



RUNNING INSTRUCTIONS FOR

LUCAS

**DYNAMO LIGHTING AND
COIL IGNITION EQUIPMENT
FOR MOTOR-CYCLES**

JOSEPH LUCAS LTD., BIRMINGHAM.

Instruction Booklet No. 175.

JAMES

**RUNNING INSTRUCTIONS FOR
LUCAS DYNAMO LIGHTING
& COIL IGNITION EQUIPMENT
FOR MOTOR-CYCLES**

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CODES USED—A.B.C. (5TH & 6TH EDITIONS), BENTLEYS AND 2ND BENTLEYS.

RUNNING INSTRUCTIONS FOR LUCAS DYNAMO LIGHTING AND COIL IGNITION EQUIPMENT FOR MOTOR-CYCLES.

The equipment comprises a dynamo and battery which supply the current for the lamps and ignition coil.

With some equipments, the headlamp houses the lighting and charging switch and ammeter, while other equipments include an instrument panel which houses the switches, ignition warning lamp and ammeter along with the speedometer, oil gauge, etc. When an instrument panel is not fitted, a combined ignition switch and warning lamp unit is mounted on the handle-bars.

The contact breaker is driven either from an extension of the crankshaft, or with some sets it is combined with the dynamo and is driven off the dynamo shaft.

The dynamo houses the cut-out on its end bracket and is arranged so that when the lighting and charging switch is in the "C" position, it gives half its normal output and when the lamps are switched on ("H" or "L" position), it automatically gives its maximum output. This arrangement keeps the battery in good condition without the possibility of overcharging during daytime running.

The headlamp is fitted with a double filament bulb: One filament is arranged to be approximately at the focus of the reflector and gives the normal driving light, while the second one, mounted slightly above the other, gives a dipped, anti-dazzling beam for use when meeting traffic or driving in fog or mist. This anti-dazzle device is controlled by a switch mounted on the handle-bar or panel. A small pilot bulb is also provided for use when the machine is stationary or for town riding.

MAINTENANCE IN SERVICE.

The equipment should receive regular attention and where necessary, should be cleaned and adjusted in accordance with the instructions given below.

Before disconnecting any lead on the equipment or making any alteration to the wiring, disconnect the positive battery lead to avoid the possibility of short circuiting the battery.

BATTERY (Lead Acid Types).

Topping Up.

At least once a month, the vent plugs in the top of the battery should be removed, and the level of the acid solution examined. If necessary, distilled water, which can be obtained at all chemists and most garages, should be added to bring the level above the top of the plates, but well short of the bottom of the vent plugs. When examining the cells, do not hold a naked flame near the vents, as there is a danger of igniting the gas coming from the plates.

Storage.

If the equipment is laid by for several months, the battery must be given a small charge from a separate source of electrical energy about once a fortnight, in order to obviate any permanent sulphation of the plates. In no circumstances must the electrolyte be removed from the battery and the plates allowed to dry, as certain changes take place which result in loss of capacity.

Testing the Condition of the Battery.

It is advisable to complete the inspection by measuring the specific gravity of the acid, as this is a very good indication of the state of charge of the battery.

An instrument known as a hydrometer is employed for this purpose, and these can be bought at any of our Service Depots.

The specific gravity figures are :—

1.285—1.300 when fully charged, about 1.210 when half discharged, and about 1.150 when fully discharged.

LUCAS “ NI-FE ” STEEL-PLATE BATTERY.

For instructions on the latest Lucas “ Ni-Fe ” Steel-Plate Battery type C105 see Booklet No. 164, a copy of which can be obtained on application.

DYNAMO.

The only parts of the dynamo calling for occasional attention are the brushes and commutator which are readily accessible when the end cover is removed. The brushes should slide freely in their holders. They should be clean, and the face in contact with the commutator should appear uniformly polished. Dirty brushes may be cleaned with a cloth moistened with petrol. The commutator surface must be kept clean and free from oil or brush dust.

Lubrication.

The bearings are packed with grease before leaving the Works, therefore lubricators are not provided, as the machine will run indefinitely without attention. When the motor-cycle is taken down for a general overhaul, the dynamo should be dismantled for cleaning, adjustment, and repacking the bearings with high melting point grease.

