

SECTION M**THE BRAKING SYSTEM**
(1½ and 2½ LITRE)**GIRLING HYDRO-MECHANICAL TYPE**

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GENERAL DESCRIPTION

The brakes fitted to the 1½ litre and 2½ litre Riley cars are the Girling hydro-mechanical type. Two leading shoes are used on the front wheels of the 2½ litre car whilst a semi-hydrostatic installation is used on the front of the 1½ litre.

The system is such that the front brakes are operated hydraulically and mechanical actuation operates the rear brakes.

The master cylinder forms a link between the pedal and the mechanical part of the system. This means that all pedal effort is used effectively and the failure of either part of the system does not mean that the car is entirely brakeless. One pair of brakes is always in operation.

The master cylinder is connected to the foot pedal by a sliding link and when pressure is applied to the pedal the cylinder piston is pulled forward, thereby applying the front brakes. This produces a build-up of hydraulic pressure so that the cylinder and piston virtually become as one, causing a displacement of the cylinder which operates the rear brakes by means of the pull-rod screwed into a boss on the rear of the cylinder.

The pull from the pedal is transmitted to the rear brakes by means of relay levers and rods to the compensating unit on the right-hand side of the rear axle casing. Draw-links from this unit operate the brake-shoes.

The rod from the master cylinder to the first relay lever carries a roller at its rear forked end. Should there be a failure in the mechanical part of the system this roller will then contact a vertical stop and all braking will be transferred automatically to the front wheels.

Should a failure occur in the hydraulic part of the system the plunger in the master cylinder will travel forward until it contacts an internal stop. The cylinder is then, in effect, a solid unit and mechanical operation of the rear brakes is maintained.

MAINTENANCE

1. Check and, if necessary, top up the contents of the hydraulic reservoir which is situated on the engine bulkhead. Only Girling brake fluid should be used.
2. Occasionally check the unions for leakage and the hoses for wear by rubbing, in the hydraulic part of the system.
3. Oil the link pins and other joints in the mechanical part of the system.
4. Make sure that the attachment between the master cylinder and the brake pedal is free, because it is essential that no binding should

take place at this point, since the master cylinder piston, after each application of the brake, must be allowed to return unassisted by the brake pedal return spring.

5. Check the adjustment indicated in Section M.1.

Section M.1

ADJUSTMENT OF THE BRAKE PEDAL

The correct amount of free movement between the master cylinder sliding link and the clevis pin on the foot pedal is set during manufacture and normally should never need alteration.

However, if the cylinder, brake pedal or other parts affecting this setting are changed then re-adjustment will be needed.

When setting, make sure that the attachment between the master cylinder and the brake pedal is free, because it is essential that no binding should take place at this point, due to the fact that the master cylinder piston, after each application of the brake, must be allowed to return unassisted by the brake pedal return spring. The clearance between the pin and the end of the slot must be $\frac{1}{32}$ in. (.8 mm.). If this is not done the brake operation will be poor.

Section M.2

BRAKE-SHOE ADJUSTMENTS

When lining wear has reached a point where pedal travel is excessive before the brakes come into operation, the brakes must be adjusted.

The front brakes : On the 2½ litre cars with two leading shoes, each brake-shoe is adjusted separately, actual adjustment being obtained by means of two hexagon-headed bolts.

In order to move the shoes nearer the drums the bolts must be turned in the direction of wheel rotation. In other words, on the right-hand-side wheel the adjusters must be turned counter-clockwise.

Turn the bolts until a definite resistance is felt and then slacken back to a point where no binding occurs.

Earlier 2½ litre and 1½ litre cars were fitted with front brakes having the more normal type of operation.

Adjustment in this case is slightly different and the following is the procedure :—

Off-side brake : On the inner face of the brake back plate will be noted two hexagon-headed adjusting screws; the rear one of which should be turned in a **clockwise direction** until a definite resistance is felt. This screw should then be turned slightly in the

reverse direction until there is no trace of binding between shoes and drum.

Attention should now be directed to the forward of the two adjusters, which must be turned in a **counter-clockwise direction** until a definite resistance is felt again ; the screw should then be turned back slightly until no trace of binding exists between the shoe and the drum.

Near-side brake : On this brake the procedure is the same but the directions regarding the rotation of the adjusting screws are reversed.

Later-type 1½ litre cars are fitted with the semi-hydrostatic type of front brakes, and in this case the trailing shoe is in slight frictional contact with the drum, no adjuster being provided

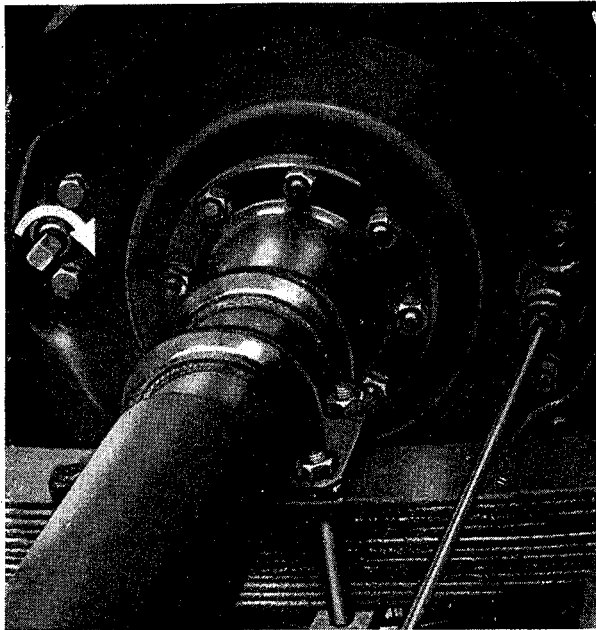


Fig. M.1.

The rear brake adjuster as fitted to the 1½ and 2½ litre cars, showing the direction of rotation to bring the shoes closer to the drum

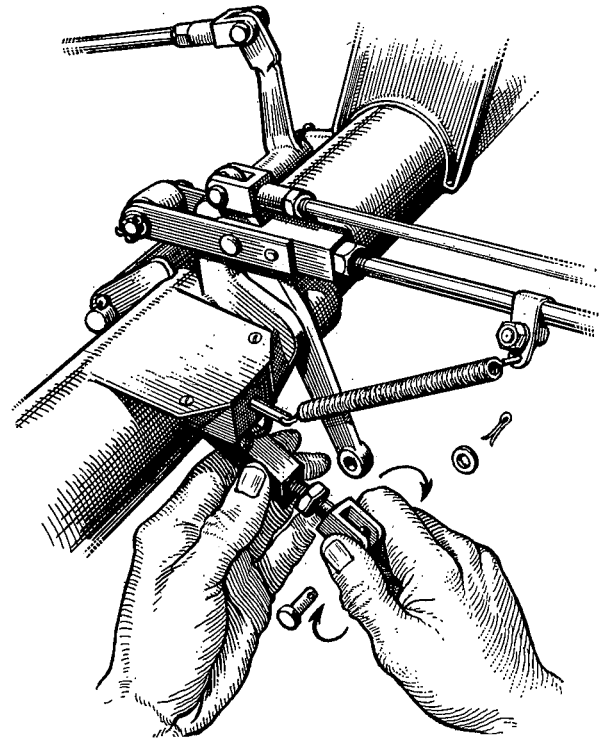


Fig. M.4.
The link pin adjuster.

The front shoe, however, is provided with a hexagon-headed screw which must be set as explained above.

