

Fitting instructions

KH250 FOR SUZUKI GT380-550-750 SEE OVER:-

Boyer Bransden Mark III Electronic Ignition System for Kawasaki KH250 3 Cylinder Two Strokes and Various Models using the same basic engine.

Contents

- (a) Transistor Box (Square box with wires)
- (b) Stator Plate (Round printed circuit board with three coils)
- (c) Magnetic Rotor (Round plated steel unit with three magnets)
- (d) Screening Plate (Round steel plate with centre and two off-set holes)
- (e) 3 Diode Wires (Green to Black Wires with inline diode unit and connectors)
- (f) Plastic Strap
- (g) Instruction Sheet
- (h) Boyer Bransden Sticker
- (i) Three Plastic Tap Wire Connectors

Tools Required

Impact Driver for cross head screws.
13mm Socket or Ring Spanner.
Strobe Lamp.

Fitting

- 1 Turn off petrol and remove the three pipes.
- Remove petrol tank by pulling up from rear and moving back.
2. Remove contact breaker cover on left hand side of engine.
3. Remove three contact breakers and condensers cutting the green, black and blue wires but keeping the green and blue as long as possible (just up to the solder connectors).
4. Remove the three cross head screws holding the polished aluminium alternator mounting casting to the side of the engine.
5. Slide off alternator and casting swinging back on its wires taking care not to damage the wires and gasket.
6. Remove contact breaker cam by undoing the centre bolt (13mm). The alternator rotor can be held by hand or with a screwdriver in one of the slots.
7. Fit the screening plate (d) to the other face of the alternator rotor
8. Turn the screening plate until the c/f mark (centre cylinder timing mark) shows through the hole near the outside of the plate. The small hole near the centre should also line up with the keyway in the alternator rotor.
9. Refit alternator mounting casting checking the gasket and wires are in place and not trapped on tightening the three cross head screws with the foam pads towards it, and the centre washer fitting in the hole used for the contact breaker cam.
10. Fit the stator plate (b) to the contact breaker mounting on the outside of the alternator using three of the contact breaker mounting screws with fitted flat washers. The large hole should line up over the timing slot in the alternator and the screws half way along their adjustment slots (see figure 1).
11. Connect the blue and green wires from the stator plate to the blue and green contact breaker wires using two plastic tap connectors (i). Close these tight with pliers. The black wire is not used.
12. Fit the magnetic rotor (c). This takes the position of the contact breaker cam. Line up the locating pin with the small hole in the screening plate. Use the cam mounting bolt and lock up tight. Hold engine by placing in top gear with rear brake held on.
13. Move the tap connectors and wires away from the magnetic rotor into the slots on the edge of the alternator as these wires must not rub the rotor when the cover is replaced.
14. Trace the wiring loom along the top left frame tube to the ignition coils. There should be three yellow wires, one black, one blue and one green. Pull apart the bullet connectors on the black, blue and green. The black wire from the loom is pushed back under the loom and not used.
15. Mount the transistor box (a) as shown in figure 2 with the label showing from the top. The plastic strap (f) must have its ratchet inside and can be pulled up tight.
16. Plug and sleeve green and blue wires from the transistor box onto the green and blue wires coming from the wiring loom. Check the connectors are clean, tight and taped over for added protection from water.
17. Plug the green ends of the three diode wires (e) onto the three green wires on the transistor box.
18. Run the diode wires above the ignition coils and connect to the green, blue and black wires from the ignition coils. The black wire from the centre coil goes to the only female connector, the green and blue go to the blacks of the remaining two diodes. All the diodes are identical but one has a female connector on both ends. (The green end to the transistor box).
19. Trace one of the yellow wires feeding the outer ignition coils, using a tap connector (i) connect onto the yellow wire from the transistor box leaving it connected to its ignition coil.
20. Run the black earth wire from the transistor box back to the negative terminal of the battery.
21. Tape and strap wires where possible to stop them rubbing through.
22. Replace petrol tank and fuel pipes.
23. Start and run engine for four to five minutes to warm engine and electronic unit.
24. Connect strobe light to centre spark plug and time at 3000 r.p.m. against the c/f mark on the alternator or a modified mark if this has been proved inaccurate with a dial gauge check. Strobe readings above 3000 r.p.m. should be ignored as delay in some strobe lamps will show a retarded ignition. Adjustment is by the slotted holes in the stator plate.
25. Check all screws are tight, wires clear of rotor and replace side cover. Installation is now complete.

