

LUCAS SERVICE MANUAL

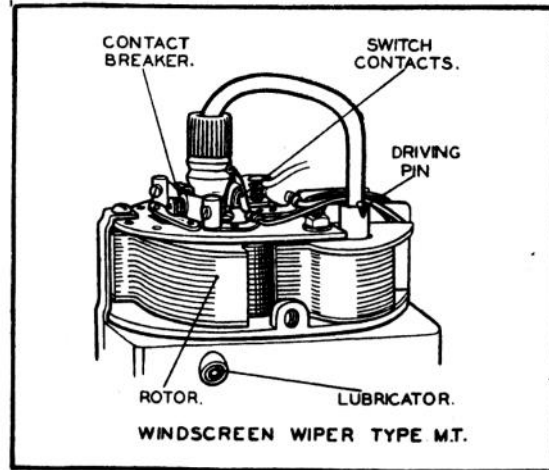
WINDSCREEN WIPERS TYPES MT

The wiper motor is of the inductor type, employing an unwound rotor provided with a number of polar projections which are attracted in turn by an electro magnet energised through a contact breaker which is operated by a cam mounted on the rotor shaft.

If the wiper fails to operate or operates unsatisfactorily, proceed as follows :—

Ascertain if battery is supplying current to the wiper by switching on and noting if ammeter responds when control knob is spun by hand.

Examine the fuse protecting the wiper. If it has blown, examine the wiring for evidence of short circuits or chafed leads. If, on replacing the fuse, it blows again, remove the wiper from the car (see Section P). Connect wiper to a battery and examine it as follows.



SYMPTOMS	POSSIBLE CAUSES	REFERENCE
WIPER WILL NOT OPERATE	Switch setting out of adjustment or switch contacts dirty	Paragraph 2
	Loose or broken connections	„ 3
	Contact breaker remaining permanently open	„ 4
	Timing out of adjustment	„ 5
WIPER MOTOR OPERATES BUT DRIVE IS NOT TRANSMITTED TO ARM	Driving pin sheared	„ 6
WIPER MOTOR SLUGGISH OR LACKS POWER	Rotor binding or stiff bearings	„ 7

(1) DISMANTLING WIPER FOR OVERHAUL OR FITTING OF NEW PARTS

Remove the wiper cover—it is secured by two screws. Slide the cover over the curved handle, utilizing the slot provided in the cover.

Withdraw the knurled knob by unscrewing its fixing screw—take care not to lose the spring which fits inside the knob.

Remove the contact breaker plate—it is secured by two nuts to the pole shoe, and by a screw to the supporting strip—retain the spring washers and the packing shims.

Withdraw the washers, distance piece and barrel nuts from the back of the wiper. The back cover plate can now be removed.

(2) SWITCH SETTING OUT OF ADJUSTMENT OR SWITCH CONTACTS DIRTY

If the cover of the wiper is damaged, or if the switch has been tampered with, the contacts may be remaining permanently open. Remove the cover and see that the switch contacts open and close with the movement of the control knob. If necessary bend the longer contact strip until the switch functions satisfactorily. The contacts of the switch must be kept clean and free from oil or grease. If they are dirty, they must be cleaned with fine sand paper and afterwards wiped with a cloth moistened with petrol.



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(3) LOOSE OR BROKEN CONNECTIONS

Examine the wiring of the motor. If necessary, re-solder any connections which are loose or broken.

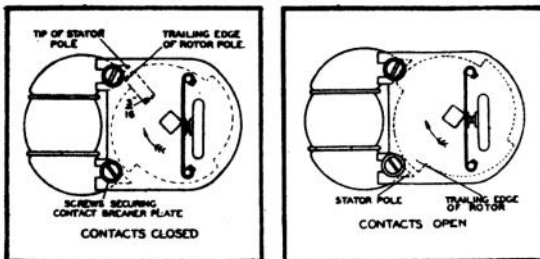
(4) CONTACT BREAKER REMAINING PERMANENTLY OPEN

Examine the action of the contact breaker. Owing to damage or inexperienced attempts at adjustments the contacts may be remaining permanently open or the spring carrying the moving contact may have been broken. If the spring is broken it will be necessary to fit a new contact breaker plate. When fitting, ensure that the two washers are fitted on each of the two fixing bolts underneath the plate.

Re-time the wiper as below.

(5) TIMING THE WIPER

The best performance of the wiper is obtained when the wiper is timed so that the contacts close when the trailing edge of the rotor pole is $\frac{3}{16}$ " to $\frac{7}{32}$ " before the tip of the stator pole, that is to say, when one of the rotor poles is leaving the tip of the stator pole.



The contacts should open when the trailing edge of the rotor is approximately flush with the edge of the other stator pole.

It should be noted that the time of closing and opening of the contacts relative to the position of the rotor is the all important point, the maximum gap between the contacts is determined by the shape of the cam and cannot be altered.

Switch on the current when checking the timing position, as the closing of the contacts can be "felt" by the intensity of the magnetic pull. The position when the contact points open can be most easily determined by turning the rotor backwards slowly until the "pull" indicates that the points are just closing.

To alter the timing, slacken the two screws which secure the celeron contact breaker plate, and move the plate until the foregoing conditions are obtained. The best way to make the adjustment is to slacken the fixing screws only very slightly, and to move the plate by gently tapping it.

After adjusting, tighten the screws, re-check the timing position, and see that the switch will function correctly.

(6) DRIVING PIN SHEARED

The driving pin can be replaced easily without dismantling the wiper, as follows:—

Slide the spacing piece and washers off the fixing studs, remove the cotter pin from the shaft, and then withdraw the crooked arm from the wiper. Care should be taken not to lose the spring and two washers. Fit a new driving pin and, before replacing the arm, withdraw the cover and remove the sheared ends of the old pin. A replacement driving pin can be made from a length of iron wire of .062" diameter.

(7) ROTOR BINDING OR BEARINGS STIFF

Turn the rotor by hand for several revolutions—if it is consistently tight, the wiper bearings probably need lubrication (see paragraph 9). If the armature is only stiff occasionally, the stiffness is probably in the gearbox or is caused by dirt or other foreign matter in the air gap between the rotor and the pole shoes.

Remove the wiper back plate and examine the gears and links for evidence of stiffness.

(8) FITTING WIPER ARM

To fit the wiper arm to the spindle, slide the collar attached to the tension spring over the spindle and then locate the spindle end in the hole in the wiper arm bush. The hole in the bush is counter bored; the spindle must be inserted in the larger end and pushed fully home. Tighten the set screw gently at first to see if the position is correct and then tighten up to the fullest extent.

(9) LUBRICATION

If the rotor is consistently stiff when turned by hand, add a few drops of thin machine oil to the lubricator provided. When examining the gearbox, if necessary, lightly pack the gears with a good quality high melting point grease.

