

# GIRLING

THE BEST BRAKES IN THE WORLD



Service BULLETIN

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INSTRUCTIONS FOR THE MAINTENANCE  
AND OVERHAUL OF GIRLING BRAKES AS  
FITTED TO LANCHESTER 10 H.P.

DESCRIPTION

The brakes fitted to the Lanchester 10 H.P. are mechanical, and are operated by cables and rods. Two types of assemblies are used, the front being 2IS and the rears GNS.

The hand brake is operated by the Girling Pistol grip control, and operates on the rear wheels only.

FRONT BRAKES (Fig 1)

The front brakes are Girling 9" x 1½" two leading shoe. The brake consists of backplate, shoe assemblies with bell cranks and strut, expander unit, and adjuster unit.

1. Back Plate.

This is the carrier which is bolted to the axle spigot, and on which the assemblies, expander and adjuster units are mounted. Two steady rest posts are fitted to backplate against which each shoe web rests.

2. Shoe Assemblies

Since, for all normal purposes two leading shoe action is only necessary in forward direction of travel, one shoe only is fitted with bell cranks and strut. This always is the second shoe. The first shoe is a normal type of shoe and lining.

The second shoe assembly consists of the brake shoe and lining, two bell crank pins with hexagon headed bushes, both of which are eccentric for adjustment purposes, two bell cranks and two lock nuts. Two retaining plates are fitted to the shoes for the purpose of keeping the strut in position. For the adjustment of the strut, unlock the nuts on the bell crank pins and turn bushes in a clockwise direction until there is no perceptible free movement between bell cranks and the strut, and then tighten up lock nuts.

Shoe Assemblies contd.

When carrying out this adjustment care must be exercised not to turn the eccentric bushes too far or the brake shoe will be lifted off the contact plate of the expander unit on which it rests.

The shoe assemblies are held against the expander unit and the adjuster tappets by two return springs.

3. EXPANDER UNIT.

The expander unit consists of a housing enclosing a hardened steel cone which is actuated by the draw link. The cone causes two tappets to move outwards, hardened steel rollers are interposed between cone and tappets to reduce friction to a minimum. One tappet engages directly on the shoe web of the first shoe. The other tappet contacts the bell crank on the second shoe. The housing is fixed to the backplate by means of studs, which should be securely tightened. The contact plate for the second shoe is a drive fit in the housing and has to be removed before the second shoe tappet can be taken out. When carrying out an overhaul, tappets, cone and rollers should be checked to ensure free movement. To make sure of this, the bearing and all the moving parts should be liberally smeared with Girling brake Grease.

