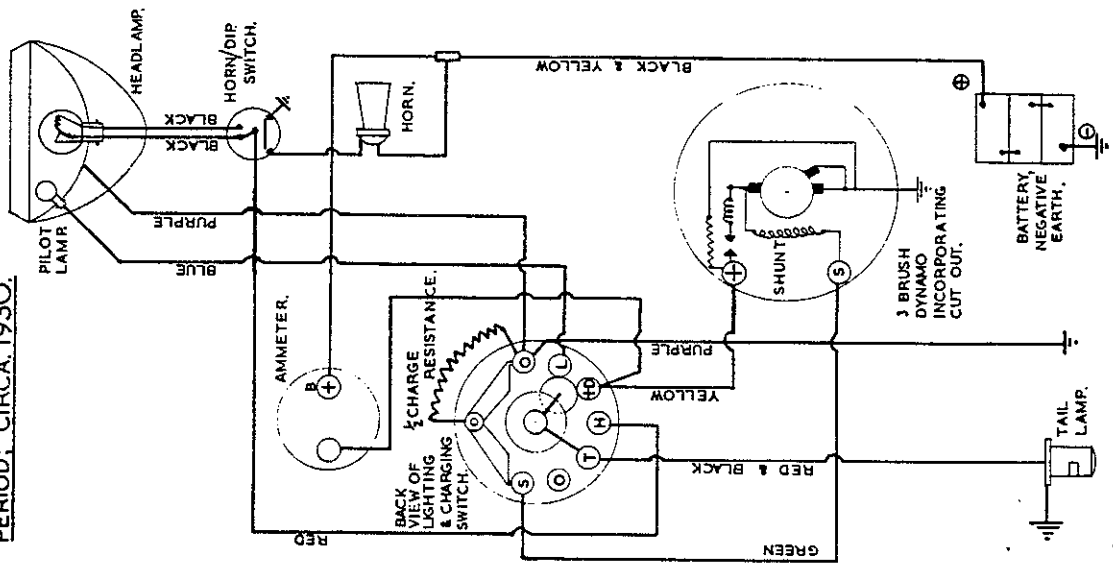


## 5.1 Wiring Diagrams and associated Notes

WIRING DIAGRAMS FOR SCOTT MOTORCYCLES

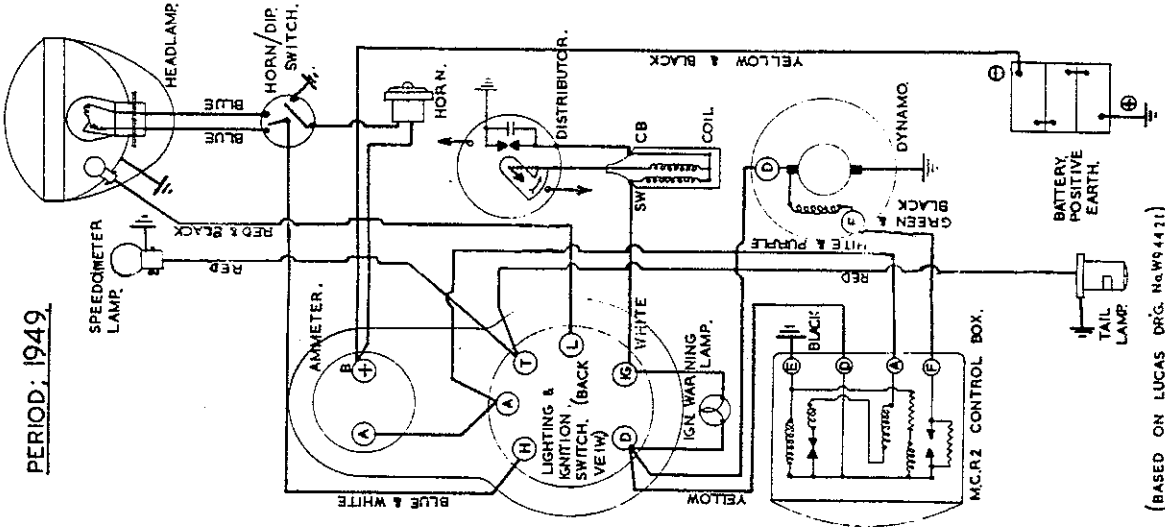
DRAWN: HC-HARRISON,  
DATE: 17-5-68.