Rear brakes (all models) : On the inner face of the brake back plate there is a square-headed adjuster which must be screwed in until an appreciable resistance is felt. This means that the brake-shoes have been expanded against the brake-drums. The adjuster must now be screwed out to the nearest flat and the drum checked for binding. This is the only adjustment that is necessary on the rear brakes, and on no account must any adjustment be made to any of the tie-roads or links in the system.

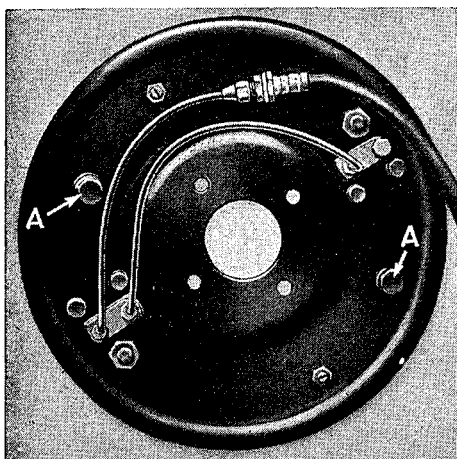


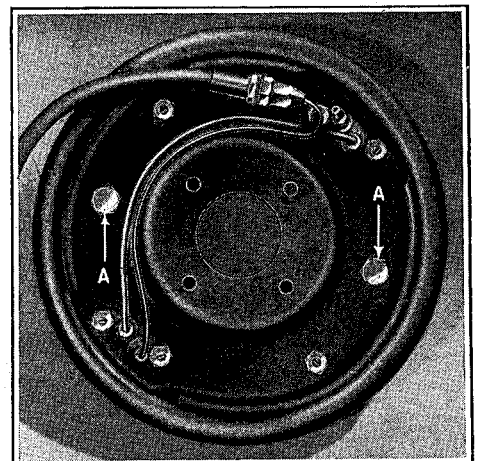
Fig. M.2 (left).

This is a view of the front brake adjusters as fitted to earlier 2½ litre cars.

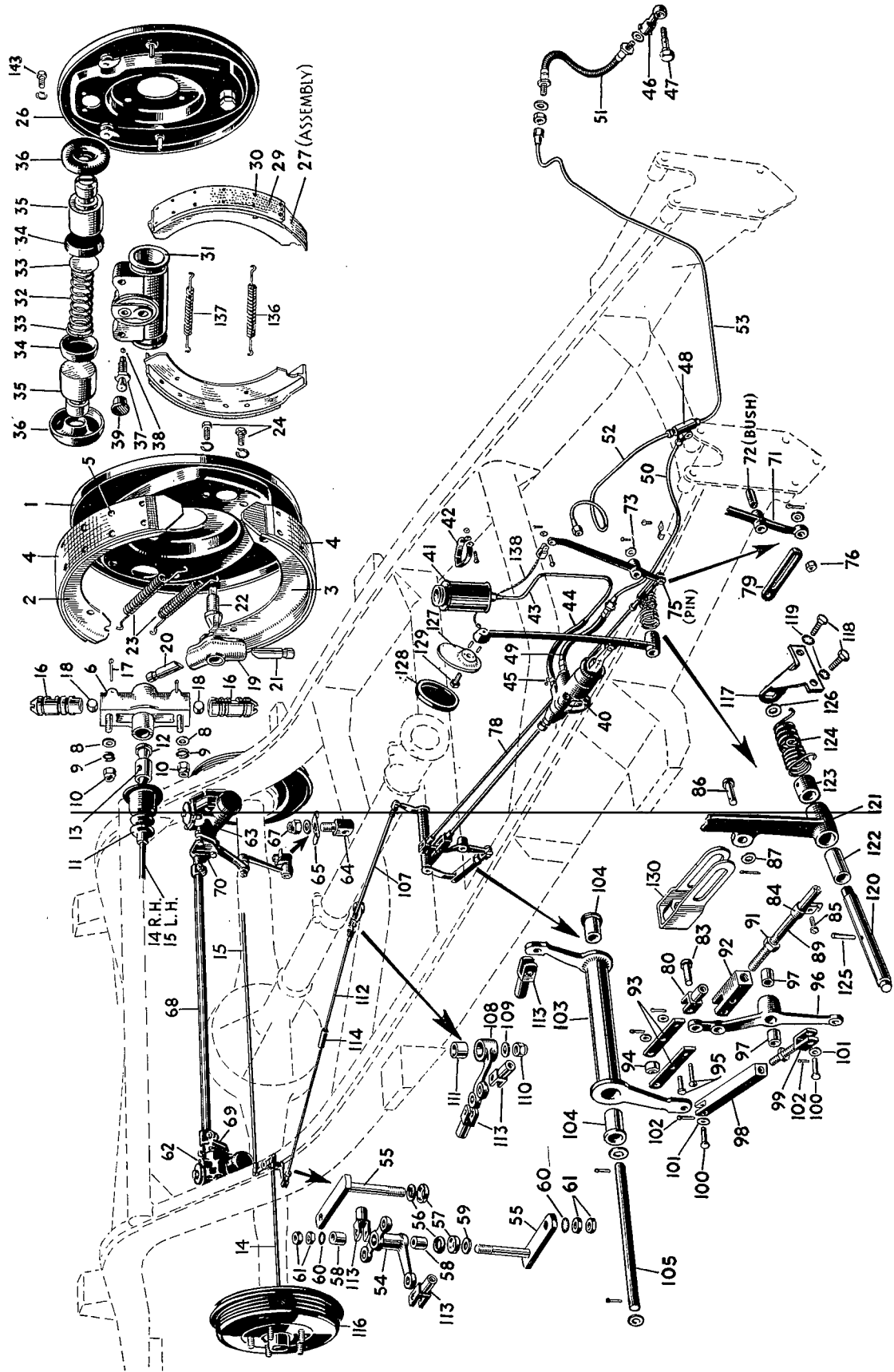
Fig. M.3 (right).

This illustration shows the adjusters fitted on the 2½ litre car two-leading-shoe brakes.

The adjusters on the 1½ litre car are similar.



THE RILEY 2½ LITRE BRAKE COMPONENTS (Early Type)



KEY TO BRAKE COMPONENTS (2½ LITRE, EARLY TYPE)

