

MICRO-DIGITAL 12 VOLT IGNITION SYSTEM FOR MODIFYING LUCAS 18D2 'DISTRIBUTOR' type TWIN CYLINDER MOTOR CYCLES

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| a) Transistor BOX00010 (Red plastic box with 5 wires) | e) Plastic strap, Coil positive earthing wire, red 1ft. |
| b) Stator Plate DT1a (printed circuit board with coil) | f) Terminals: 4 female spades, 1 piggyback spade, 2 male bullets & 1 ring. |
| c) Magnetic Rotor ROT00114 (Steel disc with magnets) | |
| d) 3 X 4BA X 1/4" SL screws & shake proof washers | |

General fitting instructions

These instructions are a general guide to fitting the system to various machines with ignition coils, wiring, battery in different positions; thus it may be necessary to modify the length of some wires to complete the installation. If so, all connections should be of the highest quality, twisted wires will not give a satisfactory operation. **Suppressed plug caps of 5000 ohms must be used with this system.**

Modifying the distributor

- 1) For safety, remove one battery connection (or fuse).
- 2) Remove 18D2 distributor body from engine, remove the cap and disconnect the wires to remove contact breakers and auto-advance bob weights from their timing plate in the distributor body. Check for end play in the distributor shaft and shim above drive gear if necessary.
- 3) Follow the modification pictures to cut clearance apertures in the alloy distributor base for fitting the stator plate. (Figs1,2,&3)
- 4) Slide the magnetic rotor onto the shaft in the distributor housing, locate onto the two drive pins and secure using supplied 4BA x 1/4" screw and shake proof washer at the top of the shaft. (Fig 4)
- 5) Fit the DT1a stator plate into the modified distributor housing, fit two 4BA x 1/4 screws and shake proof washers to retain it. Check for clearance between the rotor and the stator underside, no contact should occur between the two parts when an end load is applied due to shaft end play.
- 6) Modify the distributor cover cap to allow fitting over the coil of the stator plate (fig6)

Re-fitting the distributor

- 7) Set engine to Top Dead Centre on compression.
- 8) Adjust the rotor in the distributor housing until one of the magnets lines up centrally through the TDC timing hole in the stator plate.
- 9) Refit the distributor, Keeping the engine in its TDC position.
- 10) Adjust the distributor angle to set the rotor magnet alignment before tightening the distributor clamp screw.

Electrical Installation

- 11) Remove the petrol tank and/or seat to gain access to the ignition coils, condensers and wiring.
- 12) 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.
- 13) Remove the wires going to the other terminals and remove the ignition coils and condensers. These will be the negative feed wires from the ignition switch.
- 14) Bolt the ignition coil in a ventilated position, using its two mounting lugs. Fit the new ht cables with their terminals, boots and plug caps.
- 15) Using the red positive earthing wire, and piggyback terminal connect the positive of the ignition coil to a good earthing point on the frame or the positive terminal of the battery. See Fig.1.
- 16) Find a suitable position for the transistor box near to the ignition coil. Use the black plastic strap or tape for fitting.
- 17) Connect the black wire from the transistor box to the negative terminal of the coil. See Fig.1.
- 18) Connect the red wire from the transistor box to the positive terminal of the coil - the same point to which the coil earthing wire feeds. See Fig.1.
- 19) 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 in step (12) above.
- 20) Connect the black-yellow wire from the transistor box to the black-yellow wire that goes down to the distributor housing.
- 21) Connect the black-white wire from the transistor box to the black-white wire that also goes to the distributor housing.
- 22) Tape the ends of any spare wires and check all connections are good and tight.
- 23) Connect the black-yellow and black-white distributor wires to the corresponding wires from the ignition unit.
- 24) Refit tank, battery and seat.
- 25) Start engine and run for 4 to 5 minutes to warm up. Connect strobe lamp and time to the maximum advance mark available, with the engine running up to 4000 R.P.M. Timing adjustment is made by moving the Distributor body in its clamp (CCW to advance, CW to retard)
- 26) Re-tighten the distributor clamp and re-fit the cover. The timing is now set and requires no further adjustment, Keep ignition coils, switch, battery, HT cables, plugs and plug caps in good order to maintain reliable operation. The old HT cables can be left in place and run up under the tank to retain the aesthetics of the old system.