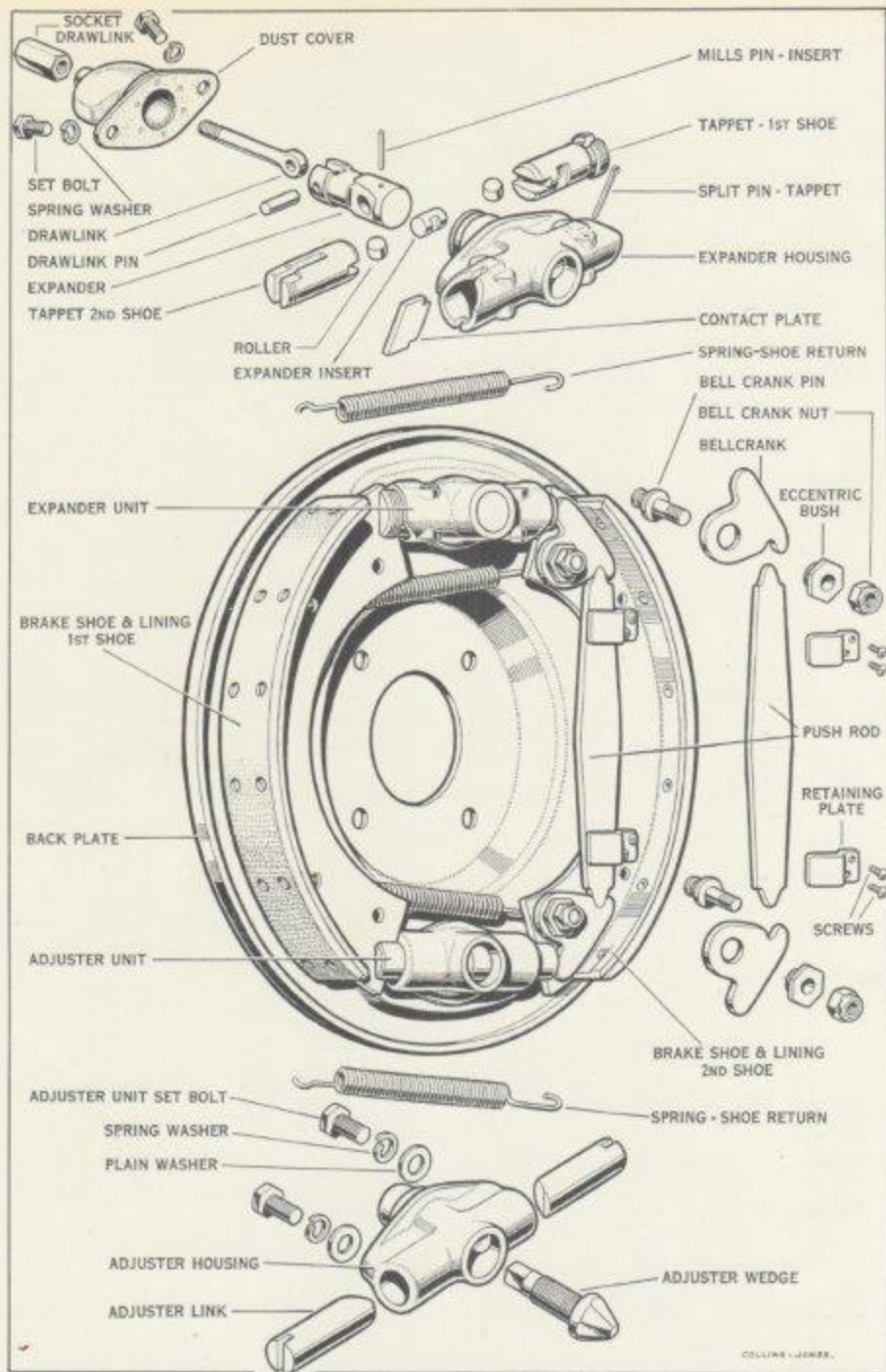
4. ADJUSTER UNIT.

Adjustment is made for lining wear by the brake shoe adjuster. This consists of a housing which is spigoted and bolted firmly to the backplate and contains a hardened steel conical wedge machined with a fine thread and flats on its outer end, to enable a spanner to be used, and on its inner end are contact faces of a predetermined depth.