No.	Description	No.	Description	No.	Description
1.	Brake plate assembly (rear).	45.	Clip—hose.	93.	Link plate—front brake-rod fork.
2.	Shoe lined—rear brake.	46.	Banjo—brake pipe.	94.	Roller—front brake-rod stop.
3.	Shoe bare—rear brake.	47.	Bolt—banjo.	95.	Pin—front brake-rod fork joint.
4.	Lining—rear brake-shoe.	48.	"T" piece—brake pipe.	96.	Brake compensating lever.
5.	Rivets—rear brake-shoe.	49.	Hose—master cylinder—high pressure.	97.	Bush—lever.
6.	Housing and studs—expander.	50.	Brake pipe (H.P. pipe to "T" piece).	98.	Fork—brake compression (long).
8.	Washer—expander housing stud.	51.	Hose—wheel cylinder assembly.	99.	Fork—brake compression (short).
9.	Thackery washer—expander housing stud.	52.	Brake pipe ("T" piece to R/H hose).	100.	Pin—brake compression.
10.	Nut—expander housing stud.	53.	Brake pipe ("T" piece to L/H hose).	101.	Washer—brake compression pin.
11.	Cover—expander dust.	54.	Balance lever assembly.	102.	Split pin—brake compression pin.
12.	Cone—expander.	55.	Balance lever link assembly.	103.	Cross-shaft—brake.
13.	Pin—expander cone.	56.	Sealing rubber—balance link.	104.	Bush—brake cross-shaft.
14.	Drawlink—R/H.	57.	Cups—balance lever sealing.	105.	Spindle—brake cross-shaft.
15.	Drawlink—L/H.	58.	Bush—balance lever pin.	107.	Rod—intermediate brake.
16.	Plunger—expander.	59.	Plain washer—balance lever pin.	108.	Lever—intermediate brake-rod.
17.	Split pin—expander.	60.	Spring washer—balance lever pin.	109.	Washer—intermediate brake-rod lever.
18.	Roller—expander.	61.	Locknut—balance lever pin.	110.	Nut—intermediate brake-rod lever.
19.	Housing bare—adjuster.	62.	Shock absorber—rear R/H.	111.	Bush—intermediate brake-rod lever.
20.	Plunger—R/H—adjuster.	63.	Shock absorber—rear L/H.	112.	Rod—rear brake.
21.	Plunger—L/H—adjuster.	64.	Eyebolt—rear shock absorber.	113.	Fork end—intermediate brake-rod.
22.	Cone adjuster.	65.	Tab washer—eyebolt.	114.	Steady rubber—rear brake-rod.
23.	Spring—rear brake-shoe.	67.	Nut—eyebolt.	116.	Brake-drum (rear).
24.	Set bolt—adjuster housing.	68.	Bar—stabiliser.	117.	Bracket—brake pedal inner.
26.	Back plate assembly (front).	69.	Bracket—stabiliser bar R/H.	118.	Bolt (pedal bracket to frame).
27.	Shoe lined—front brake.	70.	Bracket—stabiliser bar L/H.	119.	Spring washer.
29.	Lining—front brake-shoe.	71.	Lever—hand brake intermediate.	120.	Shaft—brake pedal.
30.	Rivet—front brake-shoe lining.	72.	Bush—hand brake intermediate lever.	121.	Pedal—brake.
31.	Wheel cylinder bare.	73.	Washer—hand brake intermediate lever.	122.	Spacer—brake pedal (long).
32.	Spring—piston—wheel cylinder.	75.	Pin—lever sliding jaw.	123.	Spacer—brake pedal (short).
33.	End cover—piston spring.	76.	Nut—lever sliding jaw pin.	124.	Spring—brake pedal return.
34.	Seal—wheel cylinder piston.	78.	Rod—hand brake.	125.	Pin—brake pedal shaft.
35.	Piston—wheel cylinder.	79.	Plate—lever sliding jaw.	126.	Washer—brake pedal shaft plain.
36.	Boot—wheel cylinder.	80.	Fork end—hand brake rod.	127.	Pad—brake pedal.
37.	Bleed screw—wheel cylinder.	83.	Pin—hand brake rod fork end.	128.	Pad—brake pedal (rubber).
38.	Steel ball—wheel cylinder.	84.	Clip—front brake-rod stop-light.	129.	Stud—brake pedal pad.
39.	Dust cap—wheel cylinder.	85.	Bolt—front brake-rod stop-light clip.	130.	Jaw end—master cylinder.
40.	Master cylinder assembly.	86.	Pin (pedal to master cylinder link).	136.	Spring—front brake-shoe.
41.	Supply tank assembly.	87.	Washer—plain.	137.	Spring—front brake-shoe.
42.	Clip—supply tank.	89.	Rod—front brake.	138.	Cable—hand brake lever.
43.	Brake pipe (supply tank to L.P. hose).	91.	Locknut—front brake-rod fork.	143.	Set screw—wheel cylinder.
44.	Hose—master cylinder—low pressure.	92.	Fork—front brake-rod.		

M THE BRAKING SYSTEM

(1½ and 2½ LITRE)

Removing wear in the brake linkage

A special feature of the Riley braking system is a method whereby the very slight amount of wear that takes place in the brake link pins may be taken up. This is done by means of the small link in the rear brake system. (See Fig. M.4.) It must, however, be stressed that the **only object** of the adjuster is to take up **wear** in the various pins and links in the system. The procedure is as follows :—

Slacken off the locknut and remove one of the pins at the adjuster ; then, with the fingers only, hold the two lever arms apart, thereby taking up any wear, and adjust the fork end until the holes in the fork end and lever arm are in line. The pin should then be inserted and locked in position. Finally the locknut should be tightened.

Section M.3

TO BLEED THE SYSTEM (Expel Air)

Bleeding the system is not a routine maintenance job, and should only be necessary when some portion of the hydraulic equipment has been disconnected or the fluid drained off.

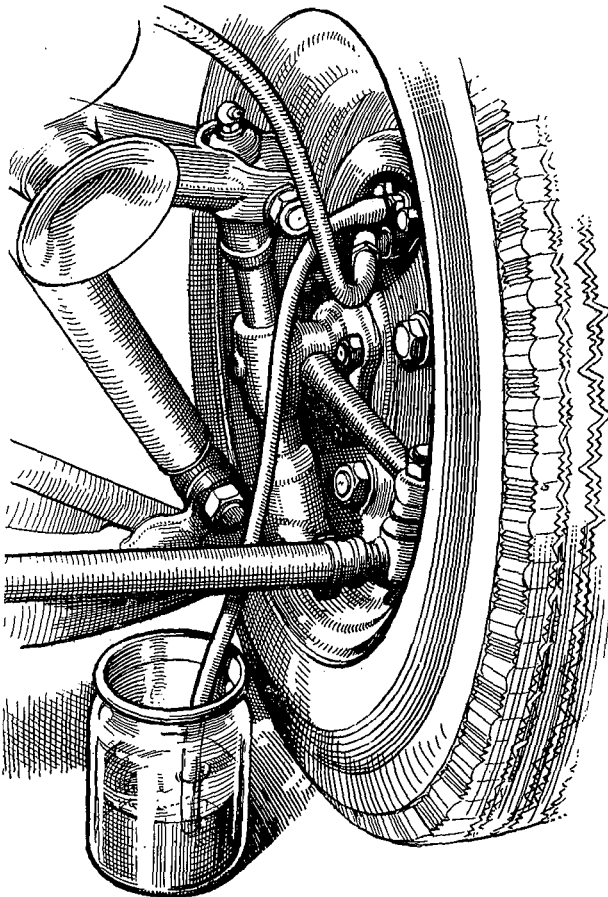


Fig. M.5.
Bleeding the brakes.

Fill the master cylinder with Girling hydraulic brake fluid and keep it at least half full throughout the operation, otherwise air will be drawn into the pipe lines, necessitating a fresh start.

Attach the bleeder tube to the wheel cylinder bleeder screw and allow the free end of the tube to be submerged in a small quantity of fluid in a clean glass jar.

Open the bleeder screw one full turn.

Depress the brake pedal quickly, and allow it to return without assistance. Repeat this pumping action with a slight pause before each depression of the pedal.

Watch the flow of fluid into the glass jar, and when air bubbles cease to appear, hold the pedal firmly against the floorboards while the bleeder screw is securely tightened.

Repeat the operation on each wheel.

Note.—Clean fluid bled from the system must be allowed to stand until it is clear of air bubbles before using it again. Dirty fluid must be discarded.