PERIOD: CIRCA 1930.



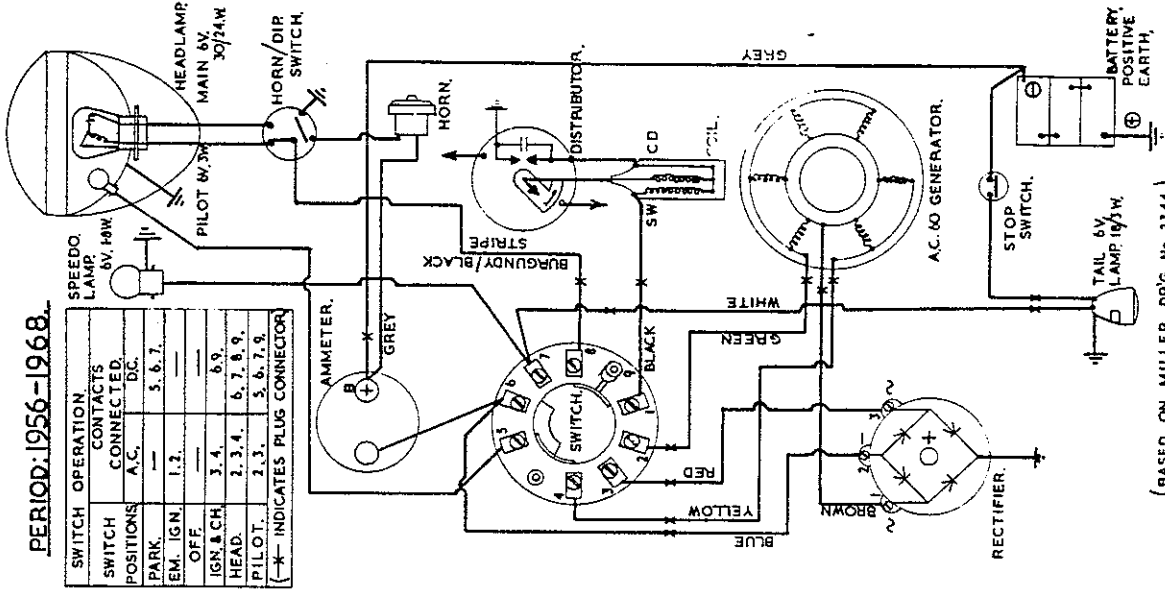
(BASED ON LUCAS DRG. No. MA259.)

PERIOD: 1949.



(BASED ON LUCAS DRG. No. W94421.)

PERIOD: 1956-1968.



(BASED ON MILLER DRG. No. 2144.)

SWITCH OPERATION	CONTACTS CONNECTED
PARK.	A.C.
EM. IGN.	D.C.
OFF.	5, 6, 7.
IGN. & CH.	3, 4.
HEAD.	2, 3, 4, 6, 7, 8, 9.
PILOT.	2, 3, 5, 6, 7, 9.

(\* INDICATES PLUG CONNECTOR)

