For this issue, Roger Brundle has provided information from Lucas Service Manuals on servicing trafficators and dipping-reflector type headlights. Robyn Couche shows how to rejuvenate tired rubber parts.

Extracts from Lucas Service Manual – Trafficators

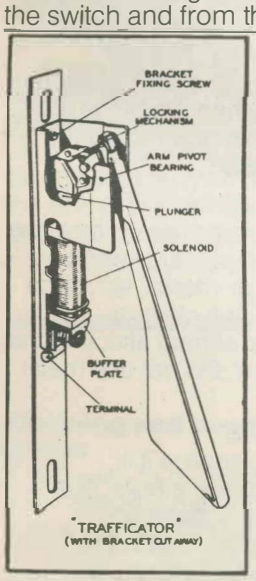
Trafficators do not operate:
Loose or broken connection in the wiring.
Fuse blown.
Arm fouling bodywork.
Buffer plate bent.
Lack of lubrication.
Internal fault.

Trafficators do not lift to full extent or do not fall completely home when switched off:
Arm fouling bodywork.
Lack of lubrication.
Buffer plate bent.

Bulb does not light:
Bulb blown.
Loose or broken connection in bulb circuit.
Bulb not earthed efficiently.

1. Fuse blown
Examine the wiring and trafficators for evidence of a short circuit which may have caused the fuse to blow. Rectify the trouble and replace the fuse.

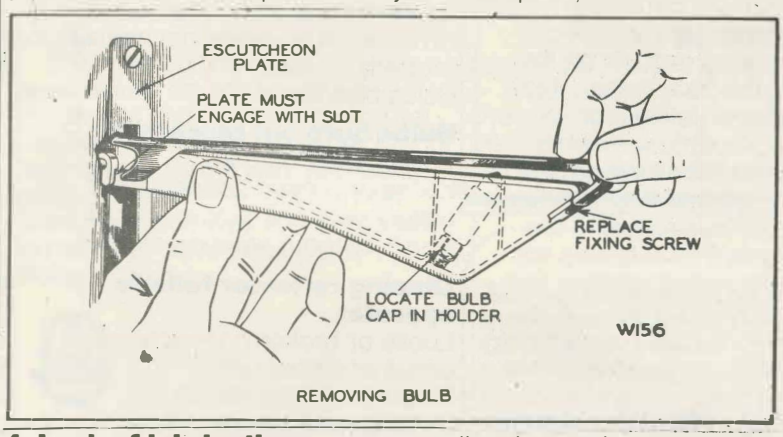
2. Loose or broken connection in wiring:
Check the wiring from the fuse to the switch and from the switch to the trafficators. Tighten all loose connections.



"TRAFFICATOR"
(WITH BRACKET CUT AWAY)

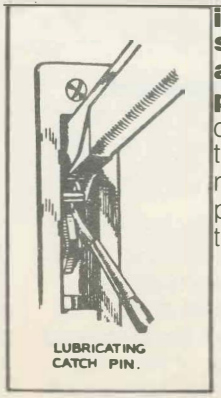
3. Arm fouling the bodywork:
This may be due to either the trafficator being badly fitted or to the arm being distorted by striking some object. If the trafficator has been badly fitted, slacken the screws securing the trafficator and move it until the arm operates freely. When the correct position has been obtained, secure the trafficator by tightening its fixing screws.

When an escutcheon plate is fitted, the screws securing it must be slackened and the plate centralised so that the arm can operate freely.



REMOVING BULB

4. Lack of lubrication:
If the action of the trafficator becomes sluggish, it should be lubricated as follows:
a. Add one or two drops of thin machine oil to the catch pin between the arm and the operating mechanism.
b. Give the inside of the bracket where the plunger bears a slight smear of high melting point grease. **Do not use ordinary grease, which when warm, may run into the solenoid core and cause the plunger to stick**
c. Add one or two drops of thin machine oil to the pivot bearing of the trafficator arm.


LUBRICATING CATCH PIN.

5. Buffer plate bent:
If the plate carrying the rubber buffer is too far forward it will prevent the arm falling completely home; if it is bent back too far, it may cause the locking mechanism to become jammed. Bend the plate to its original position, i.e. so that the arm falls fuly home and is locked, and also so that the arm operates freely.

6. Bulb blown:
After long service the bulb may need replacing. To remove the bulb, withdraw the screw on the underside of the arm and slide off the metal coverplate. To replace the coverplate, slide it on in an upwards direction so that the side plates engage with the slots on the underside of the spindle bearing. Finally secure the coverplate by means of the fixing screw.

7. Loose or broken connection in bulb circuit:
Examine the connectors from the terminal on the trafficator to the bulb holder. If necessary resolder any connection which may be loose.

8. Bulb not earthing properly:
The cap at one end of the bulb must make contact with the metal cover. Check that the spring pressure is sufficient and that the inside of the cover where the bulb makes contact is clean and free from tarnish. With trafficators having a black enamelled cover, make sure that the ends of the cover which locate at the pivot end are clean and free from enamel.