Section M.4

TO SET THE BRAKE-RODS

The linkage is carefully set at the factory and should not normally be interfered with unless replacement parts are fitted or a complete overhaul attempted.

If it is decided to disturb the linkage, the compression link which is located at the first relay lever must be disconnected by removing one of the clevis pins.

Then lock the rear brake-shoes tightly against the drums by means of the square-headed adjusters located on the brake back plates.

The relay lever must now be held hard against its stop on the chassis cross-member and the brake-rod to the master cylinder set so that the free movement between the clevis pin on the pedal and the slotted extension to master cylinder piston is $\frac{1}{32}$ in. (.8 mm.).

It will be noted that there is a relay lever attached to a bracket on the centre of the torque tube. The pull-rod which goes from this lever to the balance lever on the rear axle casing must lie parallel to the compensating lever. The back balance lever must also be set so that the angle between this lever and the pull-rod is 45°. If this is not done braking will not be up to the available standard.

With the rear brakes still expanded against the drums adjust the compression unit by means of its fork end so that the clevis pins can be inserted easily. Then lock the fork end and split-pin the clevis pins.

Now obtain lost movement, equivalent to one notch, at the hand-brake lever by means of the adjustment on the bottom pull-rod.

Finally adjust the brakes as described in Section M.2.

Section M.5

REMOVAL OF THE MASTER CYLINDER

Drain the fluid from the system by disconnecting a pipe line at one of the front brake back plates. Collect the fluid in a clean container by pumping at the brake pedal.

Reconnect the hose pipe. Disconnect the two hose lines on the side of the master cylinder and remove the clevis pin at the relay lever and also the clevis pin at the brake pedal. This will allow the master cylinder to come away complete with its pull-rod.

Section M.6

DISMANTLING THE MASTER CYLINDER

Remove the master cylinder as described in Section M.5.

Note also at this point that three different types of master cylinder have been fitted to the 2½ litre car and one type to the 1½ litre car.

Basically the construction of the cylinders on the 2½ litre is the same and the only differences lie in the assembly order.

With the cylinder on the bench the dismantling procedure for all types is as follows :—

Remove the jaw end and the locknut.

Remove the rubber dust cover.

Unscrew the three set bolts holding the rear half of the cylinder to the front.

Section M.7

ASSEMBLING THE MASTER CYLINDER

First type (2½ litre)

After washing all the parts in clean brake fluid place the outer seal, with the lips uppermost, in the forward end of the cylinder body. The seal spreader should be fitted next with the apex towards the seal. Then fit the seal retaining washer.

Next assemble the plunger with its return spring washer, spring, spring cover and the seal retaining spring. Insert this assembly into the forward part of the cylinder and take care not to disturb the seal retaining washer and the seal which are already in place.

Now screw on the locknut, pack the boot with Wakefield's rubber grease No. 3 and fit the boot. Replace the forked end and make sure the clevis pin is a good sliding fit.

The recuperating seal should now be fitted, and this is made easier by smearing the lips facing the forward end with hydraulic fluid.

Second type (2½ litre)

Assembly is as for the first type, the difference being in the sleeve at the back of the recuperating cylinder. In this type a new sleeve with drilled holes instead of grooves on the inner diameter is employed.

A protective shim at the back of the rubber sleeve was also added, otherwise the sleeve would be damaged when pressure is applied. The body was also counter-bored deeper to take the new parts.

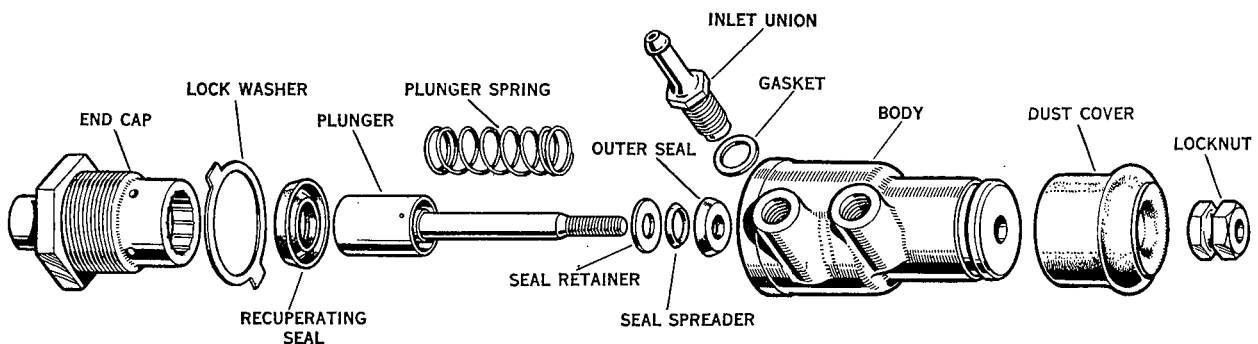


Fig. M.6.

Girling tension-type master cylinder (Riley 1½ litre).

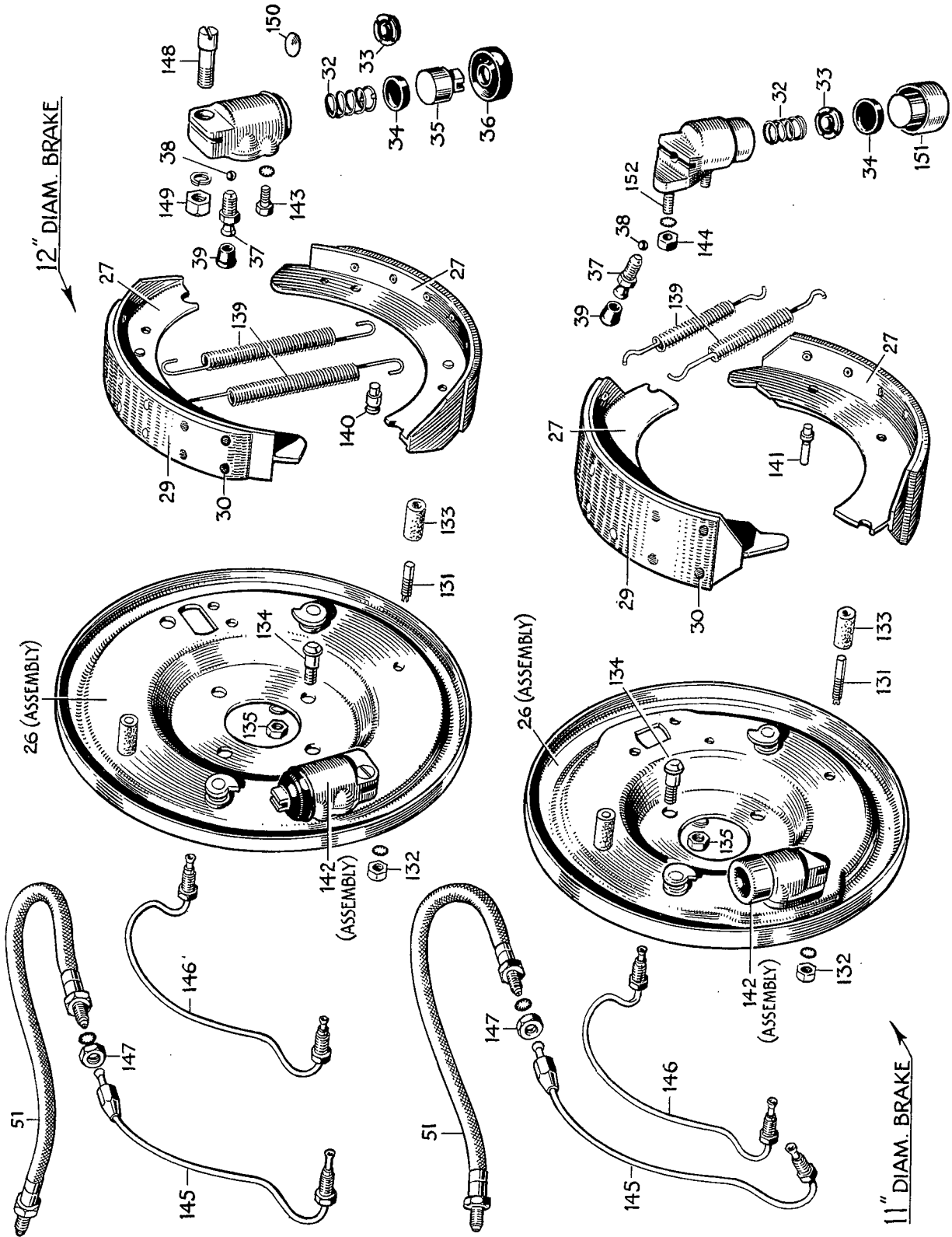
Extract the plunger complete with the return spring washer, the spring cover, the sleeve with its rubber sealing ring, the seal retaining spring and washer, the seal spreader and the outer seal.