# LUCAS

*Quality*

# EQUIPMENT

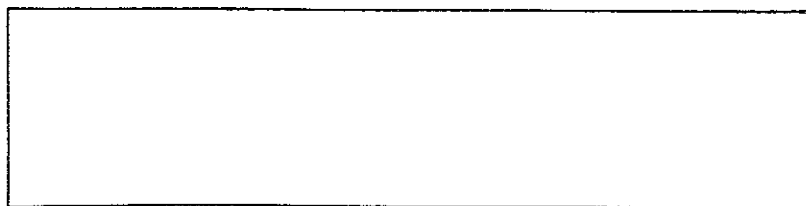


MOTOR-CYCLE EQUIPMENT DETAILS  
AND SPARE PARTS FOR

## SCOTT

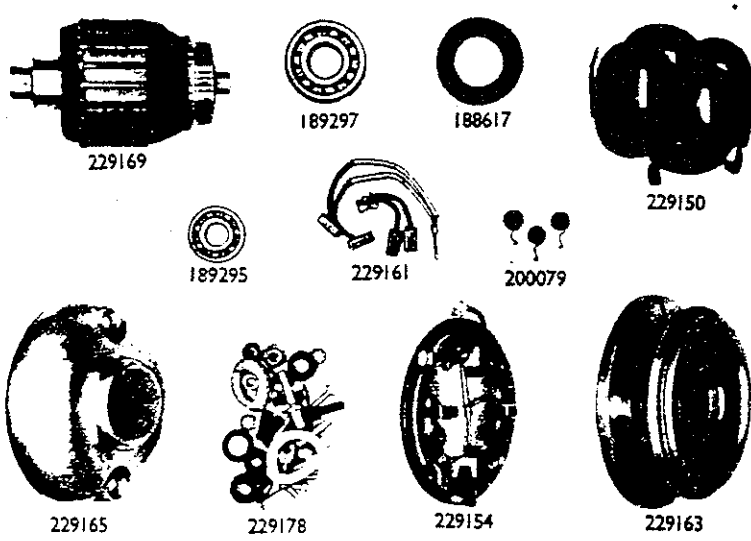
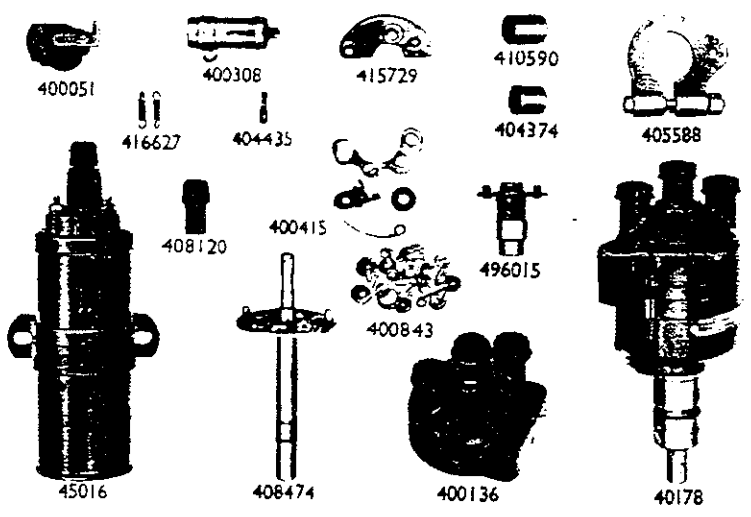
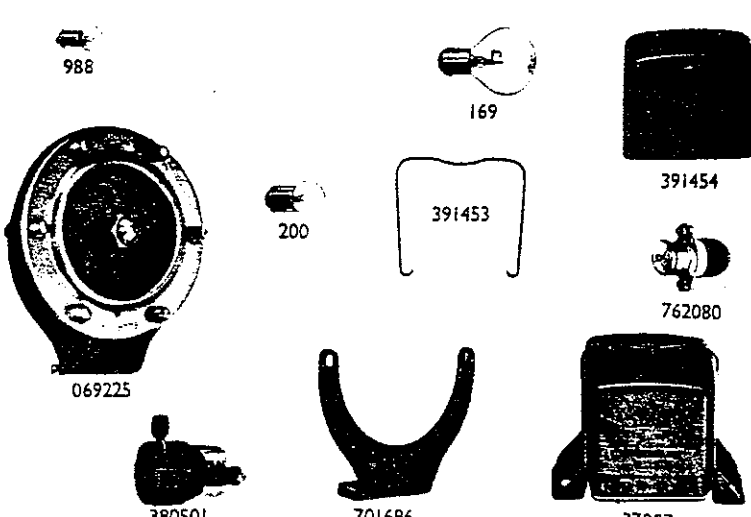
596 c.c. FLYING SQUIRREL

