Service Bulletin

JOSEPH LUCAS (SALES & SERVICE) LTD.
GREAT HAMPTON STREET BIRMINGHAM 18

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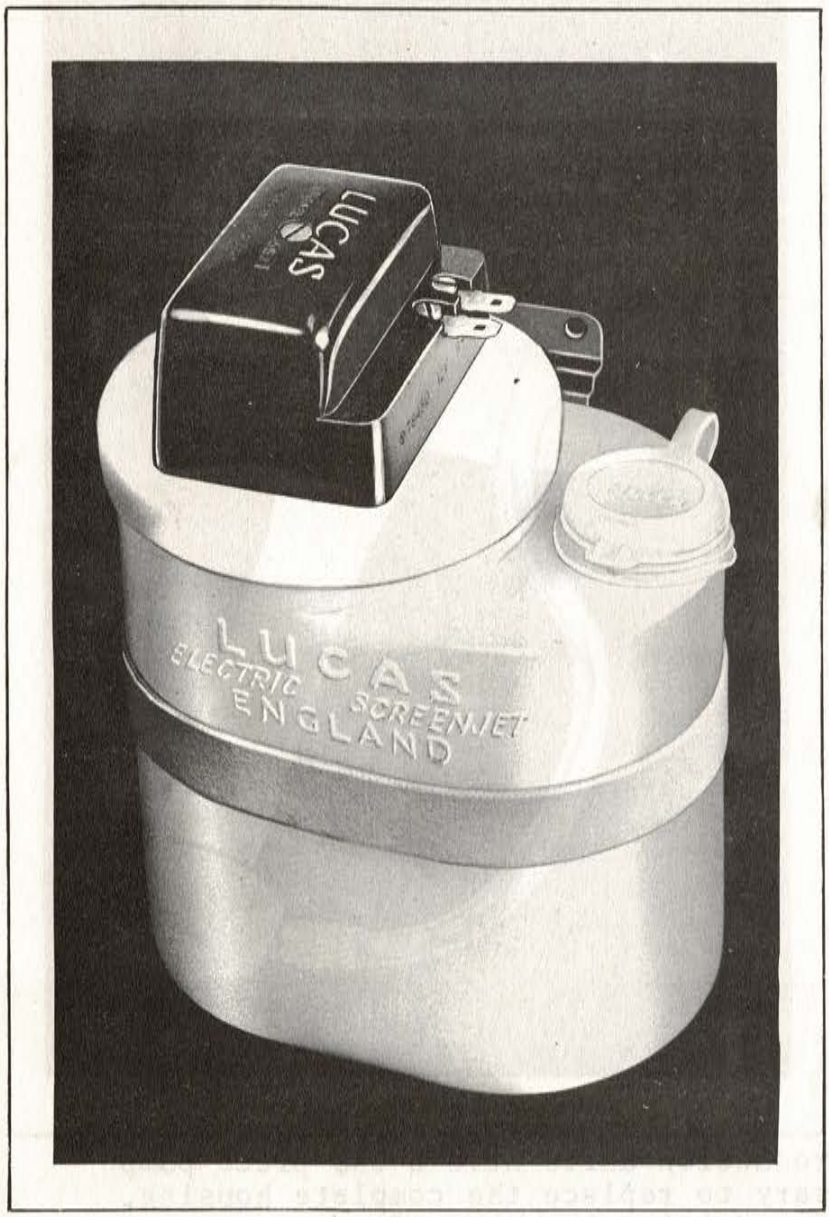

THE LUCAS 5SJ
(NON AUTOMATIC)
ELECTRIC SCREEN WASHER

INTRODUCTION AND SERVICE FAULT FINDING PROCEDURES

General

The 5SJ is a non-automatic windscreen washer which is now being fitted as initial equipment on a number of vehicles.

