

# BSA SERVICE SHEET No. 813A

Reprinted Sept. 1960

## C12, A Group and M21 Models

### ADJUSTING THE CHARGING RATE OF LUCAS ALTERNATORS ON RADIO EQUIPPED MACHINES.

#### GENERAL.

The running conditions of radio equipped machines vary from long distance daylight patrol work with occasional use of the radio, to slow running convoy or short distance local work involving considerable use of the radio and possibly of the lights as well. There is a heavy load on the battery while transmitting, and the receiver may be left switched on for long periods representing a constant drain on the battery.

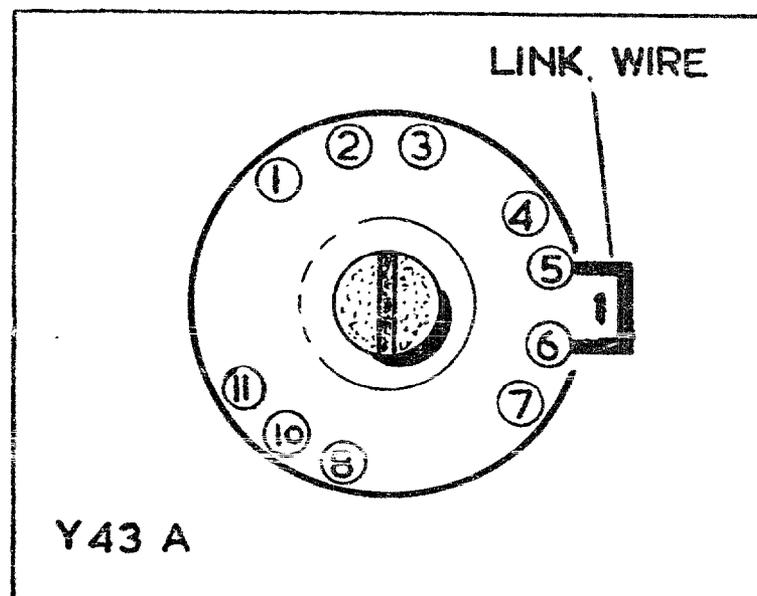
Obviously, the charging rates necessary to balance these varying loads must differ widely. Lucas alternators are designed to provide three alternative charge-rates which are selected by inter-changing the wiring connections.

The adjustments are simple to perform but the responsibility for making them should rest with the Maintenance Personnel who, being familiar with the running conditions and the state of charge of the batteries, are best placed to judge when any alteration is necessary. In the event of doubt, advice should be sought from Lucas Service Organisation.

It must be emphasised that battery charging from an external source may become necessary if a large proportion of night riding with the radio in use, or transmitting for long periods with the engine stopped is involved.

The C12 is fitted with a Model RM 13/15 Alternator in conjunction with a PRS 8 Lighting and Ignition Switch.

By connecting or removing a wire link between switch terminals 5 and 6, two intermediate charge-rates can be obtained in addition to the three already mentioned.



**B.S.A. Service Sheet No. 813A (continued)**

With the link in place the switch automatically increases the alternator output in the "Pilot" and "Head" positions. When the link is removed, the output increases only in the "Head" position.

If the alternator wiring is connected as in Stage 3 maximum output is developed in all switch positions.

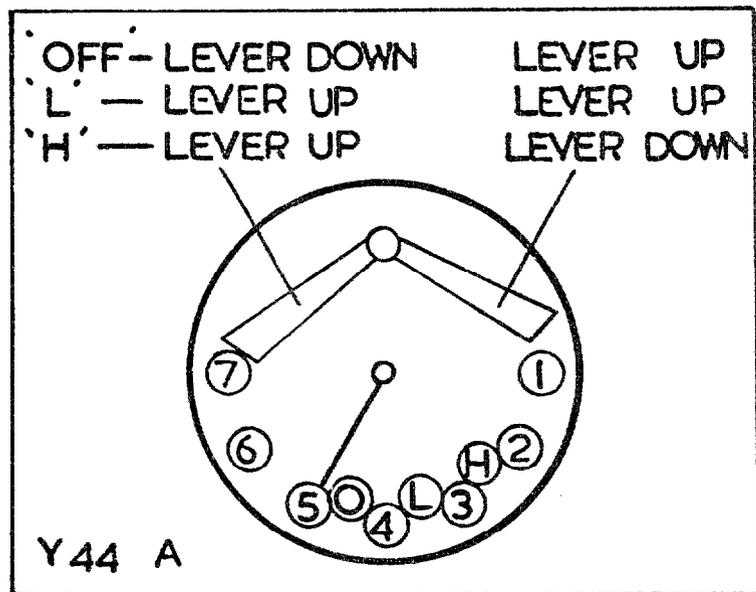
**A GROUP and M21 MODELS.**

These machines are fitted with a Model RM 15 Alternator as well as the normal 60w., E3L Dynamo, and have a Model U39 Lighting Switch. This is similar to the switch fitted to standard models, but it is provided with two toggle arms to control the alternator output in the various switch positions.