1950



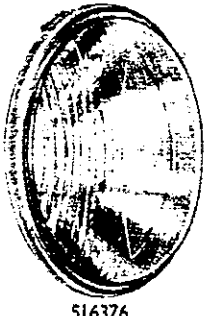

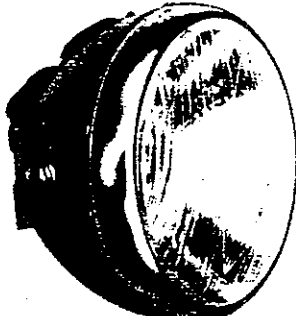







JOSEPH LUCAS LTD · BIRMINGHAM 19 · ENGLAND

# LUCAS SPARE PARTS

ILLUSTRATION	DESCRIPTION OF PART	ORDERING No.
	<b>DYNAMO, MC45L</b> ... .. <b>20152</b> Cover, commutator end ... .. 229165 Brush set ... .. 229161 Bracket, commutator end ... .. 229154 Bearing, commutator end ... .. 189295 Oil seal ... .. 188617 Springs, set, brush ... .. 200079 Bearing, drive end ... .. 189297 Bracket, drive end ... .. 229163 Armature ... .. 229169 Coils, field ... .. 229150 Sundry parts, set ... .. 229178	
	<b>COIL, Ignition, 6Q6</b> ... .. <b>45016</b> Nut, H.T. terminal ... .. 408120  <b>DISTRIBUTOR, DKX2A</b> ... .. <b>40178</b> Plate ... .. 405588 Cover ... .. 400136 Brush and spring ... .. 404435 Rotor arm ... .. 400051 Contact set ... .. 400415 Condenser ... .. 400308 Cam ... .. 496015 Springs, auto advance ... .. 416627 Weights, auto advance ... .. 415729 Shaft and action plate ... .. 408474 Bearing bush, top ... .. 404374 Bearing bush, bottom ... .. 410590 Sundry parts, set ... .. 400843	
	<b>HORN, HFI234</b> ... .. <b>069225</b> Bracket ... .. 701686  <b>HORN PUSH, 4A</b> ... .. <b>762080</b>  <b>REGULATOR, MCR2</b> ... .. <b>37097</b> Cover ... .. 391454 Clip ... .. 391453  <b>SWITCH, Dipper, No. 99</b> ... .. <b>380501</b>  <b>BULBS</b> Headlamp ... .. 169 Headlamp, pilot ... .. 988 Tail lamp ... .. 200	



# LUCAS SPARE PARTS

ILLUSTRATION	DESCRIPTION OF PART	ORDERING No.
 516376	<b>HEADLAMP, SSU700P</b> ... ..	<b>50800</b>
 553248	Rim ... ..	553248
 50800	Wire, light unit fixing ... ..	504665
	Panel ... ..	30909
	Switch ... ..	344669
	Ammeter ... ..	36082
	Unit, light ... ..	516376
	Bulb holder, double contact ... ..	504801
	Backshell, with bulb holder ... ..	516368
 30909	<b>LAMP, TAIL, MT211</b> ... ..	<b>53056</b>
 504665	Cover assembly ... ..	526232
 516368	Flange assembly ... ..	526239
 504801		
 526239		
 526232		
 53056		



# LUCAS

## ORIGINAL EQUIPMENT

### EQUIPMENT SPECIFICATION

UNIT	MODEL & TYPE	SERVICE No.	SERVICED BY	REMARKS
DYNAMO ... ..	MC45L	20152A	20152A	Clockwise. A number of parts for this machine are supplied by Scott
REGULATOR ... ..	MCR2	37097A	37097A	
DISTRIBUTOR ... ..	DKX2A	40178D	40178D	Clockwise
LAMP, HEAD ... ..	SSU700P	50800D	50800D	
SWITCH, DIPPER ... ..	No. 99	380501	380501	
HORN ... ..	HF1234	70039A	069225F	
LAMP, TAIL ... ..	MT211	53056A	53056A	
HORN PUSH ... ..	4A	762080	762080	
COIL ... ..	6Q6	45016A	45016A	
BATTERY CARRIER ... ..	613/AV	585016	585016	
CABLES ... ..		994421	994421	



# SERVICE NOTES AND TEST DATA

## 6 VOLT EQUIPMENT

### DYNAMO

Two-pole design; compensated voltage control; clockwise rotation viewed from driving end.