9. Internal fault:
If, after following the above procedure, the trafficators are still inoperative, it should be replaced.

It should be noted that the trafficator unit is mounted on a fixing plate and can be removed by the withdrawal of a single screw. Always retain the plate as these differ on various cars and therefore standard replacements are supplied without fixing plates.

LAMPS
Dipping reflector type

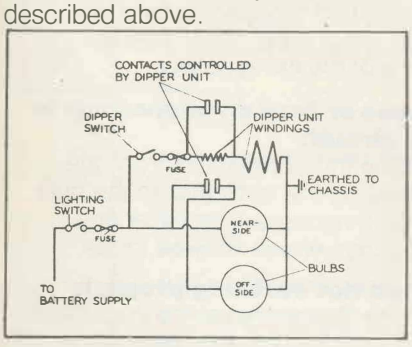
The headlamps are provided with one of the following anti-dazzle arrangements:

Dip-and-switch reflector scheme, in which the near-side headlamp reflector dips and the off-side lamp is simultaneously switched off.

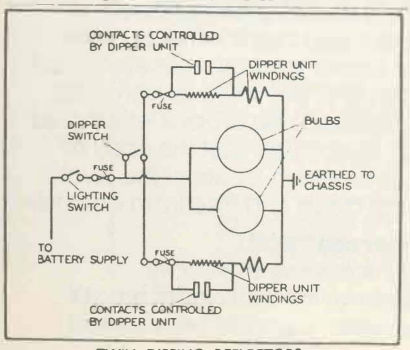
The dipping of the headlamp beam is effected by a movement of the reflector. This is pivotted on ball bearings in a fixed rim which is in turn secured to the headlamp body.

The movement of the reflector is controlled by a solenoid mounted on a bracket astride the back of the reflector. When the current is switched on, the plunger of the solenoid pushes a bracket on the underside of the bulb holder, thus tilting the reflector to the dipped position. As the plunger reaches the end of its travel, it is arranged so that a high resistance winding is brought into the circuit, thus reducing the operating current for retaining the reflector in the dipped position to a fraction of an ampere. When the current is switched off, the reflector is returned to its normal position by means of a spring.

Twin dipping reflector scheme, in which both reflectors are dipped. These are operated by solenoids as described above.



"DIP & SWITCH" REFLECTORS



TWIN DIPPING REFLECTORS

Double filament bulbs: The headlamps are fitted with bulbs having two filaments; either filament can be used at will to give a normal driving light or an anti-dazzle beam as required. The main filament is located at the focus of the reflector in which the bulb is fitted, and is the source of the normal driving light. The position of the secondary filament relative to the reflector is such that it produces a dipped non-dazzling beam.

Difficulties in service:

Lamps give insufficient illumination:
Battery needs attention.
Headlamps out of alignment.
Bulbs out of focus.
Bulbs discoloured through use.
Reflectors dirty.

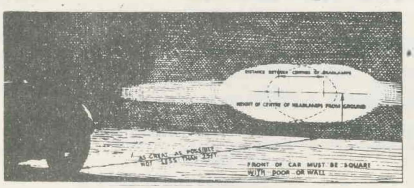
Lamps flicker:
Loose connection in lamp circuit.
Lamps not earthed properly.

Lamps do not light:
Battery needs attention.
Loose or broken connection in lamp circuit or lamps not earthed properly.
Bulbs blown.

Bulbs burn out repeatedly:
Battery overcharged.
Loose or broken connection at battery or in charging circuit (3rd brush dynamo equipment only).

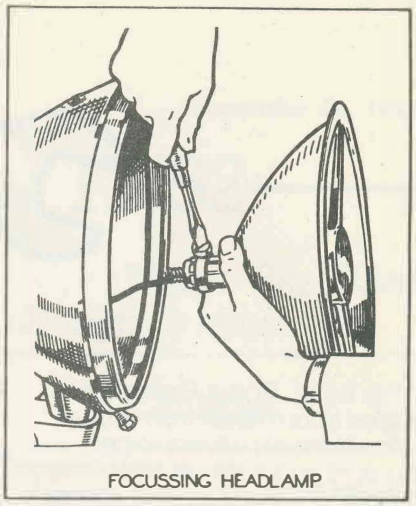
Dipping reflector fails to operate:
Loose or broken connection in circuit or dipper unit.
Dipping reflector sticking.
Dipping reflector fuse blown.

Dipping reflector does not remain in dipped position when operated or reflector oscillates.
Loose or broken connection in circuit of dipper unit.
Contacts on dipper unit out of adjustment.



1. Lamps out of alignment:
The headlamps must be aligned so that they direct their beams straight ahead, i.e. parallel with the road and with each other.

The lamps can readily be aligned by parking the car on a flat space in front of a wall. The car must be square with the wall and at least 25 feet away from it. Align the lamps so that the horizontal axis of the oval light area is level with the centres of the lamps. The vertical axis must be central with the front of the car.


