

BOYER BRANSDEN ALTERNATOR POWERED ELECTRONIC IGNITION SYSTEM FOR UNIT CONSTRUCTION BSA C15 & B40 MODELS - DISTRIBUTOR TYPE



Comprising:-

- a) Transistor box (rectangular black box with wires)
 - b) Stator plate (printed circuit with coil and twin outlet lead)
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) Twin lead with sleeving, 1 metre long (stator plate to transistor box connection)
 - e) Terminals: 2 female, 2 male spades, 6 male, 6 female bullets, 1x 6.5mm ring
- You will also require a 12 Volt ignition coil type LUCAS 17P12 or equivalent (4 to 5 ohms primary resistance)

Fitting instructions

- 1) Remove the petrol tank and seat to gain access to the existing ignition coil and associated wiring.
- 2) Remove the battery and wiring, if fitted.
- 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) Loosen the distributor clamp screw in the outer timing cover and pull/twist the distributor unit out of the crankcase and transfer it to the workbench.
- 6) Remove the contact breaker points, condenser 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the cross-pin just above the detachable driving tongue at the bottom of the distributor, after which the spindle can be withdrawn upwards.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 condenser 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 ignition box, as near to the ignition coil as convenient.
Do not totally enclose the unit in material such as foam rubber which could cause the unit to over-heat.
- 12) 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) Wire the ignition box, coil and stator plate as shown on the separate wiring diagram.
The twin stator lead with sleeving (supplied) is used to connect the black/yellow and black/white wires from the box to the corresponding wires on the stator plate (cut to length), taping the lead away from the main harness wires where possible to avoid interaction.
- 14) When using LUCAS three wire alternators, two wires must be joined and connected to one of the yellow wires from the ignition box, as follows:

- GREEN/YELLOW and GREEN/BLACK join to YELLOW #1, GREEN/WHITE to YELLOW #2
- or GREEN/YELLOW and DARK GREEN join to YELLOW #1, LIGHT GREEN to YELLOW #2
- or MID GREEN and DARK GREEN join to YELLOW #1, LIGHT GREEN to YELLOW #2

- 15) Check that all redundant leads have been removed and check all connections for tightness and proper contact at earthpoints. **WARNING:** Removing the black earth wire whilst running may damage the ignition box.
- 16) The timing on C15/B40 engines is as follows:-

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

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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.

- 17) 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.
- 18) Lock the distributor in place by tightening the clamp screw, checking that the body does not rotate during tightening.
- 19) Make the final check that the timing has been made on the right stroke, and then replace the sparking plug.
- 20) Replace the petrol tank.

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 electrical system is kept in good order, i.e. 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.

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.

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