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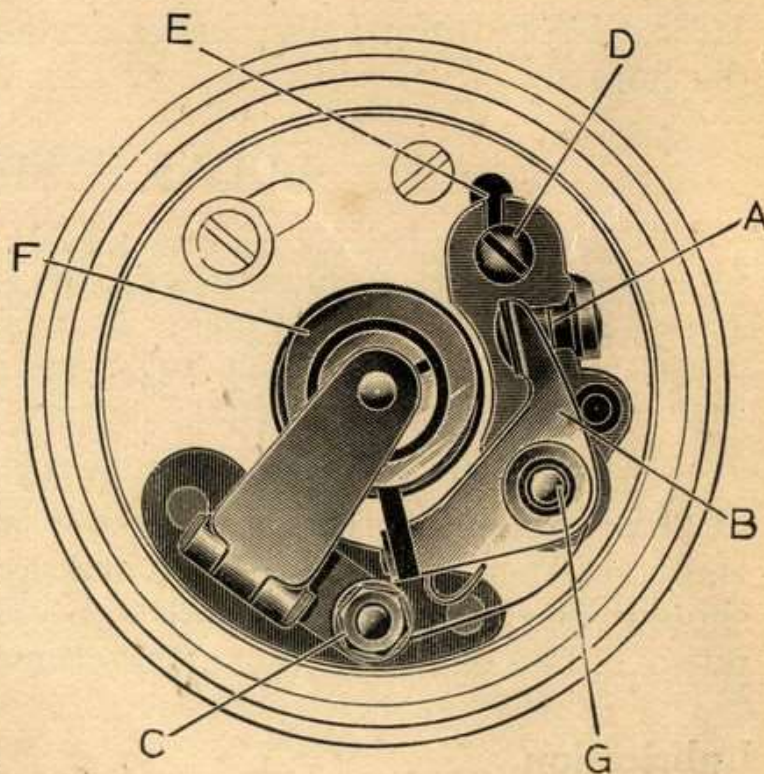
CONTACT BREAKER.

Cleaning.

Occasionally remove the moulded cover and examine the contact breaker; it is important that the contacts, "A" (Fig. 1) are kept clean and free from oil or grease. If they are burned or blackened, clean with very fine emery cloth and afterwards with a cloth moistened with petrol. If the contacts have been allowed to get into bad condition it is advisable to remove the rocker arm "B" from its housing in order to clean them properly. Remove the nut "C" and collar securing the spring, and then lift the rocker arm off its pin. After cleaning, fit the rocker arm, replace the collar and nut, and then check the contact breaker gap.

Adjustment.

The contact breaker gap is carefully set before leaving the Works and will only need adjustment at very long intervals. To test the contact breaker gap, slowly turn the engine over by hand until the contacts are seen to be fully opened. Now insert the gauge on the spanner in the gap; if it is correct the gauge should be a sliding fit. It is not advisable to alter the setting unless the gap varies considerably from the gauge. If adjustment is necessary, proceed as follows: When the contacts are fully opened, slacken the locking screw "D" so that the plate carrying



VIEW OF CONTACT BREAKER.

- | | |
|---------------|---------------------|
| A—Contacts. | D—Adjustment screw. |
| B—Rocker arm. | E—Slot. |
| C—Nut. | F—Rotating cam. |
| | G—Pivot. |

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When replacing the cover which houses the condenser, it is essential that the hinged spring blade on the contact breaker makes good contact with the condenser case. If the blade does not press firmly against the case there will be excessive sparking and burning away of the contacts.

the stationary contact can just be moved by inserting a screwdriver in the slot "E" in the plate. Adjust its position until the gap is set to the thickness of the gauge. Tighten the locking screw and re-check the gap. Finally replace the moulded cover; it is important that the cover securing clip should locate in the brass insert in the centre of the cover.

Lubrication.

About every 1,000 miles touch the surface of the steel cam "F" with a match previously dipped in oil. Do not give any excess.

Every 5,000 miles, place a single drop of oil on the pivot "G" on which the contact breaker works.

RENEWING HIGH TENSION CABLE.

When fitting new high tension cable to the coil, the end should be fitted with a special clip as fitted to the original lead, and pushed well home into the moulded terminal. When a screw-on type of terminal is provided, the cable wire is threaded through the terminal nut and brass ferrule, and the ends of the wire bent over the ferrule.

