

LUCAS

MOTOR CYCLE 2MC CAPACITOR

IGNITION SYSTEM

GENERAL

The new Lucas Capacitor Ignition System, incorporating the standard 12-volt Battery Coil Ignition Components with the zener diode regulator, has many advantages over normal energy transfer and coil-ignition systems.

It has been extensively developed and used with considerable success in trials etc.

Object of the System

The basic object of this system is to enable a motor cycle to be run, with or without a battery, giving the rider the advantage of using the machine for competition work, and re-fitting the battery for normal road use.

Starting and lighting are equally effective with or without the battery, but additional accessories or parking lights cannot be used if the battery has been disconnected.

How the System Works

The capacitor stores the energy pulses from the alternator and supplies the ignition coil, as required, with sufficient energy to ensure adequate plug sparking for starting and running at all speeds throughout the engine's operating range. Magnetic timing is much less critical than with energy transfer systems and auto-advance mechanisms with a greater range of advance, such as are used on battery operated coil ignition systems, can be employed.

Wiring and Installation

In the case of motor cycles already fitted with Lucas 12-volt systems, it is only necessary to purchase the storage capacitor complete with mounting spring.

Earlier machines wired to give only part generator output in "Off" and "Pilot" positions will not have heat sinks of sufficient size. These must, therefore, be replaced.

Converting 6-volt Machines

Machines with 6-volt equipment can be converted by purchasing, additionally, the components necessary for changing to 12-volt system. Full details are given in our comprehensive leaflet No. 2380.

Energy transfer equipped machines, however, will further require a battery charging alternator stator, wiring harness, lighting and ignition switches, and contact breaker unit.

Caution :

The minimum size for the zener diode heatsink, when used with the 2MC capacitor system is 6 in. x 6 in. x $\frac{1}{8}$ in., aluminium or copper plate (or an alternative shape of equivalent total surface area, i.e. 72 sq.in.) The zener diode should be centrally mounted, flat on its base, **which must make direct metal-to-metal** contact with the plate. The assembly should be mounted on the machine so that it is in an unobstructed air stream, avoiding as far as is possible, dirt or water thrown up by the road wheels.

MOUNTING THE CAPACITOR

Two types of springs are available for mounting the capacitor, one for fixing underneath a vertically positioned bolt, the other for a horizontal fixing point. Whichever spring is used the capacitor **must** be positioned with its terminals pointing downwards.

To fit the spring to the capacitor, insert the capacitor into the widest coil end and push it down until the small coil at the other end locates in the groove on the capacitor body.

IDENTIFICATION OF CAPACITOR TERMINALS

Caution :

The 2MC is an electrolytic **polarised** unit and it may be irreparably damaged if incorrectly connected when fitting.

Looking at the terminal end of the unit it will be seen that there are two sizes of Lucas connectors. The small $\frac{3}{16}$ inch Lucas is the **positive** (earth) terminal, the rivet of which is marked with a spot of **red** paint. The double $\frac{1}{4}$ inch Lucas forms the **negative** terminal.

WIRING CONNECTIONS (see illustration)

The capacitor negative terminal **and** zener diode must be connected to the rectifier centre (d.c.) terminal or to any other convenient point on the Brown/White lead. (This would be the Brown/Purple, Brown/Blue or Purple lead on some models). They **must not under any circumstances** be connected to the ignition coil.

MODIFYING ALTERNATOR CABLE CONNECTIONS

The alternator should be reconnected to give full output in all lighting switch positions. This can be done by joining together the alternator external Green/Black and Green/Yellow or Mid-Green leads using a double snap-connector, Part No. 850641.

RUNNING WITH BATTERY DISCONNECTED

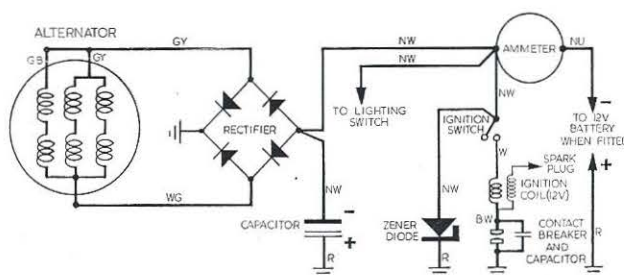
Before running the machine with battery disconnected it is **essential** that the **battery negative lead be taped up** to prevent it from shorting to earth (touching frame of machine).

Do not run the machine with the Zener Diode disconnected as the 2MC capacitor will be damaged due to excessive voltage.

PERIODIC CHECK FOR FAULTY CAPACITOR

A faulty capacitor may not be apparent when used with the battery connected in circuit. To prevent any inconvenience arising, periodically check that the unit is serviceable by disconnecting the battery to see if the machine will continue to start in the normal manner, with full lighting also available.