General Data

- 1) This unit can run positive or negative earth as long as the ignition coil is fed from the positive supply.
- 2) The working voltage is 10 to 16 volts.
- 3) With this system the ignition coil current is controlled by the microprocessor, when static the current is approx. 50mA, when running 1.0 amp with a 6.0 amp. pulse on switch on.
- 4) The resistance of the coil on the stator plate should be 66 ohms, and the magnetic rotor should have the south poles of its magnets orientated outwards.
- 5) This ignition can be adapted to work on many types of engine, fitted to the camshaft, it fires every 180° of camshaft rotation, (360° of crankshaft rotation).
- 6) This unit will drive two coils up to 15,000 sparks/minute.
- 7) Typical working advance range is 12° at 2,500 R.P.M. camshaft.
- 8) The unit and the peak primary voltage is regulated at 280 Volts.
- 9) 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.
- 10) This unit will operate from an alternator, rectifier, zener diode and capacitor battery-less system, but kick-starting may be more difficult. (IF THE ZENER DISCONNECTS WHEN THE ENGINE IS RUNNING THE IGNITION WILL BE DAMAGED). For this reason we recommend our POWER BOX UNIT. This is voltage controlled and cannot damage the system.
- 11) 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.
- 12) With this system both spark plugs are fired simultaneously, 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. To run with a twin plug system two coils can be run in series, with each firing both cylinders. (NOT ONE COIL TO EACH CYLINDER).

WARNING: THIS UNIT PRODUCES VERY HIGH VOLTAGES ALWAYS TURN OFF BEFORE WORKING ON THE SYSTEM.



Fig 1 Marking pole pin aperture

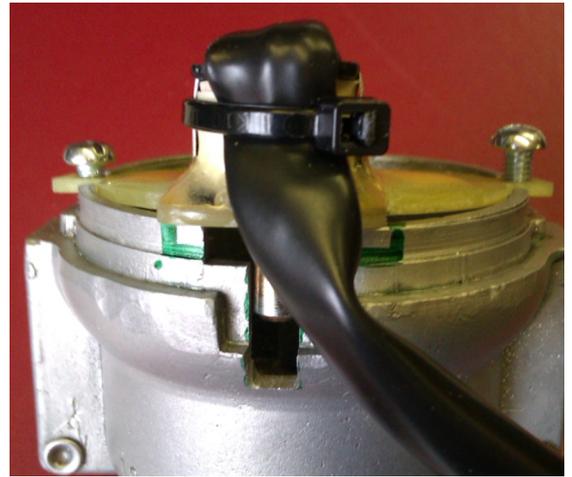


Fig 2 Marking coil tab aperture



Fig 3 Finished distributor apertures

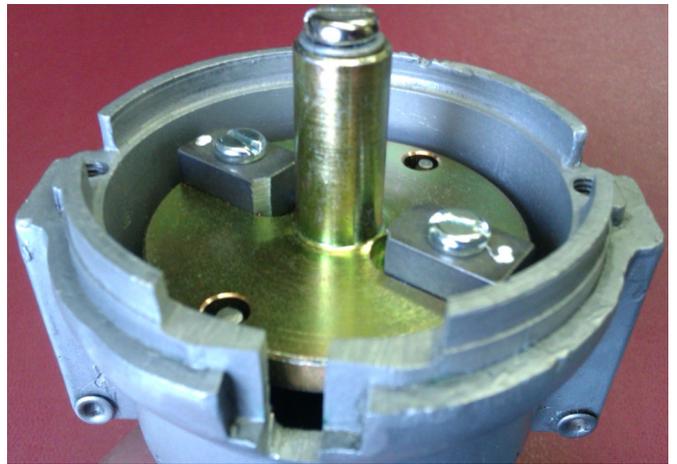


Fig 4 Magnetic rotor fitted



Fig 5 Stator plate fitted



Fig 6 Clearance hole for coil in cover

LUCAS 18D2 DISTRIBUTOR MODIFICATIONS