Carefully examine all the parts and renew any which seem worn or distorted. It is especially important that all seals which are worn or damaged, or appear to lack resiliency, be renewed.

Third type (2½ litre)

Assembly is as the first type but it was found that on the second type of cylinder the recuperating seal tended to tip sideways when pressure was applied, so a further modification was introduced to overcome this and a spacing washer between the lips of the seal was added. The body was again counter-bored to take this additional part.

THE MODIFIED COMPONENTS ON THE LATER 2½ LITRE BRAKES



KEY TO MODIFIED BRAKE COMPONENTS (2½ LITRE, LATER TYPE)

No.	Description	No.	Description	No.	Description
26.	Back plate assembly—front.	39.	Dust cap—wheel cylinder.	143.	Set screw—wheel cylinder.
27.	Shoe—lined—front brake.	51.	Hose—wheel cylinder assembly.	144.	Nut—wheel cylinder stud.
29.	Lining—front brake-shoe.	131.	Steady post—back plate.	145.	Brake pipe (hose to wheel cylinder).
30.	Rivet—front brake-shoe lining.	132.	Nut—steady post.	146.	Brake pipe (wheel cylinder connecting).
32.	Spring—piston—wheel cylinder.	133.	Felt bush—steady post.	147.	Bulkhead nut.
33.	End cover—piston spring.	134.	Boit—back plate fixing.	148.	Pivot pin.
34.	Seal—wheel cylinder piston.	135.	Nut—back plate fixing boit.	149.	Nut—pivot pin.
35.	Piston—wheel cylinder.	139.	Spring—front brake-shoe.	150.	Air excluder—wheel cylinder.
36.	Boot—wheel cylinder.	140.	Post—brake-shoe spring.	151.	Piston and dust cap—wheel cylinder.
37.	Bleed screw—wheel cylinder.	141.	Post—brake-shoe cam.	152.	Stud—wheel cylinder.
38.	Steel ball—wheel cylinder.	142.	Wheel cylinder assembly.		

M THE BRAKING SYSTEM

(1½ and 2½ LITRE)

NOTE.—All three types of master cylinder as described for the 2½ litre car are interchangeable as complete units.

1½ litre

Assembly is straightforward and the outer seal should be located in the recess at the front end of the cylinder with its lips facing upwards, together with the spreader and the seal retainer.

Make sure that the flat side of the spreader is uppermost. Next fit the return spring on the plunger and insert the assembly into the cylinder, taking care not to disturb the seal.

Now draw the rubber dust cover, previously packed with Wakefield's rubber grease No. 3, over the end of the plunger stem and onto the cylinder body groove.

Next screw the recessed locknut onto the plunger stem with the recessed end facing the cylinder and screw it right home to the end of the thread.

Now fit the recuperating seal, using brake fluid as a lubricant, and make sure the lips are facing the forward end of the cylinder. Fit a new lock washer and screw in the end cap.

Section M.8

REPLACING THE MASTER CYLINDER

The rear forked end of the master cylinder pull-rod must be connected to the relay lever by means of a clevis pin locked in position with a split pin.

At the forward end of the master cylinder the forked connecting link must be set so that there is $\frac{1}{8}$ in. (·8 mm.) of free play between the brake pedal clevis pin and the end of the forked link. The pin and pedal must also be a free sliding fit in this link.

Reconnect the hydraulic hoses and bleed the system as described in Section M.3. Check the system for leaks when the brakes are applied hard.

Section M.9

REMOVING THE FRONT WHEEL CYLINDER (1½ litre)

Jack up the car and take off the front wheel. Remove the brake-drum after unscrewing the three counter-sunk retaining screws.

The rear of the two brake-shoes on cars after Chassis No. 38S/14903 is not anchored by a return spring at the upper end, and when dismantling the two shoes take care not to lose the small retaining clip for this upper spring.

The rear shoe can be lifted off by hand but the front one must be prised off with a screwdriver.

Next disconnect the hydraulic brake pipe line from the brake back plate and collect the fluid that escapes.

The cylinder assembly is held on the back plate by means of two screws.

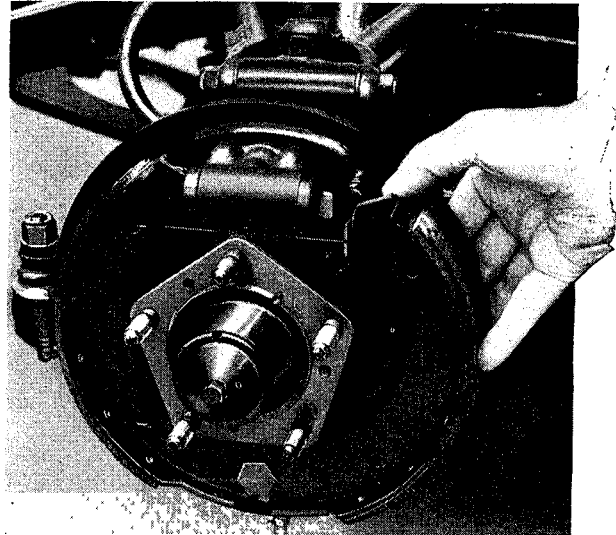


Fig. M.7.

The HNSI front brake as fitted to later 1½ litre cars.

Section M.10

REMOVAL OF THE 2½ LITRE FRONT WHEEL CYLINDER (2 L.S.)

Jack up the front of the car and take off the front wheel. Slacken back both brake adjusters and then remove the brake-drum. Lift off both shoes and disconnect the hydraulic pipe line.

Remove the two small bolts and the large nut holding the cylinder to the back plate. Note that the nut and bolts are provided with spring washers. The cylinder may now be detached.

Section M.11

DISMANTLING THE FRONT WHEEL CYLINDER (1½ litre)

Remove the cylinder as described in Section M.9. Take off the two rubber dust covers and extract the tappets. The seal spring and the two seals may then be removed. When removing the bleed screw take care not to lose the bleed screw ball.