As on C12, Stage 3, connections give maximum alternator output in all switch positions.

Current for all normal purposes is supplied by the alternator. This is supplemented by the dynamo as necessary when a heavy load is placed on the system. For servicing and testing purposes the two instruments should be dealt with separately, one being disconnected while testing the other.

When the radio is out of use for a prolonged period, it is important that the light green wire from the alternator is disconnected and the end taped up, otherwise the battery will become over-charged.



**TESTING.**

As the radio is connected directly across the battery, the current taken will not be shown on the ammeter. To check whether the charging output is sufficient to balance the load, a second ammeter must be inserted in the cable between battery and radio. The reading on this ammeter must then be deducted from the charge shown on the ammeter fitted to the machine.

**DAYTIME CHARGING RATES.**

**Alternator Cable Connections—Stage 1.**

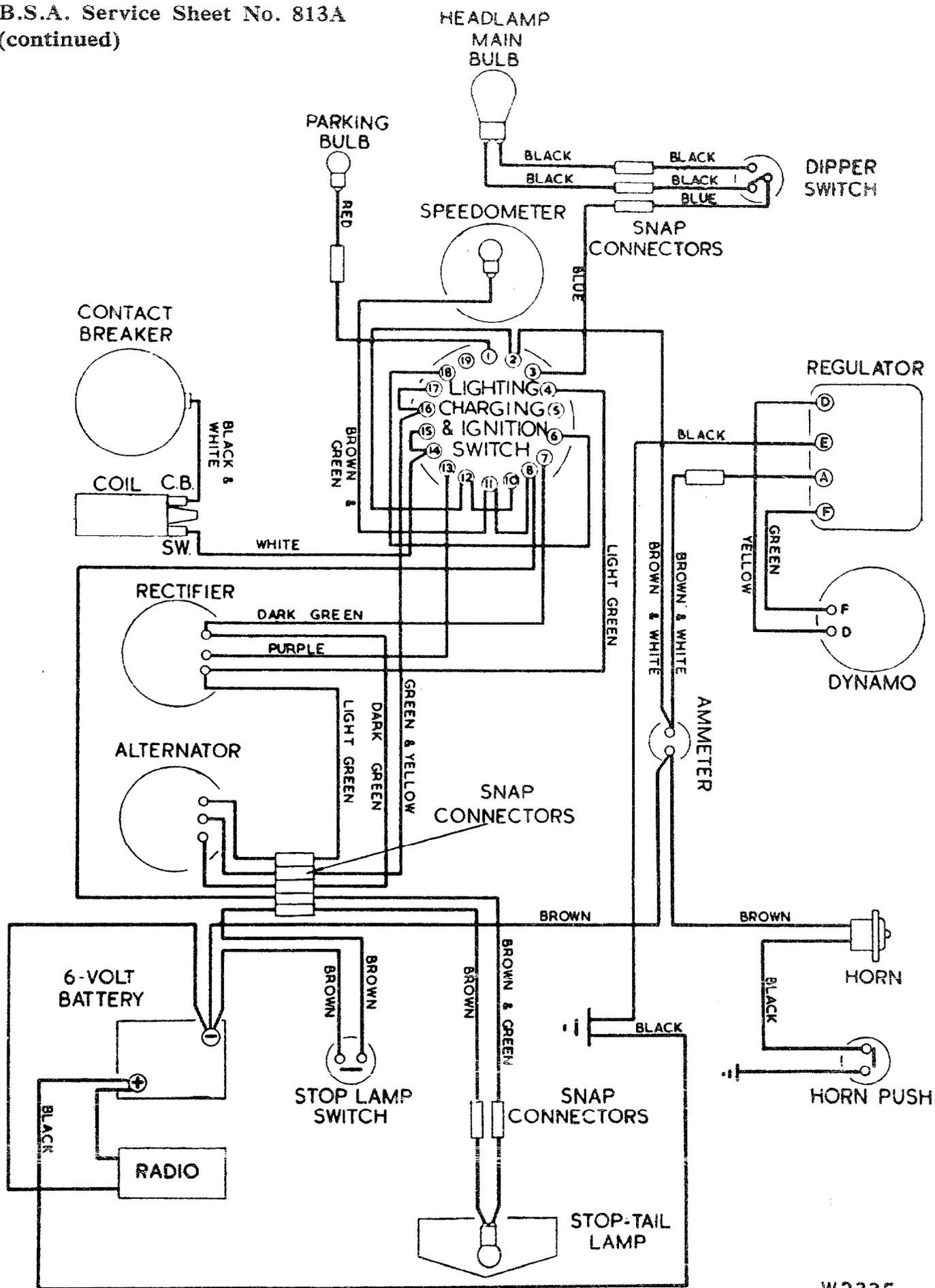
				OUTPUT IN AMPERES	
				2,000 r.p.m.	5,000 r.p.m.
C12 (with terminals 5 and 6 linked)	...	...	...	2.4 min.	2.75 min.
C12 (with terminals 5 and 6 not linked)	...	...	...	3.75 min.	4.5 min.
A Group and M21	...	...	...	3.75 min.	4.5 min.