Crossed connections will cause serious damage to the regulator. Connect lead with YELLOW IDENTITY TAG to main terminal, and GREEN AND BLACK TRACER CABLE to field terminal.

#### TEST DATA

Dynamo cold:

Cutting-in speed 750—850 r.p.m. at 6.5 dynamo volts.

Output 10 amps. at 1,250—1,400 r.p.m. at 7.0 dynamo volts, taken on 0.7 ohm resistance load without regulator. (Resistance must be able to carry 12 amps. without overheating).

Brush tension 16—20 ozs.

Field resistance 2.4—2.6 ohms.

### DISTRIBUTOR

Clockwise rotation viewed from driving end.

Contact breaker gap .010"—.012".

Contact breaker spring tension 20—24 ozs. measured at contacts.

Condenser capacity .18—.23 microfarad.

#### TEST DATA

Centrifugal advance commences at 300—500 r.p.m. (distributor) and gives maximum advance of 17°—20° at 2,900 r.p.m.

### IGNITION COIL

Current consumption: 1.0 amp. (approx.) running.  
4.0 amps. (approx.) stall.

Coil moulding must be kept clean.

### CONTROL BOX

Houses cut-out and dynamo voltage regulator.

#### TEST DATA

(a) Cut-out.      Cut-in voltage    6.3—6.7 volts.  
                         Drop-off voltage    4.5—5.0 volts.

- (b) Regulator. Setting at 10°C. ( 50°F.) 7.8—8.2 volts.  
Setting at 20°C. ( 68°F.) 7.8—8.2 volts.  
Setting at 30°C. ( 86°F.) 7.7—8.15 volts.  
Setting at 40°C. (104°F.) 7.6—8.1 volts.

## **HEADLAMP**

Correct lamp setting is important to prevent dazzle.

## **HORN**

High-frequency type.

Current consumption 3.5—4.0 amps. (approx.).

## **BATTERY**

Capacity 12 ampere hours at 10 hour rate.

The importance of carefully carrying out the initial charging cannot be overstressed as non-adherence to correct initial charging procedure will result in a considerably shortened service life of the battery.

**First Charge:** Some batteries have seals in the filler plug apertures and these should be carefully broken. Half fill each cell with dilute sulphuric acid of specific gravity 1.270. Allow battery to stand at least six hours and then add further sulphuric acid to bring the level in each cell to the top of the separators. Stand for a further two hours before applying the initial charge.

Initial charge rate 0.8 amperes for 50 hours.

Correct the specific gravity of electrolyte to 1.280—1.300 at completion of charge when voltage and specific gravity remain constant.

The figures given are for climates where temperature is normally below 80°F. (27°C.).

For sub-tropical climates where temperatures range between 80°—100°F. (27°—38°C.) the appropriate figures are: Filling, 1.245; Fully charged, 1.250—1.270.

For tropical climates where temperatures are over 100°F. (38°C.) the figures are: Filling, 1.220; Fully charged, 1.220—1.240.