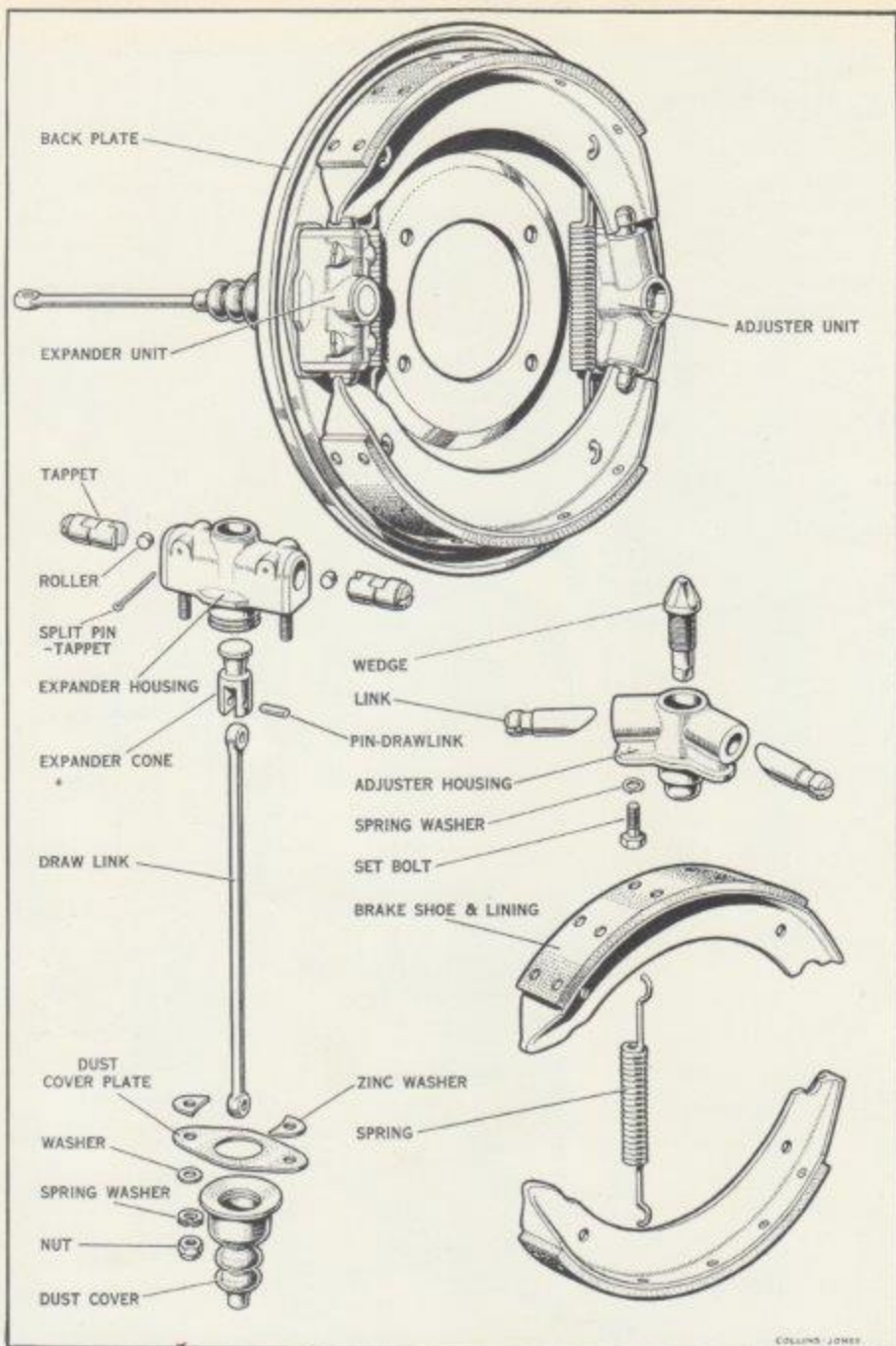
The wedge engages two links, also with a bearing in the housing, which have inclined faces. On the outer edge of these links, grooves are formed in which the shoes are carried. The housing and wedge are both cadmium plated to prevent rust, and the thread of the wedge spindle remains inside the housing at all times thus preventing damage.

The rotation of the wedge in a clockwise direction causes it to move inwards forcing apart the links and expanding the fulcrum ends of the brake shoes. When adjustment is being made, rotate the wedge with a spanner until a resistance is felt, (this is the shoe coming into contact with the drum,) then slacken back two clicks which can be felt and heard and the drum should then be quite free.





