

WINDSCREEN WIPER

MODEL DR3A

General description (See Fig. 32)

The Lucas windscreen wiper comprises an electric motor and gearbox driving a cable rack mechanism which transmits power to the wheelbox spindles and so to the wiper arms and blades. Rotation of the motor armature is converted to reciprocating motion in the cable rack by means of a single-stage worm and nylon gear, the motor end of the cable rack being coupled to the crank pin on the gear through a cross-head and connecting rod in the gearbox.

A self-switching feature ensures that the arms and the blades return automatically to the edge of the screen before stopping, irrespective of their positions at the instant of switching off. This is effected by means of a limit switch in the gearbox, its action being controlled by the crankpin. For the greater part of each cycle, the limit switch contacts are closed, providing an alternative earth return path for the motor current. Each time the blades reach the edge of the windscreen at which they are normally parked when the wipers are not being used, the limit switch opens. Thus, when the control switch is OFF, the motor continues to run until the blades reach their parked position.

Maintenance

The gearbox, cable rack and wheelboxes are greased during manufacture and need no periodic lubrication. Efficient wiping is dependent upon having a clean windscreen and wiper blades in good condition. Oil, tar spots or other foreign deposits should be removed from the screen with methylated spirits. Silicone and wax polishes must not be allowed to contaminate the windscreen or the wiper elements. Worn or perished wiper elements are easily removed for renewal.

SERVICING

Failure to operate or poor performance

If the windscreen wiper fails to operate, or gives poor performance, the fault may be either electrical or mechanical, therefore, to locate the cause, proceed as follows:—

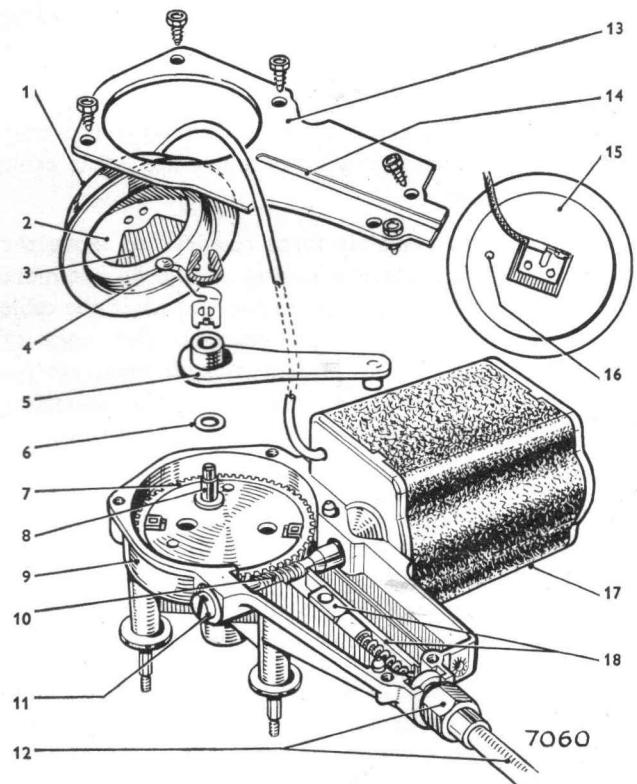
Measure the supply voltage:

Using a first grade moving-coil voltmeter, measure the voltage between the supply terminal at the motor and a

good earthing point, with the control switch ON. For a motor operating normally, this will be approximately 11.5 volts.

If there is a zero voltage reading, check the switch, cables and connections.

If there is low voltage reading, *i.e.* appreciably below 11.5 volts, excessive current flow in the motor is indicated, caused by either an internal fault or excessive mechanical loading in the cable rack transmission.



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| 1. DOMED COVER | 10. WORM GEAR |
| 2. LIMIT SWITCH FIXED CONTACT | 11. ARMATURE END-PLATE ADJUSTING SCREW |
| 3. INSULATED SECTOR | 12. PROTECTIVE TUBING AND SECURING NUT |
| 4. LIMIT SWITCH MOVING CONTACT | 13. GEARBOX COVER |
| 5. CONNECTING ROD | 14. CENTRAL GROOVE |
| 6. PEN-STEEL WASHER | 15. PLAN VIEW OF DOMED COVER |
| 7. FINAL GEAR | 16. SETTING PIP |
| 8. CRANK PIN | 17. MOTOR |
| 9. GEARBOX | 18. CROSS-HEAD AND GUIDE CHANNEL |

Fig. 32. Exploded view of wiper motor gearbox