LAMPS.

Replacement of Bulbs and Focussing.

It is essential that correct replacement bulbs are used. Particulars of bulbs fitted in the lamps and instrument panel are as follows:—

For.	No.	Watts.	Remarks.
Headlamp (driving and dipped beam-light).	624 DVMC	24 & 24	Double filament gas filled bulb.
Headlamp (Pilot Light), Sidecar and Tail Lamps.	B.A.S. 8S	3	Centre contact vacuum bulbs.
Panel and Ignition Warning Lamps.	353 M.E.S.	1.05	Screw cap.

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Headlamp Types H52 and S51.

To remove the lamp front, press the front rim evenly and then rotate to the left (looking at the front of the lamp).

When removing the main bulb for replacement, screw it out two or three turns in an anti-clockwise direction. This will enable the bulb to be withdrawn easily. Care should be taken that the bulb is fitted the correct way round, i.e., with the dipped beam filament above the centre filament.

To enable the lamp to be focussed, the bulb holder is arranged so that it can be adjusted. By turning the bulb in a clockwise direction it is moved inwards, and by turning it in an anti-clockwise direction, it is moved outwards. The best position can be readily found by trial. The normal driving light should, of course, be switched on while focussing is being carried out.

In adjusting the bulb, it is important that it is given a complete turn at a time, so that the filaments are in the correct position; a spring stop is incorporated in the holder which indicates every time the bulb has been given a complete turn by a click action.

Headlamp Type M40C.

The lamp front is secured by a screw and can be removed together with reflector, leaving the bulbs readily accessible for replacement.

In order to focus the headlamp, the bulb-holder is arranged so that it can be adjusted. Remove the lamp front and reflector, and slacken the clamping lever which secures the bulb holder in position. Move the bulb and holder until the best results are obtained and finally tighten the clamping lever.

Headlamp Type MC140.

The lamp front is readily removed when the fixing screw is slackened. When replacing, locate top of rim first.

To focus the main bulb, remove reflector from its three supports and slacken the clamping clip on the bulb holder. This will enable the bulb holder to be moved backwards or forwards for the best adjustment. Tighten the clamping clip after the adjustment.

Side Car Lamp Type R370.

The front together with the reflector can be removed by slackening the fixing screw. The bulb holder can be withdrawn from the back of the reflector for bulb replacement. The bulb holder is provided with alternative locations for the bulb. Each position should be tried for the best result.

Tail Lamp MT110.

The rear portion of this lamp is removed for a bulb replacement by giving it half a turn to the left when it becomes detached from its fixing.

Ignition Warning Lamp.

The ignition warning lamp gives a red light when the engine is stationary and the ignition switched on, in order to warn the rider to switch off. It will also light up when the engine is idling. After long service, the warning lamp bulb may burn out. However, this will not affect the ignition, but it should be replaced as soon as possible so as to act as a safeguard to the battery.

To replace the bulb when mounted in a panel, remove the panel front, and unscrew the bulb out of its holder. In the case of the combined switch and lamp mounted on the handlebar with non-panel sets, turn the back portion of the unit to the left and withdraw it. Remove the switch and bulb holder and unscrew the bulb from the holder.

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Cleaning.

The lamp reflectors are protected by a transparent and colourless covering, which enables any accidental finger marks to be removed with a soft cloth or chamois leather, without affecting the surface of the reflector. On no account should any metal polishes be used on Lucas reflectors. Ebony black finishes can be polished with a good furniture or car polish. Chromium plated finishes only need wiping over with a damp cloth to remove dust or dirt.

LUCAS SERVICE DEPOTS

In the event of any difficulty with any part of the equipment, no matter how trivial, we shall be only too pleased to give every assistance possible. The best course to adopt is to call at the nearest Lucas Service Depot (the addresses of which are given below), when the equipment can be examined as a whole. The depots are not only at your disposal for repairs, overhauls and adjustments, but to give free advice. If it is necessary, however, to communicate, or when ordering spare parts, always give the type and number of the unit in question, the make and, if possible, the date of the Motor-Cycle on which it is fitted.