It is smaller and more compact than the 2SJ Automatic washer and is similar to, but supersedes the 4SJ by making more use of polyacetal

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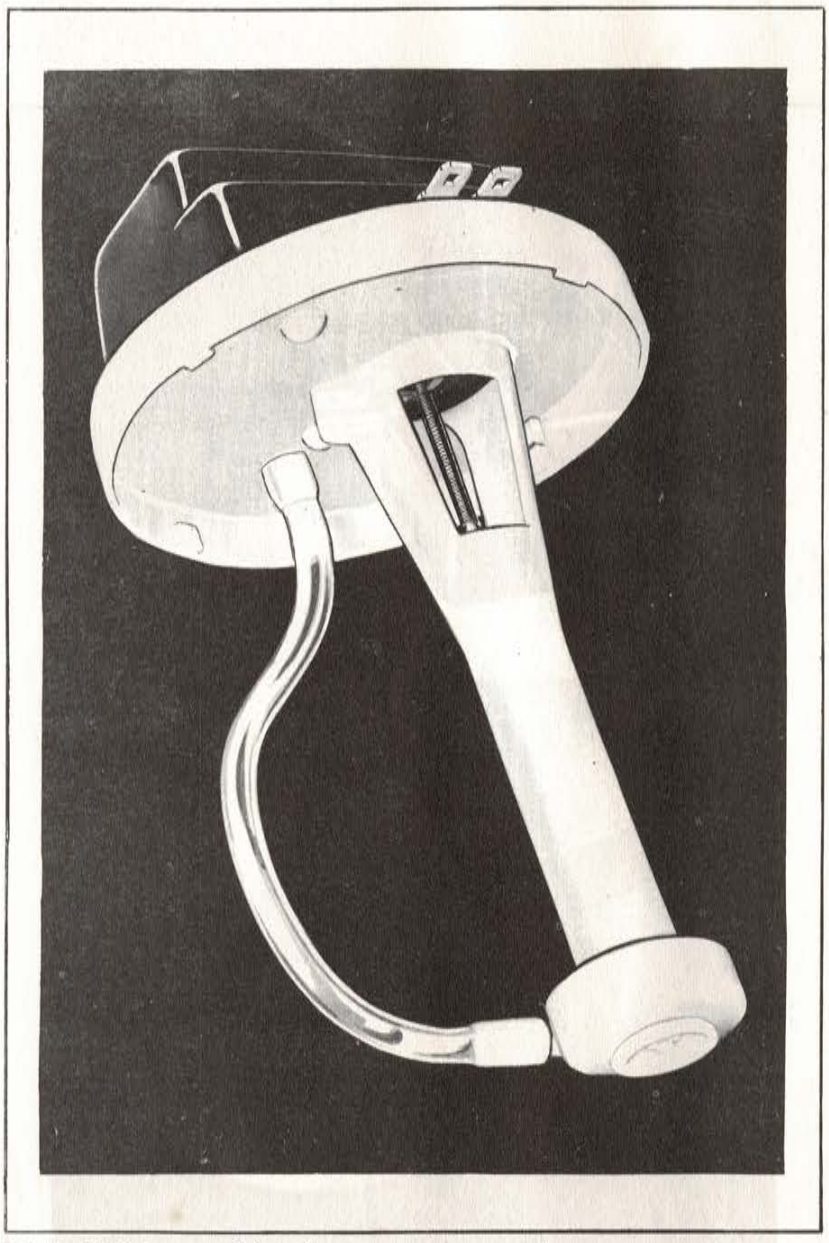
moulded resins.

This change has made the 5SJ suitable for screenwashing fluids containing ethyl, methyl, or iso-propyl alcohol in any proportion. It is also suitable for any proprietory screenwashing and defrosting additives.



Description

The small permanent magnet motor is similar in appearance to the 2SJ except that no provision is made for automatic operation, therefore only two terminals are used. A single screw secures the motor to the pump cover, and two pegs moulded into the cover locate with two holes on the underside of the motor to keep it firmly in position. On present production units the impeller is driven through a long steel spindle that is coupled to the motor shaft by means of a stainless steel spring. This coupling will shortly be superseded by a universal coupling of improved design.

Another feature of future production units will be the introduction of a two piece pump housing which will enable the spindle and impeller to be withdrawn after removing a cover on the underside. Present production units have a one piece pump assembly which makes it necessary to replace the complete housing, cover and impeller assembly if servicing is required.

A filter gauze is fitted into the recess on the underside of the pump housing.

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Servicing

The only lubrication required is to add two drops of thin machine oil to the felt pad around the motor drive spindle, if the motor is found to run sluggishly after lengthy service. It is essential that the pad is not over lubricated, since any excess oil may seep into the water container with consequent smearing of the windscreen.

FAULT FINDING

(i) Testing the Circuit

If the motor does not run when the panel switch is operated, first check that the supply is available at the motor terminals as follows:

(a) Connect a suitably scaled d.c. voltmeter, red lead to the black earth cable and black lead to the green cable with black tracer.
(b) Operate the panel switch and note the voltmeter reading. This should be the same as the battery voltage. If no reading is obtained the fault lies in the circuit and a check of the fuse, cables and terminations should reveal the fault.