General Data

1. This system is designed to fire all three plugs together every 120° of the crankshaft. The spark duration and ignition coil current being controlled electronically.
2. The output of the three trigger coils and magnets is added to produce one accurate firing every 120° even if a coil or magnet is inaccurately placed.
3. One transistor switching unit controls three ignition coils via three high voltage high current diodes.
4. If one cylinder only is giving trouble the fault can only be in the engine, spark plug, cap, H.T. lead, ignition coil or high voltage diode.
5. The diode is intended to pass current in one direction only if it becomes faulty it is most likely to go short circuit. This can be checked on the machine by running the engine and shorting in turn the black, blue and green wires from the ignition coils to frame, any one cylinder should cut out at a time. If the engine stops as one wire is shorted that diode is faulty.
6. The system is not designed to clean sooty spark plugs or overcome any engine problems but it will give maintenance free ignition on an engine in good mechanical order.
7. As the timing of all three cylinders is locked together burning of one piston only must be due to weakness of mixture on this cylinder due to poor carburation, air leaks on Inlet, crankcase or exhaust system.
8. At no time should the battery be disconnected while the engine is running unless a method of stabilisation of supply voltage is used limiting to less than 15 volts the output of the alternator (this is possible for racing machines).
9. The battery should be in good order and able to maintain the headlamp at full brilliance for five minutes. It is common for one cell in the battery to go open circuit, this could produce bad starting and misfiring. A visual check of the battery will often show this.
10. If a strobe lamp is not available the machine can be used and driven to a motorcycle dealer for strobing but ride as for running-in a new engine, do not give heavy loads or high revving.

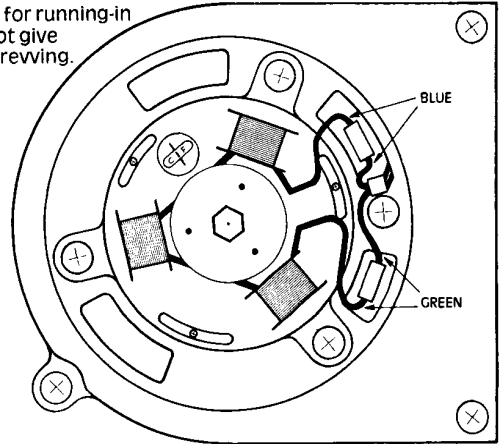


FIG 1

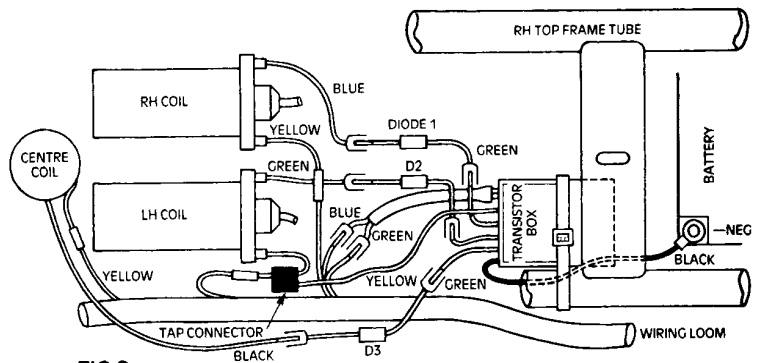
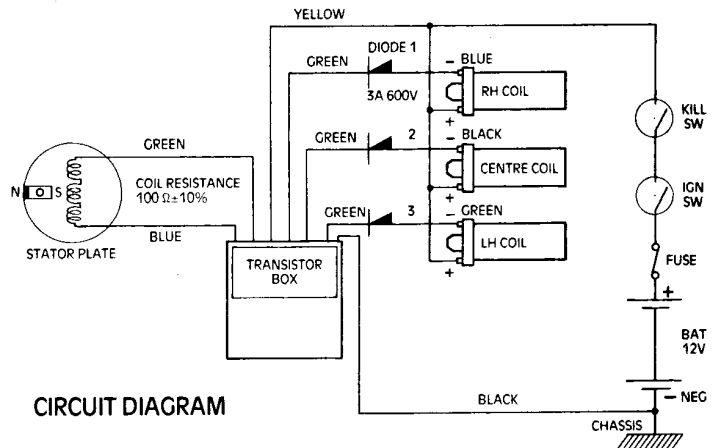