BELFAST	3/5, Calvin Street, Mount Pottinger
Telephone: BELFAST 7017.	Telegrams: "SERVDEP, BELFAST"
BIRMINGHAM	Great Hampton Street
Telephone: CENTRAL 8401 (10 lines)	Telegrams: "LUCAS, BIRMINGHAM"
BRIGHTON	Old Shoreham Road, Hove
Telephone: PRESTON 3001 (4 lines)	Telegrams: "LUSERV, BRIGHTON"
BRISTOL	345, Bath Road
Telephone: BRISTOL 8400 (4 lines)	Telegrams: "KINGLY, BRISTOL"
CARDIFF	54a, Penarth Road
Telephone: CARDIFF 4603 (4 lines)	Telegrams: "LUCAS, CARDIFF"
COVENTRY	Priory Street
Telephone: COVENTRY 3068 & 3841	Telegrams: "LUCAS, COVENTRY"
DUBLIN	Portland Street North, North Circular Road
Telephone: DRUMCONDRA 434 (6 lines)	Telegrams: "LUSERV, DUBLIN"
EDINBURGH	32, Stevenson Road, Gorgie
Telephone: EDINBURGH 62921 (4 lines)	Telegrams: "LUSERV, EDINBURGH"
GLASGOW	227/229, St. George's Road
Telephone: DOUGLAS 3075 (5 lines)	Telegrams: "LUCAS, GLASGOW"
LEEDS	64, Roseville Road
Telephone: LEEDS 28591 (5 lines)	Telegrams: "LUSERDEP, LEEDS"
LIVERPOOL	450/456, Edge Lane
Telephone: OLD SWAN 1408 (3 lines)	Telegrams: "LUSERV, LIVERPOOL"
LONDON	Dordrecht Road, Acton Vale, W.3
Telephone: SHEPHERD'S BUSH 3160 (10 lines)	Telegrams: "DYNOMAGNA, ACT, LONDON"
LONDON	759, High Road, Leyton, E.10
Telephone: WALTHAMSTOW 2161 (3 lines)	Telegrams: "LUSERDEP, WALT, LONDON"
LONDON	155, Merton Road, Wandsworth, S.W.18
Telephone: PUTNEY 5131 (6 lines) & 5501.	Telegrams: "LUSERV, WANDS, LONDON"
MANCHESTER	Talbot Road, Stretford
Telephone: LONGFORD 1101 (5 lines)	Telegrams: "LUCAS, STRETFORD"
NEWCASTLE-ON-TYNE	64/66, St. Mary's Place
Telephone: CENTRAL 25571 (3 lines)	Telegrams: "MOTOLITE, NEWCASTLE-ON-TYNE"



SPECIFICATION

DYNAMO WITH CONTACT BREAKER, TYPE E3B.