**Fig. 1. TYPICAL GIRLING TWO-LEADING SHOE BRAKE AS  
 FITTED TO LANCHESTER 10  
 FRONTS**



**FIG. 2. TYPICAL GIRLING NON-SERVO BRAKE AS FITTED TO LANCHESTER 10 REARS**

COLLINS-JONES



### REAR BRAKES (Fig 2)

The rear brakes are Girling 9" x 1 $\frac{1}{4}$ " Non-Servo. The shoes are mechanically operated by the expander unit, consisting of a hardened steel cone which is actuated by the brake pull rod and causes two plungers to move outwards. Hardened steel rollers are interposed between plungers and cone to reduce friction to a minimum. The plungers engage directly with the brake shoes. The whole expander mechanism is enclosed in a diecast housing which contains a supply of lubricant. This housing is slidably attached to the backplate by studs and spring washers which provide a slight frictional contact. The Simmonds Nuts on the spring washers are one turn slack allowing the housing to float to a certain extent. In view of this it will be seen that the shoes are self-centring.

Adjustment for the lining wear is made by the brake shoe adjuster, this is similar to that on the front brakes and is described in paragraph 4.

### HAND BRAKE

This is the Girling Pistol type control and operates on the Rear Wheels only. Adjustment for lining wear should be made on the brake adjusters and not on hand brake hook up as this is correctly set at the works. The rear brakes should not be allowed to run for long periods without adjustment. An indication of rear brakes requiring adjustment is given when undue travel is felt on the hand brake control before the shoes contact the drums.

### RUNNING ADJUSTMENTS AND GENERAL MAINTENANCE

Girling Brakes are adjusted for lining wear only at the brakes themselves, and on no account should any alteration be made to the operating linkage for this purpose.

#### Front and Rear Brakes

Adjustment is made by turning the square head adjuster on each rear brake backplate in a clockwise direction until a resistance is felt. The adjuster must then be slackened back two clicks.

One common adjuster is provided for both shoes in the brake assemblies and the adjustment of all brakes is identical. After adjustment the brake pedal should be applied hard two or three times to centralise the brake shoes.

Again if replacement brake shoes have been fitted the adjuster should be released an additional amount to allow for expansion of the brake linings. Three clicks instead of two should be sufficient until the shoes have "bedded" down, when the brakes must be re-adjusted.

#### Fitting Replacement Shoes(Front Brakes)

To fit replacement shoes on the front brakes, first jack up the car and place chocks behind the rear wheels.

1. Remove front wheels and drums.
2. Lever one shoe from out of the expander tappet slot, lift forward clear of the housing and release. Withdraw the other end of the shoe in a similar movement from the adjuster link, lift forward and release. The tension now being off the springs it is a simple matter to disengage the other shoe, and remove the whole assembly.
3. Inspect the shoe return springs and if they appear stretched or damaged replace with new ones.
4. Clean down the backplate, check the expander unit for free movement of tappets and ascertain that the set bolts are tightened securely. Check the adjuster for easy working and turn anti-clockwise to the full off position. Lubricate all moving parts and steady rest posts with Girling Brake Grease.
5. Remove the bell cranks, bell crank pins and eccentric bushes and strut from the second shoe. Where applicable remove the self tapping screws of the retaining plates and detach the plates from the shoe.
6. Reassemble the retaining plates, strut and bell crank assembly on to the replacement second shoe. Lubricate the strut ends, under the retainers and bell cranks, and make sure they move freely.
7. Fit new springs to new shoes making sure they are positioned between the shoes and the backplate. Keep all grease off the linings and do not handle any more than necessary. Place the shoes with springs attached against the backplate. Insert the shoe ends of one shoe into the expander tappet and the other end into the adjuster link slot. By means of a movable spanner clamped to the shoe end prise over the other shoe into the tappet and link grooves. Lubricate shoe ends and make sure by tapping the shoes they move freely on the tappets and links. This is important.
8. Refit drums after making sure these are clean and free from grease etc.
9. To ensure correct clearance between shoes and drums, slack off set pins that hold adjuster unit to backplate (Not more than one complete turn) and lock up the brake shoes in the drum by turning the adjuster wedge spindle in a clockwise direction. Screw up adjuster set pins tightly and slack off the adjuster wedge spindle two clicks, which can be felt and heard. Give the brake pedal a firm application to ensure that the shoes have centralised at the expander end. Drums should now be quite free.  
Refit road wheels and jack down.  
When fitting replacement shoes always fit a new set of springs.