FOCUSSING HEADLAMP

2. Bulbs out of focus:
For the best results, the filament of the bulbs must be as near as possible to the focus of the reflector.

Before the lamps are despatched from the Works, the bulbs are correctly focussed. Provided that the correct genuine Lucas bulb is fitted as a replacement, the setting should not be disturbed. If a Lucas bulb is not available or if the setting has been tampered with, the lamp may be re-focussed as follows:

Cover one lamp while testing the other. Remove lamp front and reflector and slacken the clamping clip on the bulb holder. Move the bulb holder backwards and forwards until the best results are obtained. After each adjustment, note the effect with the front refitted.

It should be noted that headlamps fitted with Lucas-Graves double filament bulbs do not require focussing. These lamps are specially standardised so that when a replacement bulb is fitted, the filament will be at the focus of the reflector.

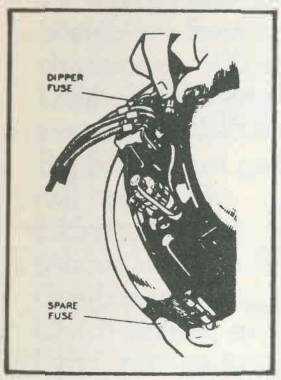
3. Bulbs discoloured through use:
After the bulbs have been in service for a considerable time they may become blackened. This will reduce the amount of light given by the lamps and when the bulbs are found to be in this condition, they should be replaced.

4. Reflectors dirty:
The reflectors are protected by a fine transparent colourless covering. This enable finger marks, etc, to be removed with a soft cloth or chamois leather without affecting the reflecting surface. Do not use metal polishes.

5. Bulbs blown:
When after long service it is necessary to replace a bulb, fit a bulb of the same voltage and wattage as originally used. The bulb must have a high efficiency and

must focus in the reflector. Cheap and inferior replacement bulbs often have the filament of such a shape that it is impossible to focus correctly; for example the filament may be to the side of the axis of the bulb resulting in loss of range and light efficiency. Lucas Genuine Spare Bulbs should be fitted as then these problems will not arise.

6. Dipping reflector sticking:
The trouble may be due to any of the following:
a. Cables fouling reflector. Re-arrange the cables and keep them away from the reflector. The lead to the bulb holder must be flexible so as to enable the reflector to move freely.
b. Pivot bearings tight — apply a drop of thin machine oil to the bearings on which the reflector rocks.
c. Plunger of dipper unit sticking — apply the merest smear of thin machine oil to the plunger.



7. Dipping reflector fuse blown:
This is probably caused either by the reflector sticking (see 6) or by a faulty connection in the wiring of the reflector. Rectify the defect before replacing the fuse.

8. Switch contacts on the dipper unit out of adjustment:
If the contacts nearest the fuse, which bring into circuit the high resistance winding, get out of adjustment due to damage or long service, the dipping reflector will tend to oscillate when operated.

When the plunger is drawn fully into the solenoid, the gap between the switch contacts should be .010" — .018". The gap setting may be adjusted by means of the pin, at the end of the plunger, which is caulked during assembly, as normally adjustment is not required.

Cleaning and re-using rubber parts:
If you wish to re-use rubber parts on your beautiful restoration, then the following may help you to bring those parts up to look like new. Even if the rubber appears to have perished a bit, this will not prevent its re-use.

Equipment you need will mean raiding the kitchen supplies... if your wife will let you. Start with the kitchen sink — this is a good place to work, especially as you need warm water.

Step by step — firstly, carefully remove the part from the car without damaging it, of course. Flake off any **loose** paint, taking care not to damage or tear the rubber. Now to the kitchen sink. Fill it up with warm water — no soap. This is to soften the rubber and make it easier to handle. Let the rubber soak for at least a couple of hours, then fill the sink again with warm water, and grab a Scotchbrite or other type of plastic scourer. Don't use a metal pad, as they rip the rubber to pieces. Scrub the rubber lightly and the paint and perished rubber will come off quite easily (at least it did when I did it). The finished product should look much blacker than before you started, and look almost new. Let the part dry for 24 hours, then it can be replaced on the car. Note of warning — put the part out to dry on some paper or cloth, as it leaves nasty black stains on the laminex if you don't.

This method was used successfully on some rubber grommets and door stops, and we decided to commit it to paper to help others. By the way, someone asked me where we got the new grommets, and was very surprised to hear they were originals!
Robyn Couche.

Erratum
Last edition, you may have been mystified to read in the index a reference to *Of Rockers, Cranks, and Doing your Block,* under the Technical heading. This was in fact the title of Roger's article on the Traction engine, subtitled *A Look at Bottom Ends and Such.*
Unfortunately, one of the famous network of Printers Gremlins slipped into the printery undetected and cut off the main title.
Apologies. (*Did you understand all that?)*