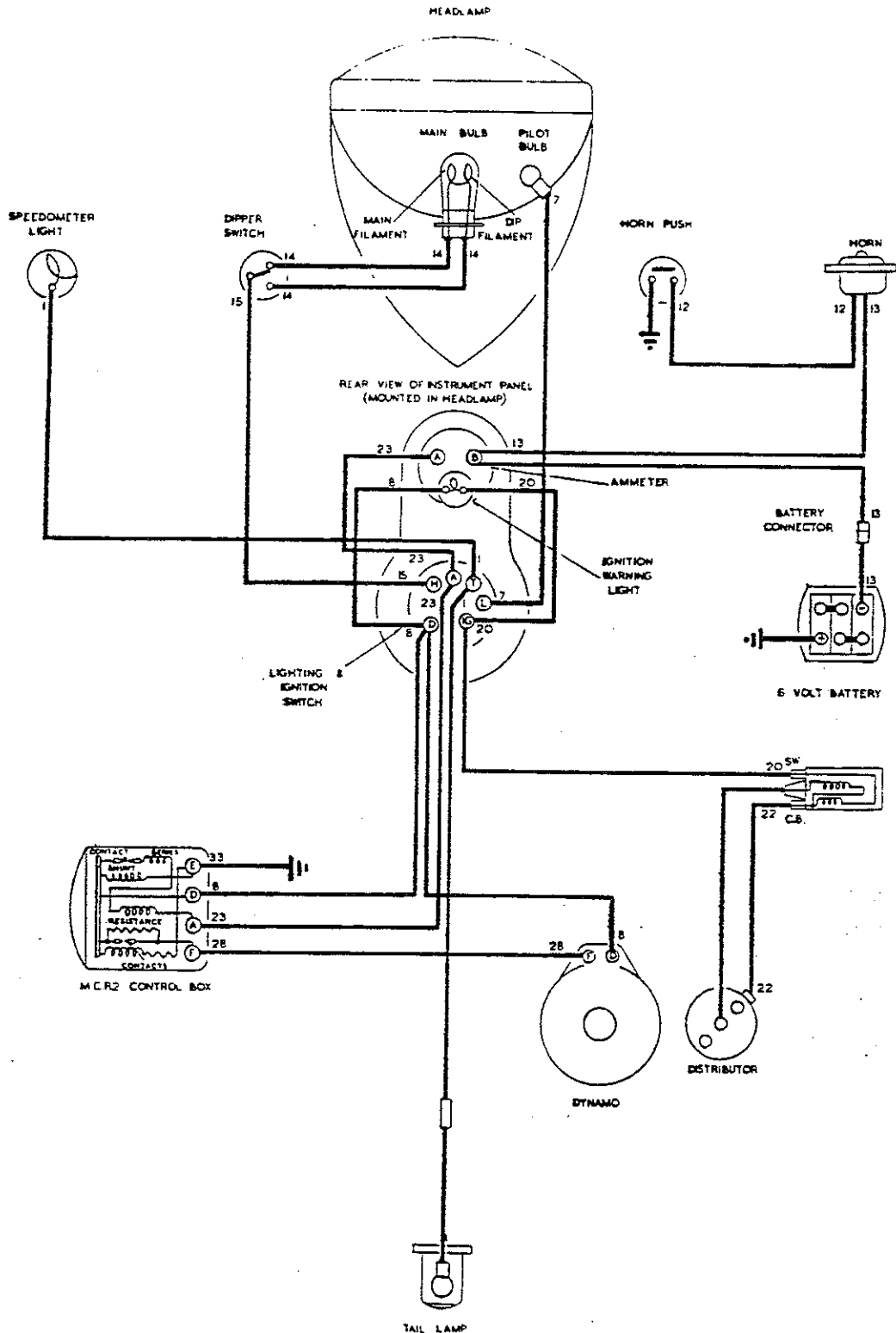
In service, the battery should be kept topped up to the level of the separators, using distilled water only, and terminals should be kept clean and connectors tight.



# LUCAS ELECTRICAL EQUIPMENT

# SCOTT

596 c.c. FLYING SQUIRREL



### KEY TO CABLE COLOURS

1 RED	12 YELLOW & PURPLE	23 WHITE & PURPLE
2 RED & YELLOW	13 YELLOW & BLACK	24 WHITE & BLACK
3 RED & BLUE	14 BLUE	25 GREEN
4 RED & WHITE	15 BLUE & WHITE	26 GREEN & BROWN
5 RED & GREEN	16 BLUE & GREEN	27 GREEN & PURPLE
6 RED & BROWN	17 BLUE & BROWN	28 GREEN & BLACK
7 RED & BLACK	18 BLUE & PURPLE	29 BROWN
8 YELLOW	19 BLUE & BLACK	30 BROWN & PURPLE
9 YELLOW & BLUE	20 WHITE	31 PURPLE
10 YELLOW & GREEN	21 WHITE & GREEN	32 PURPLE & BLACK
11 YELLOW & BROWN	22 WHITE & BROWN	33 BLACK

**WIRING DIAGRAM**  
**No. W94421**  
**6-VOLT**

### MODERN SCOTT ELECTRICS

The Generator fitted to the 596 c.c. Scott Flying Squirrel is a Miller 60 watt alternator driven by a fly crank through the nearside crankcase door. The rotor incorporates six powerful permanent magnets arranged with poles alternately north and south, and the stator consists of six coils carried on a laminated core plate. Rotation of the shaft produces an alternating current in the stator coils, which are connected to a full wave selenium rectifier.