REAR BRAKES

1. Jack up the car and remove the road wheels.
2. Remove brake drums.
3. To dismantle the brake all that is required is a large screwdriver. It will be found quite easy to prise one shoe out of the groove in the expander tappet. Both shoes and pull-off springs can now be removed, leaving the expander and adjuster units in position on the backplate. Do not detach these units from the backplate and do not overstretch shoe pull-off springs when removing shoes.
4. Clean down backplate, check expander unit for free float on the backplate. This is important. Check adjuster unit for easy working and slack back (anti-clockwise) to the full "off" position. Lubricate where necessary with Girling Brake Grease. Inspect shoe pull-off springs and replace if stretched or damaged.
5. To fit replacement shoes, fit new springs to new shoes and be sure that the springs are between shoe webs and backplate, otherwise the shoes will not be flat on the backplate. Keep all grease off the linings, and do not handle linings any more than necessary. Place the shoes with springs attached against the backplate. The shoes have half-round slots at one end which should be fitted to the slots in the adjuster links, then insert other end of one shoe in the expander tappet. Place the screwdriver under the web of the remaining shoe. Ease the shoes into the tappet groove.
6. Refit drums; be sure these are clean and free from grease etc.
7. To ensure correct clearance between shoes and drums, slack off set pins that hold adjuster unit to backplate (not more than one complete turn) and lock up the brake shoes in the drum by turning the adjuster wedge spindle in a clockwise direction. Screw up adjuster set pins tightly and slack off the adjuster wedge spindle two clicks, which can be felt and heard. Give the brake pedal a firm application to ensure that shoes have centralised at the expander end. Drums should now be quite free.

Refit road wheels and jack down.

When fitting replacement shoes always fit a new set of springs.

The operation of fitting Girling replacement shoes is now completed; nothing further is required and the car is now ready for the road.

Always fit "Girling Factory Lined" replacement shoes. These have the correct type of lining, properly rivetted and accurately ground to size which ensure a fast and easy bed-in to drums.