Section M.12

TO DISMANTLE A FRONT WHEEL CYLINDER (2½ LITRE)

Pick off the rubber dust cover and pull out the piston. Lift out the piston seal which is prevented

from sliding to the bottom of the cylinder by a spring and end cover. Other than the bleed screw and the ball, these are the only components.

Section M.13

ASSEMBLING THE FRONT WHEEL CYLINDER (1½ litre)

Clean all parts with Girling hydraulic fluid. Examine the rubber dust covers and seals for damage, wear or distortion. Dip all the parts in brake fluid and assemble while still wet.

Insert the seal spring and the two seals (with their open sides inwards), the tappets and then the dust covers.

When assembled bolt the unit to the back plate.

Section M.14

REMOVAL AND SETTING OF THE FLEXIBLE HOSE

The hose at its top end is held by a locknut "B," which must not be released until the union nut "A" on the solid pipe has been undone. The flexible pipe locknut "B" can then be released and the flexible pipe removed from the bracket. At the lower end a banjo union attaches the flexible pipe to the operating cylinder, and no difficulty is presented in releasing this end.

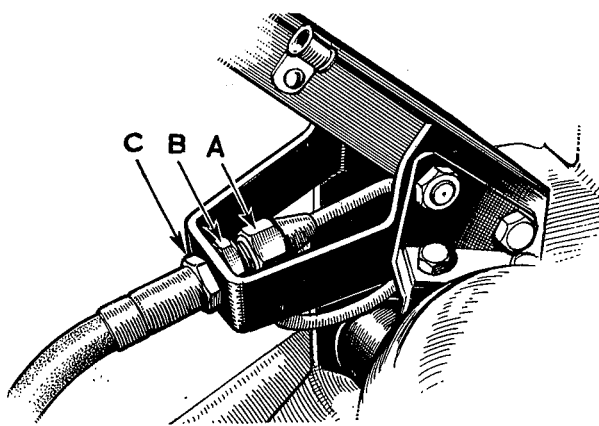


Fig. M.8.

The front brake hose attachment. On no account may the hexagon "C" be turned with a spanner. The earlier type of hose bracket is illustrated, but the same conditions apply to the later attachment brackets.

On early cars it is essential that the flexible pipe be set at the correct angle, otherwise fouling will occur between the pipe and the swivel knuckle.

The pipe union should leave the brake back plate at an angle of 30° to the ground.

After cars Chassis Nos. 18867 (1½ litre) and 7681 (2½ litre) a different length pipe was fitted to obviate this and in both cases the pipe now runs behind the suspension unit.

Care must, however, be taken on the later cars, particularly between Chassis Nos. S/7081 and S/8116 (2½ litre), that the hose support brackets are positioned

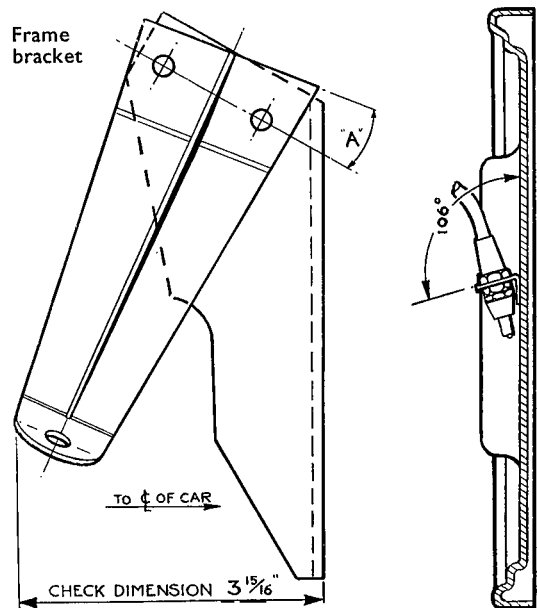


Fig. M.9.

The dimension which should be checked to ensure the correct position of the hose brackets on the later cars.

Brake back plate bracket.

so as to prevent the hoses from fouling on the inner tyre wall if the brackets have been removed.

The brackets are handed and if fitted to the wrong side bring the hoses dangerously near the tyre or rim. The illustrations (Fig. M.9) give a check measurement which should be used to ensure correct assembly. It will be seen that the fixing holes in the bracket are at an angle which pitches the bracket "in" or "out" according to which side of the car it is fitted.

It is also advisable to check the angle of the brackets supporting the hose on the brake back plate. These should make an angle of 106° as indicated.

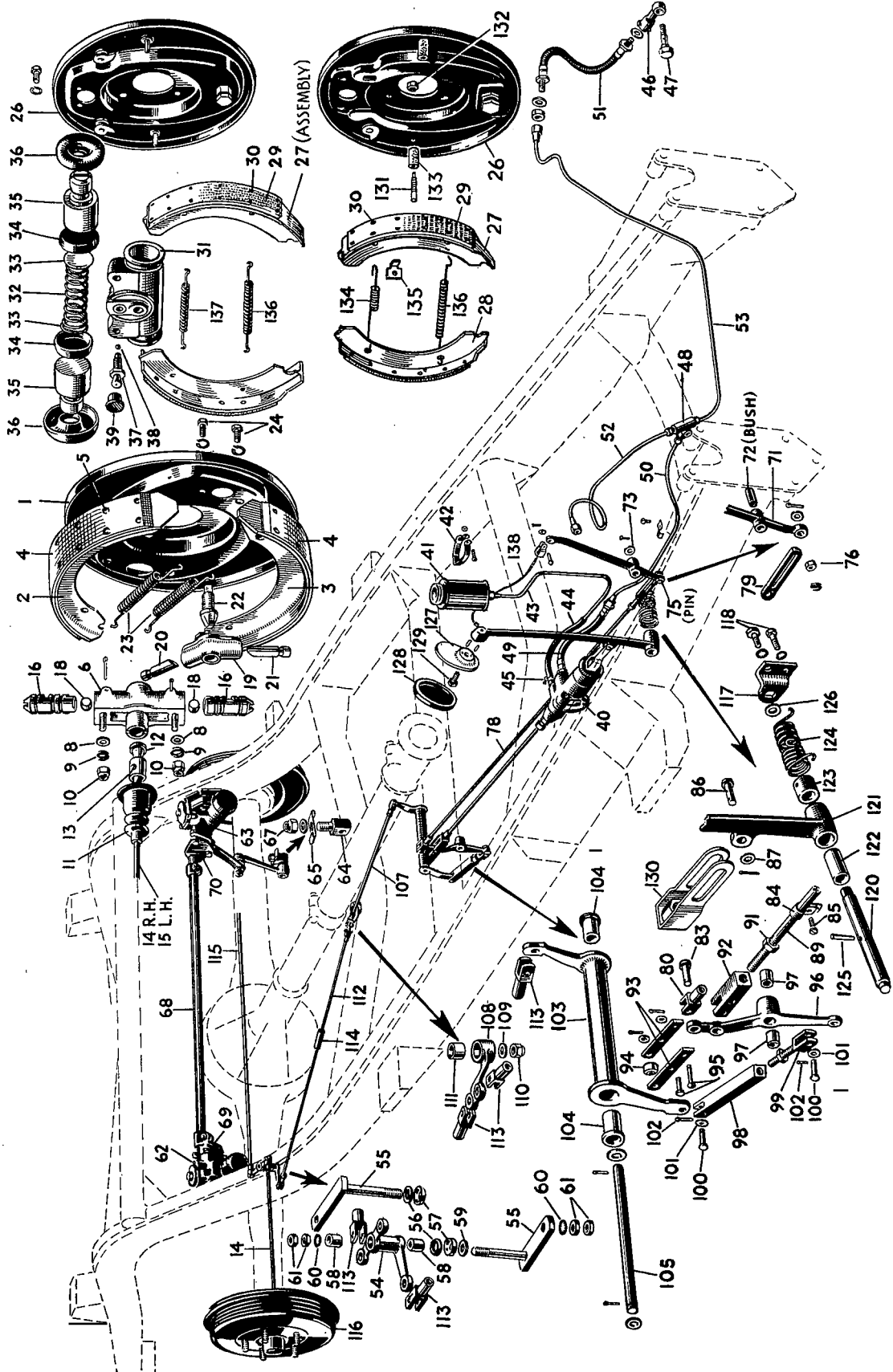
Section M.15

TO REMOVE THE REAR BRAKE-SHOES

Jack up the car and take off the rear wheel. Remove the brake-drum by taking out the three countersunk retaining screws.

