

## **BOYER BRANDSEN ELECTRONICS LTD**

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### **KIT00054 - MKIV IGNITION - TRIUMPH TRIDENT T150/160 & BSA ROCKET THREE**

#### Comprising:-

- Transistor Box (BLACK BOX with five wires) (Part number BOX00021)
- Stator Plate (round printed circuit board with two coils) (Part number STA000154)
- Magnetic Rotor (round plated steel unit with three magnets) (Part number ROT00120)
- 1.25" x 0.25" UNF caphead screw and washer, two coil link wires (black wires with female lucars), plastic strap, 2 male bullet terminals

You will also require three 6 Volt ignition coils (Lucas type 17M6 or equivalent). The T160 has these fitted as standard.

#### Fitting instructions:-

(Tools required 3/16" Allen key, 2BA box spanner, 7/16" AF spanner and screwdrivers.)

- 1) Open seat to gain access to the ignition coils.
- 2) Remove the left hand side battery cover.
- 3) Remove fuse from the negative terminal of the battery for safety.
- 4) Remove the black/red, black/white and black/yellow wires from the ignition coils & condensers. (These are no longer required). These wires run through the wiring loom down to the contact breaker housing. (IF YOUR MACHINE HAS BULLET CONNECTORS IN THESE WIRES DOWN BY THE SWINGING ARM, REPLACE WITH A NEW PAIR OF WIRES DIRECT FROM THE IGNITION UNIT TO THE STATOR)
- 5) Remove the white/yellow wires from the negative terminals of the three ignition coils.
- 6) Remove the ignition coils & replace with three 6 Volt coils. If the 12 Volt ignition coils are stuck in their mountings, apply penetrating oil &, by removing the battery, the coils can be reached from below and worked out.
- 7) Remove the red wire going to the earthing terminal on the condenser unit.
- 8) Connect the red wire to the positive (+) terminal of ignition coil no.1 See Fig.1
- 9) Using the two coil link wires join the coils as in Fig.1
- 10) Fit the transistor box in any convenient place near to the ignition coils, on top of the battery or remove the condenser pack, undo the three condensers from the bracket & replace. Fit the transistor box to the bracket using the plastic strap.
- 11) Connect the red wire from the transistor box to the positive (+) terminal of ignition coil no.1; this is the same connection as used in step 8, the coil having a double connector. See Fig.1
- 12) Connect the black wire from the transistor box to the negative terminal of ignition coil no.3 See Fig.1
- 13) Connect the white wire from the transistor box to any one of the three white/yellow wires removed from the ignition coils in step 5.
- 14) Connect the black/yellow wire from the transistor box to either of the two black/yellow wires removed from the ignition coil & condenser in step 4.
- 15) Connect the black/white wire from the transistor box to either of the two black/white wires removed from the ignition coil & condenser in step 4.
- 16) Tape the ends of all spare wires and check all connections are good and tight.
- 17) Undo the contact breaker cover & remove the contact breakers, backing plate & auto-advance unit. Disconnect the three wires. The auto-advance unit can be removed from its taper by putting a small piece of steel rod down the centre & tapping it around until it drops off the taper.
- 18) Remove the timing side spark plug; turn the engine over until compression is felt by placing a finger over the plug hole. Remove the triangular plate to expose the alternator rotor and slowly rotate the engine forward until the first appropriate mark is aligned with the pointer. This mark is the Full Advance Timing mark (38° B.T.D.C.), which is identified in the Owners Manual. The right hand cylinder is now on the Full Advance Timing position. The timing marks on the alternator are at 120° but only every 240° is any one cylinder under compression, thus it is possible to set the ignition to fire on a timing mark but off compression.
- 19) Fit the magnetic rotor into the taper from which the auto-advance unit was removed, hand tighten the caphead screw & washer provided. If the screw bottoms in the thread before tightening the rotor, cut a small amount from it or place a second washer under its head. The position of the magnets are shown in Fig.2
- 20) Hold the stator plate in place of where the contact breaker plate was fitted. Set it half way along its adjustment slots, look through the timing hole in the stator plate & the centre of one magnet screw should be seen, if not turn the rotor unit a little until it is aligned.
- 21) Using an Allen key tighten the caphead screw & re-check steps 18, 19 and 20. The pickup coils must be placed as fig.3 to overcome alternator interference.
- 22) Cut the metal tabs from the ends of the black/white & black/yellow wires & crimp on the two male bullet connectors provided. Connect the black/white wire to the black/white wire on the stator plate. Connect the black/yellow wire to the black/yellow wire on the stator plate. The black/red wire can be tucked out of the way, as it is not connected.
- 23) Fit the stator plate with the three pillar screws that held the contact breaker unit. See Fig.3
- 24) Refit fuse & start the engine, run for 4 to 5 minutes to warm up. Connect the strobe lamp and time to the Full Advance Timing marks with the engine running at 5000 RPM. The timing is adjusted by moving the stator plate on its slotted holes, anticlockwise to advance the ignition. If the end of the adjustment is reached then the magnetic rotor must be slackened off & moved a little in order to obtain the correct timing. The electronic advance & retard should be seen as the engine is accelerated up from tickover. The static timing using the magnet screw position is sufficiently accurate for the bike to be ridden with care to the nearest dealer for strobe timing, if necessary.
- 25) Refit the contact breaker cover, the timing is now set for life. The unit requires no maintenance but the wiring, battery, coils, HT leads, plugs & carburettors must be in good order.

#### General Data:

- 1) All three ignition coils are switched together, thus any problem on one cylinder can only be due to the ignition coil, HT lead, spark plug or the mechanics of that cylinder.

- 2) This system can be run directly from the alternator using a rectifier, zener diode & capacitor system, provided the supply voltage does not exceed 16 Volts. The best method is to use a BOYER SINGLE PHASE POWER BOX this replaces these components.
- 3) If an electronic rev-counter is to be operated from this system, the feed must be taken from the negative (-) of no.3 ignition coil.
- 4) This system can be run negative earth on special machines, but the coils must always be fed from the positive (+).
- 5) If the battery voltage drops below 8 Volts the unit will stop triggering.
- 6) Suppressor HT leads can go high resistance and give general bad running. If this is suspected they should be changed for copper-cored leads & 5000 ohm suppressor caps. With this system non-suppressed caps can be used.
- 7) The T160 machine has 6 Volt coils as standard & it will also have a ballast resistor fitted in the circuit. This must be removed & the white ignition box wire connected to the live wire feeding it with the ignition on.
- 8) If the machine has a very different layout of electrical components the system can still be fitted provided the circuit diagram is followed.

**WARNING**  
**HIGH VOLTAGES DEVELOPED FROM THIS SYSTEM CAN BE VERY DANGEROUS**  
**ALWAYS SWITCH OFF BEFORE WORKING ON THE SYSTEM.**