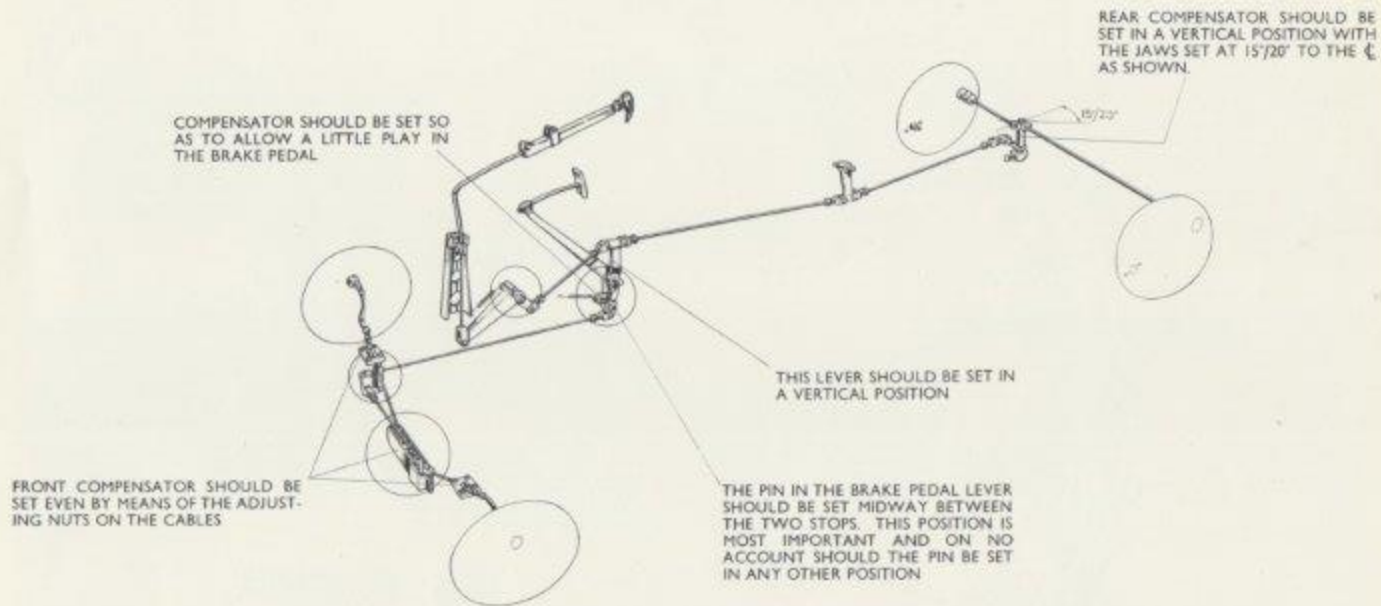
OPERATING LINKAGE

The linkage is carefully set at the Daimler Works before leaving the factory, and should not normally be interfered with except when fitting replacement parts or carrying out a complete overhaul. When carrying out this work the instructions given should be carefully followed.

GENERAL LAYOUT (Fig 3)

1. Remove clevis pins from the jaw ends of the front and rear longitudinal rods.
2. Lock up the shoes in the drums by means of the adjusters on all four wheels.
3. Set the Rear compensator in a vertical position. the jaws set at  $15^{\circ}/20^{\circ}$  to the centre line as shown in Fig.3.
4. With the foot pedal in the off position, set the balance bar vertical making sure the hard brake control is also in its off position.
5. Adjust the front cable evenly by using the nuts provided making sure that there is the same amount of thread in each abutment.
6. The front compensator should be set evenly by the equal alteration of the cables (Fig 5)
7. Set the centre compensator to allow a small amount of free play on the foot pedal (FIG 4)
8. Make sure all moving parts work freely, release all brakes off two or three clicks, the vehicle is now ready for the road.

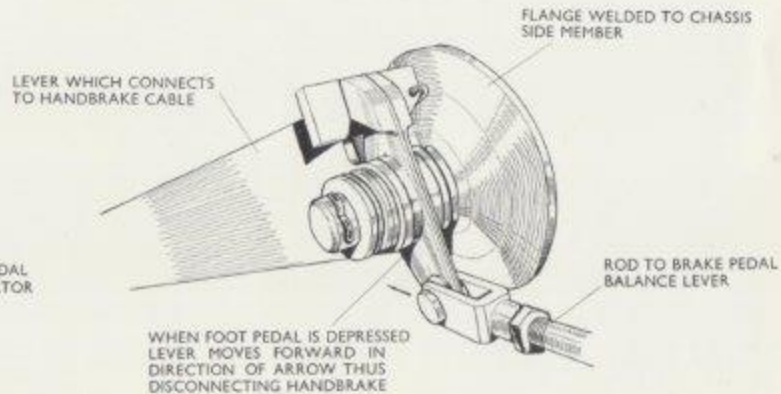
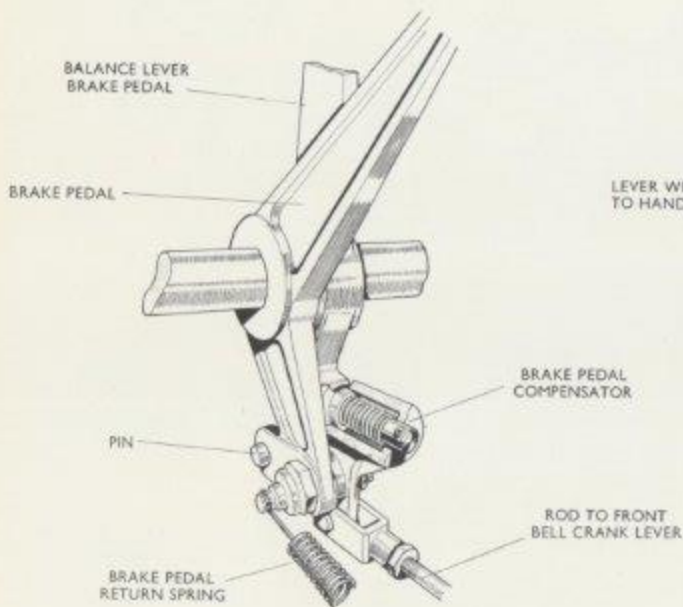