FIG 2



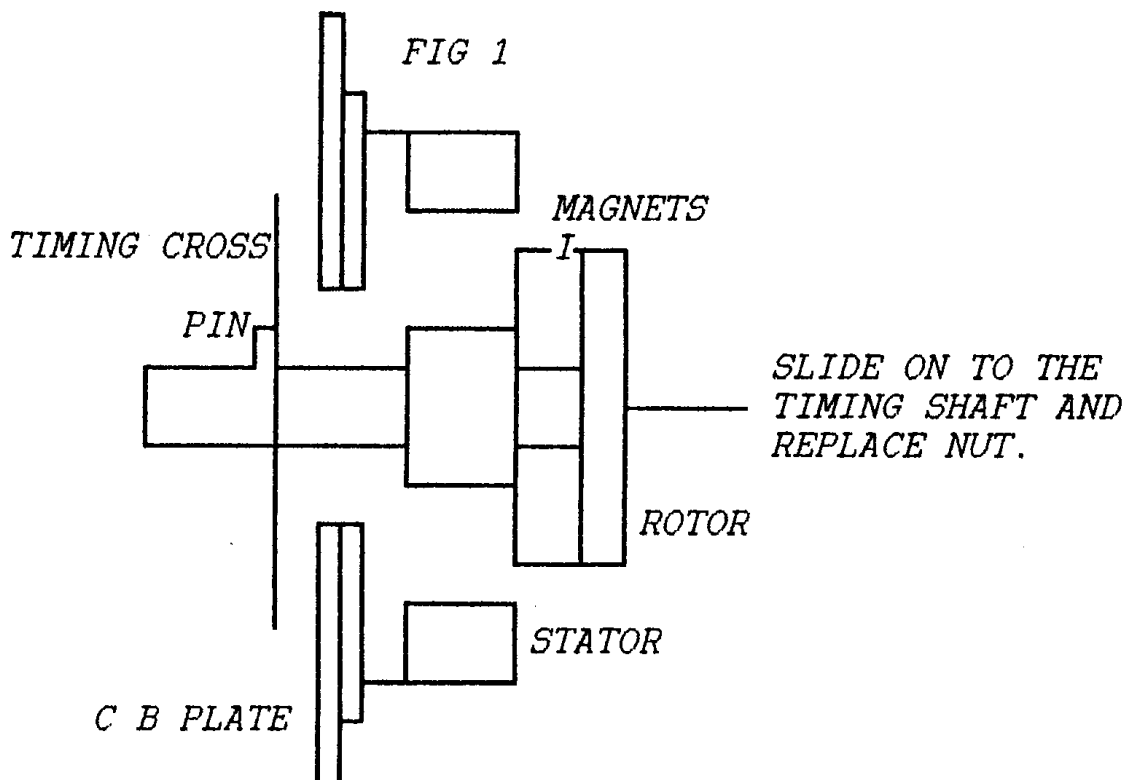
CIRCUIT DIAGRAM

FITTING KH250 IGNITION TO GT380-550-750 SUZUKI TRIPLES.

NO SCREENING PLATE IS REQUIRED FROM THE KH250 KIT.

- 1) FOLLOW THE KH250 WIRING DIAGRAM USING THE SUZUKI WIRING COLOURS. ALL COILS FIRE AT THE SAME TIME, SO ANY COIL WILL FIRE ANY CYLINDER. THE GREEN AND BLUE WIRES TO THE TRIGGERS MUST CONNECT TO ANY TWO OF THE CONTACT BREAKER WIRES BUT MARK THEM SO THEY CONNECT TO THE APPROPRIATE COLOURS. THE WIRES TO THE IGNITION COILS CAN BE CUT ON THE LOOM SIDE OF THE MULTIWAY PLUG AND BULLET TERMINALS FITTED FOR CONNECTION TO THE UNIT.
- 2) REMOVE ALL THE SUZUKI PARTS FROM THE TIMING HOUSING.
- 3) CLEAN OFF THE CONTACT BREAKER PLATE OR MAKE A NEW ONE TO HOLD THE KH250 TRIGGER PLATE IN PLACE AROUND THE ROTOR. SEE FIG 1.
THE CIRCUIT BOARD CAN BE DRILLED AND SCREWED TO THE SIDE OF IT. DO NOT SHORT THE SOLDER CONNECTIONS WITH THE SCREWS. REFIT THE TIMING CROSS.
SET TRIGGER COILS IN LINE WITH THE MAGNETS WITH THE CENTRE CYLINDER ON TIME. THIS WILL BE A LITTLE RETARDED SO ALLOW SOME MOVEMENT ON THE SLOTTED HOLES.

IF THE ASSEMBLY IS NOT ACCURATE DO NOT WORRY AS THE ELECTRONICS WILL SEE ONLY ONE PULSE AT A TIME WHICH IS THE COMBINATION OF ALL THREE TRIGGERS AND WILL FIRE SPOT ON THE STROBE SETTINGS. FIT THE ROTOR AND STROBE AT 3000-4000 RPM. ON THE CENTRE CYLINDER. WHEN STROBING THE MAGNETS SHOULD BE SHOWING JUST PAST THE TRIGGERS. IF NOT SWOP THE GREEN AND BLUE TRIGGER WIRES.



**BOYER BRANSDEN
ELECTRONICS LTD.**

**SUZUKI GT380~750
IGNITION WIRING**