BASIC MOTORCYCLE CIRCUIT USING LARGE CAPACITOR FOR OPERATING WITH OR WITHOUT BATTERY



2MC Capacitor Part No. 54170009
Mounting Spring (Horizontal Bolt Fixing) .. 54483156
Mounting Spring (Vertical) .. 54483155

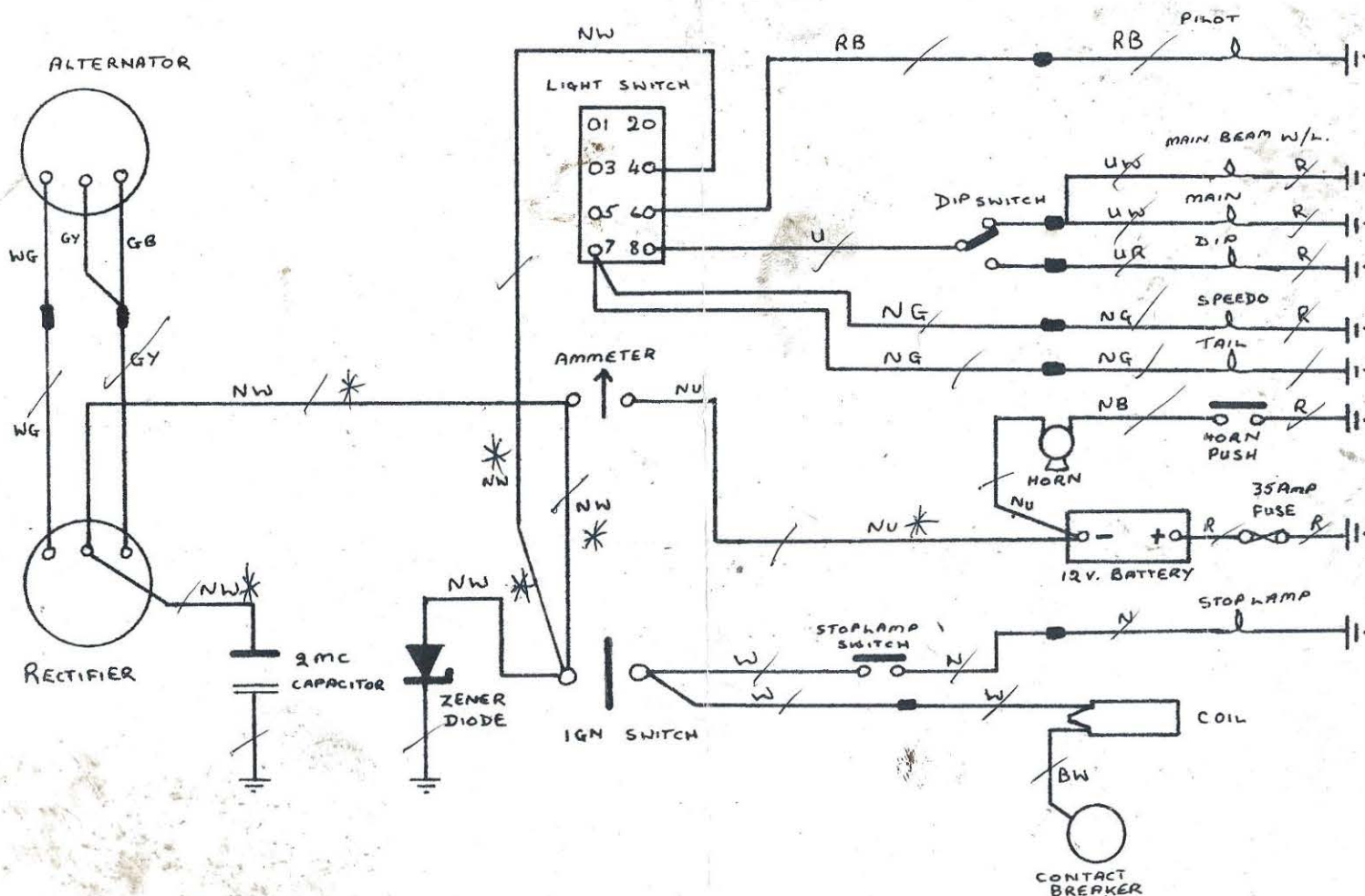
CABLE COLOUR GUIDE

G	Green
B	Black
R	Red
Y	Yellow
N	Brown
W	White
U	Blue

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LUCAS ELECTRICAL EQUIPMENT

M C
GENERAL



CABLE COLOUR CODE

B BLACK	P PURPLE	Y YELLOW
U BLUE	G GREEN	D DARK
N BROWN	S SLATE	L LIGHT
R RED	W WHITE	M MEDIUM

When a cable has two colour code letters, the first denotes the main colour and the second denotes the tracer colour.

TYPICAL 12 VOLT SYSTEM INCORPORATING
THE 2MC CAPACITOR,
LIGHTING SWITCH P/N°35710 & IGN SWITCH P/N°31899

WIRING DIAGRAM
No. SER10006

22/49

12/80