Then lever each shoe off in turn, taking care not to stretch the return springs excessively.

THE BRAKE COMPONENTS OF THE 1 1/2 LITRE



KEY TO BRAKE COMPONENTS (1½ LITRE)

No.	Description	No.	Description
1.	Rear brake plate assembly.	95.	Front brake-rod fork joint pin.
2.	Rear brake-shoe (lined).	96.	Brake compensating lever.
3.	Rear brake-shoe (bare).	97.	Brake compensating lever bush.
4.	Rear brake-shoe lining.	98.	Lever compression fork (long).
5.	Rear brake-shoe lining rivet.	99.	Lever compression fork (short).
6.	Expander housing and stud.	100.	Lever compression fork pin.
8.	Expander housing stud washer.	101.	Lever compression fork pin washer.
9.	Expander housing stud Thackeray washer.	102.	Lever compression fork pin split pin.
10.	Expander housing stud nut.	103.	Brake cross-shaft.
11.	Dust cover.	104.	Brake cross-shaft bush.
12.	Expander cone.	105.	Brake cross-shaft spindle.
13.	Expander cone pin.	107.	Intermediate brake-rod.
14.	Drawlink—R/H.	108.	Intermediate brake-rod lever.
15.	Drawlink—L/H.	109.	Intermediate brake-rod lever washer.
16.	Expander plunger.	110.	Nut to torque tube.
18.	Expander plunger roller.	111.	Intermediate brake-rod lever bush.
19.	Adjuster housing (bare).	112.	Rear brake-rod.
20.	Adjuster plunger—R/H.	113.	Intermediate rod fork ends.
21.	Adjuster plunger—L/H.	114.	Rear brake-rod steady rubber.
22.	Adjuster cone.	116.	Brake pedal bracket (inner).
23.	Rear brake-shoe spring.	117.	Brake pedal bracket (bolt to frame).
24.	Adjuster housing set bolt.	118.	Brake pedal shaft.
26.	Front back plate assembly.	120.	Brake pedal.
27.	Front brake-shoe (lined).	121.	Brake pedal.
28.	Front brake-shoe (bare).	122.	Brake pedal spacer (long).
29.	Front brake-shoe lining.	123.	Brake pedal spacer (short).
30.	Front brake-shoe lining rivet.	124.	Brake pedal return spring.
31.	Wheel cylinder.	125.	Brake pedal shaft pin.
32.	Wheel cylinder spring.	126.	Brake pedal shaft pin washer.
33.	Wheel cylinder spring end cover.	127.	Brake pedal pad (aluminium).
34.	Wheel cylinder piston seal.	128.	Brake pedal pad (rubber).
35.	Wheel cylinder piston.	129.	Brake pedal pad stud.
36.	Wheel cylinder boot.	130.	Master cylinder jaw end.
37.	Wheel cylinder bleed screw.	131.	Front back plate steady post.
38.	Wheel cylinder steel ball.	132.	Front back plate steady post nut.
39.	Wheel cylinder dust cap.	133.	Front back plate steady post felt.
40.	Master cylinder assembly.	134.	Front brake-shoe spring.
41.	Supply tank assembly.	135.	Front brake-shoe spring anchor.
42.	Supply tank clip.	136.	Front brake-shoe spring (bias reducing).
43.	Brake pipe (supply tank to master cylinder).	137.	Front brake-shoe spring.
44.	Brake hose (master cylinder L.P.).	138.	Hand brake lever cable.
45.	Brake hose clip (L.P.).		

Section M.16

TO REMOVE THE REAR BRAKE ADJUSTER

Take off the wheel, drum and brake-shoes as detailed in Section M.15.

Take out the two screws holding the adjuster to the back plate and pick out the two plungers.

The wedge may then be unscrewed.

Section M.17

TO REMOVE THE REAR BRAKE EXPANDER UNIT

Take off the wheel, drum and brake-shoes as detailed in Section M.15.

Take out the clevis pin connecting the pull-rod to the compensator and detach the rubber dust cover from the rear of the brake back plate.

Remove the two split pins and undo the two castellated nuts holding the expander unit to the back plate. Note that the nuts are one turn loose to allow the unit to find its own position on the back plate.

Withdraw the expander assembly.

Take out the two tappet split pins and withdraw the two tappets together with their rollers. The expander cone can then be detached from the pull-rod by tapping out the link pin.

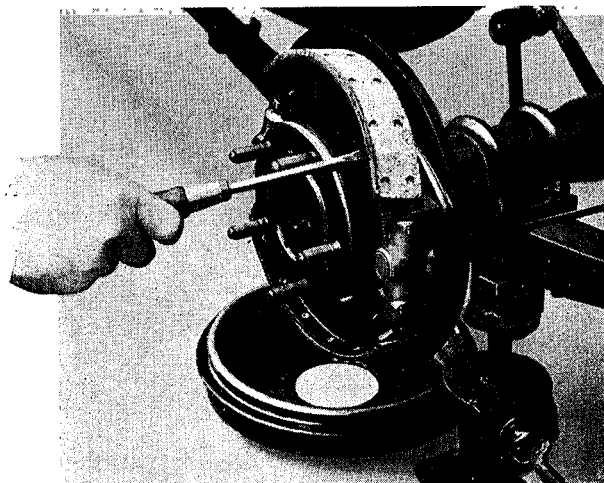


Fig. M.10.
Removal of the rear brake-shoes.

Section M.18

RELINING THE BRAKE-SHOES

As the brake linings must be finished so that they are perfectly concentric with the brake-drums, relining of the brake-shoes is not satisfactory without special precautions.

If replacement of the brake-shoes and linings is necessary on account of excessive wear or other cause, it is most important that the material used for the lining is as specified by Riley Motors Limited. Any variations from this will give an unequal and unsatisfactory braking performance.

After riveting the new brake linings to the brake-shoes it is essential that any high spots should be removed before replacement on the back plate assembly.

When new shoes and linings are fitted it must be appreciated that considerable adjustment has to be made to the foot brake mechanism, and it is necessary to return the adjusters to their fully "off" position before attempting to refit the brake-drums over the new linings. The hand brake must also be fully released.

Important.—Do not allow grease, paint, oil or brake fluid to come in contact with the brake linings.

Do not reline the brake-shoes with different types of lining, as this is bound to cause unequal braking.

