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BOYER BRANSDEN ELECTRONIC IGNITION SYSTEM FOR UNIT CONSTRUCTION BSA C15 & B40 MODELS EQUIPPED WITH DISTRIBUTOR TYPE IGNITION & 6 VOLT BATTERY

Comprising:-

a) Transistor box (rectangular black box with wires & adhesive foam backing strips)
b) Stator plate (printed circuit with coil and twin outlet lead; this replaces the existing lead from the C.B. + terminal of the coil). Fixing screw & washer plus terminals supplied
c) Magnetic rotor (round plated steel unit with two magnets fitted; this replaces the cam in the distributor)
d) Blue 3M tap connector
e) Two plastic straps
f) Twin lead with sleeving, 1 metre long (stator plate to transistor box connection)
g) Earthing wire, red 1ft long
h) Terminals: 4 female spades, 1 male spade, 2 male bullets & 1 earthing ring

Fitting instructions

1) Remove the petrol tank and seat to gain access to the existing ignition coil and associated wiring.
2) Disconnect battery.
3) Remove the spark-plug and rocker-box side cover, then turn the engine slowly by means of the kick-start (or by rotating the rear wheel with top-gear engaged), until the piston is at roughly top-dead-centre with both valves shut.
4) Remove the distributor cap (screw or clip fixing) and the contact breaker points should be seen to be slightly open or about to open - if not then the engine is probably one revolution away from the ignition position. The distributor shaft rotates in an anti-clockwise direction.
5) Disconnect and tape up the wire from the side terminal, loosen the distributor clamp screw in the outer timing cover and pull/twist the distributor unit out of the crank case and transfer it to the workbench.
6) Remove the contact breaker points, condensor and related fixings.
7) Undo the central screw retaining the cam on the distributor shaft and pull it off the spindle. Remove the remaining loose advance/retard parts.
8) At this stage it is useful to examine the distributor shaft and the bore in which it runs, particularly if there is a lot of side-play. The shaft can be removed from the distributor by tapping out the cross-pin just above the detachable driving tongue at the bottom of the distributor, after which the spindle can be withdrawn upwards. This will release a nylon thrust washer. No bushes are fitted in this distributor but new shafts are obtainable.
9) Lightly grease the shaft before reassembly. The rotor can now be fitted to the distributor spindle, rotating magnets uppermost, the two spring posts fitting into the holes provided (either way around).
10) Handling the stator plate carefully, fix it to the old condensor and fixed contact point mountings with the screws provided, ensuring that the "ghost" picture of the magnet is uppermost.
11) Decide on a suitable location for the transistor box, as near to the ignition coil as convenient (for example, on the flat cross-brace on the top of the rear subframe). It can be fixed by means of a soft lined clip, or by using the plastic straps provided. Alternatively, use the foam adhesive backing strips (warm them first, then peel off the protective layers). Do not totally enclose the unit in material such as foam rubber which could cause the unit to over-heat.
12) If it is necessary to alter wiring lengths and connections to suit any particular installation, all connections must be of the highest quality. Wires twisted together will not be satisfactory, use crimped or soldered connections. Coiling up of surplus lead lengths should be avoided.
13) Disconnect the lead(s) from the negative terminal of the ignition coil (marked - or S.W.) and reconnect them to the white lead from the transistor box, if necessary using the 3M tap connector provided.
14) Disconnect the black-white lead to the distributor and the black-white lead to ignition switch terminal 15 (if fitted), from the positive terminal of the ignition coil (marked + or C.B.). Tape up and remove any condensor connected to this terminal.
15) Connect the blue lead from the transistor box to the negative (- or S.W.) terminal of the ignition coil.
16) Connect the red lead from the transistor box to the positive (+ or C.B.) terminal of the ignition coil, and also to a good earth point on the frame.
17) Connect the twin stator lead to the two remaining wires coming from the transistor box (black-yellow to black-yellow, black-white to black-white), and run this lead down to the distributor, taping the lead away from the main harness wires where possible to avoid interaction.
18) Now connect the twin lead to the two corresponding wires coming out of the distributor.
19) Check that all redundant leads have been removed or taped up, and check all connections for tightness and proper contact at earthpoints, since the electronic ignition system requires a good 6 Volt supply to be maintained.

20) The timing on C15/B40 engines is as follows:-

33½° }
9/32" } before T.D.C., fully advanced, all models
7mm }

The timing is not as critical as on later models and should be set by measurement down the plug hole as follows:- locate T.D.C. by means of a rod down the plug hole and mark the rod to line up with a convenient reference point, such as the top edge of the plug hole. Piston is at T.D.C.
Remove the rod, make a second mark on the rod 9/32" (7mm) above the first mark and insert it into the hole again. Rotate the engine backwards until the upper mark disappears from view and then turn the engine forwards until this mark coincides with the reference point.
This sets the engine at the full advance position, with any backlash in the drive from the crankshaft to the distributor correctly taken up.
The ignition is correctly timed when the leading edge of one of the magnets on the rotor is directly underneath the leading edge of the "ghost" picture on the stator plate above it, as indicated by the large arrowhead on the stator plate. To achieve this, rotate the distributor body until the magnet and the printed outline are in their relative positions. If there is any backlash in the drive to the rotor, allow for this when setting the ignition timing by temporarily taking up the play by turning the rotor clockwise, i.e. against the direction of the drive whilst setting the timing.

21) If the cable outlet comes at an inconvenient position, lift the distributor up and rotate the rotor half a turn, and then push the distributor down again to re-engage the driving tongue, and re-time.
22) Lock the distributor in place by tightening the clamp screw, checking that the body does not rotate during tightening.
23) Make the final check that the timing has been made on the right stroke, and then replace the sparking plug.
24) Replace the petrol tank and reconnect the battery.

Notes:

Final adjustment to the timing can be made on the road. Stroboscopic timing is not necessary and no attempt should be made to do this by running the engine with the chain case removed, since the moving parts could cause serious injury.

The advance range provided is approx. 10° camshaft, 20° crankshaft.

It is essential that the existing electrical system is kept in good order, i.e. battery, ignition switch, ignition coil, H.T. cable, plug, plug cap, suppressor and associated wiring.
Apart from this, no maintenance is required and timing cannot vary, unless disturbed. Do not disturb the stator plate unnecessarily.

The most common symptom of low voltage is apparent over-advance and kicking back.

If the stator plate does not seat correctly and/or the rotor magnets touch the stator plate when pushed upwards to take up any end-float, adjust the height of the stator plate by placing one or more flat washers between the old mounting post and the stator plate.

The clearance between the stationary pole projecting from the stator plate and the magnet on the rotor should be 1mm. (0.040") or less.