Control of the circuit is by means of a 6-position switch located in the headlamp shell with the ammeter.

#### SWITCH POSITIONS

The switch has six positions as follows:—

(1) OFF. Battery and Generator are both disconnected.

(2) IGNITION AND CHARGE. Two of the generator coils are connected to the rectifier which produces direct current to charge the battery. Current passes through the coil and contact breaker to provide ignition. Rate of charge at normal speeds is about 2 amps, slightly increasing if the battery is in a low state of charge. Speed in top gear to balance ignition load is approximately 15 m.p.h.

(3) HEAD. All six generator coils are connected to the rectifier which charges the battery and supplies current for the head, tail and speedometer lights and for the ignition. Charge rate is about two amps.

(4) PILOT. Four generator coils are connected to the rectifier which charges the battery and supplies current for the pilot, tail and speedometer lights and for the ignition. Charge rate is rather higher than in switch position (3), being normally about 3 to 4 amps.

(5) EMERGENCY START. Four of the generator coils are connected direct to the ignition coil and contact breaker. The return circuit from "earth" to the other end of the coils is either through one side of the rectifier or through the battery depending on the polarity at the moment of opening of the contact points. Owing to the automatic advance mechanism, the position of the poles and polarity change between kickstarting and normal running speeds. In order to ensure ability to start and run with the switch in the emergency start position, it is therefore necessary to have the battery in the circuit (or earth the lead from the ammeter to the negative battery terminal) although ability to start in this position does not depend on the battery delivery current.

(6) PARKING. Pilot light, speedometer light and tail light are connected to the battery. There is no connection to the ignition coil, and the engine cannot be started or run with the switch in this position.

#### HEADLAMP

The following are the correct type of bulbs to use:—

Headlamp main bulbs: 6 volt 30/24 watt pre-focus.  
Headlamp main bulbs: 6 volt 30/24 watt pre-focus.  
Pilot bulb: 6 volt 5 amp MES Gas-filled.  
Speedometer bulb: 6 volt 3 watt.  
Tail lamp: 6 volt 6 watt SCC.

STOP/TAIL LAMP 38.ET (When fitted).

Bulbs 6 volt 18/6 watt.

#### WIRING

Should it be necessary to disconnect any of the cables, it is very important that they should be re-connected strictly in accordance with the wiring diagram.

#### DISTRIBUTOR

This unit is fitted with an Advance and Retard mechanism giving 25 degrees of advance at 2,500 r.p.m. It is important that at all times the contact breaker points (contacts) should be free from oil or grease, as the presence of this will cause the contacts to become burned or blackened. To clean, use a piece of fine emery cloth and after use wipe with a petrol-moistened rag. Do not leave any lint on the contacts.

#### CONTACT BREAKER SETTING

The contact breaker gap is set accurately before leaving the works at .018 ins. but occasionally adjustment should be made to maintain this. Adjustment is necessary owing to the wear of the lever heel. This wear is rather more during the first 500 miles than it will be after this mileage has been attained. It is therefore advisable to check the gap at 500 miles service, and then again at 1,500 miles. The method of adjustment is as follows:

The rotor should be removed and the engine turned slowly until the points are fully opened; then loosen the adjuster contact plate fixing screw just sufficient to allow the contact plate to move with pressure from a screwdriver to the correct position of .018 ins. between the contacts, then tighten the fixing screw.

#### LUBRICATION

Occasionally oil the cam lubricating wick, which is visible after removing the distributor cover, with a few drops of oil, and also the cam spindle wick which is located underneath the rotor.

#### BATTERY

The battery should be topped up with distilled water according to the maker's instructions.