N.B. WHEN ADJUSTING TWO FORK ENDS ON ANY ONE ROD AN EFFORT SHOULD BE MADE TO DIVIDE EQUALLY THE AMOUNT OF THREADED PORTION IN EACH FORK END.  
ALL PARTS SHOULD WORK FREELY, I.E., LEVERS ON PIVOTS, FORK ENDS ON LEVERS, CLEVIS PINS IN LEVERS AND FORK ENDS.

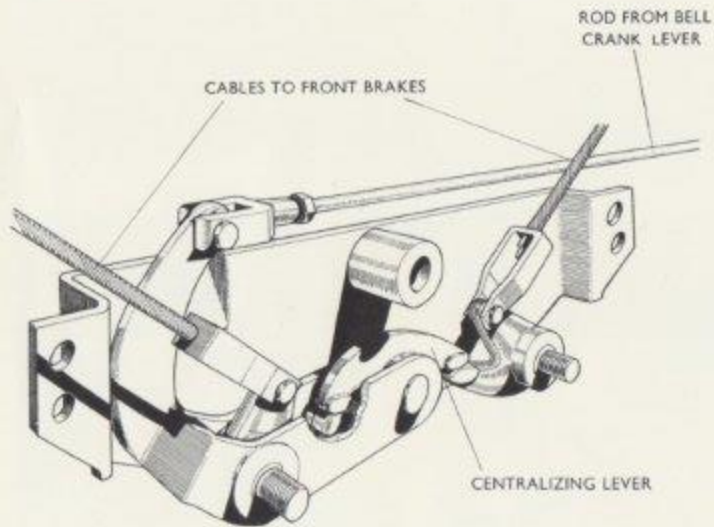
NOTE. FOR THE PARTS ENCLOSED IN A BLACK CIRCLE A SEPARATE DRAWING HAS BEEN MADE

Fig. 3. OPERATING LINKAGE, LANCHESTER 10

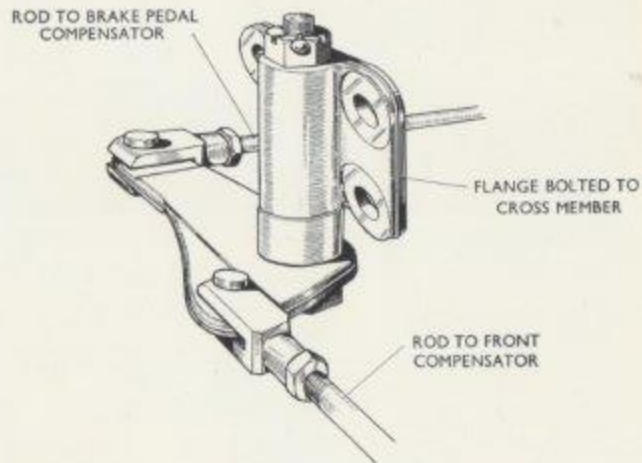


**Fig. 4. DETAILS OF PEDAL COMPENSATOR AND HANDBRAKE ATTACHMENT LANCHESTER 10**





DRAWING OF FRONT COMPENSATOR  
(SIDE PLATE REMOVED)



DRAWING OF FRONT BELL  
CRANK LEVER ASS.

**Fig. 5. DETAILS OF FRONT COMPENSATOR AND  
BELL CRANK LEVER LANCHESTER 10**