ROYER BRANSDEN ELECTRONIC IGNITION SYSTEM FOR 12v TWIN CYLINDER MOTOR CYCLES - TYPE MK 3

Comprising:-

a) Transistor Box (square box with wires)
b) Stator Plate (round printed circuit with two coils)
c) Magnetic rotor (round plated steel unit with two square magnets)
d) Plastic Strap
e) 1⅛"x ¼" BSF bolt (Norton)
f) 1⅛"x ¼" UNF bolt (Triumph)
g) Coil link wire, black 1ft.
h) Coil positive earthing wire, red 1ft.
i) 4 female, 1 male and 1 eyelet crimp-on terminal

General fitting instructions

Note:-
These instructions are for a general guide to fitting the system to various number of machines with ignition coils, wiring, battery in various positions; thus it may be necessary to modify the length of various wires to complete the installation. If so, all connections should be of the highest quality, twisted wires will not give a satisfactory operation.

1) Remove the petrol tank and, or seat to gain access to the ignition coils, condensers and wiring.
2) For safety remove one battery connection (or fuse).
3) Remove contact breaker plate and auto-advance unit.
4) The two wires going to the contact breakers are used to feed the triggering pulse to the transistor box and must be traced up to the ignition coils and condensers and removed from them. These are normally black-white and black-yellow wires.
5) Remove the wire going to the other terminals of the ignition coils. These will be the negative feed wires from the ignition switch.
6) Link across using a black link wire; the negative terminal of one ignition coil to the positive of the other. Cut wire to length and fit female lucar connector using pliers to crimp the terminals.
7) Using the red positive earthing wire connect the positive of the first coil to a good earthing point on the frame or the positive terminal of the battery. See Fig 1.
8) Find a suitable position for the transistor box near to the ignition coils, use the black plastic strape or tape for fitting.
9) Connect the black wire from the transistor box to the negative of the second coil. See Fig 1.
10) Connect the red wire from the transistor box to the positive terminal of the first coil; the same point to which the coil earthing wire feeds. See Fig. 1.
11) Connect the white wire from the transistor box to one of the negative feed wires from the ignition switch, these were taken off the ignition coils at (5).
12) Connect the black-yellow wire from the transistor box to the black-yellow wire that goes down to the contact breaker housing.
13) Connect the black-white wire from the transistor box to the black-white wire that goes down to the contact breaker housing.
14) Tape the ends of any spare wires and check all connections are good and tight.
15) Remove timing inspection cover from alternator side of engine.
16) Set engine to the full advance timing mark on compression.
17) Fit the magnetic rotor onto the end of the camshaft in the contact breaker housing using the cap head screw, two different threads being provided. This should be finger tight, if the thread is too long a small amount should be cut off the end.
18) Hold the stator plate in the contact breaker housing and with it half way along its adjustment slots turn the magnetic rotor on its taper until the magents line up through the appropriate timing hole. This must be done without turning the engine. See Fig 2.
19) Tighten the rotor cap head screw and recheck engine position and rotor alignment.
20) Fit stator plate with the standard pillar screws.
21) Connect the black yellow contact breaker wire to the yellow marked terminal on the stator plate and the black-white wire to the silver plain terminal. Strip and wrap the wires round the terminals in a clockwise direction.
22) Refit tank, battery and seat.
23) Start engine and run for 4 to 5 minutes to warm up. Connect the strobe lamp and time with the engine running in excess of 5000 rmp. This is done by moving the stator plate on its sloted holes. If the timing is not obtainable before the end of the adjustment the magnetic rotor will have to be slackened off and moved a small amount until the timing can be obtained.
24) Refit timing and contact breaker cover. The timing is now set and requires no adjustment, but ignition coils, switch, battery, HT cables, plugs and plug caps must be in good order.