**Alternator Cable Connections—Stage 2.**

				OUTPUT IN AMPERES	
				2,000 r.p.m.	5,000 r.p.m.
C12 (with terminals 5 and 6 linked)	...	...	...	5.25 min.	6.25 min.
C12 (with terminals 5 and 6 not linked)	...	...	...	6.5 min.	7.5 min.
A Group and M21	...	...	...	6.5 min.	7.5 min.

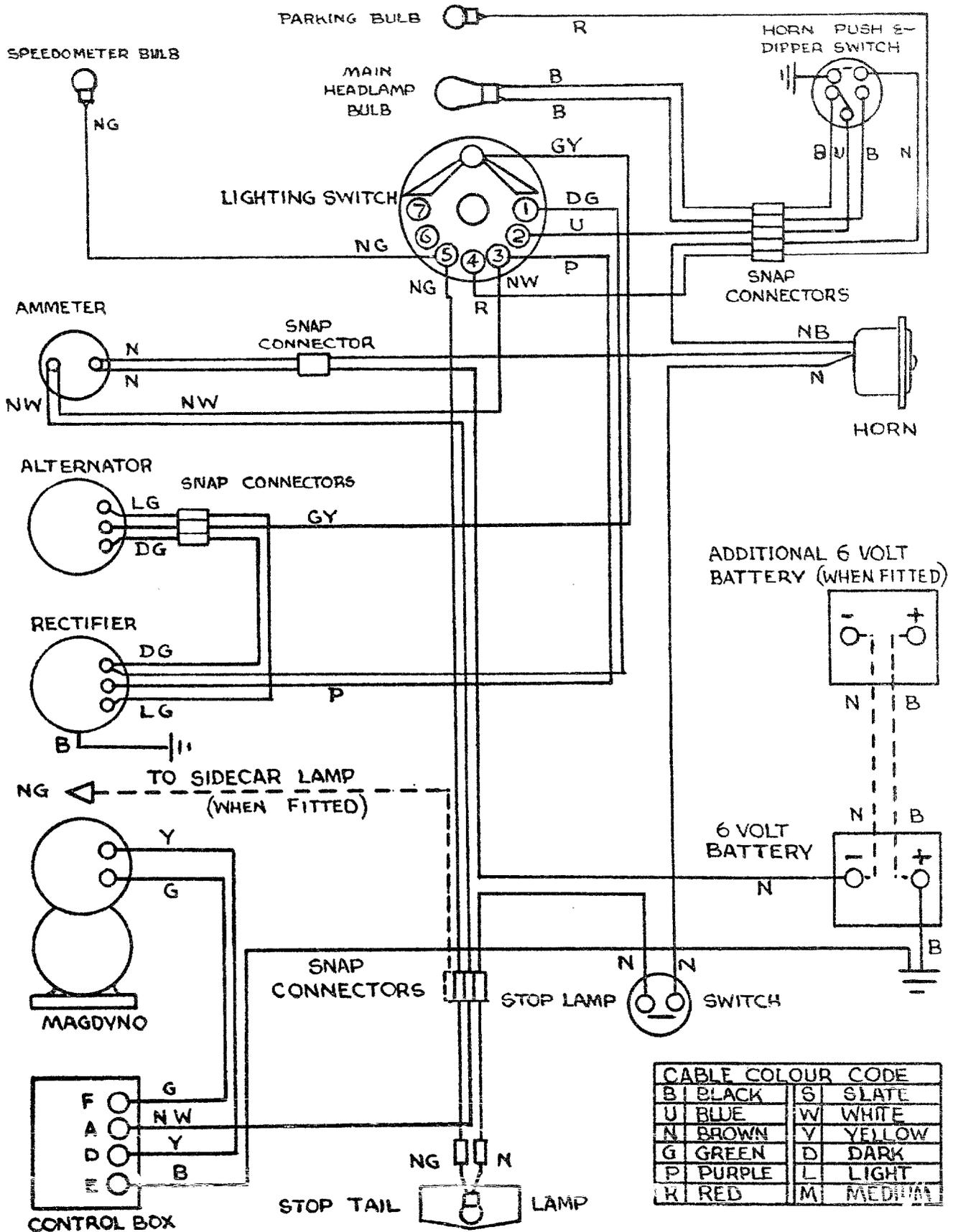
**Alternator Cable Connections—Stage 3.**

				OUTPUT IN AMPERES	
				2,000 r.p.m.	5,000 r.p.m.
C12 (with terminals 5 and 6 not linked)	...	...	...	8.5 min.	9.5 min.
A Group and M21	...	...	...	8.5 min.	9.5 min.



