

One of the most common magnetos in use on cyclemotors is the Bantamag, which is fitted to the following makes: Bantamoto, Berini, the older Cyclemasters, Cyclaid, Mini-Motor, Mocyc, Motamite, Tail Wind and Teagle. The correct gap between the contact-breaker points on this magneto is 0.018in with the points fully open; the gap can be checked by inserting a feeler gauge through one of the two inspection slots in the flywheel. If the points need adjusting, the locking screw on the contact-breaker plate should be loosened, and the plate pivoted by means of the eccentric screw provided, to give the correct setting. After the locking screw has been tightened, rotate the engine and then make a final check of the contact-breaker gap.

If further servicing is to be carried out, the flywheel must be removed from its shaft; a ring-spanner is the best tool with which to remove the flywheel nut. Normally, if the flywheel is gripped firmly with one hand, this, together with the resistance provided by the engine and transmission, will prove sufficient to hold the shaft while the nut is unscrewed. A nut that has been overtightened will usually respond to a light tap on the end of the spanner—tap in an anti-clockwise direction as the flywheel nut has a normal right-hand thread.



Contact-breaker assembly on the B.S.A. Bantam. Note the oil-impregnated wick for lubrication of the cam

For removing the flywheel, a special withdrawal tool is available; this tool has three screws which fit into the tapped holes in the flywheel boss, and a central bolt which is tightened against the shaft.

If the flywheel puller is not available, removal can be effected, more often than not, by grasping the flywheel firmly and, while attempting to pull it off its taper, tapping the end of the shaft with a hide-faced or rubber mallet; care should be taken that this operation does not bend the crankshaft or damage the threads on the end of the shaft. In addition to being a taper fit, the flywheel is keyed on to its shaft; so see that the small Woodruff key is not lost when the flywheel comes off.

With the flywheel removed, inspection of the complete contact-breaker mechanism can be made. It will be seen that a small felt pad bears on the cam which actuates the fibre or plastic heel of the breaker arm. If this lubricating pad is allowed to become absolutely dry, the cam will gradually wear down the breaker arm heel, particularly in the case of a magneto which rotates clockwise. To be impregnated, the lubrication pad should be removed, soaked in petrol (for cleaning), dried out, then soaked in hot high-melting-point grease; alternatively, a new pad can be purchased for a few pence.

Should the breaker-arm heel be badly worn (see inset illustration), it is advisable to renew this component; otherwise the spark at the plug points will occur late; this will result in difficult starting and erratic running of the engine. Given a modicum of lubrication, however, the breaker-arm heel is assured of long life.

Pitting of the Points

The faces of the contact-breaker points should have a dull but clean appearance. Points which are dirty can be cleaned merely by pulling a clean, damp rag between them once or twice. Pitting of the points is caused by the presence of oil or foreign matter on the contact faces, or by a weak condenser. Fine emery cloth, inserted between the points, can be used to remove surface marks; but if the points are deeply pitted, it is better to remove them for further treatment.

This is very easily accomplished. First, the earthing strip must be released from the end of the condenser, and then the condenser itself removed. The points can then be ground smooth and flat on a fine carborundum or oil stone. Be careful to grind each point squarely, or you will find on reassembly that the points will not mate properly when closed.

While the contact-breaker assembly is dismantled, it is a good idea to smear a little engine oil on the breaker-arm pivot pin. Incidentally, a weak condenser is often denoted by the character of the arc between clean contact-breaker points when the engine is running—a large spark of an intense blue colour usually means that the condenser is faulty.

Wear on the leading edge of the cam is very slow, but if, after lengthy service, the edge has become rounded, the cam should be renewed. When fitting the new cam, see that the small tongue is located in the groove on the shaft and is on the outer end of the cam itself; if the tongue is on the inner end of the cam, the cam has been replaced the wrong way

Equipment

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round and the engine will not run. Location of the cam tongue in the groove in the shaft automatically times the spark in relation to t.d.c. of the piston.

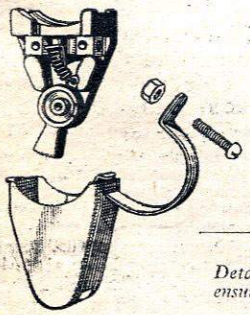
Concerning the high-tension connection, it should be noted that, on the later types of Bantamag, the connection on the coil takes the form of a needle which pierces the h.t. cable. If the h.t. cable is removed from the coil for any reason, care should be taken that, on replacement of the lead, the needle penetrates accurately up the core of the wire and does not cut into the cable insulation—with the possible result of a breakdown in the insulation and a consequent short circuit. On earlier types, the insulation on the end of the coil, where the h.t. lead makes contact, should not be cut back farther than is necessary, or again a "short" may result.

Similar to the Bantamag, but incorporating lighting coils, is the Series 90 magneto. The Power Pak and the latest Cyclemaster are two units which employ this magneto. Maintenance procedure for the contact-breaker mechanism is as described for the Bantamag, except that on some models adjustment of the points is effected by loosening two screws, each of which passes through an elongated hole in the breaker plate, and then pivoting the plate by hand. The operating cam is located on the shaft by a Woodruff key. To ensure that the cam will not be replaced the wrong way round, the cam is marked with an arrow indicating the direction of rotation.