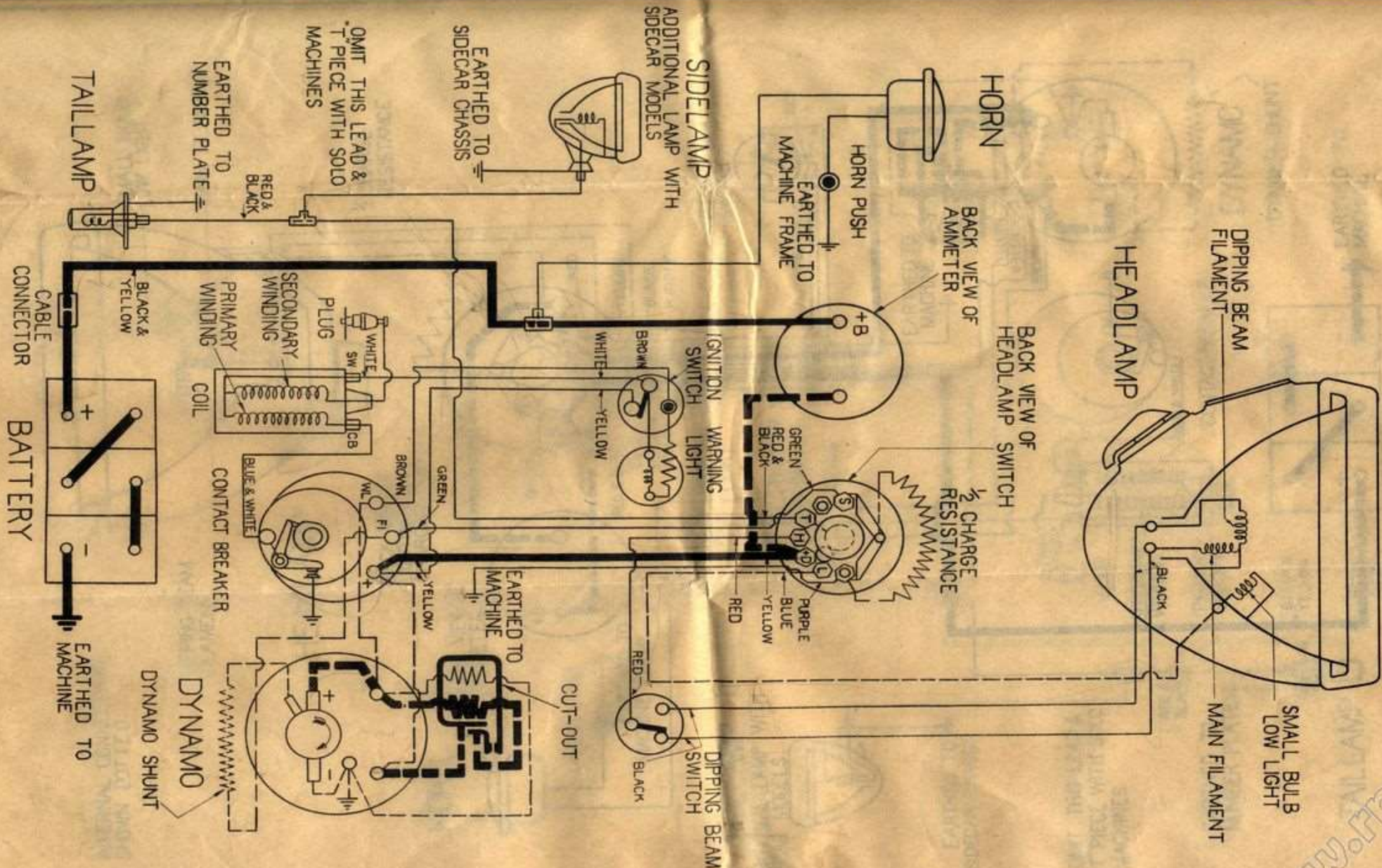
HEADLAMP M40C.

WIRING DIAGRAM FOR

LUCAS DYNAMO LIGHTING & COIL IGNITION EQUIPMENT

AS FITTED TO JAMES No. C8 247 c.c. TWO-STROKE MOTOR-CYCLES

DR'G. No. MA253-A



Internal connections are shown dotted.

NOTE. The cable ends are identified by means of coloured sleeves, as indicated on diagram.