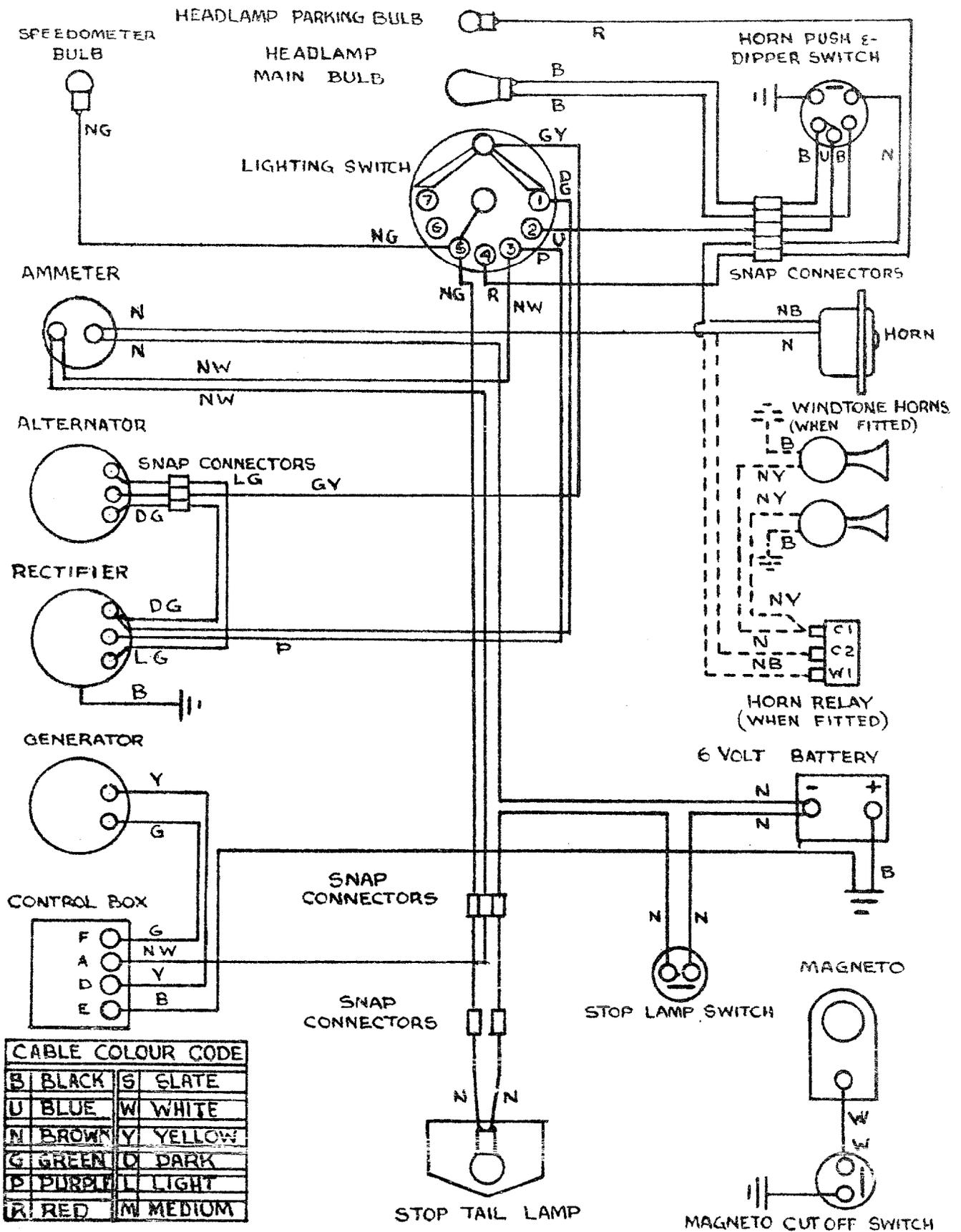
W2335

C12 WIRING DIAGRAM



M21 WIRING DIAGRAM

B.S.A. Service Sheet No. 813A (continued)



A GROUP WIRING DIAGRAM