General Data

1) This unit can run positive or negative earth as long as the ignition coils are fed from the positive supply.
2) The working voltage is 10 to 16 volts.
3) The maximum ignition coil current through the unit must not exceed 5 amps. This current is dependent on the coils used.
4) For low compression engines two 12 volt coils in series are satisfactory but for racing and high compression engines two 6 volt coils in series or one 12 volt double ended coil will give the best results.
5) Ignition coils can go short circuit to earth if the mounting clamps are too tight. If you are not sure mount them in rubber.
6) Shorting out the ignition coils for more than 3 minutes will damage the unit.
7) The resistance of the coils on the stator plate should be 33 ohms each, and the magnetic rotor should have the south poles of its magnets pointing outwards.
8) This unit can be adapted to work on many types of engine. If firing is required every 180° or 360° camshaft or crankshaft driven.
9) This unit will drive two coils up to 24,000 sparks/minute.
10) Typical working advance range is 10° at 2,500 rpm camshaft.
11) The unit draws 0.2 amp over the normal coil consumption and the peak primary voltage is regulated at 300 volts.
12) This unit must always be operated with the frame or chassis acting as an electrical return whether positive or negative earth. Also if the engine is rubber mounted a good earth strap must be provided.
13) This unit will operate from an alternator, rectifier, zener diode and capacitor battery less system, but kick starting may be more difficult.
14) Wiring should be trimmed to the correct length, spare wire should never be coiled up as this can affect the correct running of the ignition system. If possible the wires from the stator plate should be run separately from the main wiring loom.
15) With this system both spark plugs are fired at the same time thus if the engine only runs on one cylinder the fault can only lie with the machanics of that cylinder, spark plug, lead or ignition coil not the transistor box or stator plate.

Fig. 1

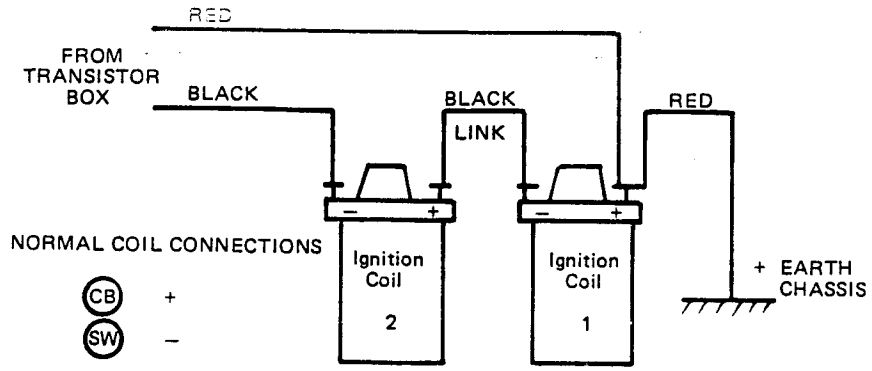
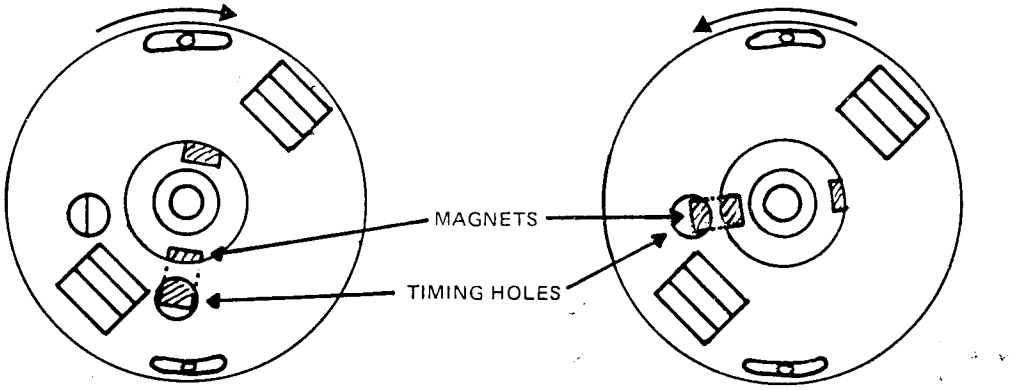
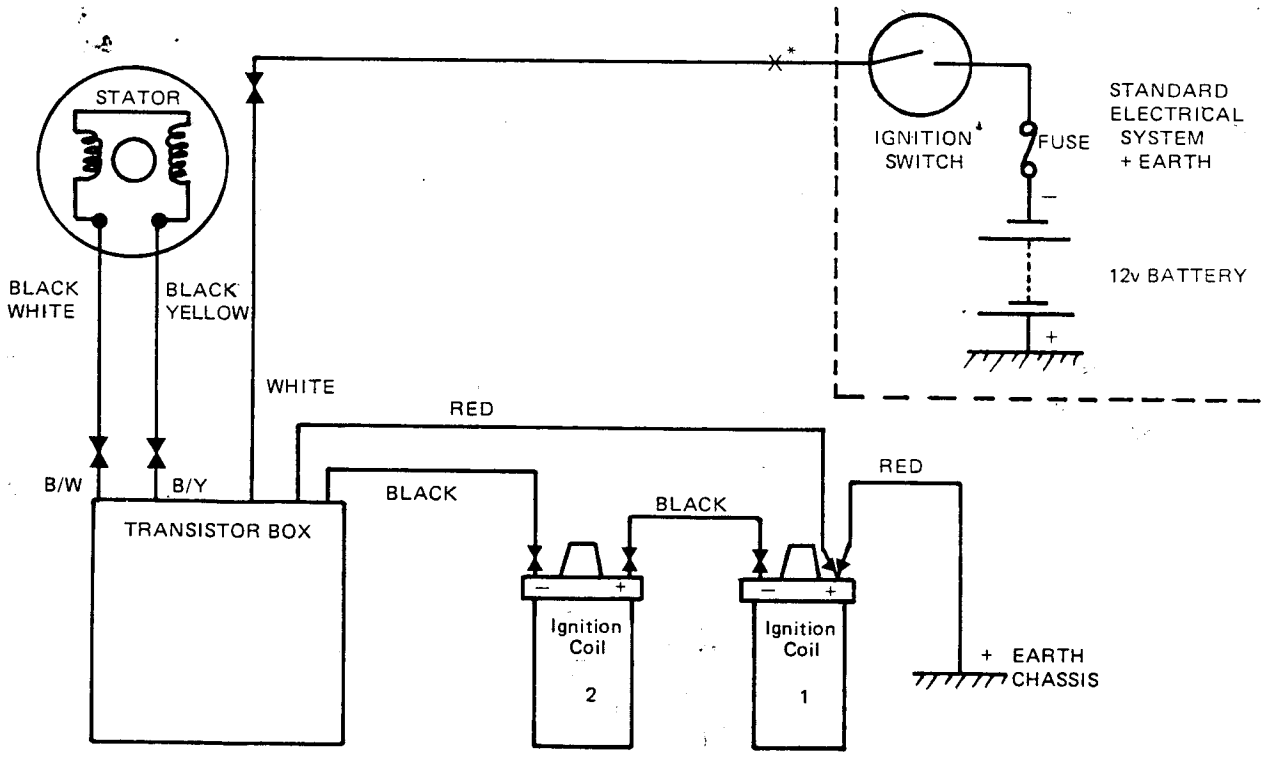