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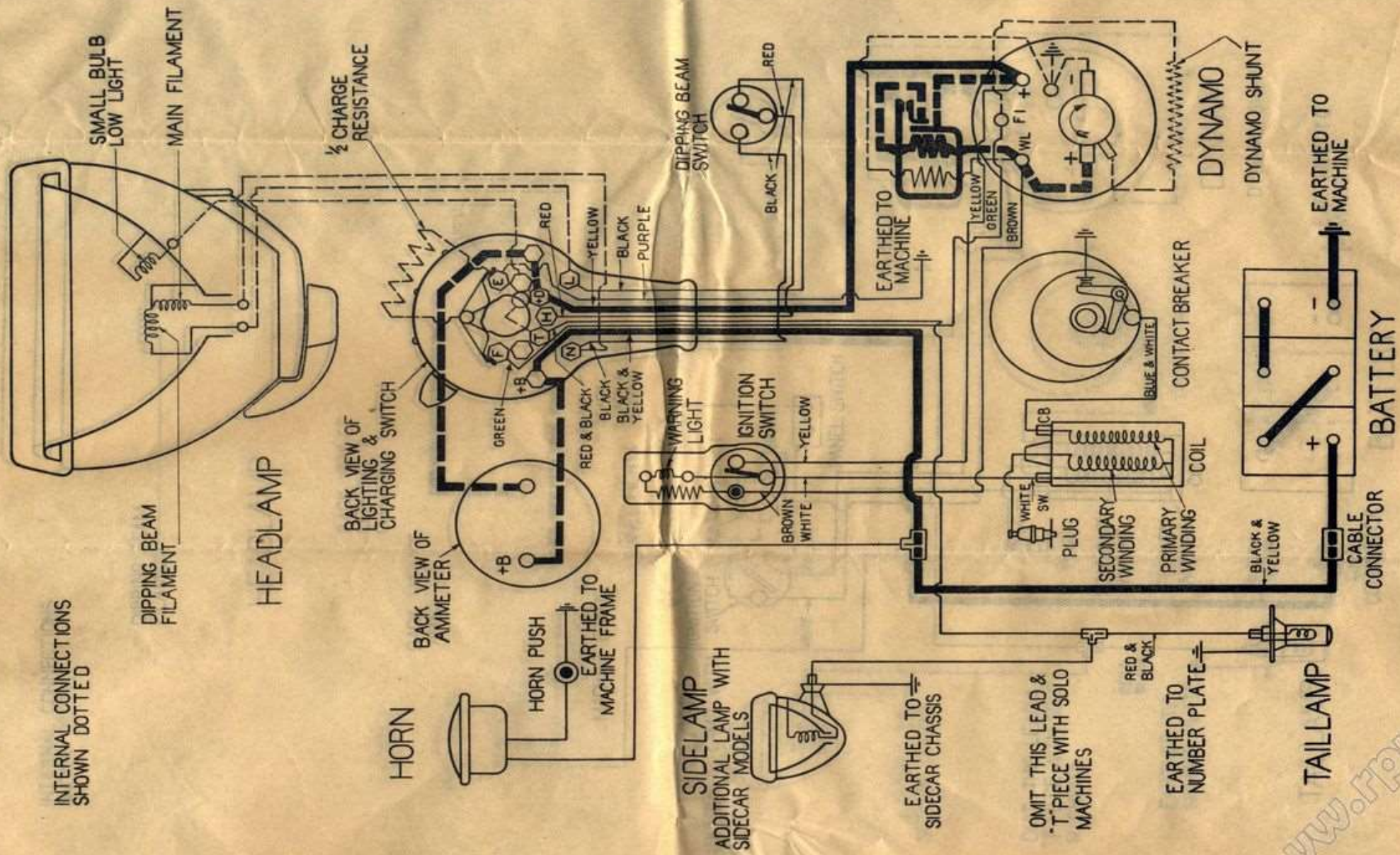
SPECIFICATION

DYNAMO TYPE E3D.
CONTACT BREAKER TYPE CA1.
HEADLAMP TYPE H52.

WIRING DIAGRAM FOR
LUCAS DYNAMO LIGHTING & COIL IGNITION EQUIPMENT

(TYPE WITHOUT INSTRUMENT PANEL)
AS FITTED TO JAMES MOTOR-CYCLES

DR'G. No. MA263



SPECIFICATION

DYNAMO TYPE E3D.
CONTACT BREAKER TYPE CA1.
INSTRUMENT PANEL.
HEADLAMP TYPE H52.

