SECTION H—3
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LUCAS

Quality

EQUIPMENT

WORKSHOP INSTRUCTIONS

VEHICLE FLASHING BEACON

MODEL 678

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VEHICLE FLASHING BEACON

MODEL 678

1. GENERAL

This roof mounted lamp is designed for use on special purpose vehicles, e.g. those of the Police, Fire, Ambulance and Breakdown services. It consists basically, of a stationary upright bulb around which a motor-driven parabolic reflector is rotated at approximately 150 r.p.m. The lamp is protected by a domed transparent moulded cover—usually of blue, amber or red, according to application. An adjustable mounting enables the lamp body to be positioned vertically irrespective of the angle of the vehicle roof. The unit is fully suppressed against interference with radio and television frequencies. Earlier-pattern Beacons incorporated a tube-type armature spindle bearing lubricator which has now been replaced by two flush-fitting lubricators.

Note : The positioning of the reflector is determined very accurately on assembly and it should not be disturbed unless absolutely necessary.

2. ROUTINE MAINTENANCE

All moving parts are lubricated on production and no further attention is required until the unit is dismantled for overhaul. This should be carried out after every 500 running hours (see 4 (b)).

3. TEST DATA (MOTOR)

	6-*volt*	12-*volt*	24-*volt*
(*a*) Running current (approx.) (motor warm and bulb removed) ...	3.0—4.0 amp.	1.8—2.5 amp.	0.9—1.1 amp.
(*b*) Armature resistance (between two commutator segments)...	0.9—1.2 ohms	4.4—4.8 ohms	18.7—19.2 ohms
(*c*) Field resistance (each coil)	1.5—1.6 ohms	8.0—9.0 ohms	32.0—37.0 ohms

4. SERVICING

(*a*) TESTING

In the event of faulty or non-operation (excluding bulb failure, which can be determined by substitution) a few simple tests made with a voltmeter of appropriate range will quickly locate the source of the failure.

The order in which these tests should be carried out, in conjunction with the diagram of internal connections shown in the illustration, is tabulated as follows :—

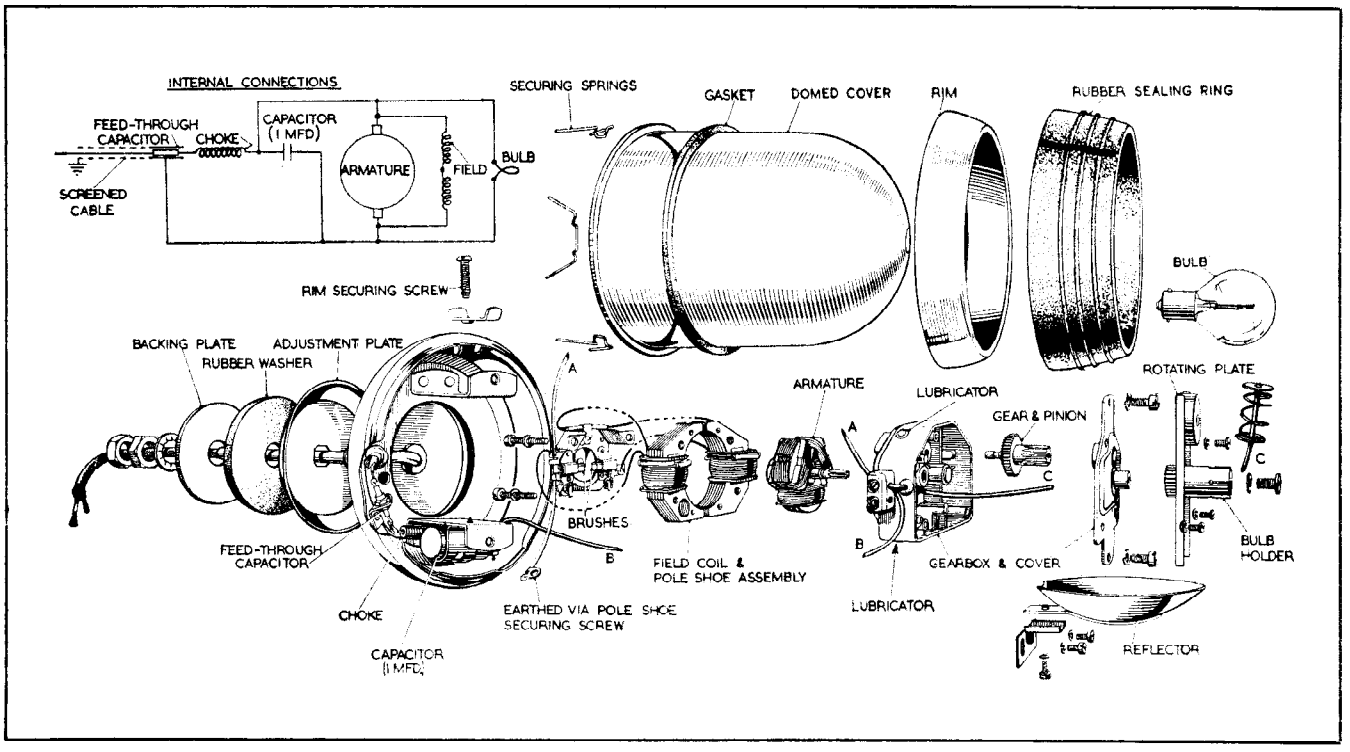
TEST	RESULT	ACTION
1. Voltmeter connected between motor terminal grub screw and earth.	Reading	Motor faulty—remove for detailed examination, or replace.
	No reading	Proceed to Test 2.
2. Voltmeter connected between supply cables at external junction near lamp mounting bolt.	No reading	Fuse, when fitted, blown. Open circuit in wiring due to broken cable or loose connection.
	Reading	Remake external connections and withdraw the 1 mF. capacitor by slackening its mounting screw (do not disturb the connections at the capacitor terminal). Keep the capacitor clear of metal-to-metal contact and proceed to Test 3.
3. Voltmeter connected as in Test 1.	Reading	Fit replacement 1 mF. capacitor.
	No reading	Refit 1 mF. capacitor and proceed to Test 4.
4. Voltmeter connected between supply cable (at its junction with feed-through capacitor) and earth.	Reading	Proceed to Test 5.
	No reading	Only likely if conditions obtaining in Test 2 (No reading) apply.
5. Voltmeter connected between choke side of feed-through capacitor and earth.	Reading	Feed-through capacitor in order—proceed to Test 6.
	No reading	Fit replacement feed-through capacitor.
6. Voltmeter connected between 1 mF. capacitor terminal and earth.	Reading	As Test 1 (Reading).
	No reading	Replace choke.