Fig. 2



CIRCUIT DIAGRAM



*FOR NEGATIVE EARTH CHANGE OVER THESE TWO POINTS

Comprising:-

a) Transistor Box (square box with wires)
b) Stator Plate (round printed circuit with two coils)
c) Magnetic Rotor (round plated steel unit with two square magnets
d) Plastic Strap
e) 11/4" X 1/4" BSF bolt (Norton)
f) 1 1/4" X 1/4" UNF bolt (triumph)
g) Coil link wire, black 1ft.
h) Coil positive earthing wire, red 1ft.
i) 4 female, 1 male and 1 eyelet crimp-on terminal.

General Fitting Instructions

Note:-

These instructions are for a general guide to fitting the system to various number of machines with ignition coils, wiring, battery in various positions; thus it may be necessary to modify the length of various wires to complete the installation. If so, all connections should be of the highest quality, twisted wires will not give a satisfactory operation.

1) Remove the petrol tank and, or seat to gain access to the ignition coils, condensers and wiring.
2) For safety remove one battery connection (or fuse)
3) Remove contact breaker plate and auto advance unit.
4) The two wires going to the contact breakers are used to feed the triggering pulse to the transistor box and must be traced up to the ignition coils and condensers and removed from them. These are normally black-white and black-yellow wires.
5) Remove the wire going to the other terminals of the ignition coils. These will be the negative feed wires from the ignition switch.
6) Link across using a black link wire; the negative terminal of one ignition coil to the positive of the other. Cut wire to length and fit female Lucar connector using pliers to crimp the terminals.
7) Using the red positive earthing wire connect the positive of the first coil to a good earthing point on the frame or the positive terminal of the battery. See Fig 1.
8) Find a suitable position for the transistor box near to the ignition coils, use the black plastic strap or tape for fitting.
9) Connect the black wire from the transistor box to the negative of the second coil. See Fig 1.
10) Connect the red wire from the transistor box to the positive terminal of the first coil; the same point to which the coil earthing wire feeds. See Fig. 1.
11) Connect the white wire from the transistor box to one of the negative feed wires from the ignition switch, these were taken off the ignition coils at (5).
12) Connect the black-yellow wire from the transistor box to the black-yellow wire that goes down to the Contact breaker housing.
13) Connect the black-white wire from the transistor box to the black-white wire that goes down to the contact breaker housing.
14) Tape the ends of any spare wires and check all the contacts are good and tight
15) Remove timing inspection cover from alternator side of engine.
16) Set engine to full advance timing mark on compression.
17) Fit the magnetic rotor onto the end of the camshaft in the contact breaker housing using the cap head screw, two different threads being provided. This should be finger tight, if the thread is too long a small amount should be cut off the end.
18) Hold the stator plate in the contact breaker housing and with it half way along it's adjustment slots turn the magnetic rotor on it's taper untill the magnets line up through the appropriate timing hole. This must be done without turning the engine. See Fig 2.
19) Tighten the rotor cap head screw and recheck engine position and rotor alignement
20) Fit stator plate with standard pillar screws.
21) Connect the black-yellow contact breaker wire to the yellow marked terminal on the stator plate and the black-white wire to the silver plain terminal. Strip and wrap the wires round the terminals in a clockwise direction. (Note: This applies to the early stator plates that had screw type connections)
22) Refit tank, battery and seat.
23) Start Engine and run for 4-5 minutes to warm up. Connect the strobe lamp and time with the engine running in excess of 5000 rpm. This is done by moving the stator plate on it's slotted holes. If the timing is not obtainable before the end of the adjustment, the magnetic rotor will have to be slackened off and moved a small amount untill the timing can be obtained.
24) Refit timing and contact breaker covers. The timing is now set and requires no adjustment, but ignition coils, switch, battery, HT cables, plugs and plug caps must be in good order.

General Data

1) This unit can run positive or negative earth as long as the ignition coils are fed from the positive supply.
2) The working voltage is 10 - 16 volts.
3) The maximum ignition coil current through the unit must not exceed 5 amps. This current is dependant on coils used.
4) For low compression engines two 12 volt coils in series or one 12 volt double ended coil will give the best results.
5) Ignition coils can go short circuit to earth if the mounting clamps are too tight. If you are not sure, mount them in rubber.
6) Shorting out the ignition coils for more than three minutes will damage the unit.
7) The resistance of the coils on the stator plate should be 33 ohms each, and the magnetic rotor should have the south poles of it's magnets pointing outwards.
8) This unit can be adapted to work on many types of engine. If firing is required every 180 degrees or 360 degrees camshaft or crankshaft driven.
9) This unit will drive two coils up to 24,000 sparks / minute.
10) Typical working advance range is 10 degrees at 2,500 rpm camshaft.
11) The unit draws 0.2 amp over the normal coil consumption and the peak primary voltage is regulated at 300 volts.
12) This unit must always be operated with the frame or chasis acting as an electrical return whether positive or negative earth. Also if the engine is rubber mounted a good earth strap must be provided.
13) This unit will operate from an alternator, rectifier, zener diode and capacitor battery less system, but kick starting may be more difficult.
14) Wiring should be trimmed to the correct length, spare wire should never be coiled up as this can affect the correct running of the ignition system. If possible the wires from the stator plate should be run seperately from the main wiring loom.
15) With this system, both spark plugs are fired at the same time, thus if the engine only runs on one cylinder the fault can only lie with the mechanics of that cylinder, spark plug, lead or ignition coil not the transistor box or stator plate.

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6) Link across using a black link wire; the negative terminal of one ignition coil to the positive of the other. Cut wire to length and fit female Lucar connector using pliers to crimp the terminals.
7) Using the red positive earthing wire connect the positive of the first coil to a good earthing point on the frame or the positive terminal of the battery. See Fig 1.
8) Find a suitable position for the transistor box near to the ignition coils, use the black plastic strap or tape for fitting.
9) Connect the black wire from the transistor box to the negative of the second coil. See Fig 1.
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12) Connect the black-yellow wire from the transistor box to the black-yellow wire that goes down to the Contact breaker housing.
13) Connect the black-white wire from the transistor box to the black-white wire that goes down to the contact breaker housing.
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