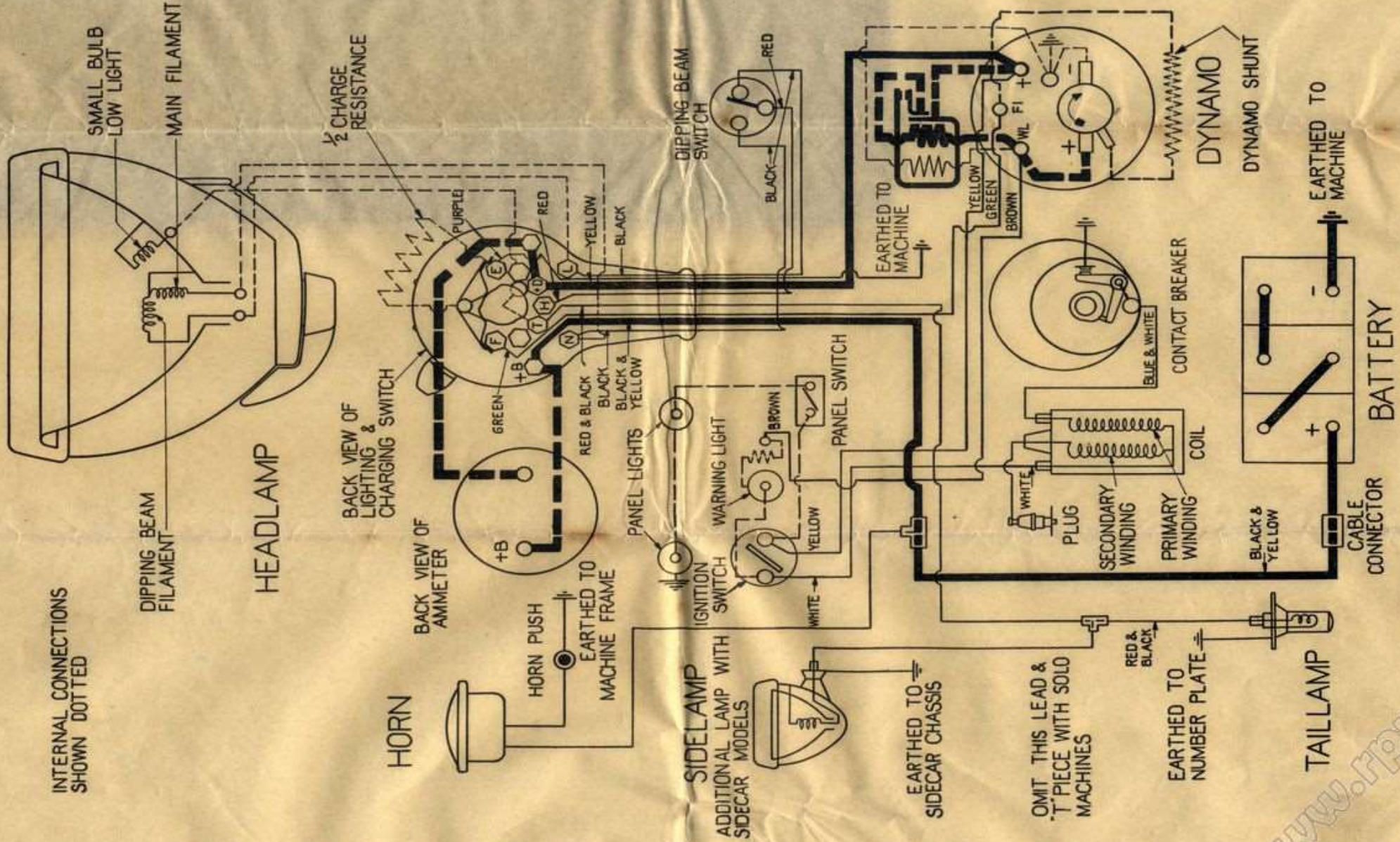
WIRING DIAGRAM FOR

LUCAS DYNAMO LIGHTING & COIL IGNITION EQUIPMENT

(TYPE WITH INSTRUMENT PANEL)

AS FITTED TO JAMES MOTOR-CYCLES

DR'G. No. MA256



INTERNAL CONNECTIONS SHOWN DOTTED

HEADLAMP

HORN

HORN PUSH
EARTHED TO MACHINE FRAME

SIDELAMP

ADDITIONAL LAMP WITH SIDECAR MODELS

EARTHED TO SIDECAR CHASSIS

OMIT THIS LEAD & T-PIECE WITH SOLO MACHINES

EARTHED TO NUMBER PLATE

TAILLAMP

1/2 CHARGE RESISTANCE

DIPPING BEAM SWITCH

DYNAMO
DYNAMO SHUNT

EARTHED TO MACHINE

BATTERY

CABLE CONNECTOR

CONTACT BREAKER

COIL
PRIMARY WINDING
SECONDARY WINDING
PLUG

BLACK & YELLOW

WHITE

BLUE & WHITE

EARTHED TO MACHINE

BROWN

GREEN

YELLOW

WL

FI

RED

BLACK

PANEL SWITCH

WARNING LIGHT

PANEL LIGHTS

WHITE

YELLOW

BROWN

RED & BLACK

BLACK & YELLOW

BLACK & YELLOW

GREEN

+B

PURPLE

RED

YELLOW

BLACK