Absorbing the Amperage

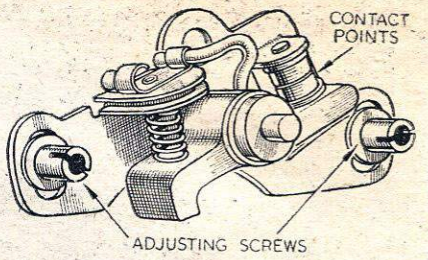
The lighting lead, which incorporates a snap connector, is taken from a tab terminal on the back of the stator plate; the tab must be well insulated from the stator plate—an insulating washer is fitted—otherwise the lighting current may be shorted. When the lighting current is being utilized it is important that the full amperage is absorbed by the lights of the machine. To ensure this, the correct bulbs must be fitted—6 volt, 6 watt front and 6 volt, 0.3 amp rear.

Machines which are fitted with the Wico-Pacy flywheel ignition-generator include the B.S.A. Bantam, 125 c.c. Royal Enfield, Cyc-Auto, Corgi, Excelsior autocycles, 150 c.c. Excelsior Courier and 125 c.c. J.A.P.-engined machines. On these units adjustment of the contact-breaker points to the gap recommended by the manufacturer can be carried out without the flywheel being removed. On the Royal Enfield and the Excelsior Autobyk the operating cam is locked on the crankshaft by a set-screw, and the timing of the spark in relation to t.d.c. of the piston can therefore be varied. If the cam is removed, it must be refitted to give the correct timing for the opening of the points; this setting is quoted in the appropriate instruction book.



Details of the Wico-Pacy dip-switch, which ensures that one filament lights before the other goes out

The ignition-generator fitted to the Excelsior Talisman Twin models is equipped with a distributor board and rotor. The h.t. pick-up points are



Adjustment of the points gap on the Series 90 contact breaker is simple

given no specified clearance from the distributor rotor, but to produce the maximum spark at the plug points they should be as close to the rotor as possible without actually touching it. An Oilite bush, pressed into the stator plate, provides additional support for the crankshaft. Should this bush and the main bearings of the engine become badly worn, cam bounce will be caused and the ignition timing consequently affected (similarly, on cyclemotors, worn main bearings can upset the accuracy of the timing). Contact-breaker points on all these ignition-generators should, of course, be kept clean by the usual methods.

Correct Bulbs Important

Again, on all A.C. lighting circuits (i.e., where a rectifier and wet battery are not included in the circuit) the full output of lighting current must be absorbed when the lights are switched on. Hence, if bulbs of lower wattage than that recommended are fitted, the filaments will be blown; if bulbs of higher wattage than that recommended are fitted, the lights will be poor. For the same reason it is essential that only the correct pattern of dip-switch be employed. The dip-switch contacts are so arranged that when a change-over is made from the main to the dipped beam, or vice versa, there is no interim position where both filaments can be momentarily out of circuit.

Wico-Pacy head and tail lamps are fitted to the B.S.A. Bantam. Access to the inside of the head lamp is easily obtained if the locking screw situated at the bottom of the rim is released and the rim lifted outward and upward. The bulb assembly bracket, which carries the main and pilot bulbs, can be withdrawn from the back of the reflector by bending the small locking tab and rotating the bracket anti-clockwise. Should the reflector be dusty or finger-marked, it can be cleaned with a soft, clean rag; polish of any description should never be used.

Remove Flat Battery

The parking battery is of the 3-volt, twin-cell type; it should be removed or renewed as soon as it has become discharged. A flat battery, if left in the lamp, may corrode and damage the lamp body. Correct bulb replacements are: main, 6v, 24w/24w double-filament; pilot, 2.5v, 2 amp; tail, 6v, 3w. The main bulb should always be fitted so that the secondary filament is above the central main filament when the bulb is in the lamp; usually the bulbs are marked "Top" to avoid the chance of incorrect replacement. When the bulb assembly bracket is replaced, the main bulb is automatically in focus in the reflector.

Wico-Pacy electric horns, fitted in conjunction with both A.C. and D.C. sets, are provided with a contact-breaker adjusting screw; this is situated beneath a rubber grommet plugged into the back of the horn. Adjustment is carried out by rotating the screw anti-clockwise until no note can be obtained from the horn, then rotating the screw clockwise until the peak note is reached. The central hexagon on the front of the horn does not provide any adjustment, and should not be tampered with in any way.

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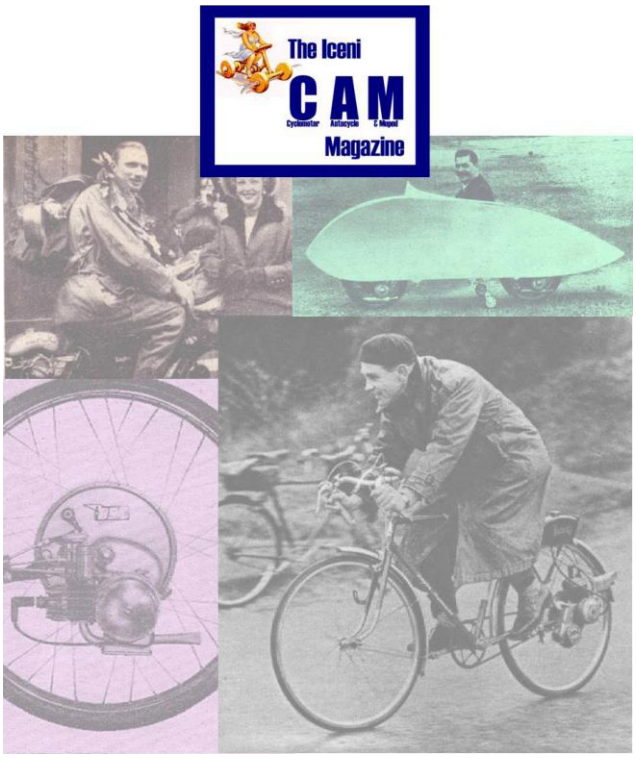

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