Section M.19

BRAKE SQUEAK

In certain instances brake squeak occurs and a cure which is generally effective is to remove the brake-shoes and slot them as indicated in the diagrams below.

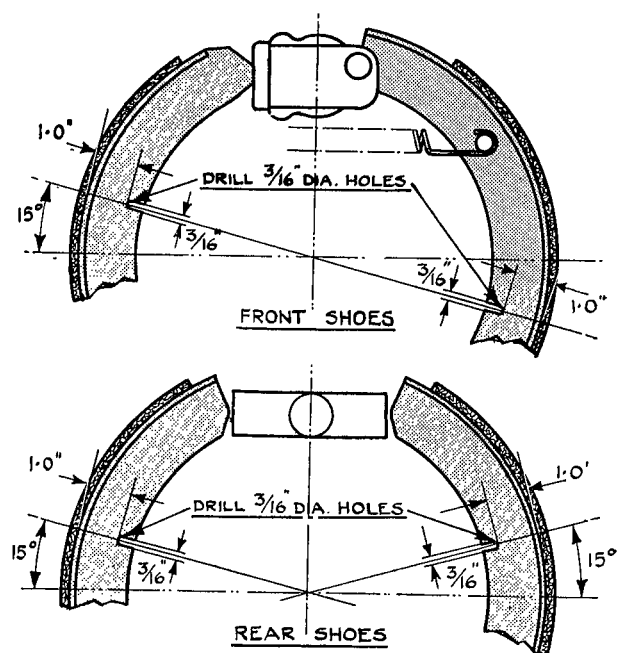


Fig. M.11.

The location of the slots in the webs of the 2½ litre brake-shoes which are effective in dealing with most cases of brake squeak.

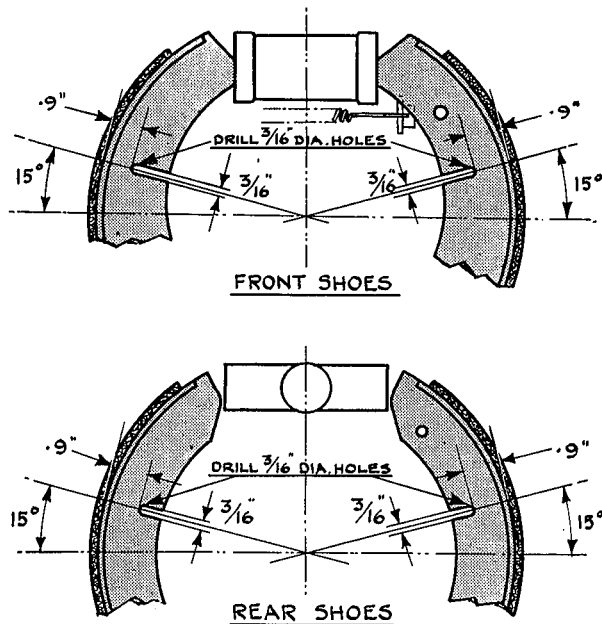


Fig. M.12.

The position and dimensions of the slots in the brake-shoe webs of the 1½ litre brakes recommended to reduce brake squeak.

Section M.20

THE HAND BRAKE

The hand brake is of the pistol-grip type with a thumb-operated ratchet release.

The linkage consists of a cable running from the handle to a relay lever and thence by rod to the main relay lever assembly mounted on a chassis cross-member just behind the engine unit.

Section M.21

BRAKING IRREGULARITIES AND THEIR CAUSES

Pedal travel excessive

- (a) Brake-shoes require adjusting.
- (b) Leak at one or more joints.

Pedal feels springy

- (a) System requires bleeding.
- (b) Linings not "bedded in."
- (c) Master cylinder recuperating seal worn.

Brakes inefficient

- (a) Shoes not correctly adjusted.
- (b) Linings not "bedded in."
- (c) Linings greasy.
- (d) Linings wrong quality.
- (e) Drums badly scored.
- (f) Linings badly worn.
- (g) Wrongly set hook up.

Brakes drag

- (a) Shoes incorrectly adjusted.
- (b) Shoe springs weak or broken.
- (c) Pedal spring weak or broken.
- (d) Hand brake mechanism seized.
- (e) Wheel cylinder pistons seized.
- (f) Blocked pipe line.

Brakes remain on

- (a) Shoes over-adjusted.
- (b) Hand brake over-adjusted.
- (c) No free movement on pedal.
- (d) Swollen wheel cylinder seals.
- (e) Choked flexible hose.
- (f) Incorrect fluid.

Unbalanced braking

- (a) Greasy linings.
- (b) Distorted drums.
- (c) Tyres unevenly inflated.
- (d) Brake plate loose on the axle.
- (e) Worn steering connections.
- (f) Worn suspension linkage.
- (g) Different types or grades of lining fitted.

Brakes grab

- (a) Shoes require adjusting.
- (b) Drums distorted.
- (c) Greasy linings.
- (d) Scored drums.
- (e) Worn suspension linkage.
- (f) Loose pivot pin.

M THE BRAKING SYSTEM

(1½ and 2½ LITRE)

Section M.22

BRAKE LININGS

As various brake linings have been fitted as standard from time to time and it is necessary to use the same make and type of linings of all shoes, the type of lining originally fitted and the car numbers involved are here tabulated for easy identification.

Riley Part No.	Girling Part No.	Lining Make	Starting at Chassis No.	Finishing at Chassis No.	Rivets Used		Drum Dia.	Remarks
					Riley No.	Girling No.		
1½ litre—front 300056 300121 301259	GB.33183.C	CHEKKO.XL.5	10001	16000	300057	GB.2055B	10 in.	
	GB.41669.B	DON.BS.5	16001	20504	300122	71-BS-2B	10 in.	
	GB.41584.BZ	MINTEX.M.20.EXP	20505	—	301261	71-BS-1C	10 in.	
1½ litre—rear 300076 300139 301259 301285	GB.35630.C	CHEKKO.XL.5	10001	16000	300077	GB.50.D	10 in.	Use only Part No. 300139 in sets for all service replacements.
	GB.35630.B	DON.BS.5	16001	20504	300077	GB.50.D	10 in.	
	GB.41584.BZ	MINTEX.M.20.EXP	20505 (leading)		301283	71-BS-2C	10 in.	
	GB.41587.BZ	MINTEX.M.20.EXP	20505 (trailing)		301283	71-BS-2C	10 in.	
2½ litre—front 300297 300301 300346 300305 301315	GB.3343.B	DON.BS.5						Replaced by Part No. 300301—no longer serviced. Use only Part No. 300346 in sets for all service replacements. Use only Part No. 301315 in sets for all service replacements.
	GB.35807.B	DON.BS.5	2001	3046	300077	GB.50.D	12 in.	
	GB.35807.AX	FERODO MR.41	3047	6094	300077	GB.50.D	12 in.	
	GB.41298.BK		6095	9910	300756	24746	11 in.	
	GB.41298.CA		9911	10960	300756	24746	11 in.	
2½ litre—rear 300346 300347 301315 301323	GB.45807.AX	FERODO MR.41	2001	6094	300077	GB.50.D	12 in.	Use only Part No. 301323 in sets for all service replacements.
	GB.40700.BX	MINTEX M.14	6095	9910	300756	24746	11 in.	
	GB.41298.CA	MINTEX M.21	911 (leading)	10960	300756	24746	11 in.	
	GB.40700.CA	MINTEX M.21	911 (trailing)	10960	300756	24746	11 in.	