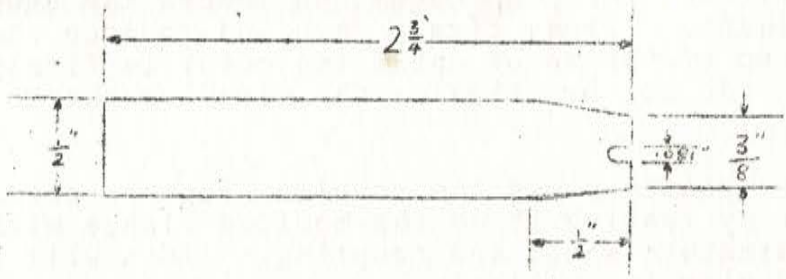
If however, the supply voltage is available at the terminals and the motor does not operate, then the motor must be removed for an internal check.

(ii) Removing, dismantling & checking the motor (Units fitted with Spring coupling)

A simple tool can be made to assist in the removal of the spring coupling from the impeller shaft and also to adjust shaft endplay after re-assembly.

An ideal tool can be made from the nozzle adjusting spanner supplied with screenwasher kits, or by making a tool from a small piece of mild steel approx 2¾" x ½" x 1/16".

At one end of the strip cut a slot .081" wide by ⅛" deep enough for the shaft to slide into, and taper the corners as shown in diagram.



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Proceed to dismantle as follows.

(a) Disconnect the external plastic tube from the moulded cover, and disconnect the electrical connexions. Unscrew the moulded cover from the water container.

(b) Remove the screw securing the motor to the cover and work the motor loose so that the locating pegs do not hold it firm. Do not attempt to pull the motor off completely at this stage or the spring coupling may be distorted. Grip the top of the impeller spindle with a pair of long nosed pliers, and use the tool previously described to lever the coupling off, levering against the the pliers. Take care to support the motor so that it does not drop when the coupling is released.

(c) After the motor has been withdrawn from the pump assembly, remove the coupling from the armature shaft, again using the pliers and tool. Take care not to damage the shaft or the spring coupling.

(d) Remove the motor base plate complete with armature shaft bearing by withdrawing the two small self tapping screws.

(e) To remove the armature and brushes, withdraw the two terminal screws "+" and "-" The brushes and armature can then be lifted out of the motor and an inspection carried out.

The armature commutator can be cleaned with a petrol moistened cloth and any brush dust removed from between the segments. The brushes should be replaced if worn to half their effective length.

REASSEMBLY

(a) Replace the armature and brushes by reversing the dismantling procedure and fit the base plate to the underside of the motor.

(b) Grip the armature shaft as near to the plate as possible and "screw" the spring on to the shaft to approx. $\frac{1}{8}$".

(c) Place the motor onto the pump cover and locate the coupling onto the impeller shaft. Press firmly down and replace the securing screw in the top of the motor until the motor is firmly attached to the pump. (do not overtighten the screw or the cover may distort).

(d) Use the tool to gently press the coupling further onto the impeller shaft by resting it on the moulded flange with the tool between armature shaft and coupling. This will ensure that sufficient end play is available.

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NOTE

The motor must not be operated until sufficient end play is available otherwise the impeller will seize in its housing which may result in a burnt out armature.

(e) Replace motor and pump assembly into the water container and refit external plastic tubing and electrical connexions. When remaking the terminal connexions it is essential that the correct polarity is observed.

Loose Dog Coupling (Later Models)

Later models encorporating the modified coupling should not present any problems when dismantling or resetting on assembly. The three part delrin arrangement simply pulls apart when the motor is removed, leaving an outer coupling on both motor and impeller shafts with a centre coupling positioned between

Note

The centre coupling will be loose when motor is removed and care should be taken not to loose it.

The two outer couplings are a push fit onto the motor and impellor shafts and will therefore be tight. Care should be taken not to damage the shaft or coupling if removal is necessary when servicing the motor.

It is intended at a later date to introduce a Bi-metal timing device which will enable the 5SJ to operate for a period of some 3 to 8 seconds automatically.

A manual overriding control will also be provided, this will operate the washer for as long as the push button is depressed.

This unit is intended to interchange with the present 5SJ manual control, with regard to the dashboard piercing.