(*b*) TO DISMANTLE

The dismantling procedure to be adopted following each 500 running hours or in the event of the motor having developed an internal fault is as follows :—

Peel back the rubber sealing ring, slacken the rim securing screw and lift off the rim and domed cover. Remove the grubscrew from the motor terminal and detach the two cables. Withdraw the two (larger) screws from the motor gearbox cover plate 'ears' and lift out the motor and rotating plate assembly. Remove the bulb and invert the motor, taking care not to damage the reflector. Withdraw the pole shoe securing screws noting that the two which secure the brushgear carrier also are longer. The armature can now be withdrawn. Unsolder the cable connector to the inside of the terminal block to complete the release of the pole shoe assemblies. To gain access to the intermediate gear and pinion remove the three remaining screws in the gearbox cover which can then be lifted off. Withdraw the cable, spring and insulated washers from the interior of the bulbholder. This will expose the single screw which, when removed, will allow the bulbholder, rotating plate and gearbox cover to be separated.

Clean the reflector using warm soapy water. Remove any brush residue or dirt from the commutator using a petrol-moistened cloth. Renew the brushes if necessary.



Vehicle Flashing Beacon, Model 678

(c) TO REASSEMBLE

Reassembly is, in the main, the reversal of the dismantling procedure, special care being taken to lubricate the bearing surfaces, etc. The relevant points and their lubricants are :—

1. Armature shaft, gear and pinion bearings (2) and final gear bearing in the rotating plate : smear with Molybdenum di-sulphide oil.
2. Charge the armature spindle bush lubricating points (2) with S.A.E. 30 oil.
3. Using Ragosine 'Listate' or an equivalent grease, make up any deficiency of lubricant in the gearbox (caused by withdrawal of the gear and pinion) and also apply sparingly to the exposed gearing beneath the bulbholder.

Note : When refitting the pole shoe assemblies do not tighten the securing screws until the armature and brushgear have been refitted. There is a certain amount of play in the securing screw holes, by which the pole shoe assemblies can be adjusted so that there is no risk of their being fouled by the armature. The aim is to achieve, as far as possible, a concentric airgap between the armature and pole shoes.