Vigtig information til montering af viskermotor

Fitting Advice for Classic Lucas Wiper-motors – DR2 and DR3 types.

PLEASE READ THIS
IT WON'T TAKE LONG AND MAY SAVE YOU A LOT OF HASSLE

Its **safer to take the wiper-arms off,** when working on wiper-motors.

They have been known to misbehave when not held by the motor, this may spoil your paint-work. You will feel bad if this happens!

Failing this, remove the blades and fold the arms back off the screen.

It helps to tape some toothpicks or similar, to the wheel-heads, if you take the arms off.

This lets you see what the arms will do when you finally fit them.
You need to see this when you adjust the self-parking cap.

Removing and Fitting the Cover-Plate on the Motor

The cover-plate is held on by four self-tapping screws. If you loose one then contact me, I have got some spares.

The head-size is **4BA** and the best tool is a nut-driver or a small socket, spanners are fiddly.

I don't put them in very tight, because you have to remove them, to connect the eye on the wire-rack to the crank-arm.

They can be tricky to start when putting them back, **they like to cross-thread**.
Just jiggle them in with your fingers and try to find the existing thread.

You should be able to get them almost home without using a tool.

If you just screw them in without doing this, you can **strip the thread** from the soft die-cast body.
Then you will have to ask me for bigger ones, to finish the job.

Mostly I re-use the original ones. but you may get new ones. These will be the nearest I can get.

Notice that the cover-plate is slightly “banana-shaped”. This makes it grip the parker-cap.

At first, leave the cover-plate **screws loose enough** to allow the cap to turn. You will need to adjust it once you have fitted the wire-rack to the crank.

Removing the Crank-Arm from the Gear-wheel.

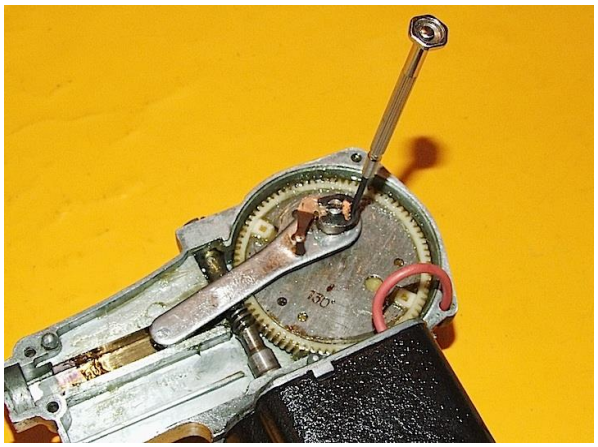
Do NOT try to get the crank-arm into the eye on the wire-rack by **forcing up the arm**.

You may get it in, but it will be **bent** and will then **grind** on the cover-plate. I have straightened loads of these after people have done this.

Remove the crank-arm from the pin on the big gear-wheel.

You need to draw out the “horse-shoe” clip. I do this with a small screwdriver. They are not very tight.

Watch it **does not ping** into the distance. They are black and hard to find. Yes I do have spares, but not many!



Take off the parker-contact and lift up the crank-arm. There may be a **small washer** that comes free when you do this. Look after it and note where to refit it, between the arm and the gear-wheel.

When refitting, drop the arm into the eye of the wire-rack and back on the crank-pin at the same time. You will need to position the wire-rack to allow this.

The parker-contact will go on two-ways, but one way is **obviously wrong**.
Check before doing the “horse-shoe” clip.

Press the clip back home with a piece of tube or a big flat-blade screwdriver, by pressing on the rounded end.

Notice the **position** of the gap in the clip compared to the contact.
There is a bent tab on the contact that sits inside the curved end of the clip.

Handling the Nipple and Nut on the Wire-rack.

Just in case it's not obvious, these are the parts used to clamp the outer-tube of the wire-rack into the end of the motor.

The nipple has two “flats” which engage in a slot at the end of the motor gear-case.

If you ever encounter a nut that is stuck onto it's nipple, DO NOT be tempted to use the motor gear-case as a kind of spanner to undo it. All that will happen is that you **will split** the gear-case.

You must get the crank-arm off and lift the motor away from the nipple. You can now attack the nipple with a Mole-grip, or any other barbarism you fancy, without wrecking your motor.

These nipples get **cross-threaded** easily. Usually this happens if the rack-tube is not perfectly aligned. It's often better to mate the nut and nipple **before** fixing the motor firmly into place.

Or align the tube properly so the nut will pick-up on the nipple thread easily. Otherwise you will end up like this, see that the thread is **totally confused**:

If you do this, or the DPO has done it for you, then you may recover with the help of a die for a 9/16in 26TPI Bicycle-thread.

I may have some spares, but I don't get many, mostly they remain with the wire-racks. One day I'll make a batch of these. Fortunately this is pretty easily done.

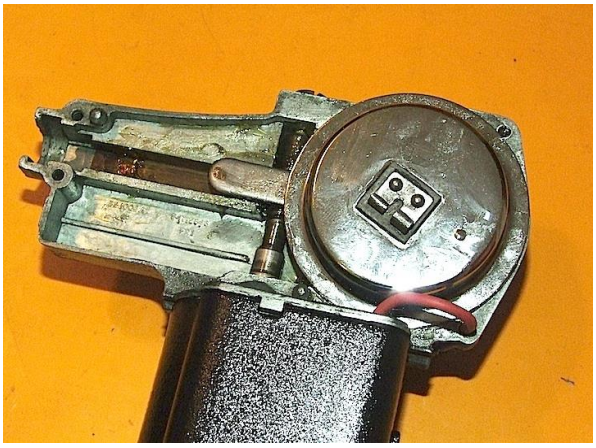
Adjusting the Self-parker Cap

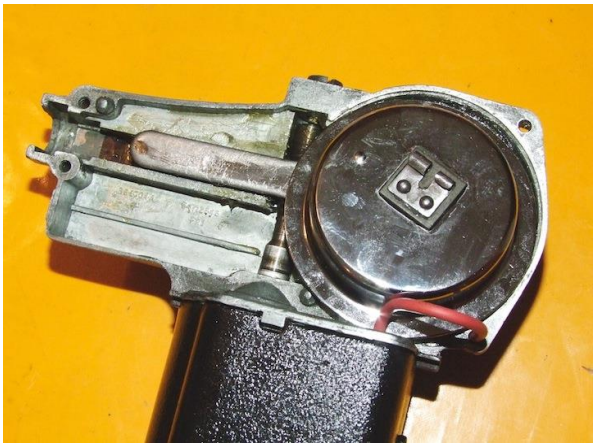
You need to make the self-parker bring the motor to a stop when the wire-rack is **at the limit** of it's travel. It may be **fully out** or **fully in**. Crank at BDC or TDC.

Normally on a right-hand drive car the wire will need to stop in the “out” position if the motor is mounted on the left-hand side of the car. This is because the wire meshes on the under-side of the gear in the wheel-heads.

Vice versa if the motor is mounted on the right. Vice versa again if it's a left-hand drive car.

So you may need to turn the cap through 180° and then “fine-tune” it a bit to get the exact limit. The two possiblities are shown below. There will be enough wir**e** to allow this **without undoing** the soldered joint.





The crank-pin stops near to the small “pip” knocked into the cap. The purpose of this pip is to help you set the self-parker.

See also that I have put the cap at a slight angle. This is typically how they end up after “tuning” to park the arms just as they start to lift away from the lower edge of the screen.

Don't try to use the parker to compensate for having the arms in the wrong position on the wheel-heads. All this will do is make the blades **go off the screen**.

You MUST set the parker to stop at one of the two extremes of the wire and only then fit the arms.

If you have toothpicks on the wheel heads you can move the self-parker with the power on the motor and get the position exactly right.

It's quite **amusing** to see the wheel heads take small steps to keep up with the movement of the cap.

Electrical Connections - Types of Terminal

These motors can have push-on “spade” terminals, this is the most common type, but early motors had screw-on terminals.

If you are dealing with the screw-on type DON'T drop the screw, they are an unusual type. Unfortunately they are fiddly to get started and like to escape from your control. You have been warned!

These terminals are fixed to the motor and supported by the cap on the end of the motor-body.

There are two types of cap. The one on the left for “spade” terminals, the one on the right for “screw” terminals:

But two-speed motors need three connections. These motors have a “flying-lead” with three wires in it. These wires have “bullet” terminals on the ends.

Electrical Connections – Motors that Self-park

The self-parker is a rotating switch that only makes contact for part of the rotation of the big gear-wheel.

On a DR3 the switch is made as **brass disc** that is part of a circle, but early DR2s used a switch made from a bent **phosphor-bronze strip**. Both do exactly the same job.

The parker is wired to one of the motor connections by the obvious red-wire that you see on the cap. The parker connects the **red-wire** to the **body** of the motor.

So for proper self-parking you MUST have a wire from the motor-body to the **body of the car**.

If you have a motor without a self-parker fitted, commonly found on Minis, then it's NOT vital to make a connection from the motor-body to the car-body. But it would not matter if you did!

Electrical Connections – Ordinary Single-speed Motors

Take a look at the photo of the end-caps above. See how they have cut a “key-way” against one of the terminals. This is **terminal -2**. You can see some of the figure 2 left in the casting.

Originally wiring looms were made made with a matching terminal. This fitted in this slot but would not go on **terminal -1**.

This was done to prevent these wires getting swapped over. If you get it wrong, the self-parker switch will short out the battery. If you are lucky a fuse will blow, otherwise the parker or wiring will burn-out.

So you MUST find which wire has 12V on it. The 12V will be present when the ignition is on ,but it won't be necessary to put the wiper-switch into the ON position.

12V supply MUST go on terminal -2.
Wiper-switch MUST go on terminal -1.

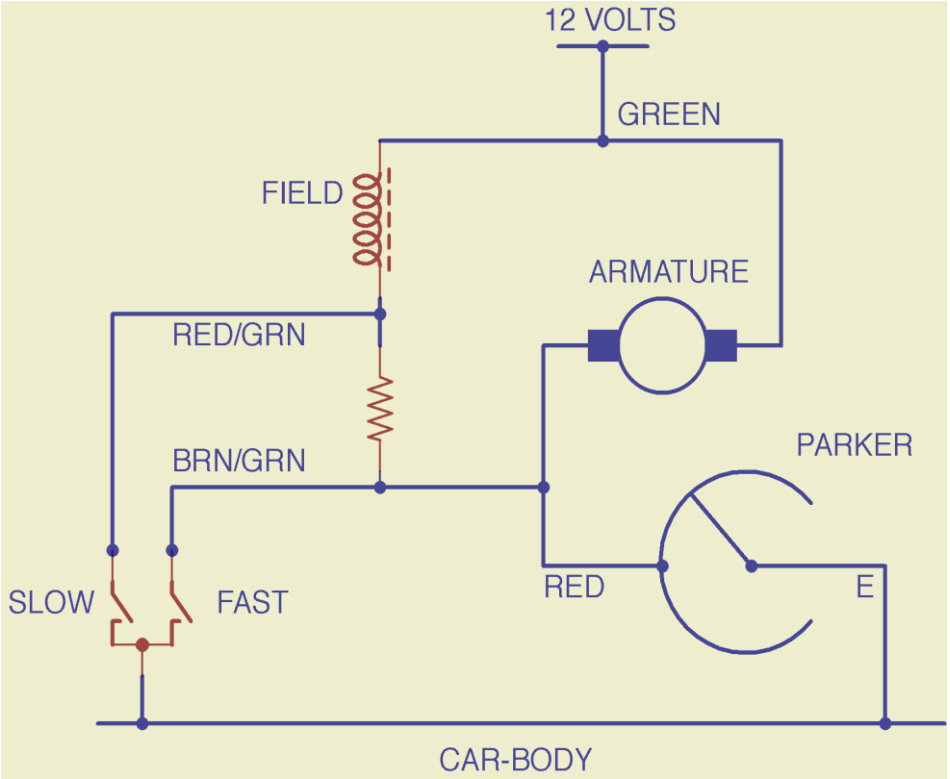
Its the same with screw-on terminals OR push-on terminals.

Electrical Connections – Two-speed Motors

Its awkward to write instructions for this because different car-manufacturers seem to have used **various wire-colour coding** for the two-speed motors.

Triumph, on the TR's, used GREEN for the 12V feed, BROWN/GREEN for the ground side of the armature and RED/GREEN for the fast-speed winding.

Here is a diagram of how the motors are wired internally:



Usually I'll ask what vehicle you have and what wire-clours apply on your wiring loom.
Then it will just be a case of joining the bullets according to wire-colour.

Remember that the 12V feed must NOT end up being connected to the self-parker.

To run SLOW **both** of the other two wires must be grounded by the dashboard wiper-switch at the same time.

And to run FAST, you **only** ground the BROWN/GREEN wire.

Remember I am just using the TR colours as an example here.
I've worked